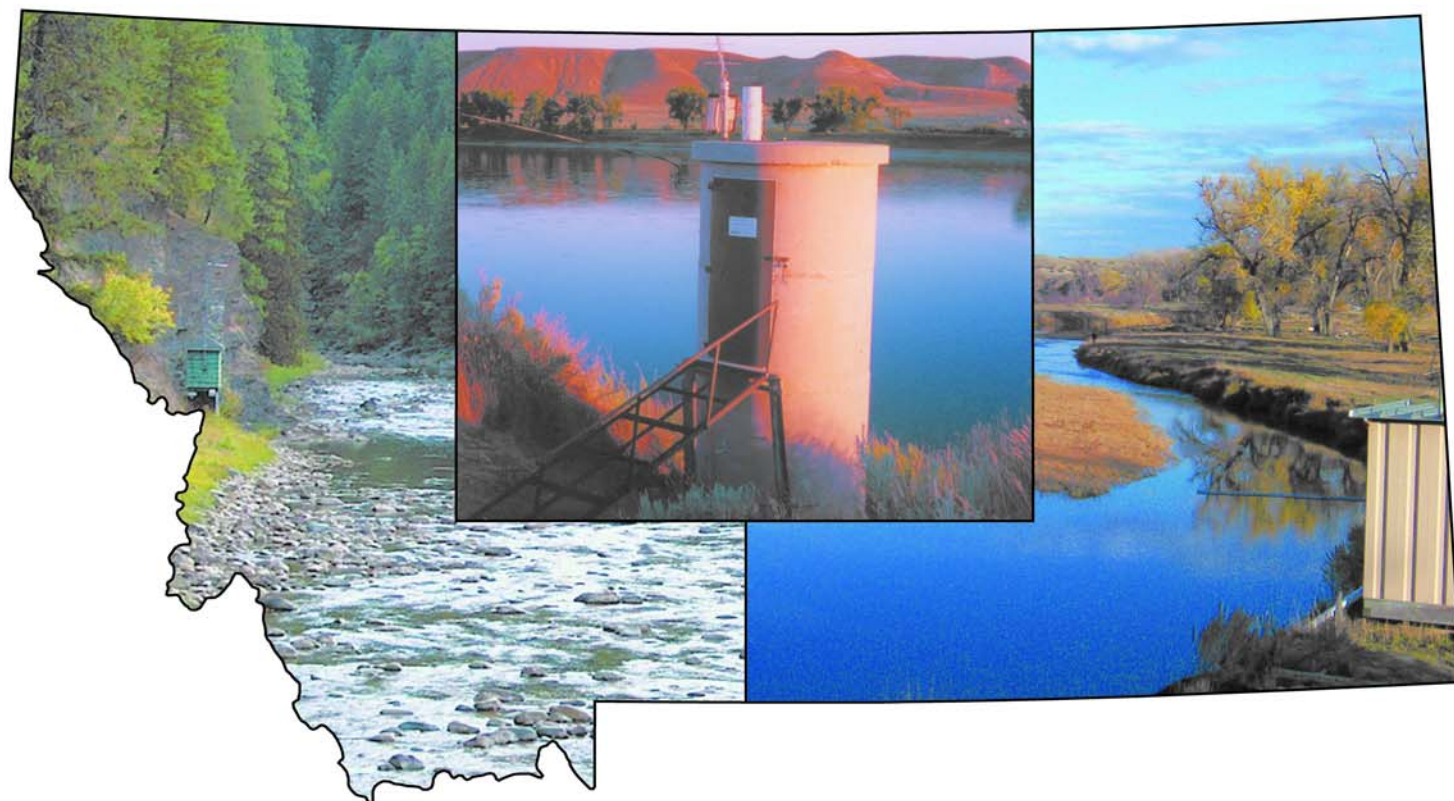


In cooperation with the
**Montana Department of Environmental Quality,
Confederated Salish and Kootenai Tribes, and
Bureau of Land Management**

Statistical Summaries of Streamflow in Montana and Adjacent Areas, Water Years 1900 through 2002



Scientific Investigations Report 2004-5266

COVER PHOTOGRAPHS: Left: Yaak River near Troy, Montana (site 216). Photograph by Laverne G. Sultz, U.S. Geological Survey, taken September 20, 2001.

Top middle: Missouri River at Virgelle, Montana (site 88). Photograph by Don A. Bischoff, U.S. Geological Survey, taken July 28, 1999.

Right: Tongue River at State line, near Decker, Montana (site 186). Photograph by Timothy J. Morgan, U.S. Geological Survey, taken October 15, 2003.

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Table

1. Selected streamflow-gaging stations in Montana and adjacent areas and period of record used in study 5

Conversion Factors, Datum, Symbols, Acronyms, and Abbreviations

Multiply	By	To obtain
foot (ft)	0.3048	meter (m)
mile (mi)	1.609	kilometer (km)
acre	4,047	square meter (m ²)
acre	0.4047	hectare (ha)
acre	0.004047	square kilometer (km ²)
acre-foot (acre-ft)	1,233	cubic meter (m ³)
square mile (mi ²)	259.0	hectare (ha)
cubic foot per second (ft ³ /s)	0.02832	cubic meter per second (m ³ /s)
acre-foot per month (acre-ft/mon)	102.75	cubic meter per month (m ³ /mon)

Vertical coordinate information (this report) in the United States is referenced to the National Geodetic Vertical Datum of 1929 (NGVD 29). Horizontal coordinate information (this report) in the United States is referenced to the North American Datum of 1927 (NAD 27).

Water year: The 12-month period October 1 through September 30. It is designated by the calendar year in which it ends.

River mile: The distance along the meandering path of the stream channel. River mile is typically used to denote location along a river, in miles upstream from the mouth of the river (U.S. Geological Survey, 2002c, p. 57).

Symbols used in this report:

%	percent
--	value not determined

Acronyms and abbreviations used in this report:

ADAPS	Automated Data Processing System
FAS	Federal-Aid Secondary Highway System, which is composed of the principal secondary and feeder routes including farm-to-market roads, rural-mail and public-school bus routes, local-rural roads, county and township roads, and county roads.
IOWDM	Input and Output for Watershed Data Management
Lat	latitude
Long	longitude
(M)	Abbreviation for revised instantaneous maximum discharge.
(P)	Abbreviation for revised supplementary peak discharge (maximum for the year might or might not have been revised, but at least one lesser peak discharge was revised).
SWSTAT	Surface-Water Statistics computer program
USGS	U.S. Geological Survey
WDR-MT	Water-Data Report, in REVISED RECORDS paragraphs refers to the U.S. Geological Survey Montana State annual data report. The next two numbers are the water year of the report. The last number is the volume number. "WRD" was used as an abbreviation in reports published before 1976.
WSP	Water-Supply Paper, which is a series of U.S. Geological Survey publications. The next 3 to 4 numbers are the Water-Supply Paper number, which occasionally contains a chapter letter (for example, WSP 1320-B).

Statistical Summaries of Streamflow in Montana and Adjacent Areas, Water Years 1900 through 2002

By Peter M. McCarthy

Abstract

In response to the need to have more current information about streamflow characteristics in Montana, the U.S. Geological Survey, in cooperation with the Montana Department of Environmental Quality, Confederated Salish and Kootenai Tribes, and Bureau of Land Management, conducted a study to analyze streamflow data. Updated statistical summaries of streamflow characteristics are presented for 286 streamflow-gaging sites in Montana and adjacent areas having 10 or more years of record for water years 1900 through 2002. Data include the magnitude and probability of annual low and high flow, the magnitude and probability of low flow for three seasons (March-June, July-October, and November-February), flow duration of the daily mean discharge, and the monthly and annual mean discharges. For streamflow-gaging stations where 20 percent or more of the contributing drainage basin is affected by dams or other large-scale human modification, streamflow is considered regulated. Separate streamflow characteristics are presented for the unregulated and regulated periods of record for sites with sufficient data.

Introduction

Information about streamflow characteristics is essential for development and management of surface-water resources. Water and land-use managers, planners, administrators, builders, engineers, recreationists, and the general public use information on all aspects of streamflow to evaluate various water conditions and land-use alternatives.

Annual low-flow and seasonal streamflow characteristics and annual high-flow streamflow characteristics are particularly important for characterizing streamflow variability. Low-flow frequency data for annual and seasonal periods indicate how frequently small values of discharge might occur and are used for assessing the capability of streams to receive and assimilate treated wastewater, developing wastewater permits, determining total maximum daily loads of streams, and assessing aquatic habitat. Annual high-flow frequency data, in conjunction with flood-frequency data (Parrett and Johnson, 2004), indicate how frequently large values of discharge might occur and are useful for effective flood planning and for safe and

economical design of highway bridges, culverts, dams, levees, and other structures on or near streams.

The U.S. Geological Survey (USGS) has previously published reports that describe and document streamflow characteristics at streamflow-gaging stations in Montana (Shields and White, 1981; Waltemeyer and Shields, 1982; and Omang, 1984). Two of these reports were based on data through 1979, and one used data through 1982. Since the completion of these reports, nearly 20 years of additional data have become available, and many new gages have been installed which now have 10 or more years of streamflow records. In response to the need to have more current information about streamflow characteristics in Montana, the USGS, in cooperation with the Montana Department of Environmental Quality, Confederated Salish and Kootenai Tribes, and Bureau of Land Management, conducted a study to analyze streamflow data from 286 sites having at least 10 years of streamflow record.

Purpose and Scope

The purpose of this report is to provide statistical summaries of streamflow characteristics at selected sites in Montana and adjacent areas for water years 1900 through 2002. Data include the magnitude and probability of annual low and high flow, the magnitude and probability of low flow for three seasons (March-June, July-October, and November-February), flow duration of the daily mean discharge, and the monthly and annual mean discharges. For streamflow-gaging stations where 20 percent or more of the contributing drainage basin is affected by dams or other large-scale human modification, streamflow is considered regulated. Separate streamflow-characteristics data are presented for the unregulated and regulated periods of record for sites with sufficient data.

Site Selection

The sites selected for analysis are shown in figure 1 and described in table 1. A total of 286 streamflow-gaging stations were selected—269 of these stations are in Montana, 3 are at or near the international boundary between the United States and Canada, 2 are in Alberta, 2 are in British Columbia, 1 is in Idaho, and 9 are in Yellowstone National Park, Wyoming. Of the 286 sites, data for 224 stations were analyzed for periods of

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unregulated flow only, data for 47 stations were analyzed for periods of regulated flow only, and data for 15 stations were analyzed for separate periods of unregulated and regulated flow (fig. 1). For clarity in table 1 and figure 1, stations were assigned site numbers 1 through 286. The period of record by type of streamflow condition is listed in table 1. Of the 224 sites where data were analyzed for periods of unregulated flow only, 8 stations were analyzed for periods before regulation only, and the remaining 216 stations were analyzed for the entire period of record for unregulated flows.

The statistical summaries provided for periods of unregulated flow might differ from summaries provided for periods of regulated flow. Typically these differences are the result of changes in regulation. However, differences in statistical summaries also might be the result of different climatic conditions rather than difference in regulation.

Methods of Creating the Statistical Summaries

The tables of statistical summaries of streamflow are preceded by a station description which typically includes station location, drainage area, period of record (by water years or by month and year), revised records, gage information, and remarks. The period of record included in the station descriptions might not include all years in which data were recorded at the station, and thus, might not coincide with the period of record used for analysis (table 1). Information about the number of years, seasons, or months used for analysis are included in the table headings. Remarks include information on the history of regulating structures, if any, and comments on the other factors that may affect flow. Remarks are based on information available at the time the stations were in operation, and thus, might not represent streamflow conditions in 2002. However, the latitude and longitude for stations that were discontinued before about 1960 have been updated (2004).

Daily mean streamflow values for each station were retrieved using the computer program Automated Data Processing System (ADAPS) (U. S. Geological Survey, 2003) and processed using the computer program Input and Output for Watershed Data Management (IOWDM) (U.S. Geological Survey, 2002a). High- and low-flow frequency data, monthly and annual-flow characteristics, and flow-duration data were then computed using the computer program Surface-Water Statistics (SWSTAT) (U.S. Geological Survey, 2000b).

Annual and Seasonal Low-Flow Frequencies

Annual low-flow frequency data are developed from annual series of the lowest mean discharges for specified consecutive n -day periods within a climatic year. For example, an annual series of 7-day low flows consists of the lowest mean discharge that occurred over any 7-day consecutive period during each year of record. Seasonal low-flow frequency data

are developed from annual series of the lowest mean discharges for each of the spring (March through June), summer (July through September), and winter (October through February) seasons for specified consecutive n -day periods within a climatic year. The periods selected for spring, summer, and winter were based on consultations with the Montana Department of Environmental Quality (Tom Reid, Montana Department of Environmental Quality, oral commun., 2002) and reflect typical runoff and irrigation patterns in Montana.

The Pearson Type III probability distribution was used to estimate annual and seasonal low-flow frequency data (U.S. Geological Survey, 2002b). The Pearson Type III distribution is a three-parameter distribution, commonly applied to the base 10 logarithms of streamflow data, that requires estimates of the logarithms of the population mean, the standard deviation, and the skew coefficient to determine streamflow magnitude for various non-exceedance or exceedance probabilities. For low-flow frequency, the population values are assumed to be equal to the values computed from the station record, and streamflow magnitudes are determined for non-exceedance probabilities.

The annual low-flow frequency data indicate the lowest mean discharges for consecutive periods of 1, 3, 7, 14, 30, 60, 90, 120, and 183 days and for non-exceedance probabilities of 50, 20, 10, 5, 2, and 1 percent. The non-exceedance probability (in decimal form before conversion to percent) associated with a low flow is the reciprocal of the recurrence interval, in years. The seasonal low-flow frequency data indicate lowest mean discharges for consecutive periods of 1, 3, 7, 14, and 30 days for non-exceedance probabilities of 50, 20, 10, 5, 2, and 1 percent.

Each value of discharge in the annual and seasonal low-flow tables is a mean low flow within the year or season for a consecutive n -day period that can be expected to be lower, on average, once in any specified recurrence interval (every y years). Similarly, each value of discharge in the low-flow tables has a specified (x -percent) non-exceedance probability that, in any given year, a smaller value n -day mean low-flow value will occur. For example, the low-flow value for a consecutive 7-day period and the 2-year recurrence interval can be expected to be lower, on average, once every 2 years. Similarly, a low flow for a consecutive 7-day period and 50-percent non-exceedance probability has a 50-percent chance of being lower in any given year.

For any n -day period, discharges decrease with increasing recurrence interval and decreasing non-exceedance probability. Conversely, for any given recurrence interval or non-exceedance probability, discharge increases with increasing n -day periods. Seasonal and annual low-flow frequency data are only reported in the tables for recurrence intervals of twice the period of record or less (Parrett, 1997). For example, if the period of record is 10 years, only low-flow data for recurrence intervals of 20 years or less were presented. The symbol “--” is shown in the tables for recurrence intervals more than twice the period of record. Seasonal low-flow data commonly include more years of record than the annual low-flow data; thus, because of partial-record years the seasonal low-flow frequency data might be shown for longer recurrence intervals than the annual low-flow frequency data.

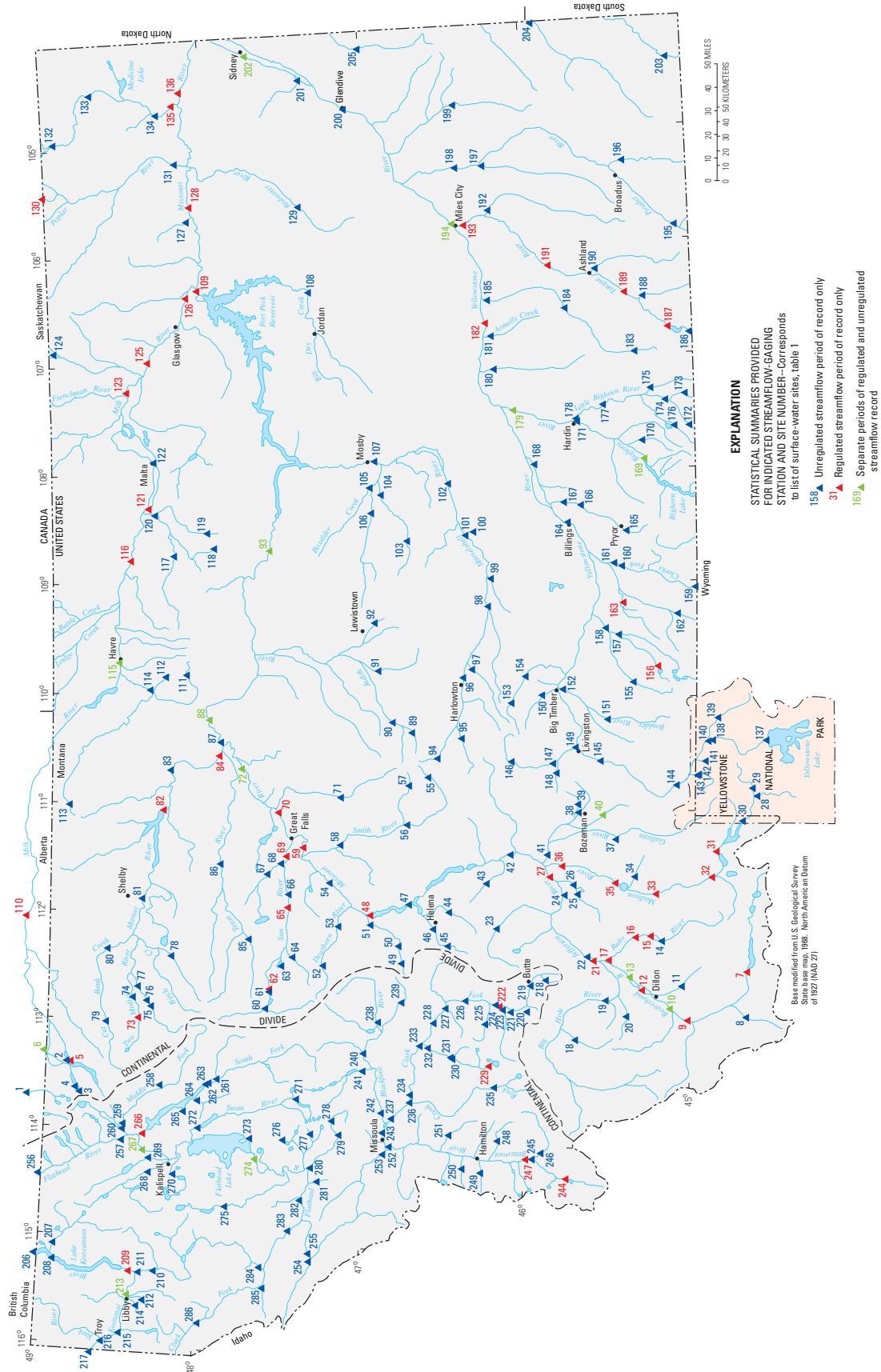


Figure 1. Location of selected streamflow-gaging stations.

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Annual low flows are calculated based on a climatic year (March 1 to February 28); thus, the period of record for a climatic year generally is identified as one year less than for a water year. This climatic year—chosen to coincide with the spring, summer, and winter periods previously determined for Montana—is slightly different from the April 1–March 31 climatic year typically used for low-flow frequency analysis (Riggs, 1972). Differences in annual low-flow frequency resulting from the use of the two different climatic years were generally considered negligible because low flows in Montana commonly occur from late summer through winter. The program determines non-exceedance probability using only non-zero values of discharges and then uses a conditional adjustment probability to adjust the non-exceedance probability for zero flows in the record.

Data for given n -day periods were computed independently for the annual and seasonal low-flow frequency tables. The presence of days with zero flow in the independent analyses resulted in some discharge values that did not consistently decrease with increasing recurrence interval or some discharge values for a given recurrence interval that did not consistently increase with increasing n -day period. These computed values were manually adjusted to produce consistent tabular results. In some instances, the computed seasonal low-flow values for a given n -day period and recurrence interval were less than the computed annual low-flow values. In these instances, seasonal low-flow values were manually increased to match the annual low-flow values.

Annual High-Flow Frequency

Annual high-flow frequency data are developed from annual series of the highest mean discharges for specified consecutive n -day consecutive periods within a water year. For example, an annual series of 3-day high flows consists of the highest mean discharge that occurs over any 3-day consecutive period during each year of record.

The Pearson Type III probability distribution was used to estimate high-flow frequency data (U.S. Geological Survey, 2002b). The Pearson Type III distribution is a three-parameter distribution, commonly applied to the base 10 logarithms of streamflow data, that requires estimates of the logarithms of the population mean, the standard deviation, and the skew coefficient. For high-flow frequency, the population values are assumed to be equal to the values computed from the station record, and streamflow magnitudes are determined for exceedance probabilities.

The annual high-flow frequency data indicate the highest mean discharges for consecutive periods of 1, 3, 7, 15, 30, 60, and 90 days. Results from the log Pearson Type III analyses are shown in the annual high-flow frequency table for recurrence intervals of 2, 5, 10, 25, 50, and 100 years. The table also

presents exceedance probabilities of 50, 20, 10, 4, 2, and 1 percent, respectively. Exceedance probability (in decimal form, before conversion to percent) is the reciprocal of the recurrence interval, in years.

Each value of discharge in the annual high-flow table is the mean high flow within the year for a consecutive n -day period that can be expected to be exceeded, on average, once in any specified recurrence interval (every y years). Similarly, each value of discharge in the high-flow table has a specified x -percent probability of exceedance in any given year. For example, the high-flow value corresponding to the 3-day consecutive period and 100-year recurrence interval can be expected to be exceeded, on average, once every 100 years. Similarly, a high flow for a consecutive 3-day period and 1-percent exceedance probability has a 1-percent chance of being exceeded in any given year.

For any n -day period, discharges increase with increasing recurrence interval and decreasing exceedance probability. Conversely, for any given recurrence interval or exceedance probability, discharge decreases with increasing n -day periods. High-flow frequency data only were reported for recurrence intervals of twice the period of record or less (Parrett, 1997). For example, if the period of record is 25 years, the table shows high-flow data for recurrence intervals of 50 years or less. The symbol “--” is shown in the tables for recurrence intervals more than twice the period of record.

Flow Duration

Flow-duration data are developed from daily mean discharge values over the entire period of record, and the flow-duration tables are developed from these data (Searcy, 1959). The flow-duration data are not related to the sequence of flow events, but do include the full range of daily mean discharges at the station. For example, the discharge value on a flow-duration table that corresponds to a 10-percent exceedance is the value that was exceeded by 10 percent of the flow record without regard to when those days of exceedance occurred. The days of exceedance might not have been consecutive and might have occurred either in a single year or during several years (Ludwig, 1992).

Monthly and Annual Mean Discharges

The monthly and annual mean discharge tables show, for the period of record, the maximum and minimum mean values, the mean, the standard deviation from the mean, and the number of years of record. Data from this table are an indicator of the flow distribution throughout the year. The annual mean discharge tabulations for the period of record are based on a water year.

Table 1. Selected streamflow-gaging stations in Montana and adjacent areas and period of record used in study.

[All stations are in Montana, except as indicated. Eight-digit station-identification numbers for routine surface-water sites represent the standard U.S. Geological Survey numbering systems for streamflow-gaging stations, wherein the first two digits indicate the major river basin and the remaining 6 digits indicate a downstream station order. Period of record is abbreviated to show only the first and last water years of data used. Abbreviations: U, unregulated or less than 20 percent of drainage area is regulated; R, regulated]

Site number (fig. 1)	Station number	Station name	Streamflow condition	Period of record for analysis (water year) ¹
1	05011000	Belly River near Mountain View, Alberta	U	1912-78
2	05013700	St. Mary River above Swiftcurrent Creek, near Babb	U	1902-15
3	05014000	Grinnell Creek near Many Glacier	U	1949-78
4	05014500	Swiftcurrent Creek at Many Glacier	U	1912-2002
5	05017500	St. Mary River near Babb	R	1919-2002
6	05020500	St. Mary River at international boundary	U	1902-16
			R	1917-2002
7	06012500	Red Rock River below Lima Reservoir, near Monida	R	1940-2002
8	06013500	Big Sheep Creek below Muddy Creek, near Dell	U	1936-80
9	06015400	Beaverhead River near Grant	R	1963-84
10	06016000	Beaverhead River at Barretts	U	1908-63
			R	1964-2002
11	06017500	Blacktail Deer Creek near Dillon	U	1946-66
12	06018000	Beaverhead River near Dillon	R	1964-84
13	06018500	Beaverhead River near Twin Bridges	U	1935-63
			R	1964-2002
14	06019500	Ruby River above reservoir, near Alder	U	1938-2002
15	06020600	Ruby River below reservoir, near Alder	R	1963-2002
16	06021500	Ruby River at Laurin	R	1946-61
17	06023000	Ruby River near Twin Bridges	R	1940-81
18	06024590	Wise River near Wise River	U	1972-85
19	06025500	Big Hole River near Melrose	U	1924-2002
20	06026000	Birch Creek near Glen	U	1946-77
21	06026500	Jefferson River near Twin Bridges	R	1964-2002
22	06027000	Jefferson River near Silver Star	U	1910-39
23	06033000	Boulder River near Boulder	U	1929-2002
24	06034500	Jefferson River at Sappington	U	1900-63
25	06035000	Willow Creek near Harrison	U	1938-2002
26	06036500	Willow Creek near Willow Creek	U	1919-33
27	06036650	Jefferson River near Three Forks	R	1979-2002
28	06036905	Firehole River near West Yellowstone	U	1984-2002
29	06037000	Gibbon River near West Yellowstone	U	1913-96

6 Statistical Summaries of Streamflow in Montana and Adjacent Areas, Water Years 1900 through 2002

Table 1. Selected streamflow-gaging stations in Montana and adjacent areas and period of record used in study.—Continued

Site number (fig. 1)	Station number	Station name	Streamflow condition	Period of record for analysis (water year) ¹
30	06037500	Madison River near West Yellowstone	U	1913-2002
31	06038500	Madison River below Hebgen Lake, near Grayling	R	1939-2002
32	06038800	Madison River at Kirby Ranch, near Cameron	R	1959-2002
33	06040000	Madison River near Cameron	R	1952-71
34	06040300	Jack Creek near Ennis	U	1973-92
35	06041000	Madison River below Ennis Lake, near McAllister	R	1939-2002
36	06042500	Madison River near Three Forks	R	1929-50
37	06043500	Gallatin River near Gallatin Gateway	U	1930-2002
38	06048000	East Gallatin River at Bozeman	U	1939-61
39	06048500	Bridger Creek near Bozeman	U	1946-87
40	06050000	Hyalite Creek at Hyalite Ranger Station, near Bozeman	U	1900-51
			R	1952-95
41	06052500	Gallatin River at Logan	U	1900-2002
42	06054500	Missouri River at Toston	U ²	1911-2002
43	06055500	Crow Creek near Radersburg	U	1901-90
44	06061500	Prickly Pear Creek near Clancy	U	1908-2002
45	06062500	Tenmile Creek near Rimini	U	1915-2002
46	06063000	Tenmile Creek near Helena	U	1908-54
47	06065500	Missouri River below Hauser Dam, near Helena	U ²	1924-42
48	06066500	Missouri River below Holter Dam, near Wolf Creek	R	1953-2002
49	06068500	Little Prickly Pear Creek near Marysville	U	1913-33
50	06071000	Little Prickly Pear Creek near Canyon Creek	U	1909-25
51	06071300	Little Prickly Pear Creek at Wolf Creek	U	1962-2002
52	06073000	Dearborn River near Clemons	U	1921-53
53	06073500	Dearborn River near Craig	U	1946-2002
54	06074000	Missouri River at Cascade	U ²	1902-15
55	06074500	Smith River near White Sulphur Springs	U	1923-36
56	06076690	Smith River near Fort Logan	U	1978-96
57	06077000	Sheep Creek near White Sulphur Springs	U	1941-73
58	06077500	Smith River near Eden	U	1951-70
59	06078200	Missouri River near Ulm	R	1957-2002
60	06078500	North Fork Sun River near Augusta	U	1911-93
61	06080000	Sun River near Augusta	U	1904-29
62	06080900	Sun River below diversion dam, near Augusta	R	1968-81
63	06081500	Willow Creek near Augusta	U	1905-25

Table 1. Selected streamflow-gaging stations in Montana and adjacent areas and period of record used in study.—Continued

Site number (fig. 1)	Station number	Station name	Streamflow condition	Period of record for analysis (water year) ¹
64	06084500	Elk Creek at Augusta	U	1905-25
65	06085800	Sun River at Simms	R	1966-2002
66	06086000	Sun River at Fort Shaw	U	1912-28
67	06088300	Muddy Creek near Vaughn	U	1968-2002
68	06088500	Muddy Creek at Vaughn	U	1925-2002
69	06089000	Sun River near Vaughn	R	1934-2002
70	06090300	Missouri River near Great Falls	R	1953-2002
71	06090500	Belt Creek near Monarch	U	1951-83
72	06090800	Missouri River at Fort Benton	U	1900-52
			R	1953-2002
73	06091700	Two Medicine River below South Fork, near Browning	R	1977-2002
74	06092000	Two Medicine River near Browning	U	1907-77
75	06092500	Badger Creek near Browning	U	1951-80
76	06093200	Badger Creek below Four Horns Canal, near Browning	U	1974-2002
77	06093500	Badger Creek near Family	U	1907-25
78	06098000	Dupuyer Creek near Valier	U	1912-37
79	06098500	Cut Bank Creek near Browning	U	1918-2002
80	06099000	Cut Bank Creek at Cut Bank	U	1905-2002
81	06099500	Marias River near Shelby	U	1902-2002
82	06101500	Marias River near Chester	R	1956-2002
83	06102000	Marias River near Brinkman	U	1922-55
84	06102050	Marias River near Loma	R	1960-2002
85	06106000	Deep Creek near Choteau	U	1911-25
86	06108000	Teton River near Dutton	U	1954-2002
87	06109000	Missouri River at Loma	U	1935-50
88	06109500	Missouri River at Virgelle	U	1935-52
			R	1953-2002
89	06109800	South Fork Judith River near Utica	U	1958-79
90	06110000	Judith River near Utica	U	1920-76
91	06111000	Ross Fork Creek near Hobson	U	1946-62
92	06111500	Big Spring Creek near Lewistown	U	1932-57
93	06115200	Missouri River near Landusky	U	1934-52
			R	1953-2002
94	06115500	North Fork Musselshell River near Delpine	U	1940-80
95	06118500	South Fork Musselshell River above Martinsdale	U	1942-80

8 Statistical Summaries of Streamflow in Montana and Adjacent Areas, Water Years 1900 through 2002

Table 1. Selected streamflow-gaging stations in Montana and adjacent areas and period of record used in study.—Continued

Site number (fig. 1)	Station number	Station name	Streamflow condition	Period of record for analysis (water year) ¹
96	06120500	Musselshell River at Harlowton	U	1907-2002
97	06122000	American Fork below Lebo Creek, near Harlowton	U	1946-67
98	06123500	Musselshell River near Ryegate	U	1946-80
99	06125700	Big Coulee Creek near Lavina	U	1957-72
100	06126470	Halfbreed Creek near Klein	U	1978-91
101	06126500	Musselshell River near Roundup	U	1946-2002
102	06127500	Musselshell River at Musselshell	U	1928-2002
103	06127900	Flatwillow Creek near Flatwillow	U	1911-56
104	06128200	Flatwillow Creek near Winnett	U	1921-51
105	06129000	Box Elder Creek near Winnett	U	1930-72
106	06129500	McDonald Creek at Winnett	U	1930-56
107	06130500	Musselshell River at Mosby	U	1929-2002
108	06131000	Big Dry Creek near Van Norman	U	1940-2002
109	06132000	Missouri River below Fort Peck Dam, at Fort Peck	R	1945-2002
110	06134500	Milk River at Milk River, Alberta	R	1917-2002
111	06137400	Big Sandy Creek at reservation boundary, near Rocky Boy	U	1982-2002
112	06137570	Boxelder Creek near Rocky Boy	U	1976-97
113	06137580	Sage Creek near Whitlash	U	1977-90
114	06138500	Big Sandy Creek near Box Elder	U	1927-39
115	06140500	Milk River at Havre	U	1900-16
			R	1917-2002
116	06154100	Milk River near Harlem	R	1960-2002
117	06154400	Peoples Creek near Hays	U	1967-2002
118	06154410	Little Peoples Creek near Hays	U	1972-2002
119	06154430	Lodge Pole Creek at Lodge Pole	U	1987-2001
120	06154550	Peoples Creek below Kuhr Coulee, near Dodson	U	1918-2002
121	06155030	Milk River near Dodson	R	1982-2002
122	06155500	Milk River at Malta	U	1902-16
123	06164510	Milk River at Juneberg Bridge, near Saco	R	1978-2002
124	06169500	Rock Creek below Horse Creek, near international boundary	U	1916-2002
125	06172000	Milk River near Vandalia	R	1917-87
126	06174500	Milk River at Nashua	R	1940-2002
127	06176500	Wolf Creek near Wolf Point	U	1908-92
128	06177000	Missouri River near Wolf Point	R	1945-2002
129	06177500	Redwater River at Circle	U	1929-2002

Table 1. Selected streamflow-gaging stations in Montana and adjacent areas and period of record used in study.—Continued

Site number (fig. 1)	Station number	Station name	Streamflow condition	Period of record for analysis (water year) ¹
130	06178500	East Poplar River at international boundary	R	1976-2002
131	06181000	Poplar River near Poplar	U	1908-2002
132	06182500	Big Muddy Creek at Daleview	U	1947-72
133	06183450	Big Muddy Creek near Antelope	U	1979-2002
134	06185000	Big Muddy Creek near Culbertson	U	1908-22
135	06185110	Big Muddy Creek near mouth, near Culbertson	R	1982-92
136	06185500	Missouri River near Culbertson	R	1941-2002
137	06186500	Yellowstone River at Yellowstone Lake outlet, Yellowstone National Park, Wyo.	U	1927-2002
138	06187500	Tower Creek at Tower Falls, Yellowstone National Park, Wyo.	U	1922-43
139	06187950	Soda Butte Creek near Lamar Ranger Station, Yellowstone National Park, Wyo.	U	1989-2002
140	06188000	Lamar River near Tower Falls Ranger Station, Yellowstone National Park, Wyo.	U	1923-2002
141	06189000	Blacktail Deer Creek near Mammoth, Yellowstone National Park, Wyo.	U	1938-93
142	06190500	Gardner River at Mammoth, Yellowstone National Park, Wyo.	U	1922-39
143	06191000	Gardner River near Mammoth, Yellowstone National Park, Wyo.	U	1939-2002
144	06191500	Yellowstone River at Corwin Springs	U	1910-2002
145	06192500	Yellowstone River near Livingston	U	1900-2002
146	06193000	Shields River near Wilsall	U	1935-57
147	06193500	Shields River at Clyde Park	U	1921-67
148	06194000	Brackett Creek near Clyde Park	U	1921-57
149	06195600	Shields River near Livingston	U	1979-2002
150	06197000	Big Timber Creek near Big Timber	U	1912-24
151	06197500	Boulder River near Contact	U	1910-84
152	06200000	Boulder River at Big Timber	U	1947-2002
153	06200500	Sweet Grass Creek above Melville	U	1913-69
154	06201000	Sweet Grass Creek below Melville	U	1907-52
155	06202510	Stillwater River above Nye Creek, near Nye	U	1980-91
156	06204050	West Rosebud Creek near Roscoe	R	1965-2002
157	06204500	Rosebud Creek near Absarokee	U	1935-70
158	06205000	Stillwater River near Absarokee	U	1910-2002
159	06207500	Clarks Fork Yellowstone River near Belfry	U	1921-2002
160	06208500	Clarks Fork Yellowstone River at Edgar	U	1921-2002
161	06208800	Clarks Fork Yellowstone River near Silesia	U	1970-87
162	06209500	Rock Creek near Red Lodge	U	1932-2002
163	06212500	Red Lodge Creek below Cooney Reservoir, near Boyd	R	1938-2002
164	06214500	Yellowstone River at Billings	U	1904-2002

Table 1. Selected streamflow-gaging stations in Montana and adjacent areas and period of record used in study.—Continued

Site number (fig. 1)	Station number	Station name	Streamflow condition	Period of record for analysis (water year) ¹
165	06216000	Pryor Creek at Pryor	U	1921-2002
166	06216500	Pryor Creek near Billings	U	1911-54
167	06216900	Pryor Creek near Huntley	U	1979-2001
168	06217750	Fly Creek at Pompeys Pillar	U	1969-81
169	06287000	Bighorn River near St. Xavier	U	1935-64
			R	1965-2002
170	06287500	Soap Creek near St. Xavier	U	1911-73
171	06288500	Bighorn River near Hardin	U	1904-33
172	06289000	Little Bighorn River at State line, near Wyola	U	1939-2002
173	06290000	Pass Creek near Wyola	U	1935-2002
174	06290500	Little Bighorn River below Pass Creek, near Wyola	U	1939-2002
175	06291000	Owl Creek near Lodge Grass	U	1939-92
176	06291500	Lodge Grass Creek above Willow Creek Diversion, near Wyola	U	1939-2002
177	06293500	Little Bighorn River near Crow Agency	U	1912-60
178	06294000	Little Bighorn River near Hardin	U	1953-2002
179	06294500	Bighorn River above Tullock Creek, near Bighorn	U	1945-64
			R	1965-2002
180	06294940	Sarpy Creek near Hysham	U	1973-84
181	06294995	Armells Creek near Forsyth	U	1974-95
182	06295000	Yellowstone River at Forsyth	R	1977-2002
183	06295113	Rosebud Creek at reservation boundary, near Kirby	U	1980-2002
184	06295250	Rosebud Creek near Colstrip	U	1975-2002
185	06296003	Rosebud Creek at mouth, near Rosebud	U	1975-2002
186	06306300	Tongue River at State line, near Decker	U	1960-2002
187	06307500	Tongue River at Tongue River Dam, near Decker	R	1939-2002
188	06307600	Hanging Woman Creek near Birney	U	1973-95
189	06307616	Tongue River at Birney Day School Bridge, near Birney	R	1980-2002
190	06307740	Otter Creek at Ashland	U	1973-95
191	06307830	Tongue River below Brandenburg Bridge, near Ashland	R	1974-2002
192	06308400	Pumpkin Creek near Miles City	U	1973-86
193	06308500	Tongue River at Miles City	R	1938-2002
194	06309000	Yellowstone River at Miles City	U	1922-65
			R	1966-2002
195	06324500	Powder River at Moorhead	U	1929-2002
196	06325500	Little Powder River near Broadus	U	1947-72

Table 1. Selected streamflow-gaging stations in Montana and adjacent areas and period of record used in study.—Continued

Site number (fig. 1)	Station number	Station name	Streamflow condition	Period of record for analysis (water year) ¹
197	06326300	Mizpah Creek near Mizpah	U	1975-86
198	06326500	Powder River near Locate	U	1938-2002
199	06326600	O'Fallon Creek near Ismay	U	1977-92
200	06327500	Yellowstone River at Glendive	U	1900-34
201	06329200	Burns Creek near Savage	U	1958-86
202	06329500	Yellowstone River near Sidney	U	1911-65
			R	1966-2002
203	06334000	Little Missouri River near Alzada	U	1911-69
204	06334630	Box Elder Creek at Webster	U	1961-73
205	06336500	Beaver Creek at Wibaux	U	1938-84
206	12300000	Kootenay River at Newgate, British Columbia	U	1931-72
207	12301300	Tobacco River near Eureka	U	1959-2002
208	12301500	Kootenai River near Rexford	U	1929-71
209	12301933	Kootenai River below Libby Dam, near Libby	R	1973-2002
210	12302000	Fisher River near Jennings	U	1951-70
211	12302055	Fisher River near Libby	U	1968-2002
212	12302500	Granite Creek near Libby	U	1933-70
213	12303000	Kootenai River at Libby	U	1911-72
			R	1973-91
214	12303100	Flower Creek near Libby	U	1960-93
215	12303500	Lake Creek at Troy	U	1945-96
216	12304500	Yaak River near Troy	U	1956-2002
217	12305000	Kootenai River at Leonia, Idaho	U	1929-71
218	12323240	Blacktail Creek at Butte	U	1989-2002
219	12323250	Silver Bow Creek below Blacktail Creek, at Butte	U	1984-2002
220	12323500	German Gulch Creek near Ramsay	U	1955-69
221	12323600	Silver Bow Creek at Opportunity	U	1988-2002
222	12323750	Silver Bow Creek at Warm Springs	R	1972-2002
223	12323770	Warm Springs Creek at Warm Springs	U	1984-2002
224	12323800	Clark Fork near Galen	U	1988-2002
225	12324100	Racetrack Creek below Granite Creek, near Anaconda	U	1957-73
226	12324200	Clark Fork at Deer Lodge	U	1979-2002
227	12324590	Little Blackfoot River near Garrison	U	1972-2002
228	12324680	Clark Fork at Goldcreek	U	1977-2002
229	12325500	Flint Creek near Southern Cross	R	1941-2002

Table 1. Selected streamflow-gaging stations in Montana and adjacent areas and period of record used in study.—Continued

Site number (fig. 1)	Station number	Station name	Streamflow condition	Period of record for analysis (water year) ¹
230	12329500	Flint Creek at Maxville	U	1941-2002
231	12330000	Boulder Creek at Maxville	U	1939-2002
232	12331500	Flint Creek near Drummond	U	1948-2002
233	12331600	Clark Fork at Drummond	U	1973-83
234	12331900	Clark Fork near Clinton	U	1979-94
235	12332000	Middle Fork Rock Creek near Philipsburg	U	1938-2002
236	12334510	Rock Creek near Clinton	U	1973-2002
237	12334550	Clark Fork at Turah Bridge, near Bonner	U	1985-2002
238	12335000	Blackfoot River near Helmville	U	1941-54
239	12335500	Nevada Creek above reservoir, near Helmville	U	1939-2002
240	12338500	Blackfoot River near Ovando	U	1940-63
241	12339450	Clearwater River near Clearwater	U	1975-92
242	12340000	Blackfoot River near Bonner	U	1900-2002
243	12340500	Clark Fork above Missoula	U	1929-2002
244	12342500	West Fork Bitterroot River near Conner	R	1941-2002
245	12343400	East Fork Bitterroot River near Conner	U	1956-2002
246	12343500	East Fork Bitterroot River at Conner	U	1910-57
247	12344000	Bitterroot River near Darby	R	1941-2002
248	12346500	Skalkaho Creek near Hamilton	U	1949-2002
249	12347500	Blodgett Creek near Corvallis	U	1947-69
250	12350000	Bear Creek near Victor	U	1938-59
251	12351000	Burnt Fork Bitterroot River near Stevensville	U	1920-62
252	12352500	Bitterroot River near Missoula	U	1900-2002
253	12353000	Clark Fork below Missoula	U	1930-2002
254	12354000	St. Regis River near St. Regis	U	1910-2002
255	12354500	Clark Fork at St. Regis	U	1911-2002
256	12355000	Flathead River at Flathead, British Columbia	U	1929-2002
257	12355500	North Fork Flathead River near Columbia Falls	U	1911-2002
258	12357000	Middle Fork Flathead River at Essex	U	1940-64
259	12357500	Middle Fork Flathead River at West Glacier	U	1911-48
260	12358500	Middle Fork Flathead River near West Glacier	U	1940-2002
261	12359000	South Fork Flathead River at Spotted Bear Ranger Station, near Hungry Horse	U	1948-67
262	12359800	South Fork Flathead River above Twin Creek, near Hungry Horse	U	1965-2002
263	12360000	Twin Creek near Hungry Horse	U	1948-67
264	12361000	Sullivan Creek near Hungry Horse	U	1949-77

Table 1. Selected streamflow-gaging stations in Montana and adjacent areas and period of record used in study.—Continued

Site number (fig. 1)	Station number	Station name	Streamflow condition	Period of record for analysis (water year) ¹
265	12361500	Graves Creek near Hungry Horse	U	1948-67
266	12362500	South Fork Flathead River near Columbia Falls	R	1952-99
267	12363000	Flathead River at Columbia Falls	U	1922-51
			R	1952-2002
268	12365000	Stillwater River near Whitefish	U	1931-2002
269	12366000	Whitefish River near Kalispell	U	1928-2002
270	12367500	Ashley Creek near Kalispell	U	1931-74
271	12369200	Swan River near Condon	U	1973-92
272	12370000	Swan River near Bigfork	U	1922-2002
273	12371100	Hell Roaring Creek near Polson	U	1917-37
274	12372000	Flathead River near Polson	U	1907-51
			R	1952-2002
275	12374250	Mill Creek above Bassoo Creek, near Niarada	U	1982-2002
276	12375900	South Crow Creek near Ronan	U	1982-2002
277	12377150	Mission Creek above reservoir, near St. Ignatius	U	1982-2002
278	12381400	South Fork Jocko River near Arlee	U	1982-2002
279	12383500	Big Knife Creek near Arlee	U	1910-2002
280	12388200	Jocko River at Dixon	U	1990-2002
281	12388400	Revais Creek below West Fork, near Dixon	U	1983-2002
282	12388700	Flathead River at Perma	U	1984-2002
283	12389000	Clark Fork near Plains	U	1911-2002
284	12389500	Thompson River near Thompson Falls	U	1911-2002
285	12390700	Prospect Creek at Thompson Falls	U	1956-2002
286	12391400	Clark Fork below Noxon Rapids Dam, near Noxon	U	1960-2002

¹Number of years used for analysis are occasionally more than the total number of years in the period of record. See section "Statistical Summaries of Streamflow" of this report.

²Dam or powerplant upstream from station considered to have minimal effect on streamflow.

Statistical Summaries of Streamflow

Station descriptions provided in the following tables are based on data available at the time each station was in operation and may not accurately reflect streamflow conditions in 2002 or reporting standards. The period of record included in the station descriptions might not include all years in which data were recorded at the station, and thus, might not coincide with the

period of record used for analysis (table 1). For example, the station description for Big Sheep Creek below Muddy Creek, near Dell (station 06013500, site number 8) indicates that the last year of record was 1979. However, daily flow record was collected at this site for several days in water year 1980, and that record was used for determination of the duration of the daily mean flows at this site. Accordingly, the period of record for analysis presented in table 1 shows the last year of record collection at this station to be 1980.

14 Statistical Summaries of Streamflow in Montana and Adjacent Areas, Water Years 1900 through 2002

05011000 Belly River near Mountain View, Alberta (International gaging station) Site Number 1

LOCATION.--Lat 49°06'00", long 113°41'48" (NAD 27), in NE¼ sec.5, T.2, R.28 W., fourth meridian, in Alberta, Hydrologic Unit 10010001, on right bank 2 mi downstream from intake of Mountain View Irrigation District Canal, 5 mi southwest of Mountain View, and 7 mi north of international boundary.

DRAINAGE AREA.--121 mi².

PERIOD OF RECORD.--November 1911 to September 1978 (discontinued). Monthly discharge only for some periods, published in WSP 1308.

GAGE.--Water-stage recorder. Altitude of gage is 4,342.88 ft (datum unknown; Greg MacCulloch, Environment Canada, written commun., 2004). November 1911, to Apr. 6, 1949, nonrecording gage at site 20 ft upstream at same datum. Apr. 7, 1949, to June 19, 1975, water-stage recorder at present site at datum 2.02 ft higher.

REMARKS.--Natural flow of stream affected by diversion to Mountain View Irrigation District Canal 2 mi upstream from station.

Magnitude and probability of annual low flow
based on 66 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	31	21	17	14	11	9.0
3	33	23	19	16	13	11
7	35	26	22	19	16	14
14	40	31	27	24	20	18
30	47	38	33	29	25	22
60	60	47	41	36	31	27
90	69	52	45	40	34	31
120	81	61	53	47	41	37
183	110	82	72	64	56	52

Magnitude and probability of seasonal low flow from
March-June based on 67 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	43	31	25	21	17	14
3	45	33	27	23	19	16
7	47	35	29	25	21	18
14	50	38	33	29	26	24
30	59	45	39	36	33	31

Magnitude and probability of seasonal low flow from
November-February based on 66 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	36	24	19	15	12	9.7
3	38	27	21	17	14	12
7	41	30	25	21	17	15
14	45	34	29	26	22	20
30	52	40	35	31	27	24

Duration of daily mean flows based on 66 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
26	32	41	50	64	83	107	141
40%	30%	20%	15%	10%	5%	2%	1%
196	303	497	664	892	1,230	1,620	1,970

Magnitude and probability of annual high flow
based on 66 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	1,720	2,710	3,630	5,200	6,730	8,650
3	1,670	2,490	3,180	4,220	5,140	6,200
7	1,540	2,160	2,580	3,110	3,520	3,930
15	1,400	1,870	2,140	2,430	2,610	2,780
30	1,240	1,600	1,780	1,960	2,070	2,160
60	1,050	1,300	1,420	1,530	1,600	1,640
90	868	1,070	1,160	1,240	1,290	1,330

Magnitude and probability of seasonal low flow from
July-October based on 66 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	85	50	37	28	20	16
3	88	54	41	33	25	20
7	93	59	47	38	30	25
14	100	67	55	46	38	34
30	115	81	69	61	53	49

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	488	46	178	103	66
November	437	41	128	62	67
December	288	27	86	36	67
January	192	25	68	27	67
February	203	26	68	35	67
March	213	29	69	32	67
April	715	61	207	116	67
May	1,300	334	786	194	67
June	2,450	340	1,120	417	67
July	1,280	141	603	241	67
August	521	117	260	91	67
September	514	77	177	92	67
Annual	504	146	314	72	66

**05013700 St. Mary River above Swiftcurrent Creek, near Babb, Mont.
Site Number 2**

LOCATION.--Lat 48°51'00", long 113°24'50" (NAD 27), in NE¼ sec.27, T.36 N, R.14 W., Glacier County, 0.5 mi downstream from Lower St. Mary Lake, 1 mi southeast of Babb, and 2 mi upstream from Swiftcurrent Creek.

DRAINAGE AREA.--173 mi².

PERIOD OF RECORD.--13 years (1902-15). Published as "near St. Mary" 1902-04, and as "near Babb" 1905-15.

GAGE.--Chain gage. Altitude of gage is 4,460 ft (NGVD 29, from topographic map).

REMARKS.--No regulation or diversion.

Magnitude and probability of annual low flow
based on 13 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	47	27	15	8.4	--	--
3	51	36	30	27	--	--
7	53	38	33	29	--	--
14	59	44	38	34	--	--
30	65	50	44	40	--	--
60	77	61	54	48	--	--
90	102	74	61	52	--	--
120	135	92	75	62	--	--
183	214	169	150	137	--	--

Magnitude and probability of seasonal low flow from
March-June based on 14 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	72	45	34	28	--	--
3	73	45	36	29	--	--
7	75	47	37	30	--	--
14	78	52	42	36	--	--
30	91	65	55	48	--	--

Magnitude and probability of seasonal low flow from
November-February based on 13 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	58	33	18	9.4	--	--
3	60	43	36	31	--	--
7	62	46	39	34	--	--
14	66	49	42	36	--	--
30	70	54	47	41	--	--

Duration of daily mean flows based on 13 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
38	45	56	71	95	131	193	281
40%	30%	20%	15%	10%	5%	2%	1%
418	618	910	1,130	1,450	2,000	2,790	3,430

Magnitude and probability of annual high flow
based on 13 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	2,290	3,600	4,810	6,840	--	--
3	2,250	3,530	4,710	6,670	--	--
7	2,180	3,310	4,280	5,810	--	--
15	2,070	3,010	3,740	4,800	--	--
30	1,910	2,630	3,130	3,800	--	--
60	1,620	2,090	2,400	2,780	--	--
90	1,370	1,730	1,960	2,250	--	--

Magnitude and probability of seasonal low flow from
July-October based on 13 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	199	154	138	127	--	--
3	203	157	140	128	--	--
7	213	163	143	129	--	--
14	222	180	165	156	--	--
30	254	208	192	183	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	646	174	345	148	13
November	666	81	269	161	13
December	305	54	148	78	13
January	120	45	82	23	14
February	140	40	86	27	14
March	190	50	104	44	14
April	519	129	230	119	14
May	1,730	479	1,000	311	14
June	3,400	1,060	1,980	742	14
July	2,160	793	1,300	447	14
August	894	364	633	154	14
September	694	255	406	140	14
Annual	754	388	540	117	13

16 Statistical Summaries of Streamflow in Montana and Adjacent Areas, Water Years 1900 through 2002

05014000 Grinnell Creek near Many Glacier, Mont. Site Number 3

LOCATION.--Lat 48°46'14", long 113°41'53" (NAD 27), in SE¼ sec.21, T.35 N., R.16 W., (unsurveyed), Glacier National Park, Hydrologic Unit 10010002, on right bank 600 ft upstream from trail crossing, 900 ft downstream from Grinnell Lake, 0.3 mi upstream from mouth, 2.6 mi southwest of Many Glacier, and 13.5 mi southwest of Babb.

DRAINAGE AREA.--3.32 mi².

PERIOD OF RECORD.--30 years. August 1949 to September 1978 (discontinued). No winter record since 1976.

GAGE.--Water-stage recorder. Altitude of gage is 4,920 ft (NGVD 29, from topographic map). Prior to Oct. 12, 1949, nonrecording gages at various sites and datums.

REMARKS.--No regulation or diversion. After 1964, some inflow from Cataract Creek has entered upstream from gage during highwater periods in some years.

Magnitude and probability of annual low flow
based on 26 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.44	0.29	0.24	0.20	0.17	--
3	.47	.30	.24	.21	.17	--
7	.54	.34	.28	.23	.20	--
14	.68	.45	.37	.31	.27	--
30	.99	.68	.57	.50	.43	--
60	1.6	1.1	.88	.75	.63	--
90	2.5	1.6	1.3	1.1	.87	--
120	3.8	2.6	2.2	1.9	1.6	--
183	9.1	7.2	6.4	5.8	5.1	--

Magnitude and probability of seasonal low flow from
March-June based on 27 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.74	0.42	0.32	0.26	0.21	--
3	.79	.44	.33	.27	.21	--
7	.93	.49	.36	.28	.22	--
14	1.1	.61	.45	.35	.27	--
30	1.7	1.0	.78	.65	.53	--

Magnitude and probability of seasonal low flow from
November-February based on 27 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.60	0.33	0.25	0.20	0.18	--
3	.65	.35	.26	.21	.18	--
7	.72	.41	.32	.26	.21	--
14	.85	.52	.41	.35	.30	--
30	1.2	.74	.60	.51	.44	--

Duration of daily mean flows based on 27 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.15	0.31	0.77	1.3	2.5	4.0	6.4	12
40%	30%	20%	15%	10%	5%	2%	1%
21	34	50	61	76	97	125	151

Magnitude and probability of annual high flow
based on 27 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	159	214	259	326	385	--
3	140	185	221	275	322	--
7	121	155	179	213	239	--
15	109	134	150	171	186	--
30	96	116	129	146	158	--
60	83	97	105	115	121	--
90	72	81	87	93	98	--

Magnitude and probability of seasonal low flow from
July-October based on 28 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	5.4	3.8	3.1	2.6	2.1	--
3	5.8	4.1	3.4	2.8	2.2	--
7	6.7	4.7	3.9	3.2	2.6	--
14	8.4	5.8	4.7	3.8	3.0	--
30	12	8.3	6.7	5.6	4.6	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	41	5.0	15	8.5	29
November	19	.96	8.0	4.0	28
December	9.2	.87	3.8	2.1	28
January	13	.62	2.9	2.7	27
February	5.3	.63	2.2	1.5	27
March	7.9	.65	2.3	1.8	27
April	19	2.0	8.9	4.7	27
May	74	21	47	13	29
June	135	52	90	22	29
July	114	40	68	17	29
August	52	28	39	6.4	30
September	49	16	23	7.2	30
Annual	33	22	26	2.9	27

**05014500 Swiftcurrent Creek at Many Glacier, Mont.
(Hydrologic bench-mark station)
Site Number 4**

LOCATION.--Lat 48°47'57", long 113°39'21" (NAD 27), in SE¼ sec.11, T.35 N., R.16 W., Glacier County, Hydrologic Unit 10010002, Glacier National Park, on right bank 100 ft upstream from outlet of Swiftcurrent Lake at Many Glacier, and 11 mi southwest of Babb.

DRAINAGE AREA.--30.9 mi².

PERIOD OF RECORD.--June 1912 to current year (2002; records incomplete most years prior to 1959). Published as "at McDermott Lake," 1912-14. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 1508: 1918(M), 1943. WDR MT-75-1: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 4,876.78 ft (NGVD 29). Prior to May 23, 1916, nonrecording gage on left bank of lake opposite present gage and at present datum, and May 23, 1916, to June 15, 1918, nonrecording gage at present site and datum.

REMARKS.--No regulation or diversion upstream from station. Bureau of Reclamation satellite telemeter at station.

Magnitude and probability of annual low flow
based on 46 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	12	8.3	6.8	5.5	0.00	--
3	12	8.8	7.2	5.9	.00	--
7	13	9.4	7.7	6.5	5.3	--
14	14	11	9.1	7.9	6.8	--
30	17	12	11	9.4	8.0	--
60	22	16	13	11	9.8	--
90	27	19	16	14	12	--
120	34	24	20	17	15	--
183	50	37	32	28	24	--

Magnitude and probability of seasonal low flow from
March-June based on 58 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	15	11	8.9	7.7	6.7	6.1
3	16	11	9.2	8.1	7.0	6.4
7	17	12	9.9	8.7	7.6	7.0
14	19	13	11	9.6	8.4	7.7
30	24	16	13	12	10	9.1

Magnitude and probability of seasonal low flow from
November-February based on 47 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	13	9.2	7.6	6.4	0.00	--
3	14	9.8	8.1	6.8	.00	--
7	15	10	8.5	7.1	5.8	--
14	16	12	9.9	8.6	7.3	--
30	19	14	12	9.9	8.4	--

Duration of daily mean flows based on 46 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
11	12	16	21	31	46	64	88
40%	30%	20%	15%	10%	5%	2%	1%
124	182	284	357	459	618	753	933

Magnitude and probability of annual high flow
based on 46 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	909	1,280	1,640	2,240	2,820	--
3	830	1,090	1,310	1,620	1,900	--
7	723	906	1,030	1,180	1,300	--
15	632	770	853	949	1,020	--
30	556	658	711	765	800	--
60	459	536	577	622	651	--
90	383	439	467	495	513	--

Magnitude and probability of seasonal low flow from
July-October based on 88 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	36	25	20	17	14	12
3	38	26	21	18	15	13
7	41	28	23	19	16	14
14	45	31	25	21	17	15
30	54	37	31	26	22	20

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	243	20	84	53	88
November	237	13	72	50	53
December	100	14	37	21	49
January	177	10	33	28	48
February	68	6.9	27	14	47
March	96	9.7	30	18	59
April	340	17	104	53	67
May	656	205	377	85	88
June	822	193	490	140	91
July	519	114	261	93	90
August	207	57	117	33	90
September	236	32	86	44	90
Annual	184	86	141	23	46

**05017500 St. Mary River near Babb, Mont.
Site Number 5**

LOCATION.--Lat 48°50'00", long 113°25'08" (NAD 27), in NW¼NW¼SE¼ sec.34, T.36 N., R.14 W., Glacier County, Hydrologic Unit 10010002, Blackfeet Indian Reservation, on right bank 0.7 mi upstream from outlet of Lower St. Mary Lake and 2.0 mi southeast of Babb.

DRAINAGE AREA.--276 mi².

PERIOD OF RECORD.--July 1901 to October 1902, May 1910 to September 1925, October 1950 to current year (2002). Monthly discharge only for some periods, published in WSP 1308. Published as "at Main" in 1901-02, and as "below Swiftcurrent Creek, at Babb" 1910-15. Records published as "near Babb" for April 1902 to September 1915, May 1929 to September 1950 at sites about 1.5 mi downstream not equivalent because flow of Swiftcurrent Creek not included 1902-15 and because diversion by St. Mary Canal not included 1929-50.

REVISED RECORDS.--WSP 1308: 1913-14, 1920, 1922-24. WSP 1508: 1902.

GAGE.--Water-stage recorder. Altitude of gage is 4,468.13 ft (NGVD 29). Prior to Oct. 1, 1915, water-stage recorder or nonrecording gages at several sites about 3.8 mi downstream at different datums. Oct. 1, 1915, to Sept. 30, 1925, water-stage recorder or nonrecording gages at several sites within 1.5 mi downstream at different datums.

REMARKS.--Entire flow of Swiftcurrent Creek below Lake Sherburne is diverted into Lower St. Mary Lake upstream from station. Flow of Swiftcurrent Creek regulated by Lake Sherburne (station number 05015500) since 1919. October 1950 to September 1976, monthly discharge and runoff figures adjusted for change in contents in Lake Sherburne. Bureau of Reclamation satellite telemeter at station.

Magnitude and probability of annual low flow
based on 57 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	58	43	37	33	28	25
3	59	44	38	33	28	26
7	61	46	39	34	29	27
14	64	48	41	36	31	28
30	73	54	46	40	35	31
60	90	66	55	48	40	36
90	108	75	61	52	43	38
120	130	88	72	61	52	46
183	262	186	156	134	114	102

Magnitude and probability of seasonal low flow from
March-June based on 59 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	82	59	50	45	39	36
3	83	60	51	45	40	37
7	87	61	52	46	40	37
14	93	64	54	48	42	39
30	117	75	61	52	45	41

Magnitude and probability of seasonal low flow from
November-February based on 58 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	66	47	39	34	28	26
3	67	48	40	34	29	26
7	69	49	41	35	30	27
14	74	52	43	37	31	28
30	82	59	49	42	35	31

Duration of daily mean flows based on 59 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
42	49	63	77	106	144	212	351
40%	30%	20%	15%	10%	5%	2%	1%
691	996	1,340	1,560	1,980	2,680	3,570	4,120

Magnitude and probability of annual high flow
based on 59 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	3,480	5,090	6,470	8,650	10,600	13,000
3	3,450	4,910	6,070	7,750	9,200	10,800
7	3,270	4,490	5,360	6,520	7,440	8,400
15	2,960	3,930	4,570	5,370	5,970	6,570
30	2,630	3,360	3,810	4,360	4,740	5,120
60	2,230	2,740	3,050	3,410	3,670	3,910
90	1,930	2,310	2,520	2,770	2,940	3,100

Magnitude and probability of seasonal low flow from
July-October based on 59 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	165	101	78	63	50	43
3	169	103	80	64	51	44
7	178	107	82	66	52	45
14	195	114	87	70	56	48
30	270	155	116	91	70	58

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	1,320	67	377	258	60
November	1,280	45	257	223	60
December	722	34	152	110	59
January	302	37	113	52	59
February	249	34	109	48	59
March	457	39	155	103	59
April	977	85	460	236	59
May	2,570	670	1,660	435	60
June	4,810	1,290	2,500	757	60
July	2,700	687	1,590	442	60
August	1,410	320	994	213	60
September	1,290	119	694	304	60
Annual	1,070	442	758	138	59

**05020500 St. Mary River at international boundary
(International gaging station)
Site Number 6**

LOCATION.--Lat 49°00'43", long 113°17'57" (NAD 27), in NE¼ sec.5, T.1, R.25 W., fourth meridian, in Alberta, Hydrologic Unit 10010002, on left bank 1.0 mi north of international boundary, 3.6 mi downstream from Boundary Creek, 6.5 mi southwest of Kimball, Alberta, and 13 mi northeast of Babb, Mont.

DRAINAGE AREA.--465 mi².

PERIOD OF RECORD.--September 1902 to current year (2002). Monthly discharge only for some periods, published in WSP 1308. Published as "near Cardston, Alberta," and "at Cook's Ranch, Alberta," 1902-12 and as "near Kimball, Alberta," 1913-55.

REVISED RECORDS.--WSP 1308: 1902, 1908-12. WSP 1508: 1902, 1908-09. WDR-MT-83-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 4,087.40 ft (NGVD 29) based upon levels from datum established at previous site 1.1 mi upstream by Prairie Farm Rehabilitation Administration. Prior to Jan. 1, 1913, nonrecording gages at two sites within 0.3 mi of previous site at different datums. Jan. 1, 1913, to Oct. 25, 1955, water-stage recorder at several sites about 7 mi downstream from present site at various datums. Oct. 26, 1955, to Mar. 23, 1965, water-stage recorder at site 200 ft upstream from previous site at datum 2 ft higher. Mar. 24, 1965, to Sept. 8, 1975, water-stage recorder at site 100 ft upstream from previous site at same datum. Water-stage recorder at site 1.1 mi upstream June 22, 1975, to Oct. 31, 1999.

REMARKS.--Since 1917, St. Mary Canal has diverted water from the river near Babb, Mont., to North Fork Milk River. Some regulation by Lake Sherburne on Swiftcurrent Creek. Bureau of Reclamation satellite telemeter at station.

Unregulated streamflow period

Magnitude and probability of annual low flow
based on 13 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	106	87	78	72	--	--
3	108	89	80	72	--	--
7	114	92	82	74	--	--
14	117	94	84	76	--	--
30	123	99	88	79	--	--
60	150	117	101	89	--	--
90	180	145	130	118	--	--
120	252	183	153	131	--	--
183	408	307	257	218	--	--

Magnitude and probability of seasonal low flow from
March-June based on 14 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	161	122	108	98	--	--
3	165	124	110	99	--	--
7	178	134	117	106	--	--
14	188	137	119	108	--	--
30	194	143	126	115	--	--

Magnitude and probability of seasonal low flow from
November-February based on 14 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	116	90	79	72	--	--
3	118	92	81	74	--	--
7	125	97	83	75	--	--
14	128	99	85	76	--	--
30	132	103	90	80	--	--

Duration of daily mean flows based on 14 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
83	96	117	147	202	259	393	537
40%	30%	20%	15%	10%	5%	2%	1%
749	1,100	1,580	2,020	2,570	3,420	4,910	5,740

Magnitude and probability of annual high flow
based on 14 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	4,000	7,140	10,900	19,000	--	--
3	3,910	6,840	10,200	17,300	--	--
7	3,840	6,360	8,940	13,700	--	--
15	3,710	5,660	7,340	10,000	--	--
30	3,470	4,930	6,030	7,580	--	--
60	2,940	3,870	4,500	5,320	--	--
90	2,500	3,200	3,680	4,310	--	--

Magnitude and probability of seasonal low flow from
July-October based on 13 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	380	282	233	196	--	--
3	394	290	238	199	--	--
7	410	299	243	201	--	--
14	429	314	259	218	--	--
30	502	367	306	261	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	1,040	221	630	225	14
November	1,100	130	476	246	14
December	438	157	242	78	14
January	224	90	153	38	14
February	377	75	164	74	14
March	516	120	229	114	14
April	1,190	304	617	221	14
May	2,480	1,220	1,910	331	14
June	7,500	2,240	3,680	1,590	14
July	3,460	1,180	2,140	719	14
August	1,460	580	1,030	261	14
September	1,380	371	724	306	15
Annual	1,350	646	1,000	226	14

05020500 St. Mary River at international boundary—Continued
(International gaging station)
Site Number 6

Regulated streamflow period

Magnitude and probability of annual low flow
based on 85 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	71	48	38	30	24	20
3	74	52	42	35	28	24
7	79	57	48	41	34	29
14	87	64	54	47	40	36
30	100	75	64	56	48	43
60	123	92	79	70	61	56
90	143	103	88	78	69	63
120	173	120	101	88	76	70
183	253	181	154	136	119	110

Magnitude and probability of seasonal low flow from
March-June based on 86 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	100	66	53	45	37	32
3	104	70	58	49	42	37
7	111	78	66	58	51	47
14	122	85	73	64	57	52
30	149	103	87	77	67	62

Magnitude and probability of seasonal low flow from
November-February based on 85 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	82	53	42	34	27	23
3	85	57	46	39	32	27
7	90	62	51	44	37	33
14	97	69	58	51	43	39
30	110	79	67	59	51	46

Duration of daily mean flows based on 85 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
55	67	84	105	143	185	254	344
40%	30%	20%	15%	10%	5%	2%	1%
465	654	1,000	1,300	1,770	2,630	3,790	4,510

Magnitude and probability of annual high flow
based on 85 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	3,610	5,710	7,320	9,610	11,500	13,600
3	3,520	5,490	6,930	8,900	10,500	12,100
7	3,270	4,950	6,090	7,560	8,660	9,770
15	2,900	4,280	5,160	6,250	7,030	7,780
30	2,510	3,600	4,280	5,100	5,680	6,230
60	2,040	2,850	3,360	3,970	4,400	4,810
90	1,680	2,300	2,690	3,160	3,500	3,830

Magnitude and probability of seasonal low flow from
July-October based on 85 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	198	127	100	81	64	54
3	205	135	108	90	74	64
7	219	148	121	103	86	76
14	242	164	134	113	94	83
30	288	198	163	139	117	104

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	1,590	88	423	267	86
November	1,420	80	319	241	86
December	844	64	197	120	86
January	729	56	155	98	86
February	411	42	149	71	86
March	512	55	182	102	86
April	1,330	136	447	244	86
May	3,560	678	1,640	622	86
June	5,940	694	2,430	1,180	86
July	3,030	496	1,200	573	86
August	1,060	246	531	161	86
September	1,510	153	449	255	85
Annual	1,280	316	675	212	85

**06012500 Red Rock River below Lima Reservoir, near Monida, Mont.
Site Number 7**

LOCATION.--Lat 44°39'22", long 112°22'14" (NAD 27), in NE¼SE¼SE¼ sec.31, T.13 S., R.6 W., Beaverhead County, Hydrologic Unit 10020001, on right bank just downstream from Lima Reservoir, 7 mi northwest of Monida, and at river mile 2,542.1.

DRAINAGE AREA.--570 mi².

PERIOD OF RECORD.--January 1911 to December 1918, April 1919, May 1925 to October 1933, April 1934 to September 1935, May 1936 to October 1938, May 1939 to September 1969, seasonal records only June 1974 to September 1982 and April 1985 to current year (2002). Monthly discharge only for some periods, published in WSP 1309. Prior to October 1950, published as "below Red Rock Reservoir."

REVISED RECORDS.--WSP 1309: 1935. WSP 1389: 1912, 1934. WSP 1559: Drainage area.

GAGE.--Water-stage recorder and sharp-crested weir. Altitude of gage is 6,530 ft (NGVD 29), estimated from spillway elevation based on Montana Department of Natural Resources and Conservation datum. Prior to Oct. 1, 1978, at datum 1.00 ft higher. See WSP 1709 for history of nonrecording gage changes prior to May 8, 1939.

REMARKS.--Flow regulated by Lima Reservoir (station number 06012000). No storage during 1934. Diversions for irrigation of about 10,000 acres upstream from reservoir. Bureau of Reclamation satellite telemeter at station.

Magnitude and probability of annual low flow
based on 27 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	11	3.9	0.00	0.00	0.00	--
3	12	5.6	.00	.00	.00	--
7	13	6.3	.00	.00	.00	--
14	13	7.3	1.6	.00	.00	--
30	14	8.1	4.1	.00	.00	--
60	18	12	9.8	8.0	6.2	--
90	21	14	12	9.8	8.1	--
120	22	15	13	11	9.1	--
183	50	28	20	14	9.8	--

Magnitude and probability of seasonal low flow from
March-June based on 28 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	17	6.0	0.00	0.00	0.00	--
3	18	6.4	.00	.00	.00	--
7	18	8.8	2.1	.00	.00	--
14	18	9.4	2.9	.00	.00	--
30	19	9.6	4.4	.00	.00	--

Magnitude and probability of seasonal low flow from
November-February based on 29 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	15	7.6	0.00	0.00	0.00	--
3	15	8.7	3.8	.00	.00	--
7	16	9.1	4.6	.00	.00	--
14	16	9.6	5.4	.00	.00	--
30	17	11	6.5	.00	.00	--

Duration of daily mean flows based on 31 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.26	0.51	5.7	12	19	25	33	67
40%	30%	20%	15%	10%	5%	2%	1%
183	269	354	410	483	595	704	740

Magnitude and probability of annual high flow
based on 31 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	541	646	702	763	803	--
3	536	640	697	760	800	--
7	527	631	688	751	791	--
15	504	606	661	722	762	--
30	469	564	615	671	708	--
60	415	502	552	611	651	--
90	370	446	489	537	569	--

Magnitude and probability of seasonal low flow from
July-October based on 51 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	16	4.3	0.00	0.00	0.00	0.00
3	20	6.6	.00	.00	.00	.00
7	30	7.8	.00	.00	.00	.00
14	33	8.7	1.8	.00	.00	.00
30	42	11	4.3	1.0	.00	.00

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	263	0.93	67	62	53
November	96	6.7	32	23	31
December	66	10	26	14	29
January	57	9.0	23	9.1	29
February	53	8.0	22	9.1	29
March	48	7.1	21	9.0	28
April	416	1.2	64	76	55
May	676	66	313	135	56
June	707	206	491	104	57
July	652	14	329	118	57
August	513	3.3	227	110	57
September	384	.57	156	104	56
Annual	262	67	147	44	31

22 Statistical Summaries of Streamflow in Montana and Adjacent Areas, Water Years 1900 through 2002

06013500 Big Sheep Creek below Muddy Creek, near Dell, Mont. Site Number 8

LOCATION.--Lat 44°39'19", long 112°46'41" (NAD 27), in SW¼NW¼SE¼ sec.35, T.13 S., R.10 W., Beaverhead County, Hydrologic Unit 10020001, on left bank 2.2 mi downstream from Muddy Creek, 6.5 mi southwest of Dell and 8.5 mi upstream from mouth.

DRAINAGE AREA.--278 mi².

PERIOD OF RECORD.--April to September 1936, May 1946 to September 1953. Annual maximums and daily flows for water years 1961-76 on file in USGS Montana District Office. October 1976 to September 1979 (discontinued). Published as "Sheep Creek near Dell," 1936, and "Sheep Creek below Muddy Creek, near Dell," 1946-53, 1960-65.

REVISED RECORDS.--WDR MT-75-1: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 6,390 ft (NGVD 29, from topographic map). Apr. 21 to Sept. 30, 1936, nonrecording gage at site about 3 mi downstream at different datum.

REMARKS.--Diversions for irrigation of about 6,600 acres upstream from station.

Magnitude and probability of annual low flow based on 25 years of record						
Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	35	31	28	27	25	--
3	36	31	29	28	26	--
7	36	32	30	29	27	--
14	37	33	31	29	28	--
30	38	34	32	30	29	--
60	41	36	33	32	30	--
90	44	38	35	33	30	--
120	48	41	37	34	30	--
183	52	44	39	36	32	--

Magnitude and probability of seasonal low flow from March-June based on 26 seasons of record						
Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	37	33	32	31	30	--
3	38	33	32	31	30	--
7	39	34	32	31	30	--
14	40	34	33	31	30	--
30	43	36	33	32	30	--

Magnitude and probability of seasonal low flow from November-February based on 26 seasons of record						
Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	37	33	30	29	27	--
3	38	33	31	30	28	--
7	38	34	32	31	29	--
14	39	35	33	31	30	--
30	40	35	34	32	31	--

Duration of daily mean flows based on 26 years of record							
Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
25	28	33	36	40	45	50	56
40%	30%	20%	15%	10%	5%	2%	1%
62	70	84	91	109	142	184	229

Magnitude and probability of annual high flow based on 26 years of record						
Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	262	348	387	422	440	--
3	225	298	332	363	380	--
7	191	250	276	300	312	--
15	163	203	218	231	237	--
30	136	169	183	194	200	--
60	109	141	157	174	184	--
90	99	127	141	156	166	--

Magnitude and probability of seasonal low flow from July-October based on 26 seasons of record						
Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	46	37	32	28	24	--
3	47	38	33	29	25	--
7	48	39	34	30	26	--
14	50	40	35	32	28	--
30	54	43	37	33	28	--

Monthly and annual mean discharges					
Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	89	35	62	13	26
November	77	39	57	9.3	26
December	63	36	48	7.2	26
January	59	32	43	6.5	26
February	60	32	42	7.2	26
March	106	33	50	18	26
April	178	38	89	35	26
May	180	29	86	40	27
June	181	30	102	44	28
July	153	30	71	30	28
August	98	28	67	19	28
September	82	30	55	14	28
Annual	89	35	65	13	26

**06015400 Beaverhead River near Grant, Mont.
Site Number 9**

LOCATION.--Lat 45°00'12", long 112°51'10" (NAD 27), in NW¼SW¼SE¼ sec.32, T.9 S., R.10 W., Beaverhead County, Hydrologic Unit 10020002, on right bank 0.4 mi downstream from Clark Canyon Dam, 1.3 mi upstream from Clark Canyon Creek, 10.3 mi east of Grant, and at river mile 2,483.6.

DRAINAGE AREA.--2,322 mi².

PERIOD OF RECORD.--September 1962 to September 1983 (discontinued). Prior to October 1968, published as "near Armstead."

GAGE.--Water-stage recorder. Altitude of gage is 5,442.78 ft (NGVD 29, levels by U.S. Army Corps of Engineers).

REMARKS.--Diversions for irrigation of about 76,500 acres upstream from station. Flow completely regulated by Clark Canyon Reservoir (station number 06015300).

Magnitude and probability of annual low flow
based on 20 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	90	56	42	32	--	--
3	102	64	48	37	--	--
7	113	71	53	41	--	--
14	119	74	56	44	--	--
30	125	80	63	52	--	--
60	132	85	67	55	--	--
90	158	98	75	60	--	--
120	195	115	84	63	--	--
183	248	156	120	95	--	--

Magnitude and probability of seasonal low flow from
March-June based on 21 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	134	95	78	65	--	--
3	148	101	81	66	--	--
7	163	106	83	67	--	--
14	173	111	86	68	--	--
30	184	116	89	71	--	--

Magnitude and probability of seasonal low flow from
November-February based on 20 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	153	97	74	59	--	--
3	156	98	75	59	--	--
7	162	101	77	61	--	--
14	169	105	79	62	--	--
30	181	111	83	63	--	--

Duration of daily mean flows based on 21 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
56	67	80	102	158	214	255	315
40%	30%	20%	15%	10%	5%	2%	1%
389	501	650	731	847	984	1,070	1,090

Magnitude and probability of annual high flow
based on 21 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	1,000	1,130	1,190	1,250	--	--
3	980	1,110	1,170	1,230	--	--
7	958	1,090	1,160	1,230	--	--
15	916	1,060	1,130	1,210	--	--
30	856	994	1,070	1,150	--	--
60	754	895	975	1,060	--	--
90	712	850	923	1,000	--	--

Magnitude and probability of seasonal low flow from
July-October based on 20 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	116	61	43	33	--	--
3	140	74	51	37	--	--
7	174	89	60	42	--	--
14	191	98	66	46	--	--
30	229	132	99	77	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	616	79	286	168	21
November	529	53	284	160	21
December	497	54	255	127	21
January	446	49	213	96	21
February	373	76	224	91	21
March	441	75	213	102	21
April	803	73	280	201	21
May	946	99	492	245	21
June	980	114	686	200	21
July	938	345	672	160	21
August	1,220	268	669	226	21
September	1,000	98	417	227	21
Annual	579	173	392	107	21

24 Statistical Summaries of Streamflow in Montana and Adjacent Areas, Water Years 1900 through 2002

06016000 Beaverhead River at Barretts, Mont. Site Number 10

LOCATION.--Lat 45°06'59", long 112°44'59" (NAD 27), in SE¼SW¼SE¼ sec.19, T.8 S., R.9 W., Beaverhead County, Hydrologic Unit 10020002, on left bank 1.4 mi upstream from Barretts, 2.2 mi downstream from Grasshopper Creek, 8.9 mi southwest of Dillon, and at river mile 2,469.2.

DRAINAGE AREA.--2,737 mi².

PERIOD OF RECORD.--August 1907 to September 1986, October 1986 to current year (2002; seasonal records only). Monthly discharge only for some periods, published in WSP 1309. Prior to October 1963, published as "at Barratts."

REVISED RECORDS.--WSP 1729: 1908(M), 1910-12(M), 1929(M), 1935-36. WSP 1559: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 5,268.17 ft (NGVD 29). Prior to Oct. 19, 1934, nonrecording gages at same site and datum.

REMARKS.--Some regulation by Lima Reservoir (station number 06012000) and nearly complete regulation by Clark Canyon Reservoir (station number 06015300) after August 1964. Diversions for irrigation of about 90,000 acres upstream from station. Bureau of Reclamation satellite telemeter at station.

Unregulated streamflow period

Magnitude and probability of annual low flow
based on 55 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	186	134	111	93	77	67
3	188	137	114	97	80	70
7	194	142	118	101	83	73
14	204	149	124	105	86	75
30	222	160	132	111	90	78
60	244	174	142	118	95	81
90	262	186	151	125	99	84
120	290	204	164	135	106	89
183	313	225	183	152	122	104

Magnitude and probability of seasonal low flow from
March-June based on 56 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	217	158	131	112	93	82
3	221	161	135	115	96	84
7	231	170	143	122	101	89
14	245	182	153	132	111	99
30	281	208	175	151	126	111

Magnitude and probability of seasonal low flow from
November-February based on 55 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	241	177	143	117	91	75
3	243	181	149	124	98	83
7	248	189	159	135	111	96
14	256	199	170	147	123	109
30	270	214	184	161	136	121

Duration of daily mean flows based on 56 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
103	117	143	175	223	265	300	334
40%	30%	20%	15%	10%	5%	2%	1%
368	429	504	572	708	990	1,370	1,680

Magnitude and probability of annual high flow
based on 56 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	1,280	1,920	2,310	2,780	3,100	3,400
3	1,190	1,790	2,160	2,600	2,910	3,200
7	1,050	1,590	1,940	2,380	2,690	3,000
15	917	1,410	1,750	2,180	2,500	2,820
30	778	1,220	1,540	1,980	2,330	2,690
60	646	1,000	1,270	1,630	1,930	2,240
90	582	878	1,090	1,380	1,600	1,840

Magnitude and probability of seasonal high flow from
July-October based on 55 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	206	145	120	102	84	73
3	208	147	121	102	84	73
7	213	150	123	104	85	74
14	221	154	126	106	87	76
30	240	165	133	111	91	78

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	717	116	359	156	56
November	889	153	409	138	56
December	539	140	340	88	56
January	442	120	285	69	56
February	396	150	280	61	56
March	934	169	351	124	56
April	1,350	123	495	243	56
May	1,910	131	593	386	56
June	2,610	146	735	497	56
July	959	96	374	169	56
August	603	96	297	123	56
September	591	88	288	121	56
Annual	738	168	401	135	56

06016000 Beaverhead River at Barretts, Mont.—Continued
Site Number 10

Regulated streamflow period

Magnitude and probability of annual low flow
based on 22 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	190	137	108	89	--	--
3	201	140	109	89	--	--
7	210	145	112	90	--	--
14	216	150	114	91	--	--
30	226	167	125	99	--	--
60	240	177	152	135	--	--
90	276	195	163	140	--	--
120	320	215	172	142	--	--
183	357	240	195	165	--	--

Magnitude and probability of seasonal low flow from
March-June based on 39 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	223	155	128	108	90	--
3	235	161	131	110	90	--
7	242	164	133	111	91	--
14	248	167	135	113	92	--
30	262	177	144	122	101	--

Magnitude and probability of seasonal low flow from
November-February based on 22 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	247	175	144	122	--	--
3	251	181	151	129	--	--
7	259	187	157	134	--	--
14	268	193	161	138	--	--
30	278	199	166	141	--	--

Duration of daily mean flows based on 23 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
97	108	136	167	233	298	359	439
40%	30%	20%	15%	10%	5%	2%	1%
530	661	811	915	1,020	1,190	1,440	1,690

Magnitude and probability of annual high flow
based on 23 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	1,220	1,560	1,820	2,190	--	--
3	1,200	1,530	1,790	2,170	--	--
7	1,160	1,480	1,730	2,090	--	--
15	1,100	1,410	1,640	1,970	--	--
30	1,030	1,310	1,530	1,840	--	--
60	926	1,180	1,380	1,660	--	--
90	873	1,110	1,300	1,570	--	--

Magnitude and probability of seasonal low flow from
July-October based on 37 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	215	137	108	90	72	--
3	228	141	110	90	72	--
7	246	146	112	90	73	--
14	257	151	114	91	74	--
30	288	167	126	99	76	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	1,090	82	357	229	38
November	806	138	408	202	23
December	685	133	360	156	23
January	547	127	312	115	23
February	514	132	314	104	23
March	654	111	293	139	39
April	1,100	126	371	219	39
May	1,220	224	648	241	39
June	2,180	482	906	308	39
July	2,150	463	845	298	39
August	1,930	341	702	311	39
September	1,640	76	433	313	39
Annual	1,100	293	538	162	23

26 Statistical Summaries of Streamflow in Montana and Adjacent Areas, Water Years 1900 through 2002

06017500 Blacktail Deer Creek near Dillon, Mont. Site Number 11

LOCATION.--Lat 45°02'47", long 111°32'53" (NAD 27), in NE¼SE¼SW¼ sec.14, T.9 S., R.8 W., Beaverhead County, on left bank 12.5 mi southeast of Dillon and 14 mi upstream from mouth.

DRAINAGE AREA.--312 mi².

PERIOD OF RECORD.--18 years. April 1946 to December 1953, April 1955 to September 1966 (discontinued). Monthly discharge only for April 1946, published in WSP 1309. Prior to October 1960, published as "Blacktail Creek near Dillon."

GAGE.--Water-stage recorder. Altitude of gage is 5,667.59 ft (NGVD 29, levels by Bureau of Reclamation).

REMARKS.--Diversions for irrigation of about 4,000 acres upstream from station.

Magnitude and probability of annual low flow
based on 16 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	15	11	9.8	8.7	--	--
3	16	12	11	9.7	--	--
7	19	15	14	12	--	--
14	22	18	15	14	--	--
30	25	20	18	16	--	--
60	29	24	21	19	--	--
90	32	26	24	21	--	--
120	35	29	26	24	--	--
183	38	32	29	27	--	--

Magnitude and probability of seasonal low flow from
March-June based on 18 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	29	21	18	15	--	--
3	30	23	19	16	--	--
7	33	25	21	18	--	--
14	35	27	23	20	--	--
30	42	33	28	25	--	--

Magnitude and probability of seasonal low flow from
November-February based on 18 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	15	11	9.8	8.8	--	--
3	16	13	11	9.8	--	--
7	19	15	14	12	--	--
14	22	18	16	14	--	--
30	25	20	18	16	--	--

Duration of daily mean flows based on 18 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
14	17	22	26	32	37	41	46
40%	30%	20%	15%	10%	5%	2%	1%
53	60	69	81	95	127	178	217

Magnitude and probability of annual high flow
based on 18 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	175	264	328	413	--	--
3	163	243	301	377	--	--
7	151	221	270	334	--	--
15	139	200	242	297	--	--
30	125	177	213	259	--	--
60	104	141	163	191	--	--
90	91	119	136	155	--	--

Magnitude and probability of seasonal low flow from
July-October based on 19 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	35	27	23	20	--	--
3	36	27	23	20	--	--
7	37	29	25	22	--	--
14	38	30	26	23	--	--
30	41	32	29	26	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	68	26	46	11	19
November	52	26	42	8.1	19
December	52	22	33	7.4	19
January	43	16	30	5.7	18
February	51	16	33	10	18
March	63	24	43	11	18
April	78	37	56	13	20
May	132	39	80	27	20
June	237	50	128	52	20
July	109	34	70	23	20
August	72	25	47	13	20
September	62	28	45	10	20
Annual	76	35	54	11	18

**06018000 Beaverhead River near Dillon, Mont.
Site Number 12**

LOCATION.--Lat 45°18'18", long 112°33'45" (NAD 27), in NW¼NE¼NE¼ sec.22, T.6 S., R.8 W., Beaverhead County, Hydrologic Unit 10020002, on right bank just upstream from county road bridge on Anderson Lane, 7.0 mi northeast of Dillon and at river mile 2,444.1.

DRAINAGE AREA.--3,484 mi².

PERIOD OF RECORD.--October 1950 to September 1952, August 1963 to Sept. 30, 1983 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 4,960 ft (NGVD 29, by barometer). Prior to August 1963, nonrecording gage on upstream side of bridge at same datum.

REMARKS.--Flow partly regulated by Lima Reservoir (station number 06012000) and Clark Canyon Reservoir (station number 06015300) since August 1964. Diversions upstream from station for irrigation of about 133,400 acres of which about 5,000 acres are irrigated by imported water from Birch and Willow Creeks and of which about 17,100 acres lies downstream from station including about 600 acres in Ruby River drainage.

Magnitude and probability of annual low flow
based on 19 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	72	37	26	19	--	--
3	76	41	29	22	--	--
7	85	50	38	30	--	--
14	101	62	49	40	--	--
30	125	81	66	56	--	--
60	166	107	84	69	--	--
90	184	120	96	80	--	--
120	204	132	105	87	--	--
183	250	165	132	109	--	--

Magnitude and probability of seasonal low flow from
March-June based on 20 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	90	48	32	23	--	--
3	96	53	38	28	--	--
7	111	66	49	39	--	--
14	134	84	65	53	--	--
30	163	105	85	72	--	--

Magnitude and probability of seasonal low flow from
November-February based on 19 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	325	213	161	124	--	--
3	331	222	172	135	--	--
7	340	240	193	159	--	--
14	354	263	221	189	--	--
30	368	280	239	208	--	--

Duration of daily mean flows based on 20 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
53	66	90	125	191	243	297	353
40%	30%	20%	15%	10%	5%	2%	1%
414	480	563	629	696	773	993	1,070

Magnitude and probability of annual high flow
based on 20 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	853	1,070	1,180	1,290	--	--
3	847	1,060	1,160	1,240	--	--
7	803	1,020	1,120	1,210	--	--
15	752	970	1,080	1,190	--	--
30	695	887	981	1,070	--	--
60	600	760	843	927	--	--
90	546	693	771	854	--	--

Magnitude and probability of seasonal low flow from
July-October based on 19 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	96	53	38	28	--	--
3	100	55	40	30	--	--
7	109	61	46	36	--	--
14	119	70	55	45	--	--
30	138	86	70	60	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	754	141	397	207	20
November	808	246	502	184	20
December	770	236	449	150	20
January	629	196	394	119	20
February	601	230	402	112	20
March	730	233	424	130	20
April	1,090	194	455	225	20
May	804	105	330	203	20
June	999	94	318	220	20
July	742	80	242	168	20
August	820	72	261	186	20
September	836	79	390	247	20
Annual	612	173	380	110	20

**06018500 Beaverhead River near Twin Bridges, Mont.
Site Number 13**

LOCATION.--Lat 45°23'01", long 112°27'07" (NAD 27), in SW¼NW¼SE¼ sec.22, T.5 S., R.7 W., Madison County, Hydrologic Unit 10020002, on left bank at downstream side of bridge on State Highway 41, 11.5 mi upstream from Ruby River, 12.7 mi southwest of Twin Bridges, 14.5 mi northeast of Dillon, and at river mile 2,430.4.

DRAINAGE AREA.--3,619 mi².

PERIOD OF RECORD.--August 1935 to current year (2002). Prior to October 1968, published as "at Blaine."

REVISED RECORDS.--WSP 1309: 1938(M), 1945(M). WSP 1559: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 4,809.15 ft (NGVD 29). Prior to Feb. 17, 1949, nonrecording gage at bridge 0.5 mi upstream at different datum. Feb. 17, 1949, to June 28, 1951, nonrecording gage at present site and datum.

REMARKS.--Flow partly regulated by Lima Reservoir (station number 06012000) and Clark Canyon Reservoir (station number 06015300) since August 1964. Diversions upstream from station for irrigation of about 135,400 acres of which about 5,000 acres are irrigated by imported water from Birch and Willow Creeks and of which about 9,200 acres lies downstream from station including 600 acres in Ruby River drainage. Bureau of Reclamation satellite telemeter at station.

Unregulated streamflow period

Magnitude and probability of annual low flow based on 27 years of record						
Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	23	12	9.3	7.7	6.3	--
3	25	14	11	8.7	7.2	--
7	31	17	13	11	9.3	--
14	45	24	18	15	12	--
30	70	37	27	21	15	--
60	116	56	37	26	17	--
90	168	79	50	32	19	--
120	197	94	59	38	22	--
183	259	134	87	58	35	--

Magnitude and probability of seasonal low flow from March-June based on 28 seasons of record						
Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	27	12	10	8.2	6.7	--
3	30	14	12	9.2	7.7	--
7	38	18	14	12	10	--
14	55	26	20	15	12	--
30	113	47	30	21	16	--

Magnitude and probability of seasonal low flow from November-February based on 28 seasons of record						
Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	272	165	119	88	60	--
3	288	176	127	93	62	--
7	316	197	142	104	70	--
14	344	222	163	121	83	--
30	384	285	231	188	144	--

Duration of daily mean flows based on 28 years of record							
Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
18	23	35	60	134	252	344	407
40%	30%	20%	15%	10%	5%	2%	1%
452	498	567	629	691	753	1,030	1,250

Magnitude and probability of annual high flow based on 28 years of record						
Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	1,050	1,500	1,830	2,290	2,660	--
3	1,000	1,430	1,720	2,100	2,390	--
7	885	1,250	1,510	1,850	2,120	--
15	767	1,050	1,250	1,530	1,750	--
30	661	886	1,060	1,300	1,500	--
60	572	739	860	1,030	1,160	--
90	544	690	785	904	993	--

Magnitude and probability of seasonal low flow from July-October based on 27 seasons of record						
Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	40	21	16	12	9.9	--
3	44	24	18	14	11	--
7	51	28	21	17	14	--
14	63	34	26	21	17	--
30	87	46	34	26	20	--

Monthly and annual mean discharges					
Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	743	32	406	189	28
November	687	247	556	109	28
December	609	330	500	70	28
January	507	173	397	88	28
February	538	200	419	76	28
March	776	299	490	98	28
April	902	96	472	202	28
May	859	41	256	224	28
June	1,400	24	424	394	28
July	870	28	233	201	28
August	431	26	168	102	28
September	630	28	344	171	29
Annual	642	170	389	117	28

06018500 Beaverhead River near Twin Bridges, Mont.—Continued

Site Number 13

Regulated streamflow period

Magnitude and probability of annual low flow
based on 38 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	78	44	34	28	22	--
3	86	49	37	30	24	--
7	102	59	45	36	29	--
14	125	75	59	48	39	--
30	155	96	75	62	51	--
60	191	114	87	70	54	--
90	210	127	97	78	61	--
120	229	137	106	85	67	--
183	278	171	134	109	88	--

Magnitude and probability of seasonal low flow from
March-June based on 39 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	85	46	34	28	23	--
3	94	51	38	30	25	--
7	113	64	48	38	30	--
14	142	85	66	54	44	--
30	187	112	88	72	59	--

Magnitude and probability of seasonal low flow from
November-February based on 38 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	284	173	132	104	79	--
3	298	188	146	118	92	--
7	326	219	176	146	117	--
14	348	244	201	171	141	--
30	375	271	226	194	163	--

Duration of daily mean flows based on 39 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
53	66	94	128	193	250	311	374
40%	30%	20%	15%	10%	5%	2%	1%
444	516	640	709	807	994	1,140	1,440

Magnitude and probability of annual high flow
based on 39 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	804	1,190	1,440	1,760	1,990	--
3	775	1,170	1,430	1,760	1,980	--
7	739	1,120	1,380	1,710	1,960	--
15	708	1,070	1,310	1,620	1,850	--
30	666	999	1,220	1,510	1,720	--
60	601	890	1,080	1,330	1,510	--
90	557	824	1,000	1,230	1,410	--

Magnitude and probability of seasonal low flow from
July-October based on 38 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	101	55	43	35	29	--
3	110	61	47	39	32	--
7	122	69	54	45	38	--
14	142	80	63	52	43	--
30	171	98	77	64	53	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	1,330	148	479	259	39
November	1,060	242	553	238	39
December	852	208	479	199	39
January	724	197	422	150	39
February	707	199	430	137	39
March	799	207	467	152	39
April	1,250	136	486	252	39
May	1,120	77	358	255	39
June	1,620	63	364	326	39
July	1,590	55	320	311	39
August	1,580	63	308	290	39
September	1,690	106	418	326	39
Annual	1,100	165	423	187	39

30 Statistical Summaries of Streamflow in Montana and Adjacent Areas, Water Years 1900 through 2002

06019500 Ruby River above reservoir, near Alder, Mont. Site Number 14

LOCATION.--Lat 45°11'33", long 112°08'30" (NAD 27), in NW¼SE¼SW¼ sec.30, T.7 S., R.4 W., Madison County, Hydrologic Unit 10020003, on right bank at county road bridge, 0.7 mi downstream from Mormon Creek, 4.2 mi upstream from Ruby Dam, 9.3 mi south of Alder, and at river mile 52.1.

DRAINAGE AREA.--534 mi².

PERIOD OF RECORD.--May 1938 to current year (2002). Monthly discharge only for May 1938, published in WSP 1309.

REVISED RECORDS.--WSP 1309: 1938(M). WSP 1559: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 5,400 ft (NGVD 29). Prior to Oct. 1, 1938, nonrecording gage at bridge 2.0 mi upstream at different datum. Oct. 1, 1938, to Aug. 5, 1955, water-stage recorder at site 2.2 mi upstream at different datum. Aug. 6, 1955, to Sept. 30, 1997, water-stage recorder 2.3 mi upstream at different datum.

REMARKS.--Diversion for irrigation of about 3,000 acres upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 63 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	79	63	54	47	39	35
3	81	65	57	50	42	37
7	84	69	60	53	46	41
14	89	74	65	59	51	46
30	93	79	72	66	59	55
60	98	86	80	75	70	66
90	103	91	86	81	76	73
120	107	96	90	86	81	78
183	111	98	92	88	83	80

Magnitude and probability of seasonal low flow from
March-June based on 64 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	93	82	76	71	65	61
3	95	84	78	73	68	65
7	97	86	81	77	73	71
14	100	90	85	82	78	76
30	106	95	90	88	85	83

Magnitude and probability of seasonal low flow from
November-February based on 64 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	89	75	65	57	48	42
3	91	77	68	60	51	45
7	94	80	72	65	56	51
14	97	84	77	71	64	59
30	99	88	82	78	72	69

Duration of daily mean flows based on 64 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
67	69	75	86	99	107	115	123
40%	30%	20%	15%	10%	5%	2%	1%
133	163	201	261	361	548	802	987

Magnitude and probability of annual high flow
based on 64 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	834	1,180	1,420	1,750	2,020	2,300
3	776	1,080	1,280	1,550	1,750	1,960
7	704	974	1,150	1,380	1,560	1,730
15	624	866	1,030	1,230	1,380	1,530
30	543	753	893	1,070	1,210	1,340
60	431	596	709	855	966	1,080
90	352	479	566	677	762	849

Magnitude and probability of seasonal low flow from
July-October based on 64 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	89	68	58	50	43	38
3	90	69	60	52	45	40
7	93	72	62	55	47	43
14	96	76	66	59	52	47
30	100	81	72	66	60	55

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	185	83	122	22	64
November	177	88	123	16	64
December	170	80	111	15	64
January	158	70	103	15	64
February	135	79	103	12	64
March	181	84	110	18	64
April	288	95	165	45	64
May	1,010	187	419	153	65
June	1,120	136	473	235	65
July	482	75	195	96	65
August	235	59	121	39	65
September	171	73	115	25	65
Annual	336	119	180	46	64

**06020600 Ruby River below reservoir, near Alder, Mont.
Site Number 15**

LOCATION.--Lat 45°14'32", long 112°06'36" (NAD 27), in SE¼SE¼NE¼ sec.8, T.7 S., R.4 W., Madison County, Hydrologic Unit 10020003, on right bank 0.2 mi downstream from Ruby Dam, 5.7 mi south of Alder, and at river mile 47.8.

DRAINAGE AREA.--596 mi².

PERIOD OF RECORD.--December 1962 to current year (2002).

REVISED RECORDS.--1985(M).

GAGE.--Water-stage recorder. Altitude of gage is 5,286.63 ft (NGVD 29, levels by U.S. Army Corps of Engineers).

REMARKS.--Flow regulated by Ruby River Reservoir (station number 06020500). Diversions for irrigation of about 3,500 acres upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 39 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	29	21	18	16	14	--
3	30	23	19	17	15	--
7	31	23	20	17	15	--
14	32	24	21	18	16	--
30	33	25	22	20	18	--
60	37	28	25	23	21	--
90	44	31	27	24	21	--
120	51	36	31	27	23	--
183	100	74	62	54	45	--

Magnitude and probability of seasonal low flow from
March-June based on 40 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	38	27	23	20	17	--
3	40	28	24	21	18	--
7	41	29	24	21	18	--
14	42	29	25	21	19	--
30	47	31	25	22	19	--

Magnitude and probability of seasonal low flow from
November-February based on 39 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	34	24	20	17	14	--
3	35	25	21	18	15	--
7	36	25	21	18	15	--
14	37	26	22	19	16	--
30	38	28	24	21	18	--

Duration of daily mean flows based on 39 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
21	24	27	32	42	55	74	116
40%	30%	20%	15%	10%	5%	2%	1%
198	283	357	408	482	640	918	1,060

Magnitude and probability of annual high flow
based on 39 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	942	1,320	1,570	1,880	2,110	--
3	895	1,240	1,460	1,740	1,940	--
7	814	1,120	1,320	1,560	1,740	--
15	736	994	1,160	1,360	1,500	--
30	647	864	1,000	1,180	1,300	--
60	523	685	795	937	1,050	--
90	468	587	663	758	828	--

Magnitude and probability of seasonal low flow from
July-October based on 39 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	64	43	35	30	25	--
3	68	47	39	33	28	--
7	73	50	41	35	29	--
14	83	55	44	37	31	--
30	111	70	54	43	33	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	244	38	123	57	39
November	222	34	74	41	39
December	142	24	55	30	40
January	139	21	51	29	40
February	92	21	46	19	40
March	174	19	58	35	40
April	192	30	92	48	40
May	1,040	189	421	159	40
June	1,210	281	594	231	40
July	558	197	352	79	40
August	474	222	355	60	40
September	399	59	251	71	40
Annual	352	128	208	48	39

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06021500 Ruby River at Laurin, Mont. Site Number 16

LOCATION.--Lat 45°21'09", long 112°07'21" (NAD 27), in SW¼SE¼ sec.32, T.5 S., R.4 W., Madison County, on right bank 200 ft downstream from highway bridge in Laurin and 0.75 mi upstream from Alder Creek.

DRAINAGE AREA.--650 mi².

PERIOD OF RECORD.--14 years (1946-60).

GAGE.--Water-stage recorder. Altitude of gage is 5,045 ft (NGVD 29, from topographic map).

REMARKS.--Flow regulated by Ruby River Reservoir. Diversions upstream from station for irrigation of about 13,000 acres, of which about 2,000 acres lie below station. The flow of Clear Creek (secondary channel of Ruby River), which begins approximately 3 mi upstream and returns to the river approximately 3 mi downstream, is not included in discharge.

Magnitude and probability of annual low flow
based on 14 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	18	11	9.4	8.1	--	--
3	18	12	9.5	8.2	--	--
7	20	13	11	9.0	--	--
14	22	14	12	10	--	--
30	23	15	13	11	--	--
60	26	17	14	12	--	--
90	32	20	17	14	--	--
120	40	26	21	18	--	--
183	46	30	25	21	--	--

Magnitude and probability of seasonal low flow from
March-June based on 14 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	25	16	13	11	--	--
3	26	17	13	11	--	--
7	28	17	14	12	--	--
14	32	19	14	12	--	--
30	37	20	15	12	--	--

Magnitude and probability of seasonal low flow from
November-February based on 15 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	20	12	9.4	8.2	--	--
3	21	12	9.6	8.3	--	--
7	23	14	11	9.1	--	--
14	25	15	12	10	--	--
30	27	17	13	11	--	--

Duration of daily mean flows based on 14 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
12	14	17	20	27	35	46	57
40%	30%	20%	15%	10%	5%	2%	1%
69	86	110	124	153	200	323	412

Magnitude and probability of annual high flow
based on 14 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	341	565	728	945	--	--
3	316	518	669	874	--	--
7	273	451	591	793	--	--
15	218	360	475	644	--	--
30	176	283	372	509	--	--
60	141	219	284	384	--	--
90	122	190	246	331	--	--

Magnitude and probability of seasonal low flow from
July-October based on 14 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	31	22	18	16	--	--
3	32	23	19	17	--	--
7	35	24	20	18	--	--
14	37	26	22	19	--	--
30	42	30	25	22	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	174	22	62	38	15
November	160	21	66	37	15
December	132	18	58	38	15
January	117	16	43	30	15
February	96	13	39	28	15
March	186	14	56	50	15
April	248	16	81	71	14
May	362	28	112	86	14
June	499	44	169	137	14
July	184	42	95	44	14
August	114	29	73	27	15
September	134	28	64	31	15
Annual	172	36	78	38	14

**06023000 Ruby River near Twin Bridges, Mont.
Site Number 17**

LOCATION.--Lat 45°30'28", long 112°19'48" (NAD 27), in SE¼NE¼NW¼ sec.10, T.4 S., R.6 W., Madison County, Hydrologic Unit 10020003, on right bank 300 ft upstream from county bridge, 1.2 mi upstream from mouth, and 2.6 mi south of Twin Bridges.

DRAINAGE AREA.--935 mi².

PERIOD OF RECORD.--August to October 1940, July 1941 to June 1943, July 1946 to September 1965, and July 1, 1979, to Sept. 30, 1981 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 4,660 ft (NGVD 29, from topographic map).

REMARKS.--Diversions for irrigation of about 28,500 acres, of which about 500 acres lies downstream from station. Some regulation by Ruby River Reservoir (station number 06020500) 24 mi upstream from station.

Magnitude and probability of annual low flow
based on 20 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	41	14	7.3	4.0	--	--
3	44	15	7.8	4.2	--	--
7	57	21	11	5.6	--	--
14	75	31	16	8.0	--	--
30	85	48	32	22	--	--
60	106	69	53	41	--	--
90	117	82	67	56	--	--
120	146	101	80	64	--	--
183	166	121	99	83	--	--

Magnitude and probability of seasonal low flow from
March-June based on 23 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	48	16	8.4	4.5	--	--
3	52	18	9.2	4.9	--	--
7	68	25	13	6.7	--	--
14	91	37	19	9.4	--	--
30	107	56	36	24	--	--

Magnitude and probability of seasonal low flow from
November-February based on 23 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	109	85	73	64	--	--
3	111	87	76	67	--	--
7	114	94	85	79	--	--
14	120	101	92	86	--	--
30	128	109	101	95	--	--

Duration of daily mean flows based on 22 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
22	38	70	95	115	134	152	171
40%	30%	20%	15%	10%	5%	2%	1%
189	223	257	283	334	404	692	925

Magnitude and probability of annual high flow
based on 22 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	664	1,010	1,240	1,520	--	--
3	625	963	1,190	1,490	--	--
7	559	880	1,120	1,440	--	--
15	477	765	998	1,340	--	--
30	408	643	837	1,130	--	--
60	330	487	613	798	--	--
90	287	406	498	632	--	--

Magnitude and probability of seasonal high flow from
July-October based on 22 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	86	51	34	22	--	--
3	92	55	36	24	--	--
7	99	60	40	26	--	--
14	106	66	46	31	--	--
30	119	77	56	41	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	327	88	212	54	24
November	307	136	219	46	23
December	308	124	183	47	23
January	266	96	144	37	23
February	212	98	143	32	23
March	325	103	159	56	23
April	409	82	189	90	23
May	691	23	193	144	23
June	1,020	41	382	299	23
July	456	80	227	103	24
August	211	43	138	46	25
September	334	122	203	56	26
Annual	370	108	199	60	22

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06024590 Wise River near Wise River, Mont. Site Number 18

LOCATION.--Lat 45°42'17", long 113°01'50" (NAD 27), in SE¼NE¼SW¼ sec.36, T.1 S., R.12 W., Beaverhead County, Hydrologic Unit 10020004, Beaverhead National Forest, on left bank 6 ft downstream from abandoned bridge on old county road, 6.5 mi southwest of Wise River, and at river mile 9.1.

DRAINAGE AREA.--214 mi².

PERIOD OF RECORD.--October 1972 to September 1985 (discontinued).

GAGE.--Water-stage recorder and crest-stage gage. Altitude of gage is 6,112.52 ft (NGVD 29, from U.S. Forest Service bench mark).

Magnitude and probability of annual low flow
based on 12 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	27	22	19	16	--	--
3	29	24	21	18	--	--
7	31	26	23	21	--	--
14	33	28	26	24	--	--
30	34	31	30	30	--	--
60	37	34	32	31	--	--
90	41	36	34	33	--	--
120	44	38	35	34	--	--
183	53	43	39	36	--	--

Magnitude and probability of seasonal low flow from
March-June based on 13 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	34	31	30	29	--	--
3	35	32	31	30	--	--
7	36	33	31	30	--	--
14	37	33	32	30	--	--
30	38	34	32	31	--	--

Magnitude and probability of seasonal low flow from
November-February based on 13 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	27	22	19	16	--	--
3	29	24	21	18	--	--
7	32	26	23	21	--	--
14	34	29	26	24	--	--
30	36	32	31	31	--	--

Duration of daily mean flows based on 13 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
25	27	33	35	40	44	51	62
40%	30%	20%	15%	10%	5%	2%	1%
80	111	190	307	549	935	1,340	1,510

Magnitude and probability of annual high flow
based on 13 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	1,530	1,990	2,210	2,400	--	--
3	1,400	1,870	2,090	2,310	--	--
7	1,280	1,730	1,960	2,200	--	--
15	1,150	1,540	1,720	1,900	--	--
30	985	1,330	1,500	1,660	--	--
60	748	995	1,110	1,210	--	--
90	569	749	831	903	--	--

Magnitude and probability of seasonal low flow from
July-October based on 12 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	52	41	36	33	--	--
3	54	43	38	34	--	--
7	56	44	39	35	--	--
14	59	46	40	36	--	--
30	62	48	42	38	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	111	42	68	22	13
November	88	36	54	14	13
December	73	36	46	11	13
January	61	33	42	8.1	13
February	54	32	39	6.9	13
March	52	30	39	6.3	13
April	143	33	88	36	13
May	1,180	135	508	264	13
June	1,330	282	858	344	13
July	777	68	279	184	13
August	192	44	99	39	13
September	132	43	79	28	13
Annual	287	84	183	53	13

**06025500 Big Hole River near Melrose, Mont.
Site Number 19**

LOCATION.--Lat 45°31'36", long 112°42'03" (NAD 27), in SE¼SE¼SW¼ sec.34, T.3 S., R.9 W., Madison County, Hydrologic Unit 10020004, on left bank 50 ft downstream from bridge, on frontage road east of Interstate 15, 0.1 mi downstream from Rock Creek, 7 mi south of Melrose, and at river mile 31.1.

DRAINAGE AREA.--2,476 mi².

PERIOD OF RECORD.--October 1923 to current year (2002). Monthly discharge only for some periods, published in WSP 1309.

GAGE.--Water-stage recorder. Altitude of gage is 5,032.87 ft (NGVD 29). Prior to June 14, 1927, water-stage recorder, and July 17, 1927, to Sept. 30, 1931, nonrecording gage, at site 1.7 mi upstream at different datum.

REMARKS.--Divisions for irrigation of about 136,000 acres upstream from station. Bureau of Reclamation satellite telemeter at station.

Magnitude and probability of annual low flow
based on 78 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	195	136	109	89	70	58
3	206	146	118	97	77	65
7	221	156	126	104	82	69
14	237	167	134	109	85	71
30	264	186	148	121	93	77
60	296	215	178	150	123	106
90	327	247	210	183	156	139
120	362	281	245	218	191	174
183	382	296	260	233	206	190

Magnitude and probability of seasonal low flow from
March-June based on 79 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	323	262	235	214	192	178
3	333	274	247	227	206	193
7	348	291	265	246	227	214
14	367	306	281	263	246	235
30	430	341	307	283	261	248

Magnitude and probability of seasonal low flow from
November-February based on 78 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	215	165	143	127	111	102
3	232	180	157	140	124	114
7	255	200	176	157	139	128
14	276	219	193	174	155	143
30	304	243	216	195	174	160

Duration of daily mean flows based on 79 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
139	165	209	256	312	361	422	491
40%	30%	20%	15%	10%	5%	2%	1%
609	838	1,440	2,090	3,010	4,670	6,810	8,240

Magnitude and probability of annual high flow
based on 79 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	6,690	9,800	11,600	13,700	15,000	16,300
3	6,440	9,400	11,100	13,000	14,300	15,400
7	5,870	8,600	10,200	12,000	13,100	14,200
15	5,170	7,650	9,160	10,900	12,100	13,100
30	4,500	6,610	7,860	9,280	10,200	11,100
60	3,610	5,160	6,070	7,090	7,770	8,380
90	2,950	4,170	4,890	5,710	6,260	6,770

Magnitude and probability of seasonal high flow from
July-October based on 78 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	252	160	122	96	72	59
3	254	164	127	102	79	66
7	260	168	131	106	82	69
14	272	175	137	110	86	72
30	299	193	150	121	94	79

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	1,110	184	494	195	79
November	1,040	255	493	146	79
December	763	223	392	118	79
January	716	143	348	95	79
February	800	143	361	102	79
March	958	248	473	162	79
April	3,520	490	1,490	627	79
May	8,290	1,110	3,280	1,560	79
June	8,380	814	3,950	2,040	79
July	4,120	254	1,310	787	79
August	1,460	88	466	243	79
September	870	114	373	183	79
Annual	2,020	486	1,120	377	79

**06026000 Birch Creek near Glen, Mont.
Site Number 20**

LOCATION.--Lat 45°22'46", long 112°47'48" (NAD 27), in SE¼ SE¼ sec.23, T.5 S., R.10 W., Beaverhead County, Hydrologic Unit 10020004, Beaverhead National Forest, on left bank 2.3 mi downstream from Sheep Creek and 8.5 mi southwest of Glen.

DRAINAGE AREA.--36.0 mi².

PERIOD OF RECORD.--28 years. May 1946 to September 1953, April 1955 to September 1976 (discontinued). Monthly discharge only for May 1946, published in WSP 1309. Prior to October 1950, published as "near Reichle."

GAGE.--Water-stage recorder. Concrete control since May 19, 1966. Altitude of gage is 5,862 ft (NGVD 29) from plane-table survey. Prior to Nov. 16, 1949, at site 1.5 mi upstream at different datum.

REMARKS.--Some regulation at lakes in headwaters. Minor diversions for irrigation upstream from station. Recorded diversions from Willow Creek basin into Birch Creek upstream from station.

Magnitude and probability of annual low flow
based on 26 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3.0	2.0	1.7	1.5	1.3	--
3	3.3	2.3	1.9	1.6	1.4	--
7	3.8	2.8	2.4	2.1	1.8	--
14	4.4	3.3	2.9	2.6	2.3	--
30	5.6	4.5	4.1	3.8	3.5	--
60	6.6	5.6	5.2	4.9	4.6	--
90	7.3	6.1	5.5	5.1	4.7	--
120	8.3	6.9	6.3	5.8	5.3	--
183	10	8.5	7.7	7.1	6.5	--

Magnitude and probability of seasonal low flow from
March-June based on 28 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	5.9	4.4	3.8	3.3	2.8	--
3	6.1	4.7	4.0	3.5	3.0	--
7	6.4	4.9	4.3	3.8	3.3	--
14	6.7	5.3	4.6	4.1	3.6	--
30	7.5	5.9	5.1	4.6	4.0	--

Magnitude and probability of seasonal low flow from
November-February based on 28 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3.0	2.1	1.7	1.5	1.3	--
3	3.4	2.3	1.9	1.7	1.4	--
7	4.1	2.9	2.4	2.1	1.8	--
14	4.8	3.5	3.0	2.6	2.3	--
30	6.2	4.9	4.4	3.9	3.5	--

Duration of daily mean flows based on 28 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
3.2	4.0	4.8	5.9	7.2	8.7	11	13
40%	30%	20%	15%	10%	5%	2%	1%
17	25	46	62	84	120	168	188

Magnitude and probability of annual high flow
based on 28 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	184	247	286	332	364	--
3	173	227	258	292	315	--
7	164	213	239	266	282	--
15	148	188	207	225	234	--
30	130	165	181	196	204	--
60	103	127	138	147	152	--
90	85	103	109	115	118	--

Magnitude and probability of seasonal low flow from
July-October based on 28 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	9.1	6.5	5.3	4.4	3.5	--
3	9.4	6.8	5.6	4.6	3.7	--
7	9.9	7.3	6.0	5.0	4.0	--
14	10	7.6	6.3	5.4	4.4	--
30	11	8.6	7.4	6.5	5.5	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	31	9.1	17	5.4	28
November	21	5.8	11	3.6	28
December	13	3.8	8.0	2.3	28
January	12	5.2	8.0	1.8	28
February	12	4.3	7.3	1.9	28
March	15	4.2	8.0	2.3	28
April	21	5.7	12	4.5	29
May	130	19	53	26	30
June	190	38	115	36	30
July	164	23	67	27	30
August	58	8.3	29	11	30
September	22	6.6	13	3.9	30
Annual	39	16	29	5.9	28

**06026500 Jefferson River near Twin Bridges, Mont.
Site Number 21**

LOCATION.--Lat 45°36'45", long 112°19'47" (NAD 27), in SE¼SE¼SW¼ sec.34, T.2 S., R.6 W., Madison County, Hydrologic Unit 10020005, on left bank 0.4 mi upstream from Hells Canyon Creek, 4.8 mi north of Twin Bridges, and at river mile 2,399.7.

DRAINAGE AREA.--7,632 mi².

PERIOD OF RECORD.--August 1940 to September 1943, October 1957 to September 1972, May 1994 to current year (2002).

GAGE.--Water-stage recorder. Altitude of gage is 4,560 ft (NGVD 29). August 1940 to September 1943, nonrecording gage at site 500 ft downstream at different datum. October 1957 to June 3, 1972, water-stage recorder at site 250 ft downstream and June 4 to September 30, 1972, nonrecording gage 6.5 mi downstream at different datums.

REMARKS.--Some regulation by Clark Canyon (station number 06015300), Lima, and Ruby River Reservoirs. Diversion for irrigation of about 310,000 acres upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 15 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	721	473	348	257	--	--
3	745	491	363	270	--	--
7	791	515	381	285	--	--
14	842	548	407	306	--	--
30	957	635	468	346	--	--
60	1,090	747	561	421	--	--
90	1,210	867	679	532	--	--
120	1,320	986	796	644	--	--
183	1,350	1,050	894	766	--	--

Magnitude and probability of seasonal low flow from
March-June based on 17 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1,090	919	833	765	--	--
3	1,120	942	857	789	--	--
7	1,160	995	909	840	--	--
14	1,220	1,030	937	865	--	--
30	1,310	1,060	957	880	--	--

Magnitude and probability of seasonal low flow from
November-February based on 16 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	940	726	591	478	--	--
3	982	761	620	503	--	--
7	1,050	831	685	560	--	--
14	1,110	907	779	669	--	--
30	1,160	965	848	747	--	--

Duration of daily mean flows based on 17 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
286	342	567	796	988	1,160	1,300	1,450
40%	30%	20%	15%	10%	5%	2%	1%
1,690	1,990	2,570	3,410	4,920	7,230	9,630	11,300

Magnitude and probability of annual high flow
based on 17 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	10,600	13,900	15,000	15,900	--	--
3	10,200	13,400	14,500	15,200	--	--
7	9,620	12,500	13,500	14,100	--	--
15	8,840	11,500	12,400	13,000	--	--
30	7,750	10,000	10,700	11,200	--	--
60	6,130	7,720	8,250	8,600	--	--
90	5,080	6,300	6,720	7,000	--	--

Magnitude and probability of seasonal low flow from
July-October based on 16 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	726	476	352	262	--	--
3	750	498	368	275	--	--
7	798	522	387	291	--	--
14	845	556	412	312	--	--
30	960	642	473	354	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	2,050	730	1,350	410	17
November	2,020	873	1,480	379	17
December	1,860	708	1,250	328	17
January	1,420	641	1,130	253	17
February	1,690	627	1,160	259	17
March	2,090	622	1,300	394	17
April	4,450	1,100	2,220	930	17
May	7,020	1,500	3,970	1,800	18
June	9,820	1,300	5,970	3,000	18
July	4,480	527	2,170	1,230	18
August	1,700	302	921	480	18
September	2,110	288	1,050	518	18
Annual	2,820	955	2,050	602	17

**06027000 Jefferson River near Silver Star, Mont.
Site Number 22**

LOCATION.--Lat 45°38'37", long 112°18'41" (NAD 27), in SW¼ sec.23, T.2 S., R.6 W., Madison County, on highway bridge 0.5 mi west of Ironrod, 4 mi southwest of Silverstar, and 7 mi downstream from the confluence of the Beaverhead and Big Hole Rivers.

DRAINAGE AREA.--7,683 mi² (revised).

PERIOD OF RECORD.--25 years (1910-16, 1920-39).

GAGE.--Wire-weight gage. Altitude of gage is 4,550 ft (NGVD 29, by barometer). Aug. 11, 1910, to Sept. 30, 1916, and July 22 to Aug. 26, 1920, staff gage.

REMARKS.--Diversions for irrigation of about 300,000 acres upstream from station.

Magnitude and probability of annual low flow
based on 23 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	284	122	76	51	--	--
3	297	128	80	54	--	--
7	317	137	85	57	--	--
14	348	152	94	62	--	--
30	412	183	112	72	--	--
60	506	233	144	93	--	--
90	612	305	198	134	--	--
120	735	405	281	203	--	--
183	870	568	443	356	--	--

Magnitude and probability of seasonal low flow from
March-June based on 25 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	842	607	509	438	369	--
3	859	632	536	468	400	--
7	898	680	588	522	456	--
14	952	765	688	634	581	--
30	1,060	882	812	763	716	--

Magnitude and probability of seasonal low flow from
November-February based on 25 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	763	527	421	344	269	--
3	772	532	424	346	271	--
7	785	540	432	354	278	--
14	804	567	461	384	307	--
30	846	621	519	442	366	--

Duration of daily mean flows based on 25 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
86	120	258	435	677	851	1,000	1,170
40%	30%	20%	15%	10%	5%	2%	1%
1,360	1,620	2,140	2,700	3,640	5,630	8,510	10,700

Magnitude and probability of annual high flow
based on 25 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	8,210	12,300	14,800	17,500	19,200	--
3	7,770	11,700	14,000	16,600	18,300	--
7	7,100	10,700	12,900	15,500	17,200	--
15	6,260	9,570	11,600	14,100	15,800	--
30	5,490	8,280	10,000	12,100	13,600	--
60	4,410	6,400	7,620	9,030	10,000	--
90	3,640	5,190	6,150	7,280	8,070	--

Magnitude and probability of seasonal low flow from
July-October based on 23 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	288	125	78	52	--	--
3	302	133	83	57	--	--
7	326	144	90	60	--	--
14	360	157	99	66	--	--
30	429	188	116	76	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	1,970	240	1,040	514	25
November	2,080	562	1,290	400	25
December	2,250	527	1,100	389	25
January	1,550	394	958	265	25
February	1,600	357	939	275	25
March	2,180	781	1,170	326	25
April	3,720	1,020	2,240	705	25
May	7,830	1,330	3,900	1,720	25
June	10,500	1,050	4,840	3,000	25
July	5,120	177	1,630	1,230	25
August	2,030	78	652	494	27
September	1,890	92	800	526	27
Annual	2,950	698	1,720	613	25

**06033000 Boulder River near Boulder, Mont.
Site Number 23**

LOCATION.--Lat 46°12'40", long 112°05'27" (NAD 27), in SE¼NE¼SW¼ sec.3, T.5 N., R.4 W., Jefferson County, Hydrologic Unit 10020006, on left bank 40 ft downstream from county bridge, 1.1 mile downstream from Muskrat Creek, 2.0 mi southeast of Boulder, and at river mile 44.1.

DRAINAGE AREA.--381 mi².

PERIOD OF RECORD.--May 1929 to December 1932, March 1934 to September 1972, October 1984 to current year (2002). Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1729: 1931.

GAGE.--Water-stage recorder. Altitude of gage is 4,810 ft (NGVD 29). Prior to Aug. 29, 1946, nonrecording gage at present site and datum.

REMARKS.--Diversions for irrigation of about 3,500 acres upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 58 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	12	7.3	5.2	3.7	1.4	0.00
3	13	7.7	5.6	4.1	1.7	.00
7	13	8.2	6.2	4.7	3.5	2.8
14	14	9.0	6.9	5.5	4.2	3.4
30	16	10	7.9	6.3	4.9	4.1
60	19	12	9.6	7.6	5.9	4.9
90	23	15	12	9.5	7.3	6.0
120	26	18	14	11	8.7	7.3
183	28	19	16	13	11	9.4

Magnitude and probability of seasonal low flow from
March-June based on 60 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	27	20	17	14	12	10
3	28	21	18	15	12	11
7	30	23	20	17	15	13
14	32	25	22	20	18	17
30	42	31	27	24	21	19

Magnitude and probability of seasonal low flow from
November-February based on 59 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	18	11	7.2	4.7	2.7	1.7
3	20	12	7.9	5.1	2.8	2.0
7	22	13	8.8	5.6	3.7	3.0
14	22	14	11	8.3	5.9	4.6
30	24	17	13	11	8.4	7.0

Duration of daily mean flows based on 59 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
6.1	7.3	11	16	22	27	31	38
40%	30%	20%	15%	10%	5%	2%	1%
45	69	148	228	344	547	865	1,060

Magnitude and probability of annual high flow
based on 59 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	961	1,430	1,740	2,130	2,410	2,690
3	879	1,290	1,560	1,890	2,130	2,360
7	793	1,150	1,380	1,640	1,820	1,990
15	685	998	1,190	1,420	1,580	1,730
30	575	837	1,000	1,190	1,330	1,460
60	443	616	716	830	906	975
90	344	478	557	649	710	768

Magnitude and probability of seasonal low flow from
July-October based on 60 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	13	7.5	5.4	3.9	1.5	0.00
3	14	7.9	5.8	4.2	1.9	.00
7	14	8.5	6.4	4.9	3.6	2.9
14	15	9.2	7.1	5.7	4.5	3.6
30	17	10	8.1	6.5	5.1	4.3

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	113	5.8	37	21	60
November	71	9.1	35	12	60
December	53	7.4	29	9.2	60
January	42	10	26	8.3	59
February	68	7.7	31	12	59
March	121	21	48	22	60
April	511	46	166	96	60
May	961	126	461	182	61
June	1,030	70	407	252	61
July	374	11	96	82	61
August	194	7.1	31	28	61
September	156	5.7	29	26	61
Annual	211	48	117	42	59

40 Statistical Summaries of Streamflow in Montana and Adjacent Areas, Water Years 1900 through 2002

06034500 Jefferson River at Sappington, Mont. Site Number 24

LOCATION.--Lat 45°48'15", long 111°45'05" (NAD 27), in SE¼ sec.29, T.1 N., R.1 W., Gallatin County, on right bank upstream side of bridge on State Highway 287, 1 mi northeast of Sappington, 5.5 mi upstream from Willow Creek, and at river mi 18.0.

DRAINAGE AREA.--9,277 mi².

PERIOD OF RECORD.--36 years (1896-1905, 1938-65).

REVISED RECORDS.--WSP 1389: 1899, 1900, 1902(M), 1904(M). WSP 1559: Drainage area.

GAGE.--Digital water-stage recorder. Altitude of gage is 4,170 ft (NGVD 29, from topographic map). Prior to Sept. 17, 1896, staff gage and Sept. 17, 1896, to Dec. 31, 1905, chain gage at railroad bridge 1.5 mi upstream at different datum. Aug. 16, 1938, to Sept. 30, 1964, graphic water-stage recorder at present site and datum.

REMARKS.--Diversions for irrigation of about 355,000 acres upstream from station. Some regulation by Clark Canyon Reservoir (station number 06015300) at Lima, and Ruby River Reservoir.

Magnitude and probability of annual low flow
based on 28 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	431	285	223	178	136	--
3	446	293	227	180	136	--
7	475	307	234	184	136	--
14	518	328	248	192	140	--
30	595	376	282	217	156	--
60	743	495	377	291	209	--
90	882	611	483	387	294	--
120	1,010	767	656	573	488	--
183	1,130	930	839	769	698	--

Magnitude and probability of seasonal low flow from
March-June based on 31 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1,080	784	638	526	413	--
3	1,120	841	698	586	472	--
7	1,180	927	796	692	581	--
14	1,210	1,020	928	861	792	--
30	1,400	1,190	1,090	1,010	932	--

Magnitude and probability of seasonal low flow from
November-February based on 29 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	709	513	434	378	323	--
3	746	555	476	419	363	--
7	799	614	537	482	428	--
14	907	709	620	552	483	--
30	1,020	838	753	687	619	--

Duration of daily mean flows based on 30 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
247	351	521	671	902	1,110	1,250	1,400
40%	30%	20%	15%	10%	5%	2%	1%
1,610	1,970	2,630	3,320	4,360	6,110	8,350	10,200

Magnitude and probability of annual high flow
based on 30 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	8,400	11,300	13,300	15,700	17,600	--
3	8,210	11,000	12,800	15,200	16,900	--
7	7,680	10,400	12,200	14,400	16,100	--
15	6,870	9,380	11,000	13,100	14,700	--
30	6,140	8,230	9,570	11,200	12,500	--
60	4,970	6,550	7,500	8,600	9,370	--
90	4,200	5,480	6,250	7,140	7,750	--

Magnitude and probability of seasonal low flow from
July-October based on 28 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	447	291	225	180	136	--
3	458	297	229	181	137	--
7	481	309	236	185	137	--
14	521	332	249	194	141	--
30	598	377	283	221	157	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	2,340	776	1,360	465	30
November	3,200	1,060	1,650	409	30
December	2,710	999	1,420	344	30
January	1,890	545	1,130	275	31
February	2,850	829	1,280	402	31
March	2,060	924	1,460	256	31
April	5,030	1,080	2,580	947	31
May	8,060	1,210	4,520	1,930	31
June	12,200	1,880	5,360	2,230	31
July	3,760	215	1,870	903	31
August	1,610	166	709	349	32
September	1,880	497	921	341	32
Annual	3,350	1,170	2,020	499	30

**06035000 Willow Creek near Harrison, Mont.
Site Number 25**

LOCATION.--Lat 46°43'23", long 111°44'25" (NAD 27), in SE¼SW¼NW¼ sec.28, T.1 S., R.1 W., Madison County, Hydrologic Unit 10020005, on right bank 2.2 mi upstream from Willow Creek Dam, 2.5 mi northeast of Harrison, and at river mile 13.6.

DRAINAGE AREA.--83.8 mi².

PERIOD OF RECORD.--April 1938 to September 1982, October 1982 to October 2002 (seasonal records only, discontinued). Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.-- WSP 1559: Drainage area.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 4,750 ft (NGVD 29). Prior to Oct. 8, 1946, water-stage recorder at datum 0.22 ft higher, with different concrete control.

REMARKS.--Diversions for irrigation of about 12,500 acres of which 3,500 acres are in Norwegian Creek drainage.

Magnitude and probability of annual low flow
based on 43 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4.7	2.9	2.3	2.0	1.6	--
3	4.9	3.0	2.4	2.0	1.7	--
7	5.2	3.2	2.5	2.1	1.7	--
14	5.7	3.5	2.7	2.2	1.8	--
30	6.7	3.9	3.0	2.4	1.9	--
60	9.1	4.9	3.6	2.8	2.1	--
90	13	6.5	4.5	3.3	2.3	--
120	17	9.6	6.8	5.1	3.6	--
183	22	15	12	9.4	7.3	--

Magnitude and probability of seasonal low flow from
March-June based on 44 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	14	8.4	6.1	4.5	3.1	--
3	16	9.3	6.6	4.8	3.2	--
7	18	11	7.7	5.6	3.7	--
14	21	13	9.0	6.5	4.3	--
30	27	18	13	9.8	6.8	--

Magnitude and probability of seasonal low flow from
November-February based on 44 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	14	9.6	7.4	5.8	4.3	--
3	15	10	8.0	6.4	4.8	--
7	16	11	9.3	7.7	6.1	--
14	18	13	11	8.8	7.0	--
30	21	16	14	12	10	--

Duration of daily mean flows based on 44 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
2.2	2.8	3.9	5.8	12	19	25	30
40%	30%	20%	15%	10%	5%	2%	1%
36	43	57	65	90	142	215	265

Magnitude and probability of annual high flow
based on 44 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	200	304	379	478	555	--
3	185	279	343	427	490	--
7	166	251	308	381	435	--
15	144	221	274	340	390	--
30	121	190	239	305	357	--
60	91	141	178	228	268	--
90	76	116	144	181	210	--

Magnitude and probability of seasonal high flow from
July-October based on 64 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4.8	3.0	2.4	2.0	1.7	0.85
3	5.0	3.2	2.4	2.1	1.7	.86
7	5.3	3.3	2.6	2.1	1.8	.94
14	5.8	3.6	2.8	2.3	1.8	1.0
30	6.8	4.0	3.1	2.5	2.0	1.1

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	80	2.0	29	19	64
November	56	9.4	34	12	44
December	47	12	30	8.0	44
January	44	10	25	6.3	44
February	61	12	27	9.0	44
March	45	18	32	5.8	44
April	72	11	42	13	64
May	167	11	62	36	65
June	300	10	111	71	65
July	278	1.5	61	54	65
August	61	1.1	12	13	65
September	62	2.0	19	16	65
Annual	76	19	41	15	44

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06036500 Willow Creek near Willow Creek, Mont. Site Number 26

LOCATION.--Lat 45°45'00", long 111°39'30" (NAD 27), in SW¼ sec.18, T.1 S., R.1 E., Gallatin County, 3 mi downstream from Willow Creek Reservoir, 5.5 mi south of town of Willow Creek, and 6 mi upstream from mouth.

DRAINAGE AREA.--165 mi² (revised).

PERIOD OF RECORD.--16 years (1919-32, 1947-50).

GAGE.--Water-stage recorder. Altitude of gage is 4,340 ft (NGVD 29, from topographic map). Prior to June 14, 1920, staff gage at site 0.5 mi downstream at different datum. June 14, 1920, to Dec. 9, 1932, chain gage at present site at different datum. May 9 to June 30, 1946, staff gage at site 500 ft downstream at datum 1.5 ft higher. July 1, 1946, to Sept. 30, 1947, wire-weight gage at present site and datum. Oct. 1, 1947, to Nov. 28, 1949, staff gage at site 0.5 mi downstream at different datum.

REMARKS.--Regulation by Willow Creek Reservoir since 1937. Diversions for irrigation of about 12,800 acres upstream from station.

Magnitude and probability of annual low flow
based on 11 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	12	6.6	4.7	3.5	--	--
3	13	8.3	6.7	5.6	--	--
7	14	9.7	8.1	7.0	--	--
14	15	11	9.0	7.8	--	--
30	18	14	12	11	--	--
60	21	17	15	13	--	--
90	26	21	18	16	--	--
120	29	23	20	18	--	--
183	33	25	21	18	--	--

Magnitude and probability of seasonal low flow from
March-June based on 12 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	28	15	10	7.2	--	--
3	30	17	12	8.6	--	--
7	31	20	15	11	--	--
14	34	23	18	14	--	--
30	40	29	23	18	--	--

Magnitude and probability of seasonal low flow from
November-February based on 13 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	17	9.3	6.1	4.1	--	--
3	18	12	9.2	7.2	--	--
7	19	14	11	9.1	--	--
14	20	15	12	10	--	--
30	22	18	16	15	--	--

Duration of daily mean flows based on 12 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
7.6	9.1	12	16	23	28	32	37
40%	30%	20%	15%	10%	5%	2%	1%
43	52	65	79	94	136	208	249

Magnitude and probability of annual high flow
based on 12 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	208	299	357	--	--	--
3	194	278	335	--	--	--
7	177	254	305	--	--	--
15	151	213	256	--	--	--
30	122	174	212	--	--	--
60	98	141	173	--	--	--
90	85	118	139	--	--	--

Magnitude and probability of seasonal low flow from
July-October based on 13 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	12	7.7	6.2	5.2	--	--
3	13	8.5	6.9	5.9	--	--
7	14	9.7	8.2	7.2	--	--
14	17	12	9.1	8.0	--	--
30	20	14	12	11	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	88	10	38	20	14
November	60	21	41	13	14
December	51	15	34	12	14
January	40	15	26	6.7	13
February	40	15	28	9.6	13
March	60	26	44	8.0	13
April	110	17	58	23	13
May	146	15	92	40	13
June	242	42	112	71	12
July	140	28	57	30	13
August	49	11	26	12	13
September	83	7.0	28	18	14
Annual	64	23	48	11	12

**06036650 Jefferson River near Three Forks, Mont.
Site Number 27**

LOCATION.--Lat 45°53'52", long 111°35'45" (NAD 27), in SW¼SW¼NW¼ sec.27, T.2 N., R.1 E., Broadwater County, Hydrologic Unit 10020005, on left bank 50 ft downstream from bridge on U.S. Highway 10, 2.5 mi northwest of Three Forks, and at river mile 2,329.3.

DRAINAGE AREA.--9,532 mi².

PERIOD OF RECORD.--October 1978 to current year (2002).

GAGE.--Water-stage recorder. Altitude of gage is 4,076.76 ft (NGVD 29).

REMARKS.--Some regulation by Ruby River Reservoir (station number 06020500) and Clark Canyon Reservoir (station number 06015300). Diversions for irrigation of about 390,000 acres upstream from station. U.S. Army Corps of Engineers satellite telemeter at station.

Magnitude and probability of annual low flow
based on 23 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	402	187	118	77	--	--
3	422	193	120	79	--	--
7	454	204	126	82	--	--
14	495	218	133	86	--	--
30	584	257	155	99	--	--
60	749	358	225	147	--	--
90	867	490	353	266	--	--
120	1,030	647	502	403	--	--
183	1,160	811	672	576	--	--

Magnitude and probability of seasonal low flow from
March-June based on 24 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1,030	661	510	405	--	--
3	1,080	705	549	440	--	--
7	1,160	782	620	505	--	--
14	1,290	949	799	689	--	--
30	1,490	1,150	994	872	--	--

Magnitude and probability of seasonal low flow from
November-February based on 23 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	649	450	367	309	--	--
3	711	512	430	373	--	--
7	822	624	540	479	--	--
14	947	724	624	550	--	--
30	1,080	849	747	670	--	--

Duration of daily mean flows based on 24 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
145	211	380	614	885	1,110	1,310	1,500
40%	30%	20%	15%	10%	5%	2%	1%
1,780	2,050	2,580	2,990	3,990	6,020	9,060	10,900

Magnitude and probability of annual high flow
based on 24 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	7,300	12,000	15,300	19,600	--	--
3	7,080	11,600	14,800	19,000	--	--
7	6,570	10,800	13,700	17,500	--	--
15	5,790	9,660	12,400	16,100	--	--
30	4,980	8,360	10,800	14,100	--	--
60	4,150	6,760	8,640	11,100	--	--
90	3,590	5,700	7,190	9,150	--	--

Magnitude and probability of seasonal low flow from
July-October based on 23 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	450	192	120	79	--	--
3	458	199	125	80	--	--
7	479	208	130	85	--	--
14	516	224	136	88	--	--
30	600	267	158	104	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	3,160	803	1,610	647	24
November	2,800	1,040	1,650	523	24
December	1,990	805	1,360	409	24
January	1,930	727	1,240	345	24
February	1,960	805	1,310	354	24
March	2,300	824	1,550	386	24
April	4,440	1,370	2,390	742	24
May	7,680	990	3,790	2,000	24
June	11,400	988	5,110	3,270	24
July	5,500	352	2,090	1,690	24
August	3,030	59	920	768	24
September	3,300	262	1,160	774	24
Annual	3,650	996	2,020	812	24

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06036905 Firehole River near West Yellowstone, Mont. Site Number 28

LOCATION.--Lat 44°37'13", long 110°51'44" (NAD 27), Yellowstone National Park, Hydrologic Unit 10020007, on right bank 1.6 mi south of Madison Junction, 12 mi east of West Yellowstone, and at river mile 1.8.

DRAINAGE AREA.--282 mi².

PERIOD OF RECORD.--October 1983 to March 1996, September 2002 (reactivated).

GAGE.--Water-stage recorder. Altitude of gage is 7,050 ft (NGVD 29).

REMARKS.--No regulation or diversions upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 12 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	228	209	201	195	--	--
3	233	213	205	199	--	--
7	236	216	208	201	--	--
14	241	220	210	203	--	--
30	248	225	214	206	--	--
60	253	229	217	209	--	--
90	256	232	220	211	--	--
120	260	235	223	214	--	--
183	264	239	227	218	--	--

Magnitude and probability of seasonal low flow from
March-June based on 12 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	245	227	219	213	--	--
3	247	230	222	217	--	--
7	250	233	226	220	--	--
14	257	239	232	226	--	--
30	265	248	242	237	--	--

Magnitude and probability of seasonal low flow from
November-February based on 12 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	242	220	209	200	--	--
3	247	226	215	206	--	--
7	251	230	219	211	--	--
14	254	233	222	214	--	--
30	257	236	225	217	--	--

Duration of daily mean flows based on 12 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
192	194	199	209	228	246	265	289
40%	30%	20%	15%	10%	5%	2%	1%
314	339	364	376	439	522	691	755

Magnitude and probability of annual high flow
based on 12 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	733	933	1,070	--	--	--
3	685	889	1,030	--	--	--
7	638	829	965	--	--	--
15	586	748	862	--	--	--
30	539	674	763	--	--	--
60	470	562	619	--	--	--
90	419	492	538	--	--	--

Magnitude and probability of seasonal low flow from
July-October based on 12 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	252	223	209	199	--	--
3	254	224	210	200	--	--
7	255	226	212	202	--	--
14	258	228	214	204	--	--
30	260	230	216	207	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	356	225	283	42	13
November	348	227	278	40	13
December	316	220	269	33	13
January	298	222	264	26	13
February	304	226	263	25	13
March	336	239	272	27	13
April	398	276	334	35	12
May	612	367	493	86	12
June	756	273	435	150	12
July	415	221	300	60	12
August	371	212	275	48	12
September	368	217	275	44	12
Annual	399	264	311	40	12

**06037000 Gibbon River near West Yellowstone, Mont.
Site Number 29**

LOCATION.--Lat 44°38'58", long 111°47'02" (NAD 27), Yellowstone National Park, Hydrologic Unit 10020007, on right bank, 0.6 mi downstream from Canyon Creek, 4.0 mi east of Madison Junction, 16.7 mi east of West Yellowstone, and at river mile 15.6.

DRAINAGE AREA.--118 mi².

PERIOD OF RECORD.--June 1913 to December 1916 (incomplete record most years), October 1983 to March 1996 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 6,940 ft (NGVD 29, from topographic map). Nonrecording gage at site 0.1 mi downstream at different datum, 1913-16.

REMARKS.--No regulation or diversions upstream from station.

Magnitude and probability of annual low flow
based on 13 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	66	61	59	57	--	--
3	67	63	60	58	--	--
7	69	64	61	59	--	--
14	71	66	63	61	--	--
30	73	68	65	62	--	--
60	76	71	68	65	--	--
90	78	73	69	66	--	--
120	80	74	70	67	--	--
183	83	76	72	69	--	--

Magnitude and probability of seasonal low flow from
March-June based on 13 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	71	65	61	58	--	--
3	73	67	63	60	--	--
7	74	68	64	61	--	--
14	76	69	65	62	--	--
30	78	71	67	64	--	--

Magnitude and probability of seasonal low flow from
November-February based on 16 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	68	63	60	58	--	--
3	70	64	62	60	--	--
7	71	66	64	62	--	--
14	73	68	66	63	--	--
30	75	70	67	65	--	--

Duration of daily mean flows based on 13 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
53	60	67	70	75	80	85	90
40%	30%	20%	15%	10%	5%	2%	1%
100	115	133	159	185	262	378	529

Magnitude and probability of annual high flow
based on 13 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	519	837	1,060	1,350	--	--
3	481	766	960	1,210	--	--
7	435	680	844	1,050	--	--
15	373	565	693	851	--	--
30	314	455	544	651	--	--
60	244	332	387	454	--	--
90	207	272	311	358	--	--

Magnitude and probability of seasonal high flow from
July-October based on 15 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	78	70	67	64	--	--
3	79	71	67	64	--	--
7	79	72	68	66	--	--
14	80	73	70	68	--	--
30	83	75	71	69	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	128	69	93	17	16
November	115	70	87	12	16
December	104	67	83	9.1	16
January	95	64	80	7.5	16
February	95	62	76	7.6	16
March	112	62	81	12	16
April	230	96	136	36	15
May	532	123	289	123	13
June	362	99	193	86	13
July	216	73	128	39	15
August	154	66	101	24	16
September	123	66	93	16	16
Annual	159	82	118	21	13

**06037500 Madison River near West Yellowstone, Mont.
Site Number 30**

LOCATION.--Lat 44°39'25", long 111°04'03" (NAD 27), in NE¼NW¼SW¼ sec.36, T.13 S., R.5 E., Gallatin County, Hydrologic Unit 10020007, Yellowstone National Park, on left bank 0.7 mi downstream from Montana-Wyoming State line, 1.5 mi east of West Yellowstone, 16.4 mi downstream from Gibbon River, and at river mile 132.7.

DRAINAGE AREA.--420 mi².

PERIOD OF RECORD.--June 1913 to December 1917, July 1918 to October 1921, June 1922 to September 1973, August 1983 to September 1986, October 1988 to current year (2002). Monthly discharge only for some periods, published in WSP 1309.

GAGE.--Water-stage recorder. Altitude of gage is 6,650 ft (NGVD 29). Prior to Oct. 20, 1918, nonrecording gage, and Oct. 20, 1918, to June 29, 1930, nonrecording gage or water-stage recorder at sites 2.5 mi upstream at different datums. Supplementary nonrecording gage at site 0.3 mi downstream at different datum used at time during 1927-30.

REMARKS.--No regulation or diversions upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 71 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	339	300	281	267	252	242
3	346	308	290	276	261	252
7	356	318	299	285	269	259
14	363	324	304	289	273	262
30	372	331	311	295	279	268
60	387	342	320	302	283	271
90	396	349	326	308	289	276
120	401	353	330	311	292	279
183	408	357	334	315	295	283

Magnitude and probability of seasonal low flow from
March-June based on 75 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	375	337	319	304	287	277
3	379	341	323	308	291	280
7	384	346	327	312	296	286
14	391	352	333	317	301	290
30	400	361	342	328	313	303

Magnitude and probability of seasonal low flow from
November-February based on 75 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	350	307	288	272	256	246
3	359	318	299	284	269	260
7	368	329	311	298	284	275
14	377	337	318	304	289	280
30	385	344	325	310	295	286

Duration of daily mean flows based on 75 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
274	278	292	314	358	395	424	453
40%	30%	20%	15%	10%	5%	2%	1%
482	512	590	671	752	1,000	1,300	1,470

Magnitude and probability of annual high flow
based on 75 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	1,290	1,660	1,900	2,200	2,420	2,640
3	1,220	1,570	1,810	2,110	2,340	2,570
7	1,150	1,490	1,710	1,990	2,200	2,410
15	1,060	1,370	1,570	1,820	2,000	2,170
30	968	1,240	1,410	1,630	1,790	1,940
60	827	1,030	1,160	1,320	1,430	1,540
90	723	891	994	1,120	1,210	1,300

Magnitude and probability of seasonal low flow from
July-October based on 75 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	377	326	304	288	271	261
3	380	328	305	288	271	261
7	384	330	307	290	273	262
14	388	334	311	294	277	266
30	397	341	317	299	281	270

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	710	297	434	84	76
November	697	297	425	71	76
December	641	304	416	65	75
January	586	304	405	61	75
February	572	303	399	52	75
March	539	313	406	52	75
April	671	369	496	78	75
May	1,720	388	851	218	75
June	1,480	341	815	291	76
July	917	282	500	134	78
August	759	273	434	92	79
September	704	282	427	86	79
Annual	789	337	499	86	75

**06038500 Madison River below Hebgen Lake, near Grayling, Mont.
Site Number 31**

LOCATION.--Lat 44°52'00", long 111°20'15" (NAD 27), NE¼NE¼NE¼ sec.22, T.11 S., R.3 E., Gallatin County, Hydrologic Unit 10020007, Gallatin National Forest, on right bank 1,500 ft downstream from Hebgen Dam, 8 mi northwest of Grayling, 17 mi upstream from West Fork, and at river mile 108.8.

DRAINAGE AREA.--905 mi².

PERIOD OF RECORD.--June 1909 to current year (2002). Prior to October 1938 adjusted runoff only, published in WSP 1309. Prior to October 1949, published as "below Hebgen Reservoir."

REVISED RECORDS.--WSP 1509: 1948. WSP 1559: Drainage area. WSP 1629: 1943. WSP 1709: 1959. WSP 1729: 1943.

GAGE.--Water-stage recorder. Altitude of gage is 6,448.47 ft (NGVD 29, after 1959 earthquake). Prior to July 13, 1943, nonrecording gage in stilling well.

REMARKS.--Flow completely regulated by Hebgen Lake (station number 06038000). Diversions for irrigation of about 1,100 acres upstream from station.

Bureau of Reclamation satellite telemeter at station.

Magnitude and probability of annual low flow
based on 63 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	281	106	56	32	15	9.1
3	295	112	60	34	16	9.7
7	313	121	65	37	18	11
14	346	138	76	44	22	13
30	443	192	108	62	31	18
60	550	321	231	172	120	93
90	652	433	338	271	206	170
120	814	574	463	380	299	251
183	918	713	617	543	468	421

Magnitude and probability of seasonal low flow from
March-June based on 64 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	301	109	58	32	16	9.3
3	314	115	61	34	17	9.9
7	333	125	67	37	18	11
14	370	143	78	44	22	13
30	492	213	120	69	34	20

Magnitude and probability of seasonal low flow from
November-February based on 63 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	729	517	401	312	225	176
3	749	541	423	330	237	185
7	773	574	453	355	257	201
14	797	605	483	382	278	218
30	844	662	533	422	305	237

Duration of daily mean flows based on 64 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
79	169	303	499	661	791	889	986
40%	30%	20%	15%	10%	5%	2%	1%
1,080	1,250	1,440	1,580	1,850	2,110	2,620	2,940

Magnitude and probability of annual high flow
based on 64 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	2,390	3,000	3,380	3,840	4,170	4,480
3	2,330	2,920	3,290	3,740	4,070	4,390
7	2,250	2,820	3,160	3,580	3,880	4,170
15	2,120	2,620	2,920	3,270	3,510	3,750
30	1,950	2,360	2,600	2,860	3,040	3,210
60	1,660	2,000	2,190	2,410	2,560	2,700
90	1,450	1,700	1,850	2,020	2,130	2,230

Magnitude and probability of seasonal low flow from
July-October based on 63 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	676	432	306	215	135	94
3	720	473	335	235	145	100
7	774	516	364	252	153	104
14	846	586	415	285	169	112
30	899	671	535	426	315	251

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	2,480	215	1,360	478	64
November	2,540	501	1,400	461	64
December	2,840	410	986	310	64
January	1,410	180	900	212	64
February	1,900	181	839	243	64
March	1,570	291	838	298	64
April	2,340	217	929	502	64
May	2,490	46	857	556	64
June	2,940	96	1,270	705	64
July	2,060	503	1,030	275	64
August	1,720	662	1,080	219	64
September	1,690	368	1,140	278	64
Annual	1,560	506	1,050	190	64

48 Statistical Summaries of Streamflow in Montana and Adjacent Areas, Water Years 1900 through 2002

06038800 Madison River at Kirby Ranch, near Cameron, Mont. Site Number 32

LOCATION.--Lat 44°53'22", long 111°34'46" (NAD 27), in NE¼NE¼SE¼ sec.10, T.11 S., R.1 E., Madison County, Hydrologic Unit 10020007, 75 ft upstream from county bridge, 0.2 mi upstream from West Fork Madison River, and 22 mi south of Cameron, and at river mile 89.8.

DRAINAGE AREA.--1,065 mi².

PERIOD OF RECORD.--September 1959 to September 1963, May 1978 to September 1994 (seasonal records only), October 1995 to current year (2002).

GAGE.--Water-stage recorder. Altitude of gage is 5,860 ft (NGVD 29). Aug. 31, 1959, to Oct. 2, 1959, nonrecording gage 75 ft downstream at datum 0.96 ft lower. Oct. 3, 1959, to September 1963, water-stage recorder at present site and datum. May 1978 to September 1994, nonrecording gage 75 ft downstream at present datum.

REMARKS.--Flow regulated by Hebgen Lake (station number 06038000). Diversions for irrigation of about 1,500 acres upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 10 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	734	429	310	232	--	--
3	738	433	313	234	--	--
7	744	440	320	240	--	--
14	761	463	343	262	--	--
30	811	523	401	316	--	--
60	879	596	469	378	--	--
90	947	665	537	443	--	--
120	1,040	743	604	502	--	--
183	1,130	841	709	610	--	--

Magnitude and probability of seasonal low flow from
March-June based on 12 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	736	432	314	234	--	--
3	740	436	317	237	--	--
7	747	443	325	244	--	--
14	765	466	346	265	--	--
30	814	529	408	320	--	--

Magnitude and probability of seasonal low flow from
November-February based on 12 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	923	720	624	550	--	--
3	928	724	627	552	--	--
7	937	732	634	559	--	--
14	945	739	641	566	--	--
30	967	772	681	612	--	--

Duration of daily mean flows based on 12 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
346	423	564	683	849	980	1,110	1,230
40%	30%	20%	15%	10%	5%	2%	1%
1,350	1,470	1,800	1,990	2,180	2,880	3,740	4,160

Magnitude and probability of annual high flow
based on 12 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	3,080	4,200	4,800	--	--	--
3	3,000	4,100	4,690	--	--	--
7	2,900	3,970	4,570	--	--	--
15	2,780	3,860	4,450	--	--	--
30	2,550	3,530	4,090	--	--	--
60	2,160	2,900	3,310	--	--	--
90	1,900	2,470	2,800	--	--	--

Magnitude and probability of seasonal low flow from
July-October based on 10 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	980	804	715	644	--	--
3	1,000	828	739	667	--	--
7	1,020	860	775	706	--	--
14	1,070	900	810	736	--	--
30	1,100	914	818	741	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	2,570	938	1,610	581	12
November	2,780	736	1,610	588	12
December	3,000	739	1,240	599	12
January	1,450	737	1,060	256	12
February	1,520	626	1,030	302	12
March	1,610	525	1,040	345	12
April	1,530	370	1,010	420	12
May	2,860	445	1,380	611	29
June	3,860	619	1,880	943	29
July	2,120	716	1,330	387	29
August	1,670	734	1,140	238	13
September	1,570	732	1,180	247	14
Annual	1,900	733	1,320	325	12

**06040000 Madison River near Cameron, Mont.
Site Number 33**

LOCATION.--Lat 45°14'00", long 111°45'00" (NAD 27), at center of south line of sec.8, T.7 S., R.1 W., Madison County, on right bank 30 ft downstream from Varney Bridge, 1.8 mi downstream from Wigwam Creek, and 4.1 mi northwest of Cameron.

DRAINAGE AREA.--1,669 mi².

PERIOD OF RECORD.--13 years. October 1951 to September 1958, August 1959 to September 1963, April 1968 to September 1970 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 5,135 ft (NGVD 29, from topographic map).

REMARKS.--Flow regulated by Hebgen Lake (station number 06038000). Diversions for irrigation of about 5,300 acres upstream from station.

Magnitude and probability of annual low flow
based on 10 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	584	426	357	307	--	--
3	643	494	426	376	--	--
7	684	523	448	391	--	--
14	735	558	469	401	--	--
30	791	589	488	409	--	--
60	853	639	534	453	--	--
90	917	726	634	562	--	--
120	1,140	930	815	720	--	--
183	1,280	1,040	904	791	--	--

Magnitude and probability of seasonal low flow from
March-June based on 13 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	635	489	426	380	--	--
3	660	505	437	387	--	--
7	696	528	453	399	--	--
14	745	562	470	408	--	--
30	811	592	491	413	--	--

Magnitude and probability of seasonal low flow from
November-February based on 12 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	816	469	370	310	--	--
3	836	723	669	626	--	--
7	870	748	691	646	--	--
14	883	765	711	670	--	--
30	923	823	781	750	--	--

Duration of daily mean flows based on 12 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
416	472	604	770	887	1,010	1,130	1,270
40%	30%	20%	15%	10%	5%	2%	1%
1,410	1,610	1,930	2,090	2,400	3,030	4,030	4,750

Magnitude and probability of annual high flow
based on 12 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	4,190	5,760	6,630	--	--	--
3	4,010	5,370	6,090	--	--	--
7	3,750	4,970	5,610	--	--	--
15	3,300	4,350	4,930	--	--	--
30	2,990	3,790	4,190	--	--	--
60	2,480	3,010	3,240	--	--	--
90	2,050	2,550	2,820	--	--	--

Magnitude and probability of seasonal low flow from
July-October based on 11 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	995	797	697	617	--	--
3	1,010	818	720	641	--	--
7	1,090	901	798	714	--	--
14	1,180	1,000	912	835	--	--
30	1,250	1,050	944	854	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	2,640	1,140	1,970	442	12
November	3,130	974	1,850	586	12
December	3,030	957	1,290	555	13
January	1,420	859	1,090	177	13
February	1,460	762	1,010	223	13
March	1,640	620	978	330	13
April	1,790	425	999	423	14
May	3,780	677	1,420	798	14
June	4,560	1,000	2,570	1,070	14
July	2,020	884	1,490	342	14
August	1,730	876	1,330	232	14
September	1,830	897	1,440	253	15
Annual	1,740	891	1,410	234	12

**06040300 Jack Creek near Ennis, Mont.
Site Number 34**

LOCATION.--Lat 45°21'22", long 111°34'55" (NAD 27), in NE¼NW¼SE¼ sec.34, T.5 S., R.1 E., Madison County, Hydrologic Unit 10020007, Beaverhead National Forest, on left bank 800 ft upstream from bridge at forest boundary, 8.8 mi east of Ennis, and at river mile 6.5.

DRAINAGE AREA.--51.5 mi².

PERIOD OF RECORD.--September 1973 to September 1986; April 1991 to September 1992, seasonal records only (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 5,470 ft (NGVD 29, from topographic map).

REMARKS.--No known regulation or diversion upstream from station.

Magnitude and probability of annual low flow
based on 12 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	8.8	7.3	6.6	6.1	--	--
3	9.9	8.7	8.2	7.8	--	--
7	11	9.8	9.3	8.9	--	--
14	12	10	9.8	9.3	--	--
30	12	11	10	9.6	--	--
60	13	12	11	11	--	--
90	15	13	13	12	--	--
120	16	14	13	13	--	--
183	20	17	16	15	--	--

Magnitude and probability of seasonal low flow from
March-June based on 13 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	12	9.9	9.0	8.3	--	--
3	12	11	9.8	9.2	--	--
7	13	11	10	9.6	--	--
14	13	11	10	9.8	--	--
30	14	12	11	10	--	--

Magnitude and probability of seasonal low flow from
November-February based on 13 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	9.0	7.4	6.7	6.2	--	--
3	10	8.9	8.3	7.8	--	--
7	11	10	9.6	9.1	--	--
14	12	11	10	9.8	--	--
30	13	12	11	10	--	--

Duration of daily mean flows based on 13 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
9.3	11	12	13	15	18	21	26
40%	30%	20%	15%	10%	5%	2%	1%
32	44	66	89	123	179	244	270

Magnitude and probability of annual high flow
based on 13 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	261	364	431	515	--	--
3	243	336	394	463	--	--
7	222	304	353	410	--	--
15	202	267	303	343	--	--
30	182	233	259	285	--	--
60	148	188	210	233	--	--
90	121	152	168	185	--	--

Magnitude and probability of seasonal low flow from
July-October based on 13 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	20	16	14	13	--	--
3	21	17	16	15	--	--
7	22	19	17	17	--	--
14	22	19	18	17	--	--
30	24	20	19	18	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	35	18	24	5.2	14
November	28	15	20	4.0	13
December	20	13	17	2.1	13
January	18	11	15	1.9	13
February	16	11	13	1.6	13
March	18	9.9	14	2.5	13
April	44	13	33	9.2	15
May	175	37	111	40	15
June	268	72	163	58	15
July	136	35	77	31	15
August	56	26	39	10	15
September	39	22	29	5.9	16
Annual	65	33	47	10	13

**06041000 Madison River below Ennis Lake, near McAllister, Mont.
Site Number 35**

LOCATION.--Lat 45°29'25", long 111°38'00" (NAD 27), in SW¼SE¼NW¼ sec.17, T.4 S., R.1 E., Madison County, Hydrologic Unit 10020007, on right bank 500 ft downstream from Madison powerplant, 1.5 mi downstream from Ennis Lake, 5.7 mi northeast of McAllister, and at river mile 38.8.

DRAINAGE AREA.--2,186 mi².

PERIOD OF RECORD.--October 1901 to December 1905, October 1906 to current year (2002). Prior to October 1938 adjusted monthly runoff only, published in WSP 1309. Published as "below Madison Reservoir," 1938-49. Records published as "near Red Bluff," 1890-94 and as "near Norris," 1910 are not equivalent and are published as "near Norris" in WSP 1309.

REVISED RECORDS.--WSP 1559: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 4,689.03 ft (NGVD 29, levels by U.S. Army Corps of Engineers). Prior to May 7, 1941, nonrecording gage in wooden stilling well at present site at different datum. May 7, 1941, to Jan. 13, 1945, nonrecording gages in concrete stilling well at present site and datum.

REMARKS.--Flow regulated by Hebgen Lake (station number 06038000) and Ennis Lake (station number 06040500). Diversions for irrigation of about 23,000 acres upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 50 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	966	718	571	453	333	263
3	1,020	778	633	513	387	313
7	1,070	852	731	631	523	455
14	1,130	913	791	692	585	518
30	1,200	992	880	789	690	627
60	1,270	1,080	984	908	827	774
90	1,350	1,170	1,070	998	918	865
120	1,550	1,320	1,210	1,110	1,000	935
183	1,640	1,400	1,270	1,170	1,050	976

Magnitude and probability of seasonal low flow from
March-June based on 51 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1,110	849	708	594	476	404
3	1,130	885	754	651	541	473
7	1,180	959	849	762	669	610
14	1,240	1,010	895	805	708	647
30	1,330	1,070	952	856	756	693

Magnitude and probability of seasonal low flow from
November-February based on 50 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	968	820	751	699	645	611
3	1,020	882	815	764	709	675
7	1,120	963	884	821	752	708
14	1,200	1,040	957	894	826	782
30	1,290	1,140	1,060	1,000	938	898

Duration of daily mean flows based on 51 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
765	802	911	1,090	1,230	1,350	1,480	1,650
40%	30%	20%	15%	10%	5%	2%	1%
1,830	2,020	2,200	2,510	2,830	3,360	4,340	5,420

Magnitude and probability of annual high flow
based on 51 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	4,600	6,190	7,180	8,350	9,170	9,960
3	4,410	5,960	6,920	8,080	8,910	9,710
7	4,120	5,570	6,480	7,580	8,370	9,140
15	3,800	5,100	5,910	6,880	7,570	8,230
30	3,420	4,480	5,110	5,860	6,380	6,880
60	2,900	3,650	4,090	4,600	4,950	5,280
90	2,520	3,140	3,510	3,950	4,260	4,550

Magnitude and probability of seasonal low flow from
July-October based on 50 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1,300	1,020	859	693	532	403
3	1,340	1,070	892	736	581	448
7	1,380	1,130	952	795	620	512
14	1,420	1,160	992	845	683	580
30	1,450	1,200	1,050	928	793	706

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	2,960	1,120	2,090	445	51
November	3,320	1,300	2,180	421	51
December	3,240	1,200	1,540	313	51
January	2,060	1,040	1,400	227	51
February	1,960	1,040	1,410	213	51
March	2,050	911	1,460	282	51
April	2,760	746	1,570	479	51
May	4,190	859	2,090	800	51
June	6,140	1,120	3,070	1,300	51
July	3,450	972	1,900	642	51
August	2,340	1,040	1,520	299	51
September	2,300	1,120	1,670	336	51
Annual	2,530	1,140	1,820	320	51

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06042500 Madison River near Three Forks, Mont. Site Number 36

LOCATION.--Lat 45°49'25", long 111°29'50" (NAD 27), in SW¼NE¼ sec.20 T.1 N., R.2 E., Gallatin County, 5 mi south of Three Forks and 8 mi upstream from confluence with Jefferson and Gallatin Rivers.

DRAINAGE AREA.--2,511 mi².

PERIOD OF RECORD.--16 years (1893-96, 1928-32, 1941-50).

GAGE.--Water-stage recorder. Altitude of gage is 4,160 ft (NGVD 29, from topographic map). Aug. 24, 1893, to May 1, 1897, slope gage, and Nov. 8, 1928, to Sept. 30, 1932, wire-weight gage at different datums at site 6 miles downstream.

REMARKS.--Diversions for irrigation of about 31,000 acres upstream from station. Flow regulated by Hebgen Lake (station number 06038000) since 1915 and Ennis Lake (station number 06040500) since 1900.

Magnitude and probability of annual low flow
based on 12 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	736	568	489	428	--	--
3	764	592	510	448	--	--
7	829	654	570	504	--	--
14	882	721	642	581	--	--
30	977	788	688	608	--	--
60	1,130	917	804	713	--	--
90	1,240	1,030	907	806	--	--
120	1,350	1,140	989	858	--	--
183	1,440	1,210	1,060	919	--	--

Magnitude and probability of seasonal low flow from
March-June based on 13 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	807	658	599	557	--	--
3	867	689	616	565	--	--
7	973	765	678	615	--	--
14	1,050	851	769	712	--	--
30	1,180	928	826	754	--	--

Magnitude and probability of seasonal low flow from
November-February based on 12 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	956	738	612	511	--	--
3	998	776	647	542	--	--
7	1,040	830	711	613	--	--
14	1,090	919	826	750	--	--
30	1,170	1,020	950	889	--	--

Duration of daily mean flows based on 13 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
590	664	798	912	1,120	1,230	1,350	1,460
40%	30%	20%	15%	10%	5%	2%	1%
1,630	1,840	2,050	2,150	2,490	3,030	4,000	4,690

Magnitude and probability of annual high flow
based on 13 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	4,100	5,710	6,800	8,190	--	--
3	3,900	5,400	6,410	7,700	--	--
7	3,610	4,920	5,790	6,900	--	--
15	3,340	4,390	5,030	5,780	--	--
30	2,930	3,840	4,410	5,120	--	--
60	2,450	3,100	3,510	4,030	--	--
90	2,210	2,680	2,970	3,310	--	--

Magnitude and probability of seasonal low flow from
July-October based on 12 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	912	708	605	523	--	--
3	953	735	622	533	--	--
7	1,020	786	660	561	--	--
14	1,090	839	704	597	--	--
30	1,210	926	765	635	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	1,820	826	1,300	291	13
November	1,580	884	1,320	195	13
December	1,760	1,000	1,500	219	13
January	2,100	1,100	1,510	266	13
February	2,500	898	1,490	501	13
March	2,000	834	1,440	389	13
April	3,100	778	1,670	694	13
May	2,910	972	1,700	479	13
June	5,580	886	2,670	1,210	13
July	2,560	783	1,600	442	13
August	3,030	884	1,450	536	13
September	2,740	547	1,420	504	13
Annual	1,980	1,040	1,590	275	13

**06043500 Gallatin River near Gallatin Gateway, Mont.
Site Number 37**

LOCATION.--Lat 45°29'51", long 111°16'11" (NAD 27), in SE¼SE¼SE¼ sec.7, T.4 S., R.4 E., Gallatin County, Hydrologic Unit 10020008, on left bank 0.3 mi downstream from Spanish Creek, 7.3 mi south of Gallatin Gateway and at river mile 47.7.

DRAINAGE AREA.--825 mi².

PERIOD OF RECORD.--August 1889 to September 1894, June 1930 to September 1969, annual maximum, water years 1970-71, October 1971 to September 1981, October 1984 to current year (2002). Monthly discharge only for some periods, published in WSP 1309. Published as "West Gallatin River near Bozeman," 1889-94.

REVISED RECORDS.--WSP 1389: 1892(M), 1893-94. WSP 1559: Drainage area. WDR MT-85-1 (M), WDR MT-02-1: 1970-71 (M).

GAGE.--Water-stage recorder. Altitude of gage is 5,167.67 ft (NGVD 29). Prior to Oct. 20, 1932, nonrecording gages at several different sites and datums within 0.8 mi of present site.

REMARKS.--Diversions for irrigation of about 1,400 acres upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 65 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	222	195	183	174	165	160
3	233	205	192	183	173	167
7	247	218	204	194	183	177
14	257	228	215	205	194	187
30	273	242	228	217	205	197
60	289	256	240	228	215	207
90	296	261	245	233	221	213
120	313	274	257	244	230	222
183	362	310	286	268	250	238

Magnitude and probability of seasonal low flow from
March-June based on 67 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	265	230	213	199	185	176
3	273	237	220	207	192	183
7	280	244	227	213	199	189
14	288	251	233	219	204	194
30	301	261	243	229	214	205

Magnitude and probability of seasonal low flow from
November-February based on 67 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	229	197	184	175	166	160
3	240	207	193	184	174	168
7	256	222	206	195	184	178
14	270	235	219	207	195	188
30	284	248	232	219	206	198

Duration of daily mean flows based on 67 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
196	204	226	264	303	338	374	437
40%	30%	20%	15%	10%	5%	2%	1%
506	654	1,000	1,410	2,050	3,010	4,100	4,980

Magnitude and probability of annual high flow
based on 67 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	4,620	5,920	6,650	7,460	7,990	8,470
3	4,310	5,580	6,320	7,150	7,710	8,230
7	3,960	5,170	5,880	6,690	7,250	7,770
15	3,590	4,680	5,300	5,990	6,460	6,880
30	3,160	4,040	4,530	5,040	5,380	5,680
60	2,500	3,150	3,510	3,910	4,160	4,390
90	2,000	2,500	2,780	3,090	3,290	3,470

Magnitude and probability of seasonal low flow from
July-October based on 66 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	379	318	289	267	244	229
3	393	330	299	275	249	233
7	403	337	306	281	255	238
14	411	343	310	285	259	242
30	425	351	317	291	264	247

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	721	238	447	102	67
November	589	247	375	74	68
December	488	214	313	56	67
January	428	200	302	51	67
February	407	220	299	45	67
March	465	206	307	52	67
April	899	263	503	149	67
May	3,140	873	1,790	541	67
June	5,110	643	2,910	1,010	68
July	3,670	345	1,270	576	68
August	1,160	270	602	170	68
September	788	233	483	112	68
Annual	1,180	408	802	174	67

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06048000 East Gallatin River at Bozeman, Mont. Site Number 38

LOCATION.--Lat 45°42'00", long 111°01'45" (NAD 27), near center of south line of sec.31, T.1 S., R.6 E., Gallatin County, on left bank 100 ft upstream from highway bridge, 500 ft downstream from Bozeman Creek, 0.5 mi upstream from Bridger Creek, and 0.5 mi north of Bozeman.

DRAINAGE AREA.--148 mi².

PERIOD OF RECORD.--22 years. August 1939 to September 1961 (discontinued).

REVISED RECORDS.--WSP 1559: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 4,701.6 ft (NGVD 29).

REMARKS.--Diversions for irrigation of about 4,000 acres upstream from station. Some diurnal fluctuation caused by mill upstream from station.

Magnitude and probability of annual low flow
based on 21 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	22	17	15	14	--	--
3	23	18	16	14	--	--
7	25	21	19	17	--	--
14	29	25	23	21	--	--
30	33	28	25	23	--	--
60	37	32	30	29	--	--
90	40	36	34	32	--	--
120	43	38	36	34	--	--
183	45	39	37	35	--	--

Magnitude and probability of seasonal low flow from
March-June based on 22 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	35	26	21	17	--	--
3	36	27	22	18	--	--
7	38	30	25	21	--	--
14	42	34	30	26	--	--
30	55	43	38	35	--	--

Magnitude and probability of seasonal low flow from
November-February based on 22 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	24	19	17	15	--	--
3	26	20	17	15	--	--
7	28	23	20	18	--	--
14	32	27	24	22	--	--
30	36	31	27	24	--	--

Duration of daily mean flows based on 22 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
20	23	26	32	37	42	46	53
40%	30%	20%	15%	10%	5%	2%	1%
60	70	107	145	196	272	378	482

Magnitude and probability of annual high flow
based on 22 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	441	674	845	1,080	--	--
3	392	593	743	950	--	--
7	342	502	619	780	--	--
15	304	426	509	617	--	--
30	261	357	418	493	--	--
60	217	301	356	425	--	--
90	185	252	297	352	--	--

Magnitude and probability of seasonal low flow from
July-October based on 21 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	30	24	21	19	--	--
3	32	25	22	20	--	--
7	33	26	23	21	--	--
14	35	28	25	23	--	--
30	37	30	27	24	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	86	30	52	12	22
November	75	31	50	11	22
December	75	28	46	10	22
January	64	23	39	8.4	22
February	56	28	42	7.8	22
March	124	26	60	20	22
April	329	68	158	77	22
May	529	90	236	108	22
June	343	46	178	83	22
July	134	23	63	24	22
August	96	19	42	17	22
September	83	32	49	12	23
Annual	156	50	85	24	22

**06048500 Bridger Creek near Bozeman, Mont.
Site Number 39**

LOCATION.--Lat 45°42'20", long 110°57'40" (NAD 27), in NE¼NE¼SE¼ sec.34, T.1 S., R.1 E., Gallatin County, Hydrologic Unit 10020008, on right bank, 3.5 mi northeast of Bozeman, and at river mile 3.6.

DRAINAGE AREA.--62.5 mi².

PERIOD OF RECORD.--October 1945 to September 1969, May 1971 to June 1972, March 1987 to August 1987 (discontinued). Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1309: 1948. WSP 1559: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 4,960 ft (NGVD 29, from topographic map). Prior to June 28, 1946, nonrecording gage at present site and datum.

REMARKS.--Divisions for irrigation of about 1,200 acres upstream from station.

Magnitude and probability of annual low flow
based on 23 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3.4	2.2	1.7	1.4	--	--
3	3.8	2.5	1.9	1.6	--	--
7	4.2	2.9	2.3	1.9	--	--
14	4.7	3.4	2.9	2.6	--	--
30	5.5	3.9	3.3	2.9	--	--
60	6.4	4.7	4.0	3.5	--	--
90	7.1	5.2	4.5	4.0	--	--
120	7.8	5.8	5.0	4.5	--	--
183	8.4	6.3	5.6	5.0	--	--

Magnitude and probability of seasonal low flow from
March-June based on 26 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	5.9	3.5	2.7	2.2	1.7	--
3	6.2	3.7	2.9	2.3	1.8	--
7	6.7	4.1	3.2	2.7	2.2	--
14	7.3	4.9	4.2	3.7	3.3	--
30	12	7.0	5.4	4.4	3.4	--

Magnitude and probability of seasonal low flow from
November-February based on 24 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3.5	2.2	1.9	1.6	--	--
3	3.8	2.5	2.1	1.8	--	--
7	4.3	3.0	2.5	2.2	--	--
14	5.0	3.6	3.1	2.7	--	--
30	5.7	4.2	3.6	3.2	--	--

Duration of daily mean flows based on 24 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
2.9	3.6	4.4	5.3	6.7	8.1	10	13
40%	30%	20%	15%	10%	5%	2%	1%
17	28	53	74	109	170	249	316

Magnitude and probability of annual high flow
based on 24 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	260	408	518	668	--	--
3	244	378	475	607	--	--
7	223	334	411	512	--	--
15	193	279	336	408	--	--
30	163	230	272	325	--	--
60	129	181	214	255	--	--
90	105	144	169	199	--	--

Magnitude and probability of seasonal low flow from
July-October based on 24 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	6.7	4.3	3.5	2.8	--	--
3	7.0	4.6	3.6	3.0	--	--
7	7.3	4.9	3.9	3.3	--	--
14	7.8	5.3	4.3	3.7	--	--
30	8.3	5.9	5.1	4.5	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	22	6.1	11	4.3	25
November	22	5.8	10	3.8	25
December	17	4.1	8.7	4.0	25
January	15	3.0	7.2	3.4	25
February	34	2.8	8.9	6.4	25
March	45	2.8	15	11	26
April	148	20	64	35	26
May	333	45	154	72	27
June	240	32	101	56	27
July	84	11	31	16	27
August	38	3.9	13	7.3	26
September	29	5.2	11	5.9	25
Annual	70	16	37	14	24

**06050000 Hyalite Creek at Hyalite Ranger Station, near Bozeman, Mont.
Site Number 40**

LOCATION.--Lat 45°33'42", long 111°04'12" (NAD 27), in NW¼NW¼SE¼ sec.23, T.3 S., R.5 E., Gallatin County, Hydrologic Unit 10020008, Gallatin National Forest, on right bank 0.8 mi south of former Hyalite Ranger Station, 7.3 mi south of Bozeman, and at river mile 20.8.

DRAINAGE AREA.--48.2 m².

PERIOD OF RECORD.--August 1895 to October 1896, calendar year 1897 (discharge measurements only), April 1898 to October 1899, June to October 1900, May to September 1902, calendar year 1903 (discharge measurements only), September to December 1904, September 1934 to September 1994, October 1994 to September 1995 (seasonal records only, discontinued). Monthly discharge only for some periods, published in WSP 1309. Prior to 1934, published as "Middle Creek near Bozeman."

REVISED RECORDS.--WSP 1509: 1902, 1939(M). WSP 1559: Drainage area. WSP 1709: 1953, 1956-57.

GAGE.--Water-stage recorder. Altitude of gage is 5,539.6 ft (NGVD 29). Prior to September 1934, nonrecording gages at two sites 0.5 mi upstream at different datums. Sept. 13, 1934, to May 13, 1948, water-stage recorder at site 0.3 mi downstream at different datum.

REMARKS.--Flow regulated by Middle Creek Reservoir (station 06049500) after March 1951.

Unregulated streamflow period

Magnitude and probability of annual low flow
based on 16 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	12	9.8	8.4	7.3	--	--
3	12	10	8.6	7.4	--	--
7	12	11	10	8.8	--	--
14	14	12	11	9.6	--	--
30	15	13	12	11	--	--
60	18	15	14	13	--	--
90	20	16	15	14	--	--
120	21	18	16	15	--	--
183	25	21	18	17	--	--

Magnitude and probability of seasonal low flow from
March-June based on 17 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	13	11	10	9.4	--	--
3	13	11	10	9.5	--	--
7	14	11	10	9.6	--	--
14	15	12	11	10	--	--
30	16	14	12	11	--	--

Magnitude and probability of seasonal low flow from
November-February based on 17 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	13	11	9.7	8.8	--	--
3	13	11	9.9	9.0	--	--
7	13	11	10	9.2	--	--
14	14	12	11	9.7	--	--
30	16	13	12	11	--	--

Duration of daily mean flows based on 17 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
9.9	11	13	15	19	22	27	32
40%	30%	20%	15%	10%	5%	2%	1%
40	53	87	118	158	213	264	327

Magnitude and probability of annual high flow
based on 17 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	291	378	438	515	--	--
3	268	349	405	478	--	--
7	246	317	365	426	--	--
15	214	278	323	383	--	--
30	191	245	283	334	--	--
60	168	208	234	267	--	--
90	140	174	196	225	--	--

Magnitude and probability of seasonal low flow from
July-October based on 17 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	27	18	13	9.6	--	--
3	28	18	13	9.9	--	--
7	28	21	19	18	--	--
14	29	23	21	19	--	--
30	30	24	22	20	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	53	19	34	10	20
November	39	17	27	7.1	18
December	31	12	22	6.0	18
January	29	9.7	19	4.7	17
February	25	12	17	4.0	17
March	24	11	17	3.7	17
April	122	18	45	28	17
May	290	99	141	45	18
June	270	89	192	53	19
July	160	30	97	37	19
August	75	25	46	15	19
September	58	16	36	11	21
Annual	91	37	57	13	17

**06050000 Hyalite Creek at Hyalite Ranger Station, near Bozeman, Mont.—Continued
Site Number 40**

Regulated streamflow period

Magnitude and probability of annual low flow
based on 41 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	9.9	7.4	6.4	5.6	4.9	--
3	10	7.8	6.7	5.9	5.1	--
7	11	8.5	7.3	6.4	5.6	--
14	12	9.3	8.0	7.1	6.2	--
30	13	10	8.9	7.8	6.7	--
60	15	12	10	9.0	7.7	--
90	17	14	12	10	9.0	--
120	19	15	13	12	10	--
183	28	22	19	18	16	--

Magnitude and probability of seasonal low flow from
March-June based on 42 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	14	11	8.9	7.7	6.6	--
3	15	11	9.3	8.1	6.9	--
7	15	12	10	8.9	7.7	--
14	16	12	11	9.6	8.4	--
30	17	13	11	10	8.7	--

Magnitude and probability of seasonal low flow from
November-February based on 41 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	11	7.8	6.6	5.7	5.0	--
3	11	8.2	6.9	6.0	5.2	--
7	12	8.9	7.5	6.5	5.6	--
14	13	9.7	8.2	7.1	6.2	--
30	15	11	9.3	8.1	6.8	--

Duration of daily mean flows based on 42 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
7.7	9.1	12	14	18	22	28	37
40%	30%	20%	15%	10%	5%	2%	1%
52	79	113	134	174	241	324	365

Magnitude and probability of annual high flow
based on 42 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	361	471	540	626	687	--
3	337	438	502	580	636	--
7	301	388	442	506	552	--
15	269	341	383	433	468	--
30	236	296	331	370	397	--
60	197	246	276	310	334	--
90	169	207	229	254	271	--

Magnitude and probability of seasonal low flow from
July-October based on 43 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	27	20	17	15	13	--
3	28	21	18	16	14	--
7	29	22	19	17	15	--
14	32	24	21	18	16	--
30	36	27	24	21	19	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	80	20	39	14	44
November	62	12	26	9.7	42
December	30	7.7	20	5.4	42
January	32	6.3	17	5.2	42
February	35	8.6	17	4.9	42
March	37	8.5	18	6.1	42
April	66	13	36	13	44
May	273	56	133	50	44
June	383	108	219	59	44
July	275	63	142	45	44
August	145	41	89	22	44
September	117	28	53	19	44
Annual	102	43	68	14	42

58 Statistical Summaries of Streamflow in Montana and Adjacent Areas, Water Years 1900 through 2002

06052500 Gallatin River at Logan, Mont. Site Number 41

LOCATION.--Lat 45°53'07", long 111°26'15" (NAD 27), in SE¼NW¼NE¼ sec.35, T.2 N., R.2 E., Gallatin County, Hydrologic Unit 10020008, on right bank at former county road bridge site, 0.2 mi upstream from present county bridge, 0.5 mi west of Logan, and at river mile 6.3.

DRAINAGE AREA.--1,795 mi².

PERIOD OF RECORD.--September 1893 to December 1905, August 1928 to current year (2002). Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1389: 1898-99, 1903, 1905, 1929(M), 1935-36(M), 1938-39(M), 1941(M). WSP 1559: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 4,086.42 ft (NGVD 29). Prior to Aug. 10, 1928, nonrecording gages at several sites within 0.5 mi of present site at various datums. Aug. 10, 1928, to Oct. 7, 1941, nonrecording gage at present site and datum.

REMARKS.--Some regulation by Middle Creek Reservoir (station number 06049500). Diversions for irrigation of about 110,000 acres upstream from station. U.S. Army Corps of Engineers satellite telemeter at station.

Magnitude and probability of annual low flow
based on 78 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
	50%	20%	10%	5%	2%	1%
1	326	241	203	176	149	133
3	332	246	209	183	157	141
7	346	256	218	191	163	147
14	366	268	226	196	167	149
30	401	289	241	207	173	153
60	473	336	276	233	190	166
90	541	392	324	274	225	195
120	606	449	375	319	262	228
183	674	522	445	385	322	284

Magnitude and probability of seasonal low flow from
March-June based on 80 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
	50%	20%	10%	5%	2%	1%
1	610	440	349	279	209	169
3	634	462	368	295	221	178
7	669	496	398	320	240	194
14	726	567	469	388	301	248
30	824	653	542	448	347	286

Magnitude and probability of seasonal low flow from
November-February based on 79 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
	50%	20%	10%	5%	2%	1%
1	516	404	347	303	256	227
3	536	422	364	319	271	241
7	568	455	396	350	300	269
14	607	491	431	383	331	298
30	648	536	477	428	376	342

Duration of daily mean flows based on 80 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
205	248	322	416	550	622	693	767
40%	30%	20%	15%	10%	5%	2%	1%
888	1,010	1,230	1,490	2,120	3,270	4,630	5,560

Magnitude and probability of annual high flow
based on 80 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
	50%	20%	10%	4%	2%	1%
1	4,880	6,430	7,160	7,820	8,180	8,460
3	4,570	6,070	6,800	7,490	7,880	8,190
7	4,140	5,590	6,340	7,100	7,560	7,950
15	3,690	5,100	5,890	6,740	7,280	7,750
30	3,180	4,470	5,210	6,020	6,540	7,010
60	2,520	3,530	4,120	4,800	5,250	5,670
90	2,060	2,830	3,300	3,850	4,220	4,570

Magnitude and probability of seasonal low flow from
July-October based on 79 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
	50%	20%	10%	5%	2%	1%
1	328	244	206	178	150	135
3	334	248	212	186	158	142
7	349	260	222	194	164	148
14	369	272	230	198	169	151
30	406	293	246	209	175	155

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	1,260	333	777	227	81
November	1,190	328	829	175	81
December	1,050	464	751	127	81
January	971	410	690	118	80
February	1,250	385	707	143	80
March	1,290	478	799	148	80
April	1,990	429	1,050	302	80
May	4,690	176	2,110	896	80
June	5,960	280	2,900	1,360	80
July	3,900	162	1,010	710	80
August	1,660	167	487	230	81
September	1,270	238	647	232	81
Annual	1,670	454	1,060	297	80

**06054500 Missouri River at Toston, Mont.
Site Number 42**

LOCATION.--Lat 46°08'46", long 111°25'11" (NAD 27), in NW¼SE¼NW¼ sec.36, T.5 N., R.2 E., Broadwater County, Hydrologic Unit 10030101, on left bank 2.2 mi southeast of Toston, 4.8 mi upstream from Crow Creek, 7.8 mi downstream from Sixteenmile Creek, and at river mile 2,296.1.

DRAINAGE AREA.--14,669 mi².

PERIOD OF RECORD.--April 1890 to February 1891, April 1910 to December 1916, April 1941 to current year (2002). Monthly discharge only for some periods, published in WSP 1309.

GAGE.--Water-stage recorder. Altitude of gage is 3,905.68 ft (NGVD 29). Prior to Dec. 20, 1916, nonrecording gages at site 2.5 mi downstream at different datums.

REMARKS.--Some regulation by six reservoirs on tributaries and Clark Canyon Reservoir (station number 06015300). Diversions for irrigation of about 555,400 acres of which 12,000 acres lies downstream from station. U.S. Army Corps of Engineers satellite telemeter at station.

Magnitude and probability of annual low flow
based on 65 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1,610	1,180	994	855	716	633
3	1,710	1,260	1,060	914	764	675
7	1,900	1,410	1,180	1,010	839	737
14	2,080	1,510	1,260	1,060	872	758
30	2,320	1,670	1,380	1,160	941	814
60	2,670	1,940	1,610	1,350	1,100	949
90	3,010	2,270	1,910	1,640	1,360	1,200
120	3,390	2,650	2,290	2,000	1,710	1,530
183	3,610	2,990	2,690	2,470	2,220	2,070

Magnitude and probability of seasonal low flow from
March-June based on 67 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2,920	2,180	1,830	1,570	1,300	1,140
3	3,080	2,330	1,960	1,680	1,390	1,210
7	3,340	2,610	2,230	1,930	1,610	1,420
14	3,600	2,920	2,560	2,280	1,980	1,790
30	4,020	3,340	3,000	2,720	2,430	2,250

Magnitude and probability of seasonal low flow from
November-February based on 66 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1,960	1,450	1,200	1,010	815	699
3	2,100	1,600	1,350	1,160	955	832
7	2,390	1,940	1,710	1,530	1,340	1,230
14	2,730	2,310	2,110	1,950	1,770	1,660
30	3,110	2,700	2,510	2,350	2,190	2,080

Duration of daily mean flows based on 67 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
1,210	1,460	1,850	2,340	2,990	3,400	3,760	4,120
40%	30%	20%	15%	10%	5%	2%	1%
4,670	5,400	6,180	7,630	9,560	13,900	19,500	22,700

Magnitude and probability of annual high flow
based on 67 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	17,800	24,300	27,900	31,800	34,300	36,500
3	17,400	23,800	27,400	31,300	33,800	36,100
7	16,400	22,700	26,300	30,200	32,800	35,100
15	15,000	21,100	24,500	28,300	30,800	33,000
30	13,400	18,600	21,600	24,900	27,000	29,000
60	10,900	14,900	17,100	19,500	21,100	22,500
90	9,350	12,500	14,200	16,100	17,300	18,400

Magnitude and probability of seasonal low flow from
July-October based on 67 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1,970	1,380	1,130	964	801	706
3	2,020	1,400	1,150	976	807	710
7	2,090	1,450	1,190	1,020	841	745
14	2,180	1,520	1,270	1,070	881	766
30	2,390	1,680	1,390	1,180	944	825

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	6,780	2,510	4,450	993	68
November	7,030	3,130	4,740	887	68
December	5,970	2,680	3,780	641	68
January	4,890	2,430	3,400	587	67
February	5,220	2,270	3,730	600	67
March	6,900	2,840	4,120	773	67
April	10,100	2,390	5,630	1,680	67
May	18,400	3,130	8,750	3,490	68
June	24,500	3,180	12,500	5,460	68
July	14,200	1,240	5,210	2,760	68
August	5,730	896	2,750	1,170	68
September	5,810	1,450	3,430	1,030	68
Annual	7,740	2,930	5,220	1,220	67

**06055500 Crow Creek near Radersburg, Mont.
Site Number 43**

LOCATION.--Lat 46°16'10", long 111°41'38" (NAD 27), Broadwater County, Hydrologic Unit 10030101, on left bank, 0.8 mi west of Helena National Forest boundary, 1.5 mi upstream from Slim Sam Creek, and 6.0 mi northwest of Radersburg.

DRAINAGE AREA.--76.6 mi².

PERIOD OF RECORD.--April to June 1901, May 1919 to September 1929, June 1966 to June 1972, April 1989 to October 1990 (discontinued, seasonal records only). Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1509: 1920, 1921, 1922(M), 1924(M). WRD MT-66: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 4,870 ft (NGVD 29, from topographic map). Prior to June 29, 1901, nonrecording gage at site 1.5 mi downstream at different datum. May 25, 1919, to Apr. 16, 1924, nonrecording gage at about the same site as earlier record but different datum. Apr. 17, 1924, to Sept. 30, 1929, at site 0.6 mi downstream at different datum.

REMARKS.--No known diversions upstream from gage.

Magnitude and probability of annual low flow
based on 14 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4.7	3.2	2.6	2.2	--	--
3	5.1	3.5	2.9	2.4	--	--
7	5.4	3.7	3.0	2.4	--	--
14	6.1	4.1	3.3	2.6	--	--
30	6.6	4.7	3.9	3.2	--	--
60	7.5	5.6	4.9	4.3	--	--
90	8.6	6.7	5.8	5.1	--	--
120	10	7.8	6.7	5.8	--	--
183	13	11	9.6	8.6	--	--

Magnitude and probability of seasonal low flow from
March-June based on 16 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	7.8	5.2	4.1	3.3	--	--
3	7.9	5.8	4.9	4.4	--	--
7	8.4	6.1	5.2	4.6	--	--
14	8.9	6.8	6.0	5.4	--	--
30	11	8.1	6.9	6.1	--	--

Magnitude and probability of seasonal low flow from
November-February based on 16 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	5.3	3.6	3.0	2.5	--	--
3	5.5	3.8	3.0	2.6	--	--
7	5.9	4.0	3.2	2.6	--	--
14	6.4	4.3	3.4	2.8	--	--
30	6.9	4.9	4.0	3.4	--	--

Duration of daily mean flows based on 15 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
3.5	4.5	5.9	6.7	8.7	12	15	18
40%	30%	20%	15%	10%	5%	2%	1%
22	31	63	92	138	223	332	406

Magnitude and probability of annual high flow
based on 15 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	427	520	578	647	--	--
3	386	475	531	600	--	--
7	345	430	488	562	--	--
15	292	373	430	505	--	--
30	244	313	362	428	--	--
60	179	224	258	305	--	--
90	138	171	196	230	--	--

Magnitude and probability of seasonal low flow from
July-October based on 16 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	11	7.1	5.6	4.6	--	--
3	11	7.8	6.4	5.4	--	--
7	12	9.0	7.4	6.3	--	--
14	14	9.9	8.2	7.0	--	--
30	16	12	9.4	7.8	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	24	7.0	17	5.2	16
November	25	7.0	14	4.8	16
December	17	5.0	9.8	2.8	16
January	17	4.0	8.4	3.0	16
February	14	3.0	8.5	3.0	16
March	20	6.0	12	3.9	16
April	96	9.6	34	21	19
May	263	108	167	46	19
June	377	46	168	94	21
July	142	9.0	54	29	19
August	38	6.9	23	7.7	19
September	27	2.5	17	6.1	20
Annual	68	34	48	9.0	15

**06061500 Prickly Pear Creek near Clancy, Mont.
Site Number 44**

LOCATION.--Lat 46°31'09", long 111°56'45" (NAD 27), in NE¼SE¼SW¼ sec.23, T.9 N., R.3 W., Jefferson County, Hydrologic Unit 10030101, on right bank 3.5 mi downstream from Lump Gulch, 4 mi northeast of Clancy, 7 mi southeast of Helena, and at river mile 24.4.

DRAINAGE AREA.--192 mi².

PERIOD OF RECORD.--July 1908 to September 1916, July 1921 to September 1933, October 1945 to October 1953, October 1954 to September 1969, October 1978 to 2002 (discontinued). October 1969 to September 1980 record collected by Montana Department of Natural Resources and Conservation. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1086: 1946(M). WSP 1309: 1925, 1927, 1931(M), 1933, 1948(M). WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 4,067.1 ft (NGVD 29). Prior to July 12, 1910, nonrecording gage at site 1.2 mi upstream at different datum.

July 12, 1910, to Sept. 30, 1916, and July 28, 1921, to Aug. 12, 1933, nonrecording gage at site 2.2 mi upstream at different datum.

REMARKS.--Diversions for irrigation of about 700 acres upstream from station.

Magnitude and probability of annual low flow
based on 63 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	12	8.6	7.0	5.8	4.8	4.2
3	13	9.0	7.3	6.2	5.0	4.4
7	14	9.8	8.0	6.6	5.3	4.5
14	15	11	8.7	7.1	5.6	4.8
30	17	12	9.7	7.9	6.1	5.1
60	19	14	11	9.0	7.0	5.9
90	21	15	13	11	8.8	7.6
120	22	16	14	12	9.9	8.8
183	24	17	15	13	11	9.6

Magnitude and probability of seasonal low flow from
March-June based on 67 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	20	14	11	9.7	8.2	7.4
3	20	14	12	10	8.7	7.8
7	22	16	13	12	10	9.3
14	24	17	15	13	12	11
30	28	21	18	16	14	13

Magnitude and probability of seasonal low flow from
November-February based on 67 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	15	10	8.3	7.0	5.8	5.1
3	15	11	8.8	7.5	6.2	5.5
7	16	12	9.6	8.2	6.9	6.1
14	17	13	11	9.1	7.6	6.7
30	19	14	12	11	9.1	8.2

Duration of daily mean flows based on 67 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
8.1	10	13	16	19	22	27	31
40%	30%	20%	15%	10%	5%	2%	1%
37	45	63	79	102	149	208	257

Magnitude and probability of annual high flow
based on 67 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	215	361	482	664	823	1,000
3	195	320	419	563	684	819
7	174	280	361	476	571	673
15	157	248	315	406	477	552
30	138	213	265	333	384	436
60	114	170	206	250	282	312
90	96	140	168	201	225	247

Magnitude and probability of seasonal low flow from
July-October based on 66 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	19	11	8.6	6.7	5.0	4.1
3	19	12	8.8	6.9	5.2	4.2
7	19	12	9.1	7.2	5.4	4.4
14	20	13	9.6	7.6	5.7	4.7
30	22	14	10	8.2	6.2	5.2

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	70	11	31	14	68
November	60	12	29	11	67
December	44	10	24	7.8	67
January	37	9.9	21	6.3	67
February	57	8.6	24	8.9	67
March	80	12	31	12	67
April	131	23	52	20	67
May	453	21	108	56	67
June	450	20	129	82	67
July	141	9.9	57	34	69
August	89	4.7	30	17	69
September	71	7.3	29	15	69
Annual	117	15	47	18	67

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06062500 Tenmile Creek near Rimini, Mont. Site Number 45

LOCATION.--Lat 46°31'27", long 112°15'22" (NAD 27), in NE¼SW¼NE¼ sec.20, T.9 N., R.5 W., Lewis and Clark County, Hydrologic Unit 10030101, Helena National Forest, on left bank at U.S. Forest Service Moose Creek campground, 500 ft upstream from Moose Creek, 2.5 mi north of Rimini, and at river mile 20.4.

DRAINAGE AREA.--30.9 mi².

PERIOD OF RECORD.--July 1914 to September 1994, May 1997 to current year (2002). Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1309: 1917, 1921, 1924-25. WSP 1509: 1915, 1916-17(M), 1920(M), 1927(M), 1928-30, 1947(M), 1948, 1950(M). WSP 1559: Drainage area. WSP 1709: 1959. WDR-MT-97-1: Drainage area.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 4,850 ft (NGVD 29). Prior to Dec. 17, 1934, water-stage recorder at site 40 ft downstream at different datum and different control.

REMARKS.--Flow partly regulated by Chessman and Scott Reservoirs on tributaries upstream from station, combined capacity, 2,340 acre-feet. Some small diversions upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 84 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.33	0.13	0.04	0.00	0.00	0.00
3	.36	.14	.07	.00	.00	.00
7	.43	.15	.07	.04	.00	.00
14	.47	.20	.13	.09	.06	.04
30	.58	.27	.18	.13	.09	.07
60	.76	.37	.26	.19	.14	.11
90	.91	.44	.30	.22	.15	.12
120	1.0	.50	.34	.25	.18	.14
183	1.3	.60	.42	.32	.23	.19

Magnitude and probability of seasonal low flow from
March-June based on 86 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.96	0.41	0.26	0.18	0.12	0.09
3	1.0	.43	.28	.19	.12	.09
7	1.1	.49	.31	.21	.14	.10
14	1.3	.58	.37	.26	.17	.12
30	1.8	.81	.51	.35	.22	.16

Magnitude and probability of seasonal low flow from
November-February based on 85 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.49	0.22	0.14	0.10	0.07	0.05
3	.53	.23	.15	.11	.07	.06
7	.62	.28	.19	.13	.09	.07
14	.72	.34	.22	.16	.10	.08
30	.86	.40	.26	.18	.12	.09

Duration of daily mean flows based on 85 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.03	0.07	0.17	0.33	0.66	0.99	1.4	2.1
40%	30%	20%	15%	10%	5%	2%	1%
3.5	6.2	17	30	54	101	168	215

Magnitude and probability of annual high flow
based on 85 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	172	299	397	532	641	756
3	165	271	342	428	489	548
7	148	237	291	352	391	427
15	125	200	244	294	327	356
30	103	164	201	243	270	295
60	75	118	144	171	189	204
90	56	88	106	127	140	151

Magnitude and probability of seasonal low flow from
July-October based on 85 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.42	0.17	0.07	0.00	0.00	0.00
3	.45	.17	.09	.00	.00	.00
7	.52	.18	.09	.04	.00	.00
14	.56	.23	.15	.10	.06	.05
30	.70	.31	.21	.16	.11	.09

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	23	0.19	3.1	4.2	86
November	14	.22	2.3	2.5	86
December	9.6	.17	1.8	1.7	86
January	7.0	.14	1.5	1.2	86
February	5.1	.06	1.3	1.0	86
March	18	.07	2.5	2.7	86
April	67	1.5	18	14	86
May	300	6.1	83	46	87
June	346	3.0	73	63	87
July	66	.34	12	14	86
August	22	.13	2.5	3.1	86
September	22	.23	2.4	3.5	86
Annual	53	1.7	17	9.2	85

**06063000 Tenmile Creek near Helena, Mont.
Site Number 46**

LOCATION.--Lat 46°36'20", long 112°05'20" (NAD 27), near center of SE¼ sec.22, T.10 N., R.4 W., Lewis and Clark County, on right bank near Broadwater Hotel 1.5 mi west of Helena and 2.5 mi upstream from Sevenmile Creek.

DRAINAGE AREA.--96.5 mi².

PERIOD OF RECORD.--46 years. July 1908 to September 1954 (discontinued).

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 3,960 ft (NGVD 29, from topographic map). Prior to Sept. 18, 1925, staff gage and Sept. 18, 1925, to Mar. 15, 1929, water-stage recorder, at site 100 ft downstream at different datum.

REMARKS.--Diversions for irrigation of about 1,200 acres upstream from station.

Magnitude and probability of annual low flow
based on 40 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.35	0.10	0.00	0.00	0.00	--
3	.39	.11	.00	.00	.00	--
7	.44	.14	.00	.00	.00	--
14	.52	.15	.00	.00	.00	--
30	.70	.28	.00	.00	.00	--
60	1.3	.35	.12	.00	.00	--
90	2.2	.65	.27	.10	.00	--
120	3.0	1.3	.76	.49	.29	--
183	4.0	2.0	1.4	1.0	.72	--

Magnitude and probability of seasonal low flow from
March-June based on 46 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3.5	1.6	0.88	0.31	0.00	--
3	3.8	1.7	1.0	.58	.00	--
7	4.7	2.1	1.2	.68	.34	--
14	5.1	2.5	1.6	1.0	.63	--
30	7.3	3.9	2.7	2.0	1.4	--

Magnitude and probability of seasonal low flow from
November-February based on 46 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2.7	1.3	0.78	0.50	0.28	--
3	2.8	1.3	.84	.54	.31	--
7	2.9	1.5	.94	.62	.38	--
14	3.2	1.6	1.1	.71	.44	--
30	3.5	1.9	1.3	.96	.66	--

Duration of daily mean flows based on 46 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.08	0.17	0.42	0.84	1.9	3.2	4.7	6.5
40%	30%	20%	15%	10%	5%	2%	1%
9.5	15	29	43	72	140	246	329

Magnitude and probability of annual high flow
based on 46 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	230	420	560	747	891	--
3	212	391	524	701	837	--
7	187	346	464	620	740	--
15	159	291	390	523	625	--
30	130	242	327	446	541	--
60	98	175	233	310	370	--
90	75	134	176	231	272	--

Magnitude and probability of seasonal low flow from
July-October based on 40 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.36	0.10	0.00	0.00	0.00	--
3	.40	.12	.00	.00	.00	--
7	.45	.15	.00	.00	.00	--
14	.53	.16	.00	.00	.00	--
30	.71	.30	.00	.00	.00	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	40	0.62	8.5	8.3	46
November	26	.99	8.3	6.1	46
December	19	.75	6.3	4.6	46
January	19	.86	5.5	3.9	46
February	14	1.6	5.3	3.0	46
March	31	1.8	9.8	6.8	46
April	111	5.2	36	24	46
May	381	23	115	78	46
June	423	4.4	106	99	46
July	117	.32	19	23	45
August	20	.16	3.6	4.9	42
September	20	.27	3.5	4.2	44
Annual	74	4.6	28	17	46

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06065500 Missouri River below Hauser Dam, near Helena, Mont. Site Number 47

LOCATION.--Lat 46°46'02", long 111°53'27" (NAD 27), in SE¼NW¼SW¼ sec.29, T.12 N., R.2 W., Lewis and Clark County, Hydrologic Unit 10030101, 0.2 mi downstream from Hauser Dam, 1.3 mi upstream from Beaver Creek, 15 mi northeast of Helena, and at river mile 2,237.2.

DRAINAGE AREA.--16,876 mi².

PERIOD OF RECORD.--January 1923 to September 1942, October 1994 to current year (2002). Monthly mean discharges for October, November, and December 1922 were from Congressional documents: 73rd Congress, 2nd session, H. Doc. 238, Missouri River. Published figures are in acre feet.

GAGE.--Water-stage recorder. Altitude of gage is 3,580 ft (NGVD 29).

REMARKS.--Flow regulated by eight small irrigation reservoirs and two powerplants, Clark Canyon Reservoir (station number 06015300) and Canyon Ferry Lake (station number 06058500). Diversions for irrigation of about 594,400 acres. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 19 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	681	458	362	293	--	--
3	1,240	840	676	561	--	--
7	1,620	1,170	990	863	--	--
14	1,850	1,340	1,120	962	--	--
30	2,080	1,510	1,250	1,060	--	--
60	2,320	1,730	1,460	1,260	--	--
90	2,490	1,890	1,630	1,430	--	--
120	2,650	2,040	1,780	1,590	--	--
183	2,850	2,250	1,990	1,790	--	--

Magnitude and probability of seasonal low flow from
March-June based on 20 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1,820	974	659	460	--	--
3	2,260	1,380	1,020	768	--	--
7	2,610	1,820	1,470	1,220	--	--
14	2,970	2,170	1,820	1,550	--	--
30	3,500	2,730	2,390	2,140	--	--

Magnitude and probability of seasonal low flow from
November-February based on 19 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	998	629	493	403	--	--
3	1,620	1,170	987	854	--	--
7	2,050	1,530	1,300	1,130	--	--
14	2,290	1,790	1,570	1,410	--	--
30	2,610	2,090	1,850	1,660	--	--

Duration of daily mean flows based on 20 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
826	1,020	1,430	1,740	2,260	2,640	3,010	3,410
40%	30%	20%	15%	10%	5%	2%	1%
3,820	4,230	5,240	5,800	7,070	9,800	14,200	16,800

Magnitude and probability of annual high flow
based on 20 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	12,500	18,900	23,300	29,000	--	--
3	12,100	18,400	22,900	28,800	--	--
7	11,200	17,200	21,600	27,400	--	--
15	9,860	15,200	19,100	24,300	--	--
30	8,600	13,100	16,500	21,200	--	--
60	7,230	10,700	13,100	16,400	--	--
90	6,280	9,060	11,100	13,800	--	--

Magnitude and probability of seasonal low flow from
July-October based on 19 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	922	551	414	324	--	--
3	1,490	975	766	621	--	--
7	1,840	1,280	1,040	877	--	--
14	2,070	1,440	1,160	964	--	--
30	2,260	1,580	1,280	1,060	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	5,540	1,940	3,300	913	20
November	5,940	2,000	3,430	992	20
December	4,720	1,940	3,250	796	20
January	4,340	1,900	3,080	717	20
February	5,150	1,670	3,220	936	20
March	7,280	2,400	3,940	1,080	20
April	9,230	2,580	5,150	1,920	20
May	16,300	2,380	7,150	3,480	20
June	23,500	2,550	7,960	5,140	20
July	7,640	1,210	3,560	1,760	20
August	3,710	971	2,520	802	20
September	4,620	1,500	2,840	929	20
Annual	6,410	2,380	4,120	1,230	20

**06066500 Missouri River below Holter Dam, near Wolf Creek, Mont.
Site Number 48**

LOCATION.--Lat 46°59'41", long 112°00'37" (NAD 27), in NE¼SW¼SE¼ sec.5, T.14 N., R.3 W., Lewis and Clark County, Hydrologic Unit 10030102, on left bank 0.4 mi downstream from Holter Dam, 2.8 mi southeast of Wolf Creek, and at river mile 2,210.7.

DRAINAGE AREA.--17,149 mi².

PERIOD OF RECORD.--October 1945 to current year (2002).

GAGE.--Water-stage recorder. Altitude of gage is 3,464.11 ft (NGVD 29).

REMARKS.--Flow regulated by nine smaller irrigation reservoirs and powerplants, Clark Canyon Reservoir (station number 06015300), and Canyon Ferry Lake (station number 06058500). Diversions for irrigation of about 594,400 acres. Bureau of Reclamation satellite telemeter at station.

Magnitude and probability of annual low flow
based on 49 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2,720	1,720	1,290	992	718	--
3	2,950	1,920	1,450	1,120	811	--
7	3,120	2,140	1,680	1,340	1,020	--
14	3,270	2,290	1,830	1,490	1,150	--
30	3,500	2,560	2,110	1,770	1,430	--
60	3,690	2,810	2,400	2,090	1,770	--
90	3,890	3,040	2,650	2,360	2,060	--
120	4,110	3,210	2,800	2,490	2,170	--
183	4,370	3,460	3,050	2,730	2,410	--

Magnitude and probability of seasonal low flow from
March-June based on 50 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3,140	1,850	1,350	1,020	725	570
3	3,390	2,030	1,490	1,130	822	625
7	3,540	2,230	1,700	1,350	1,030	821
14	3,710	2,380	1,840	1,510	1,170	930
30	4,080	2,750	2,190	1,790	1,450	1,190

Magnitude and probability of seasonal low flow from
November-February based on 49 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3,670	2,960	2,650	2,410	2,180	--
3	3,890	3,250	2,960	2,750	2,520	--
7	4,070	3,420	3,120	2,890	2,650	--
14	4,170	3,490	3,180	2,930	2,680	--
30	4,350	3,630	3,300	3,040	2,760	--

Duration of daily mean flows based on 50 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time								
99%	98%	95%	90%	80%	70%	60%	50%	
1,760	2,220	2,480	2,910	3,470	3,950	4,430	4,920	
40%	30%	20%	15%	10%	5%	2%	1%	
5,410	5,890	6,940	7,670	8,390	11,000	15,200	17,000	

Magnitude and probability of annual high flow
based on 50 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	12,200	18,600	22,600	27,300	30,500	33,500
3	11,900	18,200	22,200	26,900	30,200	33,300
7	11,300	17,500	21,400	26,100	29,400	32,500
15	10,500	16,300	20,100	24,800	28,200	31,500
30	9,420	14,100	17,300	21,100	24,000	26,800
60	8,140	11,500	13,700	16,300	18,200	20,000
90	7,400	10,100	11,800	13,700	15,100	16,500

Magnitude and probability of seasonal low flow from
July-October based on 49 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3,040	2,130	1,720	1,420	1,120	--
3	3,280	2,420	2,010	1,700	1,390	--
7	3,450	2,660	2,290	2,010	1,730	--
14	3,610	2,800	2,420	2,120	1,820	--
30	3,750	2,950	2,590	2,320	2,040	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	10,100	2,710	4,520	1,340	50
November	8,500	2,970	4,850	1,320	50
December	9,640	3,020	5,100	1,120	50
January	6,640	3,070	5,200	901	50
February	7,950	3,040	5,150	1,040	50
March	9,190	2,760	5,170	1,490	50
April	11,100	2,490	5,350	1,910	50
May	14,300	2,060	6,190	3,030	50
June	20,700	1,530	8,530	5,000	50
July	16,600	2,450	6,060	3,140	50
August	7,590	1,970	4,420	1,300	50
September	10,000	2,080	4,300	1,390	50
Annual	8,500	3,010	5,400	1,430	50

**06068500 Little Prickly Pear Creek near Marysville, Mont.
Site Number 49**

LOCATION.--Lat 46°47'16", long 112°24'24" (NAD 27), in SW¼ sec.18 T.12 N., R.6 W., Lewis and Clark County, 0.5 mi (revised) downstream from Deadman Creek and 6 mi northeast of Marysville.

DRAINAGE AREA.--44.4 mi².

PERIOD OF RECORD.--19 years (1913-32).

GAGE.--Staff gage. Altitude of gage is 4,700 ft (NGVD 29, from topographic map). Apr. 12 to May 23, 1913, at site just downstream from mouth of Deadman Creek at different datum.

REMARKS.--Some diversions for irrigation upstream from station.

Magnitude and probability of annual low flow
based on 18 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4.4	3.1	2.5	2.1	--	--
3	4.4	3.1	2.6	2.2	--	--
7	4.4	3.1	2.6	2.2	--	--
14	4.7	3.5	2.9	2.6	--	--
30	5.4	4.2	3.7	3.4	--	--
60	6.6	5.4	4.8	4.3	--	--
90	7.7	6.3	5.6	5.1	--	--
120	8.7	7.0	6.2	5.6	--	--
183	11	8.3	7.2	6.4	--	--

Magnitude and probability of seasonal low flow from
March-June based on 19 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	5.7	3.7	2.9	2.4	--	--
3	5.7	3.7	3.0	2.4	--	--
7	5.9	3.9	3.0	2.5	--	--
14	6.5	4.2	3.4	2.8	--	--
30	7.8	5.1	4.2	3.6	--	--

Magnitude and probability of seasonal low flow from
November-February based on 19 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	5.3	3.9	3.3	2.8	--	--
3	5.4	4.0	3.3	2.8	--	--
7	5.4	4.0	3.3	2.8	--	--
14	5.5	4.2	3.5	3.1	--	--
30	5.8	4.6	4.0	3.6	--	--

Duration of daily mean flows based on 19 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
3.4	4.1	4.8	5.8	7.1	8.9	12	14
40%	30%	20%	15%	10%	5%	2%	1%
18	22	32	44	63	107	168	215

Magnitude and probability of annual high flow
based on 19 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	156	243	288	332	--	--
3	151	232	273	313	--	--
7	138	212	251	289	--	--
15	117	182	219	258	--	--
30	96	154	190	234	--	--
60	74	118	147	184	--	--
90	61	95	115	140	--	--

Magnitude and probability of seasonal low flow from
July-October based on 20 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	11	7.6	6.1	5.0	--	--
3	11	8.0	6.6	5.6	--	--
7	12	8.3	6.9	5.9	--	--
14	12	8.6	7.1	6.0	--	--
30	12	9.2	7.7	6.6	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	18	7.2	13	3.9	20
November	16	4.6	11	3.4	20
December	14	5.3	9.4	2.4	20
January	11	5.0	7.9	1.9	19
February	10	3.5	6.1	1.8	19
March	24	3.3	9.4	5.5	19
April	64	5.0	30	18	20
May	190	23	87	44	20
June	245	17	78	60	20
July	67	8.7	32	16	20
August	28	7.2	19	6.4	20
September	20	7.3	14	4.0	20
Annual	51	8.8	26	10	19

**06071000 Little Prickly Pear Creek near Canyon Creek, Mont.
Site Number 50**

LOCATION.--Lat 46°49'08", long 112°15'01" (NAD 27), in NW¼ sec.9, T.12 N., R.5 W., Lewis and Clark County, 0.5 mi downstream from Canyon Creek and 1 mi (revised) northeast of Canyon Creek Post Office.

DRAINAGE AREA.--183 mi².

PERIOD OF RECORD.--13 years (1909-11, 1913-24).

GAGE.--Staff gage. Altitude of gage is 4,240 ft (NGVD 29, from topographic map). Prior to June 2, 1917, at site 0.25 mi downstream at different datum.

REMARKS.--Flow is greatly affected by diversions for irrigation upstream from station.

Magnitude and probability of annual low flow
based on 10 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.66	0.13	0.00	0.00	--	--
3	.78	.16	.00	.00	--	--
7	1.3	.29	.00	.00	--	--
14	1.8	.49	.24	.14	--	--
30	3.1	.97	.53	.32	--	--
60	7.0	2.1	1.0	.51	--	--
90	11	5.0	3.0	1.9	--	--
120	13	6.4	4.1	2.7	--	--
183	17	9.8	6.8	4.8	--	--

Magnitude and probability of seasonal low flow from
March-June based on 12 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	10	0.71	0.02	0.00	--	--
3	11	.84	.03	.00	--	--
7	13	1.2	.05	.00	--	--
14	15	2.5	.80	.27	--	--
30	31	8.2	2.9	1.1	--	--

Magnitude and probability of seasonal low flow from
November-February based on 13 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	16	9.2	6.1	4.1	--	--
3	16	9.8	7.0	5.0	--	--
7	17	11	8.0	6.1	--	--
14	17	12	9.9	8.2	--	--
30	19	14	12	11	--	--

Duration of daily mean flows based on 12 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.27	0.54	1.8	4.7	13	18	22	27
40%	30%	20%	15%	10%	5%	2%	1%
31	41	64	88	139	232	337	418

Magnitude and probability of annual high flow
based on 12 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	282	398	444	--	--	--
3	271	384	425	--	--	--
7	252	358	395	--	--	--
15	219	320	358	--	--	--
30	181	272	309	--	--	--
60	139	209	240	--	--	--
90	111	168	194	--	--	--

Magnitude and probability of seasonal low flow from
July-October based on 15 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1.7	0.21	0.00	0.00	--	--
3	1.9	.23	.00	.00	--	--
7	2.3	.47	.14	.00	--	--
14	2.9	.86	.46	.27	--	--
30	4.0	1.3	.75	.47	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	44	4.9	23	9.4	15
November	40	10	25	8.8	15
December	49	12	24	8.6	15
January	44	13	23	8.1	13
February	47	13	25	10	13
March	80	20	41	20	13
April	181	23	83	41	15
May	458	9.4	189	116	15
June	291	.40	111	96	14
July	134	.66	32	40	15
August	36	.84	13	11	15
September	38	2.2	20	11	15
Annual	79	12	44	18	12

**06071300 Little Prickly Pear Creek at Wolf Creek, Mont.
Site Number 51**

LOCATION.--Lat 47°00'19", long 112°04'10" (NAD 27), in NE¼NW¼NE¼ sec.2, T.14 N., R.4 W., Lewis and Clark County, Hydrologic Unit 10030102, on right bank 30 ft downstream from Interstate 15 access road bridge, 500 ft southwest of Wolf Creek Post Office, 0.5 mi downstream from Wolf Creek, and at river mile 3.2.

DRAINAGE AREA.--381 mi².

PERIOD OF RECORD.--May 1962 to September 1967, October 1991 to current year (2002).

GAGE.--Water-stage recorder. Altitude of gage is 3,547.38 ft (NGVD 29). May 10, 1962, to July 6, 1965, water-stage recorder on left bank at present datum.

July 7, 1965, to Apr. 11, 1966, non-recording gage on bridge 0.25 mi upstream at datum 3.27 ft higher. Apr. 12, 1966, to Sept. 30, 1967, water-stage recorder on right bank 23 ft upstream at present datum.

REMARKS.--Diversions for irrigation of about 2,500 acres upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 15 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	19	14	11	9.8	--	--
3	21	15	12	10	--	--
7	24	17	14	11	--	--
14	28	19	15	13	--	--
30	32	22	17	14	--	--
60	36	24	19	16	--	--
90	38	27	22	18	--	--
120	40	29	24	20	--	--
183	42	31	27	24	--	--

Magnitude and probability of seasonal low flow from
March-June based on 16 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	34	23	19	16	--	--
3	35	24	20	17	--	--
7	39	28	24	20	--	--
14	48	35	29	25	--	--
30	58	41	33	27	--	--

Magnitude and probability of seasonal low flow from
November-February based on 16 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	21	16	15	13	--	--
3	23	18	16	15	--	--
7	27	21	19	17	--	--
14	32	26	23	21	--	--
30	39	31	27	24	--	--

Duration of daily mean flows based on 16 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
15	18	24	28	36	43	50	58
40%	30%	20%	15%	10%	5%	2%	1%
65	82	110	131	182	300	519	677

Magnitude and probability of annual high flow
based on 16 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	495	1,040	1,510	2,210	--	--
3	438	862	1,200	1,670	--	--
7	363	671	902	1,210	--	--
15	297	525	691	910	--	--
30	237	428	580	799	--	--
60	193	348	477	671	--	--
90	162	281	378	522	--	--

Magnitude and probability of seasonal low flow from
July-October based on 16 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	30	18	13	10	--	--
3	31	18	14	11	--	--
7	32	19	14	12	--	--
14	33	20	15	13	--	--
30	35	22	17	14	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	131	30	52	28	16
November	98	32	54	17	16
December	75	26	50	13	16
January	69	31	45	11	16
February	190	29	61	40	16
March	102	42	66	18	16
April	372	65	134	87	16
May	580	36	235	178	17
June	684	26	210	184	17
July	175	18	83	47	17
August	95	14	47	24	17
September	127	18	50	32	17
Annual	179	35	90	42	16

**06073000 Dearborn River near Clemons, Mont.
Site Number 52**

LOCATION.--Lat 47°17'30", long 112°27'00" (NAD 27), in SE¼ SE¼ sec.23, T.18 N., R.7 W., Lewis and Clark County, on right bank 300 ft upstream from highway bridge, 0.5 mi southeast of former post office at Clemons, 2 mi downstream from Falls Creek, and 14 mi south of Augusta.

DRAINAGE AREA.--123 mi².

PERIOD OF RECORD.--26 years. April 1921 to September 1923, May 1929 to September 1953. May 1908 to December 1911 at site 2.5 mi upstream; records not equivalent owing to tributary inflow (published as "above Falls Creek, near Clemons" in WSP 1309). Monthly discharge only for some periods, published in WSP 1309.

GAGE.--Water-stage recorder. Altitude of gage is 4,560 ft (NGVD 29, by barometer). Prior to Apr. 8, 1931, wire-weight gage at same site and datum.

REMARKS.--Diversions for irrigation of about 2,500 acres in Flat Creek drainage, all of which lies downstream from station.

Magnitude and probability of annual low flow
based on 24 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	16	11	8.6	7.3	--	--
3	16	11	8.7	7.4	--	--
7	16	11	9.2	7.8	--	--
14	17	12	9.7	8.2	--	--
30	19	13	10	8.7	--	--
60	23	15	12	9.9	--	--
90	27	18	14	12	--	--
120	30	21	17	14	--	--
183	33	23	19	17	--	--

Magnitude and probability of seasonal low flow from
March-June based on 26 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	25	19	17	16	15	--
3	26	20	18	16	15	--
7	27	21	18	17	15	--
14	29	22	20	18	17	--
30	31	24	22	20	19	--

Magnitude and probability of seasonal low flow from
November-February based on 26 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	22	18	16	15	14	--
3	23	18	16	16	14	--
7	25	20	18	16	15	--
14	26	20	18	17	15	--
30	27	21	19	17	16	--

Duration of daily mean flows based on 26 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
10	12	16	19	25	29	34	42
40%	30%	20%	15%	10%	5%	2%	1%
53	75	141	216	339	529	805	1,050

Magnitude and probability of annual high flow
based on 26 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	1,090	1,790	2,120	2,400	2,540	--
3	1,010	1,630	1,920	2,160	2,280	--
7	851	1,350	1,580	1,780	1,870	--
15	684	1,080	1,270	1,440	1,520	--
30	542	853	1,010	1,150	1,220	--
60	422	653	762	856	904	--
90	326	514	610	700	749	--

Magnitude and probability of seasonal low flow from
July-October based on 26 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	16	11	8.7	7.4	6.2	--
3	16	11	8.8	7.4	6.3	--
7	17	11	9.3	7.8	6.7	--
14	18	12	9.8	8.3	7.1	--
30	20	13	10	8.8	7.4	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	111	11	44	24	26
November	125	22	45	24	26
December	97	20	39	19	26
January	65	18	33	12	26
February	51	18	31	11	26
March	104	18	36	18	26
April	440	25	129	105	27
May	675	50	375	160	28
June	1,210	23	451	309	28
July	364	14	123	101	28
August	213	10	47	43	28
September	109	9.4	35	22	28
Annual	214	24	116	55	26

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06073500 Dearborn River near Craig, Mont. Site Number 53

LOCATION.--Lat 47°11'57", long 112°05'44" (NAD 27), in NW¼ NW¼ SE¼ sec.27, T.17 N., R.4 W., Lewis and Clark County, Hydrologic Unit 10030102, on left bank at upstream side of bridge on U.S. Highway 287, 7.0 mi downstream from South Fork Dearborn River, 10.5 mi northwest of Craig, 13.5 mi north of Wolf Creek, and at river mile 19.0.

DRAINAGE AREA.--325 mi².

PERIOD OF RECORD.--October 1945 to September 1969, October 1993 to current year (2002).

GAGE.--Water-stage recorder. Altitude of gage is 3,800 ft (NGVD 29). Oct. 1, 1945, to Sept. 30, 1946, nonrecording gage; Oct. 1, 1946, to June 9, 1964, water-stage recorder on upstream side of bridge; June 10, 1964, to May 31, 1965, nonrecording gage; June 1, 1965, to Sept. 30 1969, water-stage recorder on downstream side of abandoned bridge, all at same datum.

REMARKS.--U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 31 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	25	18	14	12	9.3	--
3	27	19	16	13	10	--
7	29	21	17	14	11	--
14	32	22	18	15	12	--
30	37	25	20	16	12	--
60	42	29	23	19	15	--
90	49	35	29	23	18	--
120	55	40	33	28	23	--
183	58	42	36	31	27	--

Magnitude and probability of seasonal low flow from
March-June based on 33 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	43	30	25	21	17	--
3	45	32	27	23	20	--
7	48	35	30	26	22	--
14	52	40	35	32	29	--
30	75	52	44	38	32	--

Magnitude and probability of seasonal low flow from
November-February based on 32 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	29	22	20	18	16	--
3	31	24	21	19	17	--
7	34	26	24	22	20	--
14	39	31	27	24	21	--
30	46	35	30	27	24	--

Duration of daily mean flows based on 33 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
17	21	28	35	44	54	63	79
40%	30%	20%	15%	10%	5%	2%	1%
99	143	251	368	564	865	1,340	1,790

Magnitude and probability of annual high flow
based on 33 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	1,650	3,180	4,610	6,980	9,240	--
3	1,530	2,800	3,870	5,520	6,970	--
7	1,330	2,240	2,930	3,880	4,630	--
15	1,090	1,760	2,250	2,900	3,410	--
30	895	1,380	1,710	2,110	2,410	--
60	700	1,060	1,290	1,570	1,770	--
90	561	833	1,000	1,200	1,330	--

Magnitude and probability of seasonal low flow from
July-October based on 31 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	33	20	16	12	9.2	--
3	34	21	17	13	10	--
7	35	22	17	14	11	--
14	36	23	18	15	12	--
30	40	26	20	16	13	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	187	17	74	39	33
November	165	34	75	31	33
December	155	24	67	29	33
January	104	22	57	20	33
February	184	22	61	29	33
March	187	34	84	37	33
April	518	51	236	129	33
May	1,340	135	692	302	33
June	2,100	113	784	545	33
July	583	27	213	131	33
August	163	13	69	39	33
September	230	19	58	43	34
Annual	363	58	206	80	33

**06074000 Missouri River at Cascade, Mont.
Site Number 54**

LOCATION.--Lat 47°16'10", long 111°41'43" (NAD 27), in SW¼NE¼ sec.35, T.18 N., R.1 W., Cascade County, at highway bridge at Cascade.

DRAINAGE AREA.--18,493 mi².

PERIOD OF RECORD.--13 years (1902-15).

GAGE.--Chain gage. Altitude of gage is 3,337.8 ft (NGVD 29).

REMARKS.--Diversion for irrigation of about 588,000 acres upstream from station. Flow regulated by Hauser Lake and Canyon Ferry powerplants.

Magnitude and probability of annual low flow
based on 12 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1,890	1,350	1,080	873	--	--
3	2,050	1,570	1,350	1,180	--	--
7	2,260	1,850	1,670	1,530	--	--
14	2,350	1,940	1,760	1,620	--	--
30	2,470	2,040	1,840	1,700	--	--
60	2,740	2,290	2,080	1,910	--	--
90	3,040	2,580	2,340	2,150	--	--
120	3,360	2,790	2,510	2,290	--	--
183	3,610	3,010	2,720	2,480	--	--

Magnitude and probability of seasonal low flow from
March-June based on 13 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3,640	2,470	1,820	1,330	--	--
3	3,820	2,710	2,090	1,600	--	--
7	3,890	3,350	3,100	2,910	--	--
14	4,170	3,530	3,230	3,000	--	--
30	4,340	3,540	3,260	3,070	--	--

Magnitude and probability of seasonal low flow from
November-February based on 13 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2,650	2,440	2,350	2,290	--	--
3	2,770	2,540	2,430	2,360	--	--
7	2,870	2,620	2,500	2,400	--	--
14	2,950	2,700	2,560	2,440	--	--
30	3,010	2,740	2,580	2,450	--	--

Duration of daily mean flows based on 13 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
1,630	1,790	2,220	2,450	2,910	3,340	3,740	4,150
40%	30%	20%	15%	10%	5%	2%	1%
4,970	6,030	8,410	10,700	13,900	19,000	25,000	31,600

Magnitude and probability of annual high flow
based on 13 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	25,100	34,800	40,800	47,900	--	--
3	24,600	33,900	39,600	46,200	--	--
7	23,700	32,200	37,300	43,000	--	--
15	22,100	29,800	34,300	39,400	--	--
30	19,900	26,300	30,000	34,200	--	--
60	16,700	20,900	22,700	24,300	--	--
90	14,100	17,100	18,200	19,100	--	--

Magnitude and probability of seasonal low flow from
July-October based on 13 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2,140	1,590	1,280	1,030	--	--
3	2,170	1,720	1,510	1,360	--	--
7	2,280	1,860	1,690	1,550	--	--
14	2,370	1,960	1,780	1,640	--	--
30	2,570	2,050	1,860	1,710	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	6,320	2,160	4,320	1,470	13
November	6,150	2,900	4,370	1,130	13
December	4,300	2,700	3,480	473	13
January	3,600	2,300	3,130	395	13
February	5,700	3,000	3,500	754	13
March	9,350	3,100	4,810	1,640	13
April	11,500	3,640	7,430	2,110	13
May	15,900	3,940	11,600	3,560	13
June	36,700	8,080	18,900	7,720	13
July	18,700	2,840	7,790	3,930	14
August	6,010	1,800	3,410	1,360	14
September	5,370	1,930	3,360	1,140	14
Annual	7,910	3,660	6,360	1,250	13

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06074500 Smith River near White Sulphur Springs, Mont. Site Number 55

LOCATION.--Lat 46°40'18", long 110°43'24" (NAD 27), near center of sec.33, T.11 N., R.8 E., Meagher County, at Meachen Ranch, 12 mi (revised) northeast of White Sulphur Springs.

DRAINAGE AREA.--30.7 mi².

PERIOD OF RECORD.--11 years (1922-31, 1934-36).

GAGE.--Chain gage. Altitude of gage is 5,600 ft (NGVD 29, from topographic map). Prior to Jun. 27, 1927, staff gage at site 150 ft downstream at same datum.

REMARKS.--A few small diversions for irrigation upstream from station.

Magnitude and probability of annual low flow
based on 10 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2.9	1.9	1.6	1.4	--	--
3	3.0	2.0	1.7	1.4	--	--
7	3.2	2.2	1.8	1.5	--	--
14	3.5	2.4	2.0	1.7	--	--
30	4.0	2.8	2.3	2.0	--	--
60	4.8	3.4	2.8	2.4	--	--
90	5.7	4.0	3.3	2.9	--	--
120	6.6	4.6	3.9	3.3	--	--
183	7.6	5.3	4.3	3.6	--	--

Magnitude and probability of seasonal low flow from
March-June based on 12 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	5.3	3.0	2.4	2.0	--	--
3	5.5	3.1	2.4	2.0	--	--
7	5.8	3.3	2.5	2.0	--	--
14	6.1	3.7	2.9	2.5	--	--
30	7.5	4.9	4.0	3.5	--	--

Magnitude and probability of seasonal low flow from
November-February based on 10 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3.8	2.4	1.9	1.5	--	--
3	3.9	2.5	1.9	1.5	--	--
7	4.1	2.7	2.1	1.7	--	--
14	4.2	2.8	2.2	1.8	--	--
30	4.4	3.1	2.5	2.1	--	--

Duration of daily mean flows based on 11 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
2.0	2.4	3.2	4.2	5.4	6.6	7.8	10
40%	30%	20%	15%	10%	5%	2%	1%
13	17	25	34	50	78	123	170

Magnitude and probability of annual high flow
based on 11 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	125	244	338	--	--	--
3	109	209	289	--	--	--
7	97	181	247	--	--	--
15	83	151	205	--	--	--
30	73	131	175	--	--	--
60	62	105	134	--	--	--
90	50	83	104	--	--	--

Magnitude and probability of seasonal low flow from
July-October based on 10 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4.8	2.7	2.0	1.6	--	--
3	5.1	3.0	2.3	1.9	--	--
7	5.5	3.2	2.5	2.0	--	--
14	6.2	3.7	2.8	2.3	--	--
30	7.2	4.2	3.2	2.5	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	16	4.0	10	4.0	11
November	18	2.9	9.3	4.2	11
December	12	2.9	7.5	3.5	11
January	8.0	3.0	5.5	1.8	11
February	11	2.0	5.8	2.4	12
March	27	3.5	9.5	6.5	12
April	69	9.9	34	23	12
May	135	16	59	33	12
June	250	12	58	65	12
July	64	6.2	22	17	12
August	27	3.8	11	7.7	12
September	18	2.3	8.8	5.2	12
Annual	43	7.3	21	10	11

**06076690 Smith River near Fort Logan, Mont.
Site Number 56**

LOCATION.--Lat 46°47'45", long 111°10'41" (NAD 27), in NE¼SW¼SW¼ sec.13, T.12 N., R.4 E., Meagher County, Hydrologic Unit 10030103, on left bank, 15 ft downstream from ranch bridge, 1.0 mi upstream from Sheep Creek, 9.0 mi north of Fort Logan, and at river mile 83.7.

DRAINAGE AREA.--846 mi².

PERIOD OF RECORD.--October 1977 to September 1996 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 4,400 ft (NGVD 29, from topographic map).

REMARKS.--Flow slightly regulated by Smith River Reservoir (station number 06075000). Diversions for irrigation of about 19,300 acres upstream from station.

Magnitude and probability of annual low flow
based on 18 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	48	34	27	22	--	--
3	51	36	29	24	--	--
7	57	39	31	26	--	--
14	60	41	33	26	--	--
30	67	45	36	29	--	--
60	74	52	42	35	--	--
90	81	57	47	39	--	--
120	86	63	53	46	--	--
183	89	67	58	52	--	--

Magnitude and probability of seasonal low flow from
March-June based on 19 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	76	50	38	30	--	--
3	80	52	40	32	--	--
7	90	59	45	36	--	--
14	106	69	53	42	--	--
30	125	83	67	56	--	--

Magnitude and probability of seasonal low flow from
November-February based on 18 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	53	41	35	32	--	--
3	58	44	39	35	--	--
7	64	50	43	38	--	--
14	72	55	47	41	--	--
30	80	61	51	44	--	--

Duration of daily mean flows based on 19 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
34	38	48	57	72	84	97	112
40%	30%	20%	15%	10%	5%	2%	1%
127	156	189	236	298	401	590	744

Magnitude and probability of annual high flow
based on 19 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	640	1,310	1,920	2,910	--	--
3	564	1,090	1,550	2,260	--	--
7	468	867	1,200	1,680	--	--
15	384	686	926	1,270	--	--
30	333	560	731	966	--	--
60	276	439	554	703	--	--
90	248	380	469	578	--	--

Magnitude and probability of seasonal low flow from
July-October based on 18 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	62	39	30	24	--	--
3	64	40	32	26	--	--
7	66	42	33	27	--	--
14	68	43	33	27	--	--
30	71	46	37	31	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	272	64	116	48	19
November	237	50	108	39	19
December	220	46	99	38	19
January	146	46	90	28	19
February	373	49	120	72	19
March	399	82	163	76	19
April	363	79	181	83	19
May	798	63	264	170	19
June	833	46	304	201	19
July	445	37	175	122	19
August	276	27	90	53	19
September	299	50	102	56	19
Annual	244	64	151	56	19

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06077000 Sheep Creek near White Sulphur Springs, Mont. Site Number 57

LOCATION.--Lat 46°46'05", long 110°48'33" (NAD 27), SW¼SW¼SE¼ sec.26, T.12 N., R.7 E., Meagher County, Lewis and Clark National Forest, on right bank 7 mi upstream from Moose Creek and 16 mi north of White Sulphur Springs.

DRAINAGE AREA.--42.8 mi².

PERIOD OF RECORD.--31 years. July 1941 to September 1972 (discontinued).

REVISED RECORDS.--WSP 1309: 1942(M). WSP 1559: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 5,820 ft (NGVD 29, by barometer). Prior to Oct 1, 1942, nonrecording gages at site 1,000 ft upstream at datum 7.03 ft higher, and Oct. 1, 1942, to May 3, 1955, at site 700 ft upstream at datum 5.33 ft higher.

REMARKS.--Diversions for irrigation of about 200 acres upstream from station.

Magnitude and probability of annual low flow
based on 30 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	5.7	4.7	4.2	3.8	3.4	--
3	6.0	4.9	4.4	4.0	3.5	--
7	6.6	5.4	4.9	4.4	4.0	--
14	7.1	5.9	5.3	4.8	4.3	--
30	7.8	6.6	6.0	5.5	5.1	--
60	8.9	7.4	6.7	6.2	5.6	--
90	9.5	8.0	7.3	6.8	6.3	--
120	10	8.7	8.0	7.4	6.9	--
183	12	10	9.7	9.2	8.7	--

Magnitude and probability of seasonal low flow from
March-June based on 31 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	6.9	5.8	5.2	4.7	4.2	--
3	7.2	5.9	5.3	4.8	4.2	--
7	7.6	6.3	5.6	5.2	4.6	--
14	7.8	6.6	6.1	5.8	5.5	--
30	8.5	7.3	6.9	6.7	6.5	--

Magnitude and probability of seasonal low flow from
November-February based on 31 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	6.3	5.0	4.4	3.9	3.4	--
3	6.6	5.3	4.7	4.2	3.6	--
7	7.2	5.9	5.2	4.7	4.1	--
14	7.8	6.3	5.6	5.0	4.4	--
30	8.4	6.9	6.2	5.6	5.0	--

Duration of daily mean flows based on 31 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
5.4	5.9	6.5	7.6	9.5	11	13	16
40%	30%	20%	15%	10%	5%	2%	1%
19	26	41	57	82	123	189	243

Magnitude and probability of annual high flow
based on 31 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	191	276	339	427	498	--
3	182	262	321	404	471	--
7	168	240	293	368	429	--
15	151	214	262	327	380	--
30	131	185	224	278	322	--
60	102	138	163	195	220	--
90	82	109	126	147	163	--

Magnitude and probability of seasonal low flow from
July-October based on 30 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	13	11	10	9.7	9.3	--
3	13	11	10	9.8	9.3	--
7	13	11	11	10	9.5	--
14	14	12	11	10	9.9	--
30	15	12	11	11	10	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	34	9.9	16	4.6	31
November	24	8.3	13	3.2	31
December	17	6.1	10	2.3	31
January	13	5.9	9.2	1.9	31
February	14	6.2	9.1	1.9	31
March	21	6.2	9.4	2.8	31
April	47	9.0	21	11	31
May	169	46	95	35	31
June	232	44	115	56	31
July	84	19	43	14	31
August	39	11	23	6.5	32
September	36	10	18	5.0	32
Annual	51	18	32	8.3	31

**06077500 Smith River near Eden, Mont.
Site Number 58**

LOCATION.--Lat 47°11'24", long 111°23'12" (NAD 27), in SW¼SW¼ sec.29, T.17 N., R.3 E., Cascade County, on left bank 0.3 mi upstream from Mullens Creek, 2.3 mi upstream from Hound Creek, and 7.7 mi southeast of Eden.

DRAINAGE AREA.--1,594 mi².

PERIOD OF RECORD.--18 years. April 1951 to September 1969 (discontinued).

REVISED RECORDS.--WSP 1559: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 3,500 ft (NGVD 29, by barometer).

REMARKS.--Flow affected by storage in Smith River Reservoir. Diversions for irrigation of about 24,500 acres upstream from station.

Magnitude and probability of annual low flow
based on 17 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	30	12	7.3	4.7	--	--
3	37	16	9.6	6.1	--	--
7	51	24	14	8.8	--	--
14	61	31	20	13	--	--
30	73	42	29	21	--	--
60	85	51	38	30	--	--
90	96	60	46	37	--	--
120	104	68	54	44	--	--
183	110	70	56	47	--	--

Magnitude and probability of seasonal low flow from
March-June based on 18 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	84	51	39	32	--	--
3	88	55	44	36	--	--
7	100	66	54	45	--	--
14	113	76	61	51	--	--
30	160	107	87	72	--	--

Magnitude and probability of seasonal low flow from
November-February based on 18 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	31	14	9.3	6.5	--	--
3	37	19	14	10	--	--
7	51	29	22	17	--	--
14	63	39	29	23	--	--
30	74	49	39	33	--	--

Duration of daily mean flows based on 18 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
21	30	45	61	88	111	136	168
40%	30%	20%	15%	10%	5%	2%	1%
213	299	450	588	836	1,340	2,140	2,760

Magnitude and probability of annual high flow
based on 18 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	1,780	3,300	4,800	7,470	--	--
3	1,660	3,000	4,270	6,450	--	--
7	1,530	2,640	3,620	5,200	--	--
15	1,360	2,290	3,070	4,280	--	--
30	1,210	2,020	2,680	3,660	--	--
60	964	1,580	2,030	2,670	--	--
90	786	1,250	1,580	2,020	--	--

Magnitude and probability of seasonal low flow from
July-October based on 18 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	102	39	19	9.9	--	--
3	105	41	21	11	--	--
7	108	44	23	12	--	--
14	110	48	28	16	--	--
30	114	56	36	25	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	501	52	169	111	18
November	370	57	150	81	18
December	260	31	110	62	18
January	212	43	99	52	18
February	350	49	137	78	18
March	372	63	179	81	18
April	1,160	137	393	258	19
May	2,090	289	955	517	19
June	3,120	279	1,190	869	19
July	833	36	374	222	19
August	344	16	158	93	19
September	537	30	154	124	19
Annual	614	107	338	159	18

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06078200 Missouri River near Ulm, Mont. Site Number 59

LOCATION.--Lat 47°26'06", long 111°23'07" (NAD 27), in NE¼NW¼NW¼ sec.5, T.19 N., R.3 E., Cascade County, Hydrologic Unit 10030102, on left bank 5.6 mi east of Ulm, 9.1 mi downstream from Smith River, and at river mile 2,140.4.

DRAINAGE AREA.--20,941 mi².

PERIOD OF RECORD.--August 1957 to current year (2002).

GAGE.--Water-stage recorder. Altitude of gage is 3,313.27 ft (NGVD 29).

REMARKS.--Flow regulated by 10 smaller irrigation reservoirs and powerplants, Clark Canyon Reservoir (station number 06015300), and Canyon Ferry Lake (station number 06058500). Diversions for irrigation of about 630,400 acres upstream from station. U.S. Army Corps of Engineers satellite telemeter at station.

Magnitude and probability of annual low flow
based on 44 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3,390	2,690	2,380	2,150	1,910	--
3	3,510	2,820	2,520	2,300	2,070	--
7	3,670	2,960	2,650	2,420	2,190	--
14	3,770	3,080	2,780	2,550	2,330	--
30	3,950	3,210	2,880	2,640	2,400	--
60	4,160	3,370	3,020	2,770	2,510	--
90	4,380	3,520	3,150	2,880	2,610	--
120	4,550	3,670	3,290	3,010	2,730	--
183	4,880	3,930	3,510	3,190	2,850	--

Magnitude and probability of seasonal low flow from
March-June based on 45 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4,290	3,150	2,660	2,310	1,970	--
3	4,410	3,280	2,810	2,480	2,150	--
7	4,580	3,420	2,930	2,580	2,240	--
14	4,810	3,620	3,110	2,750	2,390	--
30	5,160	3,910	3,380	2,990	2,610	--

Magnitude and probability of seasonal low flow from
November-February based on 45 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4,120	3,440	3,140	2,920	2,690	--
3	4,280	3,570	3,260	3,020	2,780	--
7	4,460	3,730	3,390	3,130	2,850	--
14	4,580	3,810	3,460	3,190	2,900	--
30	4,750	3,930	3,540	3,250	2,950	--

Duration of daily mean flows based on 45 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time								
99%	98%	95%	90%	80%	70%	60%	50%	
2,440	2,690	3,180	3,450	3,990	4,540	5,100	5,670	
40%	30%	20%	15%	10%	5%	2%	1%	
6,310	7,210	8,120	8,580	10,500	14,300	19,600	22,900	

Magnitude and probability of annual high flow
based on 45 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	14,900	21,900	26,000	30,700	33,900	--
3	14,500	21,500	25,700	30,500	33,700	--
7	13,900	20,700	24,900	29,900	33,300	--
15	13,000	19,600	23,800	29,100	32,900	--
30	11,700	17,600	21,500	26,400	30,000	--
60	10,300	14,800	17,600	21,000	23,400	--
90	9,360	13,000	15,300	17,900	19,800	--

Magnitude and probability of seasonal low flow from
July-October based on 44 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3,530	2,780	2,460	2,230	2,000	--
3	3,670	2,920	2,600	2,360	2,130	--
7	3,830	3,070	2,740	2,500	2,260	--
14	3,940	3,170	2,850	2,610	2,380	--
30	4,080	3,270	2,920	2,670	2,420	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	10,000	2,200	4,160	1,390	45
November	7,950	2,920	4,690	1,240	45
December	6,790	3,020	4,650	1,060	45
January	6,760	3,100	5,080	971	45
February	8,000	3,000	5,150	1,220	45
March	8,820	2,820	5,010	1,440	45
April	9,320	2,370	5,290	1,690	45
May	15,300	2,520	6,380	2,880	45
June	17,500	1,700	7,420	4,100	45
July	9,930	2,200	4,860	1,810	45
August	7,280	2,230	4,220	1,300	46
September	9,340	1,900	3,940	1,370	46
Annual	5,800	1,700	3,220	787	45

**06078500 North Fork Sun River near Augusta, Mont.
Site Number 60**

LOCATION.--Lat 47°38'27", long 112°51'34" (NAD 27), in SW¼SW¼SW¼ sec.23, T.22 N., R.10 W., Teton County, Hydrologic Unit 10030104, on left bank 400 ft upstream from Arsenic Creek, 1 mi upstream from South Fork and Gibson Reservoir, and 25 mi northwest of Augusta.

DRAINAGE AREA.--258 mi².

PERIOD OF RECORD.--May 1911 to September 1912, October 1945 to September 1968, May 1989 to September 1993 (discontinued, seasonal records only).

Monthly discharge only for some periods, published in WSP 1309. Prior to October 1959, published as "North Fork of North Fork Sun River near Augusta."

GAGE.--Water-stage recorder. Altitude of gage is 4,785.72 ft (NGVD 29, levels by Bureau of Reclamation). May 27, 1911, to Sept. 30, 1912, staff gage near present site at different datum. Oct. 1, 1945, to July 22, 1946, wire-weight gage at site 0.75 mi downstream at different datum. July 23, 1946, to June, 8, 1964, water-stage recorder at present site and datum. Sept. 12, 1964, to Sept. 30, 1968, water-stage recorder at present site and datum.

REMARKS.--No known regulation or diversion upstream from station.

Magnitude and probability of annual low flow
based on 23 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	40	35	32	31	--	--
3	42	36	33	31	--	--
7	44	39	36	34	--	--
14	48	43	41	39	--	--
30	54	48	45	43	--	--
60	62	55	51	49	--	--
90	69	60	56	54	--	--
120	75	65	61	58	--	--
183	89	74	68	64	--	--

Magnitude and probability of seasonal low flow from
March-June based on 24 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	48	40	37	35	--	--
3	50	42	39	37	--	--
7	52	45	42	40	--	--
14	57	49	46	43	--	--
30	64	54	50	47	--	--

Magnitude and probability of seasonal low flow from
November-February based on 24 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	44	37	33	31	--	--
3	46	38	34	32	--	--
7	50	41	37	35	--	--
14	54	45	42	39	--	--
30	59	51	47	44	--	--

Duration of daily mean flows based on 24 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
38	44	50	57	71	85	102	125
40%	30%	20%	15%	10%	5%	2%	1%
168	255	527	837	1,240	1,830	2,480	2,870

Magnitude and probability of annual high flow
based on 24 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	2,500	3,710	5,290	8,790	--	--
3	2,360	3,450	4,680	7,090	--	--
7	2,220	3,090	3,880	5,180	--	--
15	2,050	2,710	3,210	3,910	--	--
30	1,830	2,320	2,650	3,050	--	--
60	1,440	1,770	1,970	2,190	--	--
90	1,110	1,350	1,490	1,660	--	--

Magnitude and probability of seasonal low flow from
July-October based on 28 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	90	73	66	61	56	--
3	92	77	70	65	60	--
7	95	79	72	67	62	--
14	97	80	73	68	63	--
30	102	83	76	70	65	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	286	72	123	49	28
November	191	65	102	30	24
December	152	59	83	24	24
January	96	43	67	13	24
February	100	47	66	14	24
March	113	44	68	17	24
April	935	76	265	189	28
May	1,920	688	1,260	329	30
June	3,220	455	1,480	613	30
July	1,010	203	486	234	30
August	249	95	173	44	30
September	291	84	130	46	30
Annual	468	253	360	68	24

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06080000 Sun River near Augusta, Mont. Site Number 61

LOCATION.--Lat 47°37', long 112°42' (NAD 27), in NW¼ sec.36, T.22 N., R.9 W., Lewis and Clark County, about 150 ft upstream from diversion dam and 18 mi northwest of Augusta.

DRAINAGE AREA.--609 mi².

PERIOD OF RECORD.--37 years (1889-90, 1904-40).

GAGE.--Water-stage recorder. Altitude of gage is 4,474 ft (NGVD 29, levels by Bureau of Reclamation). Prior to Jan. 1, 1916, staff or chain gages at site 8 mi downstream at different datum. Jan. 1, 1916, to Sept. 30, 1936, slope gage on diversion dam 150 ft downstream at same datum.

REMARKS.--Flow regulated for 1916-36 and Pishkun Canal, data furnished by Bureau of Reclamation. Records for 1929-36 not previously published by U.S. Geological Survey.

Magnitude and probability of annual low flow
based on 24 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	128	74	49	33	--	--
3	130	91	73	60	--	--
7	136	102	87	76	--	--
14	141	109	96	86	--	--
30	149	117	104	94	--	--
60	181	139	120	107	--	--
90	197	148	127	112	--	--
120	220	162	138	121	--	--
183	259	193	162	140	--	--

Magnitude and probability of seasonal low flow from
March-June based on 25 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	154	103	67	43	24	--
3	159	119	103	92	82	--
7	167	127	112	101	91	--
14	172	131	115	105	95	--
30	183	137	122	113	104	--

Magnitude and probability of seasonal low flow from
November-February based on 25 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	147	106	90	79	69	--
3	152	111	95	84	74	--
7	159	115	99	87	76	--
14	164	119	102	90	78	--
30	170	126	109	97	85	--

Duration of daily mean flows based on 25 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
96	103	125	145	180	223	270	330
40%	30%	20%	15%	10%	5%	2%	1%
402	557	1,130	1,690	2,490	3,890	5,750	7,540

Magnitude and probability of annual high flow
based on 25 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	6,600	10,500	13,800	18,700	22,900	--
3	6,200	9,390	11,700	14,800	17,200	--
7	5,650	8,310	10,100	12,200	13,800	--
15	4,900	7,040	8,440	10,200	11,400	--
30	4,160	5,860	6,900	8,120	8,970	--
60	3,220	4,380	5,070	5,860	6,390	--
90	2,530	3,420	3,950	4,560	4,970	--

Magnitude and probability of seasonal low flow from
July-October based on 25 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	249	151	106	74	47	--
3	251	156	111	80	53	--
7	252	164	127	101	76	--
14	253	177	145	122	99	--
30	264	195	166	145	125	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	544	128	301	105	25
November	682	120	297	135	25
December	450	100	229	88	25
January	521	96	204	95	25
February	421	100	208	90	25
March	579	102	222	112	25
April	1,900	200	686	405	25
May	6,260	1,120	2,760	1,140	25
June	7,840	1,000	3,560	1,790	25
July	4,350	264	1,250	850	26
August	982	182	442	199	26
September	714	59	321	132	26
Annual	1,620	444	876	285	25

**06080900 Sun River below diversion dam, near Augusta, Mont.
Site Number 62**

LOCATION.--Lat 47°37'10", long 112°41'28" (NAD 27), near center of east line of sec.36, T.22 N., R.9 W., Lewis and Clark County, Hydrologic Unit 10030104, Lewis and Clark National Forest, on road bridge 1.0 mi downstream from diversion dam, 16.5 mi northwest of Augusta, and at river mile 96.4 (revised).

DRAINAGE AREA.--609 mi².

PERIOD OF RECORD.--September 1967 to Sept. 30, 1980 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 14,370 ft (NGVD 29, from topographic map).

REMARKS.--Flow regulated by Gibson Dam (station number 06079500). Diversions upstream from station into Pishkun Canal and Willow Creek feeder canal for irrigation of about 91,000 acres downstream from station.

Magnitude and probability of annual low flow
based on 12 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	40	29	24	20	--	--
3	44	31	25	21	--	--
7	46	33	27	23	--	--
14	50	35	29	24	--	--
30	60	44	36	31	--	--
60	70	55	48	42	--	--
90	84	64	56	50	--	--
120	95	69	60	53	--	--
183	116	81	67	57	--	--

Magnitude and probability of seasonal low flow from
March-June based on 13 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	56	32	24	20	--	--
3	61	36	27	22	--	--
7	68	40	30	24	--	--
14	81	47	35	27	--	--
30	100	53	38	31	--	--

Magnitude and probability of seasonal low flow from
November-February based on 12 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	69	42	32	25	--	--
3	73	46	35	27	--	--
7	82	50	37	28	--	--
14	89	53	38	28	--	--
30	99	63	48	39	--	--

Duration of daily mean flows based on 13 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
30	36	47	56	72	87	112	141
40%	30%	20%	15%	10%	5%	2%	1%
167	201	323	505	1,140	2,260	4,010	5,420

Magnitude and probability of annual high flow
based on 13 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	5,020	10,900	14,800	19,200	--	--
3	4,730	9,580	12,500	15,400	--	--
7	3,990	7,540	9,460	11,300	--	--
15	3,170	5,820	7,250	8,620	--	--
30	2,470	4,460	5,540	6,570	--	--
60	1,710	3,000	3,720	4,430	--	--
90	1,270	2,180	2,670	3,150	--	--

Magnitude and probability of seasonal high flow from
July-October based on 12 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	51	34	27	23	--	--
3	53	36	30	25	--	--
7	55	39	33	28	--	--
14	60	43	37	33	--	--
30	71	59	54	51	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	470	50	139	110	13
November	468	58	141	107	13
December	295	41	136	71	13
January	238	56	133	56	13
February	198	48	125	51	13
March	276	40	138	78	13
April	910	35	279	293	13
May	3,600	289	1,330	1,020	13
June	6,260	230	2,180	1,640	13
July	1,680	71	423	467	13
August	282	64	137	71	13
September	299	60	120	66	13
Annual	818	112	440	210	13

**06081500 Willow Creek near Augusta, Mont.
Site Number 63**

LOCATION.--Lat 47°33', long 112°28' (NAD 27), in NW¼SW¼ sec.26, T.21 N., R.7 W., Lewis and Clark County, just downstream from Little Willow Creek and 5 mi (revised) northwest of Augusta.

DRAINAGE AREA.--96.1 mi².

PERIOD OF RECORD.--20 years (1905-25).

GAGE.--Chain gage. Altitude of gage is 4,150 ft (NGVD 29, by barometer). Prior to Aug. 22, 1905, staff gage at same site and datum.

REMARKS.--Diversions for irrigation of about 2,000 acres upstream from station.

Magnitude and probability of annual low flow
based on 18 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4.6	1.5	0.49	0.00	--	--
3	4.6	1.6	.75	.37	--	--
7	5.0	1.8	.87	.44	--	--
14	5.7	2.1	1.0	.50	--	--
30	6.9	2.6	1.2	.59	--	--
60	7.6	3.0	1.5	.80	--	--
90	8.3	3.6	2.0	1.1	--	--
120	9.4	4.2	2.4	1.4	--	--
183	11	5.0	3.0	1.8	--	--

Magnitude and probability of seasonal low flow from
March-June based on 19 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	6.9	3.1	1.8	1.2	--	--
3	7.4	3.2	1.9	1.2	--	--
7	7.9	3.5	2.1	1.3	--	--
14	9.0	4.3	2.8	1.8	--	--
30	11	6.2	4.3	3.1	--	--

Magnitude and probability of seasonal low flow from
November-February based on 20 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	5.9	3.0	1.9	1.2	--	--
3	6.0	3.2	2.1	1.5	--	--
7	6.2	3.4	2.3	1.6	--	--
14	6.4	3.5	2.3	1.6	--	--
30	6.9	3.7	2.5	1.7	--	--

Duration of daily mean flows based on 19 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.77	1.2	2.1	4.2	6.4	7.9	10	13
40%	30%	20%	15%	10%	5%	2%	1%
17	23	32	42	57	90	183	294

Magnitude and probability of annual high flow
based on 19 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	165	429	707	1,200	--	--
3	144	365	599	1,020	--	--
7	123	306	502	860	--	--
15	102	249	405	692	--	--
30	83	187	292	477	--	--
60	65	137	203	313	--	--
90	54	108	156	233	--	--

Magnitude and probability of seasonal low flow from
July-October based on 19 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	7.1	2.1	0.67	0.00	--	--
3	7.3	2.2	.97	.45	--	--
7	7.7	2.5	1.1	.54	--	--
14	8.3	2.7	1.2	.56	--	--
30	9.2	2.9	1.3	.61	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	30	0.86	13	7.8	20
November	24	1.0	12	6.2	20
December	26	4.6	10	5.3	20
January	37	3.7	10	8.1	20
February	70	1.7	14	17	20
March	48	4.7	16	11	20
April	50	8.2	24	13	20
May	320	4.8	68	69	19
June	363	1.9	99	107	20
July	211	1.0	39	48	20
August	53	.46	18	15	20
September	35	.23	13	10	20
Annual	77	7.2	28	20	19

**06084500 Elk Creek at Augusta, Mont.
Site Number 64**

LOCATION.--Lat 47°29', long 111°23' (NAD 27), in NW¼ SE¼ sec.17, T.20 N., R.6 W., Lewis and Clark County, at old highway bridge 0.5 mi from Augusta and 6 mi upstream from mouth.

DRAINAGE AREA.--157 mi².

PERIOD OF RECORD.--20 years (1904-24).

GAGE.--Staff gage. Altitude of gage is 4,070 ft (NGVD 29, by barometer). Apr. 20, 1907, to December 1908, staff gage at site 300 ft upstream at different datum.

REMARKS.--Diversions for irrigation of about 4,500 acres upstream from station.

Magnitude and probability of annual low flow
based on 19 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	11	2.0	0.00	0.00	--	--
3	13	2.2	.00	.00	--	--
7	14	2.3	.41	.00	--	--
14	16	3.8	1.0	.00	--	--
30	17	5.5	2.4	1.0	--	--
60	20	8.0	4.2	2.3	--	--
90	23	9.9	5.5	3.2	--	--
120	28	13	8.3	5.2	--	--
183	32	18	13	9.2	--	--

Magnitude and probability of seasonal low flow from
March-June based on 20 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	24	6.0	1.9	0.00	--	--
3	25	7.4	3.2	1.4	--	--
7	31	13	6.8	3.8	--	--
14	33	16	10	6.9	--	--
30	36	19	13	9.0	--	--

Magnitude and probability of seasonal low flow from
November-February based on 19 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	22	16	13	12	--	--
3	22	16	13	12	--	--
7	22	16	14	12	--	--
14	23	16	14	12	--	--
30	23	17	14	12	--	--

Duration of daily mean flows based on 20 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.74	2.5	7.2	14	22	28	32	42
40%	30%	20%	15%	10%	5%	2%	1%
53	65	94	128	206	351	678	1,020

Magnitude and probability of annual high flow
based on 20 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	833	1,920	2,740	3,800	--	--
3	743	1,620	2,240	3,010	--	--
7	630	1,350	1,890	2,560	--	--
15	498	1,040	1,440	1,960	--	--
30	386	769	1,050	1,420	--	--
60	278	530	714	954	--	--
90	215	395	528	707	--	--

Magnitude and probability of seasonal low flow from
July-October based on 20 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	13	2.2	0.00	0.00	--	--
3	16	2.3	.00	.00	--	--
7	16	2.4	.51	.00	--	--
14	18	3.9	1.1	.00	--	--
30	21	5.6	2.4	1.1	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	99	14	46	25	21
November	99	15	44	23	21
December	60	10	34	15	20
January	65	10	28	15	20
February	97	12	32	19	20
March	115	20	47	27	20
April	164	26	68	42	20
May	965	10	262	214	20
June	1,280	4.9	385	377	20
July	417	2.6	105	100	20
August	119	1.0	45	37	20
September	114	.87	38	30	20
Annual	212	20	94	56	20

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06085800 Sun River at Simms, Mont. Site Number 65

LOCATION.--Lat 47°30'06", long 111°55'56" (NAD 27), in NW¼NW¼SE¼ sec.12, T.20 N., R.3 W., Cascade County, Hydrologic Unit 10030104, on left bank 5 ft downstream from bridge on Montana Secondary Highway 565, 0.7 mi downstream from Simms Creek, 0.7 mi north of Simms, and at river mile 45.0.

DRAINAGE AREA.--1,320 mi².

PERIOD OF RECORD.--May to June 1953 (in WSP 1320-B), May to June 1964 (in WSP 1840-B), April 1966 to September 1979, April 1997 to current year (2002).

REVISED RECORDS.--WDR MT-75-1: 1964 (M).

GAGE.--Water-stage recorder. Altitude of gage is 3,570 ft (NGVD 29). May 1941 to October 1965, nonrecording gage at different datum. April 1966 to September 1979, water-stage recorder at site about 500 ft downstream at different datum.

REMARKS.--Flow regulated by Gibson, Pishkun, Willow Creek, and Nilan Reservoirs. Diversions for irrigation of about 105,000 acres upstream from station. Bureau of Reclamation satellite telemeter at station.

Magnitude and probability of annual low flow
based on 16 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	49	33	26	21	--	--
3	54	37	30	25	--	--
7	62	44	36	30	--	--
14	75	50	40	33	--	--
30	88	59	47	39	--	--
60	110	75	61	51	--	--
90	127	88	72	61	--	--
120	145	101	84	72	--	--
183	168	119	100	86	--	--

Magnitude and probability of seasonal low flow from
March-June based on 18 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	76	43	31	24	--	--
3	87	50	38	29	--	--
7	100	59	45	36	--	--
14	119	69	52	42	--	--
30	151	88	66	53	--	--

Magnitude and probability of seasonal low flow from
November-February based on 18 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	93	64	53	44	--	--
3	100	76	66	59	--	--
7	117	89	78	69	--	--
14	134	103	90	80	--	--
30	153	114	98	86	--	--

Duration of daily mean flows based on 18 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
38	46	63	84	117	143	167	190
40%	30%	20%	15%	10%	5%	2%	1%
228	266	368	553	1,060	2,230	4,140	5,970

Magnitude and probability of annual high flow
based on 18 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	4,180	10,100	14,900	21,200	--	--
3	3,880	9,200	13,300	18,600	--	--
7	3,380	7,560	10,600	14,300	--	--
15	2,690	5,890	8,160	10,900	--	--
30	2,130	4,590	6,330	8,430	--	--
60	1,420	2,970	4,120	5,610	--	--
90	1,080	2,150	2,950	3,990	--	--

Magnitude and probability of seasonal low flow from
July-October based on 18 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	55	35	28	23	--	--
3	61	40	32	27	--	--
7	70	46	38	32	--	--
14	84	54	42	34	--	--
30	100	64	49	40	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	519	89	211	105	18
November	596	120	224	103	18
December	456	101	199	83	18
January	314	122	197	59	18
February	291	96	194	66	18
March	473	104	223	106	18
April	1,120	81	327	273	20
May	4,120	72	1,180	1,100	20
June	8,560	109	2,320	2,140	20
July	2,160	54	418	511	20
August	383	49	168	97	20
September	422	49	151	86	20
Annual	1,180	123	478	282	18

**06086000 Sun River at Fort Shaw, Mont.
Site Number 66**

LOCATION.--Lat 47°31'10", long 111°48'50" (NAD 27), on west line of SW¼ sec.1, T.20 N., R.2 W., Cascade County, at highway bridge at Fort Shaw.

DRAINAGE AREA.--1,417 mi².

PERIOD OF RECORD.--13 years (1912-28).

GAGE.--Water-stage recorder. Altitude of gage is 3,465 ft (NGVD 29, from topographic map). Prior to May 20, 1925, chain or staff gages at several sites within 0.25 mi of present site at different datums.

REMARKS.--Numerous diversions for irrigation upstream and downstream from station. Diversion to Pishkun Canal and Pishkun Reservoir began in 1916. Some regulation in Willow Creek Reservoir.

Magnitude and probability of annual low flow
based on 15 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	121	72	53	40	--	--
3	142	89	67	52	--	--
7	171	110	82	62	--	--
14	187	129	102	82	--	--
30	203	146	119	100	--	--
60	227	172	149	133	--	--
90	259	194	166	145	--	--
120	290	218	186	161	--	--
183	320	236	198	171	--	--

Magnitude and probability of seasonal low flow from
March-June based on 16 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	204	121	88	65	--	--
3	217	139	107	85	--	--
7	237	181	158	142	--	--
14	251	199	181	168	--	--
30	270	221	205	195	--	--

Magnitude and probability of seasonal low flow from
November-February based on 16 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	208	133	98	73	--	--
3	218	142	105	78	--	--
7	232	152	111	81	--	--
14	234	168	136	112	--	--
30	236	188	171	158	--	--

Duration of daily mean flows based on 16 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
100	127	162	198	233	268	322	377
40%	30%	20%	15%	10%	5%	2%	1%
474	637	1,100	1,700	2,530	3,980	6,030	7,910

Magnitude and probability of annual high flow
based on 16 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	6,580	10,000	12,700	16,500	--	--
3	6,160	9,210	11,400	14,300	--	--
7	5,620	8,310	10,200	12,600	--	--
15	4,800	7,170	8,860	11,100	--	--
30	4,090	6,100	7,480	9,240	--	--
60	3,190	4,620	5,540	6,680	--	--
90	2,500	3,550	4,230	5,080	--	--

Magnitude and probability of seasonal low flow from
July-October based on 15 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	179	91	61	44	--	--
3	197	107	75	55	--	--
7	216	121	87	65	--	--
14	236	136	103	83	--	--
30	263	159	122	102	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	708	181	402	150	16
November	622	165	369	125	16
December	423	190	297	79	16
January	600	170	280	104	16
February	824	168	312	182	16
March	669	200	310	123	16
April	1,160	308	755	259	16
May	5,220	1,490	2,980	1,010	16
June	7,630	723	3,450	1,990	17
July	5,140	103	1,150	1,170	17
August	938	120	397	223	17
September	845	134	382	185	16
Annual	1,770	415	929	356	16

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06088300 Muddy Creek near Vaughn, Mont. Site Number 67

LOCATION.--Lat 47°37'30", long 111°38'05" (NAD 27), in NE¼NE¼NW¼ sec.32, T.22 N., R.1 E., Cascade County, Hydrologic Unit 10030104, on left bank 200 ft downstream from bridge on county road, 6.2 mi northwest of Vaughn and at river mile 14.6.

DRAINAGE AREA.--282 mi².

PERIOD OF RECORD.--July 1968 to September 1987, March 1996 to current year (2002).

GAGE.--Water-stage recorder. Altitude of gage is 3,441.79 ft (NGVD 29, levels by U.S. Army Corps of Engineers).

REMARKS.--Natural flow increased by wastage from Greenfield Irrigation Project. Diversions for irrigation of about 400 acres upstream from station and pumped diversions from Muddy Creek upstream from station in SW¼ sec.2, T.22 N., R.1 W, to supplement water supply for Benton Lake Wildlife Refuge. Bureau of Reclamation satellite telemeter at station.

Magnitude and probability of annual low flow
based on 24 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	17	13	11	9.6	--	--
3	18	14	13	11	--	--
7	20	16	14	13	--	--
14	22	18	16	14	--	--
30	25	21	19	17	--	--
60	29	24	22	21	--	--
90	36	29	26	24	--	--
120	40	34	31	29	--	--
183	65	52	45	40	--	--

Magnitude and probability of seasonal low flow from
March-June based on 26 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	21	16	13	12	9.6	--
3	23	18	15	13	11	--
7	25	19	17	15	13	--
14	27	22	19	18	16	--
30	30	25	23	23	22	--

Magnitude and probability of seasonal low flow from
November-February based on 25 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	19	15	13	11	9.2	--
3	20	16	14	12	11	--
7	22	18	16	14	12	--
14	24	19	17	15	13	--
30	28	22	19	17	15	--

Duration of daily mean flows based on 25 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
17	19	23	27	33	41	51	63
40%	30%	20%	15%	10%	5%	2%	1%
88	138	189	225	262	333	393	491

Magnitude and probability of annual high flow
based on 25 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	583	939	1,260	1,780	2,270	--
3	509	742	924	1,190	1,410	--
7	403	538	638	777	890	--
15	330	400	445	501	543	--
30	295	352	387	430	461	--
60	270	314	337	361	376	--
90	242	285	309	335	353	--

Magnitude and probability of seasonal low flow from
July-October based on 25 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	54	44	40	37	34	--
3	56	46	41	38	35	--
7	58	48	43	40	37	--
14	61	50	45	42	39	--
30	71	57	51	47	42	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	145	41	77	23	25
November	71	35	54	8.1	25
December	58	22	42	8.8	25
January	60	19	33	11	25
February	65	18	36	12	25
March	238	23	60	61	26
April	162	21	41	27	26
May	264	56	115	47	26
June	455	101	200	67	26
July	367	137	259	51	27
August	402	138	245	68	27
September	218	46	136	46	27
Annual	160	77	109	21	25

**06088500 Muddy Creek at Vaughn, Mont.
Site Number 68**

LOCATION.--Lat 47°33'40", long 111°32'15" (NAD 27), in SW¼SE¼NE¼ sec.24, T.21 N., R.1 E., Cascade County, Hydrologic Unit 10030104, on left bank at Vaughn, and at river mile 1.1.

DRAINAGE AREA.--314 mi².

PERIOD OF RECORD.--June 1925 to January 1926, April 1934 to September 1968, July 1971 to current year (2002).

REVISED RECORDS.--WSP 856: 1937. WSP 1509: 1934-35, 1941(M). WSP 1559: 1956. WSP 1629: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 3,330 ft (NGVD 29). May 21, 1925, to Feb. 8, 1926, nonrecording gage at site 500 ft downstream at different datum. Apr. 19, 1925, to Sept. 30, 1955, at previous site at datum. May 18, 1955, to Apr. 25, 1960, and Sept. 24, 1962, to Sept. 30, 1968, auxiliary crest-stage gage. Oct. 1, 1955, to Sept. 30, 1968, nonrecording gage at bridge 670 ft upstream at previous datum. July 1, 1971, to May 9, 1996, 700 ft upstream at previous datum.

REMARKS.--Natural flow increased by wastage from Sun River Canal and by return flow from irrigation. Diversions for irrigation of about 700 acres upstream from station. Bureau of Reclamation satellite telemeter at station.

Magnitude and probability of annual low flow
based on 63 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	16	12	9.7	8.0	6.3	5.3
3	17	13	11	8.9	7.3	6.3
7	19	14	12	11	8.9	7.8
14	22	17	14	13	11	9.6
30	26	21	18	16	13	12
60	31	25	22	20	17	16
90	37	30	27	25	23	21
120	43	36	33	31	28	27
183	78	63	56	49	43	39

Magnitude and probability of seasonal low flow from
March-June based on 65 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	20	14	11	9.4	7.5	6.3
3	21	15	12	10	8.3	7.1
7	23	17	15	13	11	10
14	25	20	18	16	15	14
30	30	24	22	21	20	19

Magnitude and probability of seasonal low flow from
November-February based on 65 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	19	14	11	9.5	7.7	6.6
3	19	15	12	11	8.8	7.7
7	21	16	14	12	9.5	8.2
14	24	18	15	13	11	9.4
30	29	22	18	16	13	11

Duration of daily mean flows based on 65 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
14	17	22	26	34	42	55	73
40%	30%	20%	15%	10%	5%	2%	1%
109	162	222	256	305	365	463	511

Magnitude and probability of annual high flow
based on 65 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	553	916	1,280	1,950	2,640	3,560
3	474	716	943	1,330	1,700	2,170
7	402	557	696	920	1,130	1,380
15	353	457	537	652	748	854
30	329	405	448	496	528	557
60	302	366	396	424	440	454
90	278	336	364	391	407	420

Magnitude and probability of seasonal low flow from
July-October based on 65 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	70	49	38	28	19	14
3	73	53	41	31	22	17
7	76	56	45	36	27	22
14	81	60	49	40	31	26
30	98	72	59	49	40	34

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	200	26	100	31	66
November	113	31	60	13	66
December	131	17	44	15	66
January	68	17	34	11	65
February	97	10	37	14	65
March	283	22	55	44	65
April	182	18	42	23	65
May	305	53	138	54	65
June	480	86	237	79	66
July	416	52	275	81	67
August	488	44	284	82	67
September	270	40	176	51	67
Annual	185	61	125	25	65

**06089000 Sun River near Vaughn, Mont.
Site Number 69**

LOCATION.--Lat 47°31'37", long 111°29'05" (NAD 27), in NW¼SE¼SW¼ sec.33, T.21 N., R.2 E., Cascade County, Hydrologic Unit 10030104, on right bank 3.7 mi downstream from Muddy Creek, 3.6 mi southeast of Vaughn, and at river mile 13.6.

DRAINAGE AREA.--1,849 mi².

PERIOD OF RECORD.--July to October 1897 (gage heights and discharge measurements only, published as "near Great Falls"), April 1934 to current year (2002).

Monthly discharge only for April 1934, published in WSP 1309.

REVISED RECORDS.--WSP 786: 1934. WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 3,317.12 ft (NGVD 29). July 11 to Oct. 30, 1897, nonrecording gage at site 0.8 mi upstream at different datum.

Apr. 19 to Aug. 3, 1934, non-recording gage at present site and datum.

REMARKS.--Flow regulated by Gibson, Pishkun, Willow Creek, and Nilan Reservoirs. Diversion for irrigation of about 110,000 acres upstream from station.

U.S. Army Corps of Engineers satellite telemeter at station.

Magnitude and probability of annual low flow
based on 67 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
	50%	20%	10%	5%	2%	1%
1	133	88	68	53	39	31
3	141	95	74	58	44	35
7	153	106	84	69	53	45
14	168	120	99	83	67	57
30	191	138	114	96	78	68
60	216	159	133	114	95	84
90	251	182	152	131	109	97
120	268	198	169	148	127	114
183	319	240	205	179	154	138

Magnitude and probability of seasonal low flow from
March-June based on 68 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
	50%	20%	10%	5%	2%	1%
1	173	105	77	58	42	33
3	182	113	84	64	47	37
7	194	124	96	76	58	48
14	212	141	114	95	77	67
30	243	160	131	112	94	84

Magnitude and probability of seasonal low flow from
November-February based on 68 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
	50%	20%	10%	5%	2%	1%
1	145	101	82	69	56	49
3	152	109	90	77	65	57
7	167	120	99	85	71	62
14	185	132	109	93	77	67
30	210	150	123	105	86	75

Duration of daily mean flows based on 68 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
95	113	143	176	224	268	318	369
40%	30%	20%	15%	10%	5%	2%	1%
445	528	719	951	1,460	2,740	4,480	5,900

Magnitude and probability of annual high flow
based on 68 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
	50%	20%	10%	4%	2%	1%
1	5,180	9,310	12,200	15,700	18,200	20,700
3	4,840	8,480	10,800	13,500	15,400	17,000
7	4,220	7,150	8,890	10,800	12,000	13,000
15	3,430	5,810	7,230	8,770	9,750	10,600
30	2,740	4,670	5,860	7,220	8,100	8,890
60	1,950	3,260	4,080	5,040	5,690	6,280
90	1,540	2,470	3,070	3,770	4,260	4,710

Magnitude and probability of seasonal low flow from
July-October based on 68 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
	50%	20%	10%	5%	2%	1%
1	267	194	160	135	110	96
3	275	203	170	145	120	105
7	290	215	180	154	128	113
14	308	231	195	169	142	125
30	342	261	225	198	170	154

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	779	143	381	134	68
November	908	149	339	138	68
December	896	114	301	141	68
January	656	66	256	103	68
February	601	82	266	104	68
March	868	133	327	166	68
April	3,000	93	501	484	69
May	4,330	87	1,580	1,020	69
June	8,010	280	2,560	1,900	69
July	2,510	265	787	479	69
August	1,020	250	566	170	69
September	1,040	164	444	149	69
Annual	1,310	210	687	281	68

**06090300 Missouri River near Great Falls, Mont.
Site Number 70**

LOCATION.--Lat 47°35'04", long 111°03'35" (NAD 27), in SW¼SE¼SW¼ sec.11, T.21 N., R.5 E., Cascade County, Hydrologic Unit 10030102, on left bank 700 ft downstream from Morony Dam, 12.6 mi northeast of Great Falls, and at river mile 2,105.4.

DRAINAGE AREA.--23,292 mi².

PERIOD OF RECORD.--May to July 1953 (in WSP 1320-B), October 1956 to current year (2002).

GAGE.--Water-stage recorder. Altitude of gage is 2,807.21 ft (NGVD 29). Prior to July 27, 1977, nonrecording gage at same site at datum 2.00 ft higher. July 27, 1977, to May 26, 1987, at site 600 ft upstream at datum 2.00 ft higher. October 1971 to July 27, 1977, discharges were obtained from the Montana Power Company at Rainbow Dam 7.05 mi upstream. Prior to October 1971, Foxboro meters were used for determining discharge through powerplant. Water-stage recorder on Morony Reservoir was used for determining head on taintor gates with altitude of gage at sea level (levels by Montana Power Company).

REMARKS.--Flow regulated by 18 smaller irrigation reservoirs and powerplants upstream, Clark Canyon Reservoir (station number 06015300), and Canyon Ferry Lake (station number 06058500). Diversion for irrigation of about 750,400 acres upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 45 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3,200	2,540	2,230	1,990	1,750	--
3	3,820	3,150	2,820	2,560	2,290	--
7	4,360	3,610	3,250	2,960	2,660	--
14	4,600	3,870	3,530	3,270	2,990	--
30	4,810	4,050	3,700	3,440	3,180	--
60	5,050	4,230	3,860	3,570	3,280	--
90	5,270	4,400	4,010	3,720	3,420	--
120	5,440	4,550	4,160	3,860	3,560	--
183	5,790	4,830	4,380	4,040	3,670	--

Magnitude and probability of seasonal low flow from
March-June based on 46 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4,710	3,310	2,710	2,280	1,850	--
3	5,110	3,880	3,330	2,940	2,540	--
7	5,470	4,280	3,770	3,390	3,010	--
14	5,790	4,540	3,990	3,590	3,190	--
30	6,150	4,820	4,240	3,800	3,370	--

Magnitude and probability of seasonal low flow from
November-February based on 46 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3,530	2,860	2,520	2,260	1,980	--
3	4,170	3,480	3,120	2,820	2,500	--
7	4,890	4,130	3,730	3,410	3,050	--
14	5,220	4,450	4,060	3,750	3,410	--
30	5,500	4,670	4,270	3,950	3,600	--

Duration of daily mean flows based on 46 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
3,140	3,270	3,630	4,240	4,800	5,320	5,850	6,490
40%	30%	20%	15%	10%	5%	2%	1%
7,240	7,990	8,850	10,500	12,200	16,800	23,100	26,100

Magnitude and probability of annual high flow
based on 46 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	18,500	28,600	35,800	45,400	52,800	--
3	18,100	27,500	33,700	41,300	46,900	--
7	17,300	25,800	31,100	37,400	41,800	--
15	16,000	23,900	28,800	34,700	38,800	--
30	14,600	21,500	25,900	31,200	35,000	--
60	12,700	17,900	21,100	24,900	27,500	--
90	11,200	15,500	18,100	21,200	23,300	--

Magnitude and probability of seasonal low flow from
July-October based on 45 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4,090	3,100	2,660	2,320	1,990	--
3	4,410	3,550	3,180	2,900	2,630	--
7	4,700	3,830	3,450	3,160	2,870	--
14	4,860	4,010	3,630	3,350	3,070	--
30	5,040	4,150	3,760	3,470	3,180	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	11,900	3,830	5,840	1,570	46
November	10,400	3,950	6,190	1,610	46
December	11,500	3,770	6,170	1,350	46
January	8,230	3,870	6,330	1,100	46
February	9,250	4,030	6,530	1,280	46
March	10,800	4,020	6,830	1,760	46
April	13,200	3,530	7,500	2,410	46
May	24,800	4,450	11,000	4,530	47
June	30,200	3,760	14,100	7,270	47
July	23,600	3,820	8,660	4,130	47
August	9,950	3,720	5,960	1,520	46
September	9,990	3,110	5,590	1,510	46
Annual	11,500	4,350	7,540	1,800	46

**06090500 Belt Creek near Monarch, Mont.
Site Number 71**

LOCATION.--Lat 47°12'27", long 110°55'53" (NAD 27), in NW¼SE¼NW¼ sec.26, T.17 N., R.6 E., Cascade County, Hydrologic Unit 10030105, on left bank 0.4 mi south of Riceville, 8.9 mi northwest of Monarch, and at river mile 52.0.

DRAINAGE AREA.--368 mi².

PERIOD OF RECORD.--April 1951 to September 30, 1982 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 3,962.25 ft (NGVD 29, levels by U.S. Army Corps of Engineers).

REMARKS.--No known regulation or diversion upstream from station.

Magnitude and probability of annual low flow
based on 30 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	14	5.6	3.1	1.8	0.90	--
3	14	7.0	4.4	3.0	1.8	--
7	16	8.3	5.4	3.6	2.2	--
14	19	9.7	6.3	4.2	2.6	--
30	23	13	9.2	6.6	4.4	--
60	27	17	13	10	7.4	--
90	29	20	16	13	10	--
120	33	23	19	16	13	--
183	42	29	25	22	19	--

Magnitude and probability of seasonal low flow from
March-June based on 31 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	20	11	7.9	5.7	3.9	--
3	22	12	8.5	6.2	4.3	--
7	24	14	9.7	7.1	4.9	--
14	26	15	11	8.4	6.0	--
30	32	20	15	12	8.9	--

Magnitude and probability of seasonal low flow from
November-February based on 31 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	15	6.2	3.4	1.9	0.92	--
3	16	7.7	4.9	3.2	1.9	--
7	19	9.7	6.4	4.3	2.7	--
14	22	12	7.5	5.1	3.0	--
30	25	15	10	7.4	5.0	--

Duration of daily mean flows based on 31 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
6.6	11	17	22	30	39	47	60
40%	30%	20%	15%	10%	5%	2%	1%
79	119	228	347	528	891	1,460	1,960

Magnitude and probability of annual high flow
based on 31 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	1,500	2,780	4,010	6,160	8,290	--
3	1,410	2,470	3,420	4,950	6,380	--
7	1,270	2,090	2,760	3,770	4,650	--
15	1,110	1,750	2,240	2,950	3,530	--
30	935	1,470	1,870	2,410	2,840	--
60	706	1,090	1,350	1,690	1,950	--
90	549	832	1,020	1,250	1,420	--

Magnitude and probability of seasonal low flow from
July-October based on 32 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	47	32	26	22	18	--
3	48	33	27	23	19	--
7	50	35	29	25	20	--
14	51	36	30	26	22	--
30	54	38	32	28	24	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	264	29	68	46	32
November	120	21	50	22	31
December	73	8.8	35	16	31
January	53	4.7	29	12	31
February	55	9.4	31	13	31
March	106	6.7	36	20	31
April	385	30	127	87	31
May	1,570	226	697	348	32
June	2,210	189	819	539	32
July	576	50	226	127	32
August	174	24	91	39	32
September	221	28	74	43	32
Annual	344	62	192	83	31

**06090800 Missouri River at Fort Benton, Mont.
Site Number 72**

LOCATION.--Lat 47°49'03", long 110°39'59" (NAD 27), in NW¼SE¼SE¼ sec.23, T.24 N., R.8 E., Chouteau County, Hydrologic Unit 10030102, on left bank at downstream side of Old Fort Benton Bridge at Fort Benton, 3.8 mi upstream from Shonkin Creek, and at river mile 2,073.2.

DRAINAGE AREA.--24,749 mi².

PERIOD OF RECORD.--October 1890 to current year (2002). Records for June 1881 to September 1890, published in WSP 546 and 761, have been found to be unreliable and were not used in analysis.

REVISED RECORDS.--WSP 746: 1932. WSP 1146: 1891-1907, 1908(M), 1909-18, 1937-38. WSP 1209: 1948(P). WSP 1309: 1929(M). WSP 1629: Drainage area. Also see PERIOD OF RECORD.

GAGE.--Water-stage recorder. Altitude of gage is 2,614.05 ft (NGVD 1929). Prior to Oct. 11, 1920, nonrecording gages, and Oct. 11, 1920, to Apr. 25, 1924, water-stage recorder, all at present site at datum 1.00 ft higher.

REMARKS.--Flow regulated by 18 smaller irrigation reservoirs and powerplants, Clark Canyon Reservoir (station number 06015300), and Canyon Ferry Lake (station number 06058500). Diversions for irrigation of about 751,000 acres upstream from station. Extreme diurnal fluctuation caused by powerplant at Morony Dam. Bureau of Reclamation satellite telemeter at station.

Unregulated streamflow period

Magnitude and probability of annual low flow
based on 52 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2,660	1,880	1,460	1,140	829	653
3	2,960	2,270	1,900	1,600	1,290	1,100
7	3,170	2,440	2,060	1,760	1,450	1,260
14	3,350	2,570	2,180	1,860	1,530	1,330
30	3,460	2,710	2,340	2,040	1,740	1,540
60	3,720	2,960	2,570	2,260	1,940	1,740
90	3,980	3,200	2,800	2,480	2,150	1,940
120	4,220	3,390	2,970	2,640	2,290	2,070
183	4,380	3,540	3,130	2,810	2,460	2,240

Magnitude and probability of seasonal low flow from
March-June based on 53 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4,070	3,070	2,610	2,270	1,910	1,700
3	4,290	3,420	3,020	2,720	2,410	2,220
7	4,490	3,620	3,220	2,930	2,620	2,440
14	4,780	3,910	3,540	3,280	3,010	2,840
30	5,580	4,490	4,030	3,690	3,350	3,150

Magnitude and probability of seasonal low flow from
November-February based on 52 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2,910	2,140	1,710	1,370	1,030	826
3	3,260	2,540	2,110	1,750	1,380	1,150
7	3,560	2,830	2,410	2,060	1,690	1,450
14	3,800	3,020	2,570	2,200	1,790	1,540
30	3,950	3,210	2,800	2,460	2,090	1,860

Duration of daily mean flows based on 53 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
2,040	2,280	2,620	3,130	3,660	4,190	4,730	5,280
40%	30%	20%	15%	10%	5%	2%	1%
5,820	7,020	9,170	11,500	15,600	22,700	31,300	35,400

Magnitude and probability of annual high flow
based on 53 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	26,200	39,000	47,600	58,600	66,700	74,900
3	25,800	38,200	46,300	56,300	63,500	70,500
7	25,400	37,000	43,900	51,800	57,000	61,800
15	24,000	34,700	40,700	47,300	51,600	55,400
30	21,400	31,200	36,900	43,200	47,400	51,100
60	17,700	25,000	29,200	33,700	36,600	39,200
90	14,800	20,600	23,800	27,500	29,900	32,000

Magnitude and probability of seasonal low flow from
July-October based on 52 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3,050	2,110	1,660	1,330	1,000	818
3	3,200	2,420	2,070	1,810	1,540	1,380
7	3,400	2,600	2,230	1,950	1,670	1,500
14	3,510	2,690	2,320	2,040	1,760	1,580
30	3,650	2,810	2,430	2,150	1,860	1,690

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	8,320	2,440	4,910	1,410	53
November	7,670	2,790	5,040	1,230	53
December	6,320	2,450	4,490	889	53
January	5,840	2,380	4,180	789	53
February	6,670	2,490	4,520	986	53
March	11,800	2,990	6,000	1,690	53
April	15,500	4,130	8,590	2,870	53
May	27,600	4,140	14,800	5,790	53
June	53,600	4,590	20,000	10,700	53
July	26,600	2,430	8,340	4,970	53
August	8,050	1,580	4,240	1,450	53
September	7,180	1,890	4,220	1,200	53
Annual	11,500	3,620	7,440	2,100	53

06090800 Missouri River at Fort Benton, Mont.—Continued
Site Number 72

Regulated streamflow period

Magnitude and probability of annual low flow
based on 49 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3,290	2,550	2,210	1,960	1,690	--
3	3,840	3,140	2,810	2,550	2,280	--
7	4,330	3,560	3,180	2,890	2,580	--
14	4,560	3,770	3,390	3,100	2,790	--
30	4,760	3,940	3,560	3,280	2,990	--
60	4,990	4,120	3,740	3,450	3,150	--
90	5,200	4,280	3,880	3,580	3,270	--
120	5,360	4,450	4,050	3,760	3,460	--
183	5,690	4,710	4,270	3,940	3,600	--

Magnitude and probability of seasonal low flow from
March-June based on 50 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4,700	3,480	2,950	2,560	2,180	1,950
3	5,120	3,940	3,430	3,050	2,670	2,440
7	5,440	4,310	3,820	3,460	3,100	2,880
14	5,730	4,550	4,030	3,660	3,270	3,040
30	6,080	4,820	4,280	3,890	3,490	3,250

Magnitude and probability of seasonal low flow from
November-February based on 49 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3,670	2,960	2,630	2,380	2,120	--
3	4,210	3,520	3,180	2,920	2,640	--
7	4,840	4,080	3,700	3,410	3,090	--
14	5,190	4,380	3,990	3,690	3,360	--
30	5,460	4,600	4,190	3,860	3,520	--

Duration of daily mean flows based on 50 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
3,140	3,250	3,570	4,110	4,730	5,250	5,770	6,390
40%	30%	20%	15%	10%	5%	2%	1%
7,170	7,940	8,810	10,500	12,600	17,800	23,800	28,400

Magnitude and probability of annual high flow
based on 50 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	19,900	32,000	41,100	53,800	64,100	75,000
3	19,400	30,800	39,000	49,900	58,400	67,100
7	18,500	28,700	35,400	44,000	50,200	56,300
15	17,000	25,900	31,800	38,900	44,100	49,100
30	15,400	23,100	28,100	34,300	38,600	42,800
60	13,200	19,000	22,700	27,000	30,100	33,000
90	11,600	16,200	19,100	22,600	25,100	27,500

Magnitude and probability of seasonal low flow from
July-October based on 49 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4,030	2,980	2,510	2,160	1,800	--
3	4,370	3,430	3,020	2,710	2,400	--
7	4,620	3,700	3,280	2,980	2,670	--
14	4,760	3,850	3,440	3,150	2,840	--
30	4,930	3,990	3,590	3,290	2,990	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	12,600	3,580	5,780	1,700	50
November	10,800	3,670	6,090	1,640	50
December	11,600	3,690	6,130	1,420	50
January	8,380	3,790	6,320	1,190	50
February	9,330	4,030	6,550	1,380	50
March	11,000	3,930	6,770	1,830	50
April	13,800	3,570	7,480	2,440	50
May	25,400	4,540	11,500	4,780	50
June	31,400	4,060	14,800	7,880	50
July	23,200	3,680	8,750	4,340	50
August	10,600	3,470	5,820	1,540	50
September	10,200	3,130	5,520	1,590	50
Annual	11,800	4,460	7,620	1,920	50

**06091700 Two Medicine River below South Fork, near Browning, Mont.
Site Number 73**

LOCATION.--Lat 48°25'36", long 112°59'20" (NAD 27), in SE¼SE¼SE¼ sec.23, T.31 N., R.11 W., Glacier County, Hydrologic Unit 10030201, Blackfeet Indian Reservation, on left bank 15 ft downstream from bridge on Blackfeet Secondary Highway No. 1, 9.7 mi south of Browning, and 12.3 mi northwest of Heart Butte.

DRAINAGE AREA.--250 mi².

PERIOD OF RECORD.--May 1977 to current year (2002).

GAGE.--Water-stage recorder. Altitude of gage is 4,180 ft (NGVD 29). May 1977 to September 1997 at datum 1.00 ft higher.

REMARKS.--Flow regulated by Lower Two Medicine Lake (station number 06090900). Diversions for irrigation of about 64 acres upstream from station. Bureau of Reclamation satellite telemeter at station.

Magnitude and probability of annual low flow
based on 24 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	22	14	12	9.8	--	--
3	23	16	13	11	--	--
7	26	18	15	13	--	--
14	29	20	17	15	--	--
30	35	24	20	17	--	--
60	44	29	23	19	--	--
90	49	32	26	22	--	--
120	56	34	26	22	--	--
183	71	44	36	31	--	--

Magnitude and probability of seasonal low flow from
March-June based on 25 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	54	34	28	24	21	--
3	58	37	31	26	23	--
7	69	43	34	29	24	--
14	78	49	39	33	27	--
30	115	69	53	42	33	--

Magnitude and probability of seasonal low flow from
November-February based on 25 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	25	15	12	9.9	7.6	--
3	26	16	13	11	8.6	--
7	30	19	15	13	11	--
14	35	22	18	15	13	--
30	41	27	22	18	15	--

Duration of daily mean flows based on 25 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
17	20	26	33	46	63	91	128
40%	30%	20%	15%	10%	5%	2%	1%
191	282	516	712	984	1,420	2,030	2,440

Magnitude and probability of annual high flow
based on 25 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	2,400	3,730	4,920	6,850	8,660	--
3	2,190	3,170	3,930	5,030	5,960	--
7	1,900	2,650	3,190	3,910	4,480	--
15	1,610	2,190	2,590	3,120	3,540	--
30	1,380	1,870	2,210	2,670	3,030	--
60	1,150	1,520	1,760	2,080	2,310	--
90	936	1,210	1,390	1,620	1,790	--

Magnitude and probability of seasonal low flow from
July-October based on 25 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	35	23	19	17	15	--
3	36	24	20	17	15	--
7	39	26	21	18	15	--
14	44	28	22	19	16	--
30	52	33	26	21	17	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	533	25	97	104	25
November	558	19	131	162	25
December	394	20	80	79	25
January	180	18	62	38	25
February	394	26	92	88	25
March	474	40	144	97	25
April	923	140	494	194	25
May	2,040	439	1,180	376	26
June	2,920	282	1,070	588	26
July	656	173	366	131	26
August	264	41	161	50	26
September	240	24	104	54	26
Annual	542	199	338	97	25

**06092000 Two Medicine River near Browning, Mont.
Site Number 74**

LOCATION.--Lat 48°28'25", long 112°48'06" (NAD 27), in NW¼ SW¼ SE¼ sec.5, T.31 N., R.9 W., Glacier County, Hydrologic Unit 10030201, on right bank 1,000 ft upstream from bridge on U.S. Highway 89, 11 mi southeast of Browning, and 15 mi upstream from Badger Creek.

DRAINAGE AREA.--317 mi².

PERIOD OF RECORD.--43 years. April 1907 to October 1924, May 1951 to September 1977 (discontinued). Monthly discharge only for some periods, published in WSP 1309. Published as "Two Medicine River at Family," 1907-24. October 1957 to September 1964, published as "Two Medicine Creek near Browning."

REVISED RECORDS.--WSP 1309: 1908, 1910, 1913, 1916, 1918. WSP 1559: 1915(M), 1917-18(M), 1921-24. WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 3,930 ft (NGVD 29, from topographic map). Prior to Nov. 1, 1924, nonrecording gage at several sites within 3 mi of present site at various datums. May 1, 1951, to Sept. 30, 1964, and Oct. 1, 1964, to Sept. 27, 1967, water-stage recorder at site 150 ft downstream at datums 2.00 ft higher and present datum, respectively.

REMARKS.--Flow partly regulated by Lower Two Medicine Lake. Diversions upstream from station into Two Medicine Canal for irrigation of about 10,000 acres downstream from station.

Magnitude and probability of annual low flow
based on 41 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	14	5.1	2.9	1.8	1.0	--
3	15	5.5	3.1	1.9	1.1	--
7	18	6.7	3.9	2.4	1.3	--
14	23	9.4	5.4	3.3	1.8	--
30	35	15	9.0	5.5	2.9	--
60	46	23	14	8.9	4.9	--
90	60	33	21	14	8.0	--
120	72	42	28	19	12	--
183	81	51	40	33	26	--

Magnitude and probability of seasonal low flow from
March-June based on 43 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	59	35	27	22	17	--
3	60	38	29	24	19	--
7	64	41	33	28	23	--
14	69	45	38	34	30	--
30	97	60	48	41	34	--

Magnitude and probability of seasonal low flow from
November-February based on 43 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	35	17	11	7.5	4.5	--
3	39	20	13	8.7	5.2	--
7	41	24	18	14	10	--
14	46	30	25	21	17	--
30	52	36	30	25	21	--

Duration of daily mean flows based on 43 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
4.6	8.8	22	35	52	69	87	117
40%	30%	20%	15%	10%	5%	2%	1%
167	270	557	838	1,210	1,780	2,530	3,100

Magnitude and probability of annual high flow
based on 43 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	2,610	5,010	7,890	14,000	21,400	--
3	2,430	4,350	6,360	10,100	14,100	--
7	2,250	3,640	4,780	6,470	7,940	--
15	2,010	3,030	3,740	4,670	5,380	--
30	1,800	2,590	3,040	3,540	3,860	--
60	1,510	1,990	2,190	2,360	2,440	--
90	1,230	1,550	1,650	1,720	1,750	--

Magnitude and probability of seasonal low flow from
July-October based on 44 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	20	6.2	3.2	2.0	1.2	--
3	22	6.6	3.4	2.1	1.3	--
7	25	7.8	4.1	2.5	1.5	--
14	31	11	5.7	3.4	2.1	--
30	45	17	9.4	5.5	3.2	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	474	2.4	131	100	44
November	332	24	114	70	43
December	378	21	91	64	43
January	440	30	85	67	43
February	280	34	90	51	43
March	592	27	134	113	43
April	940	109	481	230	44
May	2,240	286	1,400	415	45
June	4,820	91	1,500	924	45
July	1,130	20	382	266	45
August	283	5.4	92	73	45
September	596	3.4	102	106	45
Annual	624	71	377	113	43

**06092500 Badger Creek near Browning, Mont.
Site Number 75**

LOCATION.--Lat 48°21'03", long 112°50'27" (NAD 27), in NE¼ sec.24, T.30 N., R.10 W., Glacier County, on right bank just upstream from point of diversion to Four Horns Canal, 15 mi upstream from mouth, and 17 mi southeast of Browning.

DRAINAGE AREA.--133 mi².

PERIOD OF RECORD.--May 1951 to September 1973. Some monthly discharges in 1980.

REVISED RECORDS.--WSP 1729: 1951(M)

GAGE.--Water-stage recorder and control consisting of concrete diversion dam and two taintor gates (regularly closed). Altitude of gage is 4,179.20 ft (NGVD 29, Bureau of Reclamation bench mark).

REMARKS.--Water diverted into Four Horns Canal at station for irrigation of about 6,000 acres downstream from station.

Magnitude and probability of annual low flow
based on 21 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	47	37	32	29	--	--
3	50	39	34	30	--	--
7	54	42	36	32	--	--
14	60	48	42	37	--	--
30	72	58	51	46	--	--
60	79	68	63	59	--	--
90	87	76	70	66	--	--
120	94	82	76	72	--	--
183	104	92	87	83	--	--

Magnitude and probability of seasonal low flow from
March-June based on 22 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	66	51	43	37	--	--
3	68	52	45	39	--	--
7	73	57	49	43	--	--
14	78	63	56	50	--	--
30	88	74	68	65	--	--

Magnitude and probability of seasonal low flow from
November-February based on 22 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	51	39	34	30	--	--
3	54	41	35	31	--	--
7	58	44	38	33	--	--
14	64	49	43	38	--	--
30	74	59	52	46	--	--

Duration of daily mean flows based on 22 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
42	49	65	73	89	102	115	127
40%	30%	20%	15%	10%	5%	2%	1%
155	187	285	406	590	854	1,160	1,390

Magnitude and probability of annual high flow
based on 22 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	1,230	2,240	3,600	6,840	--	--
3	1,170	1,920	2,730	4,270	--	--
7	1,060	1,570	2,030	2,790	--	--
15	980	1,380	1,680	2,130	--	--
30	864	1,160	1,370	1,660	--	--
60	687	882	1,010	1,180	--	--
90	553	696	786	896	--	--

Magnitude and probability of seasonal high flow from
July-October based on 22 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	103	88	81	76	--	--
3	104	89	83	78	--	--
7	107	92	85	80	--	--
14	110	94	87	82	--	--
30	115	101	96	93	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	206	91	132	32	22
November	156	79	112	21	22
December	139	57	95	22	22
January	125	55	83	18	22
February	184	63	92	23	22
March	176	58	96	26	22
April	302	78	179	71	22
May	915	466	651	129	22
June	1,740	318	753	344	23
July	653	139	287	112	23
August	244	94	158	33	23
September	194	101	128	24	23
Annual	298	159	229	38	22

**06093200 Badger Creek below Four Horns Canal, near Browning, Mont.
Site Number 76**

LOCATION.--Lat 48°22'12", long 112°48'07" (NAD 27), in NW¼SW¼SE¼ sec.8, T.30 N., R.9 W., Glacier County, Hydrologic Unit 10030201, Blackfoot Indian Reservation, on left bank, 3.4 mi downstream from point of diversion to Four Horns Canal, 15.5 mi southeast of Browning, and at river mile 11.6.

DRAINAGE AREA.--152 mi².

PERIOD OF RECORD.--October 1973 to current year (2002). Records equivalent to those published as "Badger Creek near Browning" (station number 06092500) if diversion to Four Horns Canal is added to flow at station.

GAGE.--Water-stage recorder. Altitude of gage is 4,140 ft (NGVD 29). May 1951 to September 1973, water-stage recorder at site 3.4 mi upstream (station number 06092500) at different datum.

REMARKS.--Four Horns Canal diverts water from right bank in NE¼ sec.24, T.30 N., R.10 W., at diversion dam 3.4 mi upstream for irrigation of about 6,000 acres downstream from station. Bureau of Reclamation satellite telemeter at station.

Magnitude and probability of annual low flow
based on 28 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	31	17	12	8.4	5.6	--
3	33	18	12	9.0	6.0	--
7	34	19	13	9.4	6.3	--
14	37	20	14	10	7.0	--
30	41	23	16	12	8.0	--
60	48	28	21	16	12	--
90	59	37	28	23	17	--
120	71	45	34	26	19	--
183	78	55	46	39	33	--

Magnitude and probability of seasonal low flow from
March-June based on 29 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	69	49	37	29	20	--
3	74	53	41	31	22	--
7	80	57	44	34	24	--
14	86	62	49	39	29	--
30	88	67	58	52	45	--

Magnitude and probability of seasonal low flow from
November-February based on 28 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	53	36	28	22	17	--
3	57	41	33	27	22	--
7	62	44	36	30	24	--
14	68	51	43	37	32	--
30	75	60	53	47	42	--

Duration of daily mean flows based on 29 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
14	18	28	42	62	75	86	99
40%	30%	20%	15%	10%	5%	2%	1%
117	145	213	279	409	677	1,030	1,290

Magnitude and probability of annual high flow
based on 29 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	1,120	2,130	3,240	5,410	7,840	--
3	1,030	1,850	2,650	4,040	5,440	--
7	933	1,550	2,040	2,740	3,320	--
15	814	1,280	1,600	2,000	2,290	--
30	681	1,040	1,280	1,560	1,760	--
60	536	794	948	1,120	1,230	--
90	429	621	729	847	922	--

Magnitude and probability of seasonal low flow from
July-October based on 28 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	33	17	12	8.7	5.6	--
3	34	18	13	9.2	6.3	--
7	36	19	13	9.7	6.5	--
14	38	21	14	11	7.3	--
30	42	23	16	12	8.2	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	316	9.1	83	58	29
November	295	41	112	53	29
December	184	43	97	31	29
January	160	57	89	25	29
February	198	52	90	31	29
March	206	45	94	30	29
April	321	62	172	69	29
May	899	140	503	174	29
June	2,240	59	586	451	29
July	568	18	170	122	29
August	184	16	76	45	29
September	199	16	69	44	29
Annual	350	68	179	60	29

**06093500 Badger Creek near Family, Mont.
Site Number 77**

LOCATION.--Lat 48°26'10", long 112°42'00" (NAD 27), in NE¼ sec.19, T.31 N., R.8 W., Glacier County, at highway bridge, 4 mi southeast of Family.

DRAINAGE AREA.--239 mi².

PERIOD OF RECORD.--17 years (1907-24).

GAGE.--Chain gage. Altitude of gage is 3,900 ft (NGVD 29, from topographic map). Prior to June 4, 1908, staff gages 700 ft downstream and July 21, 1908, to May 24, 1909, chain gage 300 ft downstream from described site at unknown datums.

REMARKS.--Bureau of Reclamation canal began to divert water in 1915 for irrigation upstream from station.

Magnitude and probability of annual low flow
based on 16 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	48	17	7.9	3.7	--	--
3	49	19	9.3	4.6	--	--
7	51	25	15	8.9	--	--
14	53	30	20	13	--	--
30	59	37	27	19	--	--
60	69	48	38	31	--	--
90	77	59	51	45	--	--
120	93	72	63	55	--	--
183	109	84	73	65	--	--

Magnitude and probability of seasonal low flow from
March-June based on 17 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	72	44	33	26	--	--
3	73	45	35	29	--	--
7	73	48	39	33	--	--
14	73	51	43	38	--	--
30	76	54	46	41	--	--

Magnitude and probability of seasonal low flow from
November-February based on 17 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	67	50	40	33	--	--
3	67	50	40	33	--	--
7	67	50	40	33	--	--
14	67	50	40	33	--	--
30	68	51	41	34	--	--

Duration of daily mean flows based on 17 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
25	34	49	61	77	91	113	138
40%	30%	20%	15%	10%	5%	2%	1%
173	225	333	450	618	895	1,290	1,460

Magnitude and probability of annual high flow
based on 17 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	1,250	1,710	1,980	2,280	--	--
3	1,160	1,560	1,790	2,040	--	--
7	1,060	1,430	1,660	1,920	--	--
15	932	1,300	1,540	1,850	--	--
30	826	1,180	1,420	1,750	--	--
60	685	916	1,060	1,240	--	--
90	558	738	852	991	--	--

Magnitude and probability of seasonal low flow from
July-October based on 18 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	110	34	13	5.2	--	--
3	111	37	15	6.3	--	--
7	113	46	23	12	--	--
14	118	55	31	17	--	--
30	132	73	46	29	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	356	66	153	69	18
November	231	80	140	44	18
December	130	65	95	21	18
January	190	30	77	33	17
February	160	25	73	29	17
March	242	35	89	49	17
April	378	70	225	90	17
May	1,100	319	645	182	18
June	2,000	179	765	439	18
July	696	32	291	183	18
August	380	25	159	85	18
September	493	58	161	97	18
Annual	354	120	237	68	17

**06098000 Dupuyer Creek near Valier, Mont.
Site Number 78**

LOCATION.--Lat 48°14'10", long 112°23'50" (NAD 27), in NW¼ sec.33, T.29 N., R.6 W., Pondera County, 6 mi downstream from Sheep Creek and 8 mi (revised) southwest of Valier.

DRAINAGE AREA.--137 mi².

PERIOD OF RECORD.--25 years (1912-37).

GAGE.--Water-stage recorder. Altitude of gage is 3,920 ft (NGVD 29, from topographic map). Prior to Apr. 20, 1925, staff or chain gage at same site and datum.

REMARKS.--Several small diversions for irrigation upstream from station.

Magnitude and probability of annual low flow
based on 24 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4.2	0.86	0.00	0.00	--	--
3	4.5	.91	.00	.00	--	--
7	5.5	1.4	.00	.00	--	--
14	6.5	2.2	.00	.00	--	--
30	9.9	2.3	.46	.03	--	--
60	12	3.2	.98	.09	--	--
90	15	4.2	1.3	.12	--	--
120	18	5.2	1.6	.17	--	--
183	19	6.5	3.1	1.5	--	--

Magnitude and probability of seasonal low flow from
March-June based on 25 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	14	3.4	0.67	0.00	0.00	--
3	14	3.6	.70	.00	.00	--
7	16	3.8	.93	.09	.00	--
14	17	5.3	2.3	1.0	.35	--
30	28	11	5.6	3.1	1.4	--

Magnitude and probability of seasonal low flow from
November-February based on 25 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	9.6	4.9	3.3	2.0	0.00	--
3	9.9	5.1	3.4	2.0	.00	--
7	10	5.3	3.5	2.1	.00	--
14	11	5.8	4.0	2.1	.00	--
30	15	6.6	4.6	2.1	.85	--

Duration of daily mean flows based on 25 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.26	0.51	2.3	5.6	9.8	14	19	26
40%	30%	20%	15%	10%	5%	2%	1%
34	46	65	82	107	164	266	375

Magnitude and probability of annual high flow
based on 25 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	288	738	1,200	2,020	2,830	--
3	244	599	956	1,570	2,170	--
7	205	470	718	1,120	1,490	--
15	172	384	576	878	1,150	--
30	138	293	429	639	823	--
60	109	219	310	443	553	--
90	93	181	252	353	434	--

Magnitude and probability of seasonal low flow from
July-October based on 25 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	6.3	1.1	0.00	0.00	0.00	--
3	6.8	1.2	.00	.00	.00	--
7	8.1	1.7	.00	.00	.00	--
14	9.2	2.3	.00	.00	.00	--
30	13	2.5	.49	.04	.00	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	78	0.00	28	22	25
November	61	.43	27	16	25
December	52	5.3	20	13	25
January	62	5.3	22	16	25
February	90	4.2	26	20	25
March	127	14	37	26	25
April	147	11	67	39	25
May	436	4.0	115	99	25
June	707	1.4	152	178	25
July	265	.00	50	59	26
August	125	.00	27	30	26
September	91	.00	22	22	26
Annual	150	8.4	49	36	25

**06098500 Cut Bank Creek near Browning, Mont.
Site Number 79**

LOCATION.--Lat 48°37'00", long 113°02'06" (NAD 27), in NE¼NW¼SW¼ sec.15, T.33 N., R.11 W., Glacier County, Hydrologic Unit 10030202, Blackfeet Indian Reservation, on right bank 20 ft downstream from bridge on Montana Secondary Highway 464, 4.0 mi north of Browning, and at river mile 73.3.

DRAINAGE AREA.--123 mi².

PERIOD OF RECORD.--April 1918 to October 1925 (seasonal records only), April 1991 to current year (2002).

REVISED RECORDS.--WDR MT-93-1: 1992(M).

GAGE.--Water-stage recorder. Altitude of gage is 4,380 ft (NGVD 29). April 1918 to October 1925, water-stage recorder at site about 120 ft upstream at different datum. April 1991 to September 1995 at datum 1.00 ft higher.

REMARKS.--Diversions for irrigation of about 1,200 acres upstream from station. Bureau of Reclamation satellite telemeter at station.

Magnitude and probability of annual low flow
based on 10 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	16	12	10	9.0	--	--
3	17	13	11	9.5	--	--
7	19	14	12	10	--	--
14	20	15	12	11	--	--
30	23	16	14	12	--	--
60	25	17	14	13	--	--
90	27	18	16	14	--	--
120	31	21	18	17	--	--
183	37	25	21	19	--	--

Magnitude and probability of seasonal low flow from
March-June based on 13 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	26	18	14	12	--	--
3	27	19	15	13	--	--
7	29	21	17	14	--	--
14	32	22	19	17	--	--
30	43	27	21	17	--	--

Magnitude and probability of seasonal low flow from
November-February based on 11 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	17	13	11	9.4	--	--
3	19	14	12	10	--	--
7	20	15	14	13	--	--
14	22	16	15	14	--	--
30	24	18	17	16	--	--

Duration of daily mean flows based on 11 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
12	14	18	23	30	39	50	67
40%	30%	20%	15%	10%	5%	2%	1%
98	157	255	335	448	634	826	1,010

Magnitude and probability of annual high flow
based on 11 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	864	1,420	1,970	--	--	--
3	801	1,220	1,560	--	--	--
7	711	1,000	1,200	--	--	--
15	619	869	1,030	--	--	--
30	542	753	887	--	--	--
60	438	595	694	--	--	--
90	355	469	539	--	--	--

Magnitude and probability of seasonal low flow from
July-October based on 16 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	27	17	14	11	--	--
3	28	18	14	11	--	--
7	29	19	15	12	--	--
14	32	21	16	13	--	--
30	36	24	18	15	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	136	15	55	31	16
November	216	25	63	58	12
December	157	17	42	39	11
January	74	18	32	16	11
February	139	15	40	36	11
March	110	18	53	31	13
April	217	57	134	45	18
May	740	248	421	110	19
June	955	184	512	215	19
July	344	58	190	78	19
August	140	16	68	32	18
September	82	12	43	19	18
Annual	201	69	133	41	11

**06099000 Cut Bank Creek at Cut Bank, Mont.
Site Number 80**

LOCATION.--Lat 48°38'00", long 112°20'46" (NAD 27), in SW¼SE¼NE¼ sec.11, T.33 N., R.6 W., Glacier County, Hydrologic Unit 10030202, Blackfeet Indian Reservation, on right bank, 0.1 mi downstream from bridge on U.S. Highway 2, 0.7 mi west of Cut Bank, 0.8 mi downstream from Old Maids Coulee, and at river mile 17.7.

DRAINAGE AREA.--1,041 mi².

PERIOD OF RECORD.--August 1905 to October 1919, May to July 1920, May 1922 to October 1924, May 1951 to September 1973, October 1981 to current year (2002). Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1309; 1907-8, 1910-11, 1924-25. WSP 1509: 1911, 1916(M). WSP 1559: 1905(M), 1908(M). WSP 1709: 1959. WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 3,561.42 ft (NGVD 29). Prior to May 12, 1922, nonrecording gage at several sites 0.5 mi upstream at various datums. May 12, 1922, to Nov. 1, 1924, nonrecording gage at present site and different datum.

REMARKS.--Few minor diversions for irrigation upstream from station. Natural flow of stream may be affected by return flow from Two Medicine Canal which irrigates lands upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 55 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	13	6.8	4.5	3.1	2.0	1.5
3	14	7.5	5.1	3.7	2.4	1.8
7	16	8.8	6.1	4.4	3.0	2.2
14	19	10	7.3	5.3	3.6	2.8
30	23	13	9.7	7.3	5.2	4.1
60	29	18	13	10	7.8	6.3
90	35	22	17	14	11	9.1
120	43	29	24	20	17	15
183	56	38	31	26	21	19

Magnitude and probability of seasonal low flow from
March-June based on 59 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	42	21	14	10	6.6	4.9
3	44	22	15	11	7.0	5.3
7	48	26	18	13	9.0	7.0
14	59	31	22	16	11	8.7
30	95	47	31	21	13	9.8

Magnitude and probability of seasonal low flow from
November-February based on 59 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	17	8.6	5.5	3.7	2.2	1.6
3	19	9.5	6.1	4.1	2.5	1.9
7	22	11	7.3	4.8	3.0	2.3
14	24	13	8.6	5.7	3.7	3.0
30	29	16	10	7.5	5.3	4.3

Duration of daily mean flows based on 59 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
6.6	9.9	17	24	34	46	61	84
40%	30%	20%	15%	10%	5%	2%	1%
118	177	290	376	504	715	1,010	1,240

Magnitude and probability of annual high flow
based on 59 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	1,390	2,650	3,910	6,130	8,380	11,300
3	1,160	2,050	2,900	4,340	5,750	7,510
7	938	1,530	2,060	2,880	3,640	4,540
15	772	1,190	1,520	2,000	2,410	2,880
30	658	956	1,170	1,460	1,690	1,930
60	541	760	905	1,090	1,230	1,360
90	455	630	744	885	988	1,090

Magnitude and probability of seasonal low flow from
July-October based on 59 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	32	14	7.9	4.7	2.4	1.6
3	34	15	8.7	5.3	2.8	1.9
7	37	17	10	6.5	3.6	2.4
14	40	20	12	8.0	4.7	3.2
30	47	25	17	12	7.5	5.5

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	268	11	84	50	61
November	271	19	77	49	59
December	185	15	47	32	59
January	115	1.6	35	20	59
February	414	11	57	61	59
March	1,050	6.9	149	158	59
April	664	79	241	139	59
May	894	198	485	167	62
June	1,780	174	635	342	62
July	605	17	244	134	62
August	234	5.6	90	52	62
September	298	5.9	76	61	62
Annual	317	74	184	60	59

**06099500 Marias River near Shelby, Mont.
Site Number 81**

LOCATION.--Lat 48°25'38", long 111°53'20" (NAD 27), in SE¼NW¼SE¼ sec.20, T.31 N., R.2 W., Toole County, Hydrologic Unit 10030203, on left bank 20 ft downstream from bridge on old U.S. Highway 91, 5.1 mi south of Shelby, 24 mi downstream from Cut Bank Creek, and at river mile 140.6.

DRAINAGE AREA.--3,242 mi², of which 518 mi² is probably noncontributing.

PERIOD OF RECORD.--April 1902 to December 1904, May 1905 to December 1906, May 1907 to January 1908, April 1911 to current year (2002). Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1309: 1903-4, 1918, 1921, 1933, 1935, 1947. WSP 1509: 1902, 1912(M), 1916, 1943(M). WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 3,087.72 ft (NGVD 29). Prior to Dec. 23, 1947, nonrecording gage or water-stage recorder at several sites within 1,000 ft of present site at approximately the same datum. Dec. 23, 1947, to Apr. 6, 1976, water-stage recorder at site 150 ft downstream at same datum.

REMARKS.--Some regulation by Lower Two Medicine Lake (station number 06090900), Four Horns Reservoir (station number 06093000), Swift Reservoir (station number 06094000), and Lake Frances (station number 06095500), having a combined capacity of 172,630 acre-ft. Diversions for irrigation of about 50,000 acres upstream from station and about 15,000 acres downstream from station. Bureau of Reclamation satellite telemeter at station.

Magnitude and probability of annual low flow
based on 91 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	119	70	50	37	25	19
3	122	76	57	44	32	26
7	133	84	63	49	36	29
14	147	94	70	54	40	32
30	170	111	85	67	50	40
60	196	134	109	91	74	64
90	226	156	128	108	89	77
120	256	176	144	122	101	89
183	287	194	158	133	110	97

Magnitude and probability of seasonal low flow from
March-June based on 94 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	254	152	116	93	72	61
3	264	161	125	102	80	69
7	286	180	142	117	95	83
14	327	211	170	143	119	106
30	439	276	219	181	147	129

Magnitude and probability of seasonal low flow from
November-February based on 94 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	138	88	68	54	42	35
3	146	93	72	57	44	37
7	160	102	78	62	46	38
14	176	113	86	68	51	41
30	199	130	101	80	61	50

Duration of daily mean flows based on 94 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
73	92	126	159	214	262	329	414
40%	30%	20%	15%	10%	5%	2%	1%
543	776	1,350	1,810	2,450	3,630	5,300	6,320

Magnitude and probability of annual high flow
based on 94 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	4,860	9,280	14,300	24,200	35,500	51,600
3	4,660	8,340	12,000	18,400	24,900	33,200
7	4,270	7,110	9,490	13,100	16,400	20,100
15	3,820	6,000	7,600	9,780	11,500	13,300
30	3,330	5,090	6,300	7,860	9,030	10,200
60	2,750	4,070	4,920	5,950	6,670	7,380
90	2,270	3,300	3,940	4,700	5,230	5,730

Magnitude and probability of seasonal low flow from
July-October based on 97 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	183	96	65	45	29	22
3	184	102	73	54	38	30
7	193	110	80	61	44	35
14	207	120	88	68	50	41
30	230	137	104	83	64	53

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	1,450	74	405	248	97
November	1,480	116	394	246	97
December	1,140	103	304	174	97
January	700	42	255	130	94
February	1,170	59	318	206	94
March	2,300	139	579	411	94
April	3,150	280	1,140	563	96
May	5,300	711	2,720	1,040	98
June	10,200	409	3,090	2,070	98
July	3,980	147	1,060	764	98
August	1,100	67	389	233	98
September	1,850	66	358	272	98
Annual	1,930	302	906	351	94

100 Statistical Summaries of Streamflow in Montana and Adjacent Areas, Water Years 1900 through 2002

06101500 Marias River near Chester, Mont. Site Number 82

LOCATION.--Lat 48°18'23", long 111°04'47" (NAD 27), in SW¼SW¼SW¼ sec.34, T.30 N., R.5 E., Liberty County, Hydrologic Unit 10030203, on left bank 2.0 mi downstream from Tiber Dam, 4.4 mi upstream from Pondera Coulee, 15 mi southwest of Chester, and at river mile 78.3.

DRAINAGE AREA.--4,927 mi², of which 518 mi² is probably noncontributing.

PERIOD OF RECORD.--April to September 1921, October 1945 to September 1947, October 1955 to current year (2002). Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1629: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 2,814.03 ft (NGVD, Bureau of Reclamation bench mark). Prior to Oct. 1, 1921, nonrecording gage at bridge 2.5 mi downstream at different datum. Oct. 4, 1945, to Sept. 30, 1946, nonrecording gage at site 3 mi downstream at different datum.

REMARKS.--Flow completely regulated by Lake Elwell after Oct. 28, 1955. Bureau of Reclamation satellite telemeter at station.

Magnitude and probability of annual low flow
based on 46 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	270	137	84	52	28	--
3	287	149	91	56	29	--
7	291	151	98	64	38	--
14	294	157	111	81	54	--
30	300	175	126	93	64	--
60	345	208	148	108	72	--
90	390	237	169	123	82	--
120	449	270	190	136	89	--
183	572	343	242	173	112	--

Magnitude and probability of seasonal low flow from
March-June based on 47 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	357	202	142	103	69	--
3	360	206	145	106	72	--
7	378	216	151	109	73	--
14	385	219	155	114	78	--
30	446	242	170	124	85	--

Magnitude and probability of seasonal low flow from
November-February based on 46 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	275	141	87	54	29	--
3	296	152	94	58	30	--
7	298	158	102	66	39	--
14	302	165	117	83	56	--
30	306	179	132	96	65	--

Duration of daily mean flows based on 47 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
49	81	160	220	309	397	476	579
40%	30%	20%	15%	10%	5%	2%	1%
738	943	1,200	1,380	1,690	2,280	3,090	4,020

Magnitude and probability of annual high flow
based on 47 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	2,180	3,710	4,810	6,250	7,350	--
3	2,160	3,690	4,800	6,250	7,350	--
7	2,110	3,620	4,710	6,170	7,290	--
15	2,020	3,460	4,500	5,880	6,920	--
30	1,850	3,120	4,020	5,180	6,040	--
60	1,620	2,570	3,150	3,820	4,260	--
90	1,460	2,260	2,710	3,200	3,500	--

Magnitude and probability of seasonal low flow from
July-October based on 46 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	417	180	102	59	30	--
3	447	197	111	64	31	--
7	453	205	122	75	41	--
14	457	223	144	97	59	--
30	513	273	188	135	91	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	2,760	208	748	458	47
November	1,730	.40	600	369	47
December	1,050	16	448	225	47
January	1,080	35	407	222	47
February	1,070	35	440	245	47
March	2,030	48	571	385	47
April	2,340	46	789	557	47
May	2,610	51	1,140	657	47
June	6,250	59	1,690	1,220	47
July	5,320	58	1,280	971	47
August	2,910	82	976	641	47
September	3,060	192	892	513	47
Annual	1,490	98	832	328	47

**06102000 Marias River near Brinkman, Mont.
Site Number 83**

LOCATION.--Lat 48°16', long 110°42' (NAD 27), in SE¼ SE¼ sec.17, T.29 N., R.8 E., Hill County, on left bank 4 mi southwest of Brinkman Post Office, 14 mi downstream from Cottonwood Creek, and 30 mi north of Fort Benton.

DRAINAGE AREA.--6,425 mi² (revised), of which 518 mi² is probably noncontributing.

PERIOD OF RECORD.--35 years. October 1921 to September 1956 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 2,677.25 ft (NGVD 29). Prior to Oct. 6, 1931, cantilever gage at site 2,800 ft downstream at datum 0.64 ft higher. Oct. 6, 1931, to July 1, 1939, water-stage recorder at site 1,600 ft downstream at present datum.

REMARKS.--Diversions for irrigation of about 65,000 acres upstream from station. Flow regulated by Tiber Reservoir after Oct 28, 1955, and four other reservoirs having a combined capacity of 177,870 acre-ft.

Magnitude and probability of annual low flow
based on 33 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	106	63	46	36	27	--
3	112	66	49	38	28	--
7	119	71	52	40	29	--
14	130	79	59	45	33	--
30	152	95	71	55	40	--
60	182	120	95	78	61	--
90	209	142	116	97	80	--
120	247	164	131	109	87	--
183	281	180	143	118	94	--

Magnitude and probability of seasonal low flow from
March-June based on 34 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	201	131	109	96	85	--
3	209	136	112	98	85	--
7	226	152	128	114	102	--
14	272	189	162	145	131	--
30	436	273	220	187	158	--

Magnitude and probability of seasonal low flow from
November-February based on 33 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	126	67	48	36	27	--
3	131	71	51	39	29	--
7	139	76	55	41	31	--
14	150	85	61	46	34	--
30	171	99	72	55	40	--

Duration of daily mean flows based on 34 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
57	72	99	140	199	248	312	393
40%	30%	20%	15%	10%	5%	2%	1%
526	826	1,410	1,900	2,580	3,770	5,420	6,790

Magnitude and probability of annual high flow
based on 34 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	4,940	9,650	14,600	24,000	34,000	--
3	4,710	8,830	12,900	20,100	27,300	--
7	4,340	7,730	10,700	15,600	20,100	--
15	3,840	6,460	8,520	11,500	14,000	--
30	3,310	5,390	6,970	9,160	10,900	--
60	2,810	4,390	5,470	6,840	7,870	--
90	2,340	3,620	4,470	5,550	6,340	--

Magnitude and probability of seasonal low flow from
July-October based on 33 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	165	93	70	56	44	--
3	169	96	73	59	46	--
7	175	100	76	61	48	--
14	185	108	83	68	55	--
30	208	123	96	80	65	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	1,470	85	413	291	34
November	1,600	120	405	300	34
December	803	94	304	168	34
January	700	40	231	130	34
February	1,000	52	307	240	34
March	2,400	165	627	498	34
April	3,210	291	1,260	743	34
May	5,360	691	2,680	1,110	34
June	11,300	727	3,260	2,500	34
July	3,460	182	1,170	843	34
August	1,110	88	399	276	34
September	1,370	87	348	268	34
Annual	1,990	338	952	447	34

**6102050 Marias River near Loma, Mont.
Site Number 84**

LOCATION.--Lat 47°55'59", long 111°31'02" (NAD 27), in SW¼NE¼SE¼4 sec.12, T.25 N., R.9 E., Choteau County, Hydrologic Unit 10030203, on left bank 600 ft upstream from Teton River, 800 ft upstream from highway bridge, 0.2 mi southwest of Loma, and at river mile 2.5.

DRAINAGE AREA.--7,137 mi², of which 518 mi² is probably noncontributing.

PERIOD OF RECORD.--October 1959 to September 1972, June 2001 to current year (2002; seasonal records only).

GAGE.--Water-stage recorder. Altitude of gage is 2,570 ft (NGVD 29). Prior to June 2001, water-stage recorder at site 4.5 mi upstream at different datum.

REMARKS.--Flow completely regulated by Lake Elwell. Numerous diversions for irrigation upstream from station.

Magnitude and probability of annual low flow
based on 12 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	140	89	67	52	--	--
3	154	94	70	54	--	--
7	171	101	73	55	--	--
14	190	109	78	57	--	--
30	210	120	86	64	--	--
60	275	155	110	81	--	--
90	341	204	148	110	--	--
120	458	272	194	141	--	--
183	616	409	325	266	--	--

Magnitude and probability of seasonal low flow from
March-June based on 13 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	243	161	131	112	--	--
3	249	166	136	116	--	--
7	263	173	141	119	--	--
14	280	180	144	121	--	--
30	395	215	154	124	--	--

Magnitude and probability of seasonal low flow from
November-February based on 12 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	166	93	67	53	--	--
3	176	99	71	54	--	--
7	192	107	75	55	--	--
14	225	126	87	62	--	--
30	251	142	99	71	--	--

Duration of daily mean flows based on 13 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
80	96	126	187	303	393	499	768
40%	30%	20%	15%	10%	5%	2%	1%
975	1,190	1,410	1,580	2,000	2,770	3,950	5,090

Magnitude and probability of annual high flow
based on 13 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	2,850	4,540	6,050	8,540	--	--
3	2,750	4,470	6,000	8,480	--	--
7	2,620	4,290	5,800	8,290	--	--
15	2,460	4,020	5,390	7,610	--	--
30	2,230	3,520	4,620	6,340	--	--
60	1,930	2,750	3,390	4,290	--	--
90	1,730	2,460	3,000	3,740	--	--

Magnitude and probability of seasonal low flow from
July-October based on 12 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	289	132	91	68	--	--
3	340	149	97	68	--	--
7	378	166	108	76	--	--
14	456	221	151	111	--	--
30	505	255	179	134	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	2,750	292	942	608	13
November	1,580	78	723	450	13
December	908	106	402	207	13
January	517	105	298	126	13
February	910	110	434	245	13
March	1,290	117	568	366	13
April	2,180	180	878	549	14
May	2,180	441	1,320	445	14
June	6,020	693	2,260	1,360	14
July	2,990	250	1,400	839	15
August	3,040	138	1,200	892	15
September	3,260	296	1,110	725	15
Annual	1,330	522	977	281	13

**06106000 Deep Creek near Choteau, Mont.
Site Number 85**

LOCATION.--Lat 47°45'07", long 112°14'22" (NAD 27), in SW¼NW¼ sec.15, T.23 N., R.5 W., Teton County, 2 mi downstream from Willow Creek and 5 mi southwest of Choteau.

DRAINAGE AREA.--223 mi².

PERIOD OF RECORD.--13 years (1911-25).

GAGE.--Chain gage. Altitude of gage is 3,860 ft (NGVD 29, by barometer).

REMARKS.--Several small diversions for irrigation upstream from station.

Magnitude and probability of annual low flow
based on 12 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	12	7.6	5.4	4.0	--	--
3	13	7.7	5.5	4.0	--	--
7	13	8.2	6.3	4.9	--	--
14	13	8.8	7.3	6.2	--	--
30	16	11	9.1	7.8	--	--
60	18	12	10	8.5	--	--
90	20	14	11	9.7	--	--
120	25	17	13	11	--	--
183	28	20	17	15	--	--

Magnitude and probability of seasonal low flow from
March-June based on 13 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	18	11	7.9	6.3	--	--
3	18	11	8.1	6.4	--	--
7	19	11	8.4	6.6	--	--
14	21	12	8.7	6.7	--	--
30	34	21	16	12	--	--

Magnitude and probability of seasonal low flow from
November-February based on 13 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	15	13	12	11	--	--
3	16	13	12	11	--	--
7	16	13	12	11	--	--
14	16	13	12	11	--	--
30	16	13	12	11	--	--

Duration of daily mean flows based on 13 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
6.7	8.2	12	14	18	23	30	37
40%	30%	20%	15%	10%	5%	2%	1%
44	61	89	116	157	240	397	643

Magnitude and probability of annual high flow
based on 13 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	504	1,160	1,820	2,990	--	--
3	415	916	1,400	2,240	--	--
7	337	734	1,130	1,810	--	--
15	275	581	887	1,430	--	--
30	225	451	665	1,030	--	--
60	178	332	465	671	--	--
90	147	260	356	504	--	--

Magnitude and probability of seasonal low flow from
July-October based on 14 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	20	9.9	6.5	4.4	--	--
3	21	11	6.8	4.5	--	--
7	22	11	7.7	5.4	--	--
14	22	13	9.1	6.8	--	--
30	24	14	10	8.1	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	89	11	36	21	14
November	67	14	35	13	14
December	87	15	31	19	14
January	75	13	23	17	13
February	51	12	22	11	13
March	86	13	39	20	13
April	149	30	71	35	14
May	584	50	190	130	14
June	752	24	225	205	14
July	529	11	100	129	14
August	112	8.4	42	28	14
September	77	8.6	33	21	14
Annual	165	28	72	41	13

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06108000 Teton River near Dutton, Mont. Site Number 86

LOCATION.--Lat 47°55'49", long 111°33'07" (NAD 27), in SE¼SW¼SW¼ sec.12, T.25 N., R.1 E., Teton County, Hydrologic Unit 10030205, on right bank 150 ft upstream from Kerr Bridge, 0.9 mi downstream from Hunt Coulee, 9.5 mi northeast of Dutton, and at river mile 100.9.

DRAINAGE AREA.--1,307 mi². Area at site used prior to July 17, 1965, 1,308 mi².

PERIOD OF RECORD.--August 1954 to current year (2002).

GAGE.--Water-stage recorder. Altitude of gage is 3,235 ft (NGVD 29). Prior to July 17, 1965, water-stage recorder at site 1,800 ft downstream at datum 1.97 ft lower.

REMARKS.--Water is diverted on left bank in sec.34, T.25 N., R.7 W., for storage in Bynum Reservoir (usable capacity, 75,000 acre-ft). Diversions for irrigation of about 44,000 acres upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 47 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	22	9.2	0.00	0.00	0.00	--
3	23	9.9	.00	.00	.00	--
7	32	11	3.0	.94	.00	--
14	36	11	3.5	1.1	.00	--
30	36	11	3.8	1.2	.00	--
60	40	16	8.0	4.2	1.9	--
90	44	21	13	8.3	4.8	--
120	48	25	17	12	7.3	--
183	54	30	21	16	11	--

Magnitude and probability of seasonal low flow from
March-June based on 48 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	41	21	14	9.8	6.5	--
3	43	22	15	11	7.3	--
7	48	24	17	12	8.4	--
14	58	30	21	15	11	--
30	79	40	28	20	13	--

Magnitude and probability of seasonal low flow from
November-February based on 48 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	27	17	13	10	8.2	--
3	29	18	14	11	8.5	--
7	33	20	15	12	9.3	--
14	37	23	17	13	10	--
30	42	26	20	16	12	--

Duration of daily mean flows based on 48 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
2.5	8.2	16	23	36	48	59	72
40%	30%	20%	15%	10%	5%	2%	1%
90	118	167	206	271	454	747	1,080

Magnitude and probability of annual high flow
based on 48 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	858	2,360	4,080	7,450	11,100	--
3	748	1,940	3,210	5,510	7,840	--
7	599	1,440	2,270	3,660	4,980	--
15	464	1,040	1,590	2,470	3,280	--
30	367	778	1,150	1,720	2,230	--
60	273	554	800	1,180	1,520	--
90	232	455	643	929	1,180	--

Magnitude and probability of seasonal low flow from
July-October based on 47 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	29	9.9	0.00	0.00	0.00	--
3	31	10	.00	.00	.00	--
7	40	11	4.0	1.2	.00	--
14	43	11	4.2	1.4	.00	--
30	44	11	4.3	1.5	.00	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	223	15	70	48	48
November	176	18	71	37	48
December	208	15	65	40	48
January	167	13	56	30	48
February	388	15	87	73	48
March	819	29	184	174	48
April	495	47	160	105	48
May	957	20	248	219	48
June	2,730	17	392	495	48
July	551	1.3	160	147	48
August	263	.00	74	59	49
September	211	7.4	66	49	49
Annual	350	27	136	79	48

**06109000 Missouri River at Loma, Mont.
Site Number 87**

LOCATION.--Lat 47°56'04", long 110°28'02" (NAD 27), in NW¼SE¼ sec.8, T.25 N., R.10 E., Chouteau County, 1.5 mi (revised) east of Loma and 0.5 mi downstream from Marias River.

DRAINAGE AREA.--34,221 mi².

PERIOD OF RECORD.--15 years (1935-50).

GAGE.--Water-stage recorder. Altitude of gage is 2,543.40 ft (NGVD 29).

REMARKS.--Diversions for irrigation of about 830,000 acres upstream from station. Flow regulated by 22 smaller irrigation reservoirs and powerplants.

Magnitude and probability of annual low flow
based on 15 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3,550	2,940	2,660	2,450	--	--
3	3,610	3,030	2,760	2,550	--	--
7	3,620	3,040	2,780	2,570	--	--
14	3,630	3,060	2,780	2,580	--	--
30	3,640	3,060	2,790	2,590	--	--
60	3,830	3,200	2,900	2,670	--	--
90	4,050	3,360	3,050	2,810	--	--
120	4,280	3,540	3,190	2,910	--	--
183	4,440	3,690	3,340	3,060	--	--

Magnitude and probability of seasonal low flow from
March-June based on 16 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	5,570	4,330	3,810	3,430	--	--
3	5,610	4,540	4,120	3,820	--	--
7	5,640	4,560	4,140	3,830	--	--
14	5,690	4,590	4,140	3,840	--	--
30	5,710	4,600	4,150	3,850	--	--

Magnitude and probability of seasonal low flow from
November-February based on 15 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4,090	3,230	2,810	2,490	--	--
3	4,130	3,290	2,880	2,570	--	--
7	4,140	3,300	2,880	2,580	--	--
14	4,150	3,310	2,890	2,590	--	--
30	4,160	3,320	2,900	2,600	--	--

Duration of daily mean flows based on 15 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
2,480	2,750	3,180	3,410	3,870	4,330	4,860	5,400
40%	30%	20%	15%	10%	5%	2%	1%
5,930	7,390	10,100	12,600	15,500	21,100	29,100	36,500

Magnitude and probability of annual high flow
based on 15 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	18,200	29,100	37,500	49,300	--	--
3	18,100	28,900	37,200	49,000	--	--
7	18,100	28,900	37,100	48,900	--	--
15	18,000	28,800	37,100	48,800	--	--
30	18,000	28,800	37,100	48,800	--	--
60	15,400	23,400	29,100	36,700	--	--
90	13,600	20,100	24,700	30,700	--	--

Magnitude and probability of seasonal low flow from
July-October based on 15 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3,720	3,200	2,990	2,850	--	--
3	3,760	3,270	3,080	2,950	--	--
7	3,770	3,290	3,100	2,970	--	--
14	3,780	3,300	3,110	2,990	--	--
30	3,790	3,300	3,120	3,000	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	7,230	3,530	4,920	1,120	15
November	6,730	3,210	5,020	1,170	15
December	6,830	3,220	4,720	1,100	15
January	5,810	2,720	4,280	991	15
February	6,840	2,600	4,550	1,210	15
March	10,200	3,780	6,070	1,730	16
April	17,700	4,800	8,740	3,960	16
May	27,200	4,860	13,500	5,930	16
June	52,000	7,540	20,000	12,200	16
July	15,900	3,700	8,220	4,370	16
August	7,780	2,820	4,390	1,490	16
September	6,240	2,820	4,330	956	16
Annual	13,300	4,150	7,500	2,640	15

**06109500 Missouri River at Virgelle, Mont.
Site Number 88**

LOCATION.--Lat 48°00'18", long 110°15'25" (NAD 27), in SW¼SW¼SE¼ sec.13, T.26 N., R.11 E., Chouteau County, Hydrologic Unit 10040101, on left bank 0.2 mi upstream from Virgelle ferry, 0.6 mi southwest of Virgelle, 1.8 mi downstream from Spring Coulee, and at river mile 2,034.2.

DRAINAGE AREA.--34,379 mi².

PERIOD OF RECORD.--February 1935 to current year (2002). Prior to October 1953, published as "at Loma."

REVISED RECORDS.--WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 2,507.50 ft (NGVD 29). Prior to Sept. 30, 1953, water-stage recorder at Loma, 18 mi upstream, 2,543.40 ft.

REMARKS.--Flow regulated by 23 smaller irrigation reservoirs and powerplants, Clark Canyon Reservoir (station number 06015300), Canyon Ferry Lake (station number 06058500), and Lake Elwell (station number 06101300). Diversions for irrigation of about 850,400 acres upstream from station. U.S. Army Corps of Engineers satellite telemeter at station.

Unregulated streamflow period

Magnitude and probability of annual low flow
based on 17 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2,740	1,830	1,360	1,010	--	--
3	3,050	2,450	2,170	1,950	--	--
7	3,430	2,740	2,400	2,140	--	--
14	3,580	2,880	2,540	2,280	--	--
30	3,670	3,000	2,690	2,460	--	--
60	3,890	3,200	2,890	2,650	--	--
90	4,180	3,410	3,060	2,790	--	--
120	4,450	3,620	3,230	2,930	--	--
183	4,620	3,780	3,390	3,080	--	--

Magnitude and probability of seasonal low flow from
March-June based on 18 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4,080	3,300	2,950	2,690	--	--
3	4,390	3,660	3,320	3,070	--	--
7	4,690	3,940	3,590	3,320	--	--
14	5,010	4,210	3,850	3,560	--	--
30	5,950	4,690	4,160	3,780	--	--

Magnitude and probability of seasonal low flow from
November-February based on 17 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2,870	2,200	1,870	1,610	--	--
3	3,260	2,570	2,240	1,970	--	--
7	3,750	2,940	2,520	2,180	--	--
14	3,970	3,130	2,700	2,350	--	--
30	4,210	3,340	2,890	2,540	--	--

Duration of daily mean flows based on 17 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
2,300	2,480	3,010	3,340	3,890	4,430	4,980	5,530
40%	30%	20%	15%	10%	5%	2%	1%
6,070	7,450	9,330	11,900	16,100	22,900	31,300	36,600

Magnitude and probability of annual high flow
based on 17 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	25,900	40,000	51,300	67,900	--	--
3	25,500	38,400	48,000	61,200	--	--
7	24,800	37,100	45,700	57,100	--	--
15	22,900	34,700	42,700	53,100	--	--
30	20,400	31,100	38,400	47,700	--	--
60	17,300	25,600	30,800	37,200	--	--
90	14,600	21,400	25,900	31,400	--	--

Magnitude and probability of seasonal low flow from
July-October based on 17 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3,170	2,010	1,460	1,070	--	--
3	3,350	2,730	2,490	2,330	--	--
7	3,650	3,030	2,790	2,610	--	--
14	3,770	3,140	2,880	2,710	--	--
30	3,850	3,220	2,970	2,800	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	7,640	3,530	5,210	1,330	17
November	7,090	3,210	5,260	1,290	17
December	7,040	3,220	4,910	1,180	17
January	5,810	2,720	4,400	997	17
February	6,970	2,600	4,740	1,280	17
March	10,200	3,780	6,410	1,910	18
April	17,700	4,970	9,300	4,100	18
May	27,200	4,860	14,800	6,670	18
June	52,000	7,540	20,000	11,500	18
July	15,900	3,700	8,490	4,250	18
August	7,780	2,820	4,510	1,450	18
September	6,760	2,820	4,470	1,060	18
Annual	13,300	4,150	7,810	2,620	17

06109500 Missouri River at Virgelle, Mont.—Continued Site Number 88

Regulated streamflow period

Magnitude and probability of annual low flow
based on 49 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3,940	3,200	2,850	2,580	2,300	--
3	4,400	3,690	3,360	3,100	2,830	--
7	4,890	4,130	3,780	3,510	3,220	--
14	5,130	4,350	3,980	3,710	3,420	--
30	5,360	4,510	4,130	3,830	3,530	--
60	5,580	4,680	4,270	3,970	3,650	--
90	5,830	4,850	4,410	4,080	3,740	--
120	6,030	5,020	4,560	4,200	3,840	--
183	6,390	5,280	4,770	4,380	3,970	--

Magnitude and probability of seasonal low flow from
March-June based on 50 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	5,440	4,140	3,570	3,140	2,710	2,450
3	5,860	4,560	3,980	3,550	3,110	2,840
7	6,230	4,910	4,320	3,880	3,430	3,160
14	6,520	5,160	4,560	4,120	3,670	3,390
30	6,900	5,430	4,810	4,370	3,920	3,660

Magnitude and probability of seasonal low flow from
November-February based on 49 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4,230	3,460	3,100	2,820	2,520	--
3	4,720	3,930	3,550	3,260	2,940	--
7	5,350	4,520	4,100	3,770	3,420	--
14	5,720	4,860	4,430	4,100	3,730	--
30	6,020	5,100	4,660	4,310	3,930	--

Duration of daily mean flows based on 50 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time						
99%	98%	95%	90%	80%	70%	60%
3,320	3,580	4,310	4,630	5,280	5,930	6,610
						7,290
40%	30%	20%	15%	10%	5%	2%
7,970	8,660	10,700	11,800	14,900	20,600	27,400
						32,700

Magnitude and probability of annual high flow
based on 50 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	22,100	36,900	49,000	67,000	82,600	100,000
3	21,600	35,700	46,700	62,500	75,800	90,300
7	20,700	33,100	42,000	54,000	63,400	73,100
15	19,300	30,100	37,400	46,900	54,000	61,100
30	17,700	26,700	32,700	40,200	45,600	51,000
60	15,200	21,900	26,100	31,000	34,400	37,600
90	13,300	18,700	22,000	25,900	28,700	31,300

Magnitude and probability of seasonal low flow from
July-October based on 49 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4,740	3,710	3,270	2,950	2,630	--
3	5,020	4,060	3,660	3,370	3,090	--
7	5,270	4,290	3,890	3,590	3,310	--
14	5,420	4,420	4,010	3,720	3,430	--
30	5,610	4,570	4,140	3,840	3,540	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	15,300	3,870	6,510	1,970	50
November	12,500	4,050	6,720	1,740	50
December	12,200	3,870	6,730	1,500	50
January	9,000	3,990	6,900	1,260	50
February	10,200	4,140	7,230	1,490	50
March	14,500	4,210	7,700	2,320	50
April	15,200	4,060	8,490	2,750	50
May	28,300	4,820	12,900	5,240	50
June	44,800	4,650	17,200	9,540	50
July	29,700	4,030	10,300	5,160	50
August	12,000	4,020	6,760	1,960	50
September	11,600	3,820	6,350	1,930	50
Annual	13,700	4,560	8,650	2,150	50

**06109800 South Fork Judith River near Utica, Mont.
Site Number 89**

LOCATION.--Lat 46°45'00", long 110°18'54" (NAD 27), in SE¼NE¼SW¼ sec.34, T.12 N., R.11 E., Judith Basin County, Hydrologic Unit 10040103, Lewis and Clark National Forest, on right bank just downstream from Trask Gulch, 8 mi upstream from confluence with Middle Fork, and 18 mi southwest of Utica.

DRAINAGE AREA.--58.7 mi².

PERIOD OF RECORD.--20 years. August 1958 to September 1979 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 5,420 ft (NGVD 29, from topographic map).

REMARKS.--Minor diversions for irrigation upstream from station.

Magnitude and probability of annual low flow
based on 20 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2.5	1.9	1.6	1.4	--	--
3	2.7	2.1	1.8	1.6	--	--
7	2.9	2.3	2.0	1.8	--	--
14	3.2	2.6	2.4	2.2	--	--
30	3.5	3.0	2.8	2.6	--	--
60	3.9	3.3	3.1	2.9	--	--
90	4.1	3.5	3.3	3.1	--	--
120	4.4	3.8	3.5	3.3	--	--
183	5.5	4.6	4.1	3.7	--	--

Magnitude and probability of seasonal low flow from
March-June based on 21 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3.4	2.7	2.3	2.0	--	--
3	3.5	2.8	2.4	2.0	--	--
7	3.6	2.9	2.5	2.2	--	--
14	3.8	3.0	2.6	2.3	--	--
30	4.4	3.4	3.1	2.9	--	--

Magnitude and probability of seasonal low flow from
November-February based on 21 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2.6	1.9	1.7	1.5	--	--
3	2.8	2.1	1.8	1.6	--	--
7	3.0	2.3	2.1	1.8	--	--
14	3.3	2.7	2.4	2.2	--	--
30	3.6	3.1	2.8	2.6	--	--

Duration of daily mean flows based on 21 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
2.2	2.5	3.0	3.4	4.1	4.8	5.6	7.0
40%	30%	20%	15%	10%	5%	2%	1%
9.2	14	25	36	58	104	177	244

Magnitude and probability of annual high flow
based on 21 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	221	453	658	976	--	--
3	200	365	485	644	--	--
7	175	294	369	458	--	--
15	143	235	292	359	--	--
30	112	183	227	280	--	--
60	83	135	168	207	--	--
90	66	102	124	147	--	--

Magnitude and probability of seasonal low flow from
July-October based on 20 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	5.1	3.9	3.3	2.9	--	--
3	5.4	4.4	3.9	3.6	--	--
7	5.8	4.7	4.2	3.9	--	--
14	6.2	5.0	4.4	4.0	--	--
30	6.6	5.3	4.7	4.2	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	12	3.8	6.8	1.8	21
November	9.2	2.9	5.3	1.4	21
December	6.5	2.3	4.4	1.1	21
January	6.0	2.6	3.9	.99	21
February	4.9	2.8	4.0	.57	21
March	13	2.4	5.1	2.3	21
April	47	5.3	21	14	21
May	194	24	104	52	21
June	234	13	73	59	21
July	52	5.3	23	12	21
August	19	3.7	12	3.9	21
September	15	4.0	8.4	2.6	22
Annual	42	6.5	23	9.4	21

**06110000 Judith River near Utica, Mont.
Site Number 90**

LOCATION.--Lat 46°53'30", long 110°13'54" (NAD 27), in NW¼ sec.17, T.13 N., R.12 E., Judith Basin County, on left bank at Noel Ranch, 4 mi downstream from confluence of South and Middle Forks, 9 mi southwest of Utica, and at river mile 99.3.

DRAINAGE AREA.--328 mi².

PERIOD OF RECORD.--56 years. October 1919 to September 1975 (discontinued). Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS (WATER YEARS)--WSP 896: 1939. WSP 1309: 1920, 1922(M), 1925, 1927(M), 1929-30, 1931(M), 1936(M), 1938(M).

GAGE.--Water-stage recorder. Concrete control after October 1938. Altitude of gage is 4,790 ft (NGVD 29, by barometer). Prior to June 6, 1937, nonrecording gage at present site and datum.

REMARKS.--Minor diversions for irrigation upstream from station.

Magnitude and probability of annual low flow
based on 55 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1.1	0.45	0.26	0.15	0.04	0.00
3	1.1	.47	.28	.17	.04	.00
7	1.2	.50	.32	.21	.13	.09
14	1.2	.56	.36	.24	.16	.12
30	1.4	.69	.46	.32	.21	.16
60	2.1	1.0	.69	.48	.32	.24
90	3.7	2.0	1.4	1.1	.75	.59
120	4.8	2.6	1.8	1.3	.87	.66
183	7.4	3.9	2.6	1.9	1.3	.95

Magnitude and probability of seasonal low flow from
March-June based on 56 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1.3	0.51	0.31	0.20	0.07	0.00
3	1.3	.53	.33	.22	.08	.00
7	1.4	.56	.36	.25	.17	.13
14	1.4	.61	.40	.29	.20	.16
30	1.8	.75	.49	.35	.25	.20

Magnitude and probability of seasonal low flow from
November-February based on 55 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1.7	0.76	0.48	0.33	0.20	0.15
3	1.8	.80	.50	.34	.21	.15
7	1.9	.86	.54	.36	.22	.16
14	2.0	.94	.60	.41	.25	.18
30	2.2	1.1	.73	.51	.34	.25

Duration of daily mean flows based on 56 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.20	0.40	1.0	1.5	2.4	3.9	6.1	9.6
40%	30%	20%	15%	10%	5%	2%	1%
15	27	64	106	175	310	471	611

Magnitude and probability of annual high flow
based on 56 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	438	719	890	1,080	1,200	1,310
3	422	686	842	1,010	1,120	1,220
7	388	624	760	908	1,000	1,080
15	344	552	675	810	896	972
30	300	482	589	706	781	846
60	231	367	442	520	567	605
90	177	281	339	398	433	462

Magnitude and probability of seasonal low flow from
July-October based on 55 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	8.1	3.8	2.4	1.6	0.98	0.68
3	8.4	4.0	2.6	1.7	1.0	.73
7	8.8	4.2	2.7	1.8	1.1	.76
14	9.2	4.5	2.9	2.0	1.2	.88
30	10	4.9	3.2	2.2	1.4	.97

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	50	1.1	13	9.4	56
November	33	.75	9.3	6.6	56
December	25	.50	6.0	4.1	56
January	18	.40	3.7	2.8	56
February	30	.30	3.3	4.2	56
March	51	.21	3.9	7.1	56
April	129	.25	22	32	56
May	475	8.9	194	108	56
June	835	33	271	184	56
July	286	9.6	85	61	56
August	97	4.4	29	20	56
September	51	1.5	16	11	56
Annual	141	8.8	55	29	56

**06111000 Ross Fork Creek near Hobson, Mont.
Site Number 91**

LOCATION.--Lat 46°59'34", long 109°48'42" (NAD 27), in NW¼ sec.11, T.14 N., R.15 E., Judith Basin County, on left bank 1 mi downstream from Hauck Coulee, 3.5 mi east of Hobson, and 7 mi upstream from mouth.

DRAINAGE AREA.--337 mi².

PERIOD OF RECORD.--14 years. June 1946 to December 1953 and March 1955 to September 1962 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 3,860 ft (NGVD 29, by barometer).

REMARKS.--Minor diversions for irrigation upstream from station. Flow may be augmented by operation of Ackley Lake, which receives water from Judith River.

Magnitude and probability of annual low flow
based on 12 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	--	--
3	.00	.00	.00	.00	--	--
7	.00	.00	.00	.00	--	--
14	.00	.00	.00	.00	--	--
30	.02	.00	.00	.00	--	--
60	.19	.00	.00	.00	--	--
90	.42	.07	.00	.00	--	--
120	.76	.29	.10	.00	--	--
183	1.2	.73	.51	.00	--	--

Magnitude and probability of seasonal low flow from
March-June based on 14 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1.8	0.47	0.11	0.00	--	--
3	2.2	.51	.13	.00	--	--
7	2.4	.77	.26	.00	--	--
14	3.0	1.0	.48	.24	--	--
30	5.4	2.0	1.1	.66	--	--

Magnitude and probability of seasonal low flow from
November-February based on 14 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.55	0.00	0.00	0.00	--	--
3	.67	.00	.00	.00	--	--
7	.79	.00	.00	.00	--	--
14	.88	.43	.24	.00	--	--
30	1.2	.70	.52	.00	--	--

Duration of daily mean flows based on 14 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.04	0.08	0.19	0.38	0.76	1.2	1.8	2.6
40%	30%	20%	15%	10%	5%	2%	1%
3.6	5.5	11	17	28	52	139	271

Magnitude and probability of annual high flow
based on 14 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	341	987	1,480	2,080	--	--
3	275	780	1,150	1,560	--	--
7	196	516	735	972	--	--
15	129	309	424	546	--	--
30	86	197	271	351	--	--
60	56	115	150	184	--	--
90	42	82	104	126	--	--

Magnitude and probability of seasonal high flow from
July-October based on 15 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	--	--
3	.00	.00	.00	.00	--	--
7	.00	.00	.00	.00	--	--
14	.00	.00	.00	.00	--	--
30	.05	.00	.00	.00	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	3.4	0.00	0.97	0.98	15
November	6.1	.00	2.1	1.5	15
December	8.9	.00	2.7	2.0	15
January	4.9	.70	2.1	1.3	14
February	12	.98	4.9	3.1	14
March	175	2.9	63	57	14
April	219	2.0	49	63	15
May	133	2.6	27	35	15
June	125	.71	24	31	15
July	11	.00	3.9	2.7	16
August	4.8	.00	1.1	1.3	16
September	2.5	.00	.44	.64	16
Annual	26	1.4	14	8.2	14

**06111500 Big Spring Creek near Lewistown, Mont.
Site Number 92**

LOCATION.--Lat 47°00'20", long 109°21'00" (NAD 27), SW¼ NW¼ sec.5, T.14 N., R.19 E., Fergus County, on upstream side of left wingwall of old highway bridge, 0.5 mi downstream from Big Springs and 5 mi southeast of Lewistown.

DRAINAGE AREA.--20.9 mi² (revised).

PERIOD OF RECORD.--25 years. June 1932 to September 1957 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 4,130 ft (NGVD 29, by barometer). Prior to Apr. 27, 1955, staff gage on downstream left wingwall.

REMARKS.--Water diversion upstream from station.

Magnitude and probability of annual low flow
based on 24 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	94	86	82	79	--	--
3	95	86	82	79	--	--
7	95	87	83	79	--	--
14	96	88	83	80	--	--
30	97	89	84	80	--	--
60	99	91	87	83	--	--
90	100	92	88	85	--	--
120	101	93	89	86	--	--
183	102	94	91	88	--	--

Magnitude and probability of seasonal low flow from
March-June based on 25 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	98	90	86	82	78	--
3	99	90	86	82	78	--
7	100	91	86	83	78	--
14	100	92	87	83	79	--
30	102	93	88	84	80	--

Magnitude and probability of seasonal low flow from
November-February based on 25 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	99	90	86	82	79	--
3	100	90	86	82	79	--
7	100	90	86	83	79	--
14	101	91	87	83	80	--
30	102	92	88	84	81	--

Duration of daily mean flows based on 25 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
69	71	79	93	97	102	106	110
40%	30%	20%	15%	10%	5%	2%	1%
115	119	123	125	128	130	164	177

Magnitude and probability of annual high flow
based on 25 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	127	158	181	214	242	--
3	123	148	167	195	217	--
7	121	141	156	177	193	--
15	118	134	145	161	173	--
30	115	128	138	150	160	--
60	112	124	133	145	154	--
90	111	123	132	144	153	--

Magnitude and probability of seasonal low flow from
July-October based on 25 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	98	91	88	87	85	--
3	99	92	89	87	85	--
7	99	92	89	87	85	--
14	100	93	90	87	85	--
30	101	94	91	89	86	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	154	90	109	13	25
November	157	88	108	13	25
December	157	88	108	14	25
January	155	84	106	14	25
February	145	77	106	13	25
March	136	80	108	13	25
April	128	81	107	11	25
May	156	82	106	14	25
June	144	83	109	14	26
July	143	84	106	11	26
August	140	86	106	11	26
September	145	90	109	11	26
Annual	134	87	107	10	25

**06115200 Missouri River near Landusky, Mont.
Site Number 93**

LOCATION.--Lat 47°37'51", long 108°41'13" (NAD 27), in NW¼NE¼ sec.31, T.22 N., R.24 E., Fergus County, Hydrologic Unit 10040104, Charles M. Russell National Wildlife Refuge, on right bank 380 ft upstream from bridge on U.S. Highway 191, 0.9 mi upstream from Armells Creek, 20 mi south of Landusky, and at river mile 1,921.61.

DRAINAGE AREA.--40,987 mi². Area at site used prior to Dec. 13, 1968, 40,763 mi².

PERIOD OF RECORD.--February 1934 to current year (2002). Prior to October 1968, published as "at powerplant ferry, near Zortman."

REVISED RECORDS.--WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 2,239.96 ft (NGVD 29, State Highway bench mark). Prior to Feb. 7, 1935, nonrecording gage, and Feb. 7, 1935, to Dec. 12, 1968, water-stage recorder, at site 16.5 mi upstream at datum 33.06 ft higher.

REMARKS.--Flow regulated by 24 smaller irrigation reservoirs and powerplants, Clark Canyon Reservoir (station number 06015300), Canyon Ferry Lake (station number 06058500), and Lake Elwell (station number 06101300). Diversions for irrigation of about 870,400 acres upstream from station. U.S. Army Corps of Engineers satellite telemeter at station.

Unregulated streamflow period

Magnitude and probability of annual low flow based on 18 years of record						
Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2,630	1,880	1,560	1,320	--	--
3	2,950	2,120	1,730	1,450	--	--
7	3,420	2,550	2,120	1,800	--	--
14	3,680	2,820	2,410	2,090	--	--
30	3,880	3,000	2,570	2,240	--	--
60	4,150	3,240	2,800	2,470	--	--
90	4,440	3,460	3,000	2,650	--	--
120	4,730	3,720	3,250	2,900	--	--
183	4,900	3,910	3,450	3,100	--	--

Magnitude and probability of seasonal low flow from March-June based on 19 seasons of record						
Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4,430	3,490	3,070	2,750	--	--
3	4,740	3,770	3,320	2,970	--	--
7	5,130	4,150	3,680	3,310	--	--
14	5,560	4,590	4,140	3,790	--	--
30	6,790	5,440	4,910	4,550	--	--

Magnitude and probability of seasonal low flow from November-February based on 18 seasons of record						
Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2,730	1,970	1,630	1,380	--	--
3	3,050	2,200	1,810	1,520	--	--
7	3,590	2,680	2,240	1,910	--	--
14	3,930	3,050	2,630	2,300	--	--
30	4,330	3,340	2,860	2,490	--	--

Duration of daily mean flows based on 18 years of record							
Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
2,210	2,470	3,140	3,440	4,040	4,670	5,310	5,950
40%	30%	20%	15%	10%	5%	2%	1%
6,950	8,070	10,400	12,800	16,800	24,100	33,600	42,600

Magnitude and probability of annual high flow based on 18 years of record						
Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	28,200	44,600	57,500	76,100	--	--
3	27,400	42,400	53,800	69,600	--	--
7	26,100	39,700	49,300	62,200	--	--
15	23,700	36,300	45,300	57,500	--	--
30	21,100	32,500	40,500	51,200	--	--
60	17,800	26,600	32,400	39,600	--	--
90	15,200	22,400	27,300	33,600	--	--

Magnitude and probability of seasonal low flow from July-October based on 18 seasons of record						
Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3,400	2,340	1,890	1,560	--	--
3	3,780	2,760	2,310	1,970	--	--
7	4,010	3,010	2,560	2,220	--	--
14	4,100	3,110	2,670	2,330	--	--
30	4,180	3,210	2,790	2,480	--	--

Monthly and annual mean discharges					
Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	8,440	3,270	5,530	1,530	18
November	7,980	3,580	5,720	1,400	18
December	7,610	3,120	5,130	1,350	18
January	6,490	2,800	4,690	1,150	18
February	8,450	2,510	5,120	1,630	18
March	13,400	4,880	7,520	2,340	19
April	19,200	5,360	10,300	4,480	19
May	27,200	5,260	15,100	6,850	19
June	55,300	8,170	21,100	12,300	19
July	17,700	3,960	9,320	4,830	19
August	8,250	2,080	4,840	1,720	19
September	7,640	2,500	4,770	1,290	19
Annual	14,200	4,440	8,350	2,860	18

**06115200 Missouri River near Landusky, Mont.—Continued
Site Number 93**

Regulated streamflow period

Magnitude and probability of annual low flow
based on 49 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4,220	3,360	2,980	2,690	2,400	--
3	4,630	3,690	3,260	2,930	2,580	--
7	5,080	4,170	3,740	3,410	3,070	--
14	5,390	4,510	4,100	3,780	3,450	--
30	5,690	4,770	4,340	4,010	3,670	--
60	5,950	4,980	4,530	4,180	3,820	--
90	6,230	5,170	4,670	4,290	3,890	--
120	6,440	5,330	4,810	4,420	4,000	--
183	6,810	5,610	5,040	4,610	4,160	--

Magnitude and probability of seasonal low flow from
March-June based on 50 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	5,960	4,570	3,950	3,490	3,020	2,740
3	6,350	4,950	4,320	3,830	3,340	3,040
7	6,700	5,290	4,650	4,160	3,670	3,370
14	7,090	5,580	4,910	4,410	3,900	3,590
30	7,750	5,980	5,230	4,680	4,140	3,810

Magnitude and probability of seasonal low flow from
November-February based on 49 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4,590	3,580	3,120	2,770	2,410	--
3	4,960	3,890	3,380	2,990	2,590	--
7	5,560	4,490	3,970	3,560	3,130	--
14	5,980	4,960	4,470	4,080	3,670	--
30	6,340	5,330	4,850	4,460	4,050	--

Duration of daily mean flows based on 50 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
3,450	3,830	4,450	4,870	5,700	6,450	7,130	7,810
40%	30%	20%	15%	10%	5%	2%	1%
8,480	9,810	11,400	13,000	16,200	22,500	30,300	34,600

Magnitude and probability of annual high flow
based on 50 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	24,800	42,400	56,800	78,400	97,000	118,000
3	24,000	40,500	53,700	72,900	89,200	107,000
7	23,000	37,400	47,900	62,300	73,600	85,400
15	21,400	33,700	42,200	53,200	61,500	69,900
30	19,300	29,500	36,300	44,900	51,100	57,300
60	16,600	24,100	28,800	34,400	38,300	42,100
90	14,600	20,600	24,400	28,800	31,900	34,800

Magnitude and probability of seasonal low flow from
July-October based on 49 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	5,100	4,010	3,550	3,220	2,900	--
3	5,370	4,320	3,890	3,570	3,270	--
7	5,620	4,540	4,080	3,740	3,410	--
14	5,780	4,670	4,200	3,860	3,520	--
30	6,000	4,860	4,370	4,020	3,680	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	16,500	3,930	6,910	2,060	50
November	13,900	4,140	7,130	1,850	50
December	13,200	4,000	7,170	1,600	50
January	10,800	4,170	7,310	1,400	50
February	11,400	4,330	7,870	1,680	50
March	19,700	4,310	8,930	3,060	50
April	16,400	4,340	9,280	3,110	50
May	30,500	4,860	14,000	5,910	50
June	53,700	4,940	18,900	10,900	50
July	33,600	4,150	11,300	5,780	50
August	12,600	3,900	7,270	2,110	50
September	12,300	3,780	6,770	1,990	50
Annual	15,300	4,600	9,410	2,370	50

**06115500 North Fork Musselshell River near Delpine, Mont.
Site Number 94**

LOCATION.--Lat 46°36'36", long 110°34'30" (NAD 27), in SW¼ SE¼ sec.22, T.10 N., R.9 E., Meagher County, Hydrologic Unit 10040201, on right bank 0.5 mi upstream from high-water line of Bair Reservoir at elevation 5,330 ft, 3 mi downstream from Lion Creek, and northwest of Delpine.

DRAINAGE AREA.--31.4 mi².

PERIOD OF RECORD.--36 years (1940-80).

REVISED RECORDS.--WSP 1559: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 5,380 ft (NGVD 29, by barometer).

REMARKS.--Minor diversions for irrigation upstream from station.

Magnitude and probability of annual low flow
based on 35 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3.2	2.5	2.2	2.0	1.7	--
3	3.4	2.7	2.4	2.1	1.9	--
7	3.7	2.9	2.6	2.2	1.9	--
14	4.0	3.2	2.8	2.4	2.1	--
30	4.4	3.5	3.1	2.7	2.4	--
60	4.9	3.9	3.5	3.1	2.8	--
90	5.4	4.3	3.8	3.4	3.0	--
120	5.8	4.7	4.2	3.8	3.4	--
183	6.4	5.2	4.7	4.3	3.9	--

Magnitude and probability of seasonal low flow from
March-June based on 36 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4.4	3.4	3.0	2.7	2.5	--
3	4.6	3.5	3.1	2.8	2.6	--
7	4.8	3.7	3.3	3.0	2.7	--
14	5.2	4.0	3.6	3.3	3.0	--
30	7.4	5.1	4.3	3.7	3.3	--

Magnitude and probability of seasonal low flow from
November-February based on 36 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3.5	2.8	2.5	2.3	2.1	--
3	3.7	3.1	2.8	2.6	2.4	--
7	4.2	3.4	3.1	2.9	2.6	--
14	4.5	3.7	3.3	3.0	2.8	--
30	4.9	4.1	3.8	3.5	3.2	--

Duration of daily mean flows based on 36 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
2.8	3.0	3.6	4.3	5.1	6.0	6.9	7.9
40%	30%	20%	15%	10%	5%	2%	1%
9.9	13	18	22	29	40	53	62

Magnitude and probability of annual high flow
based on 36 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	54	86	109	137	159	--
3	47	72	88	107	120	--
7	43	63	75	89	97	--
15	39	55	64	72	78	--
30	35	48	55	62	66	--
60	29	40	46	52	55	--
90	26	35	40	45	48	--

Magnitude and probability of seasonal low flow from
July-October based on 39 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4.7	3.1	2.5	2.1	1.8	--
3	4.8	3.2	2.6	2.2	1.9	--
7	4.9	3.3	2.7	2.3	1.9	--
14	5.1	3.5	2.8	2.4	2.1	--
30	5.5	3.8	3.2	2.7	2.4	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	16	2.9	7.0	2.9	39
November	13	3.9	7.4	1.9	36
December	12	4.2	6.4	1.7	36
January	8.9	3.6	5.7	1.3	36
February	15	3.0	6.3	2.2	36
March	29	2.4	9.2	5.3	36
April	41	5.6	19	9.5	38
May	50	5.2	27	13	39
June	65	5.3	29	14	40
July	29	3.2	14	6.5	40
August	17	2.6	9.0	3.9	40
September	16	3.0	7.3	3.2	40
Annual	20	5.8	12	3.6	36

**06118500 South Fork Musselshell River above Martinsdale, Mont.
Site Number 95**

LOCATION.--Lat 46°27'21", long 110°22'54" (NAD 27), in SW¼ NW¼ sec.17, T.8 N., R.11 E., Meagher County, Hydrologic Unit 10040201, on left bank 2 mi downstream from Cottonwood Creek, 3 mi west of Martinsdale, and 6 mi upstream from confluence with North Fork.

DRAINAGE AREA.--287 mi².

PERIOD OF RECORD.--38 years. October 1941 to Sept. 30, 1979 (discontinued). Monthly discharge only November 1941 to May 1942, published in WSP 1309.

REVISED RECORDS.--WSP 1309: 1942(M), 1944 (M). WSP 1729: Drainage area. WDR MT-75-1: 1948, 1964(M), 1967.

GAGE.--Water-stage recorder. Altitude of gage is 4,900 ft (NGVD 29, by barometer). Prior to May 15, 1942, nonrecording gage at same site and datum.

REMARKS.--Diversions for irrigation of about 6,600 acres of which 250 acres lie downstream from station.

Magnitude and probability of annual low flow
based on 37 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	6.5	2.1	0.98	0.46	0.17	--
3	7.0	2.4	1.1	.52	.19	--
7	8.1	3.0	1.4	.68	.25	--
14	9.4	3.6	1.8	.85	.32	--
30	12	5.2	2.8	1.5	.62	--
60	14	8.3	5.7	4.0	2.5	--
90	17	11	8.1	6.3	4.6	--
120	19	13	10	8.4	6.4	--
183	21	15	12	10	8.2	--

Magnitude and probability of seasonal low flow from
March-June based on 38 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	15	8.8	5.7	3.7	2.1	--
3	15	9.2	6.4	4.4	2.7	--
7	17	9.9	6.9	4.8	3.1	--
14	18	11	8.0	6.2	4.5	--
30	29	16	12	9.0	6.5	--

Magnitude and probability of seasonal low flow from
November-February based on 37 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	11	7.1	5.7	4.6	3.6	--
3	11	7.6	6.1	5.1	4.1	--
7	12	8.3	6.9	5.8	4.8	--
14	13	9.4	7.8	6.7	5.5	--
30	15	11	9.3	7.9	6.5	--

Duration of daily mean flows based on 38 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
2.4	4.7	8.1	11	15	19	23	29
40%	30%	20%	15%	10%	5%	2%	1%
37	56	111	166	262	450	686	855

Magnitude and probability of annual high flow
based on 38 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	694	1,220	1,680	2,430	3,110	--
3	650	1,080	1,420	1,920	2,350	--
7	586	927	1,160	1,460	1,680	--
15	513	796	980	1,200	1,360	--
30	449	687	831	995	1,100	--
60	345	516	611	711	773	--
90	269	400	473	550	597	--

Magnitude and probability of seasonal high flow from
July-October based on 37 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	9.5	2.7	1.1	0.49	0.20	--
3	10	2.9	1.2	.54	.23	--
7	12	3.6	1.6	.71	.29	--
14	13	4.3	1.9	.92	.36	--
30	16	5.8	2.9	1.5	.67	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	95	4.1	31	19	38
November	60	13	28	11	38
December	58	9.4	23	11	38
January	51	7.3	18	8.1	38
February	41	7.8	21	7.3	38
March	106	4.6	35	22	38
April	370	15	113	73	38
May	783	40	334	170	38
June	1,320	67	365	248	38
July	370	5.0	80	67	38
August	82	.91	25	18	38
September	105	.44	23	18	38
Annual	212	23	91	40	38

**06120500 Musselshell River at Harlowton, Mont.
Site Number 96**

LOCATION.--Lat 46°25'48", long 109°50'24" (NAD 27), in NE¼ sec.28, T.8 N., R.15 E., Wheatland County, Hydrologic Unit 10040201, on left bank 350 ft downstream from bridge on U.S. Highway 191, 1.0 mi southwest of Harlowton, 6 mi upstream from American Fork, and at river mile 327.8.

DRAINAGE AREA.--1,125 mi².

PERIOD OF RECORD.--July 1907 to November 1929, March 1930 to December 1932, April to August 1933, February 1934 to current year (2002). Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1309: 1912, 1915(M), 1918, 1925. WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 4,171.46 ft (NGVD 29, levels by Morrison and Maierle, Inc.). Prior to Dec. 8, 1937, nonrecording gages at site 1.2 mi downstream at different datums. Dec. 8, 1937, to Aug. 26, 1955, nonrecording gage at bridge 300 ft upstream at different datums.

REMARKS.--Some regulation by Bair (station number 06116500) and Martinsdale (station number 06119000) Reservoirs. Diversions for irrigation of about 21,900 acres upstream from station of which about 21,400 acres are flood irrigated. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 90 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	26	4.5	0.00	0.00	0.00	0.00
3	26	4.9	.00	.00	.00	.00
7	30	5.6	.00	.00	.00	.00
14	31	6.4	.30	.00	.00	.00
30	38	7.0	.77	.00	.00	.00
60	45	12	3.3	.15	.00	.00
90	56	15	4.8	1.3	.10	.00
120	62	25	11	4.4	.78	.00
183	63	33	21	14	6.1	.00

Magnitude and probability of seasonal low flow from
March-June based on 93 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	46	19	10	5.7	2.7	1.5
3	49	22	13	7.8	4.1	2.6
7	55	26	16	9.8	5.4	3.4
14	62	31	20	13	7.5	5.1
30	74	41	30	23	17	13

Magnitude and probability of seasonal low flow from
November-February based on 92 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	36	18	10	6.0	2.2	0.00
3	39	20	12	6.9	2.5	.00
7	41	22	14	8.8	3.8	.00
14	42	25	18	13	7.2	.00
30	47	31	24	19	13	.00

Duration of daily mean flows based on 92 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.35	0.70	7.9	24	39	51	62	76
40%	30%	20%	15%	10%	5%	2%	1%
92	120	175	238	362	642	1,030	1,360

Magnitude and probability of annual high flow
based on 92 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	982	1,860	2,500	3,310	3,920	4,510
3	904	1,700	2,250	2,930	3,420	3,870
7	786	1,480	1,950	2,520	2,920	3,300
15	658	1,250	1,660	2,170	2,520	2,850
30	540	1,040	1,400	1,840	2,150	2,440
60	406	773	1,030	1,370	1,610	1,840
90	332	613	808	1,050	1,230	1,390

Magnitude and probability of seasonal low flow from
July-October based on 93 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	33	4.7	0.00	0.00	0.00	0.00
3	35	5.2	.00	.00	.00	.00
7	36	5.8	.00	.00	.00	.00
14	37	6.8	.43	.00	.00	.00
30	42	7.4	.96	.00	.00	.00

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	226	0.00	74	46	94
November	176	.00	78	36	94
December	206	.00	67	33	92
January	250	.00	59	31	92
February	190	10	66	32	93
March	500	20	113	84	93
April	632	22	176	130	95
May	1,960	12	406	334	95
June	2,470	28	507	452	95
July	751	.84	161	143	95
August	292	.00	76	66	95
September	290	.00	63	55	95
Annual	483	21	156	86	92

**06122000 American Fork below Lebo Creek, near Harlowton, Mont.
Site Number 97**

LOCATION.--Lat 46°23'34", long 109°45'49" (NAD 27), in SE¼ sec.6, T.7 N., R.16 E., Wheatland County, on left bank 2 mi upstream from mouth, 2 mi downstream from Lebo Creek, 5 mi southeast of Harlowton.

DRAINAGE AREA.--166 mi².

PERIOD OF RECORD.--21 years. July 1946 to September 1967 (discontinued). Monthly discharge only for July 1946, published in WSP 1309.

REVISED RECORDS.--WSP 1116: 1947. WSP 1309: 1948(M), 1950(M). WSP 1629: 1948(P). WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 4,170 ft (NGVD 29, by barometer).

REMARKS.--Diversions for irrigation of about 7,500 acres, of which 300 acres downstream from station. During irrigation season, natural flow is supplemented by release from Lake Lebo (capacity, about 3,000 acre-ft). Diversions from headwaters in T.5 N., R.12 E., to irrigate about 300 acres in Sweet Grass Creek drainage in Yellowstone River basin.

Magnitude and probability of annual low flow
based on 20 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1.2	0.22	0.00	0.00	--	--
3	1.6	.35	.00	.00	--	--
7	2.0	.55	.26	.13	--	--
14	2.9	1.0	.56	.33	--	--
30	4.8	2.3	1.6	1.1	--	--
60	6.2	3.7	2.8	2.3	--	--
90	7.7	4.4	3.2	2.4	--	--
120	8.8	5.5	4.2	3.4	--	--
183	11	7.2	6.0	5.2	--	--

Magnitude and probability of seasonal low flow from
March-June based on 21 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	5.8	1.8	0.82	0.39	--	--
3	7.0	2.4	1.1	.54	--	--
7	8.9	3.0	1.4	.68	--	--
14	12	4.1	2.0	.95	--	--
30	17	7.6	4.4	2.6	--	--

Magnitude and probability of seasonal low flow from
November-February based on 21 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	6.4	3.5	2.4	1.8	--	--
3	6.9	4.0	2.9	2.2	--	--
7	7.7	4.6	3.5	2.7	--	--
14	8.5	5.4	4.2	3.4	--	--
30	9.9	6.7	5.4	4.6	--	--

Duration of daily mean flows based on 21 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.57	1.2	3.1	4.8	7.4	10	13	16
40%	30%	20%	15%	10%	5%	2%	1%
19	23	30	38	58	121	242	348

Magnitude and probability of annual high flow
based on 21 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	315	572	714	852	--	--
3	276	507	638	770	--	--
7	218	412	532	664	--	--
15	168	325	429	549	--	--
30	125	242	325	428	--	--
60	88	163	219	292	--	--
90	68	120	159	211	--	--

Magnitude and probability of seasonal low flow from
July-October based on 21 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1.7	0.31	0.02	0.00	--	--
3	2.3	.55	.06	.00	--	--
7	2.8	.79	.36	.17	--	--
14	4.0	1.5	.81	.48	--	--
30	5.6	2.8	1.9	1.3	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	39	2.7	13	9.9	21
November	30	5.3	15	6.9	21
December	32	7.5	15	6.4	21
January	24	4.9	13	5.3	21
February	39	5.2	17	7.8	21
March	59	10	23	12	21
April	62	7.7	23	13	21
May	163	4.8	70	48	21
June	548	7.5	130	134	21
July	139	4.3	30	30	22
August	28	2.0	10	7.0	22
September	52	1.7	12	11	22
Annual	71	8.4	31	16	21

**06123500 Musselshell River near Ryegate, Mont.
Site Number 98**

LOCATION.--Lat 46°18'02", long 109°12'20" (NAD 27), in center of S½ sec.3, T.6 N., R.20 E., Golden Valley County, Hydrologic Unit 10040201, on downstream side of county bridge 2 mi upstream from Careless Creek and 2 mi east of Ryegate.

DRAINAGE AREA.--1,979 mi².

PERIOD OF RECORD.--33 years. July 1946 to Sept. 30, 1979 (discontinued). Monthly discharge only for July 1946, published in WSP 1309.

REVISED RECORDS.--WSP 1729: Drainage area

GAGE.--Nonrecording and crest-stage gage. Altitude of gage is 3,585.26 ft (NGVD 29, levels by U.S. Army Corps of Engineers). Prior to June 23, 1967, water-stage recorder at site 1 mi downstream at different datum.

REMARKS.--Some regulation by Bair (station number 06116500) and Martinsdale (station number 06119000) Reservoirs. Water is diverted on left bank in sec. 8, T.7 N., R.17 E., for storage in Deadmans Basin (station number 06122500) Reservoir, and can be returned to the stream by canal at a point about 9 mi upstream from station or through Careless Creek 2 mi downstream from station. Diversions for irrigation of about 45,000 acres upstream from station, of which 2,700 acres is flood irrigated.

Magnitude and probability of annual low flow
based on 32 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	13	6.5	4.4	3.2	2.2	--
3	15	7.3	4.9	3.5	2.3	--
7	17	8.2	5.4	3.8	2.5	--
14	19	9.1	6.0	4.1	2.7	--
30	25	12	7.4	5.0	3.2	--
60	33	16	11	7.8	5.3	--
90	40	20	14	10	7.2	--
120	44	24	17	13	9.1	--
183	58	31	22	16	11	--

Magnitude and probability of seasonal low flow from
March-June based on 33 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	35	17	11	8.0	5.4	--
3	38	18	12	9.0	6.2	--
7	42	21	14	10	7.1	--
14	49	24	16	12	8.9	--
30	71	32	21	15	10	--

Magnitude and probability of seasonal low flow from
November-February based on 33 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	16	7.5	5.1	3.8	2.7	--
3	18	8.4	5.8	4.3	3.1	--
7	20	9.5	6.5	4.8	3.4	--
14	23	11	7.6	5.5	3.8	--
30	33	16	11	7.9	5.4	--

Duration of daily mean flows based on 33 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
5.8	7.9	13	20	33	45	63	87
40%	30%	20%	15%	10%	5%	2%	1%
116	153	208	269	433	744	1,290	1,810

Magnitude and probability of annual high flow
based on 33 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	1,210	2,700	4,040	6,110	7,930	--
3	1,100	2,370	3,470	5,130	6,540	--
7	943	2,000	2,890	4,170	5,230	--
15	772	1,620	2,310	3,320	4,150	--
30	628	1,280	1,810	2,580	3,220	--
60	458	910	1,290	1,850	2,330	--
90	376	716	995	1,410	1,750	--

Magnitude and probability of seasonal low flow from
July-October based on 33 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	23	9.3	5.1	3.4	2.3	--
3	24	9.9	5.4	3.8	2.5	--
7	26	11	5.8	4.1	2.6	--
14	38	11	6.4	4.5	2.8	--
30	40	16	8.6	5.7	4.0	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	193	3.1	60	47	33
November	189	11	67	45	33
December	255	8.7	67	57	33
January	175	6.6	56	38	33
February	217	8.8	76	49	33
March	620	17	162	155	33
April	626	18	175	172	33
May	1,820	46	442	404	33
June	3,430	76	673	725	33
July	1,390	70	252	258	34
August	346	4.0	128	67	34
September	288	5.2	87	64	34
Annual	568	35	188	119	33

**06125700 Big Coulee near Lavina, Mont.
Site Number 99**

LOCATION.--Lat 46°15'53", long 108°56'50" (NAD 27), SE¼ sec.15, T.6 N., R.22 E., Golden Valley County, on left bank 2 mi upstream from mouth and 2 mi southwest of Lavina.

DRAINAGE AREA.--232 mi².

PERIOD OF RECORD.--14 years. August 1957 to June 1972 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 3,480 ft (NGVD 29, from topographic map).

REMARKS.--Minor flood irrigation in headwaters.

Magnitude and probability of annual low flow
based on 14 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.29	0.00	0.00	0.00	--	--
3	.32	.00	.00	.00	--	--
7	.37	.00	.00	.00	--	--
14	.45	.00	.00	.00	--	--
30	.58	.16	.08	.04	--	--
60	.94	.34	.20	.12	--	--
90	1.2	.44	.27	.18	--	--
120	1.3	.52	.34	.24	--	--
183	1.4	.62	.41	.29	--	--

Magnitude and probability of seasonal low flow from
March-June based on 15 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1.4	0.55	0.31	0.18	--	--
3	1.6	.60	.33	.19	--	--
7	1.7	.68	.40	.25	--	--
14	1.9	.76	.45	.28	--	--
30	2.4	1.3	.91	.69	--	--

Magnitude and probability of seasonal low flow from
November-February based on 15 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.40	0.00	0.00	0.00	--	--
3	.43	.00	.00	.00	--	--
7	.49	.00	.00	.00	--	--
14	.62	.00	.00	.00	--	--
30	.73	.19	.09	.04	--	--

Duration of daily mean flows based on 14 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.04	0.08	0.20	0.40	0.80	1.2	1.7	2.5
40%	30%	20%	15%	10%	5%	2%	1%
3.6	5.2	8.0	10	13	21	45	81

Magnitude and probability of annual high flow
based on 14 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	55	195	383	795	--	--
3	42	153	295	584	--	--
7	34	118	217	401	--	--
15	24	84	157	302	--	--
30	17	57	105	202	--	--
60	12	37	65	118	--	--
90	9.9	28	48	85	--	--

Magnitude and probability of seasonal low flow from
July-October based on 14 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1.1	0.46	0.30	0.21	--	--
3	1.2	.47	.30	.21	--	--
7	1.2	.50	.33	.23	--	--
14	1.2	.54	.37	.28	--	--
30	1.3	.59	.41	.32	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	9.7	0.51	3.1	3.2	15
November	9.0	.22	3.1	3.0	15
December	7.2	.30	2.4	2.4	15
January	6.4	.07	1.9	2.0	15
February	17	.12	4.2	5.3	15
March	54	.76	12	14	15
April	14	.66	6.4	4.2	15
May	63	.79	9.7	15	15
June	297	.75	31	75	15
July	32	.65	7.9	9.6	14
August	14	.41	3.8	4.4	15
September	9.0	.41	3.0	3.1	15
Annual	31	.57	7.4	8.1	14

**06126470 Halfbreed Creek near Klein, Mont.
Site Number 100**

LOCATION.--Lat 46°23'14", long 108°32'29" (NAD 27), in SW¼NE¼SW¼ sec.1, T.7 N., R.25 E., Musselshell County, Hydrologic Unit 10040201, on left bank, 800 ft upstream from private road bridge, 1.2 mi south of Klein, 3.2 mi upstream from mouth, and 4.1 mi south of Roundup.

DRAINAGE AREA.--53.2 mi².

PERIOD OF RECORD.--October 1977 to September 1986, July 1987 to 1991 (discontinued).

REVISED RECORDS.--The maximum discharge for water year 1990 has been revised to 37 ft³/s, Aug. 20, 1990, gage height, 5.57 ft.

GAGE.--Water-stage recorder. Altitude of gage is 3,330 ft (NGVD 29, from topographic map).

Magnitude and probability of annual low flow
based on 11 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.16	0.01	0.00	0.00	--	--
3	.19	.01	.00	.00	--	--
7	.19	.03	.00	.00	--	--
14	.20	.03	.01	.00	--	--
30	.27	.08	.04	.02	--	--
60	.34	.13	.08	.05	--	--
90	.41	.19	.12	.09	--	--
120	.51	.25	.18	.13	--	--
183	.54	.28	.20	.15	--	--

Magnitude and probability of seasonal low flow from
March-June based on 13 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.38	0.18	0.12	0.09	--	--
3	.41	.20	.14	.10	--	--
7	.49	.26	.19	.15	--	--
14	.59	.34	.25	.20	--	--
30	.71	.44	.33	.26	--	--

Magnitude and probability of seasonal low flow from
November-February based on 12 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.22	0.07	0.00	0.00	--	--
3	.26	.09	.00	.00	--	--
7	.33	.10	.01	.00	--	--
14	.34	.11	.01	.00	--	--
30	.41	.14	.07	.04	--	--

Duration of daily mean flows based on 13 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.02	0.03	0.08	0.16	0.31	0.47	0.63	0.79
40%	30%	20%	15%	10%	5%	2%	1%
0.94	1.1	1.4	1.6	1.8	2.0	2.6	3.3

Magnitude and probability of annual high flow
based on 13 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	6.4	17	30	60	--	--
3	4.5	9.7	16	27	--	--
7	3.1	5.6	8.1	12	--	--
15	2.1	3.5	4.8	7.0	--	--
30	1.6	2.6	3.4	4.7	--	--
60	1.4	2.1	2.6	3.4	--	--
90	1.3	1.9	2.3	2.8	--	--

Magnitude and probability of seasonal low flow from
July-October based on 12 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.20	0.06	0.03	0.02	--	--
3	.22	.07	.04	.02	--	--
7	.24	.08	.05	.03	--	--
14	.28	.10	.06	.04	--	--
30	.31	.12	.07	.05	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	1.5	0.29	0.87	0.44	13
November	1.6	.22	.78	.49	13
December	1.6	.13	.72	.53	13
January	1.4	.05	.69	.44	13
February	2.0	.16	.96	.54	13
March	2.5	.58	1.3	.57	13
April	2.1	.61	1.1	.44	13
May	4.9	.47	1.4	1.2	13
June	1.9	.27	1.0	.61	13
July	2.0	.12	.72	.61	14
August	1.4	.06	.58	.43	14
September	1.5	.16	.62	.48	14
Annual	1.6	.36	.91	.46	13

**06126500 Musselshell River near Roundup, Mont.
Site Number 101**

LOCATION.--Lat 46°25'41", long 108°34'19" (NAD 27), in NW¼SE¼SE¼ sec.22, T.8 N., R.25 E., Musselshell County, Hydrologic Unit 10040202, on left bank 20 ft downstream from Halfbreed Creek, 0.1 mi upstream from bridge on U.S. Highway 87, 2.0 mi southwest of Roundup, and at river mile 211.6.

DRAINAGE AREA.--4,023 mi².

PERIOD OF RECORD.--May 1946 to current year (2002). Monthly discharge only from October 1947 to September 1949, published in WSP 1309.

REVISED RECORDS.--WSP 1086: 1946. WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 3,188.15 ft (NGVD 29, levels by U.S. Army Corps of Engineers). Prior to Sept. 26, 1949, nonrecording gage at present site and datum.

REMARKS.--Some regulation by Bair (station number 06116500), Martinsdale (station number 06119000) and Deadmans Basin (station number 06122500) Reservoirs. Diversions for irrigation of about 39,100 acres upstream from station, of which about 35,900 acres are flood irrigated. U.S. Army Corps of Engineers satellite telemeter at station.

Magnitude and probability of annual low flow
based on 55 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	16	4.3	1.8	0.77	0.27	0.12
3	19	5.3	2.2	1.0	.35	.17
7	22	6.8	3.2	1.6	.64	.33
14	26	9.1	4.7	2.6	1.2	.69
30	35	13	6.8	3.7	1.7	.95
60	43	17	9.5	5.4	2.6	1.5
90	50	21	12	7.2	3.7	2.3
120	55	24	14	8.8	4.8	3.1
183	75	33	19	11	5.9	3.7

Magnitude and probability of seasonal low flow from
March-June based on 56 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	36	8.5	3.3	1.3	0.43	0.19
3	41	10	4.1	1.7	.56	.25
7	47	13	5.7	2.6	.95	.46
14	61	20	9.8	5.0	2.2	1.2
30	87	31	16	9.1	4.5	2.7

Magnitude and probability of seasonal low flow from
November-February based on 56 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	21	7.7	4.1	2.3	1.1	0.66
3	23	8.8	4.8	2.8	1.4	.87
7	26	10	5.8	3.5	1.9	1.2
14	30	12	7.2	4.4	2.5	1.6
30	37	16	9.6	6.2	3.6	2.5

Duration of daily mean flows based on 56 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
2.2	4.1	9.7	21	36	52	73	101
40%	30%	20%	15%	10%	5%	2%	1%
138	181	250	315	450	755	1,400	1,940

Magnitude and probability of annual high flow
based on 56 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	1,180	2,580	3,860	5,890	7,720	9,820
3	1,030	2,290	3,470	5,400	7,170	9,250
7	865	1,930	2,940	4,620	6,180	8,040
15	690	1,540	2,380	3,820	5,200	6,890
30	556	1,230	1,880	2,980	4,030	5,310
60	426	898	1,330	2,040	2,680	3,440
90	368	749	1,080	1,590	2,030	2,530

Magnitude and probability of seasonal low flow from
July-October based on 56 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	37	9.4	3.4	1.3	0.36	0.14
3	40	11	4.1	1.6	.47	.19
7	43	13	5.3	2.3	.78	.35
14	47	15	6.9	3.3	1.3	.68
30	62	22	11	5.2	2.1	1.0

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	335	1.4	79	64	56
November	242	4.0	75	53	56
December	283	3.7	68	57	56
January	222	5.3	65	51	56
February	414	5.8	96	80	56
March	1,280	6.8	198	241	56
April	788	1.8	184	195	56
May	1,810	30	421	407	56
June	4,320	37	665	783	57
July	1,310	14	296	270	57
August	563	2.1	189	114	57
September	504	.01	127	97	57
Annual	608	18	207	140	56

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06127500 Musselshell River at Musselshell, Mont. Site Number 102

LOCATION.--Lat 46°31'23", long 108°06'30" (NAD 27), in SE¼SW¼SW¼ sec.20, T.9 N., R.29 E., Musselshell County, Hydrologic Unit 10040202, on left bank 0.9 mi upstream from Hawk Creek, 1 mi west of Musselshell, and at river mile 164.5.

DRAINAGE AREA.--4,568 mi².

PERIOD OF RECORD.--August 1928 to September 1932 (no records December to February for the water years 1930-31), August 1945 to September 1979, October 1982 to September 1983, October 1983 to current season (2002, seasonal records only). Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 2,984.72 ft (NGVD 29, levels by U.S. Army Corps of Engineers). Prior to Oct. 8, 1949, nonrecording gage at site 1 mi downstream at different datums.

REMARKS.--Some regulation by Bair (station number 06116500), Martinsdale (station number 06119000), and Deadmans Basin (station number 06122500) Reservoirs. Diversions for irrigation of about 44,600 acres upstream from station, of which about 39,400 acres is flood irrigated. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 34 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	16	4.5	0.84	0.00	0.00	--
3	18	5.1	.99	.00	.00	--
7	20	5.9	1.2	.00	.00	--
14	24	7.3	1.6	.00	.00	--
30	32	11	3.7	.00	.00	--
60	42	20	13	6.7	.00	--
90	49	25	17	11	.00	--
120	54	28	19	13	.00	--
183	71	37	24	15	.00	--

Magnitude and probability of seasonal low flow from
March-June based on 39 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	58	13	2.6	0.00	0.00	--
3	63	14	2.9	.00	.00	--
7	75	14	3.0	.44	.00	--
14	93	15	3.4	.70	.08	--
30	144	32	9.3	2.6	.44	--

Magnitude and probability of seasonal low flow from
November-February based on 37 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	22	10	6.8	4.4	0.00	--
3	24	12	7.7	5.0	.00	--
7	27	13	8.5	5.5	.00	--
14	32	15	9.8	6.2	.00	--
30	41	21	14	9.1	.00	--

Duration of daily mean flows based on 37 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.25	0.50	2.7	15	35	52	73	99
40%	30%	20%	15%	10%	5%	2%	1%
130	172	240	305	445	769	1,390	1,960

Magnitude and probability of annual high flow
based on 37 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	1,430	3,030	4,430	6,570	8,430	--
3	1,220	2,630	3,900	5,890	7,660	--
7	1,030	2,230	3,280	4,900	6,320	--
15	820	1,750	2,560	3,810	4,910	--
30	634	1,310	1,890	2,780	3,550	--
60	468	938	1,340	1,960	2,500	--
90	394	771	1,090	1,570	1,980	--

Magnitude and probability of seasonal low flow from
July-October based on 55 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	25	4.7	0.94	0.00	0.00	0.00
3	28	5.5	1.1	.00	.00	.00
7	31	6.3	1.4	.00	.00	.00
14	35	7.7	1.8	.00	.00	.00
30	61	12	4.0	.00	.00	.00

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	328	0.00	77	67	58
November	236	.00	76	55	39
December	268	.00	77	60	37
January	222	.00	71	49	37
February	460	.04	108	87	37
March	1,360	13	273	306	39
April	859	1.2	191	206	58
May	1,670	.36	356	374	58
June	4,220	.49	579	759	58
July	1,380	.00	238	276	58
August	534	.00	140	106	59
September	478	.00	107	94	60
Annual	609	34	215	138	37

**06127900 Flatwillow Creek near Flatwillow, Mont.
Site Number 103**

LOCATION.--Lat 46°47'28" long 108°36'51" (NAD 27), in NE¼ sec.19, T.12 N., R.25 E., Petroleum County, 10 mi southwest of Flatwillow and 14 mi upstream from Pike Creek.

DRAINAGE AREA.--188 mi² (revised).

PERIOD OF RECORD.--19 years (1911-30). May 1911 to September 1932, February 1934 to September 1956 (discontinued). Monthly discharge only for some periods, published in WSP 1309.

GAGE.--Wire-weight gage and masonry control. Altitude of gage is 3,560 ft (NGVD 29, by barometer). Prior to Apr. 17, 1918, staff gage at site 5 mi downstream at different datum. Apr. 17, 1918, to Apr. 15, 1925, staff gage at present site at different datum. Apr. 16, 1925, to Sept. 30, 1932, wire-weight gage at site 300 ft upstream at different datum.

REMARKS.--Diversions for irrigation of 9,000 acres upstream from station.

Magnitude and probability of annual low flow
based on 42 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	0.00	--
3	.00	.00	.00	.00	.00	--
7	.00	.00	.00	.00	.00	--
14	.00	.00	.00	.00	.00	--
30	.42	.00	.00	.00	.00	--
60	1.3	.00	.00	.00	.00	--
90	2.0	.00	.00	.00	.00	--
120	4.6	.14	.00	.00	.00	--
183	6.4	.96	.00	.00	.00	--

Magnitude and probability of seasonal low flow from
March-June based on 44 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4.1	0.00	0.00	0.00	0.00	--
3	4.9	.00	.00	.00	.00	--
7	6.1	.00	.00	.00	.00	--
14	7.4	.40	.00	.00	.00	--
30	14	.56	.00	.00	.00	--

Magnitude and probability of seasonal low flow from
November-February based on 43 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	5.0	0.00	0.00	0.00	0.00	--
3	5.3	.00	.00	.00	.00	--
7	5.4	.00	.00	.00	.00	--
14	6.7	.11	.00	.00	.00	--
30	7.1	.98	.00	.00	.00	--

Duration of daily mean flows based on 43 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.04	0.09	0.22	0.43	0.87	3.4	7.1	13
40%	30%	20%	15%	10%	5%	2%	1%
19	27	40	51	66	114	185	257

Magnitude and probability of annual high flow
based on 43 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	141	289	414	599	758	--
3	119	254	376	570	746	--
7	102	229	347	540	720	--
15	90	205	310	476	625	--
30	73	172	263	406	531	--
60	57	135	204	307	396	--
90	48	113	168	250	317	--

Magnitude and probability of seasonal low flow from
July-October based on 43 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	0.00	--
3	.00	.00	.00	.00	.00	--
7	.28	.00	.00	.00	.00	--
14	.57	.00	.00	.00	.00	--
30	.89	.00	.00	.00	.00	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	52	0.00	14	15	43
November	51	.00	15	15	43
December	45	.00	13	13	43
January	41	.00	12	11	43
February	53	.00	14	13	44
March	79	.00	24	20	44
April	163	.00	44	43	44
May	495	.00	63	90	45
June	674	.00	81	115	45
July	130	.00	34	36	45
August	122	.00	14	22	45
September	58	.00	10	14	45
Annual	134	.00	28	26	43

**06128200 Flatwillow Creek near Winnett, Mont.
Site Number 104**

LOCATION.--Lat 46°56'18", long 108°11'52" (NAD 27), in NW¼NE¼ sec.32, T.14 N., R.28 E., Petroleum County, 8 mi upstream from Box Elder Creek and 8.5 mi southeast of Winnett.

DRAINAGE AREA.--642 mi² (revised). At site used 1921-32 (at Petrolia) 660 mi².

PERIOD OF RECORD.--11 years. June 1921 to November 1929, March to December 1930, February to December 1931, March to September 1932, April 1948 to October 1951 (discontinued). Monthly discharge only for some periods, published in WSP 1309. Published as "at Petrolia" 1931-32.

GAGE.--Water-stage recorder. Altitude of gage is 2,790 ft (NGVD 29, by barometer). June 11, 1921, to September 1932, staff or chain gage at site 6 mi downstream at datum about 90 ft lower.

REMARKS.--Diversions for irrigation of about 13,000 acres upstream from station. Storage in Petrolia Reservoir, 3 mi upstream, began in July 1951.

Magnitude and probability of annual low flow
based on 5 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	--	--	--	--	--	--
3	--	--	--	--	--	--
7	--	--	--	--	--	--
14	--	--	--	--	--	--
30	--	--	--	--	--	--
60	--	--	--	--	--	--
90	--	--	--	--	--	--
120	--	--	--	--	--	--
183	--	--	--	--	--	--

Magnitude and probability of seasonal low flow from
March-June based on 11 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.94	0.00	0.00	0.00	--	--
3	1.3	.00	.00	.00	--	--
7	1.7	.00	.00	.00	--	--
14	2.8	.00	.00	.00	--	--
30	6.4	.00	.00	.00	--	--

Magnitude and probability of seasonal low flow from
November-February based on 10 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	6.1	0.00	0.00	0.00	--	--
3	8.4	.00	.00	.00	--	--
7	9.2	.00	.00	.00	--	--
14	9.8	.00	.00	.00	--	--
30	9.9	.60	.01	.00	--	--

Duration of daily mean flows based on 11 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.03	0.06	0.15	0.31	0.62	0.93	4.2	8.8
40%	30%	20%	15%	10%	5%	2%	1%
17	28	47	62	85	156	261	474

Magnitude and probability of annual high flow
based on 11 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	340	1,050	1,990	--	--	--
3	249	845	1,720	--	--	--
7	175	573	1,130	--	--	--
15	138	442	854	--	--	--
30	113	336	610	--	--	--
60	82	234	412	--	--	--
90	67	188	325	--	--	--

Magnitude and probability of seasonal low flow from
July-October based on 6 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	--	--	--	--	--	--
3	--	--	--	--	--	--
7	--	--	--	--	--	--
14	--	--	--	--	--	--
30	--	--	--	--	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	193	0.52	39	59	11
November	70	.15	20	19	12
December	50	2.5	19	15	11
January	41	3.1	17	13	11
February	35	1.5	16	11	11
March	145	8.0	59	41	13
April	203	1.5	46	51	14
May	448	.69	88	129	14
June	480	2.6	157	168	14
July	510	.30	71	127	15
August	126	.28	21	38	11
September	66	.60	16	20	11
Annual	117	8.8	49	42	11

**06129000 Box Elder Creek near Winnett, Mont.
Site Number 105**

LOCATION.--Lat 47°00'45", long 108°09'30" (NAD 27), SW¼ sec.34, T.15 N., R.28 E., Petroleum County, on right bank 500 ft upstream from bridge on State Highway 20, 0.4 mi upstream from McDonald Creek, 7 mi upstream from mouth, and 9 mi east of Winnett.

DRAINAGE AREA.--684 mi².

PERIOD OF RECORD.--17 years. June 1930 to December 1932, February 1934 to September 1936, April to August 1937, March to September 1938, August 1958 to June 1972 (discontinued). Monthly discharge only for some periods, published in WSP 1309.

GAGE.--Water-stage recorder. Altitude of gage is 2,720 ft (NGVD 29, by barometer). Prior to Aug. 22, 1958, nonrecording gages 1,500 ft downstream at different datums.

REMARKS.--Minor diversions for storage and irrigation.

Magnitude and probability of annual low flow
based on 16 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	--	--
3	.00	.00	.00	.00	--	--
7	.00	.00	.00	.00	--	--
14	.00	.00	.00	.00	--	--
30	.00	.00	.00	.00	--	--
60	.00	.00	.00	.00	--	--
90	.00	.00	.00	.00	--	--
120	.00	.00	.00	.00	--	--
183	.06	.00	.00	.00	--	--

Magnitude and probability of seasonal low flow from
March-June based on 19 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	--	--
3	.00	.00	.00	.00	--	--
7	.00	.00	.00	.00	--	--
14	.00	.00	.00	.00	--	--
30	.44	.00	.00	.00	--	--

Magnitude and probability of seasonal low flow from
November-February based on 18 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	--	--
3	.00	.00	.00	.00	--	--
7	.00	.00	.00	.00	--	--
14	.00	.00	.00	.00	--	--
30	.00	.00	.00	.00	--	--

Duration of daily mean flows based on 17 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.01	0.03	0.07	0.14	0.29	0.43	0.58	0.72
40%	30%	20%	15%	10%	5%	2%	1%
0.87	1.1	4.6	9.6	25	81	282	517

Magnitude and probability of annual high flow
based on 17 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	976	2,350	3,040	3,570	--	--
3	722	1,740	2,260	2,680	--	--
7	469	1,120	1,450	1,730	--	--
15	273	663	881	1,080	--	--
30	166	382	493	585	--	--
60	101	227	287	332	--	--
90	71	159	201	232	--	--

Magnitude and probability of seasonal low flow from
July-October based on 19 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	--	--
3	.00	.00	.00	.00	--	--
7	.00	.00	.00	.00	--	--
14	.00	.00	.00	.00	--	--
30	.00	.00	.00	.00	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	7.0	0.00	0.42	1.6	19
November	1.1	.00	.16	.27	19
December	1.9	.00	.24	.46	19
January	2.5	.00	.34	.70	18
February	206	.00	20	51	18
March	184	.00	51	61	19
April	134	.00	14	29	20
May	513	.00	57	119	21
June	624	.00	100	171	22
July	170	.00	23	45	21
August	19	.00	3.2	5.9	20
September	12	.00	.83	2.7	20
Annual	60	.18	23	19	17

**06129500 McDonald Creek at Winnett, Mont.
Site Number 106**

LOCATION.--Lat 47°00'00", long 108°21'00" (NAD 27), in NE¼ sec.6, T.14 N., R.27 E., Petroleum County, at Winnett, about 12 mi upstream from mouth.

DRAINAGE AREA.--421 mi² (revised).

PERIOD OF RECORD.--15 years. April 1930 to December 1931, March to December 1932, February 1934 to September 1945, February 1953 to September 1956, water years 1957-58 (annual maximum). Monthly discharge only for some periods, published in WSP 1309.

GAGE.--Crest-stage gage since Oct. 1, 1956. Altitude of gage is 2,930 ft (NGVD 29, by barometer). Apr. 18, 1930, to Dec. 5, 1932, and Feb. 4, 1934, to Sept. 30,

1945, wire-weight gage at sites within 1 mi of present site at different datums. Feb. 1, 1953, to Sept. 30, 1956, wire-weight gage at same site and datum.

REMARKS.--Small reservoirs in headwaters. Diversions for irrigation of several thousand acres upstream from station.

Magnitude and probability of annual low flow
based on 14 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	--	--
3	.00	.00	.00	.00	--	--
7	.00	.00	.00	.00	--	--
14	.00	.00	.00	.00	--	--
30	.00	.00	.00	.00	--	--
60	.01	.00	.00	.00	--	--
90	.03	.00	.00	.00	--	--
120	.19	.01	.00	.00	--	--
183	.29	.02	.00	.00	--	--

Magnitude and probability of seasonal low flow from
March-June based on 17 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	--	--
3	.00	.00	.00	.00	--	--
7	.04	.00	.00	.00	--	--
14	.12	.00	.00	.00	--	--
30	.28	.02	.00	.00	--	--

Magnitude and probability of seasonal low flow from
November-February based on 15 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	--	--
3	.00	.00	.00	.00	--	--
7	.00	.00	.00	.00	--	--
14	.01	.00	.00	.00	--	--
30	.03	.00	.00	.00	--	--

Duration of daily mean flows based on 15 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.02	0.03	0.08	0.15	0.31	0.46	0.61	0.77
40%	30%	20%	15%	10%	5%	2%	1%
0.92	2.5	8.5	13	21	56	159	278

Magnitude and probability of annual high flow
based on 15 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	169	421	609	839	--	--
3	124	346	545	837	--	--
7	77	245	434	781	--	--
15	46	168	339	732	--	--
30	28	108	233	552	--	--
60	17	64	142	347	--	--
90	12	46	101	253	--	--

Magnitude and probability of seasonal high flow from
July-October based on 17 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	--	--
3	.00	.00	.00	.00	--	--
7	.00	.00	.00	.00	--	--
14	.00	.00	.00	.00	--	--
30	.00	.00	.00	.00	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	9.1	0.00	1.8	3.2	17
November	15	.00	2.6	4.7	17
December	11	.00	2.5	4.4	16
January	10	.00	2.2	3.8	15
February	65	.00	6.6	16	16
March	45	.01	10	13	17
April	52	.01	11	17	18
May	227	.01	19	52	19
June	306	.00	67	104	19
July	104	.00	19	31	19
August	29	.00	3.5	7.8	19
September	12	.00	2.2	4.4	19
Annual	57	.57	13	20	15

06130500 Musselshell River at Mosby, Mont. Site Number 107

LOCATION.--Lat 46°59'41", long 107°53'18" (NAD 27), in SW¼NW¼NW¼ sec.11, T.14 N., R.30 E., Petroleum County, Hydrologic Unit 10040205, on right bank, downstream side of bridge on State Highway 20, 0.3 mi west of Mosby, 10.9 mi downstream from Flatwillow Creek, and at river mile 60.0.

DRAINAGE AREA.--7,846 mi².

PERIOD OF RECORD.--May to November 1929, March 1930 to September 1932, February 1934 to current year (2002). Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1559: 1935-36. WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 2,493.23 ft (NGVD 29). Dec. 6, 1962, to Mar. 14, 1966, water-stage recorder at site 900 ft downstream at different datum. Mar. 15, 1966, to Dec. 11, 1973, water-stage recorder and nonrecording gages at site 400 ft downstream at same datum. Dec. 12, 1973, to Oct. 1, 1981, nonrecording gage at site 400 ft downstream at same datum. Oct. 1, 1981, to July 25, 1995, water-stage recorder at site 400 ft upstream from bridge at datum 2.67 ft higher. See WSP 2116 for history of changes prior to 1962.

REMARKS.--Some regulation by Bair (station number 06116500), Martinsdale (station number 06119000) and Deadmans Basin (station number 06122500) Reservoirs. Diversions for irrigation of about 47,000 acres upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 70 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1.8	0.00	0.00	0.00	0.00	0.00
3	2.3	.00	.00	.00	.00	.00
7	3.6	.00	.00	.00	.00	.00
14	6.2	.00	.00	.00	.00	.00
30	19	.11	.00	.00	.00	.00
60	45	6.3	.31	.00	.00	.00
90	45	6.3	.31	.00	.00	.00
120	67	8.4	.43	.00	.00	.00
183	84	10	.79	.00	.00	.00

Magnitude and probability of seasonal low flow from
March-June based on 72 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	25	0.51	0.00	0.00	0.00	0.00
3	30	1.3	.00	.00	.00	.00
7	36	2.6	.00	.00	.00	.00
14	62	4.6	.19	.00	.00	.00
30	91	14	2.8	.15	.00	.00

Magnitude and probability of seasonal low flow from
November-February based on 70 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	18	1.6	0.00	0.00	0.00	0.00
3	21	1.9	.00	.00	.00	.00
7	25	2.8	.00	.00	.00	.00
14	37	2.9	.00	.00	.00	.00
30	51	5.7	.00	.00	.00	.00

Duration of daily mean flows based on 70 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.08	0.17	0.42	0.84	17	38	59	84
40%	30%	20%	15%	10%	5%	2%	1%
118	169	262	365	585	1,130	2,210	3,390

Magnitude and probability of annual high flow
based on 70 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	2,890	6,530	9,490	13,600	16,800	20,100
3	2,240	5,200	7,660	11,100	13,900	16,700
7	1,690	4,060	6,050	8,900	11,200	13,500
15	1,250	3,070	4,620	6,840	8,630	10,500
30	893	2,190	3,310	4,950	6,280	7,680
60	605	1,490	2,270	3,440	4,400	5,420
90	481	1,180	1,790	2,690	3,420	4,200

Magnitude and probability of seasonal low flow from
July-October based on 71 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2.1	0.00	0.00	0.00	0.00	0.00
3	2.7	.00	.00	.00	.00	.00
7	4.2	.00	.00	.00	.00	.00
14	7.2	.00	.00	.00	.00	.00
30	24	.15	.00	.00	.00	.00

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	478	0.00	80	85	71
November	337	.00	79	70	71
December	278	.00	72	63	70
January	376	.00	78	79	70
February	1,860	.00	175	282	71
March	4,660	.00	458	785	72
April	1,920	3.1	290	357	72
May	3,770	.00	522	703	73
June	4,970	1.9	863	1,030	73
July	2,150	.00	316	473	73
August	870	.00	113	136	73
September	787	.00	111	151	73
Annual	1,090	8.1	268	231	70

**06131000 Big Dry Creek near Van Norman, Mont.
Site Number 108**

LOCATION.--Lat 47°20'58", long 106°21'26" (NAD 27), in NE¼SW¼NW¼ sec.3, T.18 N., R.42 E., Garfield County, Hydrologic Unit 10040105, on left bank 900 ft downstream from Little Dry Creek, 3.2 mi northeast of Van Norman Post Office, 26 mi east of Jordan, and at river mile 55.1.

DRAINAGE AREA.--2,554 mi².

PERIOD OF RECORD.--October 1939 to July 1969, July 1970 to current year (2002; discharge measurements only, October 1947 to March 1949). Prior to July 1970, published as "Dry Creek near Van Norman."

REVISED RECORDS.--WSP 1309: 1947(M). WSP 1559: 1944(M), 1947. WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 2,330 ft (NGVD 29). Prior to July 24, 1978, at site 400 ft upstream at same datum.

REMARKS.--Minor diversions for irrigation upstream from station. U.S. Army Corps of Engineers satellite telemeter at station.

Magnitude and probability of annual low flow
based on 57 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	0.00	0.00
3	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	.00	.00
60	.27	.01	.00	.00	.00	.00
90	1.0	.17	.04	.00	.00	.00
120	1.3	.45	.22	.09	.00	.00
183	2.3	.61	.27	.12	.05	.03

Magnitude and probability of seasonal low flow from
March-June based on 60 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.31	0.00	0.00	0.00	0.00	0.00
3	.49	.00	.00	.00	.00	.00
7	.88	.00	.00	.00	.00	.00
14	1.5	.25	.06	.00	.00	.00
30	3.4	1.1	.58	.32	.16	.10

Magnitude and probability of seasonal low flow from
November-February based on 59 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	0.00	0.00
3	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	.00
30	.01	.00	.00	.00	.00	.00

Duration of daily mean flows based on 59 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.03	0.06	0.15	0.31	0.61	0.92	1.6	2.6
40%	30%	20%	15%	10%	5%	2%	1%
4.1	6.9	14	22	44	122	444	940

Magnitude and probability of annual high flow
based on 59 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	1,360	4,760	8,510	15,000	21,100	28,100
3	942	3,350	6,100	11,100	15,900	21,600
7	567	1,970	3,560	6,430	9,210	12,500
15	332	1,100	1,950	3,440	4,850	6,530
30	198	638	1,120	1,970	2,780	3,740
60	115	363	633	1,110	1,570	2,110
90	83	254	437	757	1,060	1,430

Magnitude and probability of seasonal low flow from
July-October based on 59 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.03	0.00	0.00	0.00	0.00	0.00
3	.08	.00	.00	.00	.00	.00
7	.11	.00	.00	.00	.00	.00
14	.16	.00	.00	.00	.00	.00
30	.31	.00	.00	.00	.00	.00

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	98	0.00	6.4	14	60
November	14	.00	3.0	3.1	60
December	34	.00	2.7	4.9	60
January	192	.00	6.5	26	60
February	1,000	.00	74	174	60
March	1,760	2.8	256	459	60
April	2,040	1.0	85	292	61
May	300	.21	29	59	61
June	552	.07	59	102	61
July	458	.00	44	84	62
August	367	.00	16	51	61
September	390	.00	17	59	61
Annual	243	1.2	50	57	59

**06132000 Missouri River below Fort Peck Dam, at Fort Peck
Site Number 109**

LOCATION.--Lat 48°02'39" (NAD 27), long 106°21'21", in NW¼ sec.6, T.26 N., R.42 E., McCone County, Hydrologic Unit 10060001, on right bank 2 mi upstream from Milk River, 6 mi south of Nashua, 8 mi downstream from Fort Peck Dam, and at river mile 1,763.5.

DRAINAGE AREA.--57,556 mi².

PERIOD OF RECORD.--March 1934 to current year (2002).

REVISED RECORDS.--WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 2,018 ft (NGVD 29, U.S. Army Corps of Engineers bench mark). Prior to Apr. 14, 1938, at site 0.7 mi upstream at different datum; Apr. 14, 1938, to Sept. 30, 1963, at present site at datum 2.00 ft higher, all water-stage recorders. Since Oct. 1, 1969, published discharge is determined by flow meters and spillway discharge at Fort Peck Dam.

REMARKS.--Flow completely regulated by Fort Peck Lake. Diversions for irrigation of about 880,400 acres upstream from station. Operational level in Fort Peck Lake was reached beginning 1944 water year.

Magnitude and probability of annual low flow
based on 57 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3,190	1,760	1,230	888	599	452
3	3,620	2,070	1,470	1,070	730	554
7	4,110	2,450	1,760	1,290	877	663
14	4,540	2,810	2,040	1,510	1,040	786
30	5,020	3,170	2,320	1,730	1,190	908
60	5,880	3,850	2,870	2,160	1,500	1,150
90	6,680	4,430	3,310	2,480	1,710	1,300
120	7,230	4,770	3,540	2,640	1,810	1,370
183	8,180	5,920	4,860	4,070	3,290	2,820

Magnitude and probability of seasonal low flow from
March-June based on 58 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3,880	2,090	1,420	994	642	468
3	4,260	2,410	1,680	1,200	790	583
7	4,740	2,810	1,980	1,420	939	692
14	5,170	3,130	2,230	1,620	1,070	793
30	5,730	3,500	2,510	1,840	1,230	918

Magnitude and probability of seasonal low flow from
November-February based on 58 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	5,550	3,090	2,080	1,420	881	618
3	5,780	3,280	2,260	1,590	1,020	733
7	6,070	3,500	2,450	1,750	1,150	851
14	6,410	3,770	2,670	1,930	1,280	953
30	7,210	4,450	3,200	2,340	1,570	1,160

Duration of daily mean flows based on 58 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
1,120	1,710	3,190	4,280	5,690	6,760	7,690	8,630
40%	30%	20%	15%	10%	5%	2%	1%
10,000	11,500	13,600	14,800	16,000	19,100	26,800	31,300

Magnitude and probability of annual high flow
based on 58 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	15,700	22,200	26,700	32,700	37,300	42,100
3	15,500	21,900	26,400	32,400	37,000	41,800
7	15,300	21,700	26,100	32,000	36,600	41,400
15	15,000	21,300	25,700	31,600	36,300	41,100
30	14,500	20,400	24,700	30,300	34,700	39,300
60	13,600	18,600	22,200	26,800	30,400	34,200
90	12,600	16,700	19,500	23,200	26,000	28,800

Magnitude and probability of seasonal low flow from
July-October based on 57 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	5,190	3,080	2,310	1,810	1,370	1,130
3	5,640	3,360	2,510	1,960	1,460	1,200
7	6,010	3,590	2,700	2,100	1,580	1,290
14	6,400	3,890	2,940	2,320	1,750	1,440
30	7,460	4,590	3,460	2,700	2,010	1,630

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	28,800	3,020	11,100	7,010	58
November	21,200	2,080	8,970	3,980	58
December	12,200	1,490	9,100	2,330	58
January	14,000	1,390	9,880	3,060	58
February	15,200	1,180	9,870	3,910	58
March	13,400	1,060	7,520	3,160	58
April	17,200	856	7,300	3,150	58
May	18,800	1,030	8,570	3,490	58
June	26,200	1,060	8,800	4,300	58
July	35,000	1,160	10,000	5,350	58
August	26,200	3,450	11,800	5,650	58
September	27,100	3,000	11,500	6,540	58
Annual	14,900	5,340	9,530	2,530	58

06134500 Milk River at Milk River, Alberta
(International gaging station)
Site Number 110

LOCATION.--Lat 49°08'37", long 112°04'44" (NAD 27), in NE¼ sec.21, T.2, R.16 W., fourth meridian, in Alberta, Hydrologic Unit 10050002, on right bank 5 ft downstream from highway bridge at Milk River, Alberta, 22 mi downstream from North Fork Milk River, and at river mile 613.4.

DRAINAGE AREA.--1,050 mi².

PERIOD OF RECORD.--June 1909 to October 1910 (no winter records), April 1911 to current year (2002). Monthly discharge only for June 1909, published in WSP 1309.

REVISED RECORDS.--WSP 1309: 1912. WSP 1559: 1916, 1927(M), 1947(M). WDR-MT-83: Drainage area. WDR-MT-84: 1983 (M).

GAGE.--Water-stage recorder. Altitude of gage is 3,402.78 ft (Canadian Geodetic Vertical Datum 1928). Prior to June 17, 1919, nonrecording gages, and June 17, 1919, to Nov. 2, 1921, water-stage recorder at several sites 300 ft upstream at datum 0.61 ft higher. Nov. 3, 1921, to Aug. 28, 1947, water-stage recorder at site 60 ft upstream at present datum. Aug. 29, 1947, to Nov. 10, 1976, water-stage recorder located 700 ft downstream on left bank at present datum.

REMARKS.--Since 1917, flow increased during irrigation season by water from St. Mary Canal (station number 05018500). Several diversions for irrigation upstream from station. Environment Canada satellite telemeter at station.

Magnitude and probability of annual low flow
based on 83 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4.9	1.0	0.00	0.00	0.00	0.00
3	5.5	1.2	.12	.00	.00	.00
7	6.7	1.4	.40	.00	.00	.00
14	8.0	2.2	.89	.10	.00	.00
30	12	4.1	2.0	.95	.00	.00
60	18	6.5	3.4	1.8	.62	.00
90	24	10	5.9	3.6	2.0	1.3
120	31	16	11	8.1	5.7	4.4
183	99	46	28	17	9.5	6.1

Magnitude and probability of seasonal low flow from
March-June based on 86 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	31	10	4.6	2.0	0.00	0.00
3	34	11	5.3	2.4	.00	.00
7	40	15	8.3	4.3	.00	.00
14	69	24	12	5.5	1.4	.00
30	161	68	37	21	10	5.8

Magnitude and probability of seasonal low flow from
November-February based on 83 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	6.1	1.3	0.00	0.00	0.00	0.00
3	6.7	1.4	.30	.00	.00	.00
7	7.7	1.6	.51	.03	.00	.00
14	8.7	2.4	1.0	.33	.00	.00
30	12	4.1	2.0	.96	.00	.00

Duration of daily mean flows based on 86 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
1.0	2.2	6.3	13	28	45	76	162
40%	30%	20%	15%	10%	5%	2%	1%
369	553	650	698	747	944	1,090	1,440

Magnitude and probability of annual high flow
based on 86 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	1,640	2,920	4,070	5,920	7,640	9,700
3	1,420	2,360	3,160	4,410	5,530	6,820
7	1,160	1,760	2,240	2,940	3,550	4,220
15	970	1,340	1,620	1,990	2,290	2,610
30	833	1,070	1,220	1,430	1,590	1,750
60	751	919	1,020	1,140	1,230	1,310
90	715	849	917	988	1,030	1,070

Magnitude and probability of seasonal low flow from
July-October based on 85 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	33	15	9.3	6.3	3.9	2.8
3	35	16	11	7.4	4.8	3.6
7	39	18	12	8.3	5.5	4.1
14	43	20	13	9.2	6.1	4.7
30	61	25	16	10	6.6	4.8

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	555	7.8	101	103	86
November	216	8.7	56	42	86
December	133	2.2	34	25	86
January	268	1.0	31	41	85
February	616	.90	63	90	84
March	1,020	4.6	228	195	86
April	1,380	94	496	245	86
May	1,180	236	660	219	86
June	1,630	162	720	231	86
July	965	192	616	138	86
August	795	29	552	161	86
September	713	3.7	353	225	86
Annual	489	157	328	77	86

**06137400 Big Sandy Creek at reservation boundary, near Rocky Boy, Mont.
Site Number 111**

LOCATION.--Lat 48°10'27", long 109°49'23" (NAD 27), in SW¼NW¼NE¼ sec.20, T.28 N., R.15 E., Chouteau County, Hydrologic Unit 10050005, on left bank 0.9 mi downstream from Muddy Creek, 6.0 mi south of Rocky Boy Agency, and at river mile 90.6.

DRAINAGE AREA.--24.7 mi².

PERIOD OF RECORD.--May 1982 to current year (2002).

GAGE.--Water-stage recorder. Altitude of gage is 3,830 ft (NGVD 29). Prior to Sept. 6, 2001, water-stage recorder at site 0.1 mi downstream at different datum.

REMARKS.--No known regulation or diversions upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 19 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1.2	0.65	0.49	0.39	--	--
3	1.3	.73	.53	.41	--	--
7	1.5	.83	.61	.47	--	--
14	1.9	1.0	.74	.54	--	--
30	2.3	1.2	.86	.62	--	--
60	2.8	1.5	1.0	.73	--	--
90	3.1	1.7	1.2	.87	--	--
120	3.3	1.8	1.3	.98	--	--
183	3.8	2.0	1.4	1.1	--	--

Magnitude and probability of seasonal low flow from
March-June based on 20 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2.1	1.0	0.70	0.51	--	--
3	2.4	1.2	.80	.58	--	--
7	2.6	1.3	.92	.68	--	--
14	3.2	1.8	1.3	1.0	--	--
30	4.1	2.2	1.5	1.2	--	--

Magnitude and probability of seasonal low flow from
November-February based on 20 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1.8	1.0	0.77	0.62	--	--
3	1.9	1.1	.83	.66	--	--
7	2.2	1.2	.92	.72	--	--
14	2.4	1.4	1.0	.77	--	--
30	2.7	1.5	1.1	.89	--	--

Duration of daily mean flows based on 20 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.19	0.37	0.93	1.6	2.4	3.2	4.0	4.9
40%	30%	20%	15%	10%	5%	2%	1%
5.9	7.9	11	14	17	26	40	58

Magnitude and probability of annual high flow
based on 20 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	40	107	184	336	--	--
3	34	85	139	240	--	--
7	29	67	105	174	--	--
15	23	51	77	121	--	--
30	19	39	58	86	--	--
60	16	30	42	59	--	--
90	14	26	35	47	--	--

Magnitude and probability of seasonal low flow from
July-October based on 20 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2.5	1.0	0.60	0.39	--	--
3	2.6	1.1	.66	.43	--	--
7	2.9	1.3	.77	.49	--	--
14	3.2	1.4	.84	.54	--	--
30	3.5	1.6	.99	.64	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	14	0.66	5.5	4.0	20
November	11	.92	4.8	3.2	20
December	12	.81	4.3	2.9	20
January	9.4	.71	3.6	2.2	20
February	22	.76	4.4	4.5	20
March	28	.89	6.4	5.9	20
April	33	3.7	11	8.5	20
May	68	1.8	14	15	21
June	50	1.4	17	14	21
July	54	1.0	13	14	21
August	29	.50	6.6	6.2	21
September	19	.65	5.5	4.5	21
Annual	18	1.8	7.9	4.6	20

**06137570 Boxelder Creek near Rocky Boy, Mont.
Site Number 112**

LOCATION.--Lat 48°18'07", long 109°50'37" (NAD 27), in SW¼SW¼NW¼ sec.6, T.29 N., R.15 E., Hill County, Hydrologic Unit 10050005, on Rocky Boys Indian Reservation, on right bank 1,000 ft upstream from Bonneau Reservoir, 4,000 ft downstream from Wolf Creek, 4.1 mi northwest of Rocky Boy Agency, and at river mile 14.0.

DRAINAGE AREA.--48.2 mi².

PERIOD OF RECORD.--22 years. October 1975 to September 1997 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 3,225 ft (NGVD 29, from topographic map).

REMARKS.--Other than beaver dams, no known regulation or diversions upstream from station.

Magnitude and probability of annual low flow
based on 21 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1.3	0.19	0.00	0.00	--	--
3	1.3	.20	.00	.00	--	--
7	1.4	.22	.03	.00	--	--
14	1.5	.25	.06	.00	--	--
30	1.8	.42	.12	.00	--	--
60	2.5	.69	.23	.01	--	--
90	3.4	.84	.28	.03	--	--
120	3.5	1.2	.54	.25	--	--
183	3.7	1.7	1.0	.66	--	--

Magnitude and probability of seasonal low flow from
March-June based on 22 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3.3	1.3	0.73	0.41	--	--
3	3.5	1.5	.81	.46	--	--
7	4.1	1.8	1.1	.64	--	--
14	4.7	2.4	1.6	1.1	--	--
30	6.1	3.0	1.9	1.4	--	--

Magnitude and probability of seasonal low flow from
November-February based on 21 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2.1	1.1	0.73	0.52	--	--
3	2.2	1.2	.79	.56	--	--
7	2.5	1.3	.89	.62	--	--
14	2.9	1.5	1.0	.73	--	--
30	3.3	1.8	1.3	.95	--	--

Duration of daily mean flows based on 22 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.16	0.31	0.78	1.5	2.6	3.4	4.2	5.2
40%	30%	20%	15%	10%	5%	2%	1%
6.6	8.6	13	16	22	33	54	72

Magnitude and probability of annual high flow
based on 22 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	61	165	286	520	--	--
3	48	118	190	321	--	--
7	38	87	137	223	--	--
15	30	66	100	158	--	--
30	24	50	75	114	--	--
60	20	38	55	80	--	--
90	17	32	45	64	--	--

Magnitude and probability of seasonal low flow from
July-October based on 21 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1.5	0.19	0.00	0.00	--	--
3	1.6	.22	.00	.00	--	--
7	1.7	.23	.04	.00	--	--
14	1.7	.27	.07	.00	--	--
30	2.1	.43	.14	.01	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	26	0.05	6.1	6.1	22
November	20	.51	5.6	4.4	22
December	15	.93	5.0	3.4	22
January	12	1.6	4.3	2.6	22
February	9.6	1.8	5.4	2.1	22
March	29	3.4	11	8.1	22
April	37	3.9	13	9.9	22
May	100	2.4	22	24	22
June	81	.90	19	19	22
July	78	.43	12	17	22
August	34	.00	5.4	7.1	22
September	22	.00	4.8	6.0	22
Annual	22	2.7	9.5	5.6	22

**06137580 Sage Creek near Whitlash, Mont.
Site Number 113**

LOCATION.--Lat 48°53'30", long 111°01'47" (NAD 27), in NW¼NW¼SW¼ sec.12, T.36 N., R.5 E., Liberty County, Hydrologic Unit 10050006, on left bank, 0.2 mi downstream from bridge on Black Jack Road, 10 mi southeast of Whitlash.

DRAINAGE AREA.--7.26 mi².

PERIOD OF RECORD.--October 1976 to September 1982, October 1984 to September 1990 (discontinued).

GAGE.--Water-stage recorder, Parshall flume, and V-notch sharp-crested weir. Altitude of gage is 3,900 ft (NGVD 29, from topographic map).

REMARKS.--Diversion for irrigation of about 40 acres upstream from station.

Magnitude and probability of annual low flow
based on 11 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.13	0.05	0.03	0.01	--	--
3	.16	.07	.04	.03	--	--
7	.24	.12	.08	.05	--	--
14	.31	.16	.11	.08	--	--
30	.39	.23	.17	.13	--	--
60	.48	.28	.20	.16	--	--
90	.60	.36	.27	.21	--	--
120	.71	.43	.33	.27	--	--
183	.90	.50	.38	.31	--	--

Magnitude and probability of seasonal low flow from
March-June based on 12 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.42	0.21	0.14	0.10	--	--
3	.52	.26	.17	.12	--	--
7	.63	.32	.22	.16	--	--
14	.95	.52	.36	.25	--	--
30	1.5	.81	.56	.39	--	--

Magnitude and probability of seasonal low flow from
November-February based on 11 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.23	0.09	0.05	0.03	--	--
3	.25	.12	.08	.05	--	--
7	.29	.18	.14	.11	--	--
14	.34	.23	.19	.17	--	--
30	.43	.30	.26	.23	--	--

Duration of daily mean flows based on 12 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.02	0.04	0.10	0.21	0.41	0.62	0.83	1.1
40%	30%	20%	15%	10%	5%	2%	1%
1.5	2.1	3.4	4.5	6.8	12	19	23

Magnitude and probability of annual high flow
based on 12 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	26	47	60	--	--	--
3	22	41	53	--	--	--
7	18	33	42	--	--	--
15	14	26	32	--	--	--
30	11	20	25	--	--	--
60	8.2	14	17	--	--	--
90	6.5	11	13	--	--	--

Magnitude and probability of seasonal low flow from
July-October based on 11 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.40	0.15	0.07	0.04	--	--
3	.44	.18	.10	.05	--	--
7	.50	.22	.12	.07	--	--
14	.54	.25	.15	.09	--	--
30	.63	.31	.20	.14	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	9.3	0.49	1.9	2.7	12
November	2.6	.52	1.1	.67	12
December	1.6	.36	.79	.40	12
January	1.5	.29	.66	.40	12
February	2.3	.31	.86	.51	12
March	3.4	.67	1.8	.91	12
April	7.3	1.3	4.0	1.9	12
May	20	.69	9.3	6.9	12
June	20	.34	6.8	6.2	12
July	3.6	.30	1.7	1.1	12
August	4.6	.14	1.2	1.2	12
September	7.1	.27	1.9	2.1	12
Annual	4.4	.67	2.7	1.2	12

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**06138500 Big Sandy Creek near Box Elder, Mont.
Site Number 114**

LOCATION.--Lat 48°21'36", long 109°59'32" (NAD 27, revised), in NE¼ sec.13, T.30 N., R.13 E., Hill County, just downstream from mouth of Sage Creek at Cowan ranch and 3 mi north of Box Elder.

DRAINAGE AREA.--1,629 mi².

PERIOD OF RECORD.--11 years (1927-38).

GAGE.--Staff gage. Altitude of gage is 2,620 ft (NGVD 29, from topographic map). Prior to Mar. 7, 1928, several staff gages 0.5 mi upstream at different datum on spillways of Cowan dam.

REMARKS.--Flow regulated by small storage dam and some diversions for irrigation upstream from station.

Magnitude and probability of annual low flow
based on 11 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.07	0.00	0.00	0.00	--	--
3	.13	.00	.00	.00	--	--
7	.16	.00	.00	.00	--	--
14	.19	.00	.00	.00	--	--
30	.22	.00	.00	.00	--	--
60	.24	.04	.01	.00	--	--
90	.34	.07	.03	.01	--	--
120	.42	.12	.06	.04	--	--
183	.66	.17	.08	.05	--	--

Magnitude and probability of seasonal low flow from
March-June based on 12 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.19	0.00	0.00	0.00	--	--
3	.26	.10	.04	.00	--	--
7	.34	.12	.06	.00	--	--
14	.38	.17	.13	.10	--	--
30	.48	.22	.18	.16	--	--

Magnitude and probability of seasonal low flow from
November-February based on 11 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.17	0.00	0.00	0.00	--	--
3	.18	.00	.00	.00	--	--
7	.19	.00	.00	.00	--	--
14	.23	.00	.00	.00	--	--
30	.25	.01	.00	.00	--	--

Duration of daily mean flows based on 11 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.02	0.04	0.09	0.18	0.36	0.54	0.71	0.89
40%	30%	20%	15%	10%	5%	2%	1%
1.2	2.9	4.8	9.5	25	53	122	222

Magnitude and probability of annual high flow
based on 11 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	104	283	382	--	--	--
3	90	240	323	--	--	--
7	64	169	230	--	--	--
15	39	108	154	--	--	--
30	24	70	106	--	--	--
60	14	42	67	--	--	--
90	11	33	53	--	--	--

Magnitude and probability of seasonal low flow from
July-October based on 12 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.29	0.00	0.00	0.00	--	--
3	.29	.00	.00	.00	--	--
7	.30	.02	.00	.00	--	--
14	.30	.04	.00	.00	--	--
30	.33	.07	.00	.00	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	10	0.01	2.0	3.1	12
November	9.1	.10	2.4	2.8	12
December	3.5	.10	1.1	1.2	12
January	8.0	.00	1.6	2.4	11
February	25	.00	3.5	7.2	11
March	75	.40	13	21	12
April	55	.30	14	19	12
May	485	.21	50	138	12
June	482	.27	60	136	12
July	60	.19	11	20	12
August	36	.03	7.4	13	12
September	20	.00	3.0	5.8	12
Annual	21	.27	6.6	7.4	11

**06140500 Milk River at Havre, Mont.
Site Number 115**

LOCATION.--Lat 48°33'50", long 109°41'42" (NAD 27), in SE¼NE¼NE¼ sec.6, T.32 N., R.16 E., Hill County, Hydrologic Unit 10050004, on left bank, 1.25 mi upstream from Bullhook Creek and 7th Avenue East highway bridge in Havre, 8.2 mi downstream from Big Sandy Creek, 15.8 mi downstream from Fresno Dam, and at river mile 419.2.

DRAINAGE AREA.--5,785 mi², of which 670 mi² is probably noncontributing.

PERIOD OF RECORD.--May to November 1898, April 1899 to November 1922, March, April 1923, March, April 1952 (gage heights only, in WSP 1260-B), June 1953 (in WSP 1320-B), September 1954 to current year (2002). Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1309: 1899-1900, 1902-04, 1907-08, 1909(M), 1912, 1917(M), 1920(M). WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 2,465.24 ft (NGVD 29). Prior to Nov. 4, 1902, nonrecording gage at site 0.75 mi downstream at different datum. Nov. 4, 1902, to Aug. 6, 1980, nonrecording gages 1.25 mi downstream on 7th Avenue East highway bridges, all at datums then in use.

REMARKS.--Diversions for irrigation of about 6,000 acres upstream from station. Since 1917, flow increased during irrigation season by water from St. Mary Canal (station number 05018500). Since 1939, flow regulated by Fresno Reservoir (station number 06136500). U.S. Geological Survey satellite telemeter at station.

Unregulated streamflow period

Magnitude and probability of annual low flow
based on 13 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	13	0.00	0.00	0.00	--	--
3	15	.00	.00	.00	--	--
7	16	.00	.00	.00	--	--
14	17	.00	.00	.00	--	--
30	19	.09	.00	.00	--	--
60	24	2.2	.00	.00	--	--
90	41	3.9	.27	.00	--	--
120	57	9.6	1.2	.00	--	--
183	70	16	3.3	.00	--	--

Magnitude and probability of seasonal low flow from
March-June based on 17 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	70	20	9.4	4.8	--	--
3	80	24	12	6.0	--	--
7	93	30	15	7.7	--	--
14	110	36	17	8.6	--	--
30	165	81	52	34	--	--

Magnitude and probability of seasonal low flow from
November-February based on 14 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	26	7.0	0.00	0.00	--	--
3	27	7.5	.00	.00	--	--
7	27	7.9	.00	.00	--	--
14	27	8.3	.00	.00	--	--
30	28	9.0	.00	.00	--	--

Duration of daily mean flows based on 17 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.17	0.35	0.87	5.2	29	53	77	107
40%	30%	20%	15%	10%	5%	2%	1%
155	225	360	482	670	1,090	1,920	2,710

Magnitude and probability of annual high flow
based on 17 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	2,970	5,490	7,120	9,000	--	--
3	2,670	4,730	5,930	7,180	--	--
7	2,220	3,720	4,480	5,200	--	--
15	1,710	2,770	3,300	3,790	--	--
30	1,250	2,030	2,430	2,820	--	--
60	878	1,340	1,560	1,750	--	--
90	703	1,070	1,240	1,390	--	--

Magnitude and probability of seasonal low flow from
July-October based on 14 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	25	0.00	0.00	0.00	--	--
3	25	.00	.00	.00	--	--
7	26	.08	.00	.00	--	--
14	28	.26	.00	.00	--	--
30	30	1.3	.00	.00	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	281	1.5	115	76	16
November	250	1.0	100	64	16
December	160	25	72	44	15
January	150	5.0	54	47	15
February	1,400	1.4	153	332	17
March	1,600	30	469	431	17
April	1,740	59	593	532	17
May	1,620	61	511	408	17
June	2,190	35	631	561	17
July	2,040	18	372	514	17
August	414	5.0	136	138	16
September	664	2.8	130	166	16
Annual	571	45	286	141	17

06140500 Milk River at Havre, Mont.—Continued
Site Number 115

Regulated streamflow period

Magnitude and probability of annual low flow
based on 51 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	23	10	5.5	2.8	0.22	0.00
3	25	12	6.9	3.8	.39	.00
7	27	15	9.8	6.4	1.4	.00
14	32	18	12	7.5	1.6	.00
30	38	21	13	7.8	1.7	.00
60	45	25	14	8.1	2.8	1.0
90	50	27	15	8.5	3.3	1.7
120	54	28	18	11	6.0	3.8
183	133	68	43	28	16	11

Magnitude and probability of seasonal low flow from
March-June based on 54 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	39	19	12	8.6	5.5	4.1
3	44	22	15	11	7.5	5.8
7	50	26	18	13	9.3	7.3
14	63	32	22	16	11	8.6
30	97	40	25	17	11	8.8

Magnitude and probability of seasonal low flow from
November-February based on 52 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	24	13	8.2	5.1	1.2	0.00
3	27	15	9.9	6.5	1.8	.00
7	30	17	11	7.6	2.1	.00
14	34	19	13	8.2	2.1	.00
30	39	21	14	8.7	2.3	.00

Duration of daily mean flows based on 54 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
5.1	10	23	30	42	55	81	170
40%	30%	20%	15%	10%	5%	2%	1%
363	595	847	970	1,090	1,340	1,490	2,010

Magnitude and probability of annual high flow
based on 54 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	1,650	2,800	3,990	6,210	8,570	11,700
3	1,560	2,570	3,610	5,530	7,540	10,200
7	1,470	2,320	3,130	4,500	5,850	7,550
15	1,370	1,970	2,460	3,180	3,810	4,520
30	1,240	1,640	1,890	2,210	2,430	2,660
60	1,080	1,340	1,480	1,620	1,710	1,790
90	1,020	1,240	1,340	1,430	1,480	1,520

Magnitude and probability of seasonal low flow from
July-October based on 53 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	48	19	10	5.7	2.7	1.6
3	53	21	12	7.1	3.7	2.3
7	56	25	16	11	6.9	5.0
14	70	34	23	17	12	9.0
30	101	46	30	20	13	9.9

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	628	9.0	158	127	55
November	325	5.0	71	56	55
December	144	2.0	50	28	54
January	780	5.0	61	104	53
February	691	5.0	74	103	53
March	2,110	5.0	274	447	55
April	2,570	25	462	508	55
May	2,190	261	894	342	54
June	1,570	233	877	270	54
July	1,580	252	918	303	54
August	1,300	51	716	293	54
September	956	33	397	212	55
Annual	728	160	416	127	54

**06154100 Milk River near Harlem, Mont.
Site Number 116**

LOCATION.--Lat 48°29'22", long 108°45'28" (NAD 27), in NE¼SE¼NE¼ sec.32, T.32 N., R.23 E., Blaine County, Hydrologic Unit 10050004, Fort Belknap Indian Reservation, on right bank 30 ft downstream from U.S. Highway 2 bridge, 0.6 mi northeast of unincorporated community of Fort Belknap Agency, 3.5 mi southeast of Harlem, and at river mile 332.2.

DRAINAGE AREA.--9,822 mi².

PERIOD OF RECORD.--October 1959 to September 1969, October 1982 to current year (2002; seasonal record beginning 1994 water year). Gage heights only for period Apr. 3-25, 1952, published as "at Fort Belknap" in WSP 1260-B.

REVISED RECORDS.--WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 2,319.48 ft (NGVD 29). Apr. 3-25, 1952, nonrecording gage on old bridge 200 ft downstream at different datum. Nov. 1, 1959, to Mar. 12, 1968, nonrecording gage or water-stage recorder at several sites within 0.5 mi of present site at different datum.

REMARKS.--Flow increased during irrigation season by water from St. Mary Canal (station number 05018500). Flow mainly regulated by Fresno Reservoir (station number 06136500) since 1939. Diversions for irrigation of about 60,000 acres of which about 13,000 acres lie downstream from station. Bureau of Reclamation satellite telemeter at station.

Magnitude and probability of annual low flow
based on 20 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	23	5.3	1.5	0.00	--	--
3	30	8.9	3.1	.00	--	--
7	33	10	3.7	.00	--	--
14	36	17	9.8	.00	--	--
30	48	25	13	6.2	--	--
60	53	31	24	18	--	--
90	59	37	29	23	--	--
120	64	40	32	27	--	--
183	112	67	53	44	--	--

Magnitude and probability of seasonal low flow from
March-June based on 30 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	49	16	8.2	4.6	2.3	--
3	62	20	10	5.8	2.9	--
7	70	25	13	7.9	4.2	--
14	89	43	31	24	18	--
30	150	67	45	32	22	--

Magnitude and probability of seasonal low flow from
November-February based on 20 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	32	19	15	12	--	--
3	35	21	16	13	--	--
7	39	23	18	14	--	--
14	43	26	20	16	--	--
30	57	32	25	20	--	--

Duration of daily mean flows based on 21 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
14	20	31	41	65	89	130	244
40%	30%	20%	15%	10%	5%	2%	1%
350	451	567	652	736	1,050	1,930	2,910

Magnitude and probability of annual high flow
based on 21 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	1,450	3,450	5,810	10,700	--	--
3	1,320	3,060	5,080	9,240	--	--
7	1,160	2,560	4,150	7,320	--	--
15	957	1,940	2,990	4,980	--	--
30	799	1,480	2,170	3,470	--	--
60	650	1,110	1,560	2,360	--	--
90	595	1,000	1,390	2,080	--	--

Magnitude and probability of seasonal low flow from
July-October based on 29 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	71	16	4.5	0.62	0.00	--
3	78	21	7.4	1.4	.00	--
7	87	25	8.7	1.8	.00	--
14	94	34	17	6.4	.00	--
30	145	49	22	10	3.9	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	949	37	209	194	30
November	289	31	94	67	21
December	198	26	72	43	21
January	139	19	69	32	21
February	200	26	85	44	21
March	2,290	37	436	555	30
April	2,940	54	576	762	30
May	3,510	129	669	590	30
June	1,510	232	596	268	30
July	2,480	138	576	396	30
August	726	19	399	177	30
September	1,910	32	354	338	30
Annual	857	139	350	201	21

**06154400 Peoples Creek near Hays, Mont.
Site Number 117**

LOCATION.--Lat 48°13'25", long 108°42'48" (NAD 27), in SW¼ sec.35, T.29 N., R.23 E., Blaine County, Hydrologic Unit 10050009, on right bank 45 ft downstream from bridge on State Highway 66, 2.5 mi downstream from Myrtle Creek, 16.4 mi north of Hays, and at river mile 47.2.

DRAINAGE AREA.--220 mi².

PERIOD OF RECORD.--December 1966 to current year (2002).

GAGE.--Water-stage recorder. Altitude of gage is 2,714.10 ft (NGVD 29).

REMARKS.--Some storage in numerous stock and beaver ponds and diversions for irrigation of about 1,300 acres upstream from station. Bureau of Indian Affairs satellite telemeter at station.

Magnitude and probability of annual low flow
based on 35 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	0.00	--
3	.00	.00	.00	.00	.00	--
7	.00	.00	.00	.00	.00	--
14	.00	.00	.00	.00	.00	--
30	.01	.00	.00	.00	.00	--
60	.05	.00	.00	.00	.00	--
90	.13	.01	.00	.00	.00	--
120	.20	.01	.00	.00	.00	--
183	.41	.03	.00	.00	.00	--

Magnitude and probability of seasonal low flow from
March-June based on 36 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.12	0.00	0.00	0.00	0.00	--
3	.19	.00	.00	.00	.00	--
7	.32	.02	.00	.00	.00	--
14	.77	.07	.01	.00	.00	--
30	2.6	.25	.05	.01	.00	--

Magnitude and probability of seasonal low flow from
November-February based on 35 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	0.00	--
3	.00	.00	.00	.00	.00	--
7	.00	.00	.00	.00	.00	--
14	.04	.00	.00	.00	.00	--
30	.14	.00	.00	.00	.00	--

Duration of daily mean flows based on 35 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.02	0.04	0.10	0.21	0.42	0.63	0.84	1.3
40%	30%	20%	15%	10%	5%	2%	1%
3.7	6.5	11	15	23	47	106	175

Magnitude and probability of annual high flow
based on 35 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	88	325	630	1,260	1,950	--
3	75	275	527	1,030	1,560	--
7	58	205	383	724	1,080	--
15	40	139	252	461	668	--
30	29	95	165	286	398	--
60	21	67	112	185	247	--
90	18	55	90	141	182	--

Magnitude and probability of seasonal low flow from
July-October based on 35 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	0.00	--
3	.00	.00	.00	.00	.00	--
7	.00	.00	.00	.00	.00	--
14	.00	.00	.00	.00	.00	--
30	.02	.00	.00	.00	.00	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	37	0.00	3.5	7.1	35
November	20	.00	3.4	4.7	35
December	13	.00	2.8	3.6	36
January	30	.00	3.6	6.3	36
February	75	.00	9.2	18	36
March	285	.00	29	54	36
April	122	.05	18	25	36
May	190	.01	31	51	36
June	123	.03	21	31	36
July	52	.00	8.4	13	36
August	21	.00	2.4	5.3	36
September	58	.00	3.7	10	36
Annual	48	.10	11	13	35

**06154410 Little Peoples Creek near Hays, Mont.
Site Number 118**

LOCATION.--Lat 47°57'58", long 108°39'36" (NAD 27), in SE¼SE¼NW¼ sec.32, T.26 N., R.24 E., Blaine County, Hydrologic Unit 10050009, on right bank 0.5 mi upstream from west entrance to Mission Canyon, 2 mi southeast of Hays, and at river mile 23.1.

DRAINAGE AREA.--13.0 mi².

PERIOD OF RECORD.--August 1972 to current year (2002).

REVISED RECORDS.--WDR MT-81-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Altitude of gage is 3,769.72 ft (NGVD 29). August 1972 to June 24, 1976, gage at former site at datum 10.00 ft higher. Prior to Apr. 22, 1987, gage located 330 ft downstream.

REMARKS.--No known regulation or diversion upstream from station.

Magnitude and probability of annual low flow
based on 29 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1.3	1.0	0.88	0.78	0.68	--
3	1.3	1.0	.90	.81	.71	--
7	1.3	1.1	.93	.83	.74	--
14	1.4	1.1	.98	.89	.80	--
30	1.5	1.2	1.0	.93	.84	--
60	1.7	1.3	1.1	1.0	.88	--
90	1.8	1.3	1.2	1.0	.91	--
120	1.8	1.4	1.2	1.1	.96	--
183	1.9	1.4	1.3	1.1	1.0	--

Magnitude and probability of seasonal low flow from
March-June based on 30 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1.5	1.1	0.97	0.85	0.74	--
3	1.6	1.2	1.0	.89	.78	--
7	1.6	1.2	1.0	.93	.81	--
14	1.7	1.3	1.1	1.0	.90	--
30	1.9	1.4	1.2	1.1	.96	--

Magnitude and probability of seasonal low flow from
November-February based on 30 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1.4	1.1	0.98	0.89	0.80	--
3	1.5	1.1	.99	.89	.80	--
7	1.5	1.2	1.0	.91	.81	--
14	1.5	1.2	1.0	.92	.82	--
30	1.6	1.2	1.1	.94	.83	--

Duration of daily mean flows based on 30 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.90	1.0	1.2	1.4	1.6	1.8	2.0	2.3
40%	30%	20%	15%	10%	5%	2%	1%
2.7	3.3	4.4	5.3	7.1	12	22	35

Magnitude and probability of annual high flow
based on 30 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	32	84	139	236	331	--
3	25	63	104	177	251	--
7	18	45	74	128	184	--
15	14	32	51	86	122	--
30	11	23	36	57	79	--
60	8.5	17	25	38	50	--
90	7.0	13	19	28	36	--

Magnitude and probability of seasonal high flow from
July-October based on 29 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1.7	1.3	1.2	1.1	1.0	--
3	1.7	1.3	1.2	1.1	1.0	--
7	1.7	1.4	1.2	1.1	1.1	--
14	1.8	1.4	1.3	1.2	1.1	--
30	1.8	1.4	1.3	1.2	1.1	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	6.9	1.1	2.4	1.2	30
November	4.6	1.1	2.2	.88	30
December	3.8	.93	2.0	.73	30
January	3.8	.90	1.9	.72	30
February	3.5	.95	1.8	.64	30
March	5.5	1.1	2.3	1.2	30
April	22	1.2	4.6	4.4	30
May	76	1.5	12	16	30
June	27	2.0	8.4	6.4	30
July	33	1.4	5.4	5.8	30
August	8.1	1.2	3.0	1.5	31
September	8.4	1.1	2.6	1.6	31
Annual	12	1.5	4.1	2.4	30

**06154430 Lodge Pole Creek at Lodge Pole, Mont.
Site Number 119**

LOCATION.--Lat 48°01'52", long 108°31'55" (NAD 27), in SE¼SE¼SW¼ sec.5, T.26 N., R.25 E., Blaine County, Hydrologic Unit 10050009, Fort Belknap Indian Reservation, 10 ft upstream from culvert in county road just south of Lodge Pole and 8 mi northeast of Hays.

DRAINAGE AREA.--19.5 mi².

PERIOD OF RECORD.--March 1987 to October 2000 (discontinued).

GAGE.--Water-stage recorder and crest-stage gage. Altitude of gage is 3,420 ft (NGVD 29, from topographic map).

REMARKS.--No known diversion for irrigation upstream from station.

Magnitude and probability of annual low flow
based on 13 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.32	0.12	0.06	0.03	--	--
3	.34	.14	.07	.04	--	--
7	.38	.15	.08	.04	--	--
14	.40	.16	.09	.05	--	--
30	.44	.18	.10	.05	--	--
60	.57	.24	.13	.07	--	--
90	.88	.47	.29	.18	--	--
120	1.1	.65	.41	.25	--	--
183	1.5	.85	.51	.30	--	--

Magnitude and probability of seasonal low flow from
March-June based on 14 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.42	0.15	0.08	0.04	--	--
3	.44	.17	.09	.05	--	--
7	.48	.19	.11	.06	--	--
14	.52	.21	.12	.06	--	--
30	.59	.24	.13	.08	--	--

Magnitude and probability of seasonal low flow from
November-February based on 13 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.63	0.30	0.17	0.09	--	--
3	.67	.34	.19	.11	--	--
7	.74	.38	.22	.12	--	--
14	.79	.41	.24	.14	--	--
30	.88	.46	.27	.15	--	--

Duration of daily mean flows based on 13 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.03	0.05	0.13	0.26	0.51	0.77	1.0	1.4
40%	30%	20%	15%	10%	5%	2%	1%
1.7	2.2	2.8	3.5	4.8	9.8	20	31

Magnitude and probability of annual high flow
based on 13 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	44	94	123	152	--	--
3	30	65	87	111	--	--
7	18	42	61	84	--	--
15	13	30	43	61	--	--
30	9.8	22	32	45	--	--
60	7.2	15	21	29	--	--
90	5.8	11	16	21	--	--

Magnitude and probability of seasonal low flow from
July-October based on 14 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1.1	0.43	0.23	0.12	--	--
3	1.2	.47	.25	.14	--	--
7	1.2	.50	.27	.14	--	--
14	1.4	.55	.29	.15	--	--
30	1.5	.59	.31	.17	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	2.8	0.23	1.8	0.83	14
November	2.3	.21	1.6	.55	13
December	1.8	.14	1.1	.40	13
January	1.8	.10	1.0	.43	13
February	1.6	.07	.82	.37	13
March	4.6	.07	1.1	1.1	14
April	5.8	.04	1.5	1.8	14
May	18	.32	5.2	5.8	14
June	21	.29	7.4	7.1	14
July	29	.30	5.5	7.4	14
August	8.1	.12	2.5	2.0	14
September	3.6	.18	1.9	1.0	14
Annual	4.6	.55	2.7	1.5	13

**06154550 Peoples Creek below Kuhr Coulee, near Dodson, Mont.
Site Number 120**

LOCATION.--Lat 48°21'49", long 108°21'16" (NAD 27), in NW¼NW¼NE¼ sec.16, T.30 N., R.26 E., Phillips County, Hydrologic Unit 10050009, on right bank 10 ft downstream from bridge on county highway, 2.4 mi downstream from Kuhr Coulee, 5.5 mi southwest of Dodson, and at river mile 7.8.

DRAINAGE AREA.--675 mi².

PERIOD OF RECORD.--April 1918 to November 1921 (fragmentary), June 1951 to September 1973, October 1981 to September 1988, published as "near Dodson," October 1988 to current year (2002). Monthly discharge only for some periods, published in WSP 1309.

GAGE.--Water-stage recorder. Altitude of gage is 2,309.18 ft (NGVD 29, levels by Bureau of Indian Affairs). Prior to June 1951, nonrecording gage at site 0.5 mi upstream at different datum. June 1, 1951, to Sept. 30, 1988, water-stage recorder at sites 2.5 mi upstream at different datum.

REMARKS.--Diversions for irrigation of about 3,300 acres upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 41 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	0.00	--
3	.00	.00	.00	.00	.00	--
7	.00	.00	.00	.00	.00	--
14	.00	.00	.00	.00	.00	--
30	.00	.00	.00	.00	.00	--
60	.02	.00	.00	.00	.00	--
90	.42	.00	.00	.00	.00	--
120	1.3	.03	.00	.00	.00	--
183	1.8	.07	.00	.00	.00	--

Magnitude and probability of seasonal low flow from
March-June based on 43 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.25	0.00	0.00	0.00	0.00	--
3	.44	.00	.00	.00	.00	--
7	.98	.00	.00	.00	.00	--
14	2.3	.03	.00	.00	.00	--
30	5.8	.47	.07	.01	.00	--

Magnitude and probability of seasonal low flow from
November-February based on 43 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	0.00	--
3	.00	.00	.00	.00	.00	--
7	.00	.00	.00	.00	.00	--
14	.00	.00	.00	.00	.00	--
30	.16	.00	.00	.00	.00	--

Duration of daily mean flows based on 43 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.03	0.05	0.13	0.26	0.51	0.77	1.1	2.9
40%	30%	20%	15%	10%	5%	2%	1%
6.0	11	21	30	46	101	261	473

Magnitude and probability of annual high flow
based on 43 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	411	1,230	2,170	3,960	5,830	--
3	311	953	1,710	3,200	4,780	--
7	222	674	1,190	2,150	3,130	--
15	144	423	726	1,270	1,800	--
30	92	265	445	756	1,050	--
60	61	171	282	466	635	--
90	48	131	210	337	450	--

Magnitude and probability of seasonal high flow from
July-October based on 43 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	0.00	--
3	.00	.00	.00	.00	.00	--
7	.00	.00	.00	.00	.00	--
14	.00	.00	.00	.00	.00	--
30	.01	.00	.00	.00	.00	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	195	0.00	8.6	29	44
November	64	.00	5.8	10	44
December	62	.00	4.6	10	43
January	64	.00	5.3	12	43
February	369	.00	31	67	43
March	384	.00	79	102	43
April	520	.57	55	107	46
May	575	.09	54	111	47
June	332	.00	42	66	48
July	128	.00	23	34	48
August	31	.00	3.4	6.1	47
September	480	.00	13	69	48
Annual	131	1.0	27	29	43

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06155030 Milk River near Dodson, Mont. Site Number 121

LOCATION.--Lat 48°24'11", long 108°17'35" (NAD 27), in NE¼SE¼NW¼ sec.36, T.31 N., R.26 E., Phillips County, Hydrologic Unit 10050004, on left bank 30 ft downstream from U.S. Highway 2 bridge, 0.95 mi downstream from Dodson Dam, 1.9 mi west of Dodson, and at river mile 273.2.

DRAINAGE AREA.--11,192 mi².

PERIOD OF RECORD.--October 1982 to current year (2002; seasonal record beginning water year 1994).

GAGE.--Water-stage recorder. Altitude of gage is 2,250 ft (NGVD 29).

REMARKS.--Numerous diversions for irrigation upstream from station. Bureau of Reclamation satellite telemeter at station.

Magnitude and probability of annual low flow
based on 10 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	--	--
3	.00	.00	.00	.00	--	--
7	.29	.00	.00	.00	--	--
14	.96	.07	.00	.00	--	--
30	3.5	.72	.27	.11	--	--
60	14	7.2	5.1	3.8	--	--
90	24	12	8.1	5.9	--	--
120	34	21	18	16	--	--
183	42	28	25	24	--	--

Magnitude and probability of seasonal low flow from
March-June based on 20 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3.1	0.53	0.00	0.00	--	--
3	4.0	.96	.41	.00	--	--
7	5.3	1.5	.76	.45	--	--
14	7.8	2.2	1.2	.70	--	--
30	13	4.0	2.3	1.5	--	--

Magnitude and probability of seasonal low flow from
November-February based on 11 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	27	7.7	1.5	0.00	--	--
3	37	16	5.5	.00	--	--
7	39	17	5.7	.00	--	--
14	45	19	9.1	.23	--	--
30	49	29	22	17	--	--

Duration of daily mean flows based on 11 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.35	0.70	2.7	5.7	13	21	33	49
40%	30%	20%	15%	10%	5%	2%	1%
69	94	162	232	395	738	1,630	2,850

Magnitude and probability of annual high flow
based on 11 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	1,020	3,610	7,480	--	--	--
3	937	3,270	6,750	--	--	--
7	764	2,580	5,210	--	--	--
15	544	1,620	3,000	--	--	--
30	357	975	1,730	--	--	--
60	249	617	1,050	--	--	--
90	210	511	859	--	--	--

Magnitude and probability of seasonal low flow from
July-October based on 19 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2.0	0.00	0.00	0.00	--	--
3	2.8	.00	.00	.00	--	--
7	3.2	.09	.00	.00	--	--
14	4.7	.65	.16	.00	--	--
30	8.5	2.2	1.1	.61	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	2,690	5.1	203	604	20
November	421	25	106	108	11
December	275	17	78	70	11
January	230	18	83	61	11
February	526	20	130	142	11
March	2,250	16	449	693	20
April	1,690	2.3	197	443	20
May	1,680	3.4	190	366	20
June	655	16	244	215	20
July	599	8.7	181	161	20
August	362	6.7	67	78	20
September	1,730	.71	135	396	20
Annual	524	37	163	162	11

**06155500 Milk River at Malta, Mont.
Site Number 122**

LOCATION.--Lat 48°21'43", long 107°51'46" (NAD 27), in NW¼ sec.17, T.30 N., R.30 E. Phillips County, at the old highway bridge at Malta.

DRAINAGE AREA.--11,762 mi².

PERIOD OF RECORD.--14 years (1902-16).

GAGE.--Chain gage. Altitude of gage is 2,221.40 ft (NGVD 29).

REMARKS.--Many large diversions for irrigation upstream from station. Flow has been increased by water from the St. Mary Canal since 1917.

Magnitude and probability of annual low flow
based on 9 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	--	--	--	--	--	--
3	--	--	--	--	--	--
7	--	--	--	--	--	--
14	--	--	--	--	--	--
30	--	--	--	--	--	--
60	--	--	--	--	--	--
90	--	--	--	--	--	--
120	--	--	--	--	--	--
183	--	--	--	--	--	--

Magnitude and probability of seasonal low flow from
March-June based on 13 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	54	6.5	0.84	0.00	--	--
3	61	7.2	.86	.00	--	--
7	74	8.5	.90	.00	--	--
14	80	11	1.6	.00	--	--
30	122	20	5.9	1.8	--	--

Magnitude and probability of seasonal low flow from
November-February based on 11 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	43	13	0.00	0.00	--	--
3	44	14	.00	.00	--	--
7	44	15	.00	.00	--	--
14	47	15	1.3	.00	--	--
30	47	15	3.8	.00	--	--

Duration of daily mean flows based on 11 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.09	0.18	0.44	0.89	23	52	79	114
40%	30%	20%	15%	10%	5%	2%	1%
184	262	501	840	1,260	1,980	4,110	5,830

Magnitude and probability of annual high flow
based on 11 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	4,550	8,140	10,300	--	--	--
3	4,330	7,700	9,650	--	--	--
7	3,880	6,850	8,450	--	--	--
15	3,180	5,470	6,670	--	--	--
30	2,460	3,800	4,330	--	--	--
60	1,690	2,540	2,810	--	--	--
90	1,260	1,950	2,200	--	--	--

Magnitude and probability of seasonal low flow from
July-October based on 9 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	--	--	--	--	--	--
3	--	--	--	--	--	--
7	--	--	--	--	--	--
14	--	--	--	--	--	--
30	--	--	--	--	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	392	82	183	94	10
November	292	21	141	72	11
December	200	15	86	48	11
January	220	5.0	63	55	12
February	1,250	5.0	229	388	12
March	3,980	80	855	1,070	13
April	6,430	10	1,810	2,100	13
May	1,830	5.3	643	643	13
June	2,260	25	855	782	13
July	2,440	1.1	495	655	13
August	423	1.0	183	142	13
September	1,740	12	277	489	11
Annual	983	55	446	260	11

**06164510 Milk River at Juneberg Bridge, near Saco, Mont.
Site Number 123**

LOCATION.--Lat 48°30'32", long 107°13'02" (NAD 27), in NE¼NE¼ sec.30, T.32 N., R.35 E., Phillips County, Hydrologic Unit 10050014, on left bank 25 ft upstream from Juneberg bridge on Phillips County road, 1.5 mi downstream from Frenchman River, 6.9 mi northeast of Saco, and at river mile 152.3.

DRAINAGE AREA.--17,670 mi².

PERIOD OF RECORD.--October 1977 to current year (2002).

GAGE.--Water-stage recorder. Altitude of gage is 2,130 ft (NGVD 29).

REMARKS.--Flow increased during irrigation season by water from St. Mary Canal which diverts from the St. Mary River near Babb (station number 05017500).

Flow regulated by Fresno Reservoir (station number 06136500), two reservoirs in Lodge Creek basin in Saskatchewan (station numbers 06144260 and 06144360), and four reservoirs in Frenchman River basin in Saskatchewan. Many small dams are used to divert water for irrigation upstream from station.

U.S. Army Corps of Engineers satellite telemeter at station.

Magnitude and probability of annual low flow
based on 24 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	51	25	14	7.8	--	--
3	53	27	16	9.1	--	--
7	55	29	18	11	--	--
14	57	31	21	14	--	--
30	67	35	23	16	--	--
60	86	47	32	22	--	--
90	100	59	43	32	--	--
120	107	63	48	37	--	--
183	116	70	56	47	--	--

Magnitude and probability of seasonal low flow from
March-June based on 25 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	53	29	22	17	13	--
3	56	32	24	19	15	--
7	59	33	25	21	17	--
14	68	37	28	23	19	--
30	100	47	33	25	19	--

Magnitude and probability of seasonal low flow from
November-February based on 24 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	61	38	31	25	--	--
3	65	41	32	27	--	--
7	70	45	36	30	--	--
14	79	51	40	32	--	--
30	86	56	44	36	--	--

Duration of daily mean flows based on 25 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
20	25	35	49	70	97	124	153
40%	30%	20%	15%	10%	5%	2%	1%
182	233	326	433	721	1,380	3,130	5,510

Magnitude and probability of annual high flow
based on 25 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	2,090	6,060	10,400	18,300	26,300	--
3	1,950	5,710	9,900	17,600	25,500	--
7	1,650	5,020	8,960	16,600	24,700	--
15	1,250	3,910	7,220	14,100	21,800	--
30	897	2,600	4,630	8,730	13,300	--
60	642	1,730	2,960	5,350	7,920	--
90	549	1,420	2,380	4,180	6,080	--

Magnitude and probability of seasonal low flow from
July-October based on 24 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	73	32	17	8.9	--	--
3	75	33	18	10	--	--
7	77	35	20	12	--	--
14	80	37	23	15	--	--
30	92	41	26	17	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	4,040	25	296	798	25
November	597	60	155	108	25
December	406	45	122	77	25
January	271	33	119	62	25
February	1,760	49	223	343	25
March	4,080	47	1,010	1,290	25
April	6,220	38	778	1,470	25
May	2,540	56	470	653	25
June	2,260	103	484	461	25
July	1,840	30	423	367	25
August	693	9.4	240	140	25
September	1,520	23	242	341	25
Annual	1,040	70	381	316	25

**06169500 Rock Creek below Horse Creek, near international boundary
(hydrologic bench-mark station)
Site Number 124**

LOCATION.--Lat 48°58'10", long 106°50'20" (NAD 27), in NE¼NW¼ sec.15, T.37 N., R.37 E., Valley County, Hydrologic Unit 10050015, on right bank 2 mi south of international boundary, 3 mi downstream from Horse Creek, 21 mi northwest of Opheim, and at river mile 82.0.

DRAINAGE AREA.--328 mi².

PERIOD OF RECORD.--March 1916 to October 1926, September 1956 to current year (2002; seasonal records only prior to October 1978). Monthly discharge only for some periods, published in WSP 1309. Published as "Rock Creek near Barnard, Mt.", 1916-17. Prior to September 1956, records were collected at both Horse Creek (1914-56) and Rock Creek above Horse Creek (1914-56). Summations are equivalent to records at this site.

REVISED RECORDS.--WSP 1509: 1925(M), WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 2,530 ft (NGVD 29). March 1916 to October 1926, nonrecording gages at several sites within 500 ft upstream at different datum.

REMARKS.--Several small diversions for irrigation upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 24 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	--	--
3	.00	.00	.00	.00	--	--
7	.00	.00	.00	.00	--	--
14	.00	.00	.00	.00	--	--
30	.00	.00	.00	.00	--	--
60	.02	.00	.00	.00	--	--
90	.28	.03	.00	.00	--	--
120	.70	.23	.08	.02	--	--
183	.71	.30	.17	.10	--	--

Magnitude and probability of seasonal low flow from
March-June based on 55 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	0.00	0.00
3	.00	.00	.00	.00	.00	.00
7	.02	.00	.00	.00	.00	.00
14	.43	.00	.00	.00	.00	.00
30	3.1	.80	.19	.00	.00	.00

Magnitude and probability of seasonal low flow from
November-February based on 24 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	--	--
3	.00	.00	.00	.00	--	--
7	.00	.00	.00	.00	--	--
14	.00	.00	.00	.00	--	--
30	.00	.00	.00	.00	--	--

Duration of daily mean flows based on 24 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.03	0.05	0.13	0.26	0.51	0.77	1.1	1.9
40%	30%	20%	15%	10%	5%	2%	1%
3.0	5.2	10	16	30	85	260	550

Magnitude and probability of annual high flow
based on 24 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	436	1,090	1,620	2,360	--	--
3	323	864	1,370	2,170	--	--
7	206	550	892	1,460	--	--
15	126	324	522	857	--	--
30	79	197	311	501	--	--
60	46	109	170	271	--	--
90	34	78	119	186	--	--

Magnitude and probability of seasonal low flow from
July-October based on 56 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	0.00	0.00
3	.01	.00	.00	.00	.00	.00
7	.02	.00	.00	.00	.00	.00
14	.04	.00	.00	.00	.00	.00
30	.11	.00	.00	.00	.00	.00

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	58	0.00	3.4	7.9	57
November	2.8	.10	1.5	.72	24
December	2.2	.03	.75	.57	24
January	1.8	.00	.29	.46	24
February	96	.00	6.2	20	24
March	398	.00	82	107	55
April	487	4.0	102	127	57
May	89	1.5	17	19	57
June	172	.17	17	27	57
July	74	.00	11	18	57
August	15	.00	1.6	2.9	57
September	21	.00	1.8	3.5	57
Annual	37	1.9	14	12	24

**06172000 Milk River near Vandalia, Mont.
Site Number 125**

LOCATION.--Lat 48°22'21", long 106°58'25" (NAD 27), in SW¼SW¼NE¼ sec.7, T.30 N., R.37 E., Valley County, Hydrologic Unit 10050012, on right bank, just downstream from Vandalia Dam, 3.0 mi upstream from Long Coulee, 3.2 mi northwest of Vandalia, and at river mile 117.3.

DRAINAGE AREA.--20,926 mi². Area at site used October 1969 to September 1973, 20,944 mi².

PERIOD OF RECORD.--October 1914 to September 1925, August 1928 to September 1939, October 1969 to September 1973, October 1982 to May 31, 1987 (discontinued). April to May 1952, infrequent gage heights, published in WSP 1260-B. Monthly discharge only for some periods, published in WSP 1309.

Published as "at Vandalia" October 1969 to September 1973.

REVISED RECORDS.--WSP 1309: 1920(M). WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 2,090.00 ft (NGVD 29, from topographic map). October 1969 to September 1973, nonrecording gage 7.1 mi downstream at datum 5.00 ft lower.

REMARKS.--Since 1917, flow increased during irrigation season by water from St. Mary Canal which diverts from the St. Mary River near Babb. Flow regulated by Fresno and Nelson Reservoirs, five reservoirs in Lodge Creek basin in Saskatchewan, and four reservoirs in Frenchman River basin in Saskatchewan. Water is diverted at Vandalia Dam by canal, capacity about 300 ft³/s, for irrigation downstream. Diversions upstream from station for irrigation of about 126,000 acres of which about 18,000 acres lies downstream from station.

Magnitude and probability of annual low flow
based on 27 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2.0	0.00	0.00	0.00	0.00	--
3	3.1	.37	.00	.00	.00	--
7	5.4	.38	.01	.00	.00	--
14	8.5	1.7	.56	.09	.00	--
30	19	4.9	2.1	.93	.35	--
60	38	11	4.9	2.3	.84	--
90	58	24	14	8.0	4.1	--
120	74	29	16	9.6	5.0	--
183	93	39	25	16	10	--

Magnitude and probability of seasonal low flow from
March-June based on 28 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	13	1.2	0.14	0.00	0.00	--
3	15	1.6	.35	.05	.00	--
7	22	2.0	.41	.09	.01	--
14	28	4.1	1.3	.49	.15	--
30	88	12	3.5	1.1	.44	--

Magnitude and probability of seasonal low flow from
November-February based on 28 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	27	7.0	2.8	0.87	0.00	--
3	33	11	5.9	3.4	1.7	--
7	41	18	11	7.3	4.4	--
14	49	26	19	14	10	--
30	56	30	22	17	12	--

Duration of daily mean flows based on 28 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.84	1.6	4.4	12	34	58	82	114
40%	30%	20%	15%	10%	5%	2%	1%
165	250	517	877	1,410	2,970	5,970	9,150

Magnitude and probability of annual high flow
based on 28 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	7,090	16,500	23,100	30,900	36,100	--
3	6,320	15,300	21,600	28,900	33,600	--
7	5,320	13,200	18,900	25,700	30,100	--
15	3,880	9,780	14,300	19,900	23,800	--
30	2,530	6,320	9,240	13,000	15,600	--
60	1,690	4,080	5,890	8,180	9,790	--
90	1,420	3,210	4,450	5,890	6,840	--

Magnitude and probability of seasonal low flow from
July-October based on 27 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	5.1	0.94	0.00	0.00	0.00	--
3	6.3	1.5	.42	.00	.00	--
7	7.4	1.8	.56	.00	.00	--
14	12	3.5	1.6	.51	.00	--
30	26	7.6	3.7	2.0	.91	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	4,640	9.5	315	846	29
November	660	47	165	112	29
December	456	26	106	81	29
January	1,440	20	134	258	29
February	2,160	15	287	443	29
March	6,900	43	1,550	1,800	29
April	13,600	1.5	2,190	3,020	29
May	4,120	2.1	884	1,210	29
June	6,570	1.9	1,060	1,380	28
July	4,560	4.4	494	927	28
August	1,100	5.9	178	263	28
September	1,320	5.7	185	264	29
Annual	1,680	39	618	454	28

**06174500 Milk River at Nashua, Mont.
Site Number 126**

LOCATION.--Lat 48°07'47", long 106°21'50" (NAD 27), in NE¼NE¼ sec.1, T.27 N., R.41 E., Valley County, Hydrologic Unit 10050012, on right bank at downstream side of former highway bridge site, 0.6 mi southwest of Nashua, 2.0 mi upstream from Porcupine Creek, and at river mile 22.7.

DRAINAGE AREA.--22,332 mi².

PERIOD OF RECORD.--October 1939 to current year (2002).

REVISED RECORDS.--WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 2,027.75 ft (NGVD 29).

REMARKS.--Flow increased during irrigation season by water from St. Mary Canal which diverts from the St. Mary River near Babb. Flow regulated by Fresno Reservoir (station number 06136500), two reservoirs in Lodge Creek basin in Saskatchewan, and four reservoirs in Frenchman River basin in Saskatchewan. Diversions for irrigation of about 140,000 acres upstream from station. U.S. Army Corps of Engineers satellite telemeter at station.

Magnitude and probability of annual low flow
based on 62 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	44	12	3.1	0.00	0.00	0.00
3	54	15	4.4	.79	.00	.00
7	55	16	5.1	1.1	.00	.00
14	72	22	7.2	2.0	.06	.00
30	88	35	17	8.5	3.4	1.7
60	113	54	31	17	8.0	4.5
90	126	71	48	33	20	14
120	143	81	56	40	26	20
183	158	91	68	53	40	33

Magnitude and probability of seasonal low flow from
March-June based on 63 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	61	17	5.9	0.29	0.00	0.00
3	68	19	6.9	1.4	.00	.00
7	76	21	8.2	3.1	.30	.00
14	108	29	11	4.0	1.1	.40
30	165	54	28	15	7.3	4.3

Magnitude and probability of seasonal low flow from
November-February based on 62 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	73	48	38	32	26	22
3	77	51	41	34	28	24
7	84	55	44	37	30	26
14	92	61	48	40	32	28
30	105	70	55	45	36	31

Duration of daily mean flows based on 63 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
11	20	37	57	90	119	149	181
40%	30%	20%	15%	10%	5%	2%	1%
235	329	528	756	1,310	3,040	6,310	8,540

Magnitude and probability of annual high flow
based on 63 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	5,490	11,700	16,200	21,800	25,600	29,200
3	5,240	11,300	15,700	20,900	24,600	28,000
7	4,600	10,400	14,800	20,300	24,300	28,000
15	3,630	8,610	12,600	17,900	21,900	25,700
30	2,480	5,990	8,910	13,000	16,200	19,500
60	1,580	3,780	5,650	8,370	10,600	12,900
90	1,240	2,900	4,340	6,470	8,240	10,100

Magnitude and probability of seasonal low flow from
July-October based on 62 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	62	21	9.6	4.1	0.50	0.00
3	68	24	11	4.9	.64	.00
7	80	29	14	6.1	.82	.00
14	94	38	20	10	2.2	.00
30	142	54	26	13	5.0	2.4

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	6,840	34	307	849	63
November	768	61	213	134	63
December	487	40	158	78	63
January	843	36	147	112	63
February	2,340	39	241	324	63
March	6,680	56	1,270	1,490	63
April	20,900	15	2,220	3,400	63
May	5,210	10	995	1,400	63
June	6,610	28	957	1,100	63
July	3,580	3.6	671	770	63
August	1,750	3.4	310	291	63
September	2,140	13	276	319	63
Annual	2,360	58	647	485	63

**06176500 Wolf Creek near Wolf Point, Mont.
Site Number 127**

LOCATION.--Lat 48°05'47", long 105°40'41" (NAD 27), in NE¼SE¼NW¼ sec.17, T.27 N., R.47 E., Roosevelt County, Hydrologic Unit 10060001, on right bank 0.5 mi north of U.S. Highway 2, 1.5 mi west of Wolf Point, and at river mile 2.3.

DRAINAGE AREA.--251 mi².

PERIOD OF RECORD.--August 1908 to July 1914 (no winter records 1909, 1913-14), March 1950 to September 1953, water years 1954, 1956-73 (annual maximums), October 1981 to September 1992 (discontinued). Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 2,000 ft (NGVD 29, from topographic map). Prior to July 31, 1914, nonrecording gage at site 0.8 mi upstream at different datum. Aug. 1, 1914, to Sept. 30, 1953, water-stage recorder at same site and datum. May 1955 to September 1973, crest-stage gage at same site and datum.

REMARKS.--Minor diversion for irrigation upstream from station.

Magnitude and probability of annual low flow
based on 15 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	--	--
3	.00	.00	.00	.00	--	--
7	.00	.00	.00	.00	--	--
14	.00	.00	.00	.00	--	--
30	.00	.00	.00	.00	--	--
60	.00	.00	.00	.00	--	--
90	.00	.00	.00	.00	--	--
120	.00	.00	.00	.00	--	--
183	.02	.00	.00	.00	--	--

Magnitude and probability of seasonal low flow from
March-June based on 17 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	--	--
3	.00	.00	.00	.00	--	--
7	.00	.00	.00	.00	--	--
14	.05	.00	.00	.00	--	--
30	.51	.01	.00	.00	--	--

Magnitude and probability of seasonal low flow from
November-February based on 17 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	--	--
3	.00	.00	.00	.00	--	--
7	.00	.00	.00	.00	--	--
14	.00	.00	.00	.00	--	--
30	.00	.00	.00	.00	--	--

Duration of daily mean flows based on 17 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.02	0.03	0.08	0.16	0.32	0.48	0.64	0.80
40%	30%	20%	15%	10%	5%	2%	1%
0.96	1.8	4.2	6.3	9.6	21	64	113

Magnitude and probability of annual high flow
based on 17 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
	50%	20%	10%	4%	2%	1%
1	89	638	1,630	4,110	--	--
3	70	448	1,060	2,480	--	--
7	52	288	625	1,310	--	--
15	36	181	365	702	--	--
30	25	110	207	367	--	--
60	17	63	108	170	--	--
90	13	45	74	112	--	--

Magnitude and probability of seasonal low flow from
July-October based on 19 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	--	--
3	.00	.00	.00	.00	--	--
7	.00	.00	.00	.00	--	--
14	.00	.00	.00	.00	--	--
30	.00	.00	.00	.00	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	7.1	0.00	0.88	1.7	20
November	6.0	.00	.83	1.4	20
December	2.0	.00	.52	.73	18
January	1.1	.00	.24	.39	17
February	56	.00	4.3	13	17
March	143	.00	23	40	17
April	235	.10	28	55	21
May	20	.08	6.2	6.5	21
June	49	.00	7.1	12	21
July	45	.00	5.6	11	21
August	8.4	.00	.84	2.2	21
September	55	.00	3.0	12	21
Annual	21	.02	6.9	6.7	17

**06177000 Missouri River near Wolf Point, Mont.
Site Number 128**

LOCATION.--Lat 48°04'00", long 105°31'55" (NAD 27), in SW¼NW¼ sec.28, T.27 N., R.48 E., McCone County, Hydrologic Unit 10060001, on right bank 500 ft downstream from bridge on State Highway 13, 5 mi southeast of Wolf Point, 7.8 mi downstream from Wolf Creek, and at river mile 1,701.4.

DRAINAGE AREA.--82,290 mi².

PERIOD OF RECORD.--September 1928 to current year (2002).

REVISED RECORDS.--WSP 1146: 1931. WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 1,958.57 ft (NGVD 29). Prior to Apr. 13, 1930, nonrecording gages at Wolf Point ferry landing 5.5 mi upstream at different datum.

REMARKS.--Flow partly regulated by Fort Peck Lake and many other reservoirs upstream from station. Diversion for irrigation of about 1,010,400 acres upstream from station. U.S. Army Corps of Engineers satellite telemeter at station.

Magnitude and probability of annual low flow
based on 57 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4,370	2,560	1,800	1,300	862	638
3	4,620	2,760	1,970	1,440	970	728
7	4,880	2,980	2,170	1,620	1,120	856
14	5,090	3,240	2,450	1,890	1,380	1,100
30	5,500	3,690	2,880	2,300	1,750	1,440
60	6,430	4,330	3,360	2,650	1,960	1,580
90	7,190	4,860	3,720	2,890	2,100	1,660
120	7,940	5,400	4,110	3,160	2,250	1,740
183	8,820	6,400	5,280	4,450	3,620	3,120

Magnitude and probability of seasonal low flow from
March-June based on 58 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	5,160	3,060	2,190	1,600	1,090	822
3	5,400	3,230	2,320	1,700	1,160	878
7	5,680	3,430	2,480	1,830	1,260	954
14	5,950	3,680	2,730	2,070	1,480	1,160
30	6,490	4,170	3,180	2,490	1,850	1,490

Magnitude and probability of seasonal low flow from
November-February based on 57 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	5,570	3,180	2,180	1,530	974	699
3	5,820	3,360	2,340	1,670	1,090	793
7	6,100	3,580	2,530	1,830	1,220	904
14	6,470	3,870	2,770	2,030	1,420	1,130
30	7,200	4,520	3,320	2,470	1,780	1,470

Duration of daily mean flows based on 58 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time								
99%	98%	95%	90%	80%	70%	60%	50%	
1,430	2,260	3,580	4,670	6,190	7,140	8,090	9,220	
40%	30%	20%	15%	10%	5%	2%	1%	
10,700	12,200	14,300	15,400	16,500	21,400	27,700	31,800	

Magnitude and probability of annual high flow
based on 58 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	18,400	25,200	29,900	36,100	40,900	45,900
3	18,000	24,600	29,100	35,200	39,900	44,700
7	17,400	23,800	28,200	33,900	38,400	43,000
15	16,600	22,900	27,200	33,000	37,400	42,100
30	15,600	21,500	25,700	31,300	35,700	40,300
60	14,300	19,400	23,000	27,800	31,500	35,300
90	13,300	17,500	20,400	24,200	27,000	29,900

Magnitude and probability of seasonal low flow from
July-October based on 57 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	5,840	3,640	2,800	2,230	1,720	1,440
3	6,200	3,870	2,970	2,360	1,810	1,500
7	6,560	4,070	3,110	2,460	1,870	1,540
14	6,860	4,280	3,290	2,610	2,000	1,660
30	7,720	4,810	3,660	2,880	2,160	1,770

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	29,100	3,150	11,400	7,090	58
November	22,200	2,330	9,170	4,130	58
December	12,100	1,500	9,070	2,350	58
January	14,300	1,420	9,880	3,100	58
February	15,800	1,350	10,200	3,960	58
March	16,800	2,300	9,110	3,680	58
April	27,200	1,470	9,720	5,030	58
May	21,800	1,180	9,510	4,120	58
June	26,000	1,270	9,630	4,460	58
July	36,300	1,170	10,600	5,450	58
August	27,100	3,520	12,000	5,790	58
September	27,200	3,270	11,700	6,540	58
Annual	15,800	5,630	10,200	2,790	58

**06177500 Redwater River at Circle, Mont.
Site Number 129**

LOCATION.--Lat 47°24'51", long 105°34'30" (NAD 27), in SW¼SW¼ sec.11, T.19 N., R.48 E., McCone County, Hydrologic Unit 10060002, on left bank at Circle, 1 mi upstream from Horse Creek, and at river mile 110.2.

DRAINAGE AREA.--547 mi².

PERIOD OF RECORD.--April to November 1929, March to November 1930, July 1931 to December 1932, March to June 1933, February to November 1934, April 1935 to December 1936, April 1937 to June 1972, October 1974 to current year (2002). Monthly discharge only for some periods, published in WSP 1309. Prior to October 1967, published as "Redwater Creek at Circle."

REVISED RECORDS.--WSP 1006: 1929-30, 1932-33, 1935-39. WSP 1509: 1929, 1934. WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Sharp-crested weir since Sept. 24, 1938. Altitude of gage is 2,394.32 ft (NGVD 29, levels by U.S. Army Corps of Engineers).

Prior to June 1, 1941, and Mar. 23, 1943, to Feb. 16, 1948, nonrecording gage at site 0.3 mi upstream at same datum. June 1, 1941, to Mar. 22, 1943, nonrecording gage at site 200 ft upstream at datum 2.8 ft lower. Feb. 26, 1948, to May 7, 1950, nonrecording gage at site 200 ft upstream at present datum.

REMARKS.--Diversions for irrigation of about 1,200 acres upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 61 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	0.00	0.00
3	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	.00
30	.00	.00	.00	.00	.00	.00
60	.02	.00	.00	.00	.00	.00
90	.04	.00	.00	.00	.00	.00
120	.06	.01	.00	.00	.00	.00
183	.08	.02	.01	.00	.00	.00

Magnitude and probability of seasonal low flow from
March-June based on 68 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.05	0.00	0.00	0.00	0.00	0.00
3	.07	.00	.00	.00	.00	.00
7	.14	.02	.00	.00	.00	.00
14	.25	.05	.01	.00	.00	.00
30	.59	.15	.07	.03	.01	.01

Magnitude and probability of seasonal low flow from
November-February based on 65 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	0.00	0.00
3	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	.00
30	.02	.00	.00	.00	.00	.00

Duration of daily mean flows based on 64 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.01	0.03	0.07	0.14	0.29	0.43	0.58	0.72
40%	30%	20%	15%	10%	5%	2%	1%
0.87	1.1	2.4	3.9	7.1	20	86	230

Magnitude and probability of annual high flow
based on 64 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	252	1,350	2,900	6,070	9,390	13,500
3	184	909	1,870	3,740	5,610	7,870
7	118	526	1,030	1,950	2,820	3,830
15	71	290	545	989	1,400	1,860
30	43	164	295	513	704	913
60	26	93	162	269	359	454
90	19	67	113	185	243	303

Magnitude and probability of seasonal low flow from
July-October based on 69 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	0.00	0.00
3	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	.00
30	.02	.00	.00	.00	.00	.00

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	19	0.00	0.52	2.3	70
November	7.1	.00	.37	.94	70
December	8.6	.00	.44	1.2	67
January	6.1	.00	.36	.92	65
February	141	.00	15	32	66
March	476	.05	73	112	68
April	418	.07	17	56	70
May	32	.02	3.7	5.4	71
June	167	.00	15	31	71
July	116	.00	11	26	70
August	37	.00	2.0	6.0	70
September	139	.00	2.4	17	70
Annual	62	.04	12	13	64

**06178500 East Poplar River at international boundary
(International gaging station)
Site Number 130**

LOCATION.--Lat 49°00'00", long 105°24'32" (NAD 27), in SW¼SW¼ sec.3, T.1 N., R.26 W., second meridian, in Saskatchewan, Hydrologic Unit 10060003, on left bank 10 ft north of international boundary, 400 ft southwest of Canadian East Poplar Port of Entry, 14 mi north of Scooby, Mont., and at river mile 21.9. DRAINAGE AREA.--541 mi².

PERIOD OF RECORD.--March 1931 to current year (2002; seasonal records only in most seasons prior to October 1974). Prior to March 1962, published as "East Fork Poplar River at international boundary."

REVISED RECORDS.--WSP 1389: 1932, 1939, 1942-43, 1947. WDR-MT-83: Drainage area.

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 2,410.92 ft (International Boundary Commission Survey Datum). Prior to Oct. 5, 1953, water-stage recorder at site 80 ft upstream at same datum.

REMARKS.--U.S. Geological Survey satellite telemeter at station. After September 1975 flow regulated by Morrison Dam at Cookson Reservoir 3.1 mi upstream.

Magnitude and probability of annual low flow
based on 27 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1.4	1.0	0.85	0.72	0.60	--
3	1.5	1.2	1.0	.87	.75	--
7	1.7	1.3	1.1	.93	.78	--
14	1.8	1.3	1.1	.98	.82	--
30	2.0	1.5	1.3	1.1	.94	--
60	2.0	1.6	1.4	1.3	1.1	--
90	2.1	1.7	1.6	1.5	1.4	--
120	2.1	1.8	1.7	1.6	1.5	--
183	2.3	1.9	1.8	1.6	1.5	--

Magnitude and probability of seasonal low flow from
March-June based on 27 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1.8	1.4	1.1	0.96	0.77	--
3	2.0	1.5	1.3	1.1	.91	--
7	2.1	1.7	1.4	1.2	1.0	--
14	2.4	1.8	1.6	1.3	1.1	--
30	2.8	2.0	1.8	1.7	1.6	--

Magnitude and probability of seasonal low flow from
November-February based on 27 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1.6	1.0	0.87	0.73	0.43	--
3	1.7	1.2	1.0	.89	.51	--
7	1.8	1.3	1.1	.95	.58	--
14	1.9	1.4	1.2	1.0	.63	--
30	2.0	1.6	1.3	1.1	.68	--

Duration of daily mean flows based on 27 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.55	1.0	1.5	1.6	2.0	2.2	2.4	2.6
40%	30%	20%	15%	10%	5%	2%	1%
2.8	3.4	3.9	5.1	7.9	21	66	145

Magnitude and probability of annual high flow
based on 27 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	23	116	345	1,340	3,610	--
3	20	98	285	1,070	2,810	--
7	18	83	230	809	2,010	--
15	15	63	157	480	1,080	--
30	13	46	105	292	609	--
60	9.4	31	69	180	360	--
90	7.7	24	51	127	248	--

Magnitude and probability of seasonal low flow from
July-October based on 27 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1.8	1.4	1.2	0.99	0.83	--
3	1.9	1.5	1.4	1.3	1.1	--
7	2.0	1.7	1.5	1.4	1.3	--
14	2.1	1.8	1.6	1.5	1.4	--
30	2.2	1.8	1.7	1.6	1.4	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	4.6	0.76	2.5	0.74	27
November	4.4	.58	2.4	.68	27
December	4.4	.63	2.2	.69	27
January	4.4	1.3	2.2	.69	27
February	8.0	.93	2.8	1.5	27
March	280	1.9	27	60	27
April	306	1.8	30	71	27
May	41	3.0	12	9.4	27
June	101	1.7	8.9	19	27
July	109	1.8	6.8	20	27
August	14	1.6	2.8	2.3	27
September	4.1	1.5	2.5	.57	27
Annual	51	2.1	8.5	12	27

**06181000 Poplar River near Poplar, Mont.
Site Number 131**

LOCATION.--Lat 48°10'15", long 105°10'42" (NAD 27), in NE¼NE¼ sec.19, T.28 N., R.51 E., Roosevelt County, Hydrologic Unit 10060003, on right bank 4 mi north of Poplar, and at river mile 11.0.

DRAINAGE AREA.--3,174 mi².

PERIOD OF RECORD.--August 1908 to October 1924, August 1947 to September 1969, June 1975 to September 1979, October 1981 to current year (2002).

Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1176: 1948. WSP 1389: 1911. WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 1,953.16 ft (NGVD 29). Prior to May 1, 1911, nonrecording gage at site 4.2 mi upstream at different datum.

May 1, 1911, to Oct. 4, 1913, nonrecording gage at site 14 mi upstream at different datum. Oct. 5, 1913, to Oct. 31, 1924, nonrecording gage at site 2.2 mi upstream at different datum. Aug. 10, 1947, to Sept. 30, 1969, water-stage recorder at present site and datum.

REMARKS.--Diversions for irrigation of about 5,500 acres upstream from station. Flow partially regulated by Coronach Dam, on the East Fork Poplar River, 2 mi north of international boundary. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 60 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1.0	0.10	0.00	0.00	0.00	0.00
3	1.1	.13	.00	.00	.00	.00
7	1.3	.16	.00	.00	.00	.00
14	1.8	.24	.03	.00	.00	.00
30	2.9	.41	.10	.02	.00	.00
60	4.8	1.2	.48	.21	.07	.03
90	8.7	3.6	2.1	1.3	.68	.43
120	13	6.5	4.3	3.0	1.9	1.4
183	16	8.2	5.4	3.8	2.4	1.8

Magnitude and probability of seasonal low flow from
March-June based on 63 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	6.7	1.2	0.41	0.14	0.01	0.00
3	7.0	1.3	.42	.14	.01	.00
7	8.4	1.5	.53	.20	.06	.03
14	13	2.9	1.1	.45	.15	.07
30	40	12	4.5	1.8	.51	.20

Magnitude and probability of seasonal low flow from
November-February based on 63 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2.5	0.36	0.05	0.00	0.00	0.00
3	2.6	.43	.10	.00	.00	.00
7	2.9	.51	.13	.00	.00	.00
14	3.3	.61	.18	.04	.00	.00
30	4.2	.91	.31	.11	.01	.00

Duration of daily mean flows based on 63 years of record

Discharge, in ft ³ /s, which was equalled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.18	0.36	0.89	2.9	7.5	12	17	23
40%	30%	20%	15%	10%	5%	2%	1%
33	49	83	115	182	373	873	1,790

Magnitude and probability of annual high flow
based on 63 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	1,730	5,710	10,600	20,200	30,700	44,400
3	1,460	4,810	8,940	17,300	26,600	39,000
7	1,120	3,450	6,190	11,500	17,300	24,800
15	792	2,240	3,870	6,960	10,200	14,400
30	540	1,390	2,270	3,860	5,440	7,400
60	346	820	1,290	2,100	2,870	3,820
90	263	592	905	1,420	1,910	2,480

Magnitude and probability of seasonal low flow from
July-October based on 62 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	6.0	1.2	0.30	0.00	0.00	0.00
3	6.5	1.3	.36	.00	.00	.00
7	7.1	1.5	.43	.00	.00	.00
14	7.7	1.7	.52	.01	.00	.00
30	11	2.1	.55	.14	.02	.01

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	82	2.2	28	20	64
November	94	4.2	27	16	63
December	50	1.3	16	10	63
January	30	.01	8.5	7.4	63
February	743	.10	27	94	63
March	2,440	.18	332	496	63
April	4,920	37	672	1,010	63
May	421	17	123	102	63
June	336	2.8	86	75	64
July	800	.68	78	111	64
August	220	.04	28	37	66
September	206	.15	24	30	66
Annual	435	14	120	99	63

**06182500 Big Muddy Creek at Daleview, Mont.
Site Number 132**

LOCATION.--Lat 48°54'40", long 104°56'42" (NAD 27), near center of north line of sec.5, T.36 N., R.52 E., Sheridan County, on right bank 0.5 mi west of Daleview, 0.5 mi upstream from Whitetail Creek, 6 mi north of Redstone, and at river mile 149.6.

DRAINAGE AREA.--279 mi².

PERIOD OF RECORD.--24 years (1947-71).

REVISED RECORDS.--WSP 1209: 1948(M). WSP 1309: Drainage area. WSP 1389: 1948. WSP 1559: 1955.

GAGE.--Water-stage recorder. Altitude of gage is 2,120 ft (NGVD 29, by barometer).

REMARKS.--Diversions for irrigation of about 90 acres upstream from station.

Magnitude and probability of annual low flow
based on 24 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	--	--
3	.00	.00	.00	.00	--	--
7	.00	.00	.00	.00	--	--
14	.00	.00	.00	.00	--	--
30	.00	.00	.00	.00	--	--
60	.06	.00	.00	.00	--	--
90	.34	.09	.04	.02	--	--
120	.72	.45	.35	.28	--	--
183	.92	.62	.52	.46	--	--

Magnitude and probability of seasonal low flow from
March-June based on 25 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	0.00	--
3	.00	.00	.00	.00	.00	--
7	.00	.00	.00	.00	.00	--
14	.48	.00	.00	.00	.00	--
30	2.6	.59	.18	.05	.01	--

Magnitude and probability of seasonal low flow from
November-February based on 25 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	0.00	--
3	.00	.00	.00	.00	.00	--
7	.00	.00	.00	.00	.00	--
14	.00	.00	.00	.00	.00	--
30	.00	.00	.00	.00	.00	--

Duration of daily mean flows based on 24 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.03	0.05	0.13	0.26	0.52	0.78	1.1	1.5
40%	30%	20%	15%	10%	5%	2%	1%
2.1	3.0	5.2	7.6	14	36	132	339

Magnitude and probability of annual high flow
based on 24 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	759	1,810	2,770	4,250	--	--
3	543	1,260	1,900	2,860	--	--
7	329	737	1,100	1,660	--	--
15	186	402	600	918	--	--
30	110	227	330	491	--	--
60	61	122	174	254	--	--
90	44	85	118	167	--	--

Magnitude and probability of seasonal low flow from
July-October based on 24 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	--	--
3	.00	.00	.00	.00	--	--
7	.00	.00	.00	.00	--	--
14	.11	.00	.00	.00	--	--
30	.32	.00	.00	.00	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	8.1	0.90	2.1	1.5	25
November	3.7	.84	1.8	.68	25
December	3.5	.01	.90	.85	25
January	3.5	.00	.39	.72	25
February	38	.00	3.2	8.5	25
March	282	.04	53	75	25
April	534	4.3	100	141	25
May	59	2.0	12	14	25
June	96	.84	13	22	25
July	26	.46	3.9	6.1	24
August	19	.00	2.2	3.9	24
September	10	.00	1.8	2.5	25
Annual	45	3.3	16	11	24

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06183450 Big Muddy Creek near Antelope, Mont.
Site Number 133

LOCATION.--Lat 48°40'22", long 104°30'42" (NAD 27), in SW¼SW¼NW¼ sec.27, T.34 N., R.55 E., Sheridan County, Hydrologic Unit 10060006, on right bank, 3 mi southwest of Antelope, and 7 mi south of Plentywood.

DRAINAGE AREA.--967 mi². Prior to 1981, drainage area published as 1,171 mi².

PERIOD OF RECORD.--October 1978 to current year (2002).

REVISED RECORDS.--WDR MT-81-1: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 2,000 ft (NGVD 29).

REMARKS.--Several known diversions for irrigation upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow based on 23 years of record						
Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.02	0.00	0.00	0.00	--	--
3	.05	.00	.00	.00	--	--
7	.07	.00	.00	.00	--	--
14	.13	.00	.00	.00	--	--
30	.19	.00	.00	.00	--	--
60	.61	.08	.00	.00	--	--
90	1.5	.55	.25	.05	--	--
120	2.5	1.0	.56	.30	--	--
183	3.4	1.7	1.1	.71	--	--

Magnitude and probability of seasonal low flow from March-June based on 24 seasons of record						
Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.92	0.20	0.00	0.00	--	--
3	1.0	.23	.00	.00	--	--
7	1.8	.28	.00	.00	--	--
14	3.2	.84	.35	.15	--	--
30	6.1	2.2	1.2	.67	--	--

Magnitude and probability of seasonal low flow from November-February based on 23 seasons of record						
Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.45	0.00	0.00	0.00	--	--
3	.48	.00	.00	.00	--	--
7	.54	.08	.00	.00	--	--
14	.79	.09	.00	.00	--	--
30	.86	.18	.00	.00	--	--

Duration of daily mean flows based on 24 years of record							
Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.05	0.10	0.26	0.52	1.1	2.0	3.2	4.7
40%	30%	20%	15%	10%	5%	2%	1%
6.6	10	18	26	39	90	307	609

Magnitude and probability of annual high flow based on 24 years of record						
Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	600	1,510	2,370	3,750	--	--
3	506	1,320	2,130	3,490	--	--
7	364	990	1,660	2,860	--	--
15	226	635	1,090	1,940	--	--
30	138	374	628	1,090	--	--
60	86	219	356	596	--	--
90	63	156	251	419	--	--

Magnitude and probability of seasonal low flow from July-October based on 23 seasons of record						
Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.15	0.00	0.00	0.00	--	--
3	.21	.00	.00	.00	--	--
7	.23	.02	.00	.00	--	--
14	.26	.03	.00	.00	--	--
30	.44	.05	.01	.00	--	--

Monthly and annual mean discharges					
Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	25	0.14	5.3	5.4	24
November	12	.88	5.9	2.9	24
December	6.9	.45	3.6	2.0	24
January	6.4	.00	1.8	1.6	24
February	290	.00	25	62	24
March	851	2.7	133	197	24
April	826	5.0	116	220	24
May	120	5.3	25	29	24
June	62	.23	16	18	24
July	226	.03	26	47	24
August	92	.00	9.1	19	24
September	36	.00	4.5	7.5	24
Annual	93	4.7	31	28	24

**06185000 Big Muddy Creek near Culbertson, Mont.
Site Number 134**

LOCATION.--Lat 48°15'26", long 104°43'25" (NAD 27), in NE¼ sec.20, T.29 N., R.54 E., Roosevelt County, 11 mi upstream from mouth and 12 mi northwest of Culbertson.

DRAINAGE AREA.--2,447 mi².

PERIOD OF RECORD.--13 years (1908-21).

GAGE.--Wire-weight gage. Altitude of gage is 1,910 ft (NGVD 29, from topographic map). July 19, 1909, to Sept. 16, 1918, slope gage at same datum. Prior to July 19, 1909, staff gage at site 8 mi downstream at different datum.

REMARKS.--Several small diversions upstream from station.

Magnitude and probability of annual low flow
based on 12 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	--	--
3	.00	.00	.00	.00	--	--
7	.00	.00	.00	.00	--	--
14	.00	.00	.00	.00	--	--
30	.60	.00	.00	.00	--	--
60	1.2	.00	.00	.00	--	--
90	1.9	.00	.00	.00	--	--
120	2.4	.34	.03	.00	--	--
183	4.4	1.0	.39	.15	--	--

Magnitude and probability of seasonal low flow from
March-June based on 13 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3.8	1.0	0.00	0.00	--	--
3	4.1	1.3	.00	.00	--	--
7	4.8	1.5	.00	.00	--	--
14	7.3	3.2	2.1	1.5	--	--
30	11	6.1	4.7	4.0	--	--

Magnitude and probability of seasonal low flow from
November-February based on 13 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1.7	0.00	0.00	0.00	--	--
3	1.8	.00	.00	.00	--	--
7	1.9	.00	.00	.00	--	--
14	2.0	.00	.00	.00	--	--
30	2.2	.00	.00	.00	--	--

Duration of daily mean flows based on 13 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.07	0.14	0.35	0.70	2.1	3.7	5.2	7.4
40%	30%	20%	15%	10%	5%	2%	1%
11	21	39	60	109	258	788	1,090

Magnitude and probability of annual high flow
based on 13 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	840	1,250	1,490	1,820	--	--
3	789	1,210	1,460	1,790	--	--
7	698	1,160	1,450	1,780	--	--
15	516	940	1,260	1,690	--	--
30	328	661	952	1,400	--	--
60	191	392	574	866	--	--
90	140	277	404	613	--	--

Magnitude and probability of seasonal low flow from
July-October based on 13 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.77	0.00	0.00	0.00	--	--
3	.82	.00	.00	.00	--	--
7	1.0	.22	.05	.00	--	--
14	1.3	.48	.22	.00	--	--
30	1.9	.74	.38	.00	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	35	0.00	8.4	8.6	14
November	11	.00	5.9	4.0	14
December	12	.00	3.9	3.5	13
January	10	.00	2.5	2.8	13
February	30	.00	3.7	8.0	13
March	359	10	116	139	13
April	1,210	47	369	373	13
May	246	3.7	68	77	13
June	249	6.9	59	71	13
July	143	2.0	44	47	13
August	45	.54	13	12	14
September	51	.44	11	16	14
Annual	170	19	58	43	13

**06185110 Big Muddy Creek near mouth, near Culbertson, Mont.
Site Number 135**

LOCATION.--Lat 48°09'52", long 104°37'45" (NAD 27), in NE¼NW¼SW¼ sec.21, T.28 N., R.55 E., Roosevelt County, Hydrologic Unit 10060006, Fort Peck Indian Reservation, on right bank 30 ft downstream from U.S. Highway 2 bridge and 5.3 mi northwest of Culbertson.

DRAINAGE AREA.--2,684 mi².

PERIOD OF RECORD.--November 1981 to September 1992 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 1,896.52 ft (NVGD 29).

REMARKS.--Flows are subject to extreme regulation by diversions and dams at Medicine Lake National Wildlife Refuge about 40 mi upstream.

Magnitude and probability of annual low flow
based on 10 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	--	--
3	.00	.00	.00	.00	--	--
7	.00	.00	.00	.00	--	--
14	.00	.00	.00	.00	--	--
30	.01	.00	.00	.00	--	--
60	.09	.00	.00	.00	--	--
90	.23	.00	.00	.00	--	--
120	.66	.00	.00	.00	--	--
183	1.4	.24	.00	.00	--	--

Magnitude and probability of seasonal low flow from
March-June based on 11 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	--	--
3	.00	.00	.00	.00	--	--
7	.01	.00	.00	.00	--	--
14	.24	.00	.00	.00	--	--
30	1.6	.19	.01	.00	--	--

Magnitude and probability of seasonal low flow from
November-February based on 10 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	--	--
3	.00	.00	.00	.00	--	--
7	.00	.00	.00	.00	--	--
14	.03	.00	.00	.00	--	--
30	.07	.00	.00	.00	--	--

Duration of daily mean flows based on 11 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.02	0.04	0.11	0.21	0.43	0.64	0.85	1.2
40%	30%	20%	15%	10%	5%	2%	1%
2.9	5.6	11	18	36	94	231	352

Magnitude and probability of annual high flow
based on 11 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	77	360	857	--	--	--
3	64	304	743	--	--	--
7	50	236	585	--	--	--
15	39	188	480	--	--	--
30	30	142	358	--	--	--
60	22	100	243	--	--	--
90	17	76	184	--	--	--

Magnitude and probability of seasonal low flow from
July-October based on 10 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	--	--
3	.00	.00	.00	.00	--	--
7	.00	.00	.00	.00	--	--
14	.00	.00	.00	.00	--	--
30	.04	.00	.00	.00	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	39	0.00	7.5	13	11
November	6.6	.00	2.5	2.6	11
December	5.3	.00	1.3	1.9	11
January	1.6	.00	.49	.59	11
February	5.4	.00	1.5	2.0	11
March	254	.18	34	74	11
April	779	.63	96	228	11
May	422	.46	55	125	11
June	235	.00	27	69	11
July	110	.00	20	34	11
August	58	.00	7.8	17	11
September	128	.00	14	38	11
Annual	141	.88	22	41	11

**06185500 Missouri River near Culbertson, Mont.
Site Number 136**

LOCATION.--Lat 48°07'30", long 104°28'20" (NAD 27), in SE¼NW¼ sec.3, T.27 N., R.56 E., Richland County, Hydrologic Unit 10060005, on right bank at upstream side of bridge on State Highway 16, 2.5 mi southeast of Culbertson, 10 mi downstream from Big Muddy Creek, and at river mile 1,620.76.

DRAINAGE AREA.--91,557 mi².

PERIOD OF RECORD.--July 1941 to December 1951, April 1958 to current year (2002).

REVISED RECORDS.--WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 1,883.4 ft (NGVD 29, U.S. Army Corps of Engineers bench mark). July 1 to Nov. 6, 1941, water-stage recorder at site 400 ft upstream at datum 0.11 ft higher. Nov. 7, 1941, to Aug. 17, 1950, water-stage recorder at site 580 ft downstream at present datum. Aug. 18, 1950, to Dec. 31, 1951, nonrecording gage on bridge at present datum. Apr. 1, 1958, to Nov. 1, 1967, water-stage recorder at site 580 ft downstream at present datum.

REMARKS.--Flow partly regulated by Fort Peck Lake (station number 06131500) and many other reservoirs upstream from station. Diversions for irrigation of about 1,030,400 acres upstream from station. U.S. Army Corps of Engineers satellite telemeter at station.

Magnitude and probability of annual low flow
based on 52 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4,560	2,550	1,740	1,220	785	568
3	4,690	2,630	1,810	1,280	827	602
7	4,910	2,790	1,940	1,380	908	668
14	5,170	3,020	2,140	1,550	1,040	781
30	5,790	3,530	2,550	1,880	1,280	961
60	6,550	4,010	2,900	2,130	1,440	1,090
90	7,150	4,460	3,250	2,410	1,650	1,250
120	7,680	5,030	3,810	2,940	2,110	1,660
183	8,560	6,260	5,230	4,460	3,690	3,230

Magnitude and probability of seasonal low flow from
March-June based on 54 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	5,530	3,070	2,090	1,460	937	676
3	5,630	3,140	2,150	1,520	977	710
7	5,860	3,280	2,260	1,600	1,040	759
14	6,160	3,520	2,480	1,790	1,200	899
30	6,910	4,150	3,020	2,250	1,570	1,210

Magnitude and probability of seasonal low flow from
November-February based on 54 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	5,220	2,780	1,820	1,230	794	574
3	5,440	2,880	1,890	1,290	837	610
7	5,800	3,140	2,100	1,430	924	677
14	6,230	3,430	2,300	1,580	1,050	796
30	7,080	4,050	2,750	1,890	1,300	992

Duration of daily mean flows based on 54 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
1,230	1,460	2,890	4,420	6,230	7,250	8,270	9,510
40%	30%	20%	15%	10%	5%	2%	1%
10,900	12,400	14,500	15,500	16,600	20,700	24,700	30,600

Magnitude and probability of annual high flow
based on 54 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	19,300	28,100	35,400	46,600	56,600	68,000
3	18,800	26,800	33,200	42,600	50,700	59,800
7	18,100	25,300	30,700	38,300	44,600	51,500
15	17,200	23,300	27,700	33,800	38,600	43,700
30	15,900	21,200	25,000	30,200	34,400	38,700
60	14,400	18,900	22,100	26,400	29,800	33,300
90	13,300	17,100	19,800	23,300	26,100	28,900

Magnitude and probability of seasonal low flow from
July-October based on 55 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	5,960	3,380	2,380	1,720	1,150	866
3	6,140	3,480	2,440	1,760	1,180	883
7	6,450	3,650	2,550	1,830	1,220	907
14	6,760	3,880	2,740	2,000	1,350	1,020
30	7,350	4,380	3,180	2,380	1,670	1,290

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	28,600	1,240	10,700	5,930	55
November	22,400	1,130	9,260	4,420	55
December	13,300	1,060	9,140	2,830	55
January	14,400	1,010	9,910	3,480	54
February	17,400	1,170	10,500	4,400	54
March	20,700	2,670	10,400	4,330	54
April	32,800	1,960	10,500	5,590	55
May	26,200	1,350	9,540	4,770	55
June	26,600	1,370	9,740	4,780	55
July	37,000	1,270	10,200	5,340	56
August	25,300	3,820	11,400	4,720	56
September	26,600	3,770	11,100	5,440	56
Annual	16,600	4,080	10,200	2,860	54

**06186500 Yellowstone River at Yellowstone Lake outlet, Yellowstone National Park, Wyo.
Site Number 137**

LOCATION.--Lat 44°34'03", long 110°22'48" (NAD 27), Yellowstone National Park, Hydrologic Unit 10070001, on left bank 450 ft downstream from Fishing Bridge, 0.3 mi downstream from outlet of Yellowstone Lake, and at river mile 616.4.

DRAINAGE AREA.--991 mi².

PERIOD OF RECORD.--December 1922 to September 1982, October 1983 to September 1986, October 1988 to current year (2002). Prior to October 1926, gage heights only. Monthly discharge only for winter periods in water years 1927-30, 1932-33, 1935-38, 1940, 1942-46 published in WSP 1309; figures of daily discharge for these months published in WSP 646, 666, 686, 701, 731, 746, 786, 806, 826, 856, 896, 956, 976, 1006, 1036, and 1056, have been found to be unreliable and were not used in analysis.

REVISED RECORDS.--WSP 1309: See PERIOD OF RECORD. WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 7,729.58 ft (NGVD 29). Prior to Oct. 2, 1928, nonrecording gage at site 450 ft upstream at datum 1.07 ft higher.

REMARKS.--No diversion or regulation upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 71 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	293	204	166	138	111	96
3	294	206	167	140	113	98
7	297	208	170	143	116	101
14	303	214	175	147	120	104
30	318	227	187	158	129	112
60	356	264	223	191	160	141
90	402	309	267	235	202	182
120	454	354	308	274	238	217
183	644	506	441	392	340	309

Magnitude and probability of seasonal low flow from
March-June based on 73 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	404	280	221	177	134	109
3	406	281	222	177	134	109
7	410	285	225	181	137	112
14	420	294	233	187	142	116
30	450	323	260	211	162	134

Magnitude and probability of seasonal low flow from
November-February based on 73 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	342	236	189	155	122	103
3	342	237	191	157	125	106
7	344	240	194	160	128	109
14	349	244	198	164	131	112
30	358	252	205	170	136	117

Duration of daily mean flows based on 73 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
167	200	265	328	427	510	607	708
40%	30%	20%	15%	10%	5%	2%	1%
909	1,310	2,130	2,770	3,570	4,700	5,890	7,010

Magnitude and probability of annual high flow
based on 73 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	4,780	6,310	7,230	8,300	9,050	9,750
3	4,770	6,300	7,210	8,280	9,020	9,720
7	4,740	6,250	7,160	8,230	8,970	9,660
15	4,660	6,140	7,030	8,070	8,800	9,480
30	4,450	5,820	6,630	7,580	8,230	8,840
60	3,890	5,000	5,650	6,380	6,870	7,320
90	3,320	4,230	4,740	5,320	5,710	6,060

Magnitude and probability of seasonal low flow from
July-October based on 71 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	671	532	468	420	370	339
3	679	538	474	425	374	343
7	693	549	484	434	382	350
14	718	570	501	449	396	363
30	785	621	543	484	423	386

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	1,260	327	800	213	73
November	984	276	606	162	73
December	775	246	475	134	73
January	700	168	398	135	73
February	637	122	387	133	73
March	717	130	446	133	73
April	801	175	543	118	73
May	2,210	604	1,160	391	73
June	8,570	1,710	3,700	1,220	73
July	7,160	1,270	4,050	1,380	73
August	4,030	812	2,210	723	73
September	1,950	538	1,210	344	73
Annual	2,250	682	1,340	318	73

**06187500 Tower Creek at Tower Falls, Yellowstone National Park, Wyo.
Site Number 138**

LOCATION.--Lat 44°54', long 110°23' (NAD 27), just upstream from Tower Falls, 0.25 mi upstream from mouth and 2 mi southeast of Camp Roosevelt.

DRAINAGE AREA.--50.4 mi².

PERIOD OF RECORD.--20 years (1923-43).

GAGE.--Staff gage. Altitude of gage is 6,400 ft (NGVD 29, from topographic map). Prior to Sept. 26, 1931, staff gage at site 25 ft downstream at datum 2.22 ft lower. Sept. 26, 1931, to July 11, 1933, staff gage at site 75 ft downstream at different datum. July 12, 1933, to Oct. 13, 1934, staff gage at described site and datum 0.50 ft higher.

REMARKS.--No diversion or regulation upstream from station.

Magnitude and probability of annual low flow
based on 19 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	14	11	9.3	7.8	--	--
3	14	12	10	9.4	--	--
7	14	12	11	9.7	--	--
14	14	12	11	9.8	--	--
30	15	12	11	9.9	--	--
60	16	13	12	11	--	--
90	17	15	13	12	--	--
120	18	16	14	13	--	--
183	21	18	17	16	--	--

Magnitude and probability of seasonal low flow from
March-June based on 20 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	16	13	10	8.4	--	--
3	16	13	11	10	--	--
7	16	13	12	10	--	--
14	16	13	12	11	--	--
30	17	14	12	11	--	--

Magnitude and probability of seasonal low flow from
November-February based on 20 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	15	13	11	10	--	--
3	15	13	11	10	--	--
7	15	13	11	10	--	--
14	15	13	11	10	--	--
30	16	13	11	10	--	--

Duration of daily mean flows based on 20 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
10	11	13	15	18	20	22	25
40%	30%	20%	15%	10%	5%	2%	1%
29	35	53	71	110	187	302	374

Magnitude and probability of annual high flow
based on 20 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	324	474	566	672	--	--
3	300	438	524	624	--	--
7	263	394	483	598	--	--
15	230	351	438	555	--	--
30	194	292	362	457	--	--
60	142	210	260	331	--	--
90	110	159	196	248	--	--

Magnitude and probability of seasonal high flow from
July-October based on 20 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	22	19	18	17	--	--
3	22	19	18	17	--	--
7	23	20	18	17	--	--
14	23	20	19	18	--	--
30	24	21	19	18	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	36	18	25	4.9	21
November	44	16	22	6.0	20
December	25	14	19	3.4	20
January	22	12	17	3.3	20
February	20	10	16	3.3	20
March	22	10	16	3.1	20
April	39	12	26	7.8	20
May	278	46	104	57	21
June	397	46	185	96	21
July	261	25	74	52	21
August	61	20	34	9.4	21
September	40	19	27	5.3	22
Annual	85	26	47	16	20

**06187950 Soda Butte Creek near Lamar Ranger Station, Yellowstone National Park, Wyo.
Site Number 139**

LOCATION.--Lat 44°52'06", long 110°09'53" (NAD 27), Yellowstone National Park, Hydrologic Unit 10070001, on left bank, 4 mi southeast of Lamar Ranger Station, and at river mile 1.5.

DRAINAGE AREA.--99.0 mi².

PERIOD OF RECORD.--October 1988 to current year (2002).

GAGE.--Water-stage recorder. Altitude of gage is 6,630 ft (NGVD 29).

REMARKS.--No regulation or diversion upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 13 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	17	14	13	12	--	--
3	18	15	14	12	--	--
7	19	16	15	14	--	--
14	21	18	16	15	--	--
30	22	19	18	17	--	--
60	25	21	19	18	--	--
90	26	22	20	18	--	--
120	28	24	22	20	--	--
183	36	31	28	26	--	--

Magnitude and probability of seasonal low flow from
March-June based on 14 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	19	15	14	13	--	--
3	20	16	14	13	--	--
7	20	17	15	14	--	--
14	21	19	17	16	--	--
30	23	20	19	18	--	--

Magnitude and probability of seasonal low flow from
November-February based on 13 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	18	15	13	12	--	--
3	19	15	14	12	--	--
7	20	17	15	14	--	--
14	21	18	17	16	--	--
30	22	19	18	17	--	--

Duration of daily mean flows based on 14 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
14	16	18	21	26	29	33	43
40%	30%	20%	15%	10%	5%	2%	1%
59	91	200	334	493	702	974	1,100

Magnitude and probability of annual high flow
based on 14 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	1,150	1,500	1,750	2,070	--	--
3	1,050	1,370	1,590	1,880	--	--
7	928	1,220	1,440	1,720	--	--
15	851	1,110	1,280	1,510	--	--
30	747	926	1,040	1,170	--	--
60	595	716	785	863	--	--
90	470	559	605	655	--	--

Magnitude and probability of seasonal low flow from
July-October based on 13 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	34	27	24	21	--	--
3	36	30	26	23	--	--
7	38	33	30	28	--	--
14	39	34	32	31	--	--
30	44	37	35	33	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	69	28	44	9.9	14
November	40	21	32	6.0	14
December	31	16	25	4.9	14
January	33	17	25	4.9	14
February	32	16	24	5.0	14
March	32	17	24	4.3	14
April	127	32	62	29	14
May	580	217	406	103	14
June	1,250	338	690	232	14
July	446	106	291	110	14
August	162	51	96	30	14
September	92	36	58	14	14
Annual	204	96	148	28	14

**06188000 Lamar River near Tower Falls Ranger Station, Yellowstone National Park, Wyo.
Site Number 140**

LOCATION.--Lat 44°55'40", long 110°23'35" (NAD 27), Yellowstone National Park, Hydrologic Unit 10070001, on left bank 0.5 mi north of the Cooke City highway, 1.6 mi northeast of Tower Falls Ranger Station, 2.7 mi downstream from Slough Creek, and at river mile 0.5.

DRAINAGE AREA.--660 mi².

PERIOD OF RECORD.--September 1922, April 1923 to September 1969, May 1985 to September 1986 (seasonal records only), October 1988 to current year (2002).

GAGE.--Water-stage recorder. Altitude of gage is 6,000 ft (NGVD 29). Prior to Sept. 16, 1925, nonrecording gage and Sept. 16, 1925, to July 29, 1927, water-stage recorder at same site at datum 1.00 ft higher. July 29, 1927, to Sept. 30, 1969, water-stage recorder at same site and datum. May 1985 to September 1986, nonrecording gage at same site and datum.

REMARKS.--No regulation or diversion upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 58 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	81	66	59	53	47	43
3	83	70	64	59	54	51
7	85	74	69	65	60	57
14	88	77	72	69	65	62
30	92	81	76	72	69	66
60	100	88	83	79	75	73
90	106	93	87	83	79	77
120	118	101	94	88	83	80
183	149	123	113	105	98	94

Magnitude and probability of seasonal low flow from
March-June based on 60 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	97	79	70	62	54	48
3	97	81	74	68	61	57
7	99	84	77	71	66	62
14	101	86	79	74	69	65
30	107	90	83	78	73	70

Magnitude and probability of seasonal low flow from
November-February based on 60 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	85	69	61	56	50	46
3	87	72	66	61	56	53
7	89	77	71	67	63	60
14	92	80	75	71	67	65
30	95	83	78	75	71	69

Duration of daily mean flows based on 60 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
68	71	79	92	110	127	157	189
40%	30%	20%	15%	10%	5%	2%	1%
259	430	1,110	1,930	2,990	4,520	6,590	8,040

Magnitude and probability of annual high flow
based on 60 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	7,600	9,700	11,000	12,700	13,800	15,000
3	7,060	9,070	10,400	12,000	13,300	14,500
7	6,400	8,290	9,540	11,100	12,300	13,500
15	5,560	7,280	8,430	9,910	11,000	12,200
30	4,780	6,130	7,010	8,130	8,950	9,780
60	3,690	4,630	5,230	5,970	6,510	7,050
90	2,830	3,540	3,970	4,490	4,850	5,210

Magnitude and probability of seasonal low flow from
July-October based on 59 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	148	120	109	101	93	88
3	152	124	112	104	96	92
7	157	127	116	108	100	96
14	165	133	121	112	104	100
30	178	142	129	119	111	106

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	485	109	213	87	60
November	330	88	157	50	60
December	202	76	120	26	60
January	200	72	106	22	60
February	171	70	102	20	60
March	204	68	113	28	60
April	1,680	106	465	341	60
May	6,880	970	2,850	1,120	63
June	9,040	1,410	4,260	1,590	63
July	3,260	344	1,350	695	63
August	886	173	352	135	63
September	518	115	229	82	64
Annual	1,530	525	867	215	60

**06189000 Blacktail Deer Creek near Mammoth, Yellowstone National Park, Wyo.
Site Number 141**

LOCATION.--Lat 44°56'50", long 110°35'07" (NAD 27), Yellowstone National Park, Hydrologic Unit 10070001, on left bank 0.6 mi upstream from East Fork, 0.7 mi upstream from culvert on Mammoth-Tower Falls highway, and 6.0 mi southeast of Mammoth.

DRAINAGE AREA.--15.0 mi².

PERIOD OF RECORD.--December 1937 to October 1945, October 1988 to September 1993 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 6,680 ft (NGVD 29, from topographic map). December 1937 to October 1945, water-stage recorder and Cippoletti weir at site 300 ft downstream at different datum.

REMARKS.--No diversion or regulation upstream from station.

Magnitude and probability of annual low flow based on 11 years of record						
Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1.3	0.95	0.78	0.66	--	--
3	1.4	1.0	.88	.77	--	--
7	1.4	1.1	1.0	.92	--	--
14	1.5	1.2	1.1	.98	--	--
30	1.5	1.3	1.1	1.1	--	--
60	1.7	1.4	1.3	1.2	--	--
90	1.8	1.5	1.3	1.2	--	--
120	2.1	1.6	1.4	1.2	--	--
183	2.5	2.0	1.7	1.5	--	--

Magnitude and probability of seasonal low flow from March-June based on 13 seasons of record						
Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1.6	1.3	1.2	1.1	--	--
3	1.6	1.3	1.2	1.1	--	--
7	1.6	1.3	1.2	1.1	--	--
14	1.7	1.3	1.2	1.1	--	--
30	1.9	1.4	1.3	1.1	--	--

Magnitude and probability of seasonal low flow from November-February based on 12 seasons of record						
Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1.4	1.0	0.82	0.68	--	--
3	1.4	1.1	.92	.79	--	--
7	1.5	1.2	1.1	.95	--	--
14	1.6	1.3	1.1	1.0	--	--
30	1.6	1.4	1.2	1.1	--	--

Duration of daily mean flows based on 12 years of record							
Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
1.0	1.1	1.2	1.5	1.8	2.2	2.6	3.2
40%	30%	20%	15%	10%	5%	2%	1%
4.0	5.6	11	17	23	35	57	78

Magnitude and probability of annual high flow based on 12 years of record						
Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	62	104	138	--	--	--
3	57	94	124	--	--	--
7	51	86	114	--	--	--
15	44	72	95	--	--	--
30	37	57	74	--	--	--
60	30	43	53	--	--	--
90	24	34	41	--	--	--

Magnitude and probability of seasonal low flow from July-October based on 12 seasons of record						
Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2.1	1.6	1.4	1.3	--	--
3	2.3	1.8	1.6	1.4	--	--
7	2.5	1.9	1.7	1.5	--	--
14	2.6	2.1	1.8	1.6	--	--
30	2.9	2.3	2.0	1.7	--	--

Monthly and annual mean discharges					
Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	4.8	1.7	3.2	1.0	13
November	3.9	1.3	2.6	.83	12
December	3.3	1.2	2.0	.59	13
January	2.3	1.3	1.8	.37	13
February	2.3	1.2	1.7	.39	13
March	3.3	1.2	2.0	.65	13
April	28	2.5	10	7.9	13
May	78	14	31	21	13
June	65	13	28	13	13
July	29	4.7	11	6.3	13
August	8.1	1.9	4.5	1.7	13
September	4.8	1.9	3.3	.82	13
Annual	14	4.2	8.6	3.0	12

**06190500 Gardner River at Mammoth, Yellowstone National Park, Wyo.
Site Number 142**

LOCATION.--Lat 44°59'00", long 110°41'00" (NAD 27), 0.25 mi downstream from footbridge on Mount Everts trail, 0.5 mi upstream from Boiling River (formerly Hot River), 0.9 mi northeast of Mammoth, and 3.75 mi (revised) upstream from mouth.

DRAINAGE AREA.--200 mi².

PERIOD OF RECORD.--15 years (1923-38).

GAGE.--Water-stage recorder. Altitude of gage is 5,680 ft (NGVD 29, from topographic map). Prior to June 10, 1927, staff gage at site 0.25 mi upstream at different datum. June 10 to July 29, 1927, staff gage at described site and datum.

REMARKS.--No diversion or regulation upstream from station. Records not equivalent to those for station near Mammoth, 1.25 mi downstream.

Magnitude and probability of annual low flow
based on 15 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	57	51	47	45	--	--
3	61	54	50	48	--	--
7	63	55	52	49	--	--
14	63	56	52	49	--	--
30	64	57	53	50	--	--
60	69	61	57	54	--	--
90	71	63	59	56	--	--
120	74	64	61	58	--	--
183	81	70	65	62	--	--

Magnitude and probability of seasonal low flow from
March-June based on 16 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	62	54	51	48	--	--
3	64	57	53	51	--	--
7	65	58	54	52	--	--
14	66	58	55	53	--	--
30	69	60	57	54	--	--

Magnitude and probability of seasonal low flow from
November-February based on 15 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	60	53	50	47	--	--
3	64	56	53	50	--	--
7	66	57	53	50	--	--
14	66	58	53	50	--	--
30	67	58	54	51	--	--

Duration of daily mean flows based on 15 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
47	49	52	59	69	77	84	92
40%	30%	20%	15%	10%	5%	2%	1%
109	128	197	274	375	559	796	1,020

Magnitude and probability of annual high flow
based on 15 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	827	1,200	1,460	1,820	--	--
3	783	1,110	1,350	1,660	--	--
7	713	1,020	1,250	1,550	--	--
15	646	932	1,130	1,410	--	--
30	567	803	968	1,190	--	--
60	459	627	736	872	--	--
90	368	496	579	682	--	--

Magnitude and probability of seasonal high flow from
July-October based on 16 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	79	67	62	59	--	--
3	80	69	64	60	--	--
7	83	71	66	62	--	--
14	85	73	68	64	--	--
30	89	75	70	66	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	132	72	97	21	17
November	153	65	87	23	15
December	104	59	78	14	15
January	98	55	71	11	15
February	90	50	69	13	15
March	90	52	71	12	16
April	180	69	114	40	16
May	977	201	407	189	16
June	1,070	161	518	241	16
July	409	89	217	94	16
August	185	71	116	34	16
September	146	70	101	23	17
Annual	246	106	161	41	15

**06191000 Gardner River near Mammoth, Yellowstone National Park, Wyo.
Site Number 143**

LOCATION.--Lat 44°59'33", long 110°41'26" (NAD 27), Yellowstone National Park, Hydrologic Unit 10070001, on left bank at Wyoming-Montana State line, 400 ft upstream from highway bridge, 0.5 mi downstream from Boiling River (formerly Hot River), 1.5 mi north of Mammoth, and at river mile 2.9.

DRAINAGE AREA.--202 mi².

PERIOD OF RECORD.--October 1938 to September 1972, April 1984 to current year (2002). Prior to October 1959, published as "Gardiner River near Mammoth."

REVISED RECORDS.--WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 5,623.97 ft (NGVD 29, levels by National Park Service).

REMARKS.--No regulation or diversion upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 50 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	72	64	60	57	54	52
3	79	70	66	63	59	57
7	83	75	71	68	64	62
14	85	78	75	72	70	68
30	87	81	78	76	74	73
60	92	84	81	79	77	76
90	96	88	84	81	78	76
120	100	91	87	83	80	78
183	111	99	93	89	85	82

Magnitude and probability of seasonal low flow from
March-June based on 52 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	81	73	69	66	63	62
3	85	77	74	71	68	67
7	88	80	77	75	72	71
14	89	82	79	77	74	73
30	92	84	81	79	77	75

Magnitude and probability of seasonal low flow from
November-February based on 51 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	74	65	60	57	54	52
3	81	71	67	64	60	58
7	86	76	72	69	65	63
14	88	80	76	73	70	68
30	91	83	80	77	75	73

Duration of daily mean flows based on 52 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
67	69	74	82	96	106	115	125
40%	30%	20%	15%	10%	5%	2%	1%
145	177	259	359	519	759	1,070	1,310

Magnitude and probability of annual high flow
based on 52 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	1,120	1,440	1,620	1,820	1,940	2,060
3	1,060	1,370	1,550	1,750	1,880	2,000
7	979	1,290	1,460	1,660	1,790	1,910
15	876	1,170	1,340	1,550	1,700	1,840
30	776	1,030	1,190	1,390	1,530	1,660
60	622	818	939	1,080	1,180	1,280
90	502	650	740	845	918	988

Magnitude and probability of seasonal low flow from
July-October based on 51 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	113	99	93	88	82	79
3	116	102	96	91	85	82
7	118	104	98	93	87	84
14	121	106	99	94	88	84
30	125	109	102	96	90	86

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	176	95	127	20	52
November	151	86	113	16	52
December	135	79	103	12	52
January	134	78	97	13	52
February	128	75	93	10	52
March	128	75	94	11	52
April	304	84	141	47	53
May	1,070	283	510	163	53
June	1,350	212	715	285	53
July	662	133	303	125	53
August	236	103	162	36	53
September	190	93	137	23	53
Annual	324	138	217	47	52

06191500 Yellowstone River at Corwin Springs, Mont. Site Number 144

LOCATION.--Lat 45°06'43", long 110°47'37" (NAD 27), in NW¼SE¼NW¼ sec.30, T.8 S., R.8 E., Park County, Hydrologic Unit 10070002, on left bank 20 ft downstream from county road bridge at Corwin Springs, 1.3 mi upstream from Mol Heron Creek, 7 mi northwest of Gardiner, and at river mile 549.7.

DRAINAGE AREA.--2,619 mi².

PERIOD OF RECORD.--August 1889 to November 1893, published as "at Horr," September 1910 to current year (2002). Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1309: 1912. WSP 1509: 1889-94, 1911, 1913, 1916-18, 1920-21, 1925, 1927. WSP 1559: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 5,079.09 ft (NGVD 29). Aug. 12, 1889, to Nov. 4, 1893, nonrecording gages at site 2 mi upstream at different datums. Sept. 2, 1910, to Apr. 19, 1935, nonrecording gages on bridge at present datum.

REMARKS.--Natural storage in Yellowstone Lake. Diversions for irrigation of about 960 acres of which 40 acres lie downstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 91 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	641	515	458	415	371	344
3	660	532	474	430	386	358
7	686	556	497	452	406	377
14	713	582	521	475	427	398
30	750	609	543	492	439	406
60	808	664	594	540	483	448
90	870	719	647	591	531	494
120	944	783	706	647	585	546
183	1,210	991	888	808	723	671

Magnitude and probability of seasonal low flow from
March-June based on 92 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	799	647	570	510	446	405
3	821	664	586	523	456	414
7	844	687	606	543	474	431
14	866	708	627	563	494	450
30	922	757	671	601	525	477

Magnitude and probability of seasonal low flow from
November-February based on 92 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	685	546	481	431	380	348
3	706	565	499	449	397	364
7	735	592	524	473	419	385
14	764	618	549	496	441	406
30	792	642	570	514	455	419

Duration of daily mean flows based on 92 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
507	552	631	762	897	1,030	1,210	1,440
40%	30%	20%	15%	10%	5%	2%	1%
1,900	2,750	4,670	6,320	8,590	11,800	16,000	19,200

Magnitude and probability of annual high flow
based on 92 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	16,500	21,000	23,600	26,600	28,600	30,500
3	15,600	20,000	22,700	25,900	28,100	30,300
7	14,500	18,900	21,700	25,000	27,300	29,700
15	13,300	17,400	20,000	23,200	25,500	27,800
30	12,000	15,500	17,700	20,200	22,000	23,700
60	9,950	12,500	14,100	15,800	17,000	18,100
90	8,220	10,300	11,400	12,800	13,700	14,500

Magnitude and probability of seasonal low flow from
July-October based on 91 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1,270	1,030	921	836	748	693
3	1,290	1,050	937	850	760	704
7	1,320	1,080	960	871	778	720
14	1,360	1,110	992	902	809	751
30	1,460	1,180	1,040	945	842	779

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	2,430	782	1,500	381	92
November	2,060	702	1,180	272	92
December	1,420	551	961	196	92
January	1,360	448	848	197	92
February	1,340	411	836	191	92
March	1,380	412	920	184	92
April	3,540	576	1,560	555	92
May	13,600	2,580	6,140	2,020	92
June	22,500	4,240	11,600	3,800	92
July	13,300	2,020	6,770	2,690	92
August	5,690	1,320	3,160	990	92
September	3,210	938	1,930	496	93
Annual	5,160	1,900	3,120	683	92

**06192500 Yellowstone River near Livingston, Mont.
Site Number 145**

LOCATION.--Lat 45°35'50", long 110°33'55" (NAD 27), in NE¼NW¼NW¼ sec.12, T.3 S., R.9 E., Park County, Hydrologic Unit 10070002, on right bank 50 ft downstream from bridge on Montana Secondary Highway 540, 2 mi downstream from Suce Creek, 4 mi south of Livingston, and at river mile 501.4.

DRAINAGE AREA.--3,551 mi².

PERIOD OF RECORD.--May 1897 to December 1905, August 1928 to September 1932, October 1937 to current year (2002). Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1309: 1899. WSP 1509: 1902. WSP 1629: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 4,542.49 ft (NGVD 29). May 2, 1897, to Dec. 31, 1905, nonrecording gage on highway bridge at different datum. Aug. 23, 1928, to Sept. 30, 1932, and Mar. 14, 1938, to Feb. 3, 1951, nonrecording gage on highway bridge at present datum.

REMARKS.--Diversions for irrigation of about 24,200 acres of which about 2,000 acres lie downstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 73 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	877	737	672	622	569	536
3	918	776	709	656	601	566
7	977	834	767	714	659	624
14	1,030	892	827	777	724	691
30	1,090	946	878	826	771	736
60	1,160	1,010	943	887	827	789
90	1,260	1,090	1,010	951	885	843
120	1,360	1,180	1,090	1,030	958	913
183	1,650	1,400	1,280	1,180	1,080	1,020

Magnitude and probability of seasonal low flow from
March-June based on 75 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1,110	941	856	789	717	671
3	1,140	974	890	823	751	704
7	1,190	1,030	946	882	813	769
14	1,210	1,070	997	941	881	843
30	1,270	1,120	1,050	998	939	902

Magnitude and probability of seasonal low flow from
November-February based on 74 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	907	757	687	632	575	539
3	953	800	726	668	606	568
7	1,020	860	784	723	659	618
14	1,080	917	840	780	717	676
30	1,140	972	892	829	762	719

Duration of daily mean flows based on 75 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
787	832	965	1,130	1,280	1,440	1,670	1,960
40%	30%	20%	15%	10%	5%	2%	1%
2,340	3,160	5,260	7,200	9,860	14,000	18,500	22,200

Magnitude and probability of annual high flow
based on 75 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	19,200	24,000	26,700	29,600	31,600	33,400
3	18,200	23,000	25,800	29,000	31,200	33,200
7	16,900	21,600	24,400	27,800	30,100	32,300
15	15,400	19,800	22,400	25,500	27,700	29,800
30	13,800	17,600	19,900	22,500	24,400	26,200
60	11,300	14,300	16,000	18,000	19,500	20,800
90	9,340	11,600	13,000	14,500	15,600	16,600

Magnitude and probability of seasonal low flow from
July-October based on 74 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1,770	1,480	1,340	1,230	1,120	1,040
3	1,800	1,500	1,360	1,250	1,140	1,060
7	1,830	1,530	1,380	1,270	1,150	1,080
14	1,870	1,550	1,400	1,290	1,170	1,090
30	1,960	1,620	1,460	1,340	1,210	1,130

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	3,120	1,130	2,020	434	76
November	2,600	1,100	1,680	314	76
December	1,980	930	1,390	226	76
January	1,760	727	1,220	223	75
February	1,730	763	1,210	217	75
March	1,800	899	1,290	189	75
April	3,850	1,170	1,940	587	75
May	13,000	2,750	6,930	2,190	75
June	27,100	5,000	13,300	4,190	75
July	15,000	2,750	7,650	2,960	75
August	5,730	1,710	3,600	1,030	76
September	3,810	1,280	2,390	565	76
Annual	6,120	2,400	3,730	763	75

**06193000 Shields River near Wilsall, Mont.
Site Number 146**

LOCATION.--Lat 46°09'09", long 110°35'13" (NAD 27), in SE¼NW¼ sec.34, T.5 N., R.9 E., Park County, on left bank 11 mi northeast of Wilsall and 12 mi upstream from Flathead Creek.

DRAINAGE AREA.--87.8 mi² (revised).

PERIOD OF RECORD.--23 years (1935-57).

GAGE.--Wire-weight gage. Altitude of gage is 5,590 ft (NGVD 29, by barometer). May 10, 1935, to Oct. 12, 1942, staff gage at site 800 ft downstream at different datum. Oct. 13, 1942, to May 21, 1948, staff gage at present site and datum.

REMARKS.--Diversions for irrigation of 3,100 acres, of which 830 acres lie downstream from station.

Magnitude and probability of annual low flow
based on 21 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	5.5	4.5	4.0	3.7	--	--
3	5.7	4.6	4.1	3.7	--	--
7	6.3	5.0	4.4	3.9	--	--
14	7.5	5.7	4.9	4.3	--	--
30	9.0	6.8	5.7	4.9	--	--
60	10	7.7	6.4	5.4	--	--
90	12	8.5	7.1	6.0	--	--
120	13	9.4	7.7	6.5	--	--
183	14	10	9.0	8.0	--	--

Magnitude and probability of seasonal low flow from
March-June based on 22 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	7.4	5.6	4.7	4.1	--	--
3	7.7	5.7	4.8	4.2	--	--
7	8.4	6.4	5.4	4.7	--	--
14	9.5	7.2	6.1	5.2	--	--
30	11	8.8	7.4	6.4	--	--

Magnitude and probability of seasonal low flow from
November-February based on 22 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	6.4	4.6	4.0	3.7	--	--
3	6.7	4.7	4.1	3.7	--	--
7	7.1	5.0	4.4	4.0	--	--
14	8.1	5.8	5.0	4.3	--	--
30	9.2	6.9	5.8	4.9	--	--

Duration of daily mean flows based on 22 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
4.2	4.8	6.2	7.6	10	13	15	18
40%	30%	20%	15%	10%	5%	2%	1%
22	32	73	121	178	296	447	527

Magnitude and probability of annual high flow
based on 22 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	503	761	965	1,260	--	--
3	464	690	863	1,110	--	--
7	410	597	734	922	--	--
15	354	520	639	798	--	--
30	295	433	530	656	--	--
60	236	325	384	457	--	--
90	182	249	293	348	--	--

Magnitude and probability of seasonal high flow from
July-October based on 22 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	9.8	6.5	5.1	4.1	--	--
3	10	6.8	5.4	4.4	--	--
7	11	7.2	5.7	4.7	--	--
14	11	7.8	6.5	5.5	--	--
30	12	8.7	7.2	6.2	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	63	7.6	19	12	22
November	36	3.8	16	6.6	22
December	26	4.5	13	4.7	22
January	18	5.0	11	3.5	22
February	18	4.4	10	3.8	22
March	17	6.2	12	2.8	22
April	184	14	61	42	22
May	441	65	221	97	23
June	656	80	242	141	23
July	184	19	63	37	23
August	48	7.3	21	9.4	23
September	38	6.7	16	7.7	23
Annual	105	33	60	20	22

**06193500 Shields River at Clyde Park, Mont.
Site Number 147**

LOCATION.--Lat 45°53'08", long 110°37'05" (NAD 27), in NW¼NW¼ sec.33, T.2 N., R.9 E., Park County, on right bank just downstream from highway bridge, 0.3 mi west of Clyde Park, 2 mi upstream from Brackett Creek, and at river mile 14.2.

DRAINAGE AREA.--543 mi².

PERIOD OF RECORD.--38 years. March 1921 to September 1923, April 1929 to December 1932, February 1934 to September 1967 (discontinued). Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1309: 1922, 1948(M). WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 4,780 ft (NGVD 29, from topographic map). Mar. 31, 1921, to Sept. 30, 1923, nonrecording gage at present site at different datum. Apr. 27, 1929, to Jan. 5, 1951, nonrecording gage at present site and datum.

REMARKS.--Diversions for irrigation of about 19,500 acres, of which 500 acres lie downstream from station.

Magnitude and probability of annual low flow
based on 36 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	18	8.4	5.2	3.3	1.9	--
3	19	8.9	5.4	3.4	1.9	--
7	20	9.6	5.9	3.7	2.1	--
14	22	11	6.7	4.3	2.4	--
30	27	13	7.9	5.0	2.8	--
60	33	17	11	6.9	4.0	--
90	39	21	14	9.9	6.3	--
120	46	27	20	15	10	--
183	51	33	25	20	15	--

Magnitude and probability of seasonal low flow from
March-June based on 39 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	33	22	17	13	10	--
3	35	24	19	15	11	--
7	38	28	24	21	18	--
14	45	33	29	26	23	--
30	79	51	41	35	29	--

Magnitude and probability of seasonal low flow from
November-February based on 38 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	25	18	15	12	10	--
3	27	19	16	13	11	--
7	30	21	18	15	13	--
14	33	24	20	17	14	--
30	38	28	23	20	17	--

Duration of daily mean flows based on 38 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
5.2	9.3	18	26	36	44	54	65
40%	30%	20%	15%	10%	5%	2%	1%
84	120	216	309	448	678	982	1,180

Magnitude and probability of annual high flow
based on 38 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	1,020	1,590	2,010	2,580	3,030	--
3	934	1,420	1,740	2,170	2,480	--
7	837	1,220	1,470	1,770	1,980	--
15	724	1,060	1,270	1,520	1,690	--
30	611	902	1,090	1,310	1,470	--
60	500	736	887	1,070	1,200	--
90	411	603	725	874	981	--

Magnitude and probability of seasonal low flow from
July-October based on 39 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	19	8.5	5.4	3.5	2.0	--
3	20	9.0	5.7	3.5	2.1	--
7	22	9.7	6.1	4.0	2.2	--
14	24	11	6.8	4.5	2.5	--
30	29	13	8.1	5.3	2.9	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	199	16	70	38	39
November	136	22	66	23	39
December	130	17	53	22	39
January	99	16	45	17	38
February	201	19	57	38	39
March	348	33	103	65	39
April	820	62	252	162	40
May	1,260	48	485	252	41
June	1,320	63	507	305	41
July	318	9.6	133	89	41
August	158	3.1	47	37	41
September	187	4.3	54	39	41
Annual	352	46	159	66	38

**06194000 Brackett Creek near Clyde Park, Mont.
Site Number 148**

LOCATION.--Lat 45°52'00", long 110°40'10" (NAD 27), in SE¼NE¼ sec.1, T.1 N., R.8 E., Park County, near right bank on upstream side of private bridge, 3.5 mi southwest of Clyde Park and 4 mi upstream from mouth.

DRAINAGE AREA.--57.9 mi² (revised).

PERIOD OF RECORD.--25 years (1921-23, 1934-57).

GAGE.--Wire-weight gage. Altitude of gage is 4,930 ft (NGVD 29, from topographic map). Mar. 30, 1921, to Sept. 30, 1923, staff gage at site 0.75 mi upstream at different datum. Apr. 5, 1934, to May 24, 1949, staff gage and May 25, 1949, to Dec. 14, 1953, wire-weight gage at site 25 ft upstream at present datum.

Magnitude and probability of annual low flow
based on 23 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2.5	1.3	0.90	0.63	--	--
3	2.9	1.8	1.3	1.0	--	--
7	3.4	2.4	1.9	1.6	--	--
14	4.0	2.8	2.3	1.9	--	--
30	4.8	3.3	2.7	2.2	--	--
60	5.8	3.9	3.2	2.7	--	--
90	6.2	4.4	3.8	3.3	--	--
120	6.9	5.0	4.3	3.8	--	--
183	7.9	5.7	4.9	4.3	--	--

Magnitude and probability of seasonal low flow from
March-June based on 25 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4.3	2.8	2.0	1.5	1.1	--
3	4.6	3.2	2.6	2.1	1.7	--
7	5.3	3.9	3.3	2.8	2.3	--
14	6.2	4.6	3.8	3.2	2.5	--
30	9.3	6.0	4.7	3.8	2.9	--

Magnitude and probability of seasonal low flow from
November-February based on 25 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3.3	1.8	1.2	0.77	0.46	--
3	3.6	2.1	1.6	1.2	.80	--
7	4.0	2.6	2.1	1.7	1.4	--
14	4.4	3.0	2.5	2.1	1.7	--
30	5.0	3.4	2.8	2.3	1.9	--

Duration of daily mean flows based on 25 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
2.0	2.3	3.1	4.4	5.8	7.2	8.8	11
40%	30%	20%	15%	10%	5%	2%	1%
14	21	40	57	82	118	171	211

Magnitude and probability of annual high flow
based on 25 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	187	303	395	529	643	--
3	169	269	348	463	559	--
7	152	234	294	378	446	--
15	132	197	242	302	348	--
30	114	167	202	246	279	--
60	95	133	157	185	204	--
90	77	108	127	150	166	--

Magnitude and probability of seasonal low flow from
July-October based on 25 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	6.2	3.4	2.3	1.5	0.94	--
3	6.5	3.7	2.5	1.7	1.1	--
7	6.8	3.9	2.7	1.9	1.2	--
14	7.3	4.2	2.9	2.0	1.3	--
30	8.1	4.8	3.3	2.3	1.5	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	24	4.2	10	4.5	25
November	20	2.1	9.5	4.4	25
December	18	2.4	7.8	4.1	25
January	16	2.5	6.6	3.2	25
February	17	2.6	6.7	3.3	25
March	22	2.6	10	4.9	25
April	105	14	46	26	27
May	230	15	102	51	27
June	214	12	77	42	27
July	64	5.6	28	15	27
August	31	1.7	11	6.6	27
September	16	2.1	9.8	3.8	27
Annual	55	9.3	28	10	25

**06195600 Shields River near Livingston, Mont.
Site Number 149**

LOCATION.--Lat 45°44'18", long 110°28'45" (NAD 27), in NE¼SE¼NW¼ sec.22, T.1 S., R.10 E., Park County, Hydrologic Unit 10070003, on right bank 0.2 mi downstream from private road bridge, 6.5 mi northeast of Livingston, and at river mile 2.0.

DRAINAGE AREA.--852 mi².

PERIOD OF RECORD.--October 1978 to current year (2002).

GAGE.--Water-stage recorder. Altitude of gage is 4,420 ft (NGVD 29). Oct. 1, 1978, to Aug. 12, 1980, water-stage recorder at site 0.2 mi upstream at datum 7.89 ft higher.

REMARKS.--Diversions for irrigation of about 32,000 acres upstream from station. National Weather Service satellite telemeter at station.

Magnitude and probability of annual low flow
based on 23 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	50	37	30	25	--	--
3	53	39	32	26	--	--
7	60	43	35	29	--	--
14	68	48	39	31	--	--
30	75	53	42	34	--	--
60	84	58	46	37	--	--
90	93	66	53	43	--	--
120	104	76	62	51	--	--
183	114	85	71	61	--	--

Magnitude and probability of seasonal low flow from
March-June based on 24 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	85	63	54	47	--	--
3	91	67	56	49	--	--
7	99	72	61	53	--	--
14	120	86	72	62	--	--
30	149	103	87	76	--	--

Magnitude and probability of seasonal low flow from
November-February based on 23 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	56	46	42	39	--	--
3	61	50	45	42	--	--
7	67	57	52	48	--	--
14	76	64	58	54	--	--
30	85	71	64	59	--	--

Duration of daily mean flows based on 24 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
35	43	56	70	87	104	121	143
40%	30%	20%	15%	10%	5%	2%	1%
172	222	353	488	705	1,080	1,610	2,050

Magnitude and probability of annual high flow
based on 24 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	1,640	2,610	3,340	4,360	--	--
3	1,520	2,400	3,020	3,820	--	--
7	1,350	2,090	2,570	3,160	--	--
15	1,140	1,740	2,130	2,600	--	--
30	950	1,480	1,830	2,240	--	--
60	735	1,170	1,460	1,850	--	--
90	619	987	1,240	1,570	--	--

Magnitude and probability of seasonal low flow from
July-October based on 23 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	74	44	33	25	--	--
3	77	46	34	27	--	--
7	80	49	37	29	--	--
14	85	52	39	32	--	--
30	94	57	43	34	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	275	52	150	59	24
November	195	74	134	33	24
December	145	74	109	23	24
January	224	56	103	38	24
February	363	60	125	75	24
March	461	77	177	95	24
April	627	145	370	154	24
May	1,960	198	815	457	24
June	2,260	152	772	514	24
July	1,140	54	323	270	24
August	677	26	134	129	24
September	388	31	134	76	24
Annual	610	114	279	128	24

**06197000 Big Timber Creek near Big Timber, Mont.
Site Number 150**

LOCATION.--Lat 45°57'15", long 110°01'45" (NAD 27), in SW¼ NE¼ sec.6, T.2 N., R.14 E., Sweet Grass County, 3 mi downstream from confluence of North and South Forks and 9 mi northeast of Big Timber.

DRAINAGE AREA.--74.9 mi².

PERIOD OF RECORD.--11 years (1912-16, 1917-24).

GAGE.--Staff gage. Altitude of gage is 4,680 ft (NGVD 29, from topographic map). Prior to Apr. 5, 1918, wire-weight gages at sites 1.5 mi downstream at different datum. Apr. 5, 1918, to Apr. 15, 1921, wire-weight gages at sites within 500 ft downstream at different datum.

REMARKS.--Diversions for irrigation of about 5,000 acres upstream from station.

Magnitude and probability of annual low flow
based on 9 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	--	--	--	--	--	--
3	--	--	--	--	--	--
7	--	--	--	--	--	--
14	--	--	--	--	--	--
30	--	--	--	--	--	--
60	--	--	--	--	--	--
90	--	--	--	--	--	--
120	--	--	--	--	--	--
183	--	--	--	--	--	--

Magnitude and probability of seasonal low flow from
March-June based on 11 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	14	7.5	5.2	3.7	--	--
3	15	9.4	7.4	6.0	--	--
7	17	12	9.6	8.4	--	--
14	18	13	11	9.2	--	--
30	20	14	11	9.8	--	--

Magnitude and probability of seasonal low flow from
November-February based on 11 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	13	9.9	8.8	7.9	--	--
3	13	11	9.3	8.1	--	--
7	14	11	9.3	8.2	--	--
14	15	11	9.4	8.3	--	--
30	15	11	9.5	8.4	--	--

Duration of daily mean flows based on 11 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
8.4	8.8	9.8	12	17	21	26	32
40%	30%	20%	15%	10%	5%	2%	1%
43	60	103	151	223	323	443	530

Magnitude and probability of annual high flow
based on 11 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	612	885	1,060	--	--	--
3	529	752	900	--	--	--
7	456	637	763	--	--	--
15	398	544	638	--	--	--
30	356	461	507	--	--	--
60	287	357	380	--	--	--
90	230	288	308	--	--	--

Magnitude and probability of seasonal low flow from
July-October based on 11 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	15	8.8	4.6	0.00	--	--
3	16	9.4	5.3	.00	--	--
7	17	10	7.8	6.0	--	--
14	19	12	10	8.4	--	--
30	23	16	13	12	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	59	12	31	14	12
November	32	10	24	7.2	12
December	43	10	20	9.3	11
January	34	10	17	7.4	11
February	25	9.0	17	5.8	11
March	48	10	23	11	11
April	69	19	48	15	12
May	226	88	145	46	12
June	529	56	310	119	12
July	329	37	176	87	12
August	97	25	56	23	13
September	83	16	35	18	13
Annual	108	40	77	22	11

**06197500 Boulder River near Contact, Mont.
Site Number 151**

LOCATION.--Lat 45°33'17", long 110°12'00" (NAD 27), in NW¼SE¼SE¼ sec.23, T.3 S., R.12 E., Sweet Grass County, Hydrologic Unit 10070002, on left bank 0.5 mi downstream from Natural Bridge and Falls, 3.4 mi north of Contact, 9.5 mi southeast of McLeod, 9.7 mi upstream from East Boulder River, and at river mile 32.4.

DRAINAGE AREA.--226 mi².

PERIOD OF RECORD.--May 1910 to October 1912, April 1913 to September 1916 (no winter records), April to August 1929, October 1950 to September 1969, September 1970 to September 1974, August 1981 to September 1983 (discontinued). Monthly discharge only January to March 1912, published in WSP 1309, and February, March 1955, published in WSP 1729.

REVISED RECORDS.--WSP 1509: 1910-11, 1915 (M). WSP 1916: 1955.

GAGE.--Water-stage recorder. Altitude of gage is 4,930 ft (NGVD 29, from topographic map). Prior to July 15, 1951, non-recording gages at site 2.7 mi downstream at different datum.

REMARKS.--Divisions for irrigation of about 10 acres.

Magnitude and probability of annual low flow
based on 24 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	42	34	30	26	--	--
3	44	39	36	34	--	--
7	48	43	40	38	--	--
14	50	45	42	40	--	--
30	52	48	45	44	--	--
60	57	52	49	48	--	--
90	64	57	54	52	--	--
120	70	62	58	56	--	--
183	91	78	72	68	--	--

Magnitude and probability of seasonal low flow from
March-June based on 27 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	47	38	32	28	23	--
3	49	42	39	36	33	--
7	51	45	42	40	37	--
14	53	47	44	42	39	--
30	55	50	47	45	42	--

Magnitude and probability of seasonal low flow from
November-February based on 27 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	43	37	34	32	30	--
3	48	41	38	35	31	--
7	53	46	41	38	32	--
14	56	49	44	41	33	--
30	58	51	46	44	34	--

Duration of daily mean flows based on 27 years of record

Discharge, in ft ³ /s, which was equalled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
36	44	48	53	62	75	90	121
40%	30%	20%	15%	10%	5%	2%	1%
168	257	590	892	1,340	2,040	2,810	3,170

Magnitude and probability of annual high flow
based on 27 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	3,220	3,850	4,260	4,790	5,180	--
3	3,010	3,630	4,050	4,580	4,990	--
7	2,780	3,380	3,760	4,240	4,590	--
15	2,460	3,000	3,340	3,750	4,060	--
30	2,080	2,490	2,750	3,060	3,280	--
60	1,580	1,850	2,010	2,200	2,320	--
90	1,220	1,430	1,540	1,660	1,740	--

Magnitude and probability of seasonal low flow from
July-October based on 29 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	96	72	61	54	46	--
3	99	76	66	58	51	--
7	102	80	71	64	57	--
14	106	85	76	70	64	--
30	115	92	84	78	72	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	222	83	133	43	31
November	137	67	94	21	29
December	94	42	73	13	27
January	80	30	61	9.8	27
February	73	35	57	7.5	27
March	70	42	56	7.2	27
April	248	53	101	50	29
May	1,240	288	679	256	32
June	3,120	1,250	1,930	463	33
July	2,000	282	994	397	33
August	542	131	277	104	33
September	301	103	158	43	31
Annual	484	258	383	64	27

**06200000 Boulder River at Big Timber, Mont.
Site Number 152**

LOCATION.--Lat 45°50'03", long 109°56'17" (NAD 27), in SE¼NE¼SE¼ sec.14, T.1 N., R.14 E., Sweet Grass County, Hydrologic Unit 10070002, on left bank 150 ft upstream from Old Boulder Bridge, 1 mi east of Big Timber, and at river mile 1.6.

DRAINAGE AREA.--523 mi².

PERIOD OF RECORD.--April 1947 to December 1953, March 1955 to current year (2002). Monthly discharge only for April 1947, published in WSP 1309.

GAGE.--Water-stage recorder. Altitude of gage is 4,056.39 ft (NGVD 29, levels by U.S. Army Corps of Engineers).

REMARKS.--Diversions for irrigation of about 13,300 acres, of which about 250 acres lie downstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 51 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	63	40	30	22	16	12
3	70	46	34	25	17	13
7	81	52	38	28	19	14
14	92	59	43	32	21	15
30	107	71	52	38	25	19
60	126	89	68	51	35	27
90	144	110	87	68	48	37
120	155	121	101	85	67	57
183	167	129	111	98	83	75

Magnitude and probability of seasonal low flow from
March-June based on 53 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	96	76	66	58	49	44
3	104	84	72	63	54	48
7	114	93	81	71	60	53
14	122	102	90	81	70	63
30	129	109	99	90	80	73

Magnitude and probability of seasonal low flow from
November-February based on 53 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	70	50	41	34	28	24
3	79	58	48	40	32	28
7	93	71	59	49	39	34
14	109	85	71	59	47	40
30	124	100	84	70	56	47

Duration of daily mean flows based on 53 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
38	54	78	98	121	143	164	186
40%	30%	20%	15%	10%	5%	2%	1%
232	315	644	1,130	1,820	2,850	4,010	4,860

Magnitude and probability of annual high flow
based on 53 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	4,890	6,060	6,730	7,470	7,970	8,420
3	4,510	5,690	6,370	7,120	7,630	8,100
7	4,060	5,240	5,920	6,700	7,230	7,730
15	3,530	4,560	5,160	5,840	6,300	6,720
30	2,990	3,800	4,280	4,840	5,230	5,590
60	2,250	2,840	3,190	3,600	3,890	4,160
90	1,710	2,150	2,410	2,730	2,940	3,150

Magnitude and probability of seasonal low flow from
July-October based on 54 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	102	56	38	27	18	13
3	104	57	39	28	19	14
7	109	60	41	30	20	15
14	115	63	44	32	22	17
30	131	73	53	39	26	20

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	417	75	220	84	54
November	282	108	191	45	54
December	214	72	154	29	54
January	214	55	136	28	53
February	197	55	128	25	53
March	179	93	128	19	53
April	390	67	212	73	55
May	2,240	429	1,150	419	55
June	4,640	894	2,770	845	55
July	4,310	193	1,270	764	55
August	709	22	244	155	55
September	534	28	193	104	55
Annual	906	310	566	140	53

**06200500 Sweet Grass Creek above Melville, Mont.
Site Number 153**

LOCATION.--Lat 46°90'15", long 110°05'15" (NAD 27), in NW¼ sec.27, T.5 N., R.13 E., Sweet Grass County, on right bank 7.5 mi northwest of Melville.

DRAINAGE AREA.--63.8 mi².

PERIOD OF RECORD.--43 years. August 1913 to December 1924, April 1937 to September 1969 (discontinued). May 1907 to September 1911, April to September 1912 at site 5 mi upstream published as "Sweetgrass Creek above Melville," records not equivalent owing to diversion and tributary flow. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1509: 1914-15, 1918, 1937. WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 5,490 ft (NGVD 29, by barometer). Aug. 21, 1913, to Dec. 31, 1924, nonrecording gage at site 1,500 ft downstream at different datum. Apr. 17, 1937, to Sept. 25, 1951, water-stage recorder at site 1,000 ft downstream at different datum.

REMARKS.--Diversions for irrigation of 200 acres upstream from station. Diversions in T.5 N., R.12 E. from headwaters of American Fork in Musselshell River basin to irrigate an additional 300 acres upstream from station.

Magnitude and probability of annual low flow
based on 41 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	6.8	4.3	3.2	2.4	1.7	--
3	7.2	4.9	3.8	3.0	2.2	--
7	7.5	5.4	4.5	3.8	3.1	--
14	8.0	6.3	5.5	4.9	4.3	--
30	9.2	7.5	6.7	6.0	5.4	--
60	11	8.7	7.8	7.1	6.3	--
90	14	11	9.6	8.5	7.5	--
120	18	14	12	11	9.2	--
183	25	20	17	16	14	--

Magnitude and probability of seasonal low flow from
March-June based on 43 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	7.8	5.4	4.3	3.5	2.8	--
3	8.2	5.7	4.6	3.8	3.0	--
7	8.6	6.3	5.3	4.5	3.7	--
14	9.1	7.0	6.1	5.4	4.8	--
30	11	8.3	7.3	6.6	5.8	--

Magnitude and probability of seasonal low flow from
November-February based on 43 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	8.4	5.1	3.7	2.7	1.8	--
3	8.8	5.7	4.3	3.3	2.4	--
7	9.1	6.2	5.0	4.1	3.2	--
14	9.6	7.2	6.1	5.4	4.7	--
30	11	8.4	7.4	6.7	5.9	--

Duration of daily mean flows based on 43 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
5.8	6.3	7.7	9.7	13	16	21	29
40%	30%	20%	15%	10%	5%	2%	1%
41	63	125	181	261	401	549	691

Magnitude and probability of annual high flow
based on 43 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	782	1,020	1,180	1,360	1,500	--
3	678	863	976	1,110	1,200	--
7	584	731	817	915	983	--
15	498	615	680	751	798	--
30	426	524	577	634	670	--
60	338	406	441	477	499	--
90	269	318	341	364	378	--

Magnitude and probability of seasonal low flow from
July-October based on 43 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	26	19	17	15	14	--
3	26	20	18	16	15	--
7	27	21	18	17	15	--
14	28	22	19	17	16	--
30	31	23	20	18	17	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	97	16	41	22	44
November	51	14	29	10	44
December	33	7.2	19	6.4	44
January	26	5.2	14	4.6	43
February	22	6.0	12	3.8	43
March	20	5.7	11	3.2	43
April	71	6.5	16	10	44
May	318	78	178	66	44
June	585	131	385	106	44
July	360	64	204	75	44
August	147	31	74	26	45
September	110	20	46	20	45
Annual	118	51	86	17	43

**06201000 Sweet Grass Creek below Melville, Mont.
Site Number 154**

LOCATION.--Lat 46°03'41", long 109°50'43" (NAD 27), near middle of south line of sec.27, T.4 N., R.15 E., Sweet Grass County, on left bank 6 mi southeast of Melville and 19 mi upstream from East Fork

DRAINAGE AREA.--143 mi² (revised).

PERIOD OF RECORD.--11 years (1910-11, 1937-40, 1941-42, 1946-52).

GAGE.--Water-stage recorder. Altitude of gage is 4,740 ft (NGVD 29, by barometer). May 1907 to November 1908, staff gage at site 2.5 mi downstream at different datum. Apr. 1, 1909, to Sept. 30, 1924, and Apr. 11, 1937, to Apr. 14, 1941, staff or wire-weight gages at various sites within 150 ft of present site at present datum.

REMARKS.--Diversions upstream from station for irrigation of 12,800 acres, of which 100 acres lie downstream from station.

Magnitude and probability of annual low flow
based on 7 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	--	--	--	--	--	--
3	--	--	--	--	--	--
7	--	--	--	--	--	--
14	--	--	--	--	--	--
30	--	--	--	--	--	--
60	--	--	--	--	--	--
90	--	--	--	--	--	--
120	--	--	--	--	--	--
183	--	--	--	--	--	--

Magnitude and probability of seasonal low flow from
March-June based on 12 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	16	12	10	8.9	--	--
3	17	13	11	9.6	--	--
7	18	13	12	10	--	--
14	19	15	14	13	--	--
30	24	18	16	14	--	--

Magnitude and probability of seasonal low flow from
November-February based on 11 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	15	11	9.5	8.2	--	--
3	16	12	10	8.8	--	--
7	17	14	12	11	--	--
14	19	16	14	13	--	--
30	22	18	16	14	--	--

Duration of daily mean flows based on 11 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
12	14	17	20	27	34	43	54
40%	30%	20%	15%	10%	5%	2%	1%
66	88	153	213	296	434	615	743

Magnitude and probability of annual high flow
based on 11 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	780	1,220	1,550	--	--	--
3	668	1,010	1,260	--	--	--
7	520	795	989	--	--	--
15	426	646	794	--	--	--
30	359	527	638	--	--	--
60	289	405	478	--	--	--
90	233	315	363	--	--	--

Magnitude and probability of seasonal low flow from
July-October based on 24 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	20	10	6.8	4.8	--	--
3	21	11	7.7	5.7	--	--
7	24	13	9.9	7.6	--	--
14	27	16	12	9.3	--	--
30	31	20	16	14	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	136	22	63	30	25
November	87	21	52	19	20
December	67	19	42	14	11
January	44	19	28	8.1	11
February	38	15	24	7.4	11
March	66	16	30	14	12
April	100	16	42	24	24
May	336	73	172	63	28
June	681	50	361	155	30
July	434	35	170	99	30
August	164	16	56	36	30
September	107	18	47	25	30
Annual	128	47	90	27	11

**06202510 Stillwater River above Nye Creek, near Nye, Mont.
Site Number 155**

LOCATION.--Lat 45°23'46", long 109°52'14" (NAD 27), in SW¼NE¼SW¼ sec.15, T.5 S., R.15 E., Stillwater County, Hydrologic Unit 10007005, at private bridge 200 ft above Nye Creek, 1.0 mi below Mountain View Creek, 4.3 mi southwest of Nye, and at river mile 41.3.

DRAINAGE AREA.--193 mi².

PERIOD OF RECORD.--November 1979 to September 1991 (discontinued).

GAGE.--Nonrecording gage and crest-stage gage. Altitude of gage is 4,880 ft (NGVD 29, from topographic map).

REMARKS.--Diversions or regulation upstream from gage have not been identified.

Magnitude and probability of annual low flow
based on 11 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	27	23	22	21	--	--
3	32	27	25	23	--	--
7	37	33	31	29	--	--
14	42	38	36	34	--	--
30	46	41	39	37	--	--
60	53	46	42	39	--	--
90	58	49	45	42	--	--
120	65	54	49	46	--	--
183	92	75	67	61	--	--

Magnitude and probability of seasonal low flow from
March-June based on 12 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	36	29	27	24	--	--
3	38	32	29	26	--	--
7	41	36	34	32	--	--
14	46	40	38	36	--	--
30	49	44	41	39	--	--

Magnitude and probability of seasonal low flow from
November-February based on 11 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	29	24	22	21	--	--
3	34	28	26	24	--	--
7	39	33	31	30	--	--
14	44	38	36	35	--	--
30	49	42	40	37	--	--

Duration of daily mean flows based on 11 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
33	34	39	46	55	65	82	110
40%	30%	20%	15%	10%	5%	2%	1%
162	263	482	743	1,210	1,940	2,740	3,060

Magnitude and probability of annual high flow
based on 11 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	3,740	4,230	4,370	--	--	--
3	3,350	3,630	3,670	--	--	--
7	2,900	3,280	3,380	--	--	--
15	2,540	2,940	3,070	--	--	--
30	2,140	2,460	2,570	--	--	--
60	1,550	1,830	1,950	--	--	--
90	1,200	1,420	1,520	--	--	--

Magnitude and probability of seasonal low flow from
July-October based on 11 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	83	65	57	50	--	--
3	92	75	66	60	--	--
7	98	78	68	60	--	--
14	103	81	71	63	--	--
30	115	90	79	71	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	243	82	127	44	11
November	156	58	88	27	12
December	77	46	63	12	12
January	73	42	56	10	12
February	67	39	52	8.6	12
March	70	41	51	8.4	12
April	238	67	138	61	12
May	1,080	440	781	228	12
June	2,380	896	1,810	433	12
July	1,620	303	912	466	12
August	471	113	294	93	12
September	326	76	169	62	12
Annual	437	270	373	66	11

**06204050 West Rosebud Creek near Roscoe, Mont.
Site Number 156**

LOCATION.--Lat 45°14'35", long 109°43'50" (NAD 27), in NE¼ sec.10, T.7 S., R.16 E., Stillwater County, Hydrologic Unit 10070005, on left bank at Mystic Lake powerplant, 2.0 mi downstream from Mystic Lake, 13.5 mi southwest of Roscoe, and at river mile 26.8.

DRAINAGE AREA.--52.1 mi².

PERIOD OF RECORD.--September 1965 to current year (2002).

GAGE.--Water-stage recorder and rectangular weir. Altitude of gage is 6,535.60 ft (NGVD 29).

REMARKS.--Flow regulated by Mystic Lake (station number 06204000). U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 36 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	17	9.2	6.2	4.3	2.7	--
3	22	12	8.2	5.7	3.5	--
7	26	16	11	7.3	4.4	--
14	30	19	13	9.0	5.5	--
30	35	23	17	11	7.0	--
60	40	29	23	19	14	--
90	50	40	35	31	27	--
120	68	54	47	41	34	--
183	84	77	73	69	66	--

Magnitude and probability of seasonal low flow from
March-June based on 37 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	23	12	7.8	5.2	3.1	--
3	25	14	9.0	6.1	3.7	--
7	28	16	11	7.4	4.5	--
14	32	19	13	9.1	5.6	--
30	36	24	17	12	7.1	--

Magnitude and probability of seasonal low flow from
November-February based on 37 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	34	20	14	9.6	6.1	--
3	37	24	18	14	9.9	--
7	40	31	26	23	20	--
14	44	34	29	25	22	--
30	50	39	34	30	25	--

Duration of daily mean flows based on 37 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
16	20	27	34	44	58	72	83
40%	30%	20%	15%	10%	5%	2%	1%
98	134	172	195	247	366	541	682

Magnitude and probability of annual high flow
based on 37 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	632	929	1,110	1,310	1,440	--
3	589	856	1,020	1,200	1,320	--
7	530	751	882	1,030	1,130	--
15	468	650	759	885	971	--
30	398	541	630	737	812	--
60	308	398	457	528	581	--
90	261	325	364	412	446	--

Magnitude and probability of seasonal low flow from
July-October based on 36 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	40	21	14	9.9	6.5	--
3	49	31	25	20	16	--
7	61	40	31	26	20	--
14	70	45	35	28	21	--
30	84	58	47	38	30	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	167	33	94	34	37
November	178	31	82	37	37
December	118	28	74	21	37
January	148	26	67	21	37
February	92	29	60	15	37
March	124	22	55	24	37
April	108	3.6	43	19	37
May	134	16	74	29	37
June	558	76	221	97	37
July	712	158	367	129	37
August	277	103	197	38	37
September	183	38	122	37	38
Annual	164	82	122	19	37

**06204500 Rosebud Creek near Absarokee, Mont.
Site Number 157**

LOCATION.--Lat 45°29'12", long 109°27'19" (NAD 27), in SW¼NW¼ sec.13, T.4 S., R.8 E., Stillwater County, on right bank 80 ft downstream from Smith Bridge, 0.2 mi downstream from confluence of East and West Rosebud Creeks, and 2.5 mi south of Absarokee.

DRAINAGE AREA.--394 mi².

PERIOD OF RECORD.--34 years. April 1935 to September 1969 (discontinued).

REVISED RECORDS.--WSP 1036: 1944. WSP 1309: 1935-36(M). WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 4,160 ft (NGVD 29, by barometer). Prior to July 14, 1942, nonrecording gage at present site and datum.

REMARKS.--Flow partly regulated by Mystic Lake (station number 06204000). Diversions for irrigation of about 16,000 acres upstream from station.

Magnitude and probability of annual low flow
based on 33 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	86	66	56	47	38	--
3	94	74	63	54	44	--
7	105	83	71	60	49	--
14	116	91	77	65	53	--
30	129	101	84	70	56	--
60	143	115	97	83	67	--
90	156	132	117	105	91	--
120	166	144	133	123	113	--
183	202	173	160	150	140	--

Magnitude and probability of seasonal low flow from
March-June based on 34 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	107	78	63	52	40	--
3	116	86	70	58	45	--
7	124	94	78	66	53	--
14	134	104	88	75	62	--
30	154	116	98	84	70	--

Magnitude and probability of seasonal low flow from
November-February based on 34 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	91	70	59	51	42	--
3	101	78	65	55	45	--
7	114	86	71	61	51	--
14	125	94	78	66	53	--
30	139	106	86	71	58	--

Duration of daily mean flows based on 34 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
66	81	103	125	151	174	202	239
40%	30%	20%	15%	10%	5%	2%	1%
283	373	590	759	1,010	1,390	1,940	2,180

Magnitude and probability of annual high flow
based on 34 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	2,110	2,880	3,410	4,090	4,610	--
3	1,950	2,590	3,010	3,510	3,890	--
7	1,760	2,320	2,650	3,040	3,310	--
15	1,530	2,010	2,310	2,660	2,910	--
30	1,360	1,790	2,050	2,370	2,590	--
60	1,140	1,480	1,690	1,940	2,110	--
90	958	1,230	1,390	1,580	1,710	--

Magnitude and probability of seasonal low flow from
July-October based on 34 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	175	136	118	105	91	--
3	187	145	126	111	95	--
7	199	156	136	120	103	--
14	214	171	149	133	115	--
30	232	186	165	149	133	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	449	149	246	61	34
November	274	130	200	33	34
December	214	113	166	26	34
January	201	47	148	34	34
February	226	51	144	37	34
March	278	91	165	43	34
April	544	66	212	86	35
May	892	223	526	194	35
June	2,250	598	1,200	407	35
July	1,910	383	1,060	404	35
August	741	226	464	147	35
September	605	125	310	96	35
Annual	634	241	407	97	34

**06205000 Stillwater River near Absarokee, Mont.
Site Number 158**

LOCATION.--Lat 45°33'04", long 109°23'12" (NAD 27), in NE¼NE¼NW¼ sec.28, T.3 S., R.19 E., Stillwater County, Hydrologic Unit 10070005, on right bank 3 mi downstream from Rosebud Creek, 3.5 mi northeast of Absarokee, 9 mi southwest of Columbus, and at river mile 9.4.

DRAINAGE AREA.--975 mi².

PERIOD OF RECORD.--July 1910 to September 1914 (no winter records), March 1935 to September 1995, October 1995 to current year (2002; seasonal records only).

REVISED RECORDS.--WSP 1309: 1911(M). WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 3,873.8 ft (NGVD 29, levels by U.S. Army Corps of Engineers). Prior to Oct. 1, 1914, nonrecording gage, and Mar. 26, 1935, to Sept. 30, 1942, nonrecording gage, at bridge 2 mi upstream at different datums.

REMARKS.--Flow partly regulated by Mystic Lake (station number 06204000). Diversions for irrigation of about 24,300 acres, of which 400 acres lie downstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 60 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	154	115	95	80	65	56
3	170	130	109	92	74	63
7	192	152	130	112	93	81
14	210	172	151	134	115	103
30	231	193	172	154	135	123
60	262	221	199	181	162	149
90	291	249	227	209	189	176
120	321	278	255	236	215	201
183	399	333	301	275	248	231

Magnitude and probability of seasonal low flow from
March-June based on 63 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	205	152	122	98	67	58
3	218	164	132	106	77	67
7	226	175	148	126	95	85
14	241	192	167	145	116	106
30	262	209	185	165	136	126

Magnitude and probability of seasonal low flow from
November-February based on 63 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	160	116	96	83	67	59
3	176	131	111	93	76	67
7	198	154	132	115	94	84
14	218	174	153	136	117	106
30	245	194	175	156	138	126

Duration of daily mean flows based on 63 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
121	149	197	226	284	336	394	481
40%	30%	20%	15%	10%	5%	2%	1%
609	836	1,410	1,960	2,700	3,820	5,240	5,970

Magnitude and probability of annual high flow
based on 63 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	5,910	7,520	8,480	9,620	10,400	11,200
3	5,390	6,880	7,800	8,900	9,690	10,400
7	4,840	6,280	7,180	8,270	9,060	9,820
15	4,230	5,500	6,290	7,240	7,920	8,580
30	3,730	4,790	5,430	6,180	6,690	7,180
60	3,040	3,860	4,330	4,870	5,220	5,550
90	2,470	3,110	3,470	3,870	4,140	4,380

Magnitude and probability of seasonal low flow from
July-October based on 69 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	389	287	237	199	161	138
3	402	299	249	211	172	149
7	417	317	269	233	196	173
14	438	336	288	252	214	191
30	477	369	319	281	243	219

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	852	0.00	509	147	71
November	574	227	403	73	65
December	430	184	317	54	63
January	413	.00	273	66	63
February	449	.00	260	69	63
March	565	.00	280	85	63
April	1,180	144	410	146	70
May	2,880	660	1,510	480	71
June	5,780	1,560	3,510	1,020	72
July	6,370	626	2,360	1,010	72
August	1,960	280	903	330	73
September	1,100	275	618	202	73
Annual	1,470	507	940	214	63

**06207500 Clarks Fork Yellowstone River near Belfry, Mont.
Site Number 159**

LOCATION.--Lat 45°00'37", long 109°03'53" (NAD 27), in NW¼SW¼NW¼ sec.32, T.9 S., R.22 E., Carbon County, Hydrologic Unit 10070006, on left bank 0.2 mi upstream from county road bridge and Big Sand Coulee, 0.8 mi north of Wyoming-Montana State line, 9.5 mi southwest of Belfry, and at river mile 71.2. DRAINAGE AREA.--1,154 mi².

PERIOD OF RECORD.--July 1921 to current year (2002). Monthly discharge only for some periods, published in WSP 1309. Published as "Clarks Fork at Chance" prior to October 1956 and as "Clarks Fork Yellowstone River at Chance" October 1956 to September 1968.

REVISED RECORDS.--WSP 1309: 1922 (M). WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 3,986.24 ft (NGVD 29, levels by U.S. Army Corps of Engineers). Prior to Nov. 15, 1934, nonrecording gage, and Nov. 15, 1934, to July 26, 1951, water-stage recorder at bridge 0.4 mi downstream from different datum. July 27, 1951, to Sept. 30, 1953, water-stage recorder at present site at datum 0.98 ft higher.

REMARKS.--Diversions for irrigation of about 11,100 acres upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 80 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	121	85	67	54	41	34
3	130	91	71	57	42	34
7	143	99	77	60	44	35
14	155	107	83	65	48	38
30	171	119	94	75	56	45
60	202	146	116	92	69	55
90	232	174	140	114	86	70
120	249	192	159	133	106	89
183	263	207	181	161	141	128

Magnitude and probability of seasonal low flow from
March-June based on 81 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	171	128	104	84	64	52
3	181	139	113	92	69	56
7	195	153	125	101	76	61
14	209	166	138	114	89	73
30	223	178	153	131	108	94

Magnitude and probability of seasonal low flow from
November-February based on 81 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	145	107	88	74	60	51
3	157	117	96	80	64	54
7	173	134	114	97	80	69
14	190	151	130	113	94	82
30	209	174	155	139	122	111

Duration of daily mean flows based on 81 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
74	102	137	164	205	234	263	315
40%	30%	20%	15%	10%	5%	2%	1%
375	575	1,300	2,010	2,900	4,250	5,900	7,290

Magnitude and probability of annual high flow
based on 81 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	7,030	8,640	9,620	10,800	11,600	12,400
3	6,590	8,110	9,040	10,100	10,900	11,600
7	5,940	7,450	8,380	9,510	10,300	11,100
15	5,170	6,560	7,430	8,480	9,250	9,990
30	4,460	5,550	6,210	6,980	7,530	8,050
60	3,530	4,340	4,810	5,360	5,750	6,110
90	2,780	3,420	3,800	4,240	4,550	4,840

Magnitude and probability of seasonal low flow from
July-October based on 80 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	170	104	78	61	45	36
3	175	108	81	63	47	38
7	182	112	84	65	48	38
14	193	118	88	68	50	41
30	217	132	99	77	57	46

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	725	46	280	145	81
November	648	115	295	88	81
December	379	110	263	54	81
January	359	110	231	47	81
February	328	100	222	43	81
March	364	96	222	42	81
April	1,170	110	425	204	81
May	5,700	839	2,040	801	81
June	7,220	1,610	4,110	1,200	81
July	5,740	349	2,190	1,090	81
August	1,450	66	616	313	82
September	834	50	314	164	82
Annual	1,480	547	936	214	81

**06208500 Clarks Fork Yellowstone River at Edgar, Mont.
Site Number 160**

LOCATION.--Lat 45°27'58", long 108°50'35" (NAD 27), in SE¼SE¼SE¼ sec.23, T.4 S., R.23 E., Carbon County, Hydrologic Unit 10070006, on right bank 400 ft downstream from county bridge, 0.5 mi east of Edgar, 6 mi upstream from Rock Creek, and at river mile 22.1.

DRAINAGE AREA.--2,022 mi².

PERIOD OF RECORD.--July 1921 to September 1969, October 1986 to current year (2002).

REVISED RECORDS.--WSP 1509: 1924, 1932(M). WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 3,460 ft (NGVD 29). Prior to Aug. 31, 1953, nonrecording gage at same site and datum.

REMARKS.--Diversions for irrigation of about 41,500 acres, of which about 840 acres lie downstream from the station. In addition, about 6,300 acres of land upstream from the station are irrigated by diversions from the adjoining Rock Creek basin. U.S. Geological Survey satellite telemeter at station. Flows of White Horse Canal subtracted from discharge values at station.

Magnitude and probability of annual low flow
based on 63 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	195	130	96	71	47	35
3	211	143	106	78	52	39
7	234	157	116	85	56	41
14	256	173	128	95	64	47
30	288	197	146	109	73	54
60	337	252	200	157	113	89
90	370	297	252	215	175	150
120	402	332	293	260	224	200
183	428	356	322	296	269	252

Magnitude and probability of seasonal low flow from
March-June based on 64 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	270	198	152	115	79	59
3	290	224	174	133	90	67
7	375	297	238	186	132	101
14	375	297	238	186	132	101
30	375	297	238	186	132	101

Magnitude and probability of seasonal low flow from
November-February based on 64 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	221	177	155	138	120	109
3	239	194	171	153	133	121
7	262	216	194	177	159	147
14	287	242	220	202	184	172
30	315	263	237	216	193	178

Duration of daily mean flows based on 64 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
135	175	219	272	322	373	429	486
40%	30%	20%	15%	10%	5%	2%	1%
566	730	1,310	2,020	2,880	4,150	5,820	7,160

Magnitude and probability of annual high flow
based on 64 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	6,890	8,400	9,270	10,300	11,000	11,600
3	6,380	7,880	8,750	9,760	10,500	11,100
7	5,740	7,260	8,180	9,280	10,100	10,800
15	5,000	6,390	7,280	8,370	9,170	9,950
30	4,330	5,450	6,180	7,080	7,750	8,410
60	3,420	4,220	4,730	5,350	5,810	6,260
90	2,710	3,350	3,760	4,240	4,600	4,940

Magnitude and probability of seasonal low flow from
July-October based on 63 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	272	159	113	82	55	41
3	282	167	119	88	59	45
7	300	180	129	95	64	49
14	323	195	140	103	70	53
30	371	228	165	122	84	63

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	1,010	298	534	167	64
November	777	310	501	98	64
December	592	217	409	76	64
January	512	200	351	69	64
February	584	180	349	76	64
March	554	220	364	75	64
April	1,400	123	558	213	64
May	5,580	757	2,110	803	64
June	7,260	1,770	4,070	1,220	64
July	4,770	290	2,030	1,030	64
August	1,540	50	616	343	65
September	1,400	156	477	208	65
Annual	1,620	644	1,030	224	64

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06208800 Clarks Fork Yellowstone River near Silesia, Mont. Site Number 161

LOCATION.--Lat 45°30'48", long 108°49'42" (NAD 27), in NW¼SE¼ sec.1, T.4 S., R.23 E., Carbon County, Hydrologic Unit 10070006 on left bank 0.5 mi downstream from Whitehorse Canal intake, 1 mi upstream from Rock Creek, 3 mi south of Silesia, and at river mile 16.3.

DRAINAGE AREA.--2,093 mi².

PERIOD OF RECORD.--October 1969 to November 1986 (discontinued). Records for July 1921 to September 1969 published as "Clarks Fork Yellowstone River at Edgar" at site 5.8 mi upstream not equivalent because of diversion into Whitehorse Canal during irrigation season.

GAGE.--Water-stage recorder. Altitude of gage is 3,405.79 ft (NGVD 29, levels by U.S. Corps of Army Engineers).

REMARKS.--Diversion for irrigation of about 45,900 acres of which about 2,180 acres lie downstream from station. In addition, about 56,200 acres of land upstream from station are irrigated by diversions from the adjoining Rock Creek basin.

Magnitude and probability of annual low flow
based on 16 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	192	134	106	85	--	--
3	207	158	135	116	--	--
7	252	195	166	144	--	--
14	281	227	202	183	--	--
30	350	299	272	251	--	--
60	398	345	314	287	--	--
90	431	389	368	352	--	--
120	466	425	405	390	--	--
183	533	465	431	404	--	--

Magnitude and probability of seasonal low flow from
March-June based on 17 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	302	202	148	109	--	--
3	312	234	191	158	--	--
7	338	295	273	255	--	--
14	375	335	312	293	--	--
30	398	358	337	321	--	--

Magnitude and probability of seasonal low flow from
November-February based on 16 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	207	168	150	136	--	--
3	223	189	175	164	--	--
7	269	227	208	193	--	--
14	310	261	236	217	--	--
30	367	325	304	288	--	--

Duration of daily mean flows based on 17 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
200	224	280	328	403	453	503	579
40%	30%	20%	15%	10%	5%	2%	1%
682	843	1,300	1,980	3,030	4,630	6,070	7,740

Magnitude and probability of annual high flow
based on 17 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	7,720	9,460	10,500	11,700	--	--
3	7,280	9,040	10,100	11,200	--	--
7	6,450	8,260	9,350	10,600	--	--
15	5,630	7,300	8,270	9,350	--	--
30	4,830	6,050	6,660	7,260	--	--
60	3,910	4,800	5,170	5,490	--	--
90	3,060	3,780	4,090	4,350	--	--

Magnitude and probability of seasonal low flow from
July-October based on 17 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	336	218	166	129	--	--
3	346	226	173	136	--	--
7	368	244	190	152	--	--
14	399	278	226	190	--	--
30	475	347	293	254	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	950	484	657	141	18
November	669	416	567	71	18
December	680	397	478	75	17
January	514	292	423	62	17
February	499	350	424	44	17
March	596	334	428	77	17
April	761	337	521	131	17
May	3,230	1,020	1,890	607	17
June	6,660	2,220	4,450	1,290	17
July	5,600	422	2,430	1,300	17
August	1,250	333	766	301	17
September	1,020	263	671	226	17
Annual	1,510	661	1,140	235	17

**06209500 Rock Creek near Red Lodge, Mont.
Site Number 162**

LOCATION (REVISED).--Lat 45°05'11", long 109°19'46" (NAD 27), in NW¼NE¼SW¼ sec.36, T.8 S., R.19 E., Carbon County, Hydrologic Unit 10070006, on left bank 40 ft downstream from county bridge, 6.7 mi south of Red Lodge, and at river mile 49.1.

DRAINAGE AREA.--105 mi².

PERIOD OF RECORD.--April to December 1932, May 1934 to September 1982, May 1985 to September 1986, January 2000 to current year (2002). Monthly discharge only for May 1934, published in WSP 1309.

REVISED RECORDS.--WSP 1729: Drainage area. WDR MT-00-1: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 6,400 ft (NGVD 29). Prior to October 1986, water-stage recorder at datum 6,099.42 ft, levels by U.S. Army Corps of Engineers, at previous site 3.1 mi downstream. Streamflows are equivalent.

REMARKS.--Flow partly regulated by Glacier Lake. No diversions upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 49 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	23	19	17	16	14	--
3	24	20	19	17	16	--
7	25	22	21	20	18	--
14	26	24	22	21	20	--
30	28	26	24	23	21	--
60	31	28	26	24	22	--
90	36	32	29	27	25	--
120	41	36	33	31	29	--
183	66	57	53	49	46	--

Magnitude and probability of seasonal low flow from
March-June based on 52 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	25	21	20	18	16	15
3	26	22	20	19	17	16
7	27	23	22	20	19	18
14	28	24	23	22	20	19
30	29	26	24	23	22	20

Magnitude and probability of seasonal low flow from
November-February based on 51 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	25	20	18	16	14	12
3	26	22	20	18	16	15
7	27	24	22	20	18	17
14	29	26	24	22	21	19
30	31	27	25	24	22	20

Duration of daily mean flows based on 51 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
20	23	25	28	34	40	48	67
40%	30%	20%	15%	10%	5%	2%	1%
105	176	286	368	490	685	934	1,060

Magnitude and probability of annual high flow
based on 51 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	1,070	1,430	1,650	1,910	2,090	2,260
3	986	1,300	1,480	1,690	1,840	1,980
7	887	1,170	1,340	1,530	1,670	1,790
15	773	1,000	1,130	1,280	1,380	1,470
30	683	872	975	1,090	1,160	1,220
60	576	724	806	895	953	1,010
90	483	597	658	724	766	804

Magnitude and probability of seasonal low flow from
July-October based on 52 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	63	54	50	48	45	43
3	64	56	52	49	46	44
7	67	58	53	50	47	45
14	70	60	55	52	48	46
30	80	67	61	57	52	49

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	124	50	83	18	52
November	78	40	55	10	52
December	56	27	42	6.4	52
January	45	21	34	5.5	52
February	42	20	31	4.6	52
March	40	20	30	3.8	52
April	99	24	40	12	52
May	460	88	220	87	54
June	1,130	273	596	187	55
July	1,090	220	494	182	55
August	427	153	258	64	55
September	219	89	141	31	55
Annual	252	97	172	35	51

**06212500 Red Lodge Creek below Cooney Reservoir, near Boyd, Mont.
Site Number 163**

LOCATION.--Lat 45°26'59", long 109°11'06" (NAD 27), in NE¼NW¼NW¼ sec.31, T.4 S., R.21 E., Carbon County, Hydrologic Unit 10070006, on right bank 250 ft upstream from Cottonwood Creek, 1.5 mi downstream from Cooney Dam, 6 mi west of Boyd, and at river mile 10.5.

DRAINAGE AREA.--210 mi².

PERIOD OF RECORD.--September 1937 to current year (2002); seasonal records water years 1997-99.

REVISED RECORDS.--WSP 1309: 1942(M), 1944(M). WSP 2116: 1957(M).

GAGE.--Water-stage recorder. Altitude of gage is 4,139.12 ft (NGVD 29).

REMARKS.--Some return flow from lands irrigated by water diverted from Rock Creek and East Rosebud Creek basins. Flow completely regulated by Cooney Reservoir (station number 06212000). Diversions for irrigation of about 6,900 acres upstream from station.

Magnitude and probability of annual low flow
based on 60 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	5.6	2.0	0.89	0.39	0.05	0.00
3	5.9	2.5	1.6	1.0	.61	.42
7	7.5	3.5	2.3	1.6	.98	.71
14	9.4	4.5	2.9	2.0	1.2	.86
30	12	5.9	4.0	2.9	2.0	1.6
60	17	8.4	5.6	3.9	2.6	1.9
90	24	12	7.9	5.4	3.5	2.5
120	33	17	11	8.0	5.3	3.9
183	57	36	27	21	16	12

Magnitude and probability of seasonal low flow from
March-June based on 62 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	11	4.7	2.4	1.2	0.54	0.29
3	11	5.5	3.8	2.7	1.9	1.5
7	12	6.2	4.2	3.0	2.1	1.6
14	15	7.1	4.8	3.4	2.3	1.8
30	19	8.5	5.6	3.9	2.6	2.0

Magnitude and probability of seasonal low flow from
November-February based on 61 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	9.8	4.2	2.6	1.8	1.1	0.79
3	10	4.6	2.9	2.0	1.3	.95
7	11	5.4	3.6	2.6	1.7	1.3
14	14	7.0	4.8	3.5	2.4	1.9
30	16	8.1	5.5	3.9	2.6	2.0

Duration of daily mean flows based on 62 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
2.8	4.1	5.9	9.9	19	31	47	67
40%	30%	20%	15%	10%	5%	2%	1%
94	125	165	186	231	308	455	567

Magnitude and probability of annual high flow
based on 62 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	389	691	985	1,500	2,020	2,680
3	380	639	864	1,220	1,540	1,930
7	360	574	739	972	1,160	1,370
15	320	498	630	810	954	1,110
30	267	409	515	664	785	915
60	218	323	401	508	594	686
90	194	281	341	421	483	546

Magnitude and probability of seasonal high flow from
July-October based on 64 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	29	7.7	2.9	1.0	0.09	0.04
3	31	9.0	3.9	1.7	.62	.47
7	41	15	7.3	3.6	1.5	.76
14	48	19	9.6	4.9	2.1	1.1
30	64	32	19	12	6.4	4.0

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	234	2.4	79	49	65
November	212	3.5	65	51	63
December	120	3.5	37	28	62
January	95	2.0	28	20	62
February	139	2.2	29	25	62
March	232	2.4	43	46	62
April	253	3.2	81	65	65
May	801	5.1	177	148	65
June	685	49	225	144	65
July	383	57	172	70	65
August	220	60	141	39	65
September	197	20	112	42	65
Annual	226	24	100	37	62

06214500 Yellowstone River at Billings, Mont. Site Number 164

LOCATION.--Lat 45°48'00", long 108°28'00" (NAD 27), in SE¼SE¼SE¼ sec.27, T.1 N., R.26 E., Yellowstone County, Hydrologic Unit 10070007, on right bank 0.3 mi downstream from bridge on U.S. Highway 87, 1 mi northeast of Billings, 10 mi upstream from Pryor Creek, and at river mile 360.3.

DRAINAGE AREA.--11,805 mi².

PERIOD OF RECORD.--May 1904 to December 1905 (gage heights only January to March, December 1905), August 1928 to current year (2002). Monthly discharge only for some periods, published in WSP 1309. Published as "near Billings" 1904-05.

REVISED RECORDS.--WDR MT-68: 1967 (M). WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 3,080 ft (NGVD 29). May 1904 to December 1905, nonrecording gage at bridge 0.3 ft upstream at different datum. Aug. 24, 1928, to June 30, 1932, nonrecording gage at bridge 0.3 mi upstream at datum 2.0 ft higher. July 1, 1932, to Oct. 12, 1937, water-stage recorder at old diversion dam 3.3 mi upstream at different datum. Oct. 13, 1937, to Jan. 9, 1963, and Dec. 2, 1967, to Sept. 12, 1990, water-stage recorder 0.3 mi upstream at datum 3,081.36 ft. Jan. 10, 1963, to Dec. 2, 1967, water-stage recorder 2.1 mi upstream at datum 3,069.9 ft.

REMARKS.--Diversions for irrigation of about 350,000 acres upstream from station. U.S. Army Corps of Engineers satellite telemeter at station.

Magnitude and probability of annual low flow
based on 73 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1,270	949	794	676	555	483
3	1,370	1,050	897	778	656	581
7	1,570	1,260	1,110	998	879	805
14	1,870	1,530	1,360	1,230	1,090	997
30	2,170	1,780	1,590	1,430	1,270	1,160
60	2,390	1,990	1,790	1,640	1,470	1,360
90	2,590	2,190	1,990	1,840	1,670	1,570
120	2,830	2,400	2,200	2,030	1,860	1,750
183	3,210	2,640	2,380	2,170	1,960	1,820

Magnitude and probability of seasonal low flow from
March-June based on 74 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2,200	1,690	1,430	1,230	1,020	885
3	2,270	1,770	1,510	1,300	1,090	952
7	2,410	1,930	1,690	1,500	1,290	1,160
14	2,590	2,120	1,900	1,720	1,530	1,410
30	2,820	2,310	2,080	1,900	1,720	1,610

Magnitude and probability of seasonal low flow from
November-February based on 74 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1,290	958	799	680	558	485
3	1,400	1,060	906	785	660	585
7	1,600	1,280	1,130	1,010	894	820
14	1,890	1,550	1,390	1,260	1,120	1,040
30	2,220	1,840	1,650	1,490	1,330	1,220

Duration of daily mean flows based on 74 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
1,280	1,510	1,760	2,160	2,560	2,930	3,370	3,850
40%	30%	20%	15%	10%	5%	2%	1%
4,400	5,740	8,860	12,700	18,100	25,900	34,500	43,100

Magnitude and probability of annual high flow
based on 74 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	38,700	49,400	55,600	62,500	67,000	71,300
3	36,500	47,200	53,400	60,500	65,400	69,900
7	33,400	43,900	50,300	57,800	63,000	68,000
15	29,900	39,300	45,000	51,900	56,700	61,300
30	26,300	34,300	39,100	44,800	48,700	52,400
60	21,100	27,300	31,000	35,300	38,300	41,200
90	17,000	21,900	24,800	28,100	30,400	32,500

Magnitude and probability of seasonal low flow from
July-October based on 75 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2,980	2,200	1,840	1,580	1,310	1,150
3	3,010	2,230	1,880	1,610	1,350	1,190
7	3,080	2,290	1,930	1,660	1,390	1,230
14	3,210	2,380	2,000	1,720	1,440	1,270
30	3,430	2,540	2,140	1,840	1,540	1,360

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	6,800	2,130	4,020	1,050	76
November	5,160	2,280	3,560	683	76
December	4,450	1,580	2,800	534	75
January	3,830	1,360	2,480	511	74
February	4,380	1,560	2,650	654	74
March	5,480	1,770	3,020	726	74
April	8,800	1,440	4,110	1,290	75
May	24,100	5,640	12,600	4,030	75
June	53,900	9,850	25,300	8,350	76
July	37,200	3,410	13,700	6,570	76
August	9,780	1,460	5,230	2,120	76
September	7,300	1,530	4,090	1,360	77
Annual	12,100	3,760	6,970	1,720	74

**06216000 Pryor Creek at Pryor, Mont.
Site Number 165**

LOCATION.--Lat 45°26'06", long 108°32'01" (NAD 27), in NE¼NW¼NE¼ sec.5, T.5 S., R.26 E., Big Horn County, Hydrologic Unit 10070008, on left bank 60 ft upstream from county bridge, 0.5 mi north of Pryor, 1.4 mi downstream from Lost Creek, and at river mile 82.7.

DRAINAGE AREA.--117 mi².

PERIOD OF RECORD.--June 1921 to September 1924 (no winter records), November 1966 to current year (2002). Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1729: Drainage area. WDR MT-87-1: 1982-83 (M), 1986 (M).

GAGE.--Water-stage recorder. Altitude of gage is 4,007.35 ft (NGVD 29, levels by U.S. Army Corps of Engineers). Prior to Oct. 14, 1966, nonrecording gage at approximately same site at different datum.

REMARKS.--Diversions for irrigation of about 1,100 acres upstream from station.

Magnitude and probability of annual low flow
based on 35 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	12	7.5	5.9	4.9	3.9	--
3	12	8.3	6.8	5.9	5.0	--
7	13	9.0	7.6	6.6	5.7	--
14	14	9.8	8.2	7.1	6.2	--
30	16	11	9.3	8.1	7.0	--
60	19	13	11	10	8.7	--
90	21	15	13	12	10	--
120	23	17	15	13	12	--
183	25	19	17	16	15	--

Magnitude and probability of seasonal low flow from
March-June based on 36 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	16	11	9.7	8.6	7.5	--
3	17	12	10	8.9	7.8	--
7	18	13	11	9.8	8.6	--
14	20	15	13	11	9.7	--
30	23	18	16	14	13	--

Magnitude and probability of seasonal low flow from
November-February based on 35 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	23	18	17	16	15	--
3	24	19	17	16	15	--
7	24	20	18	17	16	--
14	25	21	19	18	17	--
30	26	22	20	19	18	--

Duration of daily mean flows based on 35 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
7.9	9.4	12	16	20	24	26	28
40%	30%	20%	15%	10%	5%	2%	1%
31	34	41	44	52	64	93	135

Magnitude and probability of annual high flow
based on 35 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	91	214	360	667	1,030	--
3	77	171	278	494	738	--
7	65	134	207	345	493	--
15	57	110	162	256	350	--
30	50	89	126	188	248	--
60	43	71	96	136	174	--
90	39	61	79	108	134	--

Magnitude and probability of seasonal low flow from
July-October based on 37 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	12	7.6	6.0	4.9	4.0	--
3	12	8.3	6.9	5.9	5.0	--
7	13	9.1	7.6	6.6	5.7	--
14	14	9.8	8.2	7.2	6.2	--
30	16	11	9.3	8.2	7.1	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	63	18	32	10	37
November	62	19	32	9.8	37
December	70	19	31	10	37
January	54	19	29	8.3	36
February	56	19	30	9.1	36
March	71	18	32	11	36
April	59	18	33	11	39
May	251	18	55	47	39
June	158	14	41	30	39
July	69	6.8	23	13	40
August	50	7.7	21	9.4	40
September	61	12	26	10	40
Annual	66	16	32	12	35

**06216500 Pryor Creek near Billings, Mont.
Site Number 166**

LOCATION.--Lat 45°42'54", long 108°18'51" (NAD 27), in sec.30, T.1 S., R.28 E., Yellowstone County, on bridge on U.S. Highway 87, 11 mi southeast of Billings and 14 mi upstream from mouth.

DRAINAGE AREA.--440 mi² (revised). At site used 1911-24, 430 mi² (revised).

PERIOD OF RECORD.--15 years (1938-53).

GAGE.--Crest-stage gage after May 26, 1955. Altitude of gage is 3,310 ft (NGVD 29, by barometer). Prior to Sept. 30, 1924, wire-weight gage at site 2 mi upstream at different datum. Mar. 30, 1938, to Dec. 31, 1953, wire-weight gage at same site and datum.

REMARKS.--Diversions for irrigation of 1,500 acres upstream from station.

Magnitude and probability of annual low flow
based on 14 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1.9	0.07	0.00	0.00	--	--
3	2.2	.09	.00	.00	--	--
7	2.5	.28	.04	.00	--	--
14	3.6	.58	.18	.02	--	--
30	6.3	1.6	.74	.38	--	--
60	9.5	3.0	1.5	.84	--	--
90	14	6.0	3.7	2.5	--	--
120	19	9.5	6.4	4.5	--	--
183	26	16	12	8.9	--	--

Magnitude and probability of seasonal low flow from
March-June based on 17 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	14	3.3	1.0	0.00	--	--
3	15	3.7	1.2	.00	--	--
7	18	4.7	1.6	.00	--	--
14	26	11	6.0	.02	--	--
30	39	20	12	.39	--	--

Magnitude and probability of seasonal low flow from
November-February based on 16 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	17	9.3	6.0	0.00	--	--
3	17	9.5	6.2	.00	--	--
7	19	10	6.7	.00	--	--
14	21	12	8.0	.02	--	--
30	24	14	9.2	.39	--	--

Duration of daily mean flows based on 16 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.29	0.58	3.1	9.4	17	25	32	39
40%	30%	20%	15%	10%	5%	2%	1%
45	57	74	88	119	188	294	418

Magnitude and probability of annual high flow
based on 16 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	486	837	1,080	1,400	--	--
3	380	673	891	1,190	--	--
7	267	469	626	848	--	--
15	192	322	421	558	--	--
30	144	239	309	404	--	--
60	108	176	226	295	--	--
90	91	146	184	235	--	--

Magnitude and probability of seasonal low flow from
July-October based on 28 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	5.5	0.24	0.00	0.00	0.00	--
3	6.5	.30	.00	.00	.00	--
7	6.8	.53	.04	.00	.00	--
14	7.9	.95	.19	.02	.00	--
30	11	2.4	.94	.39	.13	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	207	9.3	46	36	29
November	80	15	43	18	27
December	66	18	36	15	19
January	77	.00	32	18	16
February	145	.00	51	40	16
March	233	.00	98	61	17
April	290	25	95	73	28
May	324	16	100	73	29
June	297	9.7	91	68	29
July	152	.28	38	36	29
August	59	.76	22	16	29
September	119	1.7	35	28	30
Annual	92	22	52	24	16

**06216900 Pryor Creek near Huntley, Mont.
Site Number 167**

LOCATION.--Lat 45°49'19", long 108°17'23" (NAD 27), in NE¼SE¼NW¼ sec.19, T.1 N., R.28 E., Yellowstone County, Hydrologic Unit 10070008, on left bank 250 ft upstream from county bridge on Indian Creek road, 1.9 mi downstream from Indian Creek, 4.9 mi south of Huntley, and at river mile 11.2.

DRAINAGE AREA.--582 mi².

PERIOD OF RECORD.--October 1978 to September 2001.

GAGE.--Water-stage recorder. Altitude of gage is 3,140 ft (NGVD 29, from topographic map.) Prior to Nov. 12, 1996, water-stage recorder at site 450 ft downstream at different datum.

REMARKS.--Diversions for irrigation of about 3,200 acres upstream from station.

Magnitude and probability of annual low flow
based on 21 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4.7	1.1	0.40	0.04	--	--
3	5.6	1.3	.54	.24	--	--
7	6.5	1.8	.86	.44	--	--
14	8.4	2.8	1.6	.92	--	--
30	11	4.4	2.6	1.7	--	--
60	16	7.4	4.8	3.3	--	--
90	22	13	10	7.9	--	--
120	28	19	15	13	--	--
183	34	26	22	19	--	--

Magnitude and probability of seasonal low flow from
March-June based on 21 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	21	9.2	5.6	3.6	--	--
3	22	11	6.7	4.4	--	--
7	25	16	13	11	--	--
14	34	22	18	15	--	--
30	44	33	29	26	--	--

Magnitude and probability of seasonal low flow from
November-February based on 21 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	20	13	11	9.2	--	--
3	23	15	13	11	--	--
7	26	19	17	15	--	--
14	30	23	20	18	--	--
30	36	27	24	21	--	--

Duration of daily mean flows based on 21 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
1.5	3.1	8.0	16	27	34	40	46
40%	30%	20%	15%	10%	5%	2%	1%
54	62	78	89	112	166	260	366

Magnitude and probability of annual high flow
based on 21 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	580	1,010	1,340	1,800	--	--
3	459	792	1,040	1,390	--	--
7	317	547	726	979	--	--
15	213	365	494	691	--	--
30	160	262	347	478	--	--
60	121	188	243	327	--	--
90	104	154	194	253	--	--

Magnitude and probability of seasonal low flow from
July-October based on 21 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4.7	1.2	0.56	0.19	--	--
3	5.7	1.4	.77	.38	--	--
7	6.7	2.0	.98	.58	--	--
14	8.5	3.0	1.8	.97	--	--
30	11	4.6	2.8	1.7	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	117	25	50	19	22
November	112	24	50	18	22
December	95	26	49	17	22
January	126	27	51	23	22
February	116	22	66	28	22
March	453	43	103	92	21
April	218	30	86	46	22
May	403	33	126	108	22
June	184	29	74	45	22
July	107	3.0	31	29	22
August	61	2.5	22	17	22
September	51	11	32	11	22
Annual	136	39	63	24	21

**06217750 Fly Creek at Pompeys Pillar, Mont.
Site Number 168**

LOCATION.--Lat 45°59'33", long 107°57'07" (NAD 27), in SW¼NW¼SE¼ sec.23, T.3 N., R.30 E., Yellowstone County, Hydrologic Unit 10070007, on downstream side of county bridge near right bank at Pompeys Pillar, 300 ft downstream from Lost Boy Creek, and 0.5 mi upstream from mouth.

DRAINAGE AREA.--285 mi².

PERIOD OF RECORD.--October 1968 to September 1981 (discontinued).

GAGE.--Nonrecording gage and crest-stage gage. Altitude of gage is 2,852.84 ft (NGVD 29, Montana State Highway Commission bridge reference mark). Oct. 1, 1968, to May 1974, nonrecording gage at present site but different datum. May 1974 to July 16, 1978, nonrecording gage at bridge 3 mi upstream at different datum.

REMARKS.--Flow affected by waste water from irrigation ditches and by return flow from irrigated areas upstream.

Magnitude and probability of annual low flow
based on 12 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3.2	2.3	1.9	1.7	--	--
3	3.8	3.1	2.7	2.4	--	--
7	4.2	3.4	3.1	2.8	--	--
14	4.7	3.8	3.4	3.1	--	--
30	5.2	4.2	3.8	3.5	--	--
60	5.8	4.9	4.5	4.2	--	--
90	6.6	5.5	5.0	4.7	--	--
120	7.9	6.4	5.7	5.2	--	--
183	20	16	14	13	--	--

Magnitude and probability of seasonal low flow from
March-June based on 13 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4.9	3.5	3.0	2.6	--	--
3	5.7	4.3	3.8	3.5	--	--
7	5.9	4.5	4.1	3.9	--	--
14	6.3	4.9	4.5	4.3	--	--
30	8.2	5.7	5.0	4.5	--	--

Magnitude and probability of seasonal low flow from
November-February based on 12 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3.2	2.3	2.0	1.7	--	--
3	3.9	3.1	2.8	2.5	--	--
7	4.2	3.5	3.1	2.8	--	--
14	4.7	3.9	3.4	3.1	--	--
30	5.3	4.3	3.8	3.5	--	--

Duration of daily mean flows based on 13 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
3.0	3.6	4.4	5.2	6.7	8.1	11	15
40%	30%	20%	15%	10%	5%	2%	1%
26	39	53	61	72	89	132	282

Magnitude and probability of annual high flow
based on 13 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	368	1,420	3,120	7,660	--	--
3	316	1,080	2,180	4,850	--	--
7	233	669	1,230	2,450	--	--
15	165	396	661	1,190	--	--
30	118	244	373	609	--	--
60	80	141	200	302	--	--
90	65	108	147	213	--	--

Magnitude and probability of seasonal high flow from
July-October based on 12 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	8.4	6.1	4.9	3.9	--	--
3	9.1	7.4	6.6	5.9	--	--
7	10	8.1	7.2	6.4	--	--
14	11	8.6	7.6	6.8	--	--
30	13	9.8	8.8	8.2	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	54	7.9	19	12	13
November	10	5.9	8.8	1.5	13
December	9.8	3.7	6.6	1.6	13
January	32	3.6	9.3	8.0	13
February	238	4.8	39	69	13
March	437	4.3	75	122	13
April	53	6.9	18	14	13
May	514	23	76	132	13
June	115	35	60	21	13
July	74	18	39	14	13
August	77	25	44	15	13
September	97	45	61	14	13
Annual	69	21	38	16	13

190 Statistical Summaries of Streamflow in Montana and Adjacent Areas, Water Years 1900 through 2002

06287000 Bighorn River near St. Xavier, Mont. Site Number 169

LOCATION.--Lat 45°19'00", long 107°55'05" (NAD 27), in NW¼NW¼NE¼ sec.16, T.6 S., R.31 E., Big Horn County, Hydrologic Unit 10080015, on right bank 800 ft downstream from Yellowtail Dam, 1,500 ft downstream from Lime Kiln Creek, 14 mi southwest of St. Xavier, and at river mile 83.9.

DRAINAGE AREA.--19,667 mi². Area at site used prior to Apr. 16, 1963, 19,626 mi².

PERIOD OF RECORD.--October 1934 to current year (2002).

GAGE.--Water-stage recorder. Altitude of gage is 3,158.38 ft (NGVD 29, levels by U.S. Army Corps of Engineers). Prior to Apr. 16, 1963, and June 13, 1964, to Mar. 31, 1965, water-stage recorder at site 1.2 mi upstream at different datum. Apr. 1, 1965, to July 31, 1966, water-stage recorder at site 1,300 ft downstream at present datum.

REMARKS.--Recorded discharge values. Some regulation by 14 reservoirs in Wyoming with combined capacity of 1,400,000 acre-ft and complete regulation by Bighorn Lake since Nov. 3, 1965. Diversions for irrigation of about 375,000 acres upstream from station. Bureau of Reclamation satellite telemeter at station.

Unregulated streamflow period

Magnitude and probability of annual low flow based on 29 years of record						
Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	882	604	483	396	311	--
3	981	741	638	563	488	--
7	1,150	929	836	768	701	--
14	1,340	1,090	977	891	802	--
30	1,540	1,260	1,130	1,030	914	--
60	1,730	1,390	1,230	1,100	971	--
90	1,920	1,540	1,370	1,230	1,090	--
120	2,110	1,710	1,520	1,370	1,210	--
183	2,250	1,830	1,640	1,490	1,330	--

Magnitude and probability of seasonal low flow from March-June based on 30 seasons of record						
Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1,390	1,090	945	838	729	--
3	1,520	1,180	1,020	897	767	--
7	1,670	1,320	1,150	1,020	879	--
14	1,920	1,490	1,290	1,130	972	--
30	2,170	1,680	1,470	1,310	1,140	--

Magnitude and probability of seasonal low flow from November-February based on 29 seasons of record						
Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	889	613	489	401	316	--
3	991	747	647	573	496	--
7	1,170	936	843	780	709	--
14	1,400	1,100	983	896	811	--
30	1,630	1,290	1,140	1,040	923	--

Duration of daily mean flows based on 30 years of record							
Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
850	998	1,190	1,390	1,710	1,990	2,280	2,580
40%	30%	20%	15%	10%	5%	2%	1%
2,880	3,300	4,120	5,030	6,690	10,500	15,400	18,800

Magnitude and probability of annual high flow based on 30 years of record						
Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	14,500	21,100	25,600	31,600	36,100	--
3	13,300	20,000	24,600	30,600	35,300	--
7	12,200	18,600	23,100	29,000	33,500	--
15	10,900	16,700	20,600	25,500	29,200	--
30	9,630	14,700	17,900	21,700	24,500	--
60	7,730	11,500	13,900	16,600	18,600	--
90	6,420	9,260	11,000	13,000	14,300	--

Magnitude and probability of seasonal low flow from July-October based on 29 seasons of record						
Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1,430	1,130	999	903	807	--
3	1,470	1,160	1,030	930	830	--
7	1,550	1,230	1,090	986	880	--
14	1,690	1,330	1,160	1,040	918	--
30	1,860	1,460	1,290	1,160	1,030	--

Monthly and annual mean discharges					
Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	4,030	1,570	2,770	685	30
November	4,000	1,360	2,580	630	30
December	3,310	1,100	2,140	615	30
January	3,500	1,090	1,930	590	30
February	3,760	888	2,110	717	30
March	4,540	1,400	2,630	764	30
April	4,800	1,230	2,610	850	30
May	8,740	1,630	4,530	1,770	30
June	17,900	2,750	9,570	4,400	30
July	14,000	1,140	5,740	3,590	30
August	4,990	1,300	2,430	991	30
September	3,930	1,330	2,560	711	30
Annual	5,060	1,710	3,470	843	30

06287000 Bighorn River near St. Xavier, Mont.—Continued
Site Number 169

Regulated streamflow period

Magnitude and probability of annual low flow
based on 37 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1,260	658	411	259	142	--
3	1,630	859	537	338	184	--
7	1,870	1,050	693	458	267	--
14	1,970	1,160	782	529	316	--
30	2,180	1,370	946	650	393	--
60	2,360	1,660	1,280	994	714	--
90	2,590	1,880	1,500	1,200	899	--
120	2,870	2,090	1,670	1,340	1,010	--
183	3,100	2,300	1,870	1,530	1,180	--

Magnitude and probability of seasonal low flow from
March-June based on 38 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2,220	1,180	691	395	184	--
3	2,260	1,250	769	465	235	--
7	2,370	1,400	926	607	345	--
14	2,500	1,510	1,020	685	404	--
30	2,720	1,630	1,100	740	439	--

Magnitude and probability of seasonal low flow from
November-February based on 37 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2,120	1,210	808	544	324	--
3	2,280	1,390	961	668	415	--
7	2,520	1,640	1,160	824	519	--
14	2,700	1,850	1,370	1,000	657	--
30	2,820	2,040	1,620	1,290	954	--

Duration of daily mean flows based on 38 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
626	1,130	1,550	1,760	2,180	2,510	2,840	3,180
40%	30%	20%	15%	10%	5%	2%	1%
3,570	3,950	4,450	5,120	5,800	7,340	8,700	11,500

Magnitude and probability of annual high flow
based on 38 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	7,400	12,000	15,400	20,200	24,100	--
3	7,260	11,600	14,900	19,500	23,200	--
7	7,060	11,200	14,300	18,600	22,100	--
15	6,750	10,600	13,400	17,200	20,300	--
30	6,220	9,430	11,800	14,900	17,400	--
60	5,440	7,800	9,390	11,400	12,900	--
90	4,960	6,810	8,000	9,450	10,500	--

Magnitude and probability of seasonal low flow from
July-October based on 37 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1,390	963	785	660	539	--
3	1,970	1,410	1,140	944	749	--
7	2,260	1,650	1,360	1,130	911	--
14	2,370	1,760	1,470	1,250	1,030	--
30	2,550	1,890	1,580	1,350	1,120	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	5,140	1,220	3,100	1,060	38
November	5,150	856	3,170	1,150	38
December	5,000	1,540	3,180	797	38
January	5,270	1,540	3,110	755	38
February	4,380	1,400	3,090	751	38
March	4,810	328	3,130	1,080	38
April	6,680	678	3,120	1,480	38
May	6,980	900	3,280	1,460	38
June	11,800	1,080	5,070	2,730	38
July	18,900	1,390	5,340	3,680	38
August	6,780	1,260	3,230	1,290	38
September	4,540	1,070	2,850	940	38
Annual	4,950	1,470	3,480	928	38

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06287500 Soap Creek near St. Xavier, Mont. Site Number 170

LOCATION.--Lat 45°19'38", long 107°46'10" (NAD 27), in NE¼ sec.10, T.6 S., R.32 E., Big Horn County, on left bank 6 mi upstream from mouth and 9.5 mi southwest of St. Xavier.

DRAINAGE AREA.--98.3 mi².

PERIOD OF RECORD.--19 years. September 1911 to June 1912 (fragmentary daily discharge only), May to November 1913, March 1939 to September 1953, October 1967 to September 1972 (discontinued). April 1914 to September 1924, at sites about 5 mi downstream; records not equivalent owing to diversions.

REVISED RECORDS (WATER YEARS)--WSP 1309: 1940(M). WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 3,250 ft (NGVD 29, from topographic map). Prior to Mar. 26, 1939, nonrecording gage at site 0.5 mi downstream at different datum.

REMARKS.--Diversions for irrigation of about 1,100 acres upstream from station.

Magnitude and probability of annual low flow
based on 18 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	12	6.7	4.1	2.4	--	--
3	12	6.9	4.4	2.8	--	--
7	12	8.0	6.0	4.5	--	--
14	13	9.2	7.2	5.8	--	--
30	15	11	8.6	7.1	--	--
60	17	12	9.8	8.2	--	--
90	18	13	11	9.7	--	--
120	19	15	13	11	--	--
183	20	16	13	12	--	--

Magnitude and probability of seasonal low flow from
March-June based on 19 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	19	12	9.2	7.0	--	--
3	19	13	11	8.8	--	--
7	21	15	12	10	--	--
14	24	16	13	11	--	--
30	27	19	16	13	--	--

Magnitude and probability of seasonal low flow from
November-February based on 19 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	12	6.8	4.1	2.5	--	--
3	13	7.0	4.5	2.9	--	--
7	13	8.1	6.0	4.6	--	--
14	14	9.3	7.3	5.8	--	--
30	16	11	8.9	7.3	--	--

Duration of daily mean flows based on 19 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
7.0	8.6	11	13	15	18	21	24
40%	30%	20%	15%	10%	5%	2%	1%
27	31	36	42	52	76	121	166

Magnitude and probability of annual high flow
based on 19 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	263	480	642	859	--	--
3	185	312	393	488	--	--
7	133	218	272	335	--	--
15	99	160	201	253	--	--
30	74	121	154	197	--	--
60	57	88	108	134	--	--
90	51	76	91	109	--	--

Magnitude and probability of seasonal low flow from
July-October based on 20 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	14	10	8.5	7.3	--	--
3	15	11	8.9	7.6	--	--
7	15	11	9.3	8.0	--	--
14	16	12	9.8	8.3	--	--
30	17	13	11	9.4	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	38	13	24	6.9	20
November	32	11	22	6.2	20
December	26	12	19	4.3	19
January	54	8.0	21	9.8	19
February	96	6.0	31	24	19
March	104	13	45	25	19
April	82	16	41	17	20
May	187	16	48	43	20
June	162	15	46	35	21
July	52	9.3	25	12	21
August	32	9.3	19	6.7	21
September	32	9.9	21	7.0	21
Annual	52	14	31	11	19

**06288500 Bighorn River near Hardin, Mont.
Site Number 171**

LOCATION.--Lat 45°44' 20", long 107°34' 20" (NAD 27), in NW¼ sec.19, T.1 S., R.34 E., Big Horn County, at highway bridge, 0.5 mi upstream from Little Bighorn River, and 2 mi east of Hardin.

DRAINAGE AREA.--20,722 mi².

PERIOD OF RECORD.--25 years (1904-25, 1928-32).

GAGE.--Chain gage. Altitude of gage is 2,900 ft (NGVD 29, from topographic map). Prior to Dec. 1, 1917, chain or staff gage at railroad bridge 100 ft upstream at different datums.

REMARKS.--Diversion for irrigation of about 35,000 acres upstream from station.

Magnitude and probability of annual low flow
based on 24 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1,050	719	566	453	--	--
3	1,100	769	609	491	--	--
7	1,140	813	654	534	--	--
14	1,210	892	735	615	--	--
30	1,320	1,020	867	751	--	--
60	1,470	1,190	1,060	945	--	--
90	1,620	1,300	1,150	1,030	--	--
120	1,750	1,410	1,260	1,150	--	--
183	2,010	1,620	1,480	1,380	--	--

Magnitude and probability of seasonal low flow from
March-June based on 26 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1,670	1,230	1,030	887	744	--
3	1,700	1,240	1,040	897	751	--
7	1,760	1,320	1,120	980	837	--
14	1,880	1,500	1,340	1,220	1,100	--
30	2,320	1,830	1,610	1,450	1,290	--

Magnitude and probability of seasonal low flow from
November-February based on 26 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1,130	811	652	532	410	--
3	1,170	860	700	577	450	--
7	1,200	899	745	625	501	--
14	1,240	951	807	695	579	--
30	1,330	1,090	974	886	792	--

Duration of daily mean flows based on 25 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
761	854	1,120	1,380	1,690	1,920	2,160	2,620
40%	30%	20%	15%	10%	5%	2%	1%
3,170	4,210	6,370	8,910	12,400	17,900	23,800	28,000

Magnitude and probability of annual high flow
based on 25 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	30,100	35,700	36,900	37,400	37,600	--
3	27,900	32,700	33,700	34,100	34,200	--
7	25,300	30,000	31,100	31,600	31,700	--
15	21,800	26,400	27,800	28,600	28,900	--
30	19,000	22,500	23,300	23,700	23,800	--
60	15,200	17,800	18,400	18,700	18,800	--
90	12,300	14,600	15,200	15,500	15,600	--

Magnitude and probability of seasonal low flow from
July-October based on 25 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1,770	1,160	878	672	478	--
3	1,800	1,190	900	692	496	--
7	1,850	1,230	940	731	533	--
14	1,930	1,310	1,020	808	605	--
30	2,130	1,480	1,190	973	763	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	9,500	1,490	2,790	1,660	26
November	4,890	1,210	2,280	838	26
December	3,400	1,000	1,880	556	26
January	2,720	941	1,520	409	26
February	2,550	814	1,680	389	26
March	10,700	1,690	3,420	2,030	26
April	13,800	1,440	3,500	2,430	26
May	15,800	3,060	6,760	2,750	26
June	24,900	2,530	16,100	4,680	26
July	22,300	607	10,200	4,940	26
August	8,920	1,120	4,280	1,860	26
September	5,380	1,270	2,870	1,110	27
Annual	8,020	1,870	4,790	1,180	25

**06289000 Little Bighorn River at State line, near Wyola, Mont.
Site Number 172**

LOCATION.--Lat 45°00'25", long 107°36'52" (NAD 27), in SW¼NW¼ sec.36, T.9 S., R.33 E., Bighorn County, Hydrologic Unit 10080016, on right bank 20 ft downstream from county bridge, 0.5 mi north of Wyoming-Montana State line, 1 mi downstream from West Fork, 13 mi southwest of Wyola, and at river mile 115.2.

DRAINAGE AREA.--182 mi².

PERIOD OF RECORD.--March 1939 to current year (2002). Prior to October 1940, published as "Little Horn River at State line, near Wyola."

REVISED RECORDS.--WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 4,350 ft (NGVD 29).

REMARKS.--Diversion for irrigation of 163 acres upstream from station.

Magnitude and probability of annual low flow
based on 62 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	38	30	26	23	19	18
3	42	34	29	26	22	20
7	49	41	36	33	29	26
14	54	47	43	40	36	34
30	57	51	49	46	44	43
60	60	55	52	49	47	45
90	64	57	53	51	48	46
120	67	59	55	53	50	48
183	75	66	61	58	54	52

Magnitude and probability of seasonal low flow from
March-June based on 63 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	51	43	39	36	33	31
3	54	47	43	40	37	35
7	57	50	46	44	40	38
14	59	52	49	47	44	42
30	60	55	52	50	48	47

Magnitude and probability of seasonal low flow from
November-February based on 63 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	38	30	26	23	20	18
3	43	34	29	26	23	20
7	50	41	37	33	29	26
14	55	48	44	40	37	34
30	59	52	49	47	44	43

Duration of daily mean flows based on 63 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
38	46	49	53	62	70	79	87
40%	30%	20%	15%	10%	5%	2%	1%
99	123	179	240	342	516	784	985

Magnitude and probability of annual high flow
based on 63 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	831	1,180	1,410	1,710	1,920	2,140
3	771	1,080	1,280	1,520	1,690	1,860
7	711	992	1,170	1,380	1,530	1,670
15	631	879	1,040	1,230	1,370	1,500
30	552	764	899	1,060	1,180	1,300
60	428	578	673	788	870	949
90	345	458	527	610	668	725

Magnitude and probability of seasonal high flow from
July-October based on 63 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	76	64	58	53	48	45
3	79	68	63	59	54	51
7	80	70	65	61	57	54
14	82	71	66	62	58	56
30	85	74	68	64	60	57

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	120	61	87	15	63
November	104	55	76	12	63
December	91	47	68	10	63
January	85	44	63	8.7	63
February	88	48	62	8.1	63
March	86	49	62	7.9	63
April	172	51	85	25	64
May	533	126	324	97	64
June	1,120	145	515	242	64
July	689	95	219	96	64
August	228	70	123	31	64
September	151	64	98	20	64
Annual	253	79	149	37	63

**06290000 Pass Creek near Wyola, Mont.
Site Number 173**

LOCATION.--Lat 45°03'23", long 107°21'19" (NAD 27), in NE¼NE¼SE¼ sec.13, T.9 S., R.35 E., Big Horn County, Hydrologic Unit 10080016, on right bank 125 ft downstream from bridge on U.S. Highway 87, 2.0 mi downstream from Twin Creek, 5.5 mi south of Wyola, and at river mile 10.2.

DRAINAGE AREA.--111 mi². Drainage area at site used prior to Sept. 30, 1956, 119 mi².

PERIOD OF RECORD.--June 1935 to September 1956 (no winter records prior to 1939), October 1982 to current year (2002).

GAGE.--Water-stage recorder. Altitude of gage is 3,920 ft (NGVD 29). Dec. 21, 1950, to Sept. 30, 1956, water-stage recorder, and June 4, 1935, to Dec. 20, 1950, nonrecording gage at site 0.3 mi upstream at different datum. Flow is equivalent.

REMARKS.--Diversions for irrigation of about 2,500 acres upstream from station.

Magnitude and probability of annual low flow
based on 38 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4.5	1.9	1.1	0.71	0.41	--
3	5.1	2.2	1.3	.81	.47	--
7	5.9	2.5	1.5	.95	.54	--
14	6.7	3.0	1.9	1.2	.73	--
30	8.1	4.2	2.9	2.0	1.3	--
60	10	5.6	3.9	2.8	1.9	--
90	12	7.5	5.7	4.4	3.3	--
120	14	9.4	7.6	6.3	5.0	--
183	15	11	9.4	8.1	6.8	--

Magnitude and probability of seasonal low flow from
March-June based on 39 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	16	11	9.4	8.0	6.8	--
3	17	12	10	8.5	7.2	--
7	19	14	11	9.6	8.0	--
14	23	16	13	11	9.5	--
30	29	20	16	13	11	--

Magnitude and probability of seasonal low flow from
November-February based on 38 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	7.7	4.9	3.8	3.0	2.2	--
3	8.6	5.5	4.3	3.4	2.6	--
7	9.6	6.4	5.1	4.2	3.3	--
14	11	7.7	6.2	5.1	4.1	--
30	14	9.7	7.9	6.6	5.2	--

Duration of daily mean flows based on 38 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
1.0	1.9	4.4	7.2	12	15	18	21
40%	30%	20%	15%	10%	5%	2%	1%
26	32	46	59	79	116	175	232

Magnitude and probability of annual high flow
based on 38 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	233	445	647	992	1,330	--
3	187	340	486	739	988	--
7	149	262	369	557	743	--
15	127	212	289	414	532	--
30	106	171	226	310	385	--
60	86	134	173	231	280	--
90	73	111	140	182	218	--

Magnitude and probability of seasonal high flow from
July-October based on 41 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4.9	2.1	1.2	0.84	0.46	--
3	5.3	2.3	1.4	.91	.56	--
7	6.1	2.6	1.6	1.0	.60	--
14	6.8	3.1	2.0	1.3	.80	--
30	8.3	4.3	3.0	2.1	1.4	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	28	5.7	17	5.9	41
November	28	9.6	18	4.8	41
December	34	5.7	16	5.3	41
January	32	6.6	18	6.6	38
February	58	9.9	25	12	38
March	115	8.8	39	20	39
April	106	20	51	22	41
May	324	20	97	64	41
June	375	3.8	85	68	41
July	93	1.0	28	21	42
August	38	1.1	12	9.6	42
September	29	1.6	13	7.2	42
Annual	77	14	36	15	38

**06290500 Little Bighorn River below Pass Creek, near Wyola, Mont.
Site Number 174**

LOCATION.--Lat 45°10'38", long 107°23'36" (NAD 27), in W½SW¼ sec.35, T.7 S., R.35 E., Big Horn County, Hydrologic Unit 10080016, on right bank 3.5 mi north of Wyola, 6 mi downstream from Pass Creek, and at river mile 92.3.

DRAINAGE AREA.--428 mi².

PERIOD OF RECORD.--March 1939 to December 1958, August 1959 to September 1975, October 1976 to current year (2002). Prior to October 1940, published as "Little Horn River below Pass Creek, near Wyola."

REVISED RECORDS.--WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 3,600 ft (NGVD 29).

REMARKS.--Diversions for irrigation of about 8,300 acres upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 58 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	57	38	30	24	18	15
3	63	43	33	27	20	16
7	71	49	39	31	23	18
14	78	56	45	36	27	22
30	87	63	51	41	31	26
60	94	71	60	51	42	36
90	100	79	68	60	51	46
120	105	86	76	69	61	56
183	108	90	81	74	67	62

Magnitude and probability of seasonal low flow from
March-June based on 61 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	99	75	60	48	35	28
3	100	78	65	55	44	37
7	104	83	71	61	50	44
14	111	88	76	67	57	51
30	128	99	86	75	64	58

Magnitude and probability of seasonal low flow from
November-February based on 61 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	61	44	36	30	24	21
3	67	50	42	36	30	26
7	76	59	50	44	38	34
14	85	68	60	53	46	41
30	94	78	69	63	56	51

Duration of daily mean flows based on 61 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
42	50	65	76	94	105	116	127
40%	30%	20%	15%	10%	5%	2%	1%
148	174	235	310	440	695	1,030	1,290

Magnitude and probability of annual high flow
based on 61 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	1,010	1,620	2,150	2,970	3,730	4,610
3	939	1,450	1,850	2,450	2,960	3,530
7	868	1,300	1,610	2,030	2,360	2,700
15	778	1,150	1,410	1,730	1,980	2,230
30	676	1,000	1,220	1,480	1,680	1,870
60	525	773	939	1,150	1,300	1,460
90	427	618	744	903	1,020	1,140

Magnitude and probability of seasonal low flow from
July-October based on 60 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	79	51	38	29	21	16
3	82	52	39	30	21	17
7	85	56	42	32	23	18
14	89	60	46	37	28	23
30	95	66	52	42	32	26

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	163	74	122	24	62
November	153	77	119	19	62
December	162	59	106	19	62
January	165	55	105	23	61
February	232	58	115	33	61
March	282	62	139	43	61
April	327	63	183	62	62
May	1,320	146	463	209	62
June	1,400	168	636	349	62
July	758	57	232	132	62
August	236	24	112	46	63
September	186	40	108	35	63
Annual	381	89	204	66	61

**06291000 Owl Creek near Lodge Grass, Mont.
Site Number 175**

LOCATION.--Lat 45°16'05", long 107°18'03" (NAD 27), in NW¼NE¼SE¼, sec.33, T.6 S., R.36 E., Big Horn County, Hydrologic Unit 10080016, on right bank 1.4 mi downstream from Sioux Pass Creek, 5.0 mi southeast of Lodge Grass, and at river mile 7.0.

DRAINAGE AREA.--163 mi².

PERIOD OF RECORD.--April 1939 to September 1945, October 1979 to September 1992 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 3,460 ft (NGVD 29, from topographic map). April 1939 to September 1945, recording gage at same site and datum.

REMARKS.--Numerous diversions for irrigation upstream from station.

Magnitude and probability of annual low flow
based on 18 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.46	0.05	0.00	0.00	--	--
3	.49	.05	.00	.00	--	--
7	.59	.06	.00	.00	--	--
14	.71	.06	.00	.00	--	--
30	.98	.15	.00	.00	--	--
60	1.3	.29	.09	.00	--	--
90	2.1	.57	.22	.08	--	--
120	2.3	1.1	.71	.48	--	--
183	2.9	1.4	.89	.58	--	--

Magnitude and probability of seasonal low flow from
March-June based on 19 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3.0	0.87	0.37	0.17	--	--
3	3.4	.97	.41	.18	--	--
7	4.0	1.2	.52	.23	--	--
14	5.6	1.8	.76	.33	--	--
30	7.5	4.0	2.7	1.9	--	--

Magnitude and probability of seasonal low flow from
November-February based on 19 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1.1	0.32	0.15	0.08	--	--
3	1.2	.34	.16	.08	--	--
7	1.4	.38	.17	.09	--	--
14	1.7	.46	.21	.10	--	--
30	2.2	.73	.37	.20	--	--

Duration of daily mean flows based on 19 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.07	0.13	0.33	0.65	1.6	2.6	3.8	4.9
40%	30%	20%	15%	10%	5%	2%	1%
6.1	7.9	11	15	20	33	60	93

Magnitude and probability of annual high flow
based on 19 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	145	280	392	558	--	--
3	108	200	272	372	--	--
7	77	137	180	235	--	--
15	52	92	119	154	--	--
30	35	61	78	100	--	--
60	25	40	51	65	--	--
90	21	34	43	53	--	--

Magnitude and probability of seasonal low flow from
July-October based on 19 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.60	0.16	0.00	0.00	--	--
3	.63	.17	.00	.00	--	--
7	.72	.18	.00	.00	--	--
14	.82	.21	.00	.00	--	--
30	.99	.23	.00	.00	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	12	1.2	3.7	2.6	19
November	14	.38	4.6	3.1	19
December	18	.45	4.9	4.0	19
January	12	.28	4.7	3.2	19
February	48	.29	11	12	19
March	80	7.3	24	19	19
April	48	6.2	17	11	20
May	93	1.4	20	20	20
June	95	1.1	16	20	20
July	19	.13	4.7	4.3	20
August	7.5	.00	2.0	2.0	20
September	5.0	.00	2.1	1.6	20
Annual	23	2.5	9.7	5.2	19

**06291500 Lodge Grass Creek above Willow Creek Diversion, near Wyola, Mont.
Site Number 176**

LOCATION.--Lat 45°07'39", long 107°36'01" (NAD 27), in SE¼NE¼NE¼ sec.24, T.8 S., R.33 E., Big Horn County, Hydrologic Unit 10080016, on left bank 0.2 mi upstream from Willow Creek diversion canal, 1.1 mi downstream from Spring Creek, 10 mi west of Wyola, 17 mi southwest of Lodge Grass, and at river mile 43.0.

DRAINAGE AREA.--80.7 mi².

PERIOD OF RECORD.--March 1939 to September 1974, October 1982 to current year (2002).

REVISED RECORDS.--WSP 1559: 1944-47. WSP 1629: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 4,170 ft (NGVD 29). March 1939 to September 1974 recording gage 0.1 mi upstream at different datum. Flows are equivalent.

REMARKS.--Diversions for irrigation of about 400 acres upstream from station.

Magnitude and probability of annual low flow
based on 53 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	8.4	5.7	4.5	3.7	2.9	2.5
3	9.2	6.4	5.1	4.2	3.3	2.8
7	10	7.3	5.9	4.8	3.8	3.2
14	12	8.5	7.1	6.0	5.0	4.3
30	14	10	8.6	7.3	6.0	5.2
60	15	12	10	8.8	7.4	6.6
90	16	13	11	9.9	8.6	7.8
120	17	13	12	11	9.5	8.7
183	18	15	13	12	10	9.3

Magnitude and probability of seasonal low flow from
March-June based on 55 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	13	9.5	7.5	6.0	4.6	3.8
3	14	10	8.1	6.5	5.0	4.1
7	15	11	8.9	7.2	5.5	4.5
14	16	12	10	9.0	7.6	6.8
30	18	14	12	11	9.8	9.0

Magnitude and probability of seasonal low flow from
November-February based on 55 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	8.9	6.1	4.9	4.0	3.2	2.7
3	9.7	6.8	5.5	4.6	3.7	3.1
7	11	7.8	6.4	5.4	4.4	3.8
14	12	8.9	7.5	6.3	5.2	4.6
30	14	10	8.7	7.4	6.1	5.3

Duration of daily mean flows based on 55 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
6.6	8.1	11	13	16	18	20	23
40%	30%	20%	15%	10%	5%	2%	1%
28	34	56	79	118	189	309	379

Magnitude and probability of annual high flow
based on 55 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	333	495	606	751	861	973
3	303	444	538	657	746	834
7	276	404	488	592	667	741
15	244	355	427	514	577	638
30	207	298	357	430	482	534
60	155	217	257	305	340	374
90	121	169	198	234	259	283

Magnitude and probability of seasonal low flow from
July-October based on 54 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	17	12	9.9	8.2	6.6	5.6
3	17	13	11	8.9	7.2	6.2
7	18	13	11	9.5	7.8	6.7
14	19	14	12	9.9	8.1	6.9
30	20	15	13	11	9.3	8.2

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	36	12	21	5.4	55
November	28	11	19	4.5	55
December	25	8.6	17	4.1	55
January	30	4.9	17	5.4	55
February	32	9.0	17	5.0	55
March	37	10	20	6.1	55
April	71	11	32	13	56
May	257	36	119	47	56
June	445	53	195	101	56
July	176	20	63	31	56
August	51	10	28	10	56
September	40	6.8	22	7.6	56
Annual	86	22	48	15	55

**06293500 Little Bighorn River near Crow Agency, Mont.
Site Number 177**

LOCATION.--Lat 45°34'02", long 107°27'12" (NAD 27), in E½SE¼ sec.13, T.3 S., R.34 E., Big Horn County, on right bank at Chicago, Burlington & Quincy Railroad bridge, 2 mi south of Crow Agency, and 17 mi upstream from mouth.

DRAINAGE AREA.--1,181 mi² (revised).

PERIOD OF RECORD.--25 years (1928-29, 1930-32, 1938-60).

GAGE.--Water-stage recorder. Altitude of gage is 3,045 ft (NGVD 29). Apr. 11, 1912, to Sept. 30, 1918, staff or chain gage; Oct. 1, 1918, to Sept. 30, 1924, and Aug. 26, 1928, to Sept. 30, 1930, water-stage recorder; Oct. 1, 1930, to Dec. 5, 1932, and Apr. 1, 1938, to May 6, 1947, wire-weight or chain gage; all at same site and datum.

REMARKS.--Diversions for irrigation of 13,700 acres upstream from station. Flow partly regulated since about 1940 by Willow Creek Reservoir (capacity, 23,000 acre-ft).

Magnitude and probability of annual low flow
based on 22 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	43	16	8.1	4.2	--	--
3	47	17	8.6	4.4	--	--
7	53	22	12	6.9	--	--
14	58	30	20	14	--	--
30	70	40	29	21	--	--
60	83	52	39	30	--	--
90	96	64	50	41	--	--
120	108	78	65	56	--	--
183	115	91	80	72	--	--

Magnitude and probability of seasonal low flow from
March-June based on 25 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	111	88	78	72	65	--
3	115	93	83	77	70	--
7	118	100	96	94	93	--
14	137	114	108	106	104	--
30	185	134	117	106	97	--

Magnitude and probability of seasonal low flow from
November-February based on 25 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	79	42	26	16	8.3	--
3	79	46	32	22	14	--
7	88	55	40	29	19	--
14	94	68	56	47	38	--
30	102	81	72	66	59	--

Duration of daily mean flows based on 25 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
24	33	51	73	101	121	144	168
40%	30%	20%	15%	10%	5%	2%	1%
196	261	407	518	701	1,020	1,420	1,840

Magnitude and probability of annual high flow
based on 25 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	1,480	2,500	3,280	4,380	5,290	--
3	1,280	2,080	2,690	3,540	4,230	--
7	1,080	1,660	2,080	2,640	3,090	--
15	887	1,330	1,660	2,100	2,460	--
30	732	1,100	1,380	1,780	2,110	--
60	571	853	1,070	1,370	1,610	--
90	492	717	878	1,100	1,270	--

Magnitude and probability of seasonal low flow from
July-October based on 36 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	57	20	8.9	4.8	0.00	--
3	62	22	9.5	5.0	.00	--
7	67	27	13	7.9	.00	--
14	75	34	21	15	5.5	--
30	81	46	32	24	16	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	861	58	167	127	37
November	566	96	163	79	32
December	202	74	132	30	25
January	337	66	123	54	25
February	362	83	159	70	25
March	946	115	326	195	25
April	1,800	114	347	299	38
May	1,080	155	555	249	40
June	2,030	125	782	407	40
July	680	50	271	172	40
August	275	24	113	66	39
September	382	20	121	73	40
Annual	436	144	248	93	25

**06294000 Little Bighorn River near Hardin, Mont.
Site Number 178**

LOCATION.--Lat 45°44'09", long 107°33'24" (NAD 27), in SE¼NE¼NE¼ sec.19, T.1 S., R.34 E., Big Horn County, Hydrologic Unit 10080016, on left bank 50 ft downstream from bridge on Sarpy Road, 0.2 mi upstream from terminal wasteway of Agency Canal, 0.6 mi upstream from mouth, and 2.3 mi east of Hardin.

DRAINAGE AREA.--1,294 mi².

PERIOD OF RECORD.--June 1953 to current year (2002).

REVISED RECORDS.--WDR MT-86-1: 1978.

GAGE.--Water-stage recorder. Altitude of gage is 2,882.29 ft (NGVD 29, levels by U.S. Army Corps of Engineers). Prior to Oct. 7, 1953, nonrecording gage at site 0.4 mi downstream. Oct. 7, 1953, to May 6, 1963, water-stage recorder at site 0.3 mi downstream. May 6, 1963, to Nov. 6, 1963, nonrecording gage at site 0.4 mi downstream. All at different datums. Nov. 7, 1963, to Aug. 15, 1976, water-stage recorder at site 35 ft downstream at present datum. Aug. 15, 1976, to Sept. 30, 1979, water-stage recorders were located on each bank downstream from Sarpy Road bridge and were used depending on control conditions.

REMARKS.--Flow partly regulated by Willow Creek Reservoir (capacity, 23,000 acre-ft). Diversions for irrigation of 20,980 acres upstream from station. Figures of discharge given herein include flow of terminal wasteway of Agency Canal. U.S. Geological Survey satellite telemeter at station. Unpublished records of instantaneous water temperature and specific conductance are available in files of the U.S. Geological Survey Montana District Office.

Magnitude and probability of annual low flow
based on 48 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	55	22	10	4.6	1.6	--
3	63	27	12	5.5	1.8	--
7	74	33	16	7.2	2.4	--
14	79	37	20	11	4.5	--
30	94	46	26	14	6.6	--
60	107	57	35	21	11	--
90	119	67	44	29	17	--
120	124	81	61	47	34	--
183	131	93	76	63	50	--

Magnitude and probability of seasonal low flow from
March-June based on 49 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	130	72	49	34	21	--
3	139	79	54	37	23	--
7	152	88	61	43	28	--
14	182	108	75	53	34	--
30	213	130	95	71	50	--

Magnitude and probability of seasonal low flow from
November-February based on 49 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	64	41	30	22	15	--
3	74	48	35	26	18	--
7	88	60	46	35	25	--
14	99	72	60	50	40	--
30	112	86	74	65	55	--

Duration of daily mean flows based on 49 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
14	24	50	73	103	127	148	169
40%	30%	20%	15%	10%	5%	2%	1%
191	244	343	446	629	1,010	1,540	1,970

Magnitude and probability of annual high flow
based on 49 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	1,510	2,750	3,850	5,630	7,280	--
3	1,380	2,420	3,290	4,630	5,810	--
7	1,200	2,010	2,620	3,470	4,150	--
15	1,040	1,710	2,170	2,760	3,200	--
30	863	1,400	1,770	2,240	2,580	--
60	679	1,100	1,380	1,720	1,970	--
90	570	894	1,110	1,370	1,550	--

Magnitude and probability of seasonal high flow from
July-October based on 49 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	68	23	11	5.1	2.0	--
3	75	27	13	6.2	2.3	--
7	84	34	17	7.7	3.1	--
14	86	38	21	11	5.1	--
30	101	47	27	15	7.2	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	276	61	155	50	49
November	248	83	154	37	49
December	223	66	136	37	49
January	366	72	142	57	49
February	610	70	202	104	49
March	987	71	313	211	49
April	748	55	316	174	49
May	2,850	72	614	450	49
June	1,980	117	824	532	50
July	1,330	8.5	263	232	50
August	382	2.5	119	74	50
September	267	19	127	65	50
Annual	676	70	281	125	49

**06294500 Bighorn River above Tullock Creek, near Bighorn, Mont.
Site Number 179**

LOCATION.--Lat 46°07'29", long 107°28'06" (NAD 27), in SE¼SE¼NE¼ sec.3, T.4 N., R.34 E., Treasure County, Hydrologic Unit 10080015, on right bank 1.9 mi upstream from Tullock Creek, 3.6 mi southwest of Bighorn, 4.5 mi southeast of Custer, and at river mile 3.0.

DRAINAGE AREA.--22,414 mi². Area at site used Oct. 7, 1955, to Sept. 30, 1981, 22,885 mi².

PERIOD OF RECORD.--October 1981 to current year (2002). Previously published as "06294700 Bighorn River at Bighorn, MT" 1956-81, and as "near Custer" 1945-55. Flows are equivalent at all sites.

GAGE.--Water-stage recorder. Altitude of gage is 2,700 ft (NGVD 29). May 11, 1945 to Dec. 6, 1945, nonrecording gage, and Dec. 7, 1945, to Oct. 6, 1955, water-stage recorder 1.7 mi upstream at different datum. Oct. 7, 1955, to Sept. 30, 1981, at site 2.3 mi downstream at different datum.

REMARKS.--Flow regulated by Bighorn Lake beginning November 1965 (usable capacity, 1,312,000 acre-ft). Major regulation prior to November 1965 by 14 reservoirs in Wyoming and 1 in Montana with combined usable capacity of about 1,400,000 acre-ft. Diversion for irrigation of about 445,200 acres upstream from station. U.S. Army Corps of Engineers satellite telemeter at station.

Unregulated streamflow period

Magnitude and probability of annual low flow
based on 18 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	988	717	600	514	--	--
3	1,120	828	690	586	--	--
7	1,310	951	768	627	--	--
14	1,510	1,080	857	689	--	--
30	1,680	1,220	997	824	--	--
60	1,970	1,470	1,210	1,010	--	--
90	2,160	1,660	1,410	1,210	--	--
120	2,360	1,890	1,660	1,470	--	--
183	2,560	2,020	1,730	1,500	--	--

Magnitude and probability of seasonal low flow from
March-June based on 19 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1,890	1,300	977	737	--	--
3	1,970	1,390	1,070	823	--	--
7	2,190	1,580	1,200	907	--	--
14	2,500	1,820	1,390	1,050	--	--
30	2,760	2,000	1,600	1,290	--	--

Magnitude and probability of seasonal low flow from
November-February based on 19 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1,190	874	752	668	--	--
3	1,280	1,000	896	825	--	--
7	1,480	1,230	1,140	1,080	--	--
14	1,740	1,490	1,400	1,330	--	--
30	2,050	1,720	1,560	1,440	--	--

Duration of daily mean flows based on 19 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
806	968	1,260	1,580	2,030	2,370	2,640	2,910
40%	30%	20%	15%	10%	5%	2%	1%
3,260	3,800	4,440	5,470	7,080	10,500	14,800	16,600

Magnitude and probability of annual high flow
based on 19 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	13,400	18,900	22,600	27,300	--	--
3	12,200	17,900	21,800	26,800	--	--
7	10,900	16,600	20,500	25,600	--	--
15	9,920	15,100	18,600	23,000	--	--
30	8,790	13,400	16,500	20,300	--	--
60	7,160	10,800	13,000	15,500	--	--
90	6,180	9,020	10,700	12,600	--	--

Magnitude and probability of seasonal low flow from
July-October based on 19 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1,330	898	712	579	--	--
3	1,370	931	742	607	--	--
7	1,450	999	805	666	--	--
14	1,630	1,120	894	730	--	--
30	1,840	1,250	1,000	836	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	4,060	1,760	3,130	618	19
November	4,180	1,360	3,030	648	19
December	3,690	1,280	2,600	560	19
January	3,890	1,380	2,380	595	19
February	4,450	1,950	2,720	738	19
March	5,380	1,540	3,520	1,180	19
April	5,230	1,220	3,200	982	19
May	9,100	1,600	4,650	1,870	19
June	15,200	2,380	9,070	4,320	20
July	12,600	707	5,290	3,580	20
August	4,860	868	2,330	1,050	20
September	4,110	1,630	2,750	725	20
Annual	5,500	1,620	3,670	999	19

06294500 Bighorn River above Tullock Creek, near Bighorn, Mont.—Continued
Site Number 179

Regulated streamflow period

Magnitude and probability of annual low flow
based on 37 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1,390	910	703	556	418	--
3	1,650	1,080	830	656	493	--
7	1,860	1,240	971	779	596	--
14	1,980	1,350	1,070	874	679	--
30	2,160	1,560	1,280	1,080	876	--
60	2,450	1,830	1,530	1,310	1,070	--
90	2,730	2,020	1,660	1,390	1,120	--
120	2,950	2,140	1,740	1,440	1,140	--
183	3,210	2,340	1,890	1,550	1,200	--

Magnitude and probability of seasonal low flow from
March-June based on 38 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2,370	1,460	1,050	770	519	--
3	2,460	1,560	1,160	876	616	--
7	2,590	1,700	1,300	1,020	760	--
14	2,740	1,840	1,450	1,180	913	--
30	2,970	2,000	1,590	1,300	1,030	--

Magnitude and probability of seasonal low flow from
November-February based on 37 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2,060	1,310	988	760	548	--
3	2,280	1,490	1,120	863	619	--
7	2,530	1,710	1,310	1,020	733	--
14	2,730	1,900	1,480	1,170	860	--
30	2,910	2,140	1,750	1,440	1,130	--

Duration of daily mean flows based on 38 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
907	1,130	1,530	1,800	2,300	2,670	3,050	3,450
40%	30%	20%	15%	10%	5%	2%	1%
3,840	4,240	5,170	5,680	6,390	8,150	10,700	12,600

Magnitude and probability of annual high flow
based on 38 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	8,330	14,500	19,900	28,400	36,100	--
3	8,240	13,800	18,100	24,300	29,500	--
7	7,850	12,600	16,000	20,500	24,000	--
15	7,370	11,600	14,500	18,300	21,200	--
30	6,810	10,300	12,700	15,700	18,000	--
60	5,990	8,730	10,500	12,500	14,000	--
90	5,480	7,710	9,050	10,600	11,600	--

Magnitude and probability of seasonal low flow from
July-October based on 37 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1,580	1,120	927	788	652	--
3	1,970	1,410	1,160	978	798	--
7	2,180	1,590	1,320	1,110	911	--
14	2,320	1,680	1,380	1,160	939	--
30	2,490	1,790	1,470	1,240	1,000	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	5,550	1,260	3,310	1,170	38
November	5,600	1,220	3,460	1,230	38
December	4,910	1,590	3,440	831	38
January	5,480	1,620	3,380	808	38
February	5,310	1,790	3,460	904	38
March	6,580	908	3,810	1,360	38
April	7,880	1,060	3,750	1,670	38
May	8,890	1,300	4,290	1,980	38
June	12,700	1,050	5,900	3,200	38
July	19,100	951	5,390	3,820	38
August	6,970	930	3,150	1,350	38
September	4,950	1,010	2,910	965	38
Annual	5,590	1,530	3,860	1,080	38

**06294940 Sarpy Creek near Hysham, Mont.
Site Number 180**

LOCATION.--Lat 46°14'19", long 107°08'12" (NAD 27), in NW¼SE¼SE¼ sec.30, T.6 N., R.37 E., Treasure County, Hydrologic Unit 10100001, on left bank 100 ft upstream from bridge on FAS Route 415, 1.3 mi upstream from Hysham Canal, 5.5 mi southeast of Hysham, and at river mile 11.0.

DRAINAGE AREA.--453 mi².

PERIOD OF RECORD.--September 1973 to September 30, 1984 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 2,677.5 ft (NGVD 29).

REMARKS.--Diversion for irrigation of about 970 acres upstream from station.

Magnitude and probability of annual low flow
based on 10 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	--	--
3	.00	.00	.00	.00	--	--
7	.00	.00	.00	.00	--	--
14	.00	.00	.00	.00	--	--
30	.00	.00	.00	.00	--	--
60	.00	.00	.00	.00	--	--
90	.00	.00	.00	.00	--	--
120	.04	.00	.00	.00	--	--
183	.20	.02	.00	.00	--	--

Magnitude and probability of seasonal low flow from
March-June based on 11 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.22	0.01	0.00	0.00	--	--
3	.31	.06	.01	.00	--	--
7	.68	.26	.17	.12	--	--
14	1.3	.46	.27	.18	--	--
30	2.0	.79	.48	.31	--	--

Magnitude and probability of seasonal low flow from
November-February based on 11 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	--	--
3	.00	.00	.00	.00	--	--
7	.00	.00	.00	.00	--	--
14	.01	.00	.00	.00	--	--
30	.22	.00	.00	.00	--	--

Duration of daily mean flows based on 11 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.02	0.04	0.10	0.20	0.40	0.60	0.79	0.99
40%	30%	20%	15%	10%	5%	2%	1%
1.9	2.7	4.8	6.6	11	24	61	123

Magnitude and probability of annual high flow
based on 11 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	76	238	430	--	--	--
3	57	196	386	--	--	--
7	40	137	275	--	--	--
15	27	85	167	--	--	--
30	18	54	101	--	--	--
60	13	35	62	--	--	--
90	11	29	52	--	--	--

Magnitude and probability of seasonal low flow from
July-October based on 10 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	--	--
3	.00	.00	.00	.00	--	--
7	.00	.00	.00	.00	--	--
14	.00	.00	.00	.00	--	--
30	.00	.00	.00	.00	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	2.4	0.00	0.43	0.76	11
November	2.5	.00	.68	.95	11
December	3.4	.00	.91	1.1	11
January	46	.00	7.4	13	11
February	49	1.3	11	14	11
March	111	1.1	29	44	11
April	38	1.5	9.3	11	11
May	59	1.2	13	18	11
June	14	.25	5.2	4.3	11
July	2.9	.00	.79	1.1	11
August	1.2	.00	.21	.41	11
September	19	.00	1.6	5.4	12
Annual	20	1.5	6.6	6.9	11

**06294995 Armells Creek near Forsyth, Mont.
Site Number 181**

LOCATION.--Lat 46°14'59", long 106°48'22" (NAD 27), in SE¼NW¼NE¼ sec.26, T.6 N., R.39 E., Rosebud County, Hydrologic Unit 10100001, on right bank 300 ft upstream from bridge on Interstate Highway 94, 2.2 mi upstream from mouth, and 6 mi southwest of Forsyth.

DRAINAGE AREA.--370 mi².

PERIOD OF RECORD.--July 1974 to September 1984, October 1987 to September 1995 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 2,557.11 ft (NGVD 29).

REMARKS.--Diversions for irrigation of about 200 acres upstream from station.

Magnitude and probability of annual low flow
based on 17 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	--	--
3	.00	.00	.00	.00	--	--
7	.00	.00	.00	.00	--	--
14	.00	.00	.00	.00	--	--
30	.01	.00	.00	.00	--	--
60	.05	.01	.00	.00	--	--
90	.09	.02	.01	.01	--	--
120	.13	.03	.01	.01	--	--
183	.38	.08	.04	.02	--	--

Magnitude and probability of seasonal low flow from
March-June based on 18 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.11	0.01	0.00	0.00	--	--
3	.17	.02	.00	.00	--	--
7	.40	.09	.04	.02	--	--
14	.77	.17	.06	.03	--	--
30	1.2	.33	.15	.07	--	--

Magnitude and probability of seasonal low flow from
November-February based on 18 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.02	0.00	0.00	0.00	--	--
3	.03	.00	.00	.00	--	--
7	.04	.00	.00	.00	--	--
14	.06	.00	.00	.00	--	--
30	.08	.01	.00	.00	--	--

Duration of daily mean flows based on 18 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.02	0.03	0.08	0.17	0.34	0.51	0.68	0.85
40%	30%	20%	15%	10%	5%	2%	1%
1.1	1.9	3.3	4.7	7.5	16	44	91

Magnitude and probability of annual high flow
based on 18 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	87	439	981	2,250	--	--
3	62	291	627	1,380	--	--
7	41	175	363	772	--	--
15	26	101	197	394	--	--
30	17	58	105	196	--	--
60	12	36	63	111	--	--
90	9.0	27	48	84	--	--

Magnitude and probability of seasonal low flow from
July-October based on 18 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	--	--
3	.00	.00	.00	.00	--	--
7	.01	.00	.00	.00	--	--
14	.02	.00	.00	.00	--	--
30	.05	.01	.00	.00	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	4.4	0.02	0.81	1.3	18
November	2.4	.00	.65	.77	18
December	2.6	.01	.53	.77	18
January	48	.00	4.3	11	18
February	52	.00	7.0	15	18
March	175	.04	27	49	18
April	25	.29	6.1	6.9	18
May	58	.27	9.6	16	18
June	23	.12	6.0	6.7	18
July	37	.01	2.9	8.4	19
August	5.7	.02	.98	1.5	19
September	26	.01	2.3	5.9	19
Annual	17	.38	5.8	6.0	18

**06295000 Yellowstone River at Forsyth, Mont.
Site Number 182**

LOCATION.--Lat 46°15'58", long 106°41'24" (NAD 27), in NE¼NW¼NW¼ sec.23, T.6 N., R.40 E., Rosebud County, Hydrologic Unit 10100001, on right bank 0.3 mi downstream from U.S. Highway 12 bridge, at Forsyth, and at river mile 238.2.

DRAINAGE AREA.--40,146 mi².

PERIOD OF RECORD.--July 16, 1921, to September 30, 1923 (no winter records), October 1977 to current year (2002). Miscellaneous discharge measurements were made in 1974 to 1976 and are available in files of U.S. Geological Survey Montana District Office.

GAGE.--Water-stage recorder. Altitude of gage is 2,504.62 ft (NGVD 29), from nearby elevation determined by City of Forsyth. July 1921 to March 1922, nonrecording gage on discontinued highway bridge 10 ft downstream from gage at different datum. March 1922 to September 1923, nonrecording gage on discontinued highway bridge 10 ft downstream from gage at datum 2 ft higher.

REMARKS.--Diversions for irrigation of about 838,000 acres upstream from station. Flow regulated to some extent by Bighorn Lake, usable capacity, 1,312,000 acre-ft, on Bighorn River. Small diversion dam about 4,200 ft downstream from station. Bureau of Reclamation satellite telemeter at station.

Magnitude and probability of annual low flow
based on 24 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3,230	2,320	1,920	1,640	--	--
3	3,460	2,520	2,100	1,800	--	--
7	3,880	2,970	2,560	2,260	--	--
14	4,630	3,620	3,090	2,670	--	--
30	5,150	4,100	3,520	3,050	--	--
60	5,460	4,400	3,820	3,340	--	--
90	5,890	4,780	4,170	3,670	--	--
120	6,200	5,040	4,420	3,910	--	--
183	6,610	5,240	4,530	3,980	--	--

Magnitude and probability of seasonal low flow from
March-June based on 25 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	5,200	3,600	2,830	2,250	1,690	--
3	5,320	3,760	3,000	2,440	1,880	--
7	5,460	4,060	3,400	2,900	2,390	--
14	5,900	4,610	4,030	3,590	3,150	--
30	6,260	4,850	4,240	3,790	3,340	--

Magnitude and probability of seasonal low flow from
November-February based on 25 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3,350	2,360	1,930	1,650	1,320	--
3	3,630	2,600	2,140	1,820	1,450	--
7	4,080	3,200	2,790	2,480	2,160	--
14	4,650	3,760	3,330	2,990	2,630	--
30	5,250	4,410	3,970	3,610	3,230	--

Duration of daily mean flows based on 25 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
2,560	3,110	3,660	4,420	5,190	5,970	6,780	7,610
40%	30%	20%	15%	10%	5%	2%	1%
8,440	10,300	13,500	16,700	23,200	32,000	43,200	48,800

Magnitude and probability of annual high flow
based on 25 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	41,500	57,300	69,100	85,500	99,000	--
3	39,600	54,000	64,000	77,200	87,400	--
7	36,100	49,500	58,900	71,400	81,300	--
15	33,300	45,500	53,900	65,000	73,600	--
30	30,000	40,500	47,500	56,400	63,100	--
60	25,300	33,800	39,300	46,100	51,100	--
90	21,100	28,000	32,300	37,600	41,500	--

Magnitude and probability of seasonal low flow from
July-October based on 24 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	5,520	4,030	3,300	2,740	--	--
3	5,630	4,080	3,330	2,760	--	--
7	5,790	4,180	3,410	2,830	--	--
14	5,970	4,280	3,480	2,880	--	--
30	6,230	4,450	3,650	3,060	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	10,700	3,520	7,490	2,120	25
November	10,500	4,190	6,990	1,700	25
December	8,930	3,620	6,110	1,190	25
January	7,800	3,240	5,720	1,120	25
February	10,200	3,510	6,140	1,590	25
March	15,100	3,220	7,060	2,530	25
April	13,300	4,220	7,720	2,340	25
May	27,800	10,000	17,300	4,270	25
June	63,700	10,000	29,800	12,000	25
July	34,400	6,140	18,300	8,680	25
August	17,600	2,740	8,150	3,590	25
September	11,300	2,720	6,960	2,370	25
Annual	17,600	6,030	10,600	2,630	25

**06295113 Rosebud Creek at reservation boundary, near Kirby, Mont.
Site Number 183**

LOCATION.--Lat 45°21'40", long 106°59'23" (NAD 27), in NE¼NE¼SW¼ sec.36, T.5 S., R.38 E., Big Horn County, Hydrologic Unit 10100003, on right bank, 0.2 mi upstream from Dry Creek, 0.5 mi north of reservation boundary, 1.9 mi downstream from Cache Creek, 2.0 mi north of Kirby, and at river mile 179.6.

DRAINAGE AREA.-- 123 mi².

PERIOD OF RECORD.--October 1979 to current year (2002).

GAGE.--Water-stage recorder. Altitude of gage is 3,780 ft (NGVD 29).

REMARKS.--Numerous small diversions for irrigation upstream from station.

Magnitude and probability of annual low flow
based on 22 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.51	0.07	0.00	0.00	--	--
3	.52	.08	.02	.00	--	--
7	.63	.12	.03	.00	--	--
14	.71	.22	.10	.05	--	--
30	1.1	.40	.21	.11	--	--
60	1.4	.67	.41	.26	--	--
90	1.7	.87	.58	.39	--	--
120	2.0	1.1	.73	.51	--	--
183	2.3	1.3	.90	.63	--	--

Magnitude and probability of seasonal low flow from
March-June based on 23 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2.9	1.4	0.87	0.54	--	--
3	3.1	1.6	.99	.63	--	--
7	3.4	1.8	1.3	.89	--	--
14	4.2	2.5	1.8	1.3	--	--
30	5.9	3.4	2.4	1.8	--	--

Magnitude and probability of seasonal low flow from
November-February based on 22 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1.4	0.56	0.31	0.18	--	--
3	1.6	.67	.39	.23	--	--
7	1.8	.82	.49	.31	--	--
14	2.0	.97	.61	.40	--	--
30	2.4	1.3	.87	.61	--	--

Duration of daily mean flows based on 23 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.10	0.20	0.49	0.98	1.6	2.2	2.9	3.6
40%	30%	20%	15%	10%	5%	2%	1%
4.6	6.0	9.5	12	15	21	32	42

Magnitude and probability of annual high flow
based on 23 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	44	81	105	133	--	--
3	38	70	92	117	--	--
7	31	56	74	95	--	--
15	25	42	52	62	--	--
30	21	32	37	42	--	--
60	17	25	28	31	--	--
90	15	21	24	26	--	--

Magnitude and probability of seasonal low flow from
July-October based on 22 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.53	0.09	0.00	0.00	--	--
3	.57	.10	.03	.00	--	--
7	.67	.13	.04	.01	--	--
14	.74	.23	.11	.06	--	--
30	1.1	.42	.22	.12	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	8.0	0.33	2.9	1.6	23
November	12	.37	3.3	2.3	23
December	13	.34	3.3	2.4	23
January	10	1.0	3.4	1.9	23
February	29	1.0	6.3	6.0	23
March	42	1.0	13	10	23
April	41	2.3	15	9.6	23
May	24	1.8	12	6.2	23
June	20	1.0	8.5	5.0	23
July	11	.03	3.6	2.8	23
August	4.6	.01	1.6	1.3	23
September	3.2	.00	1.6	.93	23
Annual	12	.77	6.3	2.7	23

**06295250 Rosebud Creek near Colstrip, Mont.
Site Number 184**

LOCATION.--Lat 45°46'03", long 106°34'10" (NAD 27), in SE¼SW¼NE¼ sec.8, T.1 S., R.42 E., Rosebud County, Hydrologic Unit 10100003, on left bank 10 ft downstream from bridge on FAS Route 315, 1.5 mi downstream from Lee Coulee, 8.4 mi southeast of Colstrip, and at river mile 85.6.

DRAINAGE AREA.--799 mi².

PERIOD OF RECORD.--October 1974 to current year (2002).

GAGE.--Water-stage recorder. Altitude of gage is 3,000 ft (NGVD 29).

REMARKS.--Diversions for irrigation of about 800 acres upstream from station.

Magnitude and probability of annual low flow
based on 27 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.51	0.00	0.00	0.00	0.00	--
3	.62	.00	.00	.00	.00	--
7	.94	.00	.00	.00	.00	--
14	1.2	.00	.00	.00	.00	--
30	1.3	.00	.00	.00	.00	--
60	2.0	.00	.00	.00	.00	--
90	2.8	.35	.05	.00	.00	--
120	5.3	1.0	.31	.10	.02	--
183	6.2	2.3	1.3	.79	.44	--

Magnitude and probability of seasonal low flow from
March-June based on 28 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	9.7	4.7	3.1	1.9	0.00	--
3	10	4.9	3.3	2.1	.00	--
7	17	5.7	3.5	2.1	.14	--
14	18	6.1	3.7	2.3	.14	--
30	19	7.6	4.4	2.7	1.5	--

Magnitude and probability of seasonal low flow from
November-February based on 27 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	6.0	1.4	0.35	0.04	0.00	--
3	6.8	1.6	.41	.06	.00	--
7	7.1	1.8	.62	.21	.05	--
14	8.9	2.8	1.1	.38	.09	--
30	11	3.6	1.4	.49	.12	--

Duration of daily mean flows based on 28 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.10	0.19	0.49	0.97	4.2	6.3	8.9	13
40%	30%	20%	15%	10%	5%	2%	1%
17	23	32	40	53	84	158	229

Magnitude and probability of annual high flow
based on 28 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	98	232	367	603	832	--
3	85	204	328	549	772	--
7	73	174	280	474	671	--
15	60	138	219	366	516	--
30	49	107	167	276	388	--
60	40	85	130	212	295	--
90	35	73	110	176	241	--

Magnitude and probability of seasonal low flow from
July-October based on 27 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.61	0.00	0.00	0.00	0.00	--
3	.70	.00	.00	.00	.00	--
7	1.1	.00	.00	.00	.00	--
14	1.3	.00	.00	.00	.00	--
30	1.4	.00	.00	.00	.00	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	48	0.00	9.6	12	28
November	46	.03	12	11	28
December	46	.41	13	11	28
January	70	3.0	15	14	28
February	105	5.0	27	24	28
March	164	7.4	46	38	28
April	185	8.9	41	38	28
May	306	4.2	52	72	28
June	212	.78	36	52	28
July	104	.00	19	26	28
August	57	.00	9.2	15	28
September	56	.00	6.8	13	28
Annual	96	3.0	24	23	28

208 Statistical Summaries of Streamflow in Montana and Adjacent Areas, Water Years 1900 through 2002

06296003 Rosebud Creek at mouth, near Rosebud, Mont. Site Number 185

LOCATION.--Lat 46°15'53", long 106°28'30" (NAD 27), in SW¼NW¼NE¼ sec.21, T.6 N., R.42 E., Rosebud County, Hydrologic Unit 10100003, on left bank 0.4 mi upstream from bridge on Interstate Highway 94, 0.8 mi upstream from mouth, and 1.6 mi southwest of Rosebud.

DRAINAGE AREA.--1,302 mi².

PERIOD OF RECORD.--October 1974 to current year (2002).

GAGE.--Water-stage recorder. Altitude of gage is 2,480 ft (NGVD 29).

REMARKS.--Diversion for irrigation of about 2,000 acres upstream from station.

Magnitude and probability of annual low flow
based on 27 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.18	0.00	0.00	0.00	0.00	--
3	.20	.00	.00	.00	.00	--
7	.25	.01	.00	.00	.00	--
14	.29	.01	.00	.00	.00	--
30	.42	.01	.00	.00	.00	--
60	.69	.06	.01	.00	.00	--
90	1.5	.15	.04	.01	.00	--
120	2.3	.37	.12	.05	.01	--
183	4.0	.75	.26	.10	.03	--

Magnitude and probability of seasonal low flow from
March-June based on 28 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2.0	0.30	0.07	0.00	0.00	--
3	2.6	.38	.08	.00	.00	--
7	3.6	.54	.18	.07	.02	--
14	6.0	.93	.31	.11	.03	--
30	10	1.7	.60	.22	.07	--

Magnitude and probability of seasonal low flow from
November-February based on 27 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1.7	0.14	0.00	0.00	0.00	--
3	2.1	.15	.01	.00	.00	--
7	2.2	.22	.04	.00	.00	--
14	2.6	.27	.05	.00	.00	--
30	3.8	.50	.13	.04	.01	--

Duration of daily mean flows based on 28 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.04	0.08	0.20	0.41	0.81	2.0	4.5	8.0
40%	30%	20%	15%	10%	5%	2%	1%
14	23	36	45	63	115	213	319

Magnitude and probability of annual high flow
based on 28 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	216	580	1,020	1,930	2,980	--
3	161	455	818	1,580	2,480	--
7	115	322	579	1,120	1,760	--
15	88	237	409	746	1,110	--
30	70	178	286	472	649	--
60	54	131	200	307	400	--
90	46	109	165	251	324	--

Magnitude and probability of seasonal low flow from
July-October based on 27 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.18	0.00	0.00	0.00	0.00	--
3	.22	.00	.00	.00	.00	--
7	.31	.01	.00	.00	.00	--
14	.35	.02	.00	.00	.00	--
30	.47	.03	.00	.00	.00	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	46	0.00	8.4	11	28
November	48	.01	9.4	12	28
December	48	.03	10	12	28
January	159	.03	19	31	28
February	187	.07	38	51	28
March	428	.04	72	93	28
April	180	5.0	44	42	28
May	478	.39	61	104	28
June	286	.48	41	62	28
July	133	.00	18	33	28
August	48	.00	8.2	12	28
September	77	.00	8.6	19	28
Annual	112	1.0	28	29	28

**06306300 Tongue River at State line, near Decker, Mont.
Site Number 186**

LOCATION.--Lat 45°00'32", long 106°50'08" (NAD 27), in NW¼NW¼NE¼ sec.33, T.9 S., R.40 E., Big Horn County, Hydrologic Unit 10090101, on left bank 1 mi north of Wyoming-Montana State line, 1.4 mi southeast of Decker, 1.6 mi upstream from Badger Creek, and at river mile 200.9.

DRAINAGE AREA.--1,453 mi².

PERIOD OF RECORD.--August 1960 to current year (2002). Records published as "near Decker" May 1928 to September 1938, not equivalent owing to intervening drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 3,429.14 ft (NGVD 29, levels by U.S. Army Corps of Engineers).

REMARKS.--Flow regulated by many small reservoirs in Wyoming (combined capacity, about 15,000 acre-ft). Diversions for irrigation of about 64,300 acres upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 41 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	88	50	30	18	9.0	--
3	94	53	33	20	10	--
7	102	57	35	21	11	--
14	113	63	40	25	13	--
30	127	74	48	31	18	--
60	147	91	64	46	29	--
90	164	115	91	73	55	--
120	184	139	116	98	79	--
183	197	153	131	115	97	--

Magnitude and probability of seasonal low flow from
March-June based on 42 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	165	118	97	82	67	--
3	174	126	105	88	72	--
7	187	139	118	102	86	--
14	213	163	140	122	104	--
30	247	183	154	133	112	--

Magnitude and probability of seasonal low flow from
November-February based on 42 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	93	69	58	51	42	--
3	102	77	65	57	48	--
7	117	89	76	66	56	--
14	135	103	87	75	63	--
30	154	118	100	86	71	--

Duration of daily mean flows based on 42 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
45	64	86	114	153	185	214	242
40%	30%	20%	15%	10%	5%	2%	1%
270	343	486	680	1,070	1,830	2,760	3,380

Magnitude and probability of annual high flow
based on 42 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	2,820	4,680	5,960	7,570	8,750	--
3	2,610	4,140	5,090	6,190	6,940	--
7	2,350	3,600	4,310	5,070	5,560	--
15	2,100	3,170	3,750	4,350	4,710	--
30	1,830	2,780	3,290	3,810	4,120	--
60	1,370	2,070	2,450	2,860	3,110	--
90	1,080	1,580	1,860	2,150	2,330	--

Magnitude and probability of seasonal low flow from
July-October based on 41 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	116	57	32	19	9.4	--
3	118	58	34	21	11	--
7	124	61	36	22	12	--
14	132	67	41	26	14	--
30	148	78	49	32	18	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	402	116	253	67	42
November	324	126	224	47	42
December	271	102	179	44	42
January	330	79	177	54	42
February	672	80	229	101	42
March	855	88	303	148	42
April	676	124	355	129	42
May	3,280	268	1,140	549	42
June	3,570	176	1,640	945	42
July	1,670	55	461	329	42
August	475	13	176	102	42
September	615	47	214	107	43
Annual	862	138	446	156	42

210 Statistical Summaries of Streamflow in Montana and Adjacent Areas, Water Years 1900 through 2002

06307500 Tongue River at Tongue River Dam, near Decker, Mont. Site Number 187

LOCATION.--Lat 45°08'29", long 106°46'15" (NAD 27), in SW¼SE¼SE¼ sec.12, T.8 S., R.40 E., Big Horn County, Hydrologic Unit 10090101, on left bank 0.5 mi downstream from Tongue River Dam, 4 mi upstream from Post Creek, 8 mi northeast of Decker, 16 mi southeast of Kirby, and at river mile 188.4.

DRAINAGE AREA.--1,770 mi².

PERIOD OF RECORD.--May 1939 to current year (2002).

REVISED RECORDS.--WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 3,344.40 ft (NGVD 29, levels by Bureau of Reclamation). Prior to Aug. 5, 1975, at datum 10.00 ft lower.

REMARKS.--Flow regulated by Tongue River Reservoir (station number 06307000) and many small reservoirs (combined capacity, about 15,000 acre-ft).

Diversion for irrigation of about 64,800 acres upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 62 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	67	25	12	5.8	2.2	1.1
3	82	33	16	7.4	2.6	1.2
7	104	48	23	10	3.4	1.4
14	127	74	45	15	4.3	2.6
30	128	75	49	32	19	12
60	150	99	73	53	36	26
90	171	128	105	86	68	56
120	194	143	117	97	77	65
183	232	174	145	123	100	87

Magnitude and probability of seasonal low flow from
March-June based on 63 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	118	42	19	8.1	2.7	1.1
3	136	53	23	10	3.2	1.3
7	169	75	34	15	4.4	1.7
14	185	82	47	16	4.7	2.8
30	198	100	61	38	21	13

Magnitude and probability of seasonal low flow from
November-February based on 63 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	114	59	36	23	12	7.7
3	128	73	47	30	17	11
7	140	86	56	36	20	13
14	141	92	69	53	37	29
30	146	103	82	66	50	41

Duration of daily mean flows based on 63 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
46	59	83	115	153	183	220	260
40%	30%	20%	15%	10%	5%	2%	1%
327	412	524	669	930	1,530	2,420	3,000

Magnitude and probability of annual high flow
based on 63 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	2,210	3,660	4,550	5,530	6,160	6,720
3	2,130	3,440	4,190	4,980	5,460	5,870
7	1,990	3,170	3,840	4,540	4,960	5,320
15	1,770	2,810	3,410	4,060	4,470	4,820
30	1,480	2,380	2,930	3,570	4,000	4,380
60	1,130	1,790	2,200	2,700	3,040	3,360
90	936	1,410	1,710	2,060	2,300	2,530

Magnitude and probability of seasonal low flow from
July-October based on 63 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	108	63	46	36	27	22
3	118	71	54	43	33	28
7	132	85	68	57	47	42
14	156	101	80	67	54	47
30	196	132	106	88	71	61

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	665	71	274	127	63
November	554	41	254	133	63
December	369	62	188	57	63
January	287	80	173	42	63
February	592	57	180	74	63
March	676	23	224	128	63
April	958	15	362	217	63
May	2,710	157	903	493	63
June	3,820	183	1,430	892	64
July	2,080	169	571	327	64
August	768	103	361	156	64
September	775	107	308	132	64
Annual	853	133	437	152	63

**06307600 Hanging Woman Creek near Birney, Mont.
Site Number 188**

LOCATION.--Lat 45°17'57", long 106°30'28" (NAD 27), in N½NW¼SE¼ sec.19, T.6 S., R.43 E., Rosebud County, Hydrologic Unit 10090101, on right bank 0.5 mi downstream from bridge on Birney-Otter road, 1.2 mi south of Birney, 1.2 mi downstream from East Fork, and at river mile 3.3.

DRAINAGE AREA.--470 mi².

PERIOD OF RECORD.--September 1973 to September 1984, October 1985 to September 1995.

REVISED RECORDS.--WDR MT-82-1: 1980 (M).

GAGE.--Water-stage recorder. Altitude of gage is 3,150 ft (NGVD 29, from topographic map).

REMARKS.-- Diversions for irrigation of about 1,240 acres upstream from station.

Magnitude and probability of annual low flow
based on 20 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.03	0.00	0.00	0.00	--	--
3	.03	.00	.00	.00	--	--
7	.06	.00	.00	.00	--	--
14	.07	.00	.00	.00	--	--
30	.15	.00	.00	.00	--	--
60	.18	.01	.00	.00	--	--
90	.33	.03	.00	.00	--	--
120	.39	.04	.00	.00	--	--
183	.46	.14	.07	.04	--	--

Magnitude and probability of seasonal low flow from
March-June based on 21 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.35	0.10	0.02	0.00	--	--
3	.48	.11	.04	.01	--	--
7	.56	.17	.08	.04	--	--
14	.71	.26	.15	.09	--	--
30	.94	.44	.30	.22	--	--

Magnitude and probability of seasonal low flow from
November-February based on 21 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.35	0.02	0.00	0.00	--	--
3	.42	.03	.00	.00	--	--
7	.42	.05	.01	.00	--	--
14	.46	.11	.04	.00	--	--
30	.54	.18	.09	.01	--	--

Duration of daily mean flows based on 21 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.02	0.04	0.09	0.18	0.37	0.55	0.74	0.92
40%	30%	20%	15%	10%	5%	2%	1%
1.2	1.7	2.4	3.1	4.3	8.7	23	44

Magnitude and probability of annual high flow
based on 21 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	116	430	772	1,340	--	--
3	74	257	448	760	--	--
7	44	138	232	380	--	--
15	26	73	116	181	--	--
30	16	41	65	103	--	--
60	9.4	23	36	56	--	--
90	7.0	17	25	39	--	--

Magnitude and probability of seasonal low flow from
July-October based on 20 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.06	0.00	0.00	0.00	--	--
3	.06	.00	.00	.00	--	--
7	.09	.00	.00	.00	--	--
14	.10	.00	.00	.00	--	--
30	.16	.00	.00	.00	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	3.0	0.00	0.68	0.72	21
November	3.0	.00	.88	.76	21
December	3.1	.06	.95	.79	21
January	21	.30	2.6	5.2	21
February	71	.36	10	17	21
March	93	.57	9.8	20	21
April	17	.50	2.9	3.6	21
May	98	.41	6.6	21	21
June	13	.20	3.7	4.1	21
July	19	.00	2.8	4.4	21
August	7.2	.00	1.0	1.6	21
September	2.3	.00	.48	.61	22
Annual	14	.35	3.5	3.4	21

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06307616 Tongue River at Birney Day School Bridge, near Birney, Mont. Site Number 189

LOCATION.--Lat 45°24'42", long 106°27'26" (NAD 27), in SE¼SW¼SW¼ sec.8, T.5 S., R.43 E., Rosebud County, Hydrologic Unit 10090102, on left bank, 60 ft upstream from Bureau of Indian Affairs bridge, 0.2 mi east of Birney Day School, 5.5 mi downstream from Cook Creek, 6.5 mi northeast of Birney, and at river mile 144.3.

DRAINAGE AREA.--2,621 mi².

PERIOD OF RECORD.--October 1979 to current year (2002).

GAGE.--Water-stage recorder. Altitude of gage is 3,060 ft (NGVD 29).

REMARKS.--Flow regulated by Tongue River Reservoir (station number 06307000), and many small reservoirs in Wyoming (combined capacity, about 15,000 acre-ft). Numerous diversions for irrigation upstream from station.

Magnitude and probability of annual low flow
based on 22 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	74	49	39	31	--	--
3	85	56	44	35	--	--
7	96	64	49	38	--	--
14	108	74	59	48	--	--
30	130	92	74	61	--	--
60	149	108	88	73	--	--
90	179	131	105	84	--	--
120	194	143	116	94	--	--
183	230	172	142	119	--	--

Magnitude and probability of seasonal low flow from
March-June based on 23 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	123	74	54	41	--	--
3	132	80	58	43	--	--
7	144	88	63	46	--	--
14	159	95	71	54	--	--
30	183	113	86	68	--	--

Magnitude and probability of seasonal low flow from
November-February based on 22 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	101	65	50	39	--	--
3	112	77	61	49	--	--
7	125	88	70	57	--	--
14	141	101	81	66	--	--
30	161	120	97	78	--	--

Duration of daily mean flows based on 23 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
64	71	87	120	162	197	230	262
40%	30%	20%	15%	10%	5%	2%	1%
313	370	467	520	710	1,230	2,020	2,570

Magnitude and probability of annual high flow
based on 23 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	1,810	2,850	3,430	4,030	--	--
3	1,700	2,750	3,340	3,950	--	--
7	1,590	2,600	3,180	3,790	--	--
15	1,410	2,320	2,830	3,380	--	--
30	1,170	1,940	2,430	3,000	--	--
60	889	1,420	1,760	2,160	--	--
90	747	1,140	1,380	1,680	--	--

Magnitude and probability of seasonal high flow from
July-October based on 22 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	142	89	69	56	--	--
3	157	97	75	60	--	--
7	172	110	85	68	--	--
14	196	129	100	80	--	--
30	233	161	128	104	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	381	85	246	83	23
November	347	66	219	77	23
December	260	64	179	49	23
January	287	91	179	45	23
February	350	90	197	60	23
March	434	78	226	94	23
April	583	66	275	157	23
May	1,770	144	654	397	23
June	2,920	225	1,120	745	23
July	1,270	234	556	257	23
August	676	159	399	136	23
September	694	113	320	137	23
Annual	644	133	381	127	23

**06307740 Otter Creek at Ashland, Mont.
Site Number 190**

LOCATION.--Lat 45°35'18", long 106°15'17" (NAD 27), in NE¼NE¼SE¼ sec.11, T.3 S., R.44 E., Rosebud County, Hydrologic Unit 10090102, on left bank 200 ft downstream from bridge on U.S. Highway 212, 0.3 mi southeast of Ashland, and at river mile 2.7.

DRAINAGE AREA.--707 mi².

PERIOD OF RECORD.--October 1972 to November 1985, October 1987 to September 1995.

GAGE.--Water-stage recorder. Altitude of gage is 2,916.57 ft (NGVD 29).

REMARKS.--Diversion for irrigation of about 4,200 acres upstream from station.

Magnitude and probability of annual low flow
based on 19 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	--	--
3	.04	.00	.00	.00	--	--
7	.06	.00	.00	.00	--	--
14	.12	.00	.00	.00	--	--
30	.27	.00	.00	.00	--	--
60	.41	.08	.02	.00	--	--
90	.70	.14	.04	.01	--	--
120	.75	.32	.20	.14	--	--
183	1.2	.60	.41	.31	--	--

Magnitude and probability of seasonal low flow from
March-June based on 21 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.91	0.21	0.04	0.00	--	--
3	1.3	.23	.05	.00	--	--
7	1.4	.38	.14	.01	--	--
14	1.9	.81	.49	.31	--	--
30	2.4	1.1	.67	.45	--	--

Magnitude and probability of seasonal low flow from
November-February based on 20 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.88	0.23	0.00	0.00	--	--
3	1.0	.25	.08	.00	--	--
7	1.1	.38	.17	.02	--	--
14	1.4	.43	.19	.09	--	--
30	1.7	.64	.34	.19	--	--

Duration of daily mean flows based on 21 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.03	0.07	0.16	0.33	0.66	0.99	1.5	2.2
40%	30%	20%	15%	10%	5%	2%	1%
2.9	3.9	5.4	6.6	8.1	14	28	56

Magnitude and probability of annual high flow
based on 21 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	34	112	207	397	--	--
3	26	88	168	337	--	--
7	20	64	118	229	--	--
15	15	44	78	144	--	--
30	11	30	52	95	--	--
60	8.2	21	34	58	--	--
90	7.3	17	27	45	--	--

Magnitude and probability of seasonal low flow from
July-October based on 20 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.01	0.00	0.00	0.00	--	--
3	.05	.00	.00	.00	--	--
7	.07	.00	.00	.00	--	--
14	.13	.00	.00	.00	--	--
30	.28	.00	.00	.00	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	4.4	0.18	1.4	1.3	22
November	6.1	.71	2.5	1.5	22
December	7.0	.57	2.5	1.8	21
January	30	.10	4.9	7.7	21
February	35	.35	7.1	8.4	21
March	106	1.3	15	24	21
April	28	.99	6.5	6.6	21
May	53	.71	7.3	11	21
June	16	.36	4.4	3.9	21
July	8.9	.28	2.3	2.2	21
August	5.5	.00	1.4	1.7	21
September	4.1	.00	.89	1.0	21
Annual	19	.60	4.7	4.3	21

**06307830 Tongue River below Brandenburg Bridge, near Ashland, Mont.
Site Number 191**

LOCATION.--Lat 45°50'24", long 106°13'22" (NAD 27), in SE¼SW¼NE¼ sec.14, T.1N., R.44E., Rosebud County, Hydrologic Unit 10090102, on right bank downstream from county bridge, 22 mi north of Ashland, and at river mile 81.3.

DRAINAGE AREA.--3,948 mi². Area at site used prior to Sept. 20, 1984, 4,062 mi².

PERIOD OF RECORD.--October 1973 to September 20, 1984, July 2000 to current year (2002).

GAGE.--Water-stage recorder. Altitude of gage is 2,760 ft (NGVD 29), from topographic map. October 1973 to Sept. 20, 1984, water-stage recorder at site 6.5 mi downstream at different datum.

REMARKS.--Flow regulated by Tongue River Reservoir (station number 06307000), and many small reservoirs in Wyoming (combined capacity, about 15,000 acre-ft). Diversions for irrigation for about 73,000 acres upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 11 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	80	62	54	48	--	--
3	88	69	60	54	--	--
7	105	80	68	59	--	--
14	119	89	74	63	--	--
30	134	102	87	75	--	--
60	161	126	109	97	--	--
90	189	144	121	104	--	--
120	208	155	129	108	--	--
183	249	187	152	123	--	--

Magnitude and probability of seasonal low flow from
March-June based on 13 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	161	113	92	76	--	--
3	172	120	95	77	--	--
7	188	126	98	79	--	--
14	199	129	100	81	--	--
30	232	142	107	84	--	--

Magnitude and probability of seasonal low flow from
November-February based on 12 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	81	63	55	49	--	--
3	89	70	61	55	--	--
7	107	82	69	59	--	--
14	122	92	77	66	--	--
30	141	110	94	81	--	--

Duration of daily mean flows based on 13 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
71	79	100	125	168	209	249	297
40%	30%	20%	15%	10%	5%	2%	1%
353	422	504	615	904	1,450	2,580	3,410

Magnitude and probability of annual high flow
based on 13 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	1,860	3,450	4,760	6,730	--	--
3	1,840	3,350	4,470	5,950	--	--
7	1,750	3,170	4,100	5,170	--	--
15	1,590	2,930	3,790	4,790	--	--
30	1,320	2,500	3,330	4,390	--	--
60	1,000	1,880	2,530	3,390	--	--
90	831	1,510	2,000	2,640	--	--

Magnitude and probability of seasonal low flow from
July-October based on 12 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	220	167	137	112	--	--
3	228	169	137	112	--	--
7	233	172	139	113	--	--
14	239	176	143	117	--	--
30	262	196	158	127	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	511	104	276	96	13
November	388	84	216	89	13
December	389	96	194	76	13
January	334	93	219	83	13
February	406	90	229	84	13
March	705	81	289	161	13
April	594	98	323	160	13
May	2,500	111	821	710	13
June	3,450	224	1,420	1,020	13
July	2,260	182	668	527	14
August	916	126	425	198	14
September	436	120	309	94	14
Annual	886	120	452	221	13

**06308400 Pumpkin Creek near Miles City, Mont.
Site Number 192**

LOCATION.--Lat 46°13'42", long 105°41'24" (NAD 27), in SW¼NE¼SW¼ sec.35, T.6 N., R.48 E., Custer County, Hydrologic Unit 10090102, on right bank 12 ft upstream from bridge on U.S. Highway 312, 7.5 mi upstream from mouth, and 16 mi southeast of Miles City.

DRAINAGE AREA.--697 mi².

PERIOD OF RECORD.--October 1972 to September 1985 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 2,475.86 ft (NGVD 29).

REMARKS.--Diversion for irrigation of about 3,600 acres upstream from station.

Magnitude and probability of annual low flow
based on 12 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	--	--
3	.00	.00	.00	.00	--	--
7	.00	.00	.00	.00	--	--
14	.00	.00	.00	.00	--	--
30	.00	.00	.00	.00	--	--
60	.00	.00	.00	.00	--	--
90	.00	.00	.00	.00	--	--
120	.07	.00	.00	.00	--	--
183	.32	.00	.00	.00	--	--

Magnitude and probability of seasonal low flow from
March-June based on 13 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	--	--
3	.00	.00	.00	.00	--	--
7	.00	.00	.00	.00	--	--
14	.01	.00	.00	.00	--	--
30	.10	.00	.00	.00	--	--

Magnitude and probability of seasonal low flow from
November-February based on 12 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	--	--
3	.00	.00	.00	.00	--	--
7	.00	.00	.00	.00	--	--
14	.00	.00	.00	.00	--	--
30	.00	.00	.00	.00	--	--

Duration of daily mean flows based on 13 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.01	0.03	0.07	0.14	0.27	0.41	0.55	0.68
40%	30%	20%	15%	10%	5%	2%	1%
0.82	0.95	2.8	7.2	17	61	160	265

Magnitude and probability of annual high flow
based on 13 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	319	977	1,620	2,640	--	--
3	236	768	1,290	2,090	--	--
7	157	496	822	1,320	--	--
15	94	306	513	829	--	--
30	58	182	293	448	--	--
60	34	108	173	261	--	--
90	26	85	141	221	--	--

Magnitude and probability of seasonal low flow from
July-October based on 13 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	--	--
3	.00	.00	.00	.00	--	--
7	.00	.00	.00	.00	--	--
14	.00	.00	.00	.00	--	--
30	.00	.00	.00	.00	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	9.7	0.00	1.4	2.6	14
November	2.7	.00	.33	.70	14
December	.74	.00	.17	.24	13
January	29	.00	4.7	9.0	13
February	134	.00	30	48	13
March	299	.01	54	96	13
April	84	.00	17	25	13
May	205	.00	36	69	13
June	64	.00	17	21	13
July	18	.00	3.8	5.9	13
August	16	.00	2.0	4.5	13
September	60	.00	6.6	17	13
Annual	50	.22	14	15	13

**06308500 Tongue River at Miles City, Mont.
Site Number 193**

LOCATION.--Lat 46°23'05", long 105°50'41" (NAD 27), in SE¼SE¼SE¼ sec.4, T.7 N., R.47 E., Custer County, Hydrologic Unit 10090102, on right bank 1.5 mi south of Miles City and at river mile 2.3.

DRAINAGE AREA.--5,397 mi². Area at site used prior to Oct. 4, 1995, 5,379 mi².

PERIOD OF RECORD.--April 1938 to April 1942, April 1946 to current year (2002). Published as "near Miles City" April 1938 to April 1942. Not equivalent to records published as "near Miles City" May 1929 to October 1932. April 1946 to Oct. 4, 1995, at site 2.5 mi upstream. Flows at present site are equivalent with site operated from 1946. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 2,360 ft (NGVD 29). April 1938 to April 1942, nonrecording gage at site 8 mi upstream at different datum. April 1946 to Sept. 30, 1963, at datum 1.00 ft higher. Oct. 4, 1995, gage was moved 2.5 mi downstream.

REMARKS.--Flow regulation by Tongue River Reservoir (station number 0630700; capacity, 79,100 acre-ft), and many small reservoirs in Wyoming (combined capacity, about 15,000 acre-ft). Diversions for irrigation of about 100,800 acres upstream from station. U.S. Army Corps of Engineers satellite telemeter at station.

Magnitude and probability of annual low flow
based on 58 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	33	9.1	3.7	1.5	0.12	0.00
3	38	11	4.3	1.7	.13	.00
7	46	14	5.7	2.3	.19	.00
14	58	18	8.0	3.8	1.5	.73
30	80	31	17	9.3	4.5	2.7
60	111	51	30	19	9.9	6.3
90	142	74	48	31	18	12
120	179	100	66	43	25	17
183	204	124	87	61	38	27

Magnitude and probability of seasonal low flow from
March-June based on 59 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	103	26	10	4.3	1.4	0.65
3	116	33	14	6.7	2.5	1.3
7	133	43	21	11	4.7	2.6
14	169	61	32	17	8.1	4.7
30	243	93	49	27	13	7.5

Magnitude and probability of seasonal low flow from
November-February based on 60 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	86	52	38	27	19	14
3	95	60	45	34	23	18
7	107	72	56	45	34	28
14	120	85	68	56	44	37
30	140	103	84	71	57	48

Duration of daily mean flows based on 59 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
5.1	9.0	28	68	122	160	196	235
40%	30%	20%	15%	10%	5%	2%	1%
278	365	523	686	964	1,510	2,400	3,040

Magnitude and probability of annual high flow
based on 59 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	2,870	5,010	6,450	8,200	9,430	10,600
3	2,540	4,290	5,300	6,370	7,020	7,560
7	2,160	3,530	4,230	4,880	5,240	5,510
15	1,790	2,880	3,440	3,970	4,260	4,480
30	1,420	2,310	2,780	3,250	3,510	3,720
60	1,030	1,690	2,070	2,460	2,700	2,900
90	846	1,370	1,660	1,980	2,170	2,330

Magnitude and probability of seasonal low flow from
July-October based on 60 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	48	12	4.7	1.8	0.16	0.00
3	50	13	4.9	1.9	.16	.00
7	57	15	6.0	2.7	.18	.00
14	69	19	8.3	4.2	1.8	.91
30	98	32	17	9.8	4.9	2.9

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	694	10	247	148	60
November	585	61	256	128	60
December	423	68	191	72	60
January	529	77	196	92	60
February	1,790	84	281	250	60
March	1,780	74	532	428	60
April	1,690	12	441	318	62
May	2,980	29	692	520	61
June	3,820	42	1,270	894	61
July	2,210	13	467	413	61
August	700	6.1	182	146	61
September	599	2.4	200	138	61
Annual	986	57	409	190	59

**06309000 Yellowstone River at Miles City, Mont.
Site Number 194**

LOCATION.--Lat 46°25'18", long 105°51'38" (NAD 27), in NE¼SW¼NW¼ sec.28, T.8 N., R.47 E., Custer County, Hydrologic Unit 10100001, on left bank at upstream side of bridge on State Highway 22 at Miles City, 0.8 mi downstream from Tongue River, and at river mile 184.2.

DRAINAGE AREA.--48,253 mi².

PERIOD OF RECORD.--September 1922 to September 1923, August 1928 to current year (2002). Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 2,333.3 ft (NGVD 29, levels by U.S. Army Corps of Engineers). Prior to May 6, 1929, nonrecording gages 1.2 mi downstream at different datums. May 6, 1929, to Sept. 30, 1931, nonrecording gage, and Oct. 1, 1931, to Nov. 10, 1937, water-stage recorder 300 ft upstream from present site at same datum. Nov. 11, 1937, to Sept. 30, 1946, water-stage recorder 1.2 mi downstream at different datum. Oct. 1, 1946, to Mar. 15, 1979, water-stage recorder at site 300 ft upstream at present datum. Mar. 16, 1979, to Sept. 21, 1979, nonrecording gage at present site and datum. Sept. 22, 1979, recording gage established at same site and datum.

REMARKS.--Some regulation by reservoirs on tributary streams. Diversions for irrigation of about 1,100,000 acres upstream from station (does not include flood irrigation). U.S. Army Corps of Engineers satellite telemeter at station.

Unregulated streamflow period

Magnitude and probability of annual low flow
based on 36 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1,840	1,440	1,280	1,170	1,060	--
3	2,010	1,570	1,380	1,250	1,120	--
7	2,310	1,820	1,620	1,460	1,310	--
14	2,800	2,200	1,940	1,740	1,550	--
30	3,450	2,690	2,350	2,090	1,830	--
60	4,070	3,230	2,840	2,530	2,220	--
90	4,570	3,710	3,280	2,940	2,580	--
120	5,110	4,210	3,750	3,390	3,010	--
183	5,590	4,550	4,060	3,670	3,260	--

Magnitude and probability of seasonal low flow from
March-June based on 38 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4,270	3,100	2,540	2,110	1,690	--
3	4,400	3,310	2,770	2,360	1,950	--
7	4,770	3,700	3,180	2,770	2,350	--
14	5,330	4,210	3,630	3,170	2,690	--
30	6,420	4,810	4,080	3,530	2,970	--

Magnitude and probability of seasonal low flow from
November-February based on 38 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1,860	1,460	1,300	1,190	1,080	--
3	2,040	1,590	1,400	1,260	1,130	--
7	2,380	1,870	1,650	1,490	1,320	--
14	2,950	2,320	2,030	1,810	1,590	--
30	3,680	2,930	2,560	2,280	1,980	--

Duration of daily mean flows based on 38 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
1,840	2,220	2,840	3,520	4,540	5,290	6,040	7,020
40%	30%	20%	15%	10%	5%	2%	1%
8,030	9,770	14,300	19,000	26,000	38,300	49,700	60,700

Magnitude and probability of annual high flow
based on 38 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	54,400	69,000	76,400	84,100	88,700	--
3	52,300	65,300	71,500	77,600	81,200	--
7	48,900	61,100	67,000	72,700	76,000	--
15	44,500	55,400	60,800	66,000	69,000	--
30	39,000	49,100	54,200	59,200	62,100	--
60	30,600	38,900	43,400	48,100	51,100	--
90	24,800	31,400	34,800	38,300	40,400	--

Magnitude and probability of seasonal low flow from
July-October based on 36 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4,230	3,010	2,460	2,060	1,670	--
3	4,290	3,050	2,490	2,080	1,680	--
7	4,450	3,180	2,610	2,200	1,790	--
14	4,710	3,360	2,760	2,320	1,880	--
30	5,140	3,690	3,040	2,570	2,100	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	12,900	4,120	7,090	1,820	38
November	9,160	3,980	6,500	1,320	38
December	7,070	2,920	4,920	1,170	38
January	7,180	2,030	4,390	1,150	38
February	9,610	2,340	5,140	1,760	38
March	18,600	4,100	7,940	2,820	38
April	15,200	2,730	7,800	2,580	38
May	27,000	7,330	16,800	4,820	38
June	58,600	10,000	36,800	10,400	38
July	42,300	3,990	19,900	9,750	38
August	16,000	2,620	7,550	3,320	38
September	13,700	2,960	6,670	2,320	40
Annual	16,700	6,140	11,000	2,530	38

**06309000 Yellowstone River at Miles City, Mont.—Continued
Site Number 194**

Regulated streamflow period

Magnitude and probability of annual low flow
based on 36 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2,990	2,290	2,010	1,810	1,610	--
3	3,220	2,480	2,170	1,950	1,730	--
7	3,680	2,950	2,640	2,430	2,210	--
14	4,480	3,630	3,230	2,920	2,600	--
30	5,390	4,400	3,870	3,440	2,980	--
60	5,920	4,870	4,320	3,880	3,390	--
90	6,410	5,280	4,690	4,220	3,700	--
120	6,800	5,600	4,960	4,450	3,890	--
183	7,280	5,870	5,140	4,560	3,940	--

Magnitude and probability of seasonal low flow from
March-June based on 37 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	5,920	4,160	3,330	2,720	2,110	--
3	6,130	4,350	3,490	2,850	2,220	--
7	6,310	4,630	3,840	3,260	2,670	--
14	6,840	5,230	4,500	3,970	3,420	--
30	7,390	5,610	4,810	4,220	3,620	--

Magnitude and probability of seasonal low flow from
November-February based on 36 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3,110	2,380	2,080	1,870	1,650	--
3	3,360	2,580	2,250	2,010	1,780	--
7	3,930	3,110	2,760	2,500	2,240	--
14	4,650	3,810	3,420	3,130	2,830	--
30	5,490	4,710	4,340	4,050	3,740	--

Duration of daily mean flows based on 37 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
2,920	3,310	4,130	4,770	5,840	6,710	7,520	8,330
40%	30%	20%	15%	10%	5%	2%	1%
9,620	11,300	15,000	18,300	25,300	34,800	47,000	55,200

Magnitude and probability of annual high flow
based on 37 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	45,200	60,000	69,300	80,300	88,200	--
3	43,500	58,400	67,800	79,100	87,200	--
7	40,200	54,500	63,600	74,600	82,500	--
15	37,000	50,400	58,700	68,900	76,100	--
30	33,300	45,200	52,600	61,300	67,500	--
60	27,900	37,700	43,500	50,200	54,900	--
90	23,300	31,000	35,600	40,800	44,300	--

Magnitude and probability of seasonal low flow from
July-October based on 36 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	5,970	4,450	3,730	3,170	2,610	--
3	6,100	4,520	3,770	3,210	2,630	--
7	6,240	4,620	3,850	3,270	2,670	--
14	6,480	4,750	3,940	3,330	2,750	--
30	6,860	5,010	4,150	3,500	3,000	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	13,000	4,220	8,420	2,170	37
November	10,800	4,730	7,790	1,800	37
December	9,340	4,070	6,610	1,190	37
January	8,900	3,780	6,260	1,250	37
February	16,200	3,900	7,270	2,390	37
March	17,700	3,030	8,630	3,220	37
April	14,700	4,250	8,730	2,640	37
May	29,100	10,000	17,800	5,070	37
June	61,900	10,000	32,700	12,300	37
July	46,300	6,060	20,600	10,400	37
August	16,500	3,030	8,830	3,530	37
September	13,100	3,660	7,800	2,500	37
Annual	17,500	6,180	11,800	2,890	37

06324500 Powder River at Moorhead, Mont. Site Number 195

LOCATION.--Lat 45°03'25", long 105°52'39" (NAD 27), in NE¼NE¼NW¼ sec.18, T.9 S., R.48 E., Powder River County, Hydrologic Unit 10090207, on left bank 25 ft downstream from bridge on Powder River, 7.3 mi upstream from Buffalo Creek, and at river mile 183.7.

DRAINAGE AREA.--8,086 mi²; Sept. 13, 1956 to Aug. 27, 2001 published as 8,088 mi².

PERIOD OF RECORD.--May 1929 to September 1972, October 1974 to current year (2002). Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1309: 1932(M). WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 3,334.63 ft (NGVD 29, levels by U.S. Army Corps of Engineers). Prior to Aug. 28, 1931, nonrecording gage at site 0.3 mi upstream at different datum. Aug. 28, 1931, to Mar. 21, 1956, water-stage recorder at site 1.2 mi upstream at different datum. Mar. 22 to July 24, 1956, nonrecording gage at site 0.3 mi downstream at different datum. July 25 to Sept. 12, 1956, nonrecording gage at present site and datum. Sept. 13, 1956, to Aug. 27, 2001, water-stage recorder during period of gage operation 1.1 mi downstream at different datum.

REMARKS.--Some regulation by three reservoirs in Wyoming (combined usable capacity, 36,800 acre-ft). Diversions for irrigation of about 66,300 acres upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 70 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	16	2.5	0.00	0.00	0.00	0.00
3	19	3.1	.00	.00	.00	.00
7	22	3.8	.90	.05	.00	.00
14	28	7.1	2.6	.37	.00	.00
30	43	13	5.9	2.8	1.1	.57
60	67	28	17	11	5.9	3.9
90	99	51	34	23	14	10
120	128	75	54	40	28	22
183	148	98	79	66	53	46

Magnitude and probability of seasonal low flow from
March-June based on 71 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	123	42	21	11	4.6	2.5
3	133	47	24	13	5.6	3.1
7	160	62	33	18	8.7	5.0
14	230	99	54	30	14	8.1
30	329	175	115	77	47	33

Magnitude and probability of seasonal low flow from
November-February based on 71 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	66	34	21	13	7.0	4.4
3	76	44	29	20	12	8.3
7	94	56	38	26	16	11
14	108	64	44	31	19	13
30	125	81	60	45	31	23

Duration of daily mean flows based on 71 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
3.5	7.3	20	46	93	132	174	224
40%	30%	20%	15%	10%	5%	2%	1%
284	372	557	734	1,080	1,840	2,920	3,930

Magnitude and probability of annual high flow
based on 71 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	4,190	7,540	10,300	14,300	17,700	21,500
3	3,300	5,800	7,800	10,700	13,100	15,700
7	2,530	4,330	5,680	7,540	9,020	10,600
15	1,960	3,320	4,280	5,540	6,490	7,450
30	1,530	2,600	3,350	4,320	5,050	5,770
60	1,170	1,950	2,500	3,220	3,750	4,280
90	976	1,560	1,950	2,440	2,800	3,140

Magnitude and probability of seasonal low flow from
July-October based on 71 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	18	2.6	0.00	0.00	0.00	0.00
3	20	3.7	.00	.00	.00	.00
7	23	4.9	1.2	.06	.00	.00
14	30	8.3	3.3	.70	.00	.00
30	46	15	6.3	3.4	1.1	.75

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	897	16	226	159	71
November	660	80	225	96	71
December	326	56	159	56	71
January	445	27	154	64	71
February	1,200	21	288	206	71
March	2,290	185	612	385	71
April	1,310	117	508	237	71
May	5,550	83	1,090	881	72
June	4,130	40	1,400	1,070	72
July	2,500	34	471	431	72
August	1,220	.60	176	194	72
September	686	1.3	147	143	72
Annual	1,090	110	448	193	71

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06325500 Little Powder River near Broadus, Mont. Site Number 196

LOCATION.--Lat 45°23'25", long 105°18'15" (NAD 27), in NW¼NE¼ sec.21, T.5 S., R.52 E., Powder River County, on left bank 1.5 mi downstream from East Fork, 5.5 mi southeast of Broadus, and 8 mi upstream from mouth.

DRAINAGE AREA.--1,974 mi².

PERIOD OF RECORD.--20 years. May 1947 to September 1953, water year 1956, March 1957 to September 1972, discontinued. Monthly discharge only for May 1947, published in WSP 1309.

REVISED RECORDS (WATER YEARS).--WSP 1116: 1947. WSP 1729: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Altitude of gage is 3,020 ft (NGVD 29, by barometer). Prior to Dec. 10, 1962, water-stage recorder at site 0.8 mi upstream at different datum.

REMARKS.--Minor diversions upstream from station.

Magnitude and probability of annual low flow
based on 18 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.24	0.00	0.00	0.00	--	--
3	.25	.00	.00	.00	--	--
7	.51	.03	.00	.00	--	--
14	.83	.09	.00	.00	--	--
30	1.3	.46	.22	.00	--	--
60	2.1	1.0	.63	.42	--	--
90	2.7	1.5	1.1	.87	--	--
120	3.0	1.9	1.5	1.2	--	--
183	3.7	2.3	1.8	1.6	--	--

Magnitude and probability of seasonal low flow from
March-June based on 20 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4.6	2.4	1.8	0.00	--	--
3	5.2	2.6	1.8	.00	--	--
7	5.9	2.8	1.8	.00	--	--
14	8.2	3.3	2.0	1.3	--	--
30	12	5.1	3.3	2.2	--	--

Magnitude and probability of seasonal low flow from
November-February based on 21 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1.2	0.00	0.00	0.00	--	--
3	1.3	.02	.00	.00	--	--
7	1.4	.42	.06	.00	--	--
14	1.7	.62	.12	.00	--	--
30	2.2	1.0	.61	.38	--	--

Duration of daily mean flows based on 20 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.16	0.33	0.82	1.5	2.4	3.2	4.2	5.6
40%	30%	20%	15%	10%	5%	2%	1%
8.4	16	33	47	69	150	417	708

Magnitude and probability of annual high flow
based on 20 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	943	1,530	1,920	2,390	--	--
3	737	1,340	1,740	2,240	--	--
7	520	976	1,270	1,610	--	--
15	349	642	807	970	--	--
30	230	420	521	614	--	--
60	147	269	332	391	--	--
90	108	196	241	284	--	--

Magnitude and probability of seasonal low flow from
July-October based on 20 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.83	0.13	0.00	0.00	--	--
3	.87	.16	.00	.00	--	--
7	1.1	.24	.06	.00	--	--
14	1.4	.44	.16	.00	--	--
30	1.9	.78	.40	.00	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	70	1.5	6.6	15	21
November	16	1.8	4.4	3.1	21
December	8.7	.87	3.8	2.1	21
January	8.2	.35	3.7	2.0	21
February	340	3.2	48	83	21
March	558	5.3	160	190	21
April	238	2.3	63	74	21
May	190	3.1	51	50	22
June	305	2.0	81	72	22
July	110	1.5	28	27	22
August	69	.00	14	20	22
September	54	.39	7.3	11	22
Annual	110	3.0	40	27	20

**06326300 Mizpah Creek near Mizpah, Mont.
Site Number 197**

LOCATION.--Lat 46°15'39", long 105°17'34" (NAD 27), in NW¼NE¼SW¼ sec.24, T.6 N., R.51 E., Custer County, Hydrologic Unit 10090210, on left bank 20 ft downstream from county bridge, 1.0 mi upstream from mouth, and 1.6 mi northwest of Mizpah.

DRAINAGE AREA.--797 mi².

PERIOD OF RECORD.--October 1974 to September 1986 (discontinued).

GAGE.--Water-stage recorder and crest-stage gage. Altitude of gage is 2,490 ft (NGVD 29, from topographic map).

Magnitude and probability of annual low flow
based on 11 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	--	--
3	.00	.00	.00	.00	--	--
7	.00	.00	.00	.00	--	--
14	.00	.00	.00	.00	--	--
30	.00	.00	.00	.00	--	--
60	.01	.00	.00	.00	--	--
90	.03	.01	.00	.00	--	--
120	.08	.01	.00	.00	--	--
183	.31	.04	.01	.00	--	--

Magnitude and probability of seasonal low flow from
March-June based on 12 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	--	--
3	.02	.00	.00	.00	--	--
7	.06	.00	.00	.00	--	--
14	.12	.02	.01	.00	--	--
30	.31	.05	.02	.01	--	--

Magnitude and probability of seasonal low flow from
November-February based on 11 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	--	--
3	.00	.00	.00	.00	--	--
7	.00	.00	.00	.00	--	--
14	.00	.00	.00	.00	--	--
30	.00	.00	.00	.00	--	--

Duration of daily mean flows based on 12 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.01	0.03	0.07	0.14	0.29	0.43	0.58	0.72
40%	30%	20%	15%	10%	5%	2%	1%
0.86	1.1	4.9	12	23	69	175	350

Magnitude and probability of annual high flow
based on 12 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	346	955	1,600	--	--	--
3	236	741	1,330	--	--	--
7	164	486	852	--	--	--
15	92	283	508	--	--	--
30	58	169	292	--	--	--
60	36	102	171	--	--	--
90	27	80	137	--	--	--

Magnitude and probability of seasonal low flow from
July-October based on 11 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.01	0.00	0.00	0.00	--	--
3	.01	.00	.00	.00	--	--
7	.01	.00	.00	.00	--	--
14	.01	.00	.00	.00	--	--
30	.01	.00	.00	.00	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	25	0.00	4.8	8.8	12
November	1.6	.00	.33	.46	12
December	2.1	.01	.26	.58	12
January	18	.00	1.9	5.1	12
February	110	.00	29	40	12
March	319	.13	60	96	12
April	126	.07	17	36	12
May	196	.06	39	60	12
June	71	.10	19	22	12
July	28	.00	5.9	8.0	12
August	14	.00	2.1	3.8	12
September	166	.00	16	47	12
Annual	46	1.1	16	16	12

**06326500 Powder River near Locate, Mont.
Site Number 198**

LOCATION.--Lat 46°25'48", long 105°18'34" (NAD 27), in SW¼SW¼SE¼ sec.23, T.8 N., R.51 E., Custer County, Hydrologic Unit 10090209, on left bank at downstream side of bridge on U.S. Highway 12, 0.1 mi west of Locate, and 25 mi east of Miles City, and at river mile 29.4.

DRAINAGE AREA.--13,068 mi².

PERIOD OF RECORD.--March 1938 to current year (2002).

REVISED RECORDS.--WSP 926: 1939. WSP 1309: 1938-39 (M). WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 2,384.79 ft (NGVD 29, levels by U.S. Army Corps of Engineers). Prior to July 11, 1947, nonrecording gage at bridge 1.5 mi upstream, and July 11, 1947, to Sept. 30, 1965, water-stage recorder at site near upstream bridge at different datum. Oct. 1, 1965, to Oct. 4, 1966, nonrecording gage, and Oct. 5, 1966, to Mar. 21, 1978, water-stage recorder at present site and datum. Mar. 22, 1978, to Apr. 23, 1981, water-stage recorder 1.5 mi upstream at different datum, Apr. 24 to Aug. 20, 1981, water-stage recorder at present site and datum, and Aug. 21, 1981, to Sept. 30, 1981, water-stage recorder 1.5 mi upstream at different datum. Oct. 1, 1981, to Apr. 5, 1995, water-stage recorder at site 1.5 mi downstream at different datum. Apr. 7, 1995, to present (2002), water-stage recorders located on each bank and used depending on control conditions.

REMARKS.--Some regulation by three reservoirs in Wyoming (combined usable capacity, 36,800 acre-ft). Diversions for irrigation of about 101,800 acres upstream from station. U.S. Army Corps of Engineers satellite telemeter at station.

Magnitude and probability of annual low flow
based on 63 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	15	3.7	1.2	0.00	0.00	0.00
3	17	4.6	1.7	.00	.00	.00
7	21	5.3	1.9	.12	.00	.00
14	38	6.6	2.3	.22	.00	.00
30	47	9.1	2.6	.74	.14	.04
60	74	24	11	5.0	1.9	.90
90	111	47	25	13	5.9	3.2
120	143	67	39	22	11	6.5
183	163	85	55	37	22	16

Magnitude and probability of seasonal low flow from
March-June based on 64 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	147	55	30	17	8.3	5.0
3	158	63	35	21	11	7.0
7	188	81	48	30	17	11
14	267	122	75	47	27	18
30	427	203	125	80	45	30

Magnitude and probability of seasonal low flow from
November-February based on 64 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	46	22	13	7.6	2.4	0.00
3	55	27	17	10	3.2	.00
7	64	35	23	15	5.9	.00
14	80	45	30	20	8.0	.00
30	111	62	44	31	11	.00

Duration of daily mean flows based on 64 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
2.6	5.8	16	41	85	124	174	241
40%	30%	20%	15%	10%	5%	2%	1%
337	485	755	1,000	1,380	2,150	3,680	5,340

Magnitude and probability of annual high flow
based on 64 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	5,530	11,000	15,700	22,900	29,100	36,000
3	4,520	9,090	13,100	19,200	24,600	30,700
7	3,440	6,700	9,430	13,500	17,000	20,900
15	2,590	4,720	6,350	8,590	10,400	12,200
30	2,010	3,510	4,560	5,930	6,950	7,960
60	1,520	2,570	3,280	4,160	4,780	5,380
90	1,260	2,080	2,610	3,250	3,700	4,130

Magnitude and probability of seasonal low flow from
July-October based on 64 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	18	4.1	1.5	0.17	0.00	0.00
3	20	5.0	2.0	.29	.00	.00
7	24	5.8	2.3	.76	.00	.00
14	43	7.4	2.4	.84	.08	.02
30	49	10	3.9	1.5	.49	.21

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	921	1.8	252	225	64
November	790	12	220	127	64
December	417	12	150	78	64
January	476	9.4	143	84	64
February	3,850	6.1	434	601	64
March	4,630	80	1,240	1,090	64
April	3,060	109	739	486	65
May	5,970	114	1,150	913	65
June	8,040	48	1,610	1,390	65
July	2,020	10	581	500	65
August	1,100	1.4	215	208	65
September	898	.24	174	198	65
Annual	1,620	81	576	300	64

**06326600 O'Fallon Creek near Ismay, Mont.
Site Number 199**

LOCATION.--Lat 46°25'17", long 104°45'40" (NAD 27), in NE¼SE¼ sec.30, T.8 N., R.56 E., Fallon County, Hydrologic Unit 10100005, on left bank, about 350 ft upstream from U.S. Highway 12, 1 mi east of road to Ismay, 6.5 mi southeast of Ismay, 11.5 mi west of Plevna, and at river mile 58.3.

DRAINAGE AREA.--669 mi².

PERIOD OF RECORD.--October 1977 to September 1992 (discontinued). Crest-stage partial-record data collected July 1962 to September 1977.

GAGE.--Water-stage recorder. Altitude of gage is 2,590 ft (NGVD 29, from topographic map).

Magnitude and probability of annual low flow
based on 14 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	--	--
3	.00	.00	.00	.00	--	--
7	.00	.00	.00	.00	--	--
14	.00	.00	.00	.00	--	--
30	.00	.00	.00	.00	--	--
60	.03	.00	.00	.00	--	--
90	.08	.00	.00	.00	--	--
120	.08	.00	.00	.00	--	--
183	.23	.00	.00	.00	--	--

Magnitude and probability of seasonal low flow from
March-June based on 15 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	--	--
3	.00	.00	.00	.00	--	--
7	.08	.00	.00	.00	--	--
14	.24	.00	.00	.00	--	--
30	.91	.00	.00	.00	--	--

Magnitude and probability of seasonal low flow from
November-February based on 15 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	--	--
3	.00	.00	.00	.00	--	--
7	.01	.00	.00	.00	--	--
14	.03	.00	.00	.00	--	--
30	.10	.00	.00	.00	--	--

Duration of daily mean flows based on 15 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.02	0.03	0.08	0.17	0.34	0.51	0.68	0.84
40%	30%	20%	15%	10%	5%	2%	1%
1.0	2.2	5.7	9.2	17	43	125	248

Magnitude and probability of annual high flow
based on 15 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	310	876	1,510	2,690	--	--
3	224	677	1,190	2,160	--	--
7	146	469	867	1,670	--	--
15	86	270	506	1,010	--	--
30	53	163	303	600	--	--
60	31	94	168	316	--	--
90	23	68	123	235	--	--

Magnitude and probability of seasonal low flow from
July-October based on 14 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	--	--
3	.00	.00	.00	.00	--	--
7	.00	.00	.00	.00	--	--
14	.00	.00	.00	.00	--	--
30	.00	.00	.00	.00	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	13	0.00	2.0	4.3	15
November	5.8	.00	.83	1.5	15
December	1.7	.00	.60	.62	15
January	14	.00	1.6	3.6	15
February	172	.00	37	63	15
March	568	.00	62	144	15
April	120	.14	19	31	15
May	81	.03	20	29	15
June	160	.00	20	41	15
July	21	.00	5.4	7.0	15
August	58	.00	5.1	15	15
September	5.6	.00	.49	1.5	15
Annual	64	1.2	14	18	15

**06327500 Yellowstone River at Glendive, Mont.
Site Number 200**

LOCATION.--Lat 47°06'00", long 104°43'00" (NAD 27), in N½ sec.35, T.16 N, R.55 E., Dawson County, at highway bridge at Glendive.

DRAINAGE AREA.--66,788 mi².

PERIOD OF RECORD.--16 years (1897-1910, 1931-34).

GAGE.--Chain gage. Altitude of gage is 2,040 ft (NGVD 29, from topographic map).

REMARKS.--Diversion for irrigation of about 1,200,000 acres upstream from station. Some regulation on tributary streams. Records for this station are considered equivalent to records for Yellowstone River at Sidney (station number 06329500) except during periods of operation of Lower Yellowstone Canal at Lower Yellowstone Dam at Intake.

Magnitude and probability of annual low flow
based on 10 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3,120	2,040	1,530	1,160	--	--
3	3,170	2,100	1,590	1,220	--	--
7	3,300	2,320	1,830	1,450	--	--
14	3,680	2,810	2,330	1,940	--	--
30	4,180	3,500	3,110	2,780	--	--
60	4,470	3,930	3,590	3,300	--	--
90	4,680	4,170	3,850	3,570	--	--
120	4,930	4,480	4,240	4,040	--	--
183	5,860	5,290	5,020	4,820	--	--

Magnitude and probability of seasonal low flow from
March-June based on 13 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	5,090	3,430	2,710	2,200	--	--
3	5,130	4,030	3,650	3,400	--	--
7	5,330	4,380	4,070	3,880	--	--
14	5,580	4,640	4,330	4,130	--	--
30	6,610	5,340	4,820	4,460	--	--

Magnitude and probability of seasonal low flow from
November-February based on 12 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3,190	2,110	1,600	1,240	--	--
3	3,240	2,170	1,670	1,300	--	--
7	3,340	2,340	1,860	1,510	--	--
14	3,700	2,840	2,360	1,970	--	--
30	4,210	3,540	3,160	2,840	--	--

Duration of daily mean flows based on 13 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
2,060	2,500	3,360	4,240	4,850	5,410	5,970	7,120
40%	30%	20%	15%	10%	5%	2%	1%
8,450	11,500	17,900	24,400	36,400	49,800	65,800	71,900

Magnitude and probability of annual high flow
based on 13 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	65,500	86,600	96,100	105,000	--	--
3	62,800	81,900	90,100	97,200	--	--
7	60,600	76,500	82,300	86,500	--	--
15	57,000	69,500	73,100	75,200	--	--
30	53,400	65,000	68,100	69,900	--	--
60	42,600	53,600	57,800	61,000	--	--
90	34,700	43,300	46,500	48,900	--	--

Magnitude and probability of seasonal low flow from
July-October based on 12 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	5,780	4,860	4,440	4,120	--	--
3	5,840	4,960	4,570	4,270	--	--
7	5,970	5,130	4,760	4,470	--	--
14	6,130	5,350	5,010	4,760	--	--
30	6,470	5,660	5,300	5,040	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	9,500	4,880	6,640	1,310	14
November	7,390	4,200	5,560	812	14
December	5,700	2,920	4,530	805	14
January	5,700	3,270	4,570	686	13
February	5,940	3,360	4,690	744	13
March	18,800	5,660	9,300	3,710	13
April	13,900	4,370	8,550	2,560	14
May	44,700	9,660	21,900	9,260	14
June	74,200	10,000	46,100	14,000	14
July	64,000	4,050	27,700	16,100	14
August	24,100	2,780	11,600	5,510	14
September	12,100	2,860	7,840	2,270	14
Annual	17,700	6,060	13,300	3,120	13

**06329200 Burns Creek near Savage, Mont.
Site Number 201**

LOCATION.--Lat 47°22'20", long 104°25'46" (NAD 27), in NE¼SE¼SE¼ sec.27, T.19 N., R.57 E., Richland County, Hydrologic Unit 10100004, on right bank 1,000 ft upstream from bridge on State Highway 16, 7 mi southwest of Savage, and at river mile 2.1.

DRAINAGE AREA.--233 mi².

PERIOD OF RECORD.--October 1957 to September 1967, September 1975 to September 1984, October 1985 to September 1986 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 2,000 ft (NGVD 29, from topographic map).

REMARKS.--Minor diversions for irrigation upstream.

Magnitude and probability of annual low flow
based on 12 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	--	--
3	.00	.00	.00	.00	--	--
7	.00	.00	.00	.00	--	--
14	.00	.00	.00	.00	--	--
30	.00	.00	.00	.00	--	--
60	.08	.00	.00	.00	--	--
90	.24	.07	.00	.00	--	--
120	.39	.19	.11	.00	--	--
183	.51	.26	.17	.00	--	--

Magnitude and probability of seasonal low flow from
March-June based on 19 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.28	0.00	0.00	0.00	--	--
3	.30	.00	.00	.00	--	--
7	.38	.00	.00	.00	--	--
14	.85	.14	.00	.00	--	--
30	1.6	.64	.35	.00	--	--

Magnitude and probability of seasonal low flow from
November-February based on 15 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.05	0.00	0.00	0.00	--	--
3	.06	.00	.00	.00	--	--
7	.08	.00	.00	.00	--	--
14	.11	.00	.00	.00	--	--
30	.29	.00	.00	.00	--	--

Duration of daily mean flows based on 20 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.02	0.04	0.10	0.19	0.39	0.58	0.78	0.97
40%	30%	20%	15%	10%	5%	2%	1%
1.4	2.0	3.5	5.2	8.8	21	56	106

Magnitude and probability of annual high flow
based on 20 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	153	605	1,190	2,370	--	--
3	100	399	797	1,630	--	--
7	62	231	442	860	--	--
15	39	134	247	458	--	--
30	25	84	155	290	--	--
60	16	50	89	160	--	--
90	12	36	63	109	--	--

Magnitude and probability of seasonal low flow from
July-October based on 13 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	--	--
3	.00	.00	.00	.00	--	--
7	.00	.00	.00	.00	--	--
14	.00	.00	.00	.00	--	--
30	.01	.00	.00	.00	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	2.7	0.19	1.2	0.80	19
November	2.1	.45	1.0	.47	19
December	2.1	.23	.78	.44	19
January	5.0	.20	.89	1.1	18
February	103	.10	16	27	17
March	183	1.2	42	52	19
April	118	1.8	12	26	20
May	15	.68	4.4	3.8	20
June	15	.28	6.1	4.8	20
July	25	.18	4.6	6.7	19
August	1.6	.10	.72	.56	17
September	9.8	.11	1.6	2.7	14
Annual	21	.83	7.9	6.7	20

**06329500 Yellowstone River near Sidney, Mont.
Site Number 202**

LOCATION.--Lat 47°40'42", long 104°09'22" (NAD 27), in SW¼NE¼SW¼ sec.9, T.22 N., R.59 E., Richland County, Hydrologic Unit 10100004, on left bank at Montana-Dakota Utilities Company powerplant, 0.2 mi downstream from bridge on State Highway 23, 2.5 mi south of Sidney, 3.0 mi downstream from Fox Creek, and at river mile 29.2.

DRAINAGE AREA.--69,083 mi². Area at site 4.5 mi upstream, 68,812 mi².

PERIOD OF RECORD.--October 1910 to September 1931 published as "at Intake", October 1933 to current year (2002). If monthly figures of diversions to Lower Yellowstone Canal at Intake are added to records at this site, records equivalent to those published as "Yellowstone River at Glendive" (1898-1910, 1931-34) can be obtained. Monthly discharge only for some periods, published in WSP 1309. Monthly figures of diversions into Lower Yellowstone Canal prior to 1951 published in WSP 1309, 1951-60 published in WSP 1729, 1961-65 published in WSP 1916, 1966-70 published in WSP 2116, and 1971 to current year (2002) are published in annual reports.

GAGE.--Water-stage recorder. Altitude of gage is 1,881.3 ft (NGVD 29, levels by U.S. Army Corps of Engineers). Jan. 1, 1911, to Sept. 30, 1931, nonrecording gage at site 32 mi upstream at different datum. Apr. 9, 1934, water-stage recorder at two sites within 500 ft of highway bridge 0.2 mi upstream and May 17, 1945, to Apr. 3, 1952, nonrecording gage on same bridge at datum 1.36 ft higher. Apr. 4, 1952, to Nov. 19, 1967, water-stage recorder at site 4.5 mi upstream at different datum.

REMARKS.--Flow regulated to some extent by Bighorn Lake, usable capacity, 1,312,000 acre-ft, on the Bighorn River and on other tributary streams in Wyoming and Montana. Diversion for irrigation of about 1,250,000 acres upstream from station. Lower Yellowstone Project Main Canal diverts from left bank in NW¼ sec.36, T.18 N., R.56 E., at Lower Yellowstone diversion dam at Intake about 36.6 mi upstream for irrigation of about 52,000 acres of which about one-third lie upstream from station. U.S. Army Corps of Engineers satellite telemeter at station.

Unregulated streamflow period

Magnitude and probability of annual low flow based on 51 years of record						
Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2,020	1,290	1,020	842	677	585
3	2,120	1,400	1,140	956	789	696
7	2,440	1,660	1,360	1,160	963	853
14	3,000	2,100	1,730	1,470	1,210	1,060
30	3,910	2,830	2,330	1,970	1,600	1,380
60	4,430	3,410	2,950	2,620	2,270	2,070
90	4,940	3,940	3,490	3,160	2,830	2,620
120	5,450	4,440	4,000	3,670	3,330	3,120
183	6,020	4,790	4,260	3,880	3,490	3,250

Magnitude and probability of seasonal low flow from March-June based on 53 seasons of record						
Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	5,200	3,480	2,540	1,850	1,210	880
3	5,290	3,690	2,830	2,180	1,550	1,200
7	5,660	4,100	3,270	2,620	1,970	1,600
14	6,420	4,710	3,830	3,160	2,470	2,070
30	7,980	5,770	4,750	3,990	3,240	2,790

Magnitude and probability of seasonal low flow from November-February based on 52 seasons of record						
Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2,110	1,330	1,050	871	707	617
3	2,230	1,450	1,160	979	809	714
7	2,560	1,710	1,390	1,180	981	869
14	3,190	2,280	1,910	1,650	1,400	1,250
30	4,030	3,170	2,800	2,540	2,270	2,110

Duration of daily mean flows based on 53 years of record							
Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
1,650	2,050	2,910	3,720	4,850	5,770	6,760	7,780
40%	30%	20%	15%	10%	5%	2%	1%
8,960	11,600	17,100	22,600	30,500	45,100	63,100	71,000

Magnitude and probability of annual high flow based on 53 years of record						
Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	68,600	94,300	109,000	124,000	134,000	142,000
3	64,800	87,700	100,000	113,000	121,000	128,000
7	58,500	78,200	88,600	99,400	106,000	112,000
15	51,700	69,400	79,000	89,200	95,600	101,000
30	45,100	60,000	67,800	75,800	80,700	84,900
60	35,700	47,000	52,800	58,600	62,100	65,000
90	28,900	37,900	42,500	47,200	50,000	52,400

Magnitude and probability of seasonal low flow from July-October based on 52 seasons of record						
Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4,310	2,600	1,890	1,410	978	752
3	4,390	2,670	1,950	1,470	1,030	797
7	4,530	2,820	2,100	1,620	1,170	928
14	4,800	3,000	2,260	1,740	1,270	1,010
30	5,400	3,410	2,590	2,020	1,500	1,210

Monthly and annual mean discharges					
Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	29,100	3,730	7,950	3,690	54
November	12,200	3,700	6,910	1,630	54
December	8,710	3,020	5,380	1,420	54
January	13,100	2,090	5,060	1,860	53
February	15,400	2,700	6,110	2,870	53
March	21,200	5,190	10,900	4,420	53
April	39,200	2,820	10,900	6,120	53
May	38,100	5,410	18,600	6,490	53
June	77,300	10,000	42,200	14,400	53
July	55,000	3,310	24,400	12,600	53
August	20,500	1,600	9,080	4,660	53
September	16,000	2,390	6,960	3,000	53
Annual	21,200	5,810	12,900	3,630	53

06329500 Yellowstone River near Sidney, Mont.—Continued

Site Number 202

Regulated streamflow period

Magnitude and probability of annual low flow
based on 36 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3,280	2,210	1,720	1,380	1,050	--
3	3,430	2,350	1,870	1,520	1,180	--
7	3,790	2,730	2,260	1,910	1,560	--
14	4,660	3,380	2,740	2,260	1,770	--
30	5,630	4,090	3,260	2,610	1,960	--
60	6,360	4,810	3,940	3,230	2,500	--
90	6,810	5,380	4,580	3,920	3,220	--
120	7,220	5,780	4,990	4,350	3,660	--
183	7,590	6,020	5,210	4,570	3,880	--

Magnitude and probability of seasonal low flow from
March-June based on 37 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	6,370	4,570	3,750	3,140	2,540	--
3	6,610	4,810	3,980	3,350	2,730	--
7	7,010	5,230	4,380	3,750	3,100	--
14	7,530	5,670	4,810	4,170	3,520	--
30	8,360	6,210	5,250	4,530	3,810	--

Magnitude and probability of seasonal low flow from
November-February based on 36 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3,440	2,310	1,800	1,430	1,070	--
3	3,620	2,470	1,950	1,570	1,210	--
7	4,010	2,900	2,390	2,020	1,640	--
14	4,900	3,820	3,290	2,870	2,430	--
30	5,860	4,770	4,200	3,730	3,230	--

Duration of daily mean flows based on 37 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
2,460	3,140	3,990	4,770	5,960	6,890	7,790	8,680
40%	30%	20%	15%	10%	5%	2%	1%
10,200	11,800	15,800	20,000	27,000	38,300	49,700	61,500

Magnitude and probability of annual high flow
based on 37 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	50,400	67,600	78,100	90,600	99,300	--
3	48,400	64,700	74,600	86,200	94,300	--
7	44,300	59,600	69,100	80,300	88,200	--
15	39,900	54,300	63,300	74,000	81,600	--
30	35,300	48,500	56,800	66,800	73,800	--
60	29,100	39,800	46,400	54,200	59,600	--
90	24,200	32,800	37,900	43,900	48,100	--

Magnitude and probability of seasonal low flow from
July-October based on 36 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	5,420	3,600	2,780	2,200	1,640	--
3	5,500	3,650	2,820	2,230	1,670	--
7	5,650	3,780	2,940	2,330	1,760	--
14	5,940	3,960	3,060	2,420	1,810	--
30	6,520	4,340	3,340	2,630	1,990	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	15,400	4,090	8,820	2,490	37
November	11,400	3,970	7,990	2,040	37
December	9,590	3,970	6,800	1,280	37
January	9,670	3,820	6,700	1,380	37
February	17,800	4,180	7,950	2,690	37
March	26,000	3,240	11,000	5,190	37
April	15,400	4,230	9,450	2,980	37
May	34,600	9,820	17,800	5,870	37
June	65,300	10,000	34,000	13,500	37
July	49,700	4,810	21,100	11,600	37
August	18,200	1,600	8,220	3,960	37
September	12,900	2,990	7,430	2,850	37
Annual	19,200	6,390	12,300	3,330	37

**06334000 Little Missouri River near Alzada, Mont.
Site Number 203**

LOCATION.--Lat 45°05', long 104°24' (NAD 27), NE¼SW¼ sec.6, T.9 S., R.60 E., Carter County, on right bank 1.9 mi downstream from Thompson Creek and 4 mi north of Alzada.

DRAINAGE AREA.--904 mi².

PERIOD OF RECORD.--June 1911 to December 1914 (no winter records in most years), March 1915 to September 1925, August 1928 to September 1932, March 1935 to September 1969. Records collected at station of same name in 1904 at site 8 mi upstream are not equivalent (published as "at Alzada" in WSP 1309). Monthly discharge only for some periods, published in WSP 1309.

GAGE.--Water-stage recorder. Altitude of gage is 3,367 ft (NGVD 29, from river-profile survey). Prior to Apr. 4, 1912, staff gage at site about 150 ft upstream at datum about 2.0 ft higher. Apr. 4, 1912, to June 13, 1947, chain or staff gage at site 300 ft upstream at datum 2.07 ft higher.

REMARKS.--Several diversions for irrigation upstream from station. Some storage in coulees. Records of chemical analyses for the periods May to September 1949, December 1949 to July 1950, and October 1950 to July 1951, suspended-sediment loads for the period March 1949 to December 1951, and water temperatures for the period of June 1949 to December 1951, are published in reports of U.S. Geological Survey (published as "Little Missouri River at Alzada, MT").

Magnitude and probability of annual low flow
based on 45 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	0.00	--
3	.00	.00	.00	.00	.00	--
7	.00	.00	.00	.00	.00	--
14	.00	.00	.00	.00	.00	--
30	.04	.00	.00	.00	.00	--
60	.09	.00	.00	.00	.00	--
90	.19	.01	.00	.00	.00	--
120	.41	.05	.00	.00	.00	--
183	2.1	.19	.04	.01	.00	--

Magnitude and probability of seasonal low flow from
March-June based on 49 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.51	0.00	0.00	0.00	0.00	--
3	.63	.00	.00	.00	.00	--
7	.79	.05	.00	.00	.00	--
14	1.3	.12	.01	.00	.00	--
30	4.8	.53	.13	.03	.00	--

Magnitude and probability of seasonal low flow from
November-February based on 49 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.04	0.00	0.00	0.00	0.00	--
3	.04	.00	.00	.00	.00	--
7	.05	.00	.00	.00	.00	--
14	.10	.00	.00	.00	.00	--
30	.16	.00	.00	.00	.00	--

Duration of daily mean flows based on 49 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.02	0.04	0.11	0.22	0.45	0.67	0.89	1.7
40%	30%	20%	15%	10%	5%	2%	1%
5.1	13	32	62	143	428	1,020	1,630

Magnitude and probability of annual high flow
based on 49 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	1,680	3,010	3,810	4,650	5,170	--
3	1,430	2,610	3,310	4,030	4,460	--
7	939	1,800	2,340	2,940	3,320	--
15	592	1,180	1,580	2,050	2,360	--
30	373	771	1,050	1,380	1,610	--
60	239	511	705	942	1,110	--
90	176	388	548	755	906	--

Magnitude and probability of seasonal low flow from
July-October based on 51 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	0.00	0.00
3	.00	.00	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00
14	.02	.00	.00	.00	.00	.00
30	.10	.00	.00	.00	.00	.00

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	493	0.00	23	75	52
November	97	.00	6.4	19	52
December	22	.00	2.3	4.4	52
January	10	.00	1.6	2.5	49
February	663	.00	63	136	49
March	1,050	.11	197	219	49
April	1,450	.11	206	331	53
May	905	.04	126	194	53
June	2,160	.00	215	337	54
July	314	.00	50	68	54
August	442	.00	39	74	54
September	358	.00	30	69	55
Annual	324	1.9	77	67	49

**06334630 Box Elder Creek at Webster, Mont.
Site Number 204**

LOCATION.--Lat 45°54'25", long 104°03'30" (NAD 27), NE¼ sec.30, T.2 N., R.62 E., Fallon County, on left bank at Wayne Cox Ranch, 0.5 mi west of Montana-South Dakota State line, 2 mi upstream from Coal Bank Creek, 17 mi southeast of Webster, and 33 mi southeast of Baker.

DRAINAGE AREA.--1,092 mi².

PERIOD OF RECORD.--14 years. September 1959 to September 1973 (discontinued).

REVISED RECORDS.--WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 2,950 ft (NGVD 29, from topographic map). Prior to Nov. 8, 1960, nonrecording gage at site 300 ft upstream at different datum.

REMARKS.--Diversions for irrigation of about 14,000 acres upstream from station.

Magnitude and probability of annual low flow
based on 12 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.69	0.18	0.04	0.00	--	--
3	.87	.31	.10	.00	--	--
7	1.2	.46	.15	.00	--	--
14	1.4	.54	.19	.00	--	--
30	2.3	.70	.29	.12	--	--
60	3.0	1.7	1.2	.96	--	--
90	3.4	2.2	1.8	1.6	--	--
120	4.3	2.7	2.3	2.0	--	--
183	6.3	3.7	3.2	2.9	--	--

Magnitude and probability of seasonal low flow from
March-June based on 13 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3.9	0.91	0.28	0.00	--	--
3	4.9	.96	.31	.10	--	--
7	5.7	1.4	.60	.28	--	--
14	7.5	2.4	1.3	.72	--	--
30	19	6.3	3.6	2.3	--	--

Magnitude and probability of seasonal low flow from
November-February based on 12 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.85	0.28	0.09	0.00	--	--
3	1.0	.40	.17	.00	--	--
7	1.3	.49	.19	.00	--	--
14	1.5	.57	.23	.00	--	--
30	2.4	.99	.61	.40	--	--

Duration of daily mean flows based on 13 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.19	0.38	0.95	1.8	3.1	4.3	5.3	7.3
40%	30%	20%	15%	10%	5%	2%	1%
13	28	65	108	197	432	964	1,690

Magnitude and probability of annual high flow
based on 13 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	1,400	3,450	5,230	7,840	--	--
3	1,300	3,140	4,520	6,210	--	--
7	1,130	2,590	3,480	4,370	--	--
15	779	1,730	2,270	2,770	--	--
30	521	1,040	1,290	1,480	--	--
60	320	660	836	990	--	--
90	250	524	669	798	--	--

Magnitude and probability of seasonal low flow from
July-October based on 12 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1.6	0.31	0.07	0.00	--	--
3	1.7	.47	.13	.00	--	--
7	2.2	.81	.20	.00	--	--
14	2.6	1.0	.30	.00	--	--
30	3.5	1.1	.43	.16	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	452	0.82	42	124	13
November	66	2.6	9.9	17	13
December	27	1.3	5.3	6.6	13
January	10	1.0	4.2	3.2	13
February	425	4.2	63	117	13
March	1,050	8.4	249	310	13
April	860	3.8	215	272	13
May	1,050	6.2	222	299	13
June	658	2.4	199	201	13
July	122	.67	44	39	13
August	46	.82	15	15	13
September	90	2.5	20	24	13
Annual	186	4.3	91	65	13

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06336500 Beaver Creek at Wibaux, Mont. Site Number 205

LOCATION.--Lat 46°59'24", long 104°11'00" (NAD 27), NE¼NE¼ sec.12, T.14 N., R.59 E., Wibaux County, Hydrologic Unit 10110204, on left bank 20 ft upstream from bridge on old U.S. Highway 10, at Wibaux, 12 mi upstream from Little Beaver Creek, and at river mile 62.5.

DRAINAGE AREA.--351 mi².

PERIOD OF RECORD.--April 1938 to June 1969, October 1978 to September 1984.

REVISED RECORDS.--WSP 1309: 1943, 1947-48. WSP 1509: 1942(M), 1944-45, 1946(M).

GAGE.--Water-stage recorder. Altitude of gage is 2,650 ft (NGVD 29, by barometer). Prior to Sept. 21, 1940, nonrecording gages at site about 500 ft upstream at different datums.

REMARKS.--Several known diversions for irrigation upstream from station.

Magnitude and probability of annual low flow
based on 34 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	0.00	--
3	.00	.00	.00	.00	.00	--
7	.00	.00	.00	.00	.00	--
14	.00	.00	.00	.00	.00	--
30	.01	.00	.00	.00	.00	--
60	.11	.00	.00	.00	.00	--
90	.20	.03	.00	.00	.00	--
120	.34	.05	.01	.00	.00	--
183	.61	.16	.06	.00	.00	--

Magnitude and probability of seasonal low flow from
March-June based on 36 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.50	0.00	0.00	0.00	0.00	--
3	.55	.00	.00	.00	.00	--
7	.67	.01	.00	.00	.00	--
14	1.0	.09	.00	.00	.00	--
30	2.0	.54	.23	.11	.04	--

Magnitude and probability of seasonal low flow from
November-February based on 36 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	0.00	--
3	.00	.00	.00	.00	.00	--
7	.00	.00	.00	.00	.00	--
14	.07	.00	.00	.00	.00	--
30	.28	.00	.00	.00	.00	--

Duration of daily mean flows based on 35 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.02	0.04	0.11	0.22	0.44	0.66	0.88	1.2
40%	30%	20%	15%	10%	5%	2%	1%
1.8	3.1	6.1	9.4	18	52	243	589

Magnitude and probability of annual high flow
based on 35 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	594	1,790	2,850	4,350	5,490	--
3	444	1,400	2,300	3,610	4,660	--
7	295	948	1,570	2,500	3,240	--
15	175	575	970	1,580	2,090	--
30	102	324	539	868	1,140	--
60	58	179	295	473	623	--
90	43	126	204	322	420	--

Magnitude and probability of seasonal high flow from
July-October based on 35 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.00	0.00	0.00	0.00	0.00	--
3	.00	.00	.00	.00	.00	--
7	.00	.00	.00	.00	.00	--
14	.01	.00	.00	.00	.00	--
30	.06	.00	.00	.00	.00	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	5.4	0.00	1.0	1.3	36
November	38	.00	2.3	6.2	36
December	2.8	.00	.95	.80	36
January	8.8	.00	.96	1.6	36
February	241	.00	20	45	36
March	456	1.2	117	134	36
April	566	.62	79	138	37
May	33	.37	7.3	7.9	37
June	136	.02	21	35	37
July	109	.00	11	21	36
August	10	.00	1.5	2.4	36
September	34	.00	1.7	5.7	36
Annual	62	.25	21	19	35

12300000 Kootenay River at Newgate, British Columbia Site Number 206

LOCATION.--Lat 49°00'52", long 115°10'24" (NAD 27), on left bank at old highway bridge site, 1.1 mi north of international boundary, 2 mi southeast of Newgate, and at river mile 272.1.

DRAINAGE AREA.--7,660 mi² approximately.

PERIOD OF RECORD.--41 years (1930-71).

GAGE.--Water-stage recorder. Altitude of gage is 2,310.23 ft (NGVD 29, datum of Geodetic Survey of Canada). Prior to Oct. 1, 1940, nonrecording gage at same site at datum 1.00 ft higher. Oct. 1, 1940, to Apr. 30, 1947, nonrecording gage at present site and datum.

REMARKS.--Diversions for irrigation of about 8,500 acres upstream from station. Records give total flow of main channel and slough.

Magnitude and probability of annual low flow
based on 41 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1,700	1,420	1,280	1,180	1,060	--
3	1,750	1,470	1,330	1,220	1,100	--
7	1,890	1,600	1,450	1,330	1,200	--
14	2,050	1,760	1,600	1,470	1,330	--
30	2,220	1,930	1,790	1,670	1,540	--
60	2,440	2,090	1,940	1,830	1,720	--
90	2,640	2,250	2,080	1,970	1,860	--
120	2,990	2,500	2,290	2,140	1,990	--
183	3,810	3,200	2,960	2,790	2,630	--

Magnitude and probability of seasonal low flow from
March-June based on 41 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2,190	1,900	1,770	1,660	1,550	--
3	2,240	1,950	1,820	1,710	1,590	--
7	2,300	2,020	1,890	1,790	1,670	--
14	2,390	2,100	1,960	1,850	1,730	--
30	2,630	2,270	2,110	1,990	1,870	--

Magnitude and probability of seasonal low flow from
November-February based on 41 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1,710	1,420	1,290	1,190	1,070	--
3	1,780	1,480	1,340	1,230	1,120	--
7	1,920	1,600	1,460	1,340	1,220	--
14	2,070	1,780	1,610	1,490	1,370	--
30	2,230	1,940	1,800	1,690	1,590	--

Duration of daily mean flows based on 41 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
1,560	1,640	1,900	2,270	2,710	3,180	3,960	4,990
40%	30%	20%	15%	10%	5%	2%	1%
6,390	9,200	15,600	21,600	29,700	41,200	52,200	63,300

Magnitude and probability of annual high flow
based on 41 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	57,900	72,500	79,900	87,400	91,900	--
3	55,800	69,900	77,100	84,300	88,600	--
7	51,100	64,600	71,700	79,100	83,600	--
15	45,800	58,600	65,700	73,400	78,400	--
30	41,200	51,600	57,200	63,200	67,000	--
60	34,700	42,300	46,000	49,600	51,800	--
90	28,700	34,500	37,300	39,900	41,400	--

Magnitude and probability of seasonal low flow from
July-October based on 41 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3,970	3,320	3,070	2,900	2,740	--
3	4,020	3,390	3,150	2,990	2,840	--
7	4,130	3,480	3,230	3,060	2,910	--
14	4,290	3,590	3,330	3,150	2,990	--
30	4,600	3,840	3,560	3,370	3,200	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	11,600	2,880	5,290	1,900	42
November	7,370	2,100	4,150	1,250	42
December	5,760	1,910	3,080	904	42
January	4,490	1,570	2,580	570	42
February	4,710	1,540	2,560	569	42
March	5,190	1,760	2,790	638	42
April	24,100	2,540	7,180	4,000	41
May	41,400	10,000	26,500	7,900	41
June	60,800	10,000	37,200	11,000	41
July	40,200	8,320	20,000	7,210	41
August	14,600	5,350	8,620	2,070	41
September	14,500	3,880	6,090	1,820	41
Annual	14,300	6,110	10,500	2,150	41

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**12301300 Tobacco River near Eureka, Mont.
Site Number 207**

LOCATION.--Lat 48°53'37", long 115°05'13" (NAD 27), in NW¼SE¼SE¼ sec.9, T.36 N., R.27 W., Lincoln County, Hydrologic Unit 17010101, on right bank 0.2 mi upstream from Indian Creek, 1.8 mi northwest of Eureka, and 2.8 mi upstream from Lake Koocanusa flow line.

DRAINAGE AREA.--440 mi².

PERIOD OF RECORD.--September 1958 to current year (2002).

GAGE.--Water-stage recorder. Altitude of gage is 2,518.85 ft (NGVD 29).

REMARKS.--Diversions for irrigation of about 4,500 acres upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 43 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	50	37	31	26	22	--
3	55	41	34	29	24	--
7	61	45	38	32	26	--
14	68	50	42	35	28	--
30	77	57	47	39	31	--
60	85	63	52	44	36	--
90	89	67	57	49	41	--
120	94	72	62	55	48	--
183	101	76	67	60	54	--

Magnitude and probability of seasonal low flow from
March-June based on 44 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	87	63	54	48	43	--
3	92	68	60	54	48	--
7	99	75	65	59	53	--
14	107	81	72	65	60	--
30	133	95	82	73	64	--

Magnitude and probability of seasonal low flow from
November-February based on 43 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	51	38	33	30	26	--
3	56	43	38	35	31	--
7	63	50	45	42	38	--
14	70	56	51	47	44	--
30	80	63	57	53	49	--

Duration of daily mean flows based on 44 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
39	47	55	68	84	100	116	135
40%	30%	20%	15%	10%	5%	2%	1%
172	246	426	552	713	975	1,270	1,440

Magnitude and probability of annual high flow
based on 44 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	1,380	1,850	2,120	2,410	2,600	--
3	1,280	1,690	1,920	2,170	2,330	--
7	1,140	1,500	1,700	1,910	2,060	--
15	1,010	1,320	1,490	1,680	1,800	--
30	908	1,180	1,330	1,480	1,590	--
60	779	1,000	1,120	1,250	1,330	--
90	669	867	971	1,080	1,150	--

Magnitude and probability of seasonal low flow from
July-October based on 43 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	80	54	41	32	24	--
3	81	54	42	33	24	--
7	83	56	43	34	25	--
14	87	59	46	36	27	--
30	94	65	50	40	30	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	342	51	113	49	44
November	368	56	132	71	44
December	415	60	115	64	44
January	248	54	102	42	44
February	492	50	111	68	44
March	422	67	157	80	44
April	883	140	424	192	44
May	1,470	371	777	239	44
June	1,500	196	741	300	44
July	576	80	311	136	44
August	235	37	127	49	44
September	239	29	108	40	44
Annual	496	109	268	84	44

**12301500 Kootenai River near Rexford, Mont.
Site Number 208**

LOCATION.--Lat 48°52'28", long 115°13'37" (NAD 27), in SE¼NE¼NW¼ sec.21, T.36 N., R.28 W., Lincoln County, near right bank on downstream side of bridge on State Highway 37, 300 ft downstream from Sullivan Creek, 1.1 mi southwest of Rexford, 3.5 mi downstream from Tobacco River, and at river mile 260.5.

DRAINAGE AREA.--8,420 mi², approximately .

PERIOD OF RECORD.--15 years. March 1929 to November 1940, October 1967 to September 1971 (discontinued).

REVISED RECORDS--WSP 1042: 1933.

GAGE.--Nonrecording gage read once or twice daily. Altitude of gage is 2,244.10 ft (NGVD 29, U.S. Army Corps of Engineers bench mark). Mar. 24, 1929, to Oct. 15, 1931, nonrecording gage, Oct. 16, 1931, to June 4, 1932, water-stage recorder, June 5, 1932, to Nov. 18, 1940, nonrecording gages, all at present site at datum 13.14 ft higher.

REMARKS.--Diversions for irrigation of about 13,900 acres upstream from station.

Magnitude and probability of annual low flow
based on 14 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1,490	1,230	1,130	1,070	--	--
3	1,560	1,300	1,200	1,130	--	--
7	1,680	1,400	1,290	1,210	--	--
14	1,860	1,580	1,460	1,360	--	--
30	2,100	1,820	1,680	1,580	--	--
60	2,350	2,010	1,890	1,810	--	--
90	2,570	2,160	2,010	1,910	--	--
120	2,920	2,370	2,160	2,010	--	--
183	3,580	3,010	2,790	2,640	--	--

Magnitude and probability of seasonal low flow from
March-June based on 15 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2,420	2,040	1,870	1,740	--	--
3	2,450	2,080	1,910	1,790	--	--
7	2,500	2,110	1,950	1,820	--	--
14	2,560	2,170	1,990	1,870	--	--
30	2,780	2,340	2,160	2,040	--	--

Magnitude and probability of seasonal low flow from
November-February based on 15 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1,530	1,270	1,160	1,090	--	--
3	1,620	1,340	1,230	1,150	--	--
7	1,740	1,440	1,320	1,230	--	--
14	1,920	1,610	1,480	1,390	--	--
30	2,140	1,830	1,720	1,650	--	--

Duration of daily mean flows based on 15 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
1,540	1,620	1,890	2,270	2,730	3,250	3,950	4,900
40%	30%	20%	15%	10%	5%	2%	1%
6,140	9,180	16,200	21,500	28,400	39,400	49,000	58,700

Magnitude and probability of annual high flow
based on 15 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	53,500	65,900	73,300	81,800	--	--
3	51,700	64,300	71,700	80,200	--	--
7	47,600	59,400	66,000	73,400	--	--
15	42,400	53,300	59,400	66,000	--	--
30	38,100	47,200	52,200	57,700	--	--
60	32,100	40,000	44,600	50,000	--	--
90	26,600	32,800	36,600	40,900	--	--

Magnitude and probability of seasonal low flow from
July-October based on 15 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3,550	3,060	2,880	2,760	--	--
3	3,590	3,100	2,920	2,800	--	--
7	3,690	3,160	2,960	2,830	--	--
14	3,790	3,240	3,040	2,900	--	--
30	4,100	3,440	3,180	3,010	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	8,540	2,920	4,620	1,420	15
November	7,840	2,170	4,030	1,450	15
December	5,530	1,990	2,970	828	15
January	5,020	1,620	2,680	786	15
February	3,860	1,670	2,620	637	15
March	4,910	1,880	2,960	707	15
April	24,500	3,110	7,850	5,370	16
May	42,000	10,000	26,100	8,090	16
June	49,600	10,000	34,800	10,300	16
July	27,400	9,780	17,600	5,920	16
August	11,800	5,740	8,000	1,900	16
September	7,820	4,090	5,490	1,050	16
Annual	13,800	6,630	10,100	2,270	15

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**12301933 Kootenai River below Libby Dam, near Libby, Mont.
Site Number 209**

LOCATION.--Lat 48°24'03", long 115°19'11" (NAD 27), in SW¼SW¼SW¼ sec.33, T.31 N., R.29 W., Lincoln County, Hydrologic Unit 17010101, Kootenai National Forest, on right bank 0.7 mi downstream from Libby Dam, 2.8 mi upstream from Fisher River, 11 mi east of Libby, and at river mile 221.4.

DRAINAGE AREA.--8,985 mi², approximately.

PERIOD OF RECORD.--October 1971 to current year (2002).

GAGE.--Water-stage recorder. Altitude of gage is 2,100 ft (NGVD 29, U.S. Army Corps of Engineers bench mark). Prior to Feb. 13, 1974, nonrecording gage at site 0.4 mi upstream at same datum.

REMARKS.--Flow completely regulated by Lake Koocanusa after Mar. 21, 1972 . Diversions for irrigation of about 13,000 acres, revised, from tributaries upstream from station in Canada and the United States. U.S. Army Corps of Engineers satellite telemetry at station.

Magnitude and probability of annual low flow
based on 29 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3,280	2,790	2,530	2,320	2,090	--
3	3,350	2,860	2,600	2,390	2,170	--
7	3,360	2,870	2,640	2,470	2,290	--
14	3,390	2,900	2,680	2,520	2,360	--
30	3,490	2,950	2,750	2,610	2,450	--
60	3,660	3,040	2,830	2,660	2,480	--
90	4,410	3,310	2,950	2,720	2,520	--
120	5,720	3,970	3,300	2,850	2,600	--
183	7,300	5,250	4,410	3,810	3,230	--

Magnitude and probability of seasonal low flow from
March-June based on 30 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3,350	2,860	2,610	2,410	2,190	--
3	3,380	2,910	2,680	2,490	2,300	--
7	3,390	2,930	2,720	2,570	2,410	--
14	3,450	2,970	2,780	2,640	2,510	--
30	3,600	3,030	2,840	2,710	2,610	--

Magnitude and probability of seasonal low flow from
November-February based on 29 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3,820	3,130	2,920	2,500	2,310	--
3	3,870	3,160	2,950	2,520	2,330	--
7	4,500	3,380	2,990	2,600	2,340	--
14	5,110	3,570	3,030	2,670	2,360	--
30	7,200	4,660	3,710	3,080	2,500	--

Duration of daily mean flows based on 30 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
2,300	2,400	2,710	3,160	3,660	4,150	6,240	8,700
40%	30%	20%	15%	10%	5%	2%	1%
12,200	15,400	18,800	20,700	22,600	24,500	29,800	32,700

Magnitude and probability of annual high flow
based on 30 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	25,600	30,500	34,000	38,600	42,200	--
3	24,800	29,700	33,200	37,800	41,400	--
7	24,300	29,000	31,900	35,500	38,100	--
15	23,300	27,100	29,200	31,400	32,900	--
30	22,000	25,600	27,400	29,200	30,400	--
60	20,300	23,400	24,500	25,500	25,900	--
90	18,600	20,600	21,200	21,600	21,700	--

Magnitude and probability of seasonal low flow from
July-October based on 29 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3,760	2,990	2,700	2,500	2,230	--
3	4,190	3,190	2,780	2,510	2,250	--
7	4,780	3,440	2,900	2,530	2,290	--
14	5,340	3,770	3,130	2,680	2,390	--
30	6,450	4,480	3,630	3,010	2,580	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	32,100	5,940	14,200	5,730	30
November	24,900	5,720	15,500	4,720	30
December	24,300	2,640	15,000	5,820	30
January	24,700	3,080	14,500	6,410	30
February	22,300	3,090	11,600	5,820	30
March	12,900	3,280	6,260	2,890	30
April	16,400	2,930	5,240	3,030	30
May	16,200	2,820	6,190	3,980	30
June	25,800	3,020	10,700	7,140	30
July	27,300	3,160	10,700	6,280	30
August	18,500	2,820	10,500	4,440	30
September	19,300	5,200	10,200	3,460	30
Annual	15,700	6,210	10,900	2,100	30

**12302000 Fisher River near Jennings, Mont.
Site Number 210**

LOCATION.--Lat 48°14'33", long 115°17'30" (NAD 27), in NW¼NE¼SW¼ sec.27, T.29 N., R.29 W., Lincoln County, on left bank 0.4 mi downstream from bridge, 2.3 mi downstream from Wolf Creek, 8.5 mi southeast of Jennings, and 8.6 mi upstream from mouth. Prior to Dec. 17, 1965, at site 0.4 mi upstream.

DRAINAGE AREA.--780 mi².

PERIOD OF RECORD.--18 years (1951-69).

GAGE.--Water-stage recorder. Altitude of gage is 2,433.94 ft (NGVD 29, U.S. Army Corps of Engineers bench mark). Dec. 15, 1950, to Dec. 16, 1965, at site 0.4 mi upstream at datum 9.29 ft higher.

REMARKS.--Diversions for irrigation of about 700 acres upstream from station. Water-quality records for the water years 1966-69 are published in reports of the U.S. Geological Survey.

Magnitude and probability of annual low flow
based on 18 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	90	72	63	57	--	--
3	92	77	70	65	--	--
7	95	81	75	71	--	--
14	99	86	80	76	--	--
30	107	91	85	80	--	--
60	117	97	88	82	--	--
90	130	105	94	86	--	--
120	142	112	100	91	--	--
183	169	131	116	106	--	--

Magnitude and probability of seasonal low flow from
March-June based on 19 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	204	140	113	94	--	--
3	209	146	121	102	--	--
7	218	154	129	110	--	--
14	240	169	141	120	--	--
30	344	237	188	153	--	--

Magnitude and probability of seasonal low flow from
November-February based on 18 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	103	79	67	59	--	--
3	109	86	76	68	--	--
7	121	97	86	78	--	--
14	133	104	91	82	--	--
30	152	115	101	90	--	--

Duration of daily mean flows based on 18 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time						
99%	98%	95%	90%	80%	70%	60%
73	80	96	109	134	162	189
40%	30%	20%	15%	10%	5%	2%
327	464	821	1,090	1,510	2,130	2,890
						3,450

Magnitude and probability of annual high flow
based on 18 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	3,370	4,480	5,020	5,560	--	--
3	3,150	4,230	4,780	5,350	--	--
7	2,810	3,800	4,350	4,940	--	--
15	2,460	3,310	3,810	4,370	--	--
30	2,100	2,740	3,100	3,500	--	--
60	1,720	2,230	2,530	2,890	--	--
90	1,400	1,790	2,040	2,340	--	--

Magnitude and probability of seasonal low flow from
July-October based on 18 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	99	82	75	69	--	--
3	100	84	76	71	--	--
7	102	85	78	72	--	--
14	105	88	81	77	--	--
30	111	93	86	81	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	337	84	166	77	18
November	468	83	218	105	18
December	502	93	243	115	18
January	487	123	237	104	19
February	956	112	338	207	19
March	700	128	370	144	19
April	3,260	496	1,480	731	19
May	3,240	960	1,890	623	19
June	1,650	460	942	329	19
July	572	184	301	92	19
August	206	91	139	27	19
September	236	82	128	41	19
Annual	859	369	531	128	18

**12302055 Fisher River near Libby, Mont.
Site Number 211**

LOCATION.--Lat 48°21'20", long 115°18'50" (NAD 27), in NW¼ NE¼NW¼ sec.21, T.30 N., R.29 W., Lincoln County, Hydrologic Unit 17010102, on left bank 0.8 mi upstream from mouth and 11.4 mi east of Libby.

DRAINAGE AREA.--838 mi².

PERIOD OF RECORD.--September 1967 to current year (2002).

GAGE.--Water-stage recorder. Altitude of gage is 2,134.10 ft (NGVD 29, U.S. Army Corps of Engineers bench mark).

REMARKS.--Diversions of about 700 acres upstream from station. U.S. Army Corps of Engineers satellite telemeter at station.

Magnitude and probability of annual low flow
based on 34 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	74	56	48	42	36	--
3	80	62	54	48	42	--
7	86	67	60	54	48	--
14	92	73	64	57	50	--
30	102	80	69	61	53	--
60	110	86	74	65	56	--
90	117	91	79	70	61	--
120	126	99	87	79	70	--
183	149	112	98	89	81	--

Magnitude and probability of seasonal low flow from
March-June based on 35 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	220	138	110	93	77	--
3	230	146	118	100	84	--
7	249	160	129	110	92	--
14	284	181	145	122	101	--
30	402	246	192	157	126	--

Magnitude and probability of seasonal low flow from
November-February based on 34 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	83	59	50	43	37	--
3	92	67	58	51	44	--
7	105	78	67	60	53	--
14	114	85	76	70	66	--
30	133	98	88	81	76	--

Duration of daily mean flows based on 35 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
58	68	82	98	119	143	173	219
40%	30%	20%	15%	10%	5%	2%	1%
297	462	762	995	1,310	1,880	2,590	3,010

Magnitude and probability of annual high flow
based on 35 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	2,690	4,230	5,340	6,850	8,040	--
3	2,470	3,770	4,680	5,860	6,760	--
7	2,160	3,140	3,750	4,480	4,990	--
15	1,830	2,640	3,140	3,730	4,140	--
30	1,570	2,260	2,700	3,250	3,640	--
60	1,350	1,920	2,260	2,660	2,930	--
90	1,160	1,670	1,970	2,330	2,570	--

Magnitude and probability of seasonal low flow from
July-October based on 34 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	96	74	64	56	47	--
3	98	75	64	56	48	--
7	99	76	65	57	49	--
14	102	78	67	58	50	--
30	107	82	71	62	52	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	305	76	136	51	35
November	819	87	231	184	35
December	1,170	90	244	218	35
January	1,270	78	258	224	35
February	1,960	95	353	360	35
March	2,400	134	594	478	35
April	2,750	318	1,230	637	35
May	3,300	482	1,420	646	35
June	1,800	221	834	415	35
July	532	93	296	133	35
August	244	56	140	48	35
September	204	55	120	34	35
Annual	938	169	488	202	35

**12302500 Granite Creek near Libby, Mont.
Site Number 212**

LOCATION.--Lat 48°18'07", long 115°35'29" (NAD 27), in SE¼NE¼SW¼ sec.5, T.29 N., R.31 W., Lincoln County, at Glacier Silver Lead Mine, 2.5 mi upstream from mouth and 6.3 mi southwest of Libby.

DRAINAGE AREA.--23.6 mi².

PERIOD OF RECORD.--16 years (1936-43, 1960-69).

REVISED RECORDS.--WSP 1246: 1933.

GAGE.--Water-stage recorder. Concrete control since Sept. 9, 1938. Altitude of gage is 2,780 ft (NGVD 29, from topographic map). Prior to Sept. 16, 1960, nonrecording gages at present datum within 25 ft of site. Crest-stage gage July 2, 1959, to Sept. 15, 1960.

Magnitude and probability of annual low flow
based on 14 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	6.8	5.2	4.6	4.2	--	--
3	7.1	5.4	4.7	4.2	--	--
7	7.6	5.8	5.1	4.6	--	--
14	8.2	6.4	5.7	5.2	--	--
30	9.9	7.7	6.7	6.1	--	--
60	13	9.0	7.6	6.7	--	--
90	16	11	9.1	7.9	--	--
120	19	13	11	9.4	--	--
183	21	15	13	11	--	--

Magnitude and probability of seasonal low flow from
March-June based on 17 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	13	9.6	8.3	7.5	--	--
3	14	10	8.6	7.7	--	--
7	15	10	8.9	7.9	--	--
14	17	12	10	8.7	--	--
30	26	17	13	11	--	--

Magnitude and probability of seasonal low flow from
November-February based on 16 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	9.7	6.8	5.3	4.2	--	--
3	10	7.2	5.6	4.4	--	--
7	11	7.5	5.8	4.6	--	--
14	12	8.3	6.4	5.3	--	--
30	15	10	7.6	6.1	--	--

Duration of daily mean flows based on 16 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
4.7	5.4	7.2	9.6	14	18	22	30
40%	30%	20%	15%	10%	5%	2%	1%
41	62	109	148	202	286	379	469

Magnitude and probability of annual high flow
based on 16 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	466	668	893	1,330	--	--
3	396	516	633	832	--	--
7	362	448	505	579	--	--
15	316	385	428	480	--	--
30	290	343	372	403	--	--
60	238	281	304	327	--	--
90	198	228	242	255	--	--

Magnitude and probability of seasonal low flow from
July-October based on 16 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	7.6	5.3	4.6	4.2	--	--
3	7.8	5.5	4.7	4.3	--	--
7	8.3	5.9	5.1	4.6	--	--
14	9.1	6.5	5.8	5.3	--	--
30	11	7.7	6.8	6.1	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	74	7.2	27	20	18
November	92	5.3	33	24	18
December	158	8.7	39	41	17
January	27	3.9	20	6.7	17
February	75	4.5	25	21	17
March	71	9.0	30	15	17
April	258	44	116	55	17
May	283	161	234	38	17
June	434	97	224	88	17
July	139	24	72	32	17
August	38	8.6	22	9.0	19
September	57	7.3	18	13	19
Annual	84	44	70	12	16

**12303000 Kootenai River at Libby, Mont.
Site Number 213**

LOCATION.--Lat 48°24'03", long 115°33'08" (NAD 27), in SW¼SE¼SW¼ sec.34, T.31 N., R.31 W., Lincoln County, Hydrologic Unit 17010101, on right bank 1,800 ft downstream from highway bridge at Libby, 0.8 mi downstream from Libby Creek, and at river mile 204.3.

DRAINAGE AREA.--10,240 mi², approximately.

PERIOD OF RECORD.--October 1910 to September 1991 (discontinued). Monthly discharge only for some periods, published in WSP 1316.

REVISED RECORDS.--WSP 1042: 1933. WSP 1246: 1912(M), 1915(M), 1916, 1918-19(M), 1924-27(M).

GAGE.--Water-stage recorder. Altitude of gage is 2,041.54 ft (NGVD 29). Prior to Apr. 28, 1931, nonrecording gages at site 1,800 ft upstream at different datum.

REMARKS.--Flow regulated by Lake Koocanusa (station number 12301920) after Mar. 21, 1972. Diversions for irrigation of about 14,500 acres from tributaries upstream from station in Canada and the United States.

Unregulated streamflow period

Magnitude and probability of annual low flow
based on 61 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2,000	1,620	1,440	1,290	1,130	1,030
3	2,090	1,700	1,500	1,340	1,160	1,060
7	2,260	1,850	1,630	1,460	1,260	1,140
14	2,450	2,050	1,850	1,690	1,510	1,400
30	2,690	2,300	2,110	1,970	1,820	1,730
60	3,020	2,540	2,340	2,200	2,060	1,980
90	3,270	2,720	2,520	2,380	2,260	2,190
120	3,670	3,020	2,770	2,590	2,420	2,320
183	4,550	3,770	3,470	3,270	3,070	2,960

Magnitude and probability of seasonal low flow from
March-June based on 62 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2,880	2,440	2,240	2,090	1,940	1,850
3	2,930	2,490	2,310	2,170	2,040	1,960
7	3,020	2,610	2,440	2,320	2,200	2,130
14	3,180	2,720	2,540	2,410	2,280	2,210
30	3,590	2,970	2,740	2,580	2,430	2,350

Magnitude and probability of seasonal low flow from
November-February based on 61 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2,020	1,640	1,450	1,310	1,190	1,110
3	2,100	1,720	1,520	1,350	1,220	1,140
7	2,290	1,880	1,650	1,470	1,320	1,230
14	2,480	2,080	1,880	1,700	1,560	1,480
30	2,730	2,330	2,130	1,980	1,860	1,790

Duration of daily mean flows based on 62 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
1,800	2,170	2,410	2,760	3,460	4,150	5,070	6,070
40%	30%	20%	15%	10%	5%	2%	1%
8,110	11,400	18,700	24,400	32,400	44,700	59,100	67,600

Magnitude and probability of annual high flow
based on 62 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	63,500	80,200	88,600	97,100	102,000	106,000
3	61,500	77,900	86,300	94,800	100,000	104,000
7	56,700	72,200	80,200	88,400	93,500	97,800
15	51,000	64,900	72,100	79,400	83,900	87,700
30	45,200	56,600	62,300	68,000	71,400	74,300
60	38,000	46,100	49,900	53,500	55,500	57,100
90	31,800	38,100	41,000	43,800	45,300	46,500

Magnitude and probability of seasonal high flow from
July-October based on 61 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4,570	3,810	3,530	3,350	3,180	3,090
3	4,630	3,860	3,570	3,380	3,210	3,110
7	4,740	3,930	3,630	3,430	3,240	3,140
14	4,880	4,040	3,740	3,530	3,340	3,240
30	5,210	4,320	4,000	3,790	3,600	3,500

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	13,700	3,180	6,140	2,260	62
November	9,630	2,410	5,050	1,660	62
December	11,500	2,260	3,930	1,510	62
January	7,760	1,760	3,330	1,030	62
February	7,340	1,730	3,420	1,050	62
March	7,800	2,420	3,910	1,160	62
April	31,100	3,470	10,300	4,900	62
May	49,000	10,000	30,100	9,130	62
June	68,200	10,000	40,100	12,000	62
July	45,800	9,180	21,800	7,780	62
August	15,500	5,110	9,790	2,270	62
September	21,100	4,150	7,180	2,820	62
Annual	16,600	6,510	12,100	2,520	62

12303000 Kootenai River at Libby, Mont.—Continued

Site Number 213

Regulated streamflow period

Magnitude and probability of annual low flow
based on 18 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3,450	2,970	2,720	2,520	--	--
3	3,630	3,100	2,840	2,640	--	--
7	3,820	3,210	2,910	2,680	--	--
14	3,960	3,290	2,990	2,760	--	--
30	4,240	3,410	3,100	2,890	--	--
60	4,790	3,940	3,670	3,510	--	--
90	5,310	4,310	3,990	3,800	--	--
120	6,160	4,740	4,250	3,930	--	--
183	7,680	5,810	5,070	4,550	--	--

Magnitude and probability of seasonal low flow from
March-June based on 19 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3,870	3,260	3,010	2,820	--	--
3	3,960	3,350	3,090	2,900	--	--
7	4,150	3,490	3,210	3,000	--	--
14	4,330	3,640	3,390	3,230	--	--
30	4,730	3,880	3,580	3,390	--	--

Magnitude and probability of seasonal low flow from
November-February based on 18 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4,050	3,190	2,930	2,750	--	--
3	4,300	3,270	2,940	2,770	--	--
7	5,010	3,530	3,020	2,800	--	--
14	5,590	3,760	3,130	2,880	--	--
30	8,170	5,260	4,130	3,370	--	--

Duration of daily mean flows based on 19 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
2,840	3,170	3,510	4,070	4,990	5,850	7,480	9,820
40%	30%	20%	15%	10%	5%	2%	1%
12,800	16,000	19,400	21,100	22,800	24,600	30,000	32,900

Magnitude and probability of annual high flow
based on 19 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	26,800	32,300	36,100	41,100	--	--
3	25,500	30,700	34,700	40,100	--	--
7	24,700	29,500	32,900	37,500	--	--
15	23,500	27,300	29,700	32,700	--	--
30	22,100	25,700	28,000	30,800	--	--
60	20,400	23,500	25,300	27,200	--	--
90	18,800	20,900	21,800	22,600	--	--

Magnitude and probability of seasonal low flow from
July-October based on 18 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3,690	3,040	2,730	2,540	--	--
3	4,060	3,270	2,900	2,670	--	--
7	4,610	3,440	2,940	2,700	--	--
14	5,320	3,820	3,200	2,780	--	--
30	6,840	4,770	3,820	3,130	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	32,300	10,000	16,500	5,610	19
November	25,000	8,210	16,800	3,990	19
December	25,200	3,040	15,200	6,340	19
January	26,000	3,550	15,500	6,050	19
February	22,600	3,380	12,500	6,200	19
March	13,700	3,660	7,610	3,410	19
April	14,400	3,890	6,910	2,800	19
May	19,800	3,910	7,480	4,100	19
June	22,000	4,010	8,970	5,540	19
July	28,100	3,460	11,400	6,530	19
August	19,300	3,170	10,200	4,040	19
September	19,400	6,930	11,100	3,360	19
Annual	16,400	9,510	11,700	2,040	19

240 Statistical Summaries of Streamflow in Montana and Adjacent Areas, Water Years 1900 through 2002

12303100 Flower Creek near Libby, Mont. Site Number 214

LOCATION.--Lat 48°20'41", long 115°36'20" (NAD 27), in NW¼SE¼SE¼ sec.19, T.30 N., R.31 W., Lincoln County, Hydrologic Unit 17010101, Kootenai National Forest, on left bank 30 ft downstream from road bridge, 0.3 mi upstream from South Fork, 1.0 mi upstream from reservoir, 4.0 mi southwest of Libby, and at river mile 4.5.

DRAINAGE AREA.--11.1 mi².

PERIOD OF RECORD.--September 1960 to September 1992 (discontinued).

REVISED RECORDS.--WDR MT-1972: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 2,866 ft (NGVD 29, from topographic map).

REMARKS.--No known regulation or diversion upstream from station.

Magnitude and probability of annual low flow
based on 31 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4.4	3.8	3.6	3.4	3.2	--
3	4.5	3.9	3.7	3.5	3.3	--
7	4.7	4.1	3.8	3.6	3.4	--
14	4.9	4.3	4.0	3.8	3.6	--
30	5.3	4.6	4.2	4.0	3.8	--
60	6.3	5.1	4.6	4.2	3.8	--
90	7.0	5.6	5.0	4.6	4.1	--
120	7.7	6.0	5.3	4.8	4.3	--
183	8.6	6.6	5.8	5.2	4.6	--

Magnitude and probability of seasonal low flow from
March-June based on 32 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	6.4	4.7	4.1	3.7	3.3	--
3	6.6	4.9	4.2	3.8	3.4	--
7	7.0	5.1	4.4	3.9	3.5	--
14	7.6	5.5	4.7	4.1	3.6	--
30	9.1	6.4	5.3	4.6	3.9	--

Magnitude and probability of seasonal low flow from
November-February based on 32 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4.8	4.0	3.6	3.4	3.2	--
3	5.0	4.1	3.8	3.5	3.3	--
7	5.3	4.3	3.9	3.7	3.5	--
14	5.6	4.5	4.0	3.8	3.6	--
30	6.1	4.8	4.3	4.0	3.8	--

Duration of daily mean flows based on 32 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
4.0	4.2	4.6	5.2	6.4	7.5	9.0	11
40%	30%	20%	15%	10%	5%	2%	1%
14	20	37	52	76	113	154	178

Magnitude and probability of annual high flow
based on 32 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	195	251	284	321	347	--
3	175	210	227	242	250	--
7	153	183	196	208	214	--
15	129	158	172	186	194	--
30	112	138	150	163	170	--
60	90	110	119	128	133	--
90	73	88	95	101	105	--

Magnitude and probability of seasonal low flow from
July-October based on 31 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	5.6	4.6	4.1	3.7	3.4	--
3	5.7	4.6	4.2	3.8	3.4	--
7	5.9	4.7	4.3	3.9	3.5	--
14	6.1	4.9	4.4	4.0	3.6	--
30	6.6	5.3	4.8	4.3	3.9	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	21	4.6	9.1	3.8	32
November	33	4.0	13	7.3	32
December	41	5.2	10	7.4	32
January	42	4.1	9.1	7.0	32
February	30	4.1	9.3	6.2	32
March	29	4.4	11	6.0	32
April	70	9.4	31	14	32
May	132	43	84	19	32
June	166	25	88	34	32
July	56	7.7	29	15	32
August	18	5.5	10	3.1	32
September	20	4.5	8.4	2.8	33
Annual	40	13	26	6.0	32

**12303500 Lake Creek at Troy, Mont.
Site Number 215**

LOCATION.--Lat 48°26'49", long 115°52'34" (NAD 27), in SE¼NW¼SW¼ sec.18. T.31 N., R.33 W., Lincoln County, Hydrologic Unit 17010101, Kootenai National Forest, on right bank 1,000 ft upstream from bridge on U.S. Highway 2, 0.5 mi upstream from mouth, 0.6 mi downstream from Stimson Lumber Company-owned dam, and 1.3 mi southeast of Troy.

DRAINAGE AREA.--210 mi².

PERIOD OF RECORD.--January 1945 to September 1957, October 1982 to February 1996 (discontinued).

REVISED RECORDS.--WSP 1216: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Altitude of gage is 1,900 ft (NGVD 29, from topographic map). Prior to Nov. 1, 1946, wire-weight gage at site 0.2 mi upstream at different datum. Jan. 11, 1945, to Sept. 30, 1957, water-stage recorder at same site at different datum.

REMARKS.--Diurnal fluctuation caused by small hydroelectric plant 0.6 mi upstream.

Magnitude and probability of annual low flow
based on 26 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	90	70	61	55	48	--
3	101	80	71	65	58	--
7	106	85	76	69	62	--
14	111	90	80	73	66	--
30	119	96	85	77	68	--
60	130	103	91	83	73	--
90	145	113	100	90	81	--
120	162	122	106	94	82	--
183	191	137	115	100	86	--

Magnitude and probability of seasonal low flow from
March-June based on 26 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	189	123	98	81	65	--
3	201	133	106	87	70	--
7	215	142	113	93	75	--
14	228	152	122	102	82	--
30	264	180	147	124	103	--

Magnitude and probability of seasonal low flow from
November-February based on 26 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	113	81	68	60	51	--
3	121	90	78	70	62	--
7	128	94	81	72	64	--
14	141	98	83	74	66	--
30	156	106	88	77	69	--

Duration of daily mean flows based on 25 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
73	82	99	115	145	172	207	256
40%	30%	20%	15%	10%	5%	2%	1%
331	452	668	826	1,050	1,410	1,930	2,150

Magnitude and probability of annual high flow
based on 25 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	1,900	2,490	2,840	3,270	3,570	--
3	1,800	2,360	2,710	3,140	3,440	--
7	1,650	2,200	2,540	2,970	3,270	--
15	1,500	2,000	2,320	2,720	3,000	--
30	1,340	1,780	2,050	2,380	2,620	--
60	1,130	1,490	1,700	1,950	2,120	--
90	970	1,260	1,420	1,600	1,720	--

Magnitude and probability of seasonal low flow from
July-October based on 26 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	104	81	70	62	54	--
3	114	92	82	74	66	--
7	119	98	89	82	74	--
14	123	102	93	86	79	--
30	130	107	97	89	81	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	401	92	177	85	26
November	692	89	270	164	26
December	984	96	280	197	26
January	534	76	232	126	27
February	1,090	86	286	229	27
March	626	120	305	147	26
April	1,020	184	611	224	26
May	1,900	642	1,190	371	26
June	2,120	316	1,030	469	26
July	1,000	162	438	223	26
August	339	110	206	59	26
September	215	92	148	30	26
Annual	639	207	428	123	25

**12304500 Yaak River near Troy, Mont.
Site Number 216**

LOCATION.--Lat 48°33'43", long 115°58'09" (NAD 27), in NE¼SE¼4SE¼ sec.5, T.32 N., R.34 W., Lincoln County, Hydrologic Unit 17010103, Kootenai National Forest, on right bank 500 ft upstream from bridge on U.S. Highway 2, 0.3 mi upstream from mouth, and 7.7 mi northwest of Troy.

DRAINAGE AREA.--766 mi².

PERIOD OF RECORD.--October 1910 to September 1916 (fragmentary record), March 1956 to current year (2002).

GAGE.--Water-stage recorder. Altitude of gage is 1,839.2 ft (NGVD 29). Oct. 15, 1910, to Sept. 30, 1916, nonrecording gage at several sites within 11 mi of present site at various datums.

REMARKS.--Minor diversions for irrigation upstream from station. U.S. Army Corps of Engineers satellite telemeter at station.

Magnitude and probability of annual low flow
based on 46 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	93	72	62	55	47	--
3	99	76	66	59	51	--
7	105	81	70	63	55	--
14	113	88	77	69	60	--
30	125	98	85	75	65	--
60	140	109	95	84	73	--
90	151	117	103	94	84	--
120	166	129	115	106	98	--
183	197	146	129	119	109	--

Magnitude and probability of seasonal low flow from
March-June based on 47 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	254	159	126	104	85	--
3	264	168	134	111	91	--
7	289	184	146	121	98	--
14	320	202	161	134	110	--
30	474	286	216	171	130	--

Magnitude and probability of seasonal low flow from
November-February based on 46 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	105	76	64	56	49	--
3	115	83	70	61	53	--
7	129	92	78	68	59	--
14	144	103	88	79	71	--
30	168	118	101	91	81	--

Duration of daily mean flows based on 46 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
72	83	102	122	154	184	232	297
40%	30%	20%	15%	10%	5%	2%	1%
419	698	1,320	1,890	2,680	3,930	5,490	6,300

Magnitude and probability of annual high flow
based on 46 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	6,170	8,040	8,960	9,850	10,400	--
3	5,800	7,590	8,460	9,310	9,790	--
7	5,270	6,860	7,610	8,300	8,690	--
15	4,560	5,880	6,500	7,100	7,430	--
30	3,910	5,000	5,500	5,970	6,240	--
60	3,160	4,040	4,430	4,770	4,950	--
90	2,570	3,290	3,610	3,890	4,030	--

Magnitude and probability of seasonal low flow from
July-October based on 46 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	115	90	77	68	58	--
3	117	91	78	69	59	--
7	120	93	80	70	60	--
14	125	97	84	73	62	--
30	136	105	90	78	66	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	832	84	200	125	46
November	1,190	93	323	249	46
December	1,630	97	325	305	46
January	1,550	95	296	249	46
February	1,630	83	358	275	46
March	1,870	134	596	383	47
April	3,750	421	1,970	828	47
May	6,460	1,030	3,590	1,210	47
June	4,990	377	1,950	959	47
July	970	151	500	218	47
August	373	81	198	67	47
September	506	53	163	70	47
Annual	1,560	278	866	284	46

**12305000 Kootenai River at Leonia, Idaho
Site Number 217**

LOCATION.--Lat 48°37'04", long 116°02'47" (NAD 27), in NW¼NW¼NW¼ sec.20, T.33 N., R.34 W., Principal meridian, Lincoln County, Mont. Hydrologic Unit 17010104, on right bank at Leonia, 450 ft west of Montana-Idaho State line, 0.5 mi upstream from Boulder Creek, and at mile 171.6.

DRAINAGE AREA.--11,740 mi², approximately.

PERIOD OF RECORD.--March 1928 to September 1983.

GAGE.--Water-stage recorder. Altitude of gage is 1,790.25 ft (NGVD 29). Prior to Oct. 1, 1970, at datum 90 ft lower. Prior to Nov. 13, 1928, nonrecording gage on bridge 250 ft upstream at datum 90.41 ft lower.

REMARKS.--Diversions upstream from station for irrigation of about 14,600 acres. Flow regulated by Lake Koocanusa after Mar. 21, 1972.

Magnitude and probability of annual low flow
based on 42 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2,220	1,670	1,390	900	0.00	--
3	2,310	1,820	1,590	1,430	1,260	--
7	2,540	2,010	1,760	1,570	1,380	--
14	2,810	2,260	2,010	1,830	1,630	--
30	3,150	2,600	2,360	2,180	1,990	--
60	3,550	2,900	2,650	2,480	2,320	--
90	3,880	3,110	2,820	2,630	2,450	--
120	4,300	3,420	3,070	2,830	2,590	--
183	5,060	4,110	3,750	3,500	3,270	--

Magnitude and probability of seasonal low flow from
March-June based on 43 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3,400	2,710	2,370	1,880	0.00	--
3	3,570	2,920	2,650	2,450	2,260	--
7	3,680	3,040	2,770	2,580	2,390	--
14	3,890	3,210	2,920	2,720	2,510	--
30	4,510	3,620	3,250	2,990	2,740	--

Magnitude and probability of seasonal low flow from
November-February based on 42 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2,240	1,710	1,510	1,370	1,230	--
3	2,320	1,850	1,600	1,460	1,330	--
7	2,560	2,040	1,770	1,610	1,460	--
14	2,840	2,280	2,020	1,860	1,710	--
30	3,170	2,610	2,370	2,240	2,110	--

Duration of daily mean flows based on 43 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
2,140	2,320	2,710	3,250	4,050	4,870	5,710	6,980
40%	30%	20%	15%	10%	5%	2%	1%
8,640	12,900	22,300	29,300	38,100	51,200	66,900	76,800

Magnitude and probability of annual high flow
based on 43 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	71,300	88,300	96,700	105,000	110,000	--
3	69,100	86,100	94,900	104,000	109,000	--
7	63,600	80,500	89,500	99,100	105,000	--
15	57,900	73,600	82,100	91,200	96,900	--
30	51,700	64,800	71,900	79,500	84,400	--
60	44,000	53,800	58,800	63,700	66,700	--
90	37,100	45,000	48,800	52,500	54,700	--

Magnitude and probability of seasonal low flow from
July-October based on 42 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4,840	3,950	3,450	3,060	2,650	--
3	4,910	4,160	3,870	3,670	3,480	--
7	5,010	4,240	3,940	3,740	3,540	--
14	5,150	4,340	4,040	3,830	3,640	--
30	5,460	4,590	4,280	4,070	3,880	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	15,500	3,530	6,510	2,570	43
November	11,300	2,750	5,700	2,020	43
December	13,700	2,480	4,760	2,250	43
January	11,300	1,920	4,020	1,530	43
February	10,600	1,990	4,340	1,740	43
March	10,400	2,690	4,900	1,520	43
April	39,900	4,330	14,500	7,260	43
May	61,800	10,000	38,700	11,100	43
June	74,300	10,000	45,100	13,800	43
July	47,500	9,820	22,800	8,190	43
August	16,900	6,140	9,930	2,380	43
September	16,600	4,740	7,020	2,060	43
Annual	19,200	7,420	14,000	3,180	43

**12323240 Blacktail Creek at Butte, Mont.
Site Number 218**

LOCATION.--Lat 45°54'38", long 112°31'38" (NAD 27), in SW¼NE¼SE¼ sec.24, T.3 N., R.8 W., Silver Bow County, Hydrologic Unit 17010201, on left bank, 70 feet upstream from George Street culvert in Butte, and 0.2 mi upstream from Silver Bow Creek.

DRAINAGE AREA.--95.4 mi².

PERIOD OF RECORD.--October 1988 to current year (2002).

REVISED RECORDS.--WDR-MT.-93-1: 1989-92 (M).

GAGE.--Water-stage recorder. Altitude of gage is 5,430 ft (NGVD 29).

REMARKS.--Slight regulation by Basin Creek Reservoir. Diversions for irrigation of about 1,400 acres upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 13 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	6.4	5.1	4.5	4.0	--	--
3	6.6	5.2	4.6	4.1	--	--
7	6.9	5.5	4.8	4.3	--	--
14	7.2	5.8	5.1	4.6	--	--
30	7.7	6.2	5.5	5.0	--	--
60	8.2	6.7	6.1	5.5	--	--
90	8.6	7.1	6.5	6.0	--	--
120	8.9	7.4	6.8	6.3	--	--
183	9.2	7.7	7.0	6.5	--	--

Magnitude and probability of seasonal low flow from
March-June based on 14 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	7.7	6.2	5.6	5.2	--	--
3	7.9	6.4	5.8	5.4	--	--
7	8.4	6.9	6.3	5.8	--	--
14	9.3	7.5	6.8	6.2	--	--
30	12	8.5	7.4	6.6	--	--

Magnitude and probability of seasonal low flow from
November-February based on 13 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	7.5	6.4	5.9	5.5	--	--
3	7.6	6.4	5.9	5.6	--	--
7	7.8	6.6	6.1	5.7	--	--
14	8.0	6.7	6.2	5.9	--	--
30	8.2	7.0	6.5	6.1	--	--

Duration of daily mean flows based on 14 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
4.8	5.6	6.0	6.5	7.5	8.5	9.6	11
40%	30%	20%	15%	10%	5%	2%	1%
12	14	16	18	22	30	42	55

Magnitude and probability of annual high flow
based on 14 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	44	87	134	221	--	--
3	34	63	91	142	--	--
7	28	48	67	100	--	--
15	23	38	52	75	--	--
30	21	33	43	59	--	--
60	19	29	38	51	--	--
90	18	27	34	44	--	--

Magnitude and probability of seasonal low flow from
July-October based on 13 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	6.5	5.1	4.5	4.1	--	--
3	6.8	5.3	4.6	4.2	--	--
7	7.1	5.5	4.8	4.3	--	--
14	7.4	5.8	5.1	4.6	--	--
30	8.0	6.3	5.5	5.0	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	15	7.0	10	2.3	14
November	14	6.9	10	2.2	14
December	13	7.1	9.2	1.8	14
January	13	7.0	9.0	2.0	14
February	26	6.3	11	5.7	14
March	30	7.4	14	6.1	14
April	29	9.4	17	6.0	14
May	42	7.3	20	10	14
June	62	8.1	21	15	14
July	26	6.2	12	6.5	14
August	18	5.3	9.9	3.6	14
September	14	6.0	9.2	2.5	14
Annual	20	8.2	13	4.3	14

**12323250 Silver Bow Creek below Blacktail Creek, at Butte, Mont.
Site Number 219**

LOCATION.--Lat 45°59'47", long 112°33'45" (NAD 27), in SW¼SE¼NW¼ sec.23, T.3 N., R.8 W., Silver Bow County, Hydrologic Unit 17010201, on right bank at Interstate 90 overpass in Butte, 0.8 mi upstream from Whiskey Gulch, 1.3 mi downstream from Blacktail Creek, and at river mile 20.2.

DRAINAGE AREA.--103 mi².

PERIOD OF RECORD.--October 1983 to current year (2002).

REVISED RECORDS.--WDR-MT-92-1: 1984-90 (M). WDR-MT-98-1: Drainage area. WDR-MT-2000-1: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 5,409.47 ft (NGVD 29). October 1983 to Sept. 14, 1997, water-stage recorder 150 ft upstream at datum 1.40 ft higher. Sept. 15, 1997, to Dec. 3, 1997, no gage in operation due to channel reconstruction during U.S. Environmental Protection Agency Superfund cleanup operations. Dec. 3, 1997, to Aug. 16, 1999, water-stage recorder 0.8 mi downstream at different datum. Aug. 16, 1999, to May 10, 2000, water-stage recorder 2.1 mi downstream at different datum.

REMARKS.--Flow slightly regulated by Silver Bow County sewage treatment plant. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 18 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
	50%	20%	10%	5%	2%	1%
1	15	12	11	9.7	--	--
3	15	13	12	11	--	--
7	15	13	12	11	--	--
14	16	14	13	12	--	--
30	16	14	13	12	--	--
60	17	15	14	13	--	--
90	17	16	15	14	--	--
120	18	16	15	15	--	--
183	19	17	16	15	--	--

Magnitude and probability of seasonal low flow from
March-June based on 19 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
	50%	20%	10%	5%	2%	1%
1	17	14	12	11	--	--
3	17	15	13	12	--	--
7	18	15	14	13	--	--
14	19	16	14	13	--	--
30	22	17	15	14	--	--

Magnitude and probability of seasonal low flow from
November-February based on 18 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
	50%	20%	10%	5%	2%	1%
1	16	14	13	12	--	--
3	16	14	13	13	--	--
7	16	14	14	13	--	--
14	17	15	14	13	--	--
30	17	15	14	13	--	--

Duration of daily mean flows based on 19 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
11	12	13	15	17	18	19	21
40%	30%	20%	15%	10%	5%	2%	1%
22	24	29	31	34	44	59	66

Magnitude and probability of annual high flow
based on 19 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
	50%	20%	10%	4%	2%	1%
1	80	127	165	219	--	--
3	60	91	114	147	--	--
7	48	68	84	104	--	--
15	40	55	66	82	--	--
30	35	47	55	67	--	--
60	31	42	49	59	--	--
90	30	39	45	53	--	--

Magnitude and probability of seasonal low flow from
July-October based on 18 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
	50%	20%	10%	5%	2%	1%
1	15	13	12	11	--	--
3	16	13	12	11	--	--
7	16	14	12	11	--	--
14	17	14	13	12	--	--
30	18	15	14	13	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	27	16	20	3.2	19
November	26	16	20	2.9	19
December	24	15	19	2.8	19
January	26	13	18	3.2	19
February	38	14	20	5.9	19
March	41	17	25	6.0	19
April	42	15	28	7.8	19
May	54	13	30	11	19
June	75	16	30	15	19
July	37	13	22	7.5	19
August	29	14	21	4.8	19
September	26	14	19	3.5	19
Annual	31	16	23	4.7	19

**12323500 German Gulch Creek near Ramsay, Mont.
Site Number 220**

LOCATION.--Lat 46°00'57", long 112°47'30" (NAD 27), in SE¼NW¼ sec.13, T.3 N., R.10 W., Silver Bow County, on left bank 0.5 mi upstream from mouth and 5.2 mi west of Ramsay.

DRAINAGE AREA.--40.6 mi².

PERIOD OF RECORD.--14 years. April 1955 to September 1969 (discontinued). Monthly discharge for some periods, published in WSP 1736.

REVISED RECORDS.--WSP 1736: 1955-56. WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 5,200 ft (NGVD 29, by barometer). Prior to July 13, 1956, nonrecording gage at site 300 ft upstream from mouth at different datum.

REMARKS.--Minor diversions for irrigation upstream from station.

Magnitude and probability of annual low flow
based on 13 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3.8	3.2	2.9	2.7	--	--
3	4.2	3.6	3.2	3.0	--	--
7	4.7	4.1	3.7	3.5	--	--
14	5.0	4.4	4.1	3.9	--	--
30	5.5	4.8	4.4	4.2	--	--
60	6.2	5.2	4.7	4.3	--	--
90	6.6	5.5	5.0	4.5	--	--
120	7.0	5.9	5.3	4.9	--	--
183	7.7	6.6	6.2	5.8	--	--

Magnitude and probability of seasonal low flow from
March-June based on 14 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4.9	4.3	4.0	3.8	--	--
3	5.1	4.5	4.2	4.0	--	--
7	5.4	4.8	4.5	4.2	--	--
14	5.8	5.0	4.7	4.4	--	--
30	7.2	5.8	5.2	4.8	--	--

Magnitude and probability of seasonal low flow from
November-February based on 14 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3.8	3.2	3.0	2.7	--	--
3	4.2	3.6	3.3	3.0	--	--
7	4.8	4.1	3.8	3.5	--	--
14	5.3	4.6	4.2	4.0	--	--
30	5.7	4.9	4.5	4.2	--	--

Duration of daily mean flows based on 14 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
4.0	4.2	4.7	5.4	6.4	7.3	8.4	9.9
40%	30%	20%	15%	10%	5%	2%	1%
12	16	29	41	57	87	129	163

Magnitude and probability of annual high flow
based on 14 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	152	209	245	287	--	--
3	141	187	213	243	--	--
7	129	169	191	214	--	--
15	117	152	171	191	--	--
30	96	128	147	170	--	--
60	71	94	108	124	--	--
90	56	73	83	95	--	--

Magnitude and probability of seasonal low flow from
July-October based on 14 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	7.6	6.5	6.0	5.7	--	--
3	7.6	6.6	6.1	5.8	--	--
7	7.7	6.7	6.3	5.9	--	--
14	7.9	6.9	6.4	6.1	--	--
30	8.3	7.1	6.6	6.3	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	13	6.8	9.2	2.0	14
November	11	5.7	8.0	1.4	14
December	10	4.7	7.3	1.6	14
January	8.4	4.2	6.3	1.3	14
February	11	3.9	6.6	1.9	14
March	15	4.9	8.1	2.8	14
April	39	9.1	18	8.0	15
May	108	40	66	22	15
June	154	27	77	36	15
July	45	9.3	24	11	15
August	16	6.3	11	3.0	15
September	16	7.4	9.6	2.1	15
Annual	30	13	21	5.2	14

**12323600 Silver Bow Creek at Opportunity, Mont.
Site Number 221**

LOCATION.--Lat 46°06'28", long 112°48'17" (NAD 27), in SE¼SW¼SE¼ sec.11, T.4 N., R.10 W., Deer Lodge County, Hydrologic Unit 17010201, on left bank 200 ft downstream from Stuart Street bridge, 0.5 mi east of Opportunity, and 1.0 mi upstream from Mill Creek.

DRAINAGE AREA.--363 mi². Prior to water year 2001, drainage area published as 284 mi².

PERIOD OF RECORD.--July 1988 to current year (2002). Prior to October 1991, seasonal records only.

REVISED RECORDS.--WDR MT-2001-01: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 4,912.37 ft (NGVD 29).

REMARKS.--Numerous diversions upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 11 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	19	15	13	11	--	--
3	20	15	13	12	--	--
7	21	16	14	12	--	--
14	22	16	14	12	--	--
30	24	17	15	13	--	--
60	27	20	17	15	--	--
90	29	22	19	17	--	--
120	31	24	21	19	--	--
183	34	27	23	21	--	--

Magnitude and probability of seasonal low flow from
March-June based on 14 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	32	24	19	16	--	--
3	33	24	20	17	--	--
7	36	27	22	18	--	--
14	40	28	23	19	--	--
30	47	33	27	22	--	--

Magnitude and probability of seasonal low flow from
November-February based on 11 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	26	20	17	15	--	--
3	27	21	19	17	--	--
7	28	22	20	18	--	--
14	29	23	21	19	--	--
30	30	24	21	19	--	--

Duration of daily mean flows based on 11 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
13	16	18	22	27	32	36	41
40%	30%	20%	15%	10%	5%	2%	1%
46	56	66	80	95	127	198	289

Magnitude and probability of annual high flow
based on 11 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	165	379	643	--	--	--
3	144	328	550	--	--	--
7	130	271	418	--	--	--
15	118	222	317	--	--	--
30	102	180	249	--	--	--
60	89	152	207	--	--	--
90	81	133	175	--	--	--

Magnitude and probability of seasonal high flow from
July-October based on 14 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	19	15	13	11	--	--
3	20	15	13	12	--	--
7	21	16	14	12	--	--
14	22	17	14	13	--	--
30	24	18	15	13	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	56	26	38	8.9	14
November	50	26	38	8.0	12
December	49	23	35	10	11
January	69	22	37	14	11
February	184	22	54	47	11
March	87	32	54	17	14
April	120	41	65	23	14
May	260	31	97	61	14
June	281	24	101	76	14
July	107	18	48	30	15
August	70	14	31	16	15
September	60	21	33	12	15
Annual	99	30	55	24	11

**12323750 Silver Bow Creek at Warm Springs, Mont.
Site Number 222**

LOCATION.--Lat 46°10'50", long 112°46'46" (NAD 27), in SW¼SE¼SW¼ sec.18, T.5 N., R.9 W., Deer Lodge County, Hydrologic Unit 17010201, on left bank 1.0 mi upstream from confluence with Warm Springs Creek, 1.1 mi upstream from county highway bridge, and 0.5 mi east of Warm Springs.

DRAINAGE AREA.--473 mi²; area at site used prior to May 24, 1994, 483 mi².

PERIOD OF RECORD.--March 1972 to September 1979, April 1993 to current year (2002).

GAGE.--Water-stage recorder. Altitude of gage is 4,800.31 ft (NGVD 29). Prior to May 24, 1994, gage located at sites 0.8 mi downstream at different datum.

REMARKS.--Flow is regulated by dam on tailing ponds about 0.2 mi upstream from gage. Diversions for irrigation of about 4,650 acres upstream from station.

U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 14 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	32	20	16	13	--	--
3	34	21	17	14	--	--
7	38	24	19	15	--	--
14	41	25	20	16	--	--
30	45	28	21	17	--	--
60	50	30	23	18	--	--
90	53	33	26	21	--	--
120	57	37	29	24	--	--
183	62	41	33	27	--	--

Magnitude and probability of seasonal low flow from
March-June based on 16 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	58	41	34	29	--	--
3	61	44	37	32	--	--
7	69	49	41	35	--	--
14	81	55	45	37	--	--
30	94	64	51	43	--	--

Magnitude and probability of seasonal low flow from
November-February based on 16 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	43	31	26	23	--	--
3	45	33	28	25	--	--
7	49	36	30	26	--	--
14	52	38	32	28	--	--
30	59	42	35	29	--	--

Duration of daily mean flows based on 16 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
18	21	27	34	47	58	69	82
40%	30%	20%	15%	10%	5%	2%	1%
96	120	160	187	240	340	514	652

Magnitude and probability of annual high flow
based on 16 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	370	668	898	1,220	--	--
3	346	606	802	1,070	--	--
7	325	559	730	958	--	--
15	291	498	652	862	--	--
30	267	459	603	803	--	--
60	220	377	498	669	--	--
90	191	320	417	551	--	--

Magnitude and probability of seasonal high flow from
July-October based on 16 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	33	21	16	13	--	--
3	35	22	17	14	--	--
7	39	24	19	15	--	--
14	43	26	20	16	--	--
30	47	28	21	17	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	193	28	73	41	16
November	161	32	80	34	16
December	156	31	74	30	16
January	152	37	78	33	16
February	130	37	82	30	16
March	207	46	110	46	16
April	281	54	131	59	18
May	586	70	246	144	18
June	770	57	279	189	18
July	356	29	121	82	18
August	201	17	69	47	18
September	137	20	64	36	18
Annual	228	43	117	57	16

12323770 Warm Springs Creek at Warm Springs, Mont. Site Number 223

LOCATION.--Lat 46°10'50", long 112°47'04" (NAD 27), in SW¼SW¼SW¼ sec.18, T.5 N., R.9 W., Deer Lodge County, Hydrologic Unit 17010201, on left bank at county road bridge 0.2 mi southeast of Warm Springs Post Office, and at river mile 0.9.

DRAINAGE AREA.--163 mi².

PERIOD OF RECORD.--October 1983 to current year (2002). October 1983 to June 26, 2002, at site 200 ft upstream.

GAGE.--Water-stage recorder. Altitude of gage is 4,810 ft (NGVD 29).

REMARKS.--Numerous diversions upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 18 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4.1	0.44	0.07	0.00	--	--
3	4.8	.54	.12	.03	--	--
7	5.4	.98	.33	.12	--	--
14	6.7	1.4	.55	.23	--	--
30	8.2	2.0	.87	.40	--	--
60	12	3.8	1.9	.99	--	--
90	17	6.3	3.4	2.0	--	--
120	24	11	6.5	4.2	--	--
183	29	15	10	7.4	--	--

Magnitude and probability of seasonal low flow from
March-June based on 19 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	17	4.8	2.0	0.87	--	--
3	18	5.4	2.4	1.1	--	--
7	21	7.6	3.8	2.0	--	--
14	25	11	6.1	3.6	--	--
30	33	19	13	9.3	--	--

Magnitude and probability of seasonal low flow from
November-February based on 18 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	14	7.3	5.0	3.7	--	--
3	16	8.2	5.6	4.1	--	--
7	20	9.9	6.6	4.5	--	--
14	23	11	7.5	5.1	--	--
30	27	14	9.1	6.1	--	--

Duration of daily mean flows based on 19 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.69	1.6	3.6	6.7	17	25	31	38
40%	30%	20%	15%	10%	5%	2%	1%
45	55	66	81	101	160	241	300

Magnitude and probability of annual high flow
based on 19 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	206	342	434	548	--	--
3	190	322	415	533	--	--
7	174	297	385	500	--	--
15	155	271	354	461	--	--
30	136	231	296	378	--	--
60	106	178	229	297	--	--
90	87	142	182	235	--	--

Magnitude and probability of seasonal low flow from
July-October based on 18 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4.8	0.50	0.12	0.00	--	--
3	5.6	.62	.14	.06	--	--
7	5.8	1.0	.42	.18	--	--
14	7.1	1.5	.65	.26	--	--
30	8.7	2.1	.92	.45	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	95	11	45	24	19
November	84	13	45	21	19
December	78	5.9	34	18	19
January	82	4.2	37	21	19
February	63	4.5	36	17	19
March	54	19	36	12	19
April	63	13	42	14	19
May	196	19	83	44	19
June	362	7.1	136	100	19
July	170	.41	54	53	19
August	125	.46	25	33	19
September	82	2.6	32	23	19
Annual	108	17	50	24	19

**12323800 Clark Fork near Galen, Mont.
Site Number 224**

LOCATION.--Lat 46°12'30", long 112°45'59" (NAD 27), in NE¼NE¼NE¼ sec.7, T.5 N., R.9 W., Deer Lodge County, Hydrologic Unit 17010201, on right bank at upstream side of bridge on county road, 2.6 mi downstream from Silver Bow Creek and Warm Springs Creek, 2 mi south of Galen, and at river mile 482.7.

DRAINAGE AREA.--651 mi², area at site used prior to Oct. 1, 1994, 793 mi².

PERIOD OF RECORD.--July 1988 to current year (2002).

GAGE.--Water-stage recorder. Altitude of gage is 4,749.24 ft (NGVD 29).

REMARKS.--Some regulation by settling ponds on Silver Bow Creek near Warm Springs. Numerous diversions upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 13 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	30	18	13	11	--	--
3	31	18	14	11	--	--
7	33	19	15	12	--	--
14	37	21	16	13	--	--
30	43	25	19	15	--	--
60	53	33	26	21	--	--
90	60	39	32	27	--	--
120	68	47	39	33	--	--
183	75	53	44	38	--	--

Magnitude and probability of seasonal low flow from
March-June based on 14 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	68	43	32	24	--	--
3	71	46	34	26	--	--
7	80	52	40	30	--	--
14	93	61	46	35	--	--
30	110	75	58	46	--	--

Magnitude and probability of seasonal low flow from
November-February based on 14 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	51	37	32	28	--	--
3	53	39	33	29	--	--
7	57	42	36	32	--	--
14	64	47	40	36	--	--
30	70	51	43	38	--	--

Duration of daily mean flows based on 14 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
14	18	29	39	56	70	81	91
40%	30%	20%	15%	10%	5%	2%	1%
110	132	172	201	283	390	609	818

Magnitude and probability of annual high flow
based on 14 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	479	816	1,050	1,340	--	--
3	454	783	1,010	1,300	--	--
7	401	708	933	1,230	--	--
15	372	658	872	1,160	--	--
30	334	586	773	1,030	--	--
60	273	468	615	819	--	--
90	232	385	501	664	--	--

Magnitude and probability of seasonal low flow from
July-October based on 14 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	31	18	14	11	--	--
3	32	19	14	11	--	--
7	33	20	15	12	--	--
14	38	22	16	13	--	--
30	44	26	20	16	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	170	41	92	40	14
November	158	51	97	32	14
December	132	41	84	30	14
January	169	42	85	35	14
February	174	44	93	36	14
March	167	77	114	32	14
April	257	80	137	53	14
May	668	69	253	156	14
June	974	51	360	262	14
July	381	21	143	117	15
August	233	10	73	68	15
September	184	20	72	47	15
Annual	288	60	135	63	14

**12324100 Racetrack Creek below Granite Creek, near Anaconda, Mont.
Site Number 225**

LOCATION.--Lat 46°16'44", long 112°55'07" (NAD 27), near center of NW¼NE¼ sec.13, T.6 N., R.11 W., Powell County, Deer Lodge National Forest, on right bank 30 ft upstream from bridge, 1.6 mi downstream from Granite Creek, 9.5 mi upstream from mouth, and 10.3 mi north of Anaconda.

DRAINAGE AREA.--39.5 mi².

PERIOD OF RECORD.--16 years. April 1914 to September 1917 (gage heights only, published as "near Anaconda"). July 1957 to September 1973 (discontinued).

Records for July 1911 to November 1912 at site 3 mi upstream, published as "near Anaconda" not equivalent owing to inflow.

REVISED RECORDS.--WSP 1316: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 5,420 ft (NGVD 29, from topographic map). Prior to September 1917, nonrecording gage at site 0.3 mi downstream at different datum.

REMARKS.--Some regulation by Racetrack and Fisher Lakes.

Magnitude and probability of annual low flow
based on 15 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	12	9.9	8.8	7.9	--	--
3	14	12	10	9.4	--	--
7	17	14	13	12	--	--
14	17	16	15	15	--	--
30	18	17	16	16	--	--
60	20	18	17	17	--	--
90	21	19	18	17	--	--
120	22	19	18	18	--	--
183	27	24	22	22	--	--

Magnitude and probability of seasonal low flow from
March-June based on 16 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	17	15	13	12	--	--
3	17	16	15	14	--	--
7	18	16	16	15	--	--
14	18	17	16	15	--	--
30	19	17	16	16	--	--

Magnitude and probability of seasonal low flow from
November-February based on 16 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	13	10	8.9	8.0	--	--
3	14	12	10	9.5	--	--
7	17	14	13	12	--	--
14	18	16	15	15	--	--
30	19	17	16	16	--	--

Duration of daily mean flows based on 16 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
14	16	17	18	20	22	26	31
40%	30%	20%	15%	10%	5%	2%	1%
40	58	85	107	142	221	283	344

Magnitude and probability of annual high flow
based on 16 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	324	413	463	516	--	--
3	303	386	430	477	--	--
7	285	358	395	432	--	--
15	262	326	357	387	--	--
30	235	290	316	340	--	--
60	179	220	241	262	--	--
90	149	180	196	212	--	--

Magnitude and probability of seasonal low flow from
July-October based on 15 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	25	21	19	17	--	--
3	26	22	21	20	--	--
7	27	23	22	21	--	--
14	28	24	23	22	--	--
30	31	26	25	24	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	56	25	33	9.5	16
November	37	18	25	5.5	16
December	30	16	22	3.9	16
January	26	16	20	3.0	16
February	24	17	20	2.1	16
March	26	16	20	2.9	16
April	42	18	26	7.3	16
May	168	67	101	30	16
June	340	94	221	68	16
July	167	60	105	30	16
August	98	34	69	18	17
September	78	28	43	12	17
Annual	79	37	59	11	16

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12324200 Clark Fork at Deer Lodge, Mont. Site Number 226

LOCATION.--Lat 46°23'52", long 112°44'31" (NAD 27), in SW¼SW¼SW¼ sec.33, T.8 N., R.9 W., Powell County, Hydrologic Unit 17010201, on left bank 35 ft upstream from Milwaukee Avenue Bridge in Deer Lodge, 0.05 mi upstream from Taylor Creek, 0.24 mi downstream from Tin Cup Joe Creek, and at river mile 461.2.

DRAINAGE AREA.--995 mi², area at site used prior to Oct. 1, 1994, 1,005 mi². Area used October 1994 to September 2000, 916 mi².

PERIOD OF RECORD.--October 1978 to current year (2002).

GAGE.--Water-stage recorder. Altitude of gage is 4,502.24 ft (NGVD 29).

REMARKS.--Diversions upstream from station for irrigation of about 31,000 acres. Some regulation by settling ponds on Silver Bow Creek near Warm Springs. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 23 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	50	30	23	19	--	--
3	52	31	24	19	--	--
7	55	32	24	20	--	--
14	60	34	26	20	--	--
30	69	38	28	22	--	--
60	99	57	42	32	--	--
90	124	74	56	44	--	--
120	148	93	72	58	--	--
183	177	124	102	86	--	--

Magnitude and probability of seasonal low flow from
March-June based on 24 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	138	73	49	35	--	--
3	144	76	52	36	--	--
7	161	87	59	41	--	--
14	191	109	75	52	--	--
30	242	151	105	72	--	--

Magnitude and probability of seasonal low flow from
November-February based on 23 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	135	106	93	83	--	--
3	143	114	101	91	--	--
7	157	127	113	103	--	--
14	175	142	127	116	--	--
30	196	157	140	127	--	--

Duration of daily mean flows based on 24 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
27	32	54	93	139	169	199	229
40%	30%	20%	15%	10%	5%	2%	1%
259	299	345	368	436	602	945	1,170

Magnitude and probability of annual high flow
based on 24 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	758	1,320	1,750	2,380	--	--
3	698	1,210	1,600	2,170	--	--
7	618	1,070	1,440	1,980	--	--
15	547	950	1,290	1,790	--	--
30	485	812	1,080	1,480	--	--
60	415	664	864	1,160	--	--
90	373	571	723	940	--	--

Magnitude and probability of seasonal low flow from
July-October based on 23 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	52	30	23	19	--	--
3	53	31	24	19	--	--
7	57	33	25	20	--	--
14	62	35	26	21	--	--
30	70	38	29	22	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	420	115	243	84	24
November	384	156	252	69	24
December	353	122	224	61	24
January	342	140	224	62	24
February	481	137	247	83	24
March	387	185	267	61	24
April	422	161	281	76	24
May	971	80	392	231	24
June	1,450	58	499	372	24
July	592	30	222	173	24
August	337	28	107	80	24
September	315	58	176	81	24
Annual	464	130	261	96	24

**12324590 Little Blackfoot River near Garrison, Mont.
Site Number 227**

LOCATION.--Lat 46°31'11", long 112°47'33" (NAD 27), in NE¼NW¼SE¼ sec.24, T.9 N., R.10 W., Powell County, Hydrologic Unit 17010201, on right bank 20 ft upstream from bridge on frontage road, 0.7 mi southeast of Garrison, and at river mile 0.5.

DRAINAGE AREA.--407 mi².

PERIOD OF RECORD.--October 1972 to current year (2002).

GAGE.--Water-stage recorder. Altitude of gage is 4,343.97 ft (NGVD 29). Prior to Oct. 1, 1992, at site 3.5 mi upstream at different datum.

REMARKS.--A few minor irrigation holding reservoirs in upper reaches of drainage. Diversions for irrigation of about 11,000 acres upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 29 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	25	15	11	8.2	5.9	--
3	26	16	11	8.6	6.1	--
7	29	17	12	9.2	6.5	--
14	32	19	14	10	7.0	--
30	38	23	17	13	9.4	--
60	44	28	22	17	13	--
90	49	34	27	23	19	--
120	54	38	32	28	23	--
183	57	42	36	32	29	--

Magnitude and probability of seasonal low flow from
March-June based on 30 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	53	39	33	29	25	--
3	56	41	35	31	27	--
7	61	46	40	35	31	--
14	72	55	48	43	38	--
30	101	71	59	51	43	--

Magnitude and probability of seasonal low flow from
November-February based on 30 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	33	25	22	20	18	--
3	34	28	25	24	22	--
7	37	31	30	29	28	--
14	41	35	33	32	31	--
30	47	39	37	35	33	--

Duration of daily mean flows based on 30 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
15	19	30	37	47	56	64	78
40%	30%	20%	15%	10%	5%	2%	1%
93	122	185	257	371	569	874	1,090

Magnitude and probability of annual high flow
based on 30 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	877	1,740	2,450	3,470	4,330	--
3	774	1,460	2,000	2,750	3,340	--
7	674	1,240	1,660	2,250	2,710	--
15	594	1,060	1,410	1,860	2,210	--
30	513	896	1,160	1,500	1,750	--
60	406	687	883	1,130	1,320	--
90	338	555	703	888	1,020	--

Magnitude and probability of seasonal low flow from
July-October based on 29 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	28	15	11	8.4	6.0	--
3	29	16	12	8.9	6.2	--
7	32	17	13	9.4	6.6	--
14	35	19	14	10	7.2	--
30	40	24	17	14	9.6	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	129	35	72	26	30
November	122	40	71	21	30
December	199	33	64	34	30
January	135	36	61	25	30
February	262	36	84	55	30
March	271	55	117	51	30
April	486	89	224	105	30
May	1,460	77	489	323	30
June	1,800	60	389	336	30
July	410	24	136	92	30
August	190	12	62	42	30
September	184	20	57	34	30
Annual	322	58	152	69	30

**12324680 Clark Fork at Goldcreek, Mont.
Site Number 228**

LOCATION.--Lat 46°35'26", long 112°55'40" (NAD 27), in SE¼NW¼SW¼ sec.25, T.10 N., R.11 W., Powell County, Hydrologic Unit 17010201, on right bank at county road bridge, 0.4 mi north of the town of Goldcreek, 1.1 mi downstream from Gold Creek, and at river mile 434.7.

DRAINAGE AREA.--1,760 mi².

PERIOD OF RECORD.--October 1977 to current year (2002).

GAGE.--Water-stage recorder. Altitude of gage is 4,172.80 ft (NGVD 29). June 13 to Oct. 21, 1982, nonrecording gage at site 350 ft downstream at same datum.

REMARKS.-- Some regulation by settling ponds on Silver Bow Creek near Warm Springs. Diversion for irrigation of about 40,100 acres upstream from station.

U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 24 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	139	91	71	57	--	--
3	145	93	72	58	--	--
7	153	97	75	60	--	--
14	165	103	79	63	--	--
30	185	115	88	69	--	--
60	221	139	106	83	--	--
90	254	166	130	105	--	--
120	286	194	156	129	--	--
183	311	227	191	165	--	--

Magnitude and probability of seasonal low flow from
March-June based on 25 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	271	177	137	109	83	--
3	290	191	147	116	86	--
7	327	216	164	127	92	--
14	372	247	188	145	105	--
30	455	310	239	186	136	--

Magnitude and probability of seasonal low flow from
November-February based on 25 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	191	151	133	119	105	--
3	206	166	146	132	116	--
7	230	189	170	155	140	--
14	264	215	193	177	160	--
30	300	240	213	192	171	--

Duration of daily mean flows based on 25 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
78	95	142	192	246	296	341	389
40%	30%	20%	15%	10%	5%	2%	1%
456	522	672	753	982	1,420	2,100	2,690

Magnitude and probability of annual high flow
based on 25 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	2,040	3,760	5,100	6,980	8,490	--
3	1,860	3,270	4,300	5,680	6,750	--
7	1,590	2,730	3,580	4,730	5,630	--
15	1,380	2,370	3,100	4,110	4,900	--
30	1,220	2,030	2,620	3,410	4,020	--
60	1,010	1,610	2,040	2,630	3,090	--
90	881	1,350	1,690	2,130	2,480	--

Magnitude and probability of seasonal low flow from
July-October based on 24 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	144	92	72	58	--	--
3	147	94	73	59	--	--
7	154	98	76	60	--	--
14	166	105	80	64	--	--
30	187	117	89	69	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	699	198	400	136	25
November	651	244	404	111	25
December	622	193	350	102	25
January	596	199	348	108	25
February	860	208	420	174	25
March	721	306	488	133	25
April	918	360	601	183	25
May	2,910	198	1,040	621	25
June	3,000	138	1,120	776	25
July	1,200	86	494	348	25
August	646	68	236	143	25
September	707	100	306	151	25
Annual	860	243	518	191	25

**12325500 Flint Creek near Southern Cross, Mont.
Site Number 229**

LOCATION.--Lat 46°13'59", long 113°17'56" (NAD 27), in SE¼NW¼ sec.36, T.6 N., R.14 W., Granite County, Hydrologic Unit 17010202, on right wing wall of weir, 0.5 mi downstream from power plant, 2.0 mi downstream from Georgetown Dam, 3.5 mi northwest of Southern Cross, 6.8 mi south of Philipsburg, and at river mile 36.8.

DRAINAGE AREA.--52.6 mi².

PERIOD OF RECORD.--October 1940 to September 1998, August 2000 to current year (2002, seasonal records only).

REVISED RECORDS.--WSP 1216: 1942(M). WSP 1246: Drainage area.

GAGE.--Water-stage recorder and sharp-crested, contracted, rectangular weir. Altitude of gage is 5,630 ft (NGVD 29). Prior to June 3, 1982, nonrecording gage at same site and datum. Prior to Nov. 27, 1973, gage at same site and datum 0.20 ft higher.

REMARKS.--Flow regulated by Georgetown Lake (station number 12325000). Flow may be augmented by interbasin diversion from Silver Lake to Georgetown Lake or reduced by pumping from Georgetown Lake to Silver Lake. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 58 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	9.0	4.6	3.1	2.2	0.90	0.00
3	9.6	4.9	3.4	2.5	1.7	1.3
7	9.9	5.2	3.6	2.7	1.9	1.5
14	10	5.3	3.7	2.7	1.9	1.5
30	11	5.6	3.9	2.9	2.0	1.5
60	12	6.1	4.2	3.1	2.1	1.6
90	13	7.4	5.4	4.0	2.9	2.3
120	17	9.3	6.5	4.8	3.2	2.5
183	21	14	11	9.1	7.1	6.0

Magnitude and probability of seasonal low flow from
March-June based on 60 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	13	6.7	4.5	3.2	2.2	1.6
3	14	7.1	4.9	3.5	2.3	1.8
7	14	7.3	5.0	3.6	2.4	1.8
14	15	7.6	5.2	3.7	2.4	1.8
30	16	8.3	5.6	3.9	2.6	1.9

Magnitude and probability of seasonal low flow from
November-February based on 59 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	13	6.3	4.1	2.7	1.0	0.00
3	14	6.8	4.5	3.1	2.0	1.5
7	14	7.1	4.8	3.4	2.3	1.7
14	14	7.4	5.0	3.5	2.4	1.8
30	15	7.6	5.2	3.7	2.4	1.8

Duration of daily mean flows based on 60 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
3.3	4.1	4.9	7.0	13	19	24	27
40%	30%	20%	15%	10%	5%	2%	1%
29	31	36	42	51	77	113	128

Magnitude and probability of annual high flow
based on 60 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	79	130	166	213	249	285
3	77	126	161	207	243	279
7	72	118	151	196	231	268
15	65	106	137	181	216	254
30	58	93	119	157	188	221
60	50	74	93	120	142	166
90	45	64	78	99	116	135

Magnitude and probability of seasonal high flow from
July-October based on 58 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	18	9.4	6.3	4.3	2.8	2.0
3	18	9.6	6.4	4.4	2.8	2.0
7	19	9.8	6.5	4.5	2.8	2.0
14	19	10	6.9	4.8	3.1	2.2
30	24	15	11	7.9	5.4	4.0

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	59	3.9	26	12	60
November	62	3.9	22	13	60
December	50	2.7	20	11	60
January	38	2.9	19	10	60
February	54	3.4	20	12	60
March	80	4.1	22	17	60
April	121	1.6	25	23	60
May	106	7.8	32	21	60
June	142	26	57	33	60
July	131	26	46	21	60
August	78	22	33	9.0	61
September	74	13	31	9.2	61
Annual	58	13	30	11	60

**12329500 Flint Creek at Maxville, Mont.
Site Number 230**

LOCATION.--Lat 46°27'50", long 113°14'20" (NAD 27), in NE¼SW¼NW¼ sec.9, T.8 N., R.13 W., Granite County, Hydrologic Unit 17010202, on right bank 0.4 mi west of Maxville and 1.0 mi upstream from Boulder Creek.

DRAINAGE AREA.--208 mi².

PERIOD OF RECORD.--August 1941 to current year (2002). April 1939 to September 1941 at site 0.5 mi upstream; records not equivalent owing to diversions.

REVISED RECORDS.--WSP 1216: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 4,828.38 ft (NGVD 29).

REMARKS.--Some regulation by Georgetown Lake (station number 12325000). Diversions for irrigation of about 8,200 acres upstream from station. During irrigation season, flow is supplemented by water from East Fork Rock Creek which is diverted in sec.5, T.4 N., R.14 W., 500 ft downstream from Rock Creek Dam, through a canal into Trout Creek, and then into Flint Creek. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 60 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	31	24	21	19	16	15
3	33	26	22	20	17	16
7	36	28	25	22	20	18
14	40	32	28	25	23	21
30	45	36	32	29	25	23
60	51	40	35	31	27	24
90	55	43	38	33	29	26
120	60	47	41	37	32	29
183	69	55	48	43	38	34

Magnitude and probability of seasonal low flow from
March-June based on 61 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	44	33	29	25	22	20
3	47	35	30	26	23	21
7	51	39	34	30	26	24
14	56	43	38	34	30	27
30	67	51	45	40	35	33

Magnitude and probability of seasonal low flow from
November-February based on 61 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	33	25	22	19	17	15
3	35	27	23	20	18	16
7	38	29	26	23	20	19
14	42	33	28	25	22	21
30	47	37	32	29	25	23

Duration of daily mean flows based on 61 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
26	30	36	44	54	63	72	82
40%	30%	20%	15%	10%	5%	2%	1%
91	108	127	147	175	232	320	374

Magnitude and probability of annual high flow
based on 61 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	348	520	638	790	905	1,020
3	296	438	539	673	777	884
7	251	364	442	547	628	712
15	219	318	388	481	553	629
30	190	277	341	428	498	572
60	162	230	279	343	394	447
90	147	206	247	302	345	389

Magnitude and probability of seasonal low flow from
July-October based on 60 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	61	44	36	31	25	21
3	62	46	38	32	26	23
7	65	48	41	35	29	25
14	70	52	44	38	31	27
30	78	57	48	40	33	28

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	148	50	85	22	61
November	121	41	73	19	61
December	120	28	60	18	61
January	88	27	54	16	61
February	141	27	62	23	61
March	186	34	76	27	61
April	310	49	106	55	61
May	353	51	137	62	61
June	455	71	188	90	61
July	324	48	127	56	61
August	217	30	107	32	61
September	151	34	92	30	62
Annual	165	53	97	27	61

**12330000 Boulder Creek at Maxville, Mont.
Site Number 231**

LOCATION.--Lat 46°28'20", long 113°13'59" (NAD 27), in SE¼NE¼SW¼ sec.4, T.8 N., R.13 W., Granite County, Hydrologic Unit 17010202, on right bank 0.2 mi upstream from mouth and 0.7 mi north of Maxville.

DRAINAGE AREA.--71.3 mi².

PERIOD OF RECORD.--April 1939 to current year (2002). Monthly discharge only for some periods, published in WSP 1316.

GAGE.--Water-stage recorder. Altitude of gage is 4,750 ft (NGVD 29). Apr. 15, 1939, to July 7, 1941, nonrecording gage at site 75 ft upstream at different datum.

July 8-20, 1941, nonrecording gage at site 175 ft upstream at datum 1.03 ft higher.

REMARKS.--Diversions upstream for irrigation of about 240 acres near the station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 62 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	8.2	5.6	4.6	3.8	3.1	2.7
3	8.5	5.9	4.8	4.1	3.4	2.9
7	9.1	6.3	5.2	4.3	3.6	3.1
14	10	7.1	5.8	4.8	3.9	3.4
30	12	8.6	7.0	5.8	4.7	4.0
60	15	11	9.1	7.7	6.3	5.4
90	17	13	11	9.5	8.0	7.1
120	18	14	12	11	9.3	8.4
183	19	15	13	12	11	9.9

Magnitude and probability of seasonal low flow from
March-June based on 63 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	15	12	9.9	8.5	7.1	6.2
3	16	12	10	8.7	7.3	6.3
7	16	13	11	9.5	8.0	7.1
14	17	14	12	11	9.6	8.8
30	18	15	13	12	11	10

Magnitude and probability of seasonal low flow from
November-February based on 63 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	12	9.3	7.9	6.8	5.6	4.9
3	13	9.9	8.4	7.3	6.1	5.4
7	14	11	9.7	8.5	7.4	6.6
14	16	12	11	9.6	8.3	7.5
30	17	14	12	11	9.4	8.5

Duration of daily mean flows based on 63 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
6.0	7.3	10	12	16	18	20	22
40%	30%	20%	15%	10%	5%	2%	1%
26	32	50	72	112	185	274	347

Magnitude and probability of annual high flow
based on 63 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	316	481	602	767	898	1,040
3	294	428	513	617	692	763
7	263	377	446	525	579	629
15	230	329	388	456	503	546
30	196	276	322	375	410	442
60	148	205	238	276	301	325
90	115	157	181	209	228	245

Magnitude and probability of seasonal high flow from
July-October based on 63 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	8.9	5.7	4.6	3.9	3.2	2.8
3	9.1	5.9	4.9	4.2	3.4	3.0
7	9.6	6.4	5.2	4.4	3.6	3.2
14	10	7.1	5.8	4.9	4.0	3.6
30	12	8.7	7.1	5.9	4.8	4.3

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	51	3.6	23	9.4	63
November	45	12	23	6.4	63
December	39	11	21	5.0	63
January	32	8.5	19	4.2	63
February	30	10	18	3.8	63
March	29	12	18	3.5	63
April	56	10	29	10	63
May	261	55	115	45	64
June	376	35	174	83	64
July	244	13	59	38	64
August	68	8.1	21	11	64
September	54	6.6	18	9.4	64
Annual	82	20	45	13	63

**12331500 Flint Creek near Drummond, Mont.
Site Number 232**

LOCATION.--Lat 46°37'44", long 113°09'02" (NAD 27), in NE¼NW¼NE¼ sec.18, T.10 N., R.12 W., Granite County, Hydrologic Unit 17010202, on left bank 10 ft downstream from county bridge, 2.0 mi upstream from mouth, and 2.7 mi south of Drummond.

DRAINAGE AREA.--490 mi².

PERIOD OF RECORD.--August 1990 to September 2002 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 4,017.27 ft (NGVD 29). June 1948 to September 1949 at same site with different datum.

REMARKS.--Some regulation by Georgetown Lake (station number 12325000). Diversions for irrigation of about 25,000 acres of which 1,000 acres lie downstream from station. During irrigation season, flow is supplemented by water from East Fork Rock Creek which is diverted in sec.5, T.4 N., R.14 W., 500 ft downstream from Rock Creek Dam, through a canal into Trout Creek, and then into Flint Creek.

Magnitude and probability of annual low flow
based on 11 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	11	3.0	1.4	0.74	--	--
3	13	3.7	1.8	1.0	--	--
7	16	5.2	2.8	1.6	--	--
14	20	7.4	4.2	2.6	--	--
30	27	11	6.7	4.3	--	--
60	39	17	10	6.7	--	--
90	53	26	17	12	--	--
120	65	33	21	14	--	--
183	79	48	36	27	--	--

Magnitude and probability of seasonal low flow from
March-June based on 13 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	30	6.1	2.2	0.90	--	--
3	38	9.9	4.3	2.0	--	--
7	51	16	7.5	3.7	--	--
14	65	22	11	5.3	--	--
30	84	36	21	13	--	--

Magnitude and probability of seasonal low flow from
November-February based on 13 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	58	45	40	36	--	--
3	61	48	42	38	--	--
7	66	52	46	42	--	--
14	71	56	50	45	--	--
30	78	61	54	49	--	--

Duration of daily mean flows based on 13 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
4.2	6.0	15	32	56	73	87	102
40%	30%	20%	15%	10%	5%	2%	1%
117	135	167	183	227	323	527	723

Magnitude and probability of annual high flow
based on 13 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	422	700	897	1,150	--	--
3	364	604	782	1,020	--	--
7	312	519	679	908	--	--
15	268	457	615	858	--	--
30	232	387	517	716	--	--
60	195	310	406	551	--	--
90	176	273	352	469	--	--

Magnitude and probability of seasonal low flow from
July-October based on 12 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	16	4.4	2.2	1.2	--	--
3	17	4.8	2.3	1.2	--	--
7	19	6.2	3.2	1.9	--	--
14	23	8.3	4.6	2.8	--	--
30	31	12	7.2	4.6	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	186	81	133	35	13
November	168	91	128	28	13
December	144	64	100	26	13
January	156	57	97	29	13
February	232	57	115	46	13
March	256	80	131	46	13
April	372	87	170	98	13
May	459	14	159	134	13
June	955	15	280	259	14
July	412	13	130	131	14
August	167	6.7	49	49	15
September	196	18	72	50	15
Annual	234	60	125	54	13

**12331600 Clark Fork at Drummond, Mont.
Site Number 233**

LOCATION.--Lat 46°39'45", long 113°08'57" (NAD 27), in SE¼NW¼SE¼ sec.31, T.11 N., R.12 W., Granite County, Hydrologic Unit 17010201, at bridge on old U.S. Highway 10A, 0.4 mi southwest of Drummond, 0.9 mi downstream from Flint Creek, and at mile 417.0.

DRAINAGE AREA.--2,378 mi².

PERIOD OF RECORD.--March 1967 to June 1968, October 1970, June 1971 to September 1972 (occasional discharge measurements and gage heights only).
October 1972 to Sept. 30, 1983 (discontinued).

GAGE.--Nonrecording gage read once or twice daily and crest-stage gage since Aug. 12, 1977. Altitude of gage is 3,937.95 ft (NGVD 29).

REMARKS.--Some regulation by settling ponds on Silver Bow Creek near Anaconda and by Georgetown Lake (station number 12325000) on Flint Creek.
Diversions for irrigation of about 86,500 acres upstream from station.

Magnitude and probability of annual low flow
based on 10 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	175	93	66	50	--	--
3	203	115	84	64	--	--
7	222	124	88	65	--	--
14	243	136	96	70	--	--
30	284	165	118	87	--	--
60	363	210	149	108	--	--
90	428	253	187	143	--	--
120	485	304	232	183	--	--
183	527	359	291	243	--	--

Magnitude and probability of seasonal low flow from
March-June based on 11 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	411	203	126	80	--	--
3	436	259	187	140	--	--
7	510	326	244	185	--	--
14	590	405	317	252	--	--
30	668	458	361	290	--	--

Magnitude and probability of seasonal low flow from
November-February based on 10 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	284	199	165	142	--	--
3	311	221	186	162	--	--
7	345	249	212	187	--	--
14	389	305	275	256	--	--
30	448	383	362	351	--	--

Duration of daily mean flows based on 11 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
101	136	226	304	412	496	583	672
40%	30%	20%	15%	10%	5%	2%	1%
761	924	1,090	1,340	1,790	2,700	3,850	4,400

Magnitude and probability of annual high flow
based on 11 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	3,580	6,880	9,300	--	--	--
3	3,230	5,820	7,590	--	--	--
7	2,860	5,000	6,440	--	--	--
15	2,490	4,270	5,460	--	--	--
30	2,230	3,720	4,690	--	--	--
60	1,840	2,980	3,730	--	--	--
90	1,600	2,480	3,060	--	--	--

Magnitude and probability of seasonal low flow from
July-October based on 10 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	215	111	80	61	--	--
3	219	119	86	66	--	--
7	228	129	91	67	--	--
14	248	141	100	74	--	--
30	291	167	121	91	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	1,180	384	710	243	11
November	1,090	492	681	181	11
December	1,190	416	621	224	11
January	980	399	581	190	11
February	1,140	415	652	216	11
March	1,060	567	751	173	11
April	1,800	509	920	352	11
May	3,460	330	1,820	1,070	11
June	4,570	280	1,980	1,370	11
July	2,490	118	950	701	11
August	1,240	84	430	336	11
September	961	262	567	238	11
Annual	1,390	400	889	320	11

**12331900 Clark Fork near Clinton, Mont.
Site Number 234**

LOCATION.--Lat 46°43'05", long 113°35'17" (NAD 27), in SE¼SW¼SE¼ sec.10, T11 N., R.16 W., Missoula County, Hydrologic Unit 17010201, on downstream side of county road bridge, 4.5 mi upstream from Rock Creek, 6.5 mi southeast of Clinton, and at river mile 386.6.

DRAINAGE AREA.--2,629 mi².

PERIOD OF RECORD.--June 1979 to September 1990, October 1991 to September 1994 (discontinued).

REVISED RECORDS.--WDR MT-81-2: Drainage area.

GAGE.--Nonrecording gage and crest-stage gage. Altitude of gage is 3,580 ft (NGVD 29, from topographic map).

REMARKS.--Some regulation by settling ponds on Silver Bow Creek near Anaconda and by Georgetown Lake (station number 12325000) on Flint Creek. Diversions for irrigation of about 88,400 acres upstream from station.

Magnitude and probability of annual low flow
based on 12 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	226	143	110	86	--	--
3	235	149	113	89	--	--
7	248	156	117	91	--	--
14	271	167	125	96	--	--
30	310	190	142	109	--	--
60	374	231	172	133	--	--
90	444	284	219	173	--	--
120	502	328	254	201	--	--
183	554	386	312	257	--	--

Magnitude and probability of seasonal low flow from
March-June based on 14 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	402	256	199	160	--	--
3	418	266	206	165	--	--
7	446	285	219	174	--	--
14	531	340	256	197	--	--
30	662	441	329	248	--	--

Magnitude and probability of seasonal low flow from
November-February based on 14 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	307	248	221	201	--	--
3	332	269	239	216	--	--
7	375	302	267	239	--	--
14	414	337	302	275	--	--
30	463	375	335	305	--	--

Duration of daily mean flows based on 14 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
123	149	212	285	385	454	524	615
40%	30%	20%	15%	10%	5%	2%	1%
709	838	1,010	1,090	1,370	1,990	3,030	3,880

Magnitude and probability of annual high flow
based on 14 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	2,690	5,250	7,530	11,200	--	--
3	2,450	4,640	6,530	9,490	--	--
7	2,080	3,770	5,230	7,510	--	--
15	1,760	3,180	4,400	6,290	--	--
30	1,520	2,660	3,630	5,120	--	--
60	1,360	2,230	2,910	3,910	--	--
90	1,220	1,910	2,420	3,130	--	--

Magnitude and probability of seasonal high flow from
July-October based on 13 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	244	144	112	87	--	--
3	251	151	114	89	--	--
7	260	159	119	92	--	--
14	277	169	127	96	--	--
30	314	192	143	111	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	1,070	392	680	229	14
November	1,040	428	659	184	14
December	935	323	572	166	14
January	1,190	306	567	229	14
February	1,320	309	641	303	14
March	1,170	490	746	211	14
April	1,330	492	919	282	14
May	3,620	257	1,420	903	14
June	3,910	206	1,450	1,130	15
July	1,800	162	705	504	15
August	948	111	369	213	15
September	1,070	184	528	259	15
Annual	1,240	376	777	284	14

**12332000 Middle Fork Rock Creek near Philipsburg, Mont.
Site Number 235**

LOCATION.--Lat 46°11'03", long 113°30'05" (NAD 27), in SW¼NW¼SE¼ sec.17, T.5 N., R.15 W., Granite County, Hydrologic Unit 17010202, on left bank 40 ft downstream from bridge on county highway, 1.2 mi upstream from East Fork, 3.4 mi upstream from West Fork, and 15 mi southwest of Philipsburg.

DRAINAGE AREA.--123 mi².

PERIOD OF RECORD.--September 1937 to current year (2002). Monthly discharges only January to March 1938, published in WSP 1316.

GAGE.--Water-stage recorder. Altitude of gage is 5,444.08 ft (NGVD 29). Prior to Oct. 25, 1990, gage located at several sites 0.8 to 1.0 mi downstream. See WSP 1736 or 1933 for history of changes prior to Oct. 1, 1955.

REMARKS.--A few small diversions for irrigation upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 64 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	17	11	9.3	7.7	6.1	5.2
3	18	14	12	10	8.4	7.5
7	21	17	15	13	12	11
14	24	19	18	16	15	14
30	27	23	21	20	18	18
60	30	26	24	23	22	21
90	32	28	26	25	24	23
120	34	30	28	27	26	26
183	39	34	32	31	30	30

Magnitude and probability of seasonal low flow from
March-June based on 65 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	24	17	14	12	9.5	8.2
3	26	19	16	14	11	10
7	28	22	19	17	15	14
14	30	25	22	21	19	18
30	34	28	26	24	23	22

Magnitude and probability of seasonal low flow from
November-February based on 64 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	17	12	9.7	8.0	6.4	5.4
3	19	14	12	10	8.9	7.9
7	22	17	15	13	12	11
14	24	20	18	17	15	14
30	27	23	21	20	19	18

Duration of daily mean flows based on 65 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
16	19	24	27	33	38	43	49
40%	30%	20%	15%	10%	5%	2%	1%
61	83	151	223	333	509	743	939

Magnitude and probability of annual high flow
based on 65 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	825	1,120	1,290	1,480	1,600	1,700
3	773	1,060	1,220	1,400	1,520	1,630
7	704	970	1,120	1,300	1,410	1,520
15	625	857	994	1,150	1,250	1,350
30	542	728	836	956	1,040	1,110
60	423	556	630	710	763	809
90	333	433	487	546	584	618

Magnitude and probability of seasonal low flow from
July-October based on 64 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	38	32	29	26	24	22
3	39	33	29	27	24	23
7	40	34	30	28	25	23
14	42	35	31	29	26	24
30	44	36	33	30	27	25

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	202	27	50	22	65
November	104	26	43	12	65
December	64	24	36	9.4	65
January	61	22	32	7.8	65
February	60	16	33	8.6	65
March	71	23	36	9.6	65
April	190	28	75	35	65
May	650	137	334	123	65
June	914	141	482	198	65
July	496	49	179	84	65
August	141	26	71	22	65
September	98	30	52	13	65
Annual	183	62	119	31	65

**12334510 Rock Creek near Clinton, Mont.
Site Number 236**

LOCATION.--Lat 46°43'21", long 113°40'56" (NAD 27), in NW¼NE¼SW¼ sec.12, T.11 N., R.17 W., Missoula County, Hydrologic Unit 17010202, on left bank 100 ft downstream from private road bridge, 0.2 mi upstream from mouth, and 3.7 mi southeast of Clinton.

DRAINAGE AREA.--885 mi².

PERIOD OF RECORD.--October 1972 to current year (2002).

GAGE.--Water-stage recorder. Altitude of gage is 3,519.46 ft (NGVD 29).

REMARKS.--Some regulation by East Fork Rock Creek Reservoir (station number 12332500). During irrigation season water is diverted from East Fork Rock Creek in sec.5, T.4 N., R.14 W., 500 ft downstream from Rock Creek Dam, through a canal into Trout Creek, and then into Flint Creek. Diversions for irrigation of about 16,100 acres. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 29 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	88	62	51	43	34	--
3	95	69	57	49	40	--
7	109	85	74	65	57	--
14	127	102	91	82	73	--
30	150	125	113	104	94	--
60	164	136	123	113	103	--
90	172	142	131	123	116	--
120	184	153	141	133	126	--
183	208	171	156	145	134	--

Magnitude and probability of seasonal low flow from
March-June based on 30 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	164	135	123	115	106	--
3	172	143	131	122	114	--
7	179	151	140	132	124	--
14	192	163	152	144	137	--
30	223	181	165	154	144	--

Magnitude and probability of seasonal low flow from
November-February based on 29 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	89	63	52	43	35	--
3	96	70	58	50	41	--
7	110	85	74	66	57	--
14	128	103	92	83	75	--
30	153	126	114	105	96	--

Duration of daily mean flows based on 30 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
94	104	131	146	175	205	236	267
40%	30%	20%	15%	10%	5%	2%	1%
326	407	667	913	1,280	2,030	2,960	3,720

Magnitude and probability of annual high flow
based on 30 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	2,820	4,150	4,930	5,810	6,400	--
3	2,670	3,930	4,680	5,520	6,090	--
7	2,450	3,640	4,370	5,220	5,800	--
15	2,160	3,250	3,940	4,800	5,400	--
30	1,880	2,840	3,470	4,250	4,820	--
60	1,520	2,260	2,740	3,340	3,770	--
90	1,240	1,810	2,190	2,650	2,980	--

Magnitude and probability of seasonal low flow from
July-October based on 29 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	198	151	130	114	97	--
3	202	155	133	116	99	--
7	206	158	136	119	102	--
14	212	163	140	123	105	--
30	223	173	150	133	116	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	474	157	253	65	30
November	430	149	227	58	30
December	460	119	197	79	30
January	329	106	185	59	30
February	426	109	192	62	30
March	428	158	243	73	30
April	1,020	236	500	212	30
May	3,680	544	1,460	682	30
June	3,760	407	1,720	936	30
July	1,910	267	683	366	30
August	635	156	313	116	30
September	389	148	262	71	30
Annual	966	258	521	188	30

**12334550 Clark Fork at Turah Bridge, near Bonner, Mont.
Site Number 237**

LOCATION.--Lat 46°49'34", long 113°48'48" (NAD 27), in SW¼NW¼SW¼ sec.1, T.12 N., R.18 W., Missoula County, Hydrologic Unit 17010201, on left bank 0.8 mi southeast of Turah, 4 mi southeast of Bonner, and at river mile 370.2.

DRAINAGE AREA.--3,641 mi².

PERIOD OF RECORD.--October 1985 to current year (2002). Water-discharge records for the period March 1985 to September 1985 are available in files of the USGS Montana District Office.

GAGE.--Water-stage recorder. Altitude of gage is 3,320 ft (NGVD 29, from topographic map). Prior to May 9, 1986, non-recording gage at same site at datum 2.00 ft higher.

REMARKS.--Some regulation by settling ponds on Silver Bow Creek near Anaconda and by Georgetown Lake (station number 12325000) on Flint Creek.

Diversions for irrigation of about 100,000 acres upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 17 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	332	252	216	189	--	--
3	352	274	238	211	--	--
7	398	303	259	227	--	--
14	444	322	269	231	--	--
30	496	357	296	252	--	--
60	570	415	345	294	--	--
90	630	484	416	364	--	--
120	686	550	487	438	--	--
183	712	571	508	460	--	--

Magnitude and probability of seasonal low flow from
March-June based on 18 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	650	527	478	443	--	--
3	672	547	496	461	--	--
7	701	583	538	507	--	--
14	792	668	624	595	--	--
30	944	754	679	627	--	--

Magnitude and probability of seasonal low flow from
November-February based on 17 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	388	288	241	206	--	--
3	414	321	278	245	--	--
7	482	392	349	316	--	--
14	557	469	427	394	--	--
30	635	538	492	455	--	--

Duration of daily mean flows based on 18 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
274	314	406	498	605	695	790	895
40%	30%	20%	15%	10%	5%	2%	1%
1,000	1,120	1,470	1,870	2,380	3,220	4,860	6,330

Magnitude and probability of annual high flow
based on 18 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	4,380	6,870	8,490	10,500	--	--
3	4,130	6,360	7,750	9,390	--	--
7	3,780	5,870	7,240	8,900	--	--
15	3,330	5,240	6,570	8,300	--	--
30	2,970	4,660	5,860	7,440	--	--
60	2,490	3,740	4,620	5,790	--	--
90	2,120	3,150	3,890	4,890	--	--

Magnitude and probability of seasonal low flow from
July-October based on 17 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	420	294	247	216	--	--
3	427	298	250	218	--	--
7	441	305	261	231	--	--
14	457	326	273	236	--	--
30	505	359	298	256	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	1,290	592	871	218	18
November	1,170	616	857	169	18
December	1,230	492	739	183	18
January	1,150	474	724	175	18
February	2,120	472	846	400	18
March	1,660	712	1,030	303	18
April	3,070	828	1,490	600	18
May	6,340	915	2,480	1,250	18
June	7,090	639	2,770	1,680	18
July	2,920	435	1,230	690	18
August	1,420	271	639	300	18
September	1,420	356	706	299	18
Annual	2,220	686	1,200	413	18

**12335000 Blackfoot River near Helmville, Mont.
Site Number 238**

LOCATION.--Lat 46°56'10", long 112°56'30" (NAD 27), in NW¼SW¼ sec.25, T.14 N., R.11 W., Powell County, on right bank 50 ft downstream from highway bridge, 2 mi downstream from Arrastre Creek, and 5 mi northeast of Helmville.

DRAINAGE AREA.--481 mi².

PERIOD OF RECORD.--13 years (1940-53).

GAGE.--Water-stage recorder. Altitude of gage is 4,301.29 ft (NGVD 29, U.S. Army Corps of Engineers bench mark).

REMARKS.--Flow includes natural overflow channel on left bank, but does not include unnamed diversions past station. Diversions upstream from station for irrigation of about 2,000 acres, of which 500 acres lie downstream from station.

Magnitude and probability of annual low flow
based on 12 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	96	77	66	57	--	--
3	98	79	68	60	--	--
7	102	82	72	63	--	--
14	105	86	75	66	--	--
30	112	91	80	70	--	--
60	123	100	86	75	--	--
90	128	105	92	82	--	--
120	133	112	101	93	--	--
183	144	122	111	102	--	--

Magnitude and probability of seasonal low flow from
March-June based on 13 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	101	86	80	75	--	--
3	104	88	81	76	--	--
7	108	92	84	79	--	--
14	112	96	88	82	--	--
30	116	98	92	88	--	--

Magnitude and probability of seasonal low flow from
November-February based on 12 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	105	83	70	60	--	--
3	106	85	73	62	--	--
7	109	87	75	65	--	--
14	111	90	78	68	--	--
30	116	94	82	72	--	--

Duration of daily mean flows based on 13 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
68	74	93	100	116	131	149	168
40%	30%	20%	15%	10%	5%	2%	1%
186	247	416	598	937	1,420	2,120	2,630

Magnitude and probability of annual high flow
based on 13 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	2,110	3,350	4,080	4,860	--	--
3	2,030	3,210	3,880	4,610	--	--
7	1,890	2,900	3,440	3,970	--	--
15	1,730	2,620	3,060	3,480	--	--
30	1,510	2,230	2,550	2,820	--	--
60	1,210	1,730	1,940	2,100	--	--
90	959	1,360	1,530	1,660	--	--

Magnitude and probability of seasonal low flow from
July-October based on 13 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	152	126	112	101	--	--
3	153	127	113	102	--	--
7	154	127	114	103	--	--
14	156	129	115	105	--	--
30	159	132	119	108	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	212	111	159	33	14
November	191	104	149	29	13
December	180	84	132	28	13
January	156	63	119	25	13
February	168	85	121	26	13
March	212	96	125	31	13
April	604	92	271	168	13
May	1,860	84	970	550	13
June	2,730	267	1,260	703	13
July	904	135	500	243	13
August	338	108	235	73	13
September	236	115	173	35	13
Annual	512	116	352	124	13

**12335500 Nevada Creek above reservoir, near Helmville, Mont.
Site Number 239**

LOCATION.--Lat 46°46'42", long 112°46'00" (NAD 27), in SW¼NW¼SW¼ sec.20, T.12 N., R.9 W., Powell County, Hydrologic Unit 17010203, on right bank 0.7 mi upstream from Nevada Lake, 1.1 mi downstream from Gallagher Creek, 11 mi southeast of Helmville, and at river mile 34.5.

DRAINAGE AREA.--116 mi².

PERIOD OF RECORD.--April 1939 to current year (2002). Prior to October 2001, published as "near Finn."

GAGE.--Water-stage recorder. Altitude of gage is 4,640 ft (NGVD 29). Prior to Apr. 30, 1942, nonrecording gage at site 0.1 mi downstream at different datum.

Apr. 30, 1942, to July 26, 1953, water-stage recorder at site 0.2 mi downstream at different datum. July 26, 1953, to Nov. 6, 1978, water-stage recorder at site 0.8 mi upstream at different datum.

REMARKS.--Diversions for irrigation of about 2,900 acres upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 62 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4.3	3.0	2.5	2.2	1.8	1.6
3	4.6	3.3	2.8	2.4	2.0	1.8
7	5.2	3.7	3.1	2.6	2.1	1.9
14	6.0	4.2	3.5	3.0	2.5	2.2
30	6.9	4.9	4.1	3.6	3.0	2.7
60	8.2	5.8	4.8	4.1	3.5	3.1
90	9.4	6.8	5.7	4.9	4.2	3.8
120	11	7.8	6.6	5.8	4.9	4.4
183	11	8.4	7.2	6.3	5.4	4.8

Magnitude and probability of seasonal low flow from
March-June based on 63 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	8.3	6.0	5.1	4.6	4.0	3.7
3	8.8	6.3	5.4	4.8	4.2	3.8
7	9.7	6.9	5.8	5.1	4.4	4.0
14	12	8.5	7.4	6.6	6.0	5.6
30	21	13	11	8.9	7.3	6.4

Magnitude and probability of seasonal low flow from
November-February based on 63 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	5.0	3.4	2.7	2.3	1.9	1.6
3	5.5	3.8	3.0	2.6	2.1	1.8
7	6.3	4.3	3.4	2.8	2.3	2.0
14	7.2	4.9	4.0	3.3	2.7	2.3
30	8.3	5.8	4.7	3.9	3.2	2.7

Duration of daily mean flows based on 63 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
3.6	4.2	5.1	6.3	8.6	11	13	16
40%	30%	20%	15%	10%	5%	2%	1%
20	26	44	61	89	147	237	311

Magnitude and probability of annual high flow
based on 63 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	338	566	721	914	1,050	1,190
3	286	466	577	706	792	870
7	228	361	439	524	579	627
15	177	281	341	407	448	484
30	138	221	272	331	369	404
60	107	166	202	240	265	287
90	90	138	165	195	215	232

Magnitude and probability of seasonal low flow from
July-October based on 63 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	6.1	4.0	3.3	2.7	2.3	2.0
3	6.4	4.2	3.4	2.9	2.4	2.1
7	6.8	4.6	3.7	3.1	2.6	2.3
14	7.3	5.0	4.1	3.5	2.9	2.6
30	8.2	5.7	4.7	4.1	3.5	3.1

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	32	5.5	14	5.6	63
November	29	5.7	15	4.5	63
December	47	3.7	12	6.4	63
January	54	3.8	12	8.4	63
February	85	4.2	16	15	63
March	114	7.6	34	25	63
April	196	10	67	44	63
May	356	16	112	67	64
June	429	12	90	70	64
July	96	6.2	28	18	64
August	40	3.9	14	7.1	64
September	28	3.7	10	4.9	64
Annual	77	12	36	14	63

**12338500 Blackfoot River near Ovando, Mont.
Site Number 240**

LOCATION.--Lat 47°01'10", long 113°13'40" (NAD 27), in SE¼NW¼ sec.34, T.15 N., R.13 W., Powell County, on left bank 0.25 mi upstream from Monture Creek and 5 mi west of Ovando.

DRAINAGE AREA.--1,274 mi².

PERIOD OF RECORD.--23 years (1940-63).

REVISED RECORDS.--WSP 1216: Drainage area. WSP 1246: 1941.

GAGE.--Water-stage recorder. Altitude of gage is 3,917.27 ft (NGVD 29, U.S. Army Corps of Engineers bench mark).

REMARKS.--Diversions for irrigation of about 15,000 acres upstream from station.

Magnitude and probability of annual low flow
based on 22 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	180	143	126	113	--	--
3	187	153	138	126	--	--
7	204	170	154	142	--	--
14	221	190	175	164	--	--
30	246	215	202	193	--	--
60	267	232	217	207	--	--
90	283	248	234	224	--	--
120	302	263	249	239	--	--
183	333	287	269	256	--	--

Magnitude and probability of seasonal low flow from
March-June based on 23 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	232	191	171	156	--	--
3	240	198	177	162	--	--
7	250	210	191	176	--	--
14	263	226	209	196	--	--
30	307	256	238	227	--	--

Magnitude and probability of seasonal low flow from
November-February based on 23 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	189	148	129	114	--	--
3	195	157	140	128	--	--
7	210	173	156	143	--	--
14	225	190	175	164	--	--
30	247	215	202	193	--	--

Duration of daily mean flows based on 23 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
178	194	211	238	285	321	357	408
40%	30%	20%	15%	10%	5%	2%	1%
487	643	1,060	1,460	2,260	3,530	4,970	5,790

Magnitude and probability of annual high flow
based on 23 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	5,230	7,290	8,330	9,350	--	--
3	5,090	7,040	7,980	8,870	--	--
7	4,760	6,490	7,290	8,010	--	--
15	4,310	5,880	6,590	7,200	--	--
30	3,810	4,980	5,420	5,740	--	--
60	3,000	3,830	4,120	4,320	--	--
90	2,360	3,020	3,270	3,450	--	--

Magnitude and probability of seasonal low flow from
July-October based on 22 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	351	298	275	258	--	--
3	353	300	276	259	--	--
7	357	302	279	261	--	--
14	361	306	283	265	--	--
30	367	312	288	271	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	785	259	395	116	23
November	760	255	377	109	23
December	573	225	324	86	23
January	364	194	274	54	23
February	514	216	287	70	23
March	671	227	341	103	23
April	1,710	222	721	397	23
May	4,370	426	2,460	1,050	23
June	6,600	738	3,000	1,330	23
July	2,170	371	1,140	527	23
August	837	254	526	148	23
September	585	262	397	82	24
Annual	1,230	315	855	239	23

**12339450 Clearwater River near Clearwater, Mont.
Site Number 241**

LOCATION.--Lat 47°01'09", long 113°23'12" (NAD 27), in NW¼NW¼NW¼ sec.33, T.15 N., R.14 W., Missoula County, Hydrologic Unit 17010203, Clearwater State Forest, on left bank 700 ft upstream from Blanchard Lake, 1.3 mi northwest of Clearwater, and at river mile 5.2.

DRAINAGE AREA.--345 mi².

PERIOD OF RECORD.--October 1974 to September 1992 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 3,814.23 ft (NGVD 29).

REMARKS.--A few minor diversions for irrigation upstream from station. During summer months Elbow Lake, 1.5 mi upstream, may be regulated for recreational purposes.

Magnitude and probability of annual low flow
based on 17 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	42	30	25	20	--	--
3	43	30	25	20	--	--
7	44	31	25	21	--	--
14	46	32	26	21	--	--
30	49	35	28	22	--	--
60	56	39	31	25	--	--
90	62	44	36	31	--	--
120	68	52	45	41	--	--
183	76	58	51	47	--	--

Magnitude and probability of seasonal low flow from
March-June based on 18 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	83	60	51	45	--	--
3	84	60	52	45	--	--
7	87	62	52	46	--	--
14	95	67	56	49	--	--
30	122	79	65	56	--	--

Magnitude and probability of seasonal low flow from
November-February based on 17 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	59	44	38	33	--	--
3	60	45	38	34	--	--
7	62	46	39	34	--	--
14	64	49	43	40	--	--
30	67	53	49	45	--	--

Duration of daily mean flows based on 18 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
25	29	39	49	61	73	85	102
40%	30%	20%	15%	10%	5%	2%	1%
141	211	461	644	858	1,150	1,480	1,880

Magnitude and probability of annual high flow
based on 18 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	1,530	2,020	2,360	2,810	--	--
3	1,490	1,970	2,300	2,730	--	--
7	1,390	1,840	2,150	2,540	--	--
15	1,210	1,610	1,890	2,240	--	--
30	1,080	1,440	1,690	2,000	--	--
60	942	1,240	1,420	1,640	--	--
90	800	1,040	1,180	1,330	--	--

Magnitude and probability of seasonal high flow from
July-October based on 17 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	42	31	25	20	--	--
3	43	31	25	21	--	--
7	44	31	25	21	--	--
14	46	33	26	21	--	--
30	51	35	28	22	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	164	25	80	35	18
November	197	44	101	50	18
December	288	54	105	63	18
January	192	44	92	40	18
February	149	49	86	30	18
March	602	55	160	124	18
April	1,230	165	648	303	18
May	1,610	552	1,010	372	18
June	1,390	219	701	311	18
July	499	75	233	129	18
August	154	27	76	36	18
September	180	18	65	38	18
Annual	424	162	281	81	18

**12340000 Blackfoot River near Bonner, Mont.
Site Number 242**

LOCATION.--Lat 46°53'59", long 113°45'20" (NAD 27), in SE¼SE¼NW¼ sec.9, T.13 N., R.17 W., Missoula County, Hydrologic Unit 17010203, Lolo National Forest, on right bank 5.0 mi downstream from Union Creek, 5.6 mi northeast of Bonner, and at river mile 7.9.

DRAINAGE AREA.--2,290 mi².

PERIOD OF RECORD.--July to November 1898, March 1899 to September 1901, May 1903 to January 1905, March to October 1905, October 1939 to current year (2002). Monthly discharge only for some periods, published in WSP 1316. Published as "at Bonner" 1898-99 and as "Big Blackfoot near Bonner" 1903-05.

REVISED RECORDS.--WSP 1216: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 3,344.76 ft (NGVD 29). July 7, 1898, to June 30, 1901, and May 15, 1903, to Oct. 31, 1905, nonrecording gage at site 7 mi downstream at different datum. Oct. 4, 1939, to Sept. 30, 1955, nonrecording gage at site 1.3 mi downstream at datum 21.82 ft lower.

REMARKS.--Flow slightly regulated by Nevada Creek Reservoir (station number 12336500). Diversions for irrigation of about 20,000 acres upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 63 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	322	258	228	205	181	166
3	346	278	246	221	195	178
7	384	316	283	257	230	213
14	422	354	322	296	268	251
30	465	402	373	351	328	314
60	505	430	396	369	341	323
90	524	445	413	390	367	354
120	546	463	430	406	384	371
183	589	492	450	419	389	370

Magnitude and probability of seasonal low flow from
March-June based on 67 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	487	391	355	331	308	296
3	503	412	379	357	337	326
7	530	439	407	386	367	357
14	561	465	434	415	400	393
30	671	529	481	452	426	413

Magnitude and probability of seasonal low flow from
November-February based on 65 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	328	260	230	207	182	168
3	351	280	248	222	197	180
7	391	317	286	260	232	215
14	431	356	325	298	270	252
30	475	404	374	353	332	320

Duration of daily mean flows based on 66 years of record

Discharge, in ft ³ /s, which was equalled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
298	339	396	437	519	594	669	744
40%	30%	20%	15%	10%	5%	2%	1%
932	1,240	2,140	3,020	4,160	6,030	8,420	10,200

Magnitude and probability of annual high flow
based on 66 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	8,580	12,000	13,800	15,800	17,000	18,100
3	8,340	11,500	13,200	14,900	15,900	16,700
7	7,780	10,700	12,100	13,600	14,500	15,200
15	6,960	9,550	10,900	12,200	13,000	13,600
30	6,150	8,410	9,550	10,700	11,300	11,900
60	5,040	6,730	7,560	8,350	8,790	9,150
90	4,150	5,520	6,170	6,790	7,140	7,420

Magnitude and probability of seasonal low flow from
July-October based on 66 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	566	459	408	368	326	300
3	571	465	414	374	332	306
7	579	472	420	379	337	311
14	589	478	425	384	341	314
30	604	489	436	394	351	324

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	1,550	370	654	192	68
November	1,480	369	650	183	67
December	1,560	332	611	228	67
January	1,070	348	556	146	67
February	1,670	359	601	229	66
March	2,350	435	778	335	67
April	4,730	463	2,030	1,040	67
May	9,800	1,100	4,880	1,930	68
June	10,500	1,160	4,820	2,240	68
July	4,110	533	1,780	787	68
August	1,460	365	821	236	68
September	1,100	363	662	163	68
Annual	2,480	558	1,580	460	66

**12340500 Clark Fork above Missoula, Mont.
Site Number 243**

LOCATION.--Lat 46°52'38", long 113°55'53" (NAD 27), in NW¼NW¼NW¼ sec.19, T.13 N., R.18 W., Missoula County, Hydrologic Unit 17010204, on right bank 0.2 mi downstream from county road bridge, 2.8 mi east of Missoula, 2.8 mi downstream from Milltown Dam, 3.0 mi downstream from Blackfoot River, and at river mile 361.6.

DRAINAGE AREA.--5,999 mi².

PERIOD OF RECORD.--March 1929 to current year (2002). Monthly discharge only for some periods, published in WSP 1316.

REVISED RECORDS.--WSP 1042: 1936. WSP 1152: 1942. WSP 1246: 1929-30, 1935, drainage area. WSP 1316: 1932-33.

GAGE.--Water-stage recorder. Altitude of gage is 3,198.30 ft (NGVD 29, levels by U.S. Army Corps of Engineers). Prior to May 27, 1929, nonrecording gage.

REMARKS.--Diurnal fluctuation caused by powerplant at Milltown. Diversions for irrigation of about 120,000 acres upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 73 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	641	503	443	398	353	326
3	699	555	491	443	395	366
7	818	651	574	515	454	417
14	940	747	656	585	512	467
30	1,070	853	747	664	576	521
60	1,170	944	835	750	660	605
90	1,240	1,010	912	836	758	710
120	1,310	1,080	974	895	815	766
183	1,370	1,120	1,000	915	826	772

Magnitude and probability of seasonal low flow from
March-June based on 74 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1,200	959	853	775	697	650
3	1,260	1,020	916	840	763	716
7	1,320	1,100	1,010	949	888	852
14	1,430	1,210	1,130	1,070	1,020	995
30	1,690	1,370	1,250	1,170	1,100	1,060

Magnitude and probability of seasonal low flow from
November-February based on 73 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	657	511	451	409	367	343
3	714	557	493	448	404	377
7	843	663	588	534	480	448
14	984	783	695	631	566	526
30	1,130	922	828	757	684	640

Duration of daily mean flows based on 73 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
598	691	828	978	1,190	1,350	1,500	1,760
40%	30%	20%	15%	10%	5%	2%	1%
2,020	2,510	3,900	5,200	7,090	10,300	14,400	16,700

Magnitude and probability of annual high flow
based on 73 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	13,700	19,900	23,600	27,700	30,400	32,900
3	13,300	19,200	22,600	26,500	29,000	31,300
7	12,400	17,800	20,900	24,300	26,500	28,500
15	11,200	16,000	18,800	21,900	23,900	25,700
30	9,900	14,100	16,400	19,100	20,800	22,300
60	8,180	11,300	13,000	14,900	16,000	17,100
90	6,790	9,320	10,700	12,200	13,100	14,000

Magnitude and probability of seasonal low flow from
July-October based on 73 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1,040	739	606	509	412	356
3	1,080	800	673	579	485	429
7	1,120	838	710	616	521	465
14	1,160	869	741	646	550	493
30	1,220	919	783	682	580	519

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	2,990	854	1,560	422	73
November	2,850	882	1,560	366	73
December	3,320	874	1,420	437	73
January	2,550	606	1,330	386	73
February	3,430	674	1,480	519	73
March	4,120	1,040	1,860	606	74
April	10,100	1,190	3,710	1,800	74
May	17,200	2,000	7,900	3,170	74
June	19,300	2,120	8,290	4,060	74
July	8,760	868	3,180	1,570	74
August	3,450	627	1,490	536	74
September	2,870	653	1,400	446	74
Annual	5,070	1,340	2,940	888	73

**12342500 West Fork Bitterroot River near Conner, Mont.
Site Number 244**

LOCATION.--Lat 45°43'30", long 114°16'50" (NAD 27), in SE¼NE¼NW¼ sec.26, T.1 S., R.22 W., Ravalli County, Hydrologic Unit 17010205, on right bank 0.6 mi downstream from Painted Rocks Lake, 6.4 mi upstream from Nez Perce Creek, 16.1 mi southwest of Conner, and at river mile 19.2.

DRAINAGE AREA.--317 mi².

PERIOD OF RECORD.--April 1941 to current year (2002).

REVISED RECORDS.--WSP 1246: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 4,581.36 ft (NGVD 29, U.S. Forest Service bench mark).

REMARKS.--Flow regulated by Painted Rocks Lake (station number 12342000). Diversions for irrigation of about 200 acres upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 60 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	39	12	5.0	2.2	0.76	0.35
3	43	14	6.1	2.8	.97	.44
7	50	17	7.4	3.2	1.1	.47
14	61	29	16	8.2	3.3	1.7
30	61	35	24	16	10	6.9
60	72	47	34	25	16	12
90	73	56	49	44	39	36
120	83	64	56	50	45	41
183	113	94	85	78	72	68

Magnitude and probability of seasonal low flow from
March-June based on 61 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	66	22	9.5	4.0	1.2	0.51
3	68	24	10	4.3	1.3	.54
7	74	27	12	5.0	1.5	.62
14	85	44	23	11	4.2	1.9
30	91	47	32	22	14	9.7

Magnitude and probability of seasonal low flow from
November-February based on 61 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	60	29	17	10	5.0	2.9
3	63	32	19	11	5.4	3.1
7	67	35	21	12	5.8	3.3
14	69	40	28	20	12	8.8
30	72	47	34	24	16	11

Duration of daily mean flows based on 61 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
11	23	48	55	69	86	103	120
40%	30%	20%	15%	10%	5%	2%	1%
154	226	336	438	661	1,130	1,800	2,110

Magnitude and probability of annual high flow
based on 61 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	1,830	2,640	3,070	3,510	3,770	3,990
3	1,750	2,510	2,920	3,320	3,560	3,760
7	1,590	2,310	2,690	3,070	3,310	3,500
15	1,400	2,030	2,370	2,720	2,930	3,110
30	1,200	1,730	2,020	2,320	2,500	2,650
60	864	1,270	1,500	1,760	1,930	2,090
90	675	965	1,130	1,320	1,450	1,560

Magnitude and probability of seasonal low flow from
July-October based on 61 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	87	42	21	9.6	3.3	1.4
3	87	62	53	45	35	31
7	89	65	54	46	38	33
14	90	67	55	47	40	34
30	95	73	64	57	51	47

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	484	52	157	101	61
November	416	53	113	67	61
December	270	28	91	49	61
January	243	21	84	37	61
February	215	6.8	80	33	61
March	278	7.8	94	49	61
April	719	8.6	203	158	61
May	2,010	118	807	452	62
June	1,960	118	917	468	62
July	633	127	267	104	62
August	439	84	200	87	62
September	384	62	178	75	62
Annual	457	120	268	83	61

**12343400 East Fork Bitterroot River near Conner, Mont.
Site Number 245**

LOCATION.--Lat 45°53'00", long 114°03'53" (NAD 27), in NE¼SW¼NE¼ sec.34, T.2 N., R.20 W., Ravalli County, Hydrologic Unit 17010205, on right bank 10 ft downstream from private bridge, 4.3 mi southwest of Conner, and at river mile 6.1.

DRAINAGE AREA.--381 mi².

PERIOD OF RECORD.--April 1956 to September 1972, October 2000 to current year (2002).

GAGE.--Water-stage recorder. Altitude of gage is 4,191.81 ft (NGVD 29).

REMARKS.--Diversions for irrigation of about 2,200 acres upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 16 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	40	32	29	26	--	--
3	47	37	32	28	--	--
7	60	48	40	34	--	--
14	69	55	47	39	--	--
30	77	64	55	47	--	--
60	84	70	62	55	--	--
90	86	74	67	62	--	--
120	91	78	72	67	--	--
183	98	85	78	73	--	--

Magnitude and probability of seasonal low flow from
March-June based on 18 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	65	52	48	44	--	--
3	71	59	55	52	--	--
7	80	66	61	57	--	--
14	84	69	64	60	--	--
30	95	79	74	70	--	--

Magnitude and probability of seasonal low flow from
November-February based on 18 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	41	33	29	26	--	--
3	48	38	33	29	--	--
7	60	48	41	35	--	--
14	69	56	47	39	--	--
30	78	65	56	48	--	--

Duration of daily mean flows based on 18 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
43	50	65	71	82	94	108	122
40%	30%	20%	15%	10%	5%	2%	1%
149	194	357	525	840	1,330	1,870	2,110

Magnitude and probability of annual high flow
based on 18 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	1,950	2,580	2,940	3,320	--	--
3	1,860	2,450	2,770	3,130	--	--
7	1,740	2,250	2,520	2,780	--	--
15	1,590	2,040	2,250	2,460	--	--
30	1,360	1,730	1,910	2,080	--	--
60	1,040	1,310	1,450	1,580	--	--
90	808	1,010	1,110	1,210	--	--

Magnitude and probability of seasonal low flow from
July-October based on 17 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	82	69	64	60	--	--
3	84	72	67	63	--	--
7	88	75	69	65	--	--
14	92	78	72	68	--	--
30	97	82	76	72	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	206	83	117	32	18
November	137	78	104	18	18
December	168	39	90	27	18
January	116	57	84	16	18
February	170	52	90	27	18
March	215	74	108	38	18
April	476	109	244	109	19
May	1,480	520	945	279	19
June	1,960	355	1,110	442	19
July	520	126	304	109	19
August	203	73	129	32	19
September	187	81	113	27	19
Annual	400	170	284	65	18

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12343500 East Fork Bitterroot River at Conner, Mont. Site Number 246

LOCATION.--Lat 45°56'00", long 114°07'30" (NAD 27), in SE¼SE¼ sec.7, T.2 N., R.20 W., Ravalli County, on right bank 200 ft downstream from highway bridge at Conner, and 0.5 mi upstream from confluence with West Fork.

DRAINAGE AREA.--405 mi².

PERIOD OF RECORD.--20 years (1937-57).

GAGE.--Wire-weight gage. Altitude of gage is 4,014.29 ft (NGVD 29). Sept. 20, 1910, to Sept. 17, 1916, staff gage at site 2.5 mi upstream at different datum.

Apr. 4, 1937, to Sept. 30, 1953, wire-weight gages at several sites in immediate vicinity, all at datum 1.00 ft higher.

REMARKS.--Diversions for irrigation of about 3,000 acres upstream from station.

Magnitude and probability of annual low flow
based on 19 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	30	19	13	9.6	--	--
3	34	22	16	12	--	--
7	41	26	19	14	--	--
14	46	29	22	16	--	--
30	55	37	29	22	--	--
60	66	47	37	29	--	--
90	70	53	45	38	--	--
120	71	58	52	49	--	--
183	74	61	56	53	--	--

Magnitude and probability of seasonal low flow from
March-June based on 21 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	58	45	39	34	--	--
3	64	49	42	37	--	--
7	69	54	47	41	--	--
14	74	60	53	48	--	--
30	84	70	65	62	--	--

Magnitude and probability of seasonal low flow from
November-February based on 20 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	32	22	18	15	--	--
3	38	27	22	18	--	--
7	46	35	31	27	--	--
14	52	43	39	37	--	--
30	60	50	46	43	--	--

Duration of daily mean flows based on 19 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
22	28	39	50	66	77	87	104
40%	30%	20%	15%	10%	5%	2%	1%
127	199	377	547	783	1,210	1,770	2,090

Magnitude and probability of annual high flow
based on 19 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	1,770	2,600	3,130	3,770	--	--
3	1,690	2,510	3,040	3,700	--	--
7	1,580	2,360	2,880	3,520	--	--
15	1,390	2,030	2,450	2,970	--	--
30	1,230	1,720	2,000	2,320	--	--
60	969	1,290	1,450	1,610	--	--
90	760	1,010	1,130	1,250	--	--

Magnitude and probability of seasonal low flow from
July-October based on 19 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	43	24	16	11	--	--
3	44	26	19	13	--	--
7	45	27	20	15	--	--
14	49	30	22	16	--	--
30	56	38	29	23	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	234	45	90	39	20
November	214	45	91	34	22
December	220	51	88	39	21
January	134	45	74	19	20
February	132	39	82	22	20
March	184	60	92	28	21
April	682	73	248	137	25
May	1,950	344	896	429	25
June	1,800	240	966	411	25
July	597	41	305	151	25
August	231	16	100	53	26
September	153	22	70	29	21
Annual	408	116	260	83	19

**12344000 Bitterroot River near Darby, Mont.
Site Number 247**

LOCATION.--Lat 45°58'20", long 114°08'26" (NAD 27), in SW¼SE¼NE¼ sec.36, T.3 N., R.21 W., Ravalli County, Hydrologic Unit 17010205, on left bank 50 ft upstream from bridge on U.S. Highway 93, 0.3 mi downstream from Chaffin Creek, 4.1 mi southeast of Darby, and at river mile 77.2.

DRAINAGE AREA.--1,049 mi².

PERIOD OF RECORD.--April 1937 to current year (2002). Monthly discharge only for April 1937, published in WSP 1316.

REVISED RECORDS.--WSP 1246: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 3,942.14 ft (NGVD 29). Prior to Oct. 1, 1987, at datum 1.00 ft higher. Prior to Aug. 2, 1939, nonrecording gage at highway bridge 45 ft upstream at same datum.

REMARKS.--Some regulation by Painted Rocks Lake (station number 12342000). Diversions for irrigation of about 5,000 acres upstream from station. Ditch bypassing station irrigates about 500 acres downstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 61 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	147	117	103	92	80	73
3	156	125	110	99	87	80
7	175	142	126	114	100	92
14	190	157	141	128	113	104
30	204	172	156	143	129	120
60	227	187	169	155	141	132
90	241	196	178	164	151	143
120	258	210	191	178	165	158
183	293	246	228	215	203	196

Magnitude and probability of seasonal low flow from
March-June based on 62 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	226	175	153	136	120	110
3	237	185	162	145	127	117
7	248	196	173	156	140	130
14	263	209	187	172	157	148
30	315	238	209	189	170	159

Magnitude and probability of seasonal low flow from
November-February based on 61 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	151	118	104	92	81	74
3	160	126	110	100	88	80
7	181	143	127	115	101	92
14	197	158	142	129	114	105
30	213	173	157	144	130	121

Duration of daily mean flows based on 62 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
132	142	170	200	238	277	326	376
40%	30%	20%	15%	10%	5%	2%	1%
477	656	1,180	1,720	2,450	3,790	5,470	6,410

Magnitude and probability of annual high flow
based on 62 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	5,560	7,850	9,230	10,800	11,900	12,900
3	5,280	7,460	8,780	10,300	11,400	12,400
7	4,870	6,900	8,130	9,540	10,500	11,400
15	4,370	6,120	7,170	8,370	9,190	9,950
30	3,820	5,260	6,100	7,060	7,700	8,290
60	3,030	4,100	4,710	5,380	5,820	6,210
90	2,440	3,250	3,710	4,210	4,530	4,820

Magnitude and probability of seasonal low flow from
July-October based on 61 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	223	182	164	150	136	127
3	227	187	169	156	142	134
7	235	195	178	166	153	145
14	246	206	188	175	162	154
30	269	224	204	189	174	165

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	1,020	190	366	148	62
November	788	144	322	117	62
December	765	138	285	133	62
January	421	125	254	71	62
February	791	125	274	111	62
March	1,010	139	354	145	62
April	2,530	336	967	483	62
May	6,000	1,110	2,890	1,160	62
June	6,240	678	3,160	1,370	62
July	2,610	374	1,010	459	62
August	751	229	422	113	62
September	634	202	360	100	62
Annual	1,420	454	890	260	62

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12346500 Skalkaho Creek near Hamilton, Mont. Site Number 248

LOCATION (REVISED).--Lat 46°09'40", long 113°56'52" (NAD 27), in SE¼SE¼NE¼, sec.27, T.5 N., R.19 W., Ravalli County, Hydrologic Unit 17010205, Bitterroot National Forest, on right bank 2 mi downstream from Daly Creek, 11.4 mi southeast of Hamilton, and at river mile 13.3.

DRAINAGE AREA.--87.8 mi².

GAGE.--Water-stage recorder. Altitude of gage is 4,393.16 ft (NGVD 29).

PERIOD OF RECORD.--December 1948 to September 1953, August 1957 to September 1979, October 2000 to current year (2002). April 1920 to September 1924 at site 3 mi downstream; records not equivalent owing to inflow, and minor diversions.

REMARKS.--During irrigation season, flow is supplemented by releases from Kent and Dam Creek Lakes (combined capacity, 200 acre-ft). U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 26 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	17	15	14	14	13	--
3	18	16	15	14	14	--
7	19	17	17	16	15	--
14	21	19	18	17	16	--
30	22	20	19	18	17	--
60	25	22	21	21	20	--
90	26	24	23	22	21	--
120	28	25	24	24	23	--
183	33	30	28	27	27	--

Magnitude and probability of seasonal low flow from
March-June based on 29 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	21	18	17	16	15	--
3	22	19	17	16	15	--
7	22	19	18	17	16	--
14	23	20	19	18	17	--
30	25	21	20	19	18	--

Magnitude and probability of seasonal low flow from
November-February based on 28 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	18	15	14	14	13	--
3	18	16	15	15	15	--
7	20	18	17	17	16	--
14	21	19	18	18	17	--
30	23	20	20	19	19	--

Duration of daily mean flows based on 28 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
17	17	20	23	27	31	35	41
40%	30%	20%	15%	10%	5%	2%	1%
51	68	115	166	265	418	518	631

Magnitude and probability of annual high flow
based on 28 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	568	725	794	855	887	--
3	544	695	760	815	844	--
7	516	660	721	772	798	--
15	479	602	649	686	703	--
30	433	533	568	592	603	--
60	334	413	444	468	479	--
90	260	322	348	370	381	--

Magnitude and probability of seasonal low flow from
July-October based on 26 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	35	30	28	27	25	--
3	36	31	29	27	25	--
7	37	31	29	27	25	--
14	38	32	29	27	25	--
30	40	34	31	29	27	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	67	28	41	8.7	28
November	60	24	35	7.0	28
December	53	21	29	6.2	29
January	49	18	27	6.0	29
February	43	17	25	4.8	29
March	39	18	26	4.9	29
April	94	25	51	22	29
May	449	89	230	100	29
June	644	109	375	124	29
July	329	56	149	63	29
August	109	39	67	17	29
September	74	35	47	9.9	30
Annual	138	48	92	21	28

**12347500 Blodgett Creek near Corvallis, Mont.
Site Number 249**

LOCATION.--Lat 46°16'10", long 114°14'12" (NAD 27), in NW¼NW¼ sec.21, T.6 N., R.21 W., Ravalli County, on right bank 4.5 mi upstream from mouth and 6.6 mi (revised) southwest of Corvallis.

DRAINAGE AREA.--25.9 mi².

PERIOD OF RECORD.--22 years (1947-69).

REVISED RECORDS.--WSP 1216: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 4,050 ft (NGVD 29, from topographic map).

REMARKS.--Some regulation for irrigation at low flow by Blodgett Lake (capacity, 160 acre-ft).

Magnitude and probability of annual low flow
based on 22 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4.4	2.7	2.1	1.7	--	--
3	4.6	2.9	2.2	1.7	--	--
7	5.2	3.2	2.4	1.8	--	--
14	5.8	3.6	2.7	2.1	--	--
30	6.8	4.2	3.2	2.5	--	--
60	9.3	5.5	4.1	3.1	--	--
90	12	6.8	4.9	3.6	--	--
120	14	7.8	5.5	4.1	--	--
183	17	10	7.5	5.9	--	--

Magnitude and probability of seasonal low flow from
March-June based on 23 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	10	7.5	6.4	5.6	--	--
3	11	8.0	6.9	6.2	--	--
7	11	8.3	7.2	6.5	--	--
14	12	8.9	7.7	6.9	--	--
30	16	11	9.3	7.9	--	--

Magnitude and probability of seasonal low flow from
November-February based on 22 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	7.0	4.1	2.9	2.1	--	--
3	7.5	4.6	3.3	2.4	--	--
7	8.3	5.0	3.6	2.6	--	--
14	8.8	5.3	3.8	2.8	--	--
30	9.8	5.9	4.3	3.3	--	--

Duration of daily mean flows based on 22 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
2.5	3.3	5.0	6.9	10	14	18	23
40%	30%	20%	15%	10%	5%	2%	1%
32	53	113	165	234	332	437	501

Magnitude and probability of annual high flow
based on 22 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	529	620	671	728	--	--
3	478	570	625	689	--	--
7	429	513	564	626	--	--
15	385	456	497	542	--	--
30	337	391	421	454	--	--
60	274	305	320	334	--	--
90	219	243	255	267	--	--

Magnitude and probability of seasonal low flow from
July-October based on 22 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4.7	2.8	2.2	1.7	--	--
3	5.0	2.9	2.2	1.8	--	--
7	5.6	3.2	2.4	1.9	--	--
14	6.8	3.7	2.7	2.1	--	--
30	8.9	4.7	3.4	2.6	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	110	2.2	27	27	22
November	62	2.4	26	19	22
December	51	2.5	22	15	23
January	34	5.8	15	8.0	23
February	51	5.0	15	9.7	23
March	42	6.3	18	7.7	23
April	132	20	75	34	23
May	366	157	254	68	23
June	367	164	269	62	23
July	177	37	91	42	23
August	39	6.6	21	8.5	23
September	54	4.8	17	14	23
Annual	90	50	70	9.9	22

**12350000 Bear Creek near Victor, Mont.
Site Number 250**

LOCATION.--Lat 46°23', long 114°13' (NAD 27), in NW¼ sec.9, T.7 N., R.21 W., Ravalli County, on left bank 4 mi upstream from mouth and 5 mi southwest of Victor.

DRAINAGE AREA.--26.8 mi².

PERIOD OF RECORD.--18 years (1938-54, 1957-59).

GAGE.--Water-stage recorder and timber control. Altitude of gage is 3,770 ft (NGVD 29, from topographic map). Apr. 15, 1938, to Aug. 26, 1941, staff gage and Aug. 27, 1941, to Sept. 30, 1952, water-stage recorder, at same site and datum at 1.00 ft higher.

REMARKS.--No diversion upstream from station. Natural flow is supplemented by stored water from Bear Lake (capacity, 375 acre-ft) during irrigation season.

Magnitude and probability of annual low flow
based on 16 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2.7	1.5	1.1	0.83	--	--
3	2.8	1.6	1.2	.91	--	--
7	3.1	1.9	1.4	1.2	--	--
14	3.5	2.2	1.8	1.5	--	--
30	4.4	2.8	2.2	1.8	--	--
60	6.3	3.8	3.0	2.4	--	--
90	8.4	4.9	3.8	3.1	--	--
120	11	6.0	4.6	3.6	--	--
183	13	7.8	5.9	4.8	--	--

Magnitude and probability of seasonal low flow from
March-June based on 18 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	10	6.2	4.4	3.1	--	--
3	10	6.6	4.7	3.3	--	--
7	11	7.1	5.2	3.7	--	--
14	11	7.9	6.3	5.1	--	--
30	14	9.5	7.6	6.2	--	--

Magnitude and probability of seasonal low flow from
November-February based on 18 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	6.0	3.1	1.9	1.3	--	--
3	6.4	3.3	2.2	1.4	--	--
7	6.9	3.9	2.7	1.9	--	--
14	7.7	4.6	3.4	2.6	--	--
30	8.7	5.5	4.2	3.3	--	--

Duration of daily mean flows based on 18 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
2.1	2.6	3.6	4.9	7.6	11	14	18
40%	30%	20%	15%	10%	5%	2%	1%
26	48	102	152	218	323	443	517

Magnitude and probability of annual high flow
based on 18 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	544	675	758	860	--	--
3	483	612	696	804	--	--
7	429	551	628	722	--	--
15	364	464	524	597	--	--
30	316	396	445	503	--	--
60	263	314	341	369	--	--
90	211	249	266	283	--	--

Magnitude and probability of seasonal low flow from
July-October based on 18 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2.9	1.8	1.4	1.1	--	--
3	3.1	1.9	1.4	1.2	--	--
7	3.3	2.1	1.6	1.3	--	--
14	3.7	2.3	1.9	1.5	--	--
30	4.7	2.9	2.3	1.9	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	70	2.5	22	22	19
November	61	3.6	22	16	19
December	44	3.5	19	14	19
January	31	4.1	13	6.6	18
February	26	3.7	12	5.3	18
March	31	5.5	16	6.8	18
April	142	27	81	35	18
May	385	146	252	75	19
June	407	116	243	87	19
July	192	15	84	55	19
August	34	2.8	13	7.5	19
September	44	3.2	11	11	20
Annual	87	40	66	15	18

**12351000 Burnt Fork Bitterroot River near Stevensville, Mont.
Site Number 251**

LOCATION.--Lat 46°27'50", long 113°56'40" (NAD 27), in NW¼SW¼ sec.11, T.8 N., R.19 W., Ravalli County, on right bank 150 ft upstream from county road bridge and 8 mi southeast of Stevensville

DRAINAGE AREA.--74.0 mi².

PERIOD OF RECORD.--24 years (1938-62).

GAGE.--Crest-stage gage since July 20, 1959. Altitude of gage is 4,270 ft (NGVD 29, from topographic map). May 8, 1920, to Aug. 23, 1924, staff gage at site 150 ft downstream at different datum. April 1938, to Mar. 18, 1953, staff gage and Mar. 19, 1953, to Mar. 15, 1955, wire-weight gage, at site 150 ft downstream at datum 2.00 ft lower.

REMARKS.--Figures of daily discharge do not include diversion by Sunset Highline ditch which diverts 0.5 mi upstream from station for irrigation of about 2,000 acres downstream from station. During irrigation season, natural flow of stream is augmented by release from Burnt Fork Lake (capacity, 510 acre-ft).

Magnitude and probability of annual low flow
based on 23 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	9.7	6.5	4.9	3.7	--	--
3	10	7.0	5.4	4.2	--	--
7	11	8.4	7.2	6.2	--	--
14	12	10	9.2	8.5	--	--
30	14	12	11	10	--	--
60	15	14	13	12	--	--
90	17	15	14	13	--	--
120	18	15	15	14	--	--
183	19	17	16	15	--	--

Magnitude and probability of seasonal low flow from
March-June based on 24 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	14	9.1	6.5	4.5	--	--
3	14	9.6	7.0	5.0	--	--
7	14	11	8.5	6.9	--	--
14	14	12	10	9.0	--	--
30	16	13	12	11	--	--

Magnitude and probability of seasonal low flow from
November-February based on 24 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	10	7.8	6.6	5.7	--	--
3	11	8.3	7.1	6.3	--	--
7	12	9.5	8.4	7.5	--	--
14	13	11	10	9.3	--	--
30	14	13	12	11	--	--

Duration of daily mean flows based on 24 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
9.0	11	12	14	17	19	21	24
40%	30%	20%	15%	10%	5%	2%	1%
30	40	69	92	140	215	291	354

Magnitude and probability of annual high flow
based on 24 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	288	392	448	507	--	--
3	272	373	428	485	--	--
7	255	348	398	451	--	--
15	231	316	361	409	--	--
30	202	273	312	351	--	--
60	158	212	242	273	--	--
90	125	167	191	217	--	--

Magnitude and probability of seasonal low flow from
July-October based on 24 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	16	13	12	12	--	--
3	16	14	13	12	--	--
7	17	15	14	13	--	--
14	17	15	14	13	--	--
30	19	16	15	15	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	44	14	22	6.9	26
November	42	14	22	6.4	26
December	30	13	20	4.3	24
January	26	13	17	3.7	24
February	27	12	16	3.6	24
March	26	10	17	4.0	24
April	108	15	42	22	25
May	296	43	139	64	29
June	429	53	180	79	29
July	146	26	66	31	28
August	43	19	30	7.0	27
September	37	12	22	4.4	27
Annual	79	25	48	14	24

**12352500 Bitterroot River near Missoula, Mont.
Site Number 252**

LOCATION.--Lat 46°49'55", long 114°03'11" (NAD 27), in SW¼NW¼NE¼ sec.1, T.12 N., R.20 W., Missoula County, Hydrologic Unit 17010205, on right bank 40 ft downstream from bridge on U.S. Highway 93, 0.5 mi south of Fort Missoula, and at river mile 5.7.

DRAINAGE AREA.--2,814 mi².

PERIOD OF RECORD.--July 1898 to November 1901, May 1903 to December 1904, July 1989 to current year (2002).

GAGE.--Water-stage recorder. Altitude of gage is 3,110 ft (NGVD 29). Prior to Jan. 1, 1905, nonrecording gage at site 1.5 mi upstream at different datum.

REMARKS.--Some regulation by Painted Rocks Lake (station number 12342000). Diversions for irrigation of about 111,000 acres upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 13 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	462	363	321	290	--	--
3	487	386	342	310	--	--
7	549	440	392	356	--	--
14	620	497	442	400	--	--
30	664	533	479	439	--	--
60	697	565	511	471	--	--
90	736	602	547	507	--	--
120	798	662	607	568	--	--
183	835	696	649	620	--	--

Magnitude and probability of seasonal low flow from
March-June based on 16 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	813	638	572	526	--	--
3	838	670	608	566	--	--
7	891	714	647	601	--	--
14	967	778	706	658	--	--
30	1,170	903	793	714	--	--

Magnitude and probability of seasonal low flow from
November-February based on 15 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	493	381	333	299	--	--
3	517	404	355	320	--	--
7	586	465	411	370	--	--
14	663	532	470	423	--	--
30	722	579	519	476	--	--

Duration of daily mean flows based on 16 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
403	447	544	605	727	854	982	1,120
40%	30%	20%	15%	10%	5%	2%	1%
1,350	1,790	3,100	4,380	6,030	8,610	12,500	15,500

Magnitude and probability of annual high flow
based on 16 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	12,900	17,900	21,000	24,800	--	--
3	12,000	16,600	19,600	23,200	--	--
7	10,900	15,100	17,700	20,800	--	--
15	9,710	13,300	15,600	18,300	--	--
30	8,580	11,800	13,900	16,600	--	--
60	7,010	9,440	11,000	13,000	--	--
90	5,700	7,650	8,920	10,500	--	--

Magnitude and probability of seasonal low flow from
July-October based on 17 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	654	507	439	389	--	--
3	662	514	446	395	--	--
7	680	526	455	402	--	--
14	700	538	464	408	--	--
30	743	579	503	446	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	1,570	568	1,010	326	18
November	2,210	614	1,090	369	18
December	3,140	530	1,010	605	17
January	1,790	542	893	352	16
February	3,030	477	993	624	16
March	2,020	801	1,270	415	16
April	4,940	1,340	2,730	1,180	16
May	13,400	4,040	6,640	2,740	17
June	14,000	2,400	7,740	3,480	17
July	4,120	980	2,530	1,070	18
August	1,270	503	905	217	18
September	1,140	455	841	218	18
Annual	3,820	1,370	2,300	744	16

**12353000 Clark Fork below Missoula, Mont.
Site Number 253**

LOCATION.--Lat 46°52'09", long 114°07'33" (NAD 27), in NW¼NE¼SE¼ sec.21, T.13 N., R.20 W., Missoula County, Hydrologic Unit 17010204, on right bank 1.0 mi downstream from Bitterroot River, 4.5 mi west of Missoula, and at river mile 349.5.

DRAINAGE AREA.--9,003 mi².

PERIOD OF RECORD.--October 1929 to current year (2002).

REVISED RECORDS.--WSP 1042: 1931. WSP 1246: Drainage area. WSP 1316: 1932(M), 1935(M), 1946(M).

GAGE.--Water-stage recorder. Altitude of gage is 3,083.88 ft (NGVD 29, levels by U.S. Army Corps of Engineers).

REMARKS.--Some diurnal fluctuation at low flow caused by powerplant at Milltown 14.9 mi upstream. Diversions for irrigation of about 235,000 acres upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 72 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1,100	869	763	683	601	551
3	1,180	927	809	720	628	571
7	1,350	1,060	911	800	685	614
14	1,520	1,180	1,020	889	757	675
30	1,710	1,320	1,120	969	812	715
60	1,890	1,470	1,260	1,100	937	836
90	2,030	1,610	1,420	1,280	1,130	1,040
120	2,190	1,750	1,560	1,420	1,270	1,180
183	2,310	1,840	1,640	1,480	1,330	1,230

Magnitude and probability of seasonal low flow from
March-June based on 73 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2,060	1,630	1,450	1,320	1,200	1,120
3	2,120	1,710	1,540	1,420	1,300	1,230
7	2,220	1,820	1,660	1,560	1,460	1,410
14	2,370	1,970	1,830	1,740	1,650	1,610
30	2,780	2,230	2,020	1,890	1,760	1,690

Magnitude and probability of seasonal low flow from
November-February based on 72 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1,110	871	779	716	656	621
3	1,210	941	835	760	688	645
7	1,430	1,100	970	874	778	721
14	1,650	1,300	1,150	1,040	929	862
30	1,900	1,520	1,350	1,220	1,090	1,010

Duration of daily mean flows based on 73 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
920	1,110	1,340	1,590	1,910	2,220	2,550	2,870
40%	30%	20%	15%	10%	5%	2%	1%
3,350	4,220	7,180	9,780	13,600	20,300	27,600	32,800

Magnitude and probability of annual high flow
based on 73 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	27,100	37,700	43,900	50,800	55,500	59,800
3	26,200	36,400	42,500	49,300	53,800	58,000
7	24,300	34,000	39,700	46,100	50,500	54,400
15	22,000	30,800	35,900	41,900	45,800	49,500
30	19,500	26,900	31,200	36,100	39,300	42,300
60	16,000	21,600	24,700	28,100	30,200	32,200
90	13,100	17,600	20,000	22,600	24,300	25,700

Magnitude and probability of seasonal low flow from
July-October based on 72 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1,610	1,180	992	855	719	638
3	1,660	1,220	1,020	876	734	649
7	1,700	1,240	1,040	895	749	663
14	1,760	1,290	1,080	929	779	690
30	1,890	1,370	1,150	982	818	721

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	6,620	1,390	2,720	876	73
November	5,110	1,470	2,740	743	73
December	6,060	1,410	2,480	912	73
January	4,400	871	2,250	702	73
February	6,700	1,110	2,490	975	73
March	7,010	1,740	3,080	1,070	73
April	16,500	2,300	6,370	3,030	73
May	30,400	5,110	14,800	5,550	73
June	34,000	4,620	16,700	7,700	73
July	16,300	1,360	5,870	3,100	73
August	5,530	810	2,300	900	73
September	5,160	909	2,290	806	73
Annual	8,830	2,580	5,350	1,600	73

280 Statistical Summaries of Streamflow in Montana and Adjacent Areas, Water Years 1900 through 2002

12354000 St. Regis River near St. Regis, Mont. Site Number 254

LOCATION.--Lat 47°17'49", long 115°07'18" (NAD 27) near center of NW¼NE¼ sec.26, T.18 N., R.28 W., Mineral County, on left bank 50 ft downstream from road bridge, 500 ft upstream from Little Joe Creek, 1.2 mi west of St. Regis, and at river mile 1.7.

DRAINAGE AREA.--303 mi².

PERIOD OF RECORD.--September 1910 to September 1917 (no winter records), annual maximum, water year 1948, published in WSP 1080, September 1958 to September 1975, February 2002 to September 2002. Monthly discharge only for some periods, published in WSP 1316, 1736.

REVISED RECORDS.--WSP 1246: water year 1912; WSP 1316: drainage area, 1911.

GAGE.--Water-stage recorder. Altitude of gage is 2,645.00 ft (NGVD 29). September 1910 to September 1917, nonrecording gage at site 2 mi upstream at different datum.

REMARKS.--Minor diversions for irrigation upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 16 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	71	56	50	46	--	--
3	79	64	57	52	--	--
7	84	71	65	61	--	--
14	90	77	72	68	--	--
30	96	83	78	75	--	--
60	108	92	86	81	--	--
90	117	97	89	84	--	--
120	124	102	94	89	--	--
183	148	116	104	96	--	--

Magnitude and probability of seasonal low flow from
March-June based on 22 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	191	124	100	85	--	--
3	200	131	107	91	--	--
7	213	140	114	98	--	--
14	239	154	125	106	--	--
30	330	203	156	126	--	--

Magnitude and probability of seasonal low flow from
November-February based on 17 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	81	60	51	46	--	--
3	90	69	59	53	--	--
7	99	76	67	62	--	--
14	112	84	74	69	--	--
30	130	93	81	76	--	--

Duration of daily mean flows based on 17 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
69	75	91	103	124	152	183	247
40%	30%	20%	15%	10%	5%	2%	1%
355	581	1,060	1,420	1,910	2,670	3,640	4,180

Magnitude and probability of annual high flow
based on 17 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	3,780	5,270	6,170	7,190	--	--
3	3,540	4,760	5,440	6,170	--	--
7	3,140	4,100	4,590	5,090	--	--
15	2,740	3,580	4,010	4,420	--	--
30	2,430	3,180	3,550	3,910	--	--
60	2,010	2,530	2,750	2,940	--	--
90	1,660	2,050	2,210	2,340	--	--

Magnitude and probability of seasonal low flow from
July-October based on 20 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	101	86	78	71	--	--
3	102	86	78	72	--	--
7	104	88	80	73	--	--
14	108	90	82	75	--	--
30	113	95	85	78	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	350	86	143	59	23
November	590	101	235	149	20
December	555	92	214	150	18
January	1,360	89	282	300	17
February	760	87	301	183	19
March	1,370	94	408	275	22
April	2,060	349	1,250	495	25
May	4,700	671	2,210	843	25
June	3,370	388	1,570	786	25
July	1,150	155	406	214	25
August	313	83	165	47	25
September	204	77	132	31	26
Annual	938	256	580	164	17

**12354500 Clark Fork at St. Regis, Mont.
Site Number 255**

LOCATION.--Lat 47°18'07", long 115°05'11" (NAD 27), in NW¼SE¼SW¼ sec.19, T.18 N., R.27 W., Mineral County, Hydrologic Unit 17010204, on left bank at St. Regis, 0.4 mi downstream from St. Regis River, and at river mile 270.3.

DRAINAGE AREA.--10,709 mi².

PERIOD OF RECORD.--October 1910 to current year (2002). Monthly discharge only for some periods, published in WSP 1316.

REVISED RECORDS.--WSP 1246: Drainage area. WSP 1316: 1916-17, 1920, 1929-31(M), 1933(M).

GAGE.--Water-stage recorder. Altitude of gage is 2,600.37 ft (NGVD 29, levels by U.S. Army Corps of Engineers). Prior to Nov. 29, 1933, nonrecording gage at same site and datum.

REMARKS.--Diversions for irrigation of about 244,000 acres upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 86 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1,640	1,290	1,140	1,020	909	839
3	1,740	1,380	1,220	1,100	982	908
7	1,940	1,570	1,400	1,270	1,140	1,050
14	2,160	1,750	1,550	1,390	1,230	1,120
30	2,390	1,930	1,710	1,520	1,330	1,210
60	2,600	2,110	1,870	1,680	1,490	1,360
90	2,740	2,240	2,020	1,850	1,670	1,560
120	2,920	2,380	2,150	1,970	1,780	1,670
183	3,090	2,490	2,230	2,040	1,860	1,750

Magnitude and probability of seasonal low flow from
March-June based on 87 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2,850	2,190	1,950	1,780	1,620	1,530
3	2,900	2,290	2,070	1,920	1,790	1,710
7	2,990	2,400	2,190	2,060	1,930	1,870
14	3,170	2,570	2,370	2,240	2,130	2,080
30	3,760	2,960	2,670	2,490	2,320	2,230

Magnitude and probability of seasonal low flow from
November-February based on 86 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1,690	1,300	1,140	1,030	920	854
3	1,790	1,390	1,230	1,110	1,000	935
7	2,010	1,610	1,440	1,320	1,200	1,130
14	2,280	1,840	1,660	1,520	1,390	1,310
30	2,550	2,090	1,890	1,740	1,590	1,510

Duration of daily mean flows based on 86 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
1,500	1,590	1,850	2,240	2,610	2,980	3,420	3,900
40%	30%	20%	15%	10%	5%	2%	1%
4,550	6,030	10,300	13,800	18,900	27,300	36,800	44,700

Magnitude and probability of annual high flow
based on 86 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	35,500	48,600	56,000	64,000	69,200	73,900
3	34,600	47,500	54,800	62,800	68,000	72,700
7	32,500	44,900	52,000	59,900	65,100	69,800
15	29,500	40,800	47,300	54,500	59,300	63,700
30	26,300	36,000	41,600	47,800	51,900	55,600
60	21,800	29,200	33,400	37,800	40,700	43,300
90	18,000	24,000	27,300	30,800	33,000	35,000

Magnitude and probability of seasonal low flow from
July-October based on 86 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2,400	1,860	1,610	1,430	1,240	1,120
3	2,440	1,880	1,630	1,430	1,240	1,120
7	2,480	1,910	1,640	1,450	1,250	1,130
14	2,550	1,950	1,680	1,480	1,280	1,150
30	2,680	2,040	1,760	1,550	1,330	1,200

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	8,040	1,850	3,490	1,030	86
November	7,050	1,940	3,610	1,060	87
December	10,700	1,910	3,460	1,600	87
January	10,500	1,450	3,170	1,380	87
February	10,700	1,590	3,420	1,450	87
March	11,500	2,200	4,290	1,750	87
April	24,900	3,330	9,300	4,170	87
May	42,100	7,190	20,600	7,350	87
June	42,400	6,020	22,400	9,890	87
July	25,500	2,000	8,080	4,230	87
August	6,750	1,450	3,310	1,160	87
September	6,250	1,350	3,050	931	87
Annual	11,600	3,420	7,350	2,180	86

**12355000 Flathead River at Flathead, British Columbia
Site Number 256**

LOCATION.--Lat 49°00'05", long 114°28'34" (NAD 27), Hydrologic Unit 17010206, on left bank 200 ft north of international boundary at Flathead, British Columbia, 1.6 mi upstream from Sage Creek, 6.5 mi northwest of Trail Creek, Mont., and at river mile 216.6.

DRAINAGE AREA.--427 mi².

PERIOD OF RECORD.--March 1929 to June 1995 (no winter records prior to 1952). Prior to 1934, published as "Flathead River near Trail Creek, MT." October 1970 to September 1972, published as "North Fork Flathead River at Flathead, British Columbia." October 1999 to current year (2002) gage reestablished and operated by USGS at site on left bank in British Columbia.

GAGE.--Water-stage recorder. Altitude of gage is 3,964.95 ft (NGVD 29). Prior to Sept. 1, 1949, nonrecording gage and Sept. 1, 1949, to Oct. 4, 1964, water-stage recorder at site 1,200 ft upstream at datum 11.01 ft higher. Oct. 5, 1964, to Aug. 1, 1973, water-stage recorder at site on left bank 155 ft upstream at datum 1.79 ft higher. Aug. 2, 1973, to June 28, 1995, operated by Water Survey Canada at site on right bank at datum 3.21 ft higher. October 1999 to current year (2002) at site 200 ft upstream from international border in British Columbia on left bank.

REMARKS.--U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 45 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	95	80	74	70	65	--
3	101	86	80	75	71	--
7	109	93	85	80	74	--
14	118	99	90	83	76	--
30	127	108	99	93	86	--
60	152	123	111	103	95	--
90	170	136	123	114	106	--
120	197	153	137	126	116	--
183	231	182	164	151	140	--

Magnitude and probability of seasonal low flow from
March-June based on 47 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	129	105	96	92	88	--
3	133	107	99	94	90	--
7	142	114	105	99	94	--
14	151	120	110	104	99	--
30	167	132	121	115	110	--

Magnitude and probability of seasonal low flow from
November-February based on 47 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	99	81	74	70	66	--
3	105	87	80	76	71	--
7	117	94	86	80	75	--
14	128	103	92	85	78	--
30	141	113	102	94	86	--

Duration of daily mean flows based on 46 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
94	100	120	143	182	222	263	338
40%	30%	20%	15%	10%	5%	2%	1%
460	730	1,500	2,120	3,000	4,450	5,970	7,390

Magnitude and probability of annual high flow
based on 46 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	7,260	9,380	10,600	12,000	12,900	--
3	6,850	8,630	9,550	10,500	11,100	--
7	6,090	7,600	8,350	9,100	9,540	--
15	5,280	6,640	7,340	8,040	8,470	--
30	4,550	5,670	6,230	6,800	7,140	--
60	3,560	4,370	4,750	5,110	5,310	--
90	2,810	3,420	3,700	3,960	4,100	--

Magnitude and probability of seasonal low flow from
July-October based on 68 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	195	161	147	138	128	123
3	198	163	149	139	130	124
7	203	166	152	142	132	126
14	211	171	155	144	133	127
30	224	180	163	151	139	133

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	1,280	127	327	219	68
November	1,260	124	348	235	59
December	881	97	239	133	48
January	458	87	187	78	47
February	345	83	173	61	47
March	685	98	200	102	47
April	2,960	189	913	524	67
May	5,580	1,540	3,510	874	71
June	6,690	824	3,100	1,410	71
July	2,420	279	987	461	70
August	937	188	385	136	70
September	785	132	291	114	70
Annual	1,380	377	908	217	46

**12355500 North Fork Flathead River near Columbia Falls, Mont.
Site Number 257**

LOCATION.--Lat 48°29'44", long 114°07'36" (NAD 27), in NE¼SW¼NW¼ sec.35, T.32 N., R.20 W., Flathead County, Hydrologic Unit 17010206, on right bank 1.5 mi downstream from Canyon Creek, 3.8 mi upstream from Middle Fork, 8.8 mi northeast of Columbia Falls, and at river mile 162.1.

DRAINAGE AREA.--1,548 mi².

PERIOD OF RECORD.--September 1910 to September 1917 (no winter records in water years 1913, 1916, 1917), April 1929 to February 1935 (incomplete), June 1935 to current year (2002). Monthly discharge only for some periods, published in WSP 1316. Published as "Flathead River near Columbia Falls" 1915-17, 1929-70.

REVISED RECORDS.--WSP 1216: Drainage area. WSP 1246: 1911, 1912(M), 1915-17(M), 192(M), 1938-39(M), 1946(M).

GAGE.--Water-stage recorder. Altitude of gage is 3,145.59 ft (NGVD 29). September 1910 to September 1917 and April to August 1929, nonrecording gages, and May 1, 1930, to Sept. 30, 1962, water-stage recorder, all at site 2.7 mi downstream at different datums.

REMARKS.--A few small diversions from tributaries for irrigation upstream from station. Bureau of Reclamation satellite telemeter at station.

Magnitude and probability of annual low flow
based on 70 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	373	308	280	259	238	225
3	397	329	301	281	260	248
7	435	363	334	314	294	283
14	479	401	370	348	328	316
30	536	447	411	385	359	344
60	632	504	452	415	379	357
90	696	543	485	444	406	384
120	782	593	522	473	427	401
183	905	702	625	573	524	497

Magnitude and probability of seasonal low flow from
March-June based on 76 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	545	430	391	366	345	334
3	567	448	407	381	359	347
7	606	473	426	395	368	353
14	641	501	453	423	397	384
30	755	576	514	474	438	419

Magnitude and probability of seasonal low flow from
November-February based on 73 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	389	312	282	261	240	227
3	417	335	302	283	262	252
7	467	374	337	318	300	286
14	520	417	375	351	335	318
30	576	461	416	387	369	347

Duration of daily mean flows based on 72 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
360	397	463	556	687	836	1,010	1,250
40%	30%	20%	15%	10%	5%	2%	1%
1,670	2,540	4,720	6,450	8,700	12,500	16,400	20,100

Magnitude and probability of annual high flow
based on 72 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	18,500	24,900	29,000	34,100	37,800	41,400
3	17,700	23,200	26,300	29,800	32,200	34,400
7	16,100	20,600	23,100	25,700	27,300	28,800
15	14,100	18,100	20,300	22,600	24,100	25,500
30	12,500	15,700	17,300	19,100	20,200	21,100
60	10,300	12,600	13,800	14,900	15,600	16,200
90	8,420	10,300	11,200	12,000	12,500	13,000

Magnitude and probability of seasonal low flow from
July-October based on 76 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	772	636	579	538	498	474
3	782	644	586	545	505	481
7	800	657	598	556	515	490
14	826	676	615	572	529	504
30	890	720	652	603	556	528

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	3,650	517	1,170	604	78
November	3,730	420	1,210	718	76
December	3,390	394	907	503	77
January	2,130	325	752	324	75
February	2,020	342	727	302	75
March	2,600	406	880	405	76
April	6,880	833	3,250	1,380	78
May	15,200	4,990	9,790	2,470	80
June	20,800	3,350	10,100	3,930	81
July	11,000	1,440	4,060	1,820	80
August	3,230	747	1,630	515	79
September	2,650	552	1,160	402	78
Annual	4,720	1,380	2,960	693	72

**12357000 Middle Fork Flathead River at Essex, Mont.
Site Number 258**

LOCATION.--Lat 48°16'30", long 113°36'10" (NAD 27), in NE¼SW¼ sec.14, T.29 N., R.16 W., Flathead County, on right bank 0.7 mi upstream from Ole Creek, 0.7 mi southeast of Essex, 4.4 mi downstream from Bear Creek, and at river mile 40.0.

DRAINAGE AREA.--510 mi².

PERIOD OF RECORD.--22 years. October 1939 to September 1953, June 1956 to September 1964 (discontinued). Monthly discharge only for October 1939, published in WSP 1316.

REVISED RECORDS.--WSP 1216: Drainage area. WSP 1246: 1940(M).

GAGE.--Staff gage. Altitude of gage is 3,721.93 ft (NGVD 29). Prior to May 14, 1964, water-stage recorder at same site and datum.

REMARKS.--No regulation or diversion above station.

Magnitude and probability of annual low flow
based on 20 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	112	83	70	61	--	--
3	119	89	76	67	--	--
7	132	99	85	74	--	--
14	142	110	97	87	--	--
30	157	123	108	98	--	--
60	180	136	117	103	--	--
90	200	144	124	109	--	--
120	226	156	131	113	--	--
183	260	180	150	130	--	--

Magnitude and probability of seasonal low flow from
March-June based on 22 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	160	111	91	76	--	--
3	162	117	97	83	--	--
7	171	129	111	98	--	--
14	182	141	124	112	--	--
30	227	166	142	125	--	--

Magnitude and probability of seasonal low flow from
November-February based on 21 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	120	83	70	61	--	--
3	127	90	77	68	--	--
7	141	100	86	75	--	--
14	155	111	97	87	--	--
30	172	124	109	99	--	--

Duration of daily mean flows based on 22 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
95	102	125	146	183	223	263	335
40%	30%	20%	15%	10%	5%	2%	1%
447	683	1,450	2,180	3,370	5,240	7,390	8,490

Magnitude and probability of annual high flow
based on 22 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	7,950	12,300	16,200	22,500	--	--
3	7,650	11,100	13,600	17,200	--	--
7	7,130	9,570	11,000	12,500	--	--
15	6,300	8,270	9,290	10,300	--	--
30	5,510	7,010	7,720	8,390	--	--
60	4,300	5,380	5,870	6,320	--	--
90	3,360	4,200	4,580	4,930	--	--

Magnitude and probability of seasonal low flow from
July-October based on 21 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	174	142	130	121	--	--
3	176	145	132	124	--	--
7	180	148	136	128	--	--
14	185	153	141	133	--	--
30	197	163	150	142	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	1,080	137	347	237	22
November	812	108	355	223	22
December	884	103	333	224	22
January	489	93	223	103	22
February	602	100	238	133	22
March	490	128	251	98	22
April	2,850	389	1,320	656	22
May	6,720	1,970	4,350	1,110	22
June	7,540	1,000	3,790	1,930	23
July	2,590	309	1,040	628	23
August	557	164	326	103	23
September	427	148	244	71	23
Annual	1,580	465	1,070	300	22

**12357500 Middle Fork Flathead River at West Glacier, Mont.
Site Number 259**

LOCATION.--Lat 48°30'00", long 113°58'30" (NAD 27), in NW¼NW¼ sec.36, T.32 N., R.19 W., Flathead County, on left bank at Belton, 0.5 mi upstream from highway bridge, and 2 mi upstream from outlet of Lake McDonald.

DRAINAGE AREA.--943 mi² (revised).

PERIOD OF RECORD.--15 years (1910-12, 1915-16, 1918-19, 1920-21, 1929-33, 1943-47).

GAGE.--Staff gage. Altitude of gage is 3,170 ft (NGVD 29, from river profile map).

REMARKS.--No substantial diversion or regulation above station.

Magnitude and probability of annual low flow
based on 10 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	241	170	140	119	--	--
3	247	182	154	135	--	--
7	260	200	175	158	--	--
14	296	233	204	183	--	--
30	355	272	233	204	--	--
60	418	315	267	231	--	--
90	472	340	281	236	--	--
120	546	380	307	253	--	--
183	610	443	365	307	--	--

Magnitude and probability of seasonal low flow from
March-June based on 18 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	331	214	168	137	--	--
3	340	226	182	152	--	--
7	366	255	213	183	--	--
14	397	284	243	216	--	--
30	560	372	304	259	--	--

Magnitude and probability of seasonal low flow from
November-February based on 12 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	282	214	187	167	--	--
3	286	218	191	171	--	--
7	296	227	198	177	--	--
14	331	251	216	189	--	--
30	362	273	234	205	--	--

Duration of daily mean flows based on 13 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
203	231	290	353	456	568	722	950
40%	30%	20%	15%	10%	5%	2%	1%
1,270	1,950	3,900	5,460	7,450	10,500	14,500	16,700

Magnitude and probability of annual high flow
based on 13 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	15,900	23,400	29,400	38,500	--	--
3	14,600	19,800	23,600	28,600	--	--
7	12,700	17,000	20,100	24,400	--	--
15	11,300	15,000	17,500	20,700	--	--
30	9,660	12,600	14,600	17,100	--	--
60	8,120	10,300	11,500	12,900	--	--
90	6,700	8,510	9,540	10,700	--	--

Magnitude and probability of seasonal low flow from
July-October based on 18 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	452	336	291	259	--	--
3	462	342	295	263	--	--
7	475	350	301	266	--	--
14	493	361	308	272	--	--
30	548	396	334	290	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	2,120	299	828	486	21
November	1,960	240	817	459	21
December	1,200	218	618	282	17
January	892	211	476	180	14
February	862	207	483	157	14
March	1,460	257	668	358	18
April	6,240	584	2,870	1,360	22
May	11,200	4,170	8,190	1,850	22
June	15,200	3,180	8,050	3,560	22
July	6,440	1,010	2,630	1,230	22
August	1,470	547	973	278	22
September	1,920	397	744	336	23
Annual	3,380	1,260	2,290	643	13

**12358500 Middle Fork Flathead River near West Glacier, Mont.
Site Number 260**

LOCATION.--Lat 48°29'43", long 114°00'33" (NAD 27), in S½SW¼NE¼ sec.34, T.32 N., R.19 W., Flathead County, Hydrologic Unit 17010207, on left bank 0.8 mi downstream from McDonald Creek, 1.3 mi west of West Glacier, and at river mile 3.8.

DRAINAGE AREA.--1,128 mi².

PERIOD OF RECORD.--October 1939 to current year (2002). Prior to October 1947, published as "near Belton."

REVISED RECORDS.--WSP 1216: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 3,128.72 ft (NGVD 29). Prior to Nov. 22, 1950, nonrecording gage at present site and datum.

REMARKS.--Bureau of Reclamation satellite at station.

Magnitude and probability of annual low flow
based on 62 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	335	266	235	213	190	176
3	350	280	249	226	203	189
7	373	301	268	244	220	204
14	398	323	290	266	241	225
30	440	352	314	286	258	241
60	529	398	346	309	273	253
90	605	436	372	329	288	265
120	686	475	396	344	295	267
183	799	572	489	434	383	354

Magnitude and probability of seasonal low flow from
March-June based on 63 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	489	363	319	292	267	254
3	502	374	331	303	278	265
7	535	392	342	309	280	263
14	576	416	360	323	290	272
30	710	495	419	368	322	296

Magnitude and probability of seasonal low flow from
November-February based on 62 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	361	272	236	214	191	177
3	381	288	250	228	205	190
7	411	312	271	245	222	205
14	442	337	295	266	243	226
30	489	368	321	289	259	243

Duration of daily mean flows based on 63 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
282	304	373	435	557	697	883	1,110
40%	30%	20%	15%	10%	5%	2%	1%
1,480	2,340	4,510	6,230	8,530	12,100	16,200	19,700

Magnitude and probability of annual high flow
based on 63 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	18,100	25,800	32,400	42,700	52,000	62,900
3	17,500	23,600	28,000	33,900	38,600	43,500
7	16,000	20,700	23,500	26,900	29,300	31,500
15	14,100	18,000	20,200	22,700	24,500	26,100
30	12,500	15,600	17,300	19,200	20,400	21,500
60	10,200	12,500	13,700	15,000	15,800	16,400
90	8,370	10,100	11,000	11,900	12,400	12,800

Magnitude and probability of seasonal low flow from
July-October based on 62 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	560	432	380	344	309	289
3	570	438	385	348	311	290
7	588	451	395	356	318	296
14	615	467	408	367	327	303
30	683	514	447	400	354	327

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	3,000	367	1,050	665	63
November	5,600	279	1,170	998	63
December	3,750	262	914	655	63
January	2,420	282	705	380	63
February	2,690	244	710	456	63
March	2,780	307	853	473	63
April	7,090	664	3,170	1,320	63
May	14,700	5,260	9,590	2,250	63
June	19,900	3,580	10,100	3,900	63
July	8,160	1,250	3,970	1,750	63
August	2,360	576	1,360	424	63
September	2,510	420	947	412	63
Annual	4,070	1,440	2,890	665	63

**12359000 South Fork Flathead River at Spotted Bear Ranger Station, near Hungry Horse, Mont.
Site Number 261**

LOCATION.--Lat 47°55'19", long 113°31'27" (NAD 27), in SE¼SW¼ sec.17, T.25 N., R.15 W., Flathead County, Flathead National Forest, on left bank 600 ft south of Spotted Bear Ranger Station, 1,000 ft upstream from Spotted Bear River, 40.3 mi southeast of Hungry Horse, and at river mile 52.9.

DRAINAGE AREA.--958 mi².

PERIOD OF RECORD.--17 years. August 1948 to September 1957 and August 1959 to September 1967 (discontinued).

REVISED RECORDS.--WSP 1216: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 3,670 ft (NGVD 29, from river-profile map).

Magnitude and probability of annual low flow
based on 15 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	194	156	139	126	--	--
3	203	164	145	131	--	--
7	220	179	159	145	--	--
14	235	194	176	163	--	--
30	261	217	197	182	--	--
60	300	245	227	215	--	--
90	330	260	237	222	--	--
120	359	279	251	233	--	--
183	417	323	288	264	--	--

Magnitude and probability of seasonal low flow from
March-June based on 17 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	290	225	191	164	--	--
3	298	234	200	173	--	--
7	313	249	216	189	--	--
14	330	261	225	197	--	--
30	372	280	239	209	--	--

Magnitude and probability of seasonal low flow from
November-February based on 17 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	201	164	147	134	--	--
3	213	172	152	137	--	--
7	233	186	164	147	--	--
14	253	203	181	165	--	--
30	278	223	201	185	--	--

Duration of daily mean flows based on 17 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
177	196	222	265	318	368	453	566
40%	30%	20%	15%	10%	5%	2%	1%
754	1,230	2,700	4,160	6,320	9,440	12,000	14,700

Magnitude and probability of annual high flow
based on 17 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	14,600	18,700	21,600	25,700	--	--
3	13,800	17,100	19,300	22,200	--	--
7	12,400	14,700	16,100	17,600	--	--
15	10,900	13,100	14,400	16,000	--	--
30	9,550	11,200	12,200	13,300	--	--
60	7,690	8,920	9,610	10,400	--	--
90	6,070	7,000	7,500	8,050	--	--

Magnitude and probability of seasonal low flow from
July-October based on 15 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	339	266	236	215	--	--
3	343	268	237	216	--	--
7	351	273	241	218	--	--
14	362	278	245	221	--	--
30	388	293	257	232	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	2,220	237	623	479	17
November	1,360	197	529	313	17
December	1,010	202	452	223	17
January	672	204	349	115	17
February	883	210	386	191	17
March	760	180	395	135	17
April	3,330	610	1,760	843	17
May	9,170	4,270	6,800	1,500	17
June	11,500	4,460	7,950	2,290	17
July	5,890	1,080	2,720	1,380	17
August	1,420	418	730	244	17
September	1,250	294	500	244	19
Annual	2,360	1,470	1,930	284	17

**12359800 South Fork Flathead River above Twin Creek, near Hungry Horse, Mont.
Site Number 262**

LOCATION.--Lat 47°58'45", long 113°33'36" (NAD 27), in NE¼NW¼NE¼ sec.36, T.26 N., R.16 W., Flathead County, Hydrologic Unit 17010209, Flathead National Forest, on left bank 0.1 mi downstream from Tin Creek, 0.4 mi upstream from Twin Creek, 36.3 mi southeast of Hungry Horse, and at river mile 42.2.

DRAINAGE AREA.--1,160 mi².

PERIOD OF RECORD.--October 1964 to September 1982, October 1984 to current year (2002, no winter records).

GAGE.--Water-stage recorder. Altitude of gage is 3,575 ft (NGVD 29, from river-profile map).

REMARKS.--No known regulation or diversions upstream from station. Bureau of Reclamation satellite telemeter at station.

Magnitude and probability of annual low flow
based on 17 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	215	178	161	148	--	--
3	227	186	168	154	--	--
7	240	197	179	165	--	--
14	257	215	197	184	--	--
30	275	231	213	200	--	--
60	325	259	230	210	--	--
90	357	276	246	227	--	--
120	387	293	259	237	--	--
183	460	348	306	277	--	--

Magnitude and probability of seasonal low flow from
March-June based on 18 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	347	256	221	197	--	--
3	360	264	227	202	--	--
7	376	277	240	214	--	--
14	402	298	258	230	--	--
30	489	335	279	241	--	--

Magnitude and probability of seasonal low flow from
November-February based on 17 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	228	182	162	149	--	--
3	248	194	170	154	--	--
7	275	207	180	166	--	--
14	299	228	199	186	--	--
30	334	251	216	201	--	--

Duration of daily mean flows based on 18 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
199	214	256	303	387	480	608	791
40%	30%	20%	15%	10%	5%	2%	1%
1,160	2,120	4,170	5,640	7,720	11,000	15,100	16,900

Magnitude and probability of annual high flow
based on 18 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	18,500	23,000	25,200	27,400	--	--
3	17,300	21,800	24,100	26,500	--	--
7	15,500	19,500	21,600	23,700	--	--
15	13,400	16,900	18,700	20,600	--	--
30	11,800	14,300	15,500	16,600	--	--
60	9,400	11,200	12,000	12,700	--	--
90	7,490	8,820	9,370	9,820	--	--

Magnitude and probability of seasonal low flow from
July-October based on 35 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	338	269	241	220	200	--
3	344	274	245	224	203	--
7	355	281	250	228	206	--
14	368	289	257	234	211	--
30	393	305	271	248	225	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	1,880	226	575	328	36
November	3,100	204	716	601	36
December	1,320	249	514	292	18
January	1,200	207	479	276	18
February	2,280	201	520	464	18
March	1,340	252	588	305	18
April	4,490	464	2,440	1,080	35
May	12,600	4,740	7,750	1,790	36
June	15,900	2,520	8,470	3,520	36
July	5,900	844	2,760	1,330	36
August	1,330	339	790	262	36
September	1,850	245	577	348	36
Annual	2,990	1,180	2,310	504	18

**12360000 Twin Creek near Hungry Horse, Mont.
Site Number 263**

LOCATION.--Lat 47°59'06", long 113°33'38" (NAD 27), in E¹/₂ sec.25, T.26 N., R.16 W., Flathead County, Flathead National Forest, on left bank 300 ft upstream from road bridge, 0.1 mi upstream from mouth, and 35.9 mi southeast of Hungry Horse.

DRAINAGE AREA.--47.0 mi².

PERIOD OF RECORD.--11 years. August 1948 to September 1956 and October 1964 to September 1967 (discontinued).

REVISED RECORDS.--WSP 1216: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 3,585 ft (NGVD 29, revised, from river-profile map).

REMARKS.--Water-quality records for the water years 1966-67 are published in reports of the U.S. Geological Survey.

Magnitude and probability of annual low flow
based on 10 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	9.4	6.6	5.3	4.4	--	--
3	10	7.4	5.9	4.7	--	--
7	11	8.1	6.5	5.2	--	--
14	12	8.6	7.1	6.0	--	--
30	12	9.1	7.6	6.5	--	--
60	14	10	8.1	6.7	--	--
90	18	11	8.7	7.0	--	--
120	21	12	9.4	7.4	--	--
183	25	16	12	10	--	--

Magnitude and probability of seasonal low flow from
March-June based on 11 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	16	11	8.7	7.3	--	--
3	17	12	10	8.7	--	--
7	18	14	12	11	--	--
14	22	17	15	13	--	--
30	29	22	18	16	--	--

Magnitude and probability of seasonal low flow from
November-February based on 11 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	11	7.1	5.4	4.5	--	--
3	12	7.6	5.9	4.8	--	--
7	13	8.2	6.6	5.3	--	--
14	14	8.8	7.2	6.1	--	--
30	16	9.7	7.8	6.6	--	--

Duration of daily mean flows based on 11 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
5.9	6.9	9.5	12	16	20	25	33
40%	30%	20%	15%	10%	5%	2%	1%
43	67	170	269	409	599	809	1,010

Magnitude and probability of annual high flow
based on 11 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	1,080	1,360	1,560	--	--	--
3	977	1,220	1,400	--	--	--
7	852	1,060	1,200	--	--	--
15	697	865	984	--	--	--
30	611	721	799	--	--	--
60	493	572	624	--	--	--
90	389	443	475	--	--	--

Magnitude and probability of seasonal low flow from
July-October based on 10 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	11	8.6	7.8	7.3	--	--
3	11	8.8	7.9	7.3	--	--
7	12	8.9	8.0	7.3	--	--
14	12	9.0	8.0	7.4	--	--
30	13	9.4	8.2	7.4	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	64	8.1	29	19	11
November	76	7.0	35	22	11
December	112	6.7	36	28	11
January	44	7.1	23	11	11
February	80	7.8	27	20	11
March	45	15	31	9.6	11
April	347	82	205	79	11
May	744	430	545	98	11
June	622	139	385	157	11
July	152	30	87	37	11
August	34	13	23	6.0	11
September	63	11	18	14	12
Annual	143	91	121	18	11

**12361000 Sullivan Creek near Hungry Horse, Mont.
Site Number 264**

LOCATION.--Lat 48°01'45", long 113°42'12" (NAD 27), in NW¼SW¼ sec.12, T.26 N., R.17 W., Flathead County, Hydrologic Unit 17010209, Flathead National Forest, on left bank 0.3 mi downstream from Quintonkon Creek, 1.7 mi upstream from Hungry Horse Reservoir flow line, and 29.5 mi southeast of Hungry Horse.

DRAINAGE AREA.--71.3 mi².

PERIOD OF RECORD.--25 years. September 1948 to September 1956, August 1959 to September 1976 (discontinued)

REVISED RECORDS.--WSP 1216: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 3,630 ft (NGVD 29, from topographic map).

Magnitude and probability of annual low flow
based on 23 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	23	18	15	13	--	--
3	24	19	16	14	--	--
7	26	20	18	16	--	--
14	27	22	19	17	--	--
30	30	24	21	19	--	--
60	36	26	22	19	--	--
90	44	29	24	20	--	--
120	52	34	27	22	--	--
183	62	40	31	26	--	--

Magnitude and probability of seasonal low flow from
March-June based on 25 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	38	27	22	19	17	--
3	39	28	24	21	18	--
7	41	30	26	23	21	--
14	44	32	28	25	23	--
30	59	39	32	27	23	--

Magnitude and probability of seasonal low flow from
November-February based on 24 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	26	19	16	13	--	--
3	28	20	17	14	--	--
7	31	22	19	16	--	--
14	33	24	20	17	--	--
30	39	27	22	19	--	--

Duration of daily mean flows based on 25 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
17	19	24	29	38	47	60	80
40%	30%	20%	15%	10%	5%	2%	1%
110	172	336	490	693	1,020	1,360	1,500

Magnitude and probability of annual high flow
based on 25 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	1,680	2,150	2,440	2,800	3,060	--
3	1,530	1,900	2,120	2,380	2,570	--
7	1,360	1,640	1,810	2,000	2,140	--
15	1,200	1,440	1,580	1,740	1,860	--
30	1,050	1,240	1,350	1,480	1,560	--
60	846	982	1,050	1,130	1,180	--
90	665	761	812	866	901	--

Magnitude and probability of seasonal low flow from
July-October based on 23 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	29	23	20	18	--	--
3	30	23	20	18	--	--
7	31	24	21	18	--	--
14	33	25	21	19	--	--
30	36	27	23	20	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	406	20	89	85	25
November	224	18	96	58	25
December	236	17	80	55	25
January	234	18	64	46	25
February	250	21	69	54	25
March	263	24	75	51	25
April	537	75	272	123	25
May	1,190	612	837	146	25
June	1,480	426	797	270	25
July	423	71	197	81	25
August	110	32	60	19	25
September	216	27	59	50	26
Annual	319	162	225	36	25

**12361500 Graves Creek near Hungry Horse, Mont.
Site Number 265**

LOCATION.--Lat 48°07'36", long 113°48'33" (NAD 27), in SE¼ sec.1, T.27 N., R.18 W., Flathead County, Flathead National Forest, on left bank 300 ft upstream from bridge on west shore road, 500 ft upstream from Hungry Horse Reservoir flow line, and 21.0 mi southeast of Hungry Horse.

DRAINAGE AREA.--27.0 mi².

PERIOD OF RECORD.--11 years. August 1948 to September 1956 and October 1964 to September 1967 (discontinued).

GAGE.--Water-stage recorder. Altitude of gage is 3,600 ft (NGVD 29, from topographic map). Prior to Oct. 1, 1951, at site 2.5 mi downstream at different datum.

REMARKS.--Water-quality records for the water years 1966-67 are published in reports of the U.S. Geological Survey.

Magnitude and probability of annual low flow
based on 10 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	15	9.4	6.9	5.1	--	--
3	15	9.9	7.4	5.6	--	--
7	16	11	8.1	6.3	--	--
14	17	11	8.7	7.0	--	--
30	18	12	9.8	8.0	--	--
60	21	14	11	8.7	--	--
90	27	16	12	9.4	--	--
120	36	20	14	10	--	--
183	45	27	19	14	--	--

Magnitude and probability of seasonal low flow from
March-June based on 11 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	19	15	13	12	--	--
3	19	15	14	13	--	--
7	20	16	15	15	--	--
14	21	18	17	16	--	--
30	26	20	18	17	--	--

Magnitude and probability of seasonal low flow from
November-February based on 11 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	18	11	7.9	5.7	--	--
3	19	12	8.4	6.1	--	--
7	19	12	8.9	6.8	--	--
14	20	12	9.4	7.3	--	--
30	22	14	10	8.2	--	--

Duration of daily mean flows based on 11 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
8.5	9.4	13	17	22	28	35	45
40%	30%	20%	15%	10%	5%	2%	1%
63	102	200	300	430	625	812	974

Magnitude and probability of annual high flow
based on 11 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	1,000	1,290	1,530	--	--	--
3	933	1,110	1,230	--	--	--
7	833	935	991	--	--	--
15	726	821	870	--	--	--
30	628	721	771	--	--	--
60	505	577	621	--	--	--
90	401	450	478	--	--	--

Magnitude and probability of seasonal low flow from
July-October based on 10 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	18	11	8.5	6.8	--	--
3	19	12	8.9	7.1	--	--
7	19	12	9.2	7.3	--	--
14	21	13	9.5	7.5	--	--
30	24	14	10	8.0	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	168	8.9	63	53	11
November	100	8.4	60	33	11
December	133	9.0	54	38	11
January	58	11	31	14	11
February	94	11	31	23	11
March	54	18	29	10	11
April	187	36	117	52	11
May	615	248	429	103	11
June	736	358	532	126	11
July	390	70	193	96	11
August	81	24	41	18	11
September	101	13	33	25	12
Annual	168	105	135	20	11

**12362500 South Fork Flathead River near Columbia Falls, Mont.
Site Number 266**

LOCATION.--Lat 48°21'24", long 114°02'12" (NAD 27), in SW¼SE¼SW¼ sec.16, T.30 N., R.19 W., Flathead County, Hydrologic Unit 17010209, on right bank 1.7 mi downstream from Hungry Horse Dam, 6.8 mi east of Columbia Falls, and at river mile 3.5.

DRAINAGE AREA.--1,663 mi².

PERIOD OF RECORD.--September 1910 to January 1911 (discharge measurements only), February 1911 to September 1913 (no winter records), October 1913 to August 1916 (sporadic daily discharge only), water years 1917-22 (annual maximum), April 1923 to November 1924 (no winter records), July to October 1925, May to November 1927, May 1928 to April 1999. Monthly discharge only for some periods, published in WSP 1316.

REVISED RECORDS.--WSP 1216: Drainage area. WSP 1316: 1923-24(M), 1926-27(M), 1932(M), 1935-36(M). WSP 1636: 1958 (adjusted runoff).

GAGE.--Water-stage recorder. Elevation of gage is 3,040 ft (NGVD 29, levels by the Bureau of Reclamation). September 1910 to September 1916, nonrecording gage, Apr. 23, 1923, to Sept. 30, 1928, water-stage recorder at site 3 mi downstream at different datum. Oct. 1, 1928, to Sept. 30, 1952, water-stage recorder at site 1.5 mi downstream at different datum.

REMARKS.--Flow regulated by Hungry Horse Reservoir after Sept. 21, 1951. Bureau of Reclamation satellite telemeter at station.

Magnitude and probability of annual low flow
based on 46 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	156	122	108	99	89	--
3	162	125	113	104	97	--
7	199	142	122	109	98	--
14	237	153	129	114	102	--
30	349	200	154	127	103	--
60	688	340	231	167	114	--
90	1,130	559	364	247	154	--
120	1,580	861	586	411	265	--
183	2,250	1,380	1,000	740	504	--

Magnitude and probability of seasonal low flow from
March-June based on 47 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	173	133	123	118	113	--
3	190	140	127	120	114	--
7	242	155	129	121	115	--
14	338	177	132	125	122	--
30	552	238	156	141	130	--

Magnitude and probability of seasonal low flow from
November-February based on 47 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	276	156	126	109	96	--
3	340	182	140	115	99	--
7	466	234	169	131	100	--
14	739	337	218	150	106	--
30	1,400	647	410	273	167	--

Duration of daily mean flows based on 47 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
135	141	160	192	403	753	1,650	2,450
40%	30%	20%	15%	10%	5%	2%	1%
3,280	5,200	7,130	8,110	9,300	10,800	11,700	12,800

Magnitude and probability of annual high flow
based on 47 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	11,600	14,500	16,400	18,500	20,100	--
3	11,300	13,900	15,500	17,400	18,700	--
7	10,700	13,100	14,400	15,800	16,800	--
15	10,200	12,400	13,600	14,700	15,400	--
30	9,150	11,100	12,100	13,000	13,500	--
60	7,690	9,280	10,000	10,700	11,100	--
90	6,550	8,040	8,760	9,470	9,880	--

Magnitude and probability of seasonal low flow from
July-October based on 47 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	159	126	117	107	103	--
3	191	135	119	111	104	--
7	292	173	137	115	106	--
14	487	266	193	147	108	--
30	934	493	342	249	171	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	8,800	388	3,470	1,990	49
November	9,090	204	3,180	2,170	48
December	8,980	532	4,680	2,200	48
January	10,000	525	4,840	2,640	48
February	9,450	208	4,190	2,610	48
March	14,800	205	3,990	3,470	48
April	13,300	153	4,570	3,860	48
May	6,820	181	2,230	1,530	48
June	10,300	156	3,020	2,320	48
July	6,910	189	2,970	1,730	48
August	7,940	213	2,570	2,140	47
September	9,530	355	3,400	2,470	47
Annual	5,330	1,010	3,590	901	47

12363000 Flathead River at Columbia Falls, Mont. Site Number 267

LOCATION.--Lat 48°21'43", long 114°11'02" (NAD 27), in NW¼NW¼SE¼ sec.17, T.30 N., R.20 W., Flathead County, Hydrologic Unit 17010208, on right bank 200 ft downstream from county road bridge at Columbia Falls, 5.7 mi downstream from South Fork, and at river mile 143.0.

DRAINAGE AREA.--4,464 mi².

PERIOD OF RECORD.--May 1922 to September 1923 (fragmentary), June 1928 to current year (2002). Monthly discharge only for some periods, published in WSP 1316.

REVISED RECORDS.--WSP 1092: 1923. WSP 1216: Drainage area. WSP 1636: 1958 (adjusted runoff).

GAGE.--Water-stage recorder. Altitude of gage is 2,977.67 ft (NGVD 29, levels by U.S. Army Corps of Engineers). Prior to Nov. 12, 1928, nonrecording gage on bridge 200 ft upstream at datum 0.19 ft higher.

REMARKS.--South Fork Flathead River, which contributes about one-third of flow, is completely regulated by Hungry Horse Reservoir 10.9 mi upstream after Sept. 21, 1951 (see station number 12362000). Bureau of Reclamation satellite telemeter at station.

Unregulated streamflow period

Magnitude and probability of annual low flow
based on 22 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1,190	962	869	803	--	--
3	1,230	995	901	834	--	--
7	1,280	1,040	942	874	--	--
14	1,350	1,100	992	919	--	--
30	1,490	1,180	1,050	962	--	--
60	1,790	1,340	1,160	1,030	--	--
90	1,990	1,430	1,220	1,080	--	--
120	2,210	1,510	1,270	1,100	--	--
183	2,370	1,690	1,450	1,300	--	--

Magnitude and probability of seasonal low flow from
March-June based on 23 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1,630	1,220	1,080	975	--	--
3	1,670	1,250	1,100	993	--	--
7	1,750	1,300	1,130	1,020	--	--
14	1,850	1,370	1,200	1,090	--	--
30	2,310	1,640	1,400	1,230	--	--

Magnitude and probability of seasonal low flow from
November-February based on 23 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1,280	1,000	907	847	--	--
3	1,330	1,040	944	882	--	--
7	1,410	1,100	987	916	--	--
14	1,510	1,150	1,030	956	--	--
30	1,650	1,220	1,080	984	--	--

Duration of daily mean flows based on 23 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
929	1,100	1,260	1,510	1,850	2,190	2,700	3,330
40%	30%	20%	15%	10%	5%	2%	1%
4,530	7,400	15,100	21,300	29,100	41,200	55,200	65,300

Magnitude and probability of annual high flow
based on 23 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	62,000	77,500	84,900	92,100	--	--
3	58,400	72,800	79,500	85,800	--	--
7	52,200	65,200	71,600	77,900	--	--
15	45,300	57,700	64,300	71,300	--	--
30	40,200	50,300	55,400	60,700	--	--
60	33,300	40,700	44,200	47,500	--	--
90	27,100	33,200	36,000	38,700	--	--

Magnitude and probability of seasonal low flow from
July-October based on 23 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1,770	1,520	1,420	1,350	--	--
3	1,800	1,540	1,440	1,370	--	--
7	1,840	1,570	1,470	1,400	--	--
14	1,900	1,620	1,510	1,430	--	--
30	2,030	1,710	1,580	1,490	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	8,550	1,430	3,100	2,020	23
November	11,000	1,180	3,470	2,360	23
December	9,040	1,110	3,050	2,130	23
January	7,260	928	2,330	1,380	23
February	5,960	905	2,250	1,240	23
March	6,700	1,080	2,690	1,330	23
April	32,200	3,960	13,000	6,790	23
May	46,500	10,000	34,300	8,160	24
June	61,900	10,000	30,100	12,700	25
July	25,100	4,180	10,700	5,510	26
August	6,880	1,980	3,750	1,220	26
September	5,090	1,790	2,560	710	25
Annual	12,900	4,820	9,110	2,450	23

12363000 Flathead River at Columbia Falls, Mont.—Continued
Site Number 267

Regulated streamflow period

Magnitude and probability of annual low flow based on 50 years of record						
Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1,910	1,280	1,040	882	735	652
3	2,010	1,350	1,100	937	780	692
7	2,200	1,510	1,250	1,060	881	779
14	2,530	1,760	1,430	1,190	960	827
30	3,000	2,090	1,670	1,370	1,070	895
60	3,830	2,810	2,300	1,920	1,530	1,300
90	4,470	3,450	2,960	2,580	2,190	1,940
120	4,860	3,800	3,280	2,890	2,470	2,220
183	5,750	4,560	3,950	3,460	2,940	2,610

Magnitude and probability of seasonal low flow from March-June based on 51 seasons of record						
Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2,500	1,580	1,250	1,040	853	748
3	2,710	1,700	1,340	1,100	881	762
7	2,990	1,860	1,470	1,210	981	854
14	3,660	2,270	1,770	1,440	1,140	978
30	4,760	2,890	2,210	1,760	1,350	1,130

Magnitude and probability of seasonal low flow from November-February based on 50 seasons of record						
Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2,250	1,480	1,170	963	764	652
3	2,420	1,600	1,260	1,030	809	684
7	2,720	1,840	1,460	1,190	928	781
14	3,120	2,150	1,700	1,380	1,070	889
30	3,660	2,460	1,950	1,590	1,240	1,040

Duration of daily mean flows based on 51 years of record							
Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
1,260	1,450	1,870	2,590	3,540	4,190	5,550	7,220
40%	30%	20%	15%	10%	5%	2%	1%
9,010	10,800	14,100	17,200	22,300	29,900	38,500	45,000

Magnitude and probability of annual high flow based on 51 years of record						
Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	39,900	54,300	65,600	82,300	96,600	113,000
3	39,000	50,600	58,200	67,900	75,100	82,300
7	35,900	45,100	50,200	56,000	59,900	63,400
15	32,400	40,400	44,800	49,500	52,600	55,400
30	29,100	36,100	39,800	43,800	46,300	48,500
60	24,600	29,900	32,600	35,300	37,000	38,500
90	20,800	25,200	27,500	29,800	31,300	32,500

Magnitude and probability of seasonal low flow from July-October based on 50 seasons of record						
Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2,500	1,820	1,530	1,330	1,120	1,000
3	2,680	1,960	1,650	1,420	1,190	1,050
7	2,940	2,130	1,770	1,500	1,240	1,090
14	3,260	2,410	2,020	1,730	1,450	1,270
30	3,960	2,870	2,380	2,030	1,670	1,460

Monthly and annual mean discharges					
Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	11,200	1,560	5,800	2,020	51
November	11,200	1,560	5,710	2,360	51
December	15,000	2,280	6,490	2,440	51
January	11,200	1,550	6,350	2,730	51
February	11,100	1,300	5,770	2,680	51
March	17,000	1,260	5,930	3,520	51
April	21,800	3,820	11,100	5,140	51
May	33,700	10,000	22,400	5,190	51
June	45,500	9,600	24,600	8,800	51
July	24,500	4,620	11,600	4,330	51
August	12,100	2,770	5,970	2,110	51
September	12,300	2,200	5,660	2,530	51
Annual	14,100	5,340	9,790	1,970	51

**12365000 Stillwater River near Whitefish, Mont.
Site Number 268**

LOCATION.--Lat 48°19'08", long 114°23'11" (NAD 27), in NE¼SW¼ sec.34, T.30 N., R.22 W., Flathead County, Hydrologic Unit 17010210, on right bank 600 ft downstream from road bridge, 6.2 mi southwest of Whitefish, 14.8 mi upstream from Whitefish River, and at river mile 16.2.

DRAINAGE AREA.--524 mi².

PERIOD OF RECORD.--October and November 1930 (monthly discharge only, published in WSP 1316), December 1930 to September 1950, October 1972 to September 1985, April 1986 to September 1999 (seasonal records only), October 1999 to current year (2002).

REVISED RECORDS.--WSP 1736: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 2,953.26 ft (NGVD 29).

REMARKS.--Diversions for irrigation of about 200 acres upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 44 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	63	46	38	32	26	--
3	64	50	45	41	37	--
7	65	52	47	43	39	--
14	69	55	50	46	41	--
30	75	60	54	49	45	--
60	81	64	57	52	47	--
90	87	68	61	56	51	--
120	93	72	64	59	54	--
183	101	78	69	64	59	--

Magnitude and probability of seasonal low flow from
March-June based on 47 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	92	70	63	59	56	--
3	94	72	65	61	58	--
7	98	75	68	64	60	--
14	106	80	73	68	65	--
30	129	94	83	76	70	--

Magnitude and probability of seasonal low flow from
November-February based on 45 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	64	51	46	43	41	--
3	66	53	49	46	44	--
7	69	56	51	48	46	--
14	74	59	54	52	49	--
30	79	64	59	57	55	--

Duration of daily mean flows based on 46 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
48	52	62	72	87	104	123	154
40%	30%	20%	15%	10%	5%	2%	1%
196	301	529	732	1,000	1,400	1,960	2,240

Magnitude and probability of annual high flow
based on 46 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	1,580	2,420	2,930	3,510	3,900	--
3	1,560	2,390	2,880	3,450	3,830	--
7	1,490	2,270	2,740	3,260	3,600	--
15	1,370	2,070	2,470	2,920	3,210	--
30	1,230	1,810	2,140	2,490	2,720	--
60	1,060	1,540	1,810	2,110	2,300	--
90	888	1,290	1,520	1,760	1,920	--

Magnitude and probability of seasonal low flow from
July-October based on 48 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	91	61	46	36	26	--
3	92	64	53	44	38	--
7	92	66	54	46	40	--
14	94	68	56	48	42	--
30	99	72	60	51	45	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	271	46	114	42	49
November	300	54	128	57	49
December	582	51	121	87	46
January	495	59	114	81	46
February	588	60	115	84	47
March	548	77	161	99	47
April	1,860	138	663	394	50
May	3,120	265	1,190	580	50
June	1,920	235	870	437	50
July	952	94	379	191	50
August	505	56	178	86	50
September	315	43	125	51	50
Annual	747	124	342	140	46

**12366000 Whitefish River near Kalispell, Mont.
Site Number 269**

LOCATION.--Lat 48°19'13", long 114°16'39" (NAD 27), in SW¼SE¼NW¼ sec.34, T.30 N., R.21 W., Flathead County, Hydrologic Unit 17010210, on right bank 160 ft upstream from road bridge, 8.0 mi north of Kalispell, and at river mile 12.8.

DRAINAGE AREA.--170 mi².

PERIOD OF RECORD.--July to November 1928, April 1929 to September 1950, annual maximum 1964, October 1972 to September 1985, April 1986 to September 1995, October 1995 to September 1999 (seasonal record only), October 1999 to current year (2002). Prior to 1964, published as "Whitefish Creek near Kalispell."

GAGE.--Water-stage recorder. Altitude of gage is 2,969.83 ft (NGVD 29). Prior to Oct. 16, 1930, nonrecording gage at site 200 ft downstream at datum 10.00 ft lower. Oct. 16, 1930, to Sept. 30, 1950, water-stage recorder on left bank at same datum.

REMARKS.--Some regulation by Whitefish Lake. Diversion for irrigation of about 650 acres upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow based on 43 years of record						
Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	31	18	12	8.1	5.0	--
3	33	18	12	8.5	5.3	--
7	35	20	13	9.1	5.6	--
14	38	22	15	11	6.7	--
30	43	27	20	15	10	--
60	50	34	26	21	16	--
90	53	38	32	28	23	--
120	57	43	37	33	29	--
183	64	49	43	39	35	--

Magnitude and probability of seasonal low flow from March-June based on 47 seasons of record						
Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	58	41	34	29	25	--
3	61	44	37	32	27	--
7	65	48	41	37	32	--
14	71	54	48	43	39	--
30	84	64	55	50	44	--

Magnitude and probability of seasonal low flow from November-February based on 46 seasons of record						
Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	36	21	15	10	6.6	--
3	38	22	15	11	7.1	--
7	39	23	16	12	7.9	--
14	44	27	20	16	11	--
30	51	34	26	21	16	--

Duration of daily mean flows based on 46 years of record							
Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
14	19	34	43	55	66	80	97
40%	30%	20%	15%	10%	5%	2%	1%
126	179	311	417	533	715	949	1,060

Magnitude and probability of annual high flow based on 46 years of record						
Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	785	1,020	1,160	1,320	1,430	--
3	778	1,010	1,150	1,310	1,420	--
7	759	989	1,120	1,280	1,380	--
15	725	945	1,070	1,220	1,320	--
30	675	874	987	1,110	1,200	--
60	575	742	832	929	990	--
90	481	624	703	788	842	--

Magnitude and probability of seasonal low flow from July-October based on 50 seasons of record						
Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	46	22	14	8.6	4.8	3.2
3	47	23	14	9.2	5.3	3.5
7	48	24	15	9.8	5.7	3.8
14	51	27	18	13	7.9	5.6
30	59	37	27	20	14	10

Monthly and annual mean discharges					
Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	150	10	69	27	51
November	177	20	72	30	50
December	231	23	72	38	46
January	209	14	67	36	46
February	157	16	66	30	46
March	212	48	96	39	47
April	549	83	224	95	52
May	895	214	532	171	52
June	1,190	211	609	234	52
July	695	88	275	138	52
August	238	30	111	46	53
September	149	24	81	28	53
Annual	320	89	187	55	46

**12367500 Ashley Creek near Kalispell, Mont.
Site Number 270**

LOCATION.--Lat 48°08'58", long 114°25'55" (NAD 27), near center of NW¼ sec.32, T.28 N., R.22 W., Flathead County, near center of span on downstream side of road bridge, 1.0 mi downstream from Smith Lake, 3.0 mi upstream from headgate of Ashley Irrigation District Canal, 5.6 mi west of Kalispell, and at river mile 26.2.

DRAINAGE AREA.--201 mi².

PERIOD OF RECORD.--19 years. April 1931 to March 1933, April 1934 to September 1950, July 1969 to January 1970 (discharge measurements only), October 1972 to September 1974 (discontinued).

GAGE.--Nonrecording gage and crest-stage gage. Altitude of gage is 3,141.43 ft (NGVD 29). Prior to July 1969, nonrecording gages at sites 1.5 mi downstream at different datums.

REMARKS.--Diversion for irrigation of about 100 acres. Floodwater stored in Ashley Lake (usable capacity, 20,000 acre-ft) for release during irrigation season.

Magnitude and probability of annual low flow
based on 17 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.35	0.00	0.00	0.00	--	--
3	.47	.00	.00	.00	--	--
7	.50	.00	.00	.00	--	--
14	.87	.00	.00	.00	--	--
30	1.6	.01	.00	.00	--	--
60	2.2	.62	.00	.00	--	--
90	2.8	.89	.00	.00	--	--
120	3.3	1.3	.00	.00	--	--
183	4.4	1.4	.30	.00	--	--

Magnitude and probability of seasonal low flow from
March-June based on 19 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3.3	0.58	0.00	0.00	--	--
3	3.6	.76	.00	.00	--	--
7	4.1	.89	.00	.00	--	--
14	4.6	1.3	.54	.00	--	--
30	12	4.8	2.8	1.7	--	--

Magnitude and probability of seasonal low flow from
November-February based on 19 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	0.62	0.00	0.00	0.00	--	--
3	.83	.00	.00	.00	--	--
7	1.0	.00	.00	.00	--	--
14	1.3	.00	.00	.00	--	--
30	2.2	.08	.00	.00	--	--

Duration of daily mean flows based on 19 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
0.07	0.14	0.35	0.71	1.9	3.7	6.3	12
40%	30%	20%	15%	10%	5%	2%	1%
17	24	37	47	81	153	215	270

Magnitude and probability of annual high flow
based on 19 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	96	220	345	565	--	--
3	95	218	342	559	--	--
7	92	214	336	546	--	--
15	88	206	320	512	--	--
30	81	189	290	456	--	--
60	70	160	241	369	--	--
90	61	137	204	305	--	--

Magnitude and probability of seasonal low flow from
July-October based on 20 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1.3	0.00	0.00	0.00	--	--
3	1.7	.00	.00	.00	--	--
7	1.9	.00	.00	.00	--	--
14	2.3	.00	.00	.00	--	--
30	3.1	.04	.00	.00	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	19	0.00	6.3	6.0	20
November	22	.00	7.3	6.7	20
December	19	.00	5.6	5.3	20
January	29	.00	6.8	8.1	19
February	27	.00	6.7	8.3	19
March	66	1.7	17	14	19
April	171	5.7	67	56	19
May	484	3.9	109	116	20
June	368	1.3	78	85	21
July	115	.22	36	32	21
August	52	.00	14	13	21
September	27	.00	7.2	7.2	21
Annual	109	1.5	31	27	19

**12369200 Swan River near Condon, Mont.
Site Number 271**

LOCATION.--Lat 47°25'21", long 113°40'12" (NAD 27), NE¼SW¼NW¼ sec.8, T.19 N., R.16 W., Missoula County, Hydrologic Unit 17010211, Flathead National Forest, on right bank 25 ft downstream from road bridge, 0.5 mi downstream from Beaver Creek, 4.5 mi downstream from Lindberg Lake, 8.1 mi southeast of Condon, and at river mile 75.5.

DRAINAGE AREA.--69.1 mi².

PERIOD OF RECORD.--October 1972 to September 1992 (discontinued).

REVISED RECORDS.--WDR MT-80-2: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 4,015 ft, (NGVD 29, by barometer).

Magnitude and probability of annual low flow
based on 19 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	28	23	21	19	--	--
3	29	24	21	19	--	--
7	30	24	22	19	--	--
14	31	25	22	20	--	--
30	34	27	24	22	--	--
60	39	31	27	24	--	--
90	44	34	30	27	--	--
120	51	38	32	28	--	--
183	58	44	37	33	--	--

Magnitude and probability of seasonal low flow from
March-June based on 20 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	41	32	30	29	--	--
3	42	33	30	29	--	--
7	45	35	32	30	--	--
14	49	37	33	31	--	--
30	59	42	36	32	--	--

Magnitude and probability of seasonal low flow from
November-February based on 19 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	31	24	21	19	--	--
3	32	25	22	20	--	--
7	33	26	23	21	--	--
14	35	27	24	22	--	--
30	38	30	27	24	--	--

Duration of daily mean flows based on 20 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
22	24	29	35	43	52	62	77
40%	30%	20%	15%	10%	5%	2%	1%
101	160	269	345	437	557	733	891

Magnitude and probability of annual high flow
based on 20 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	807	1,010	1,140	1,290	--	--
3	760	955	1,080	1,240	--	--
7	697	888	1,010	1,180	--	--
15	619	785	896	1,040	--	--
30	550	671	745	835	--	--
60	471	568	626	695	--	--
90	406	489	537	592	--	--

Magnitude and probability of seasonal low flow from
July-October based on 19 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	38	28	23	19	--	--
3	39	28	23	20	--	--
7	40	29	24	20	--	--
14	42	30	24	21	--	--
30	46	32	27	22	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	104	21	58	23	20
November	158	21	69	35	20
December	158	29	62	33	20
January	122	25	52	24	20
February	87	31	49	18	20
March	207	33	72	40	20
April	373	59	209	75	20
May	626	270	414	102	20
June	876	231	486	156	20
July	454	108	269	124	20
August	157	38	100	40	20
September	177	21	69	33	20
Annual	219	106	159	35	20

**12370000 Swan River near Bigfork, Mont.
Site Number 272**

LOCATION.--Lat 48°01'28", long 113°58'44" (NAD 27), near center of S½SW¼ sec.11, T.26 N., R.19 W., Lake County, Hydrologic Unit 17010211, on left bank 0.2 mi downstream from Johnson Creek, 0.4 mi downstream from Swan Lake, 5.1 mi southeast of Bigfork, and at river mile 14.0.

DRAINAGE AREA.--671 mi².

PERIOD OF RECORD.--October 1910 to May 1911 (gage heights only), April 1922 to current year (2002). Monthly discharge only for some periods, published in WSP 1316.

REVISED RECORDS.--WSP 1216: Drainage area. WSP 1246: 1923-24(M), 1930. WSP 1316: 1923.

GAGE.--Water-stage recorder. Altitude of gage is 3,062.6 ft (NGVD 29, from river-profile survey). Oct. 10, 1910, to May 22, 1911, nonrecording gage at site 10 mi upstream at different datum. Apr. 28, 1922, to Oct. 14, 1930, nonrecording gage at site 800 ft upstream at datum 1.9 ft higher.

REMARKS.--Diversions for irrigation of about 360 acres upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 79 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	343	290	265	244	223	209
3	348	293	267	246	223	209
7	356	299	272	250	226	211
14	370	309	280	256	231	216
30	389	324	293	269	243	227
60	422	352	319	295	270	254
90	447	371	339	316	293	279
120	472	386	351	327	303	290
183	502	404	366	340	314	300

Magnitude and probability of seasonal low flow from
March-June based on 80 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	433	339	303	277	253	239
3	438	343	306	281	256	242
7	450	351	312	286	261	246
14	472	365	323	294	267	251
30	557	413	357	317	279	257

Magnitude and probability of seasonal low flow from
November-February based on 80 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	356	297	273	255	237	226
3	362	301	275	256	237	226
7	373	308	281	262	242	230
14	388	319	291	270	249	237
30	410	335	304	281	259	246

Duration of daily mean flows based on 80 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
274	283	312	360	427	487	561	669
40%	30%	20%	15%	10%	5%	2%	1%
806	1,130	1,850	2,320	2,910	3,810	4,820	5,660

Magnitude and probability of annual high flow
based on 80 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	4,940	6,180	6,920	7,790	8,400	8,970
3	4,810	6,010	6,730	7,570	8,150	8,710
7	4,480	5,610	6,300	7,110	7,680	8,230
15	4,060	5,110	5,760	6,550	7,110	7,660
30	3,670	4,550	5,080	5,720	6,170	6,610
60	3,170	3,830	4,210	4,620	4,910	5,160
90	2,710	3,280	3,610	3,970	4,210	4,430

Magnitude and probability of seasonal low flow from
July-October based on 80 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	414	335	300	275	249	233
3	417	338	304	279	254	239
7	423	343	309	284	259	244
14	433	351	316	291	265	250
30	450	364	329	304	279	264

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	1,680	308	551	217	80
November	1,510	290	595	238	80
December	1,800	307	569	263	80
January	1,300	271	498	171	80
February	1,630	236	499	214	80
March	1,810	244	626	268	80
April	3,230	675	1,520	569	80
May	5,470	1,670	2,840	752	81
June	5,800	1,430	3,300	1,030	81
July	3,310	609	1,640	645	81
August	1,220	322	698	215	81
September	1,100	285	536	175	81
Annual	1,860	607	1,160	266	80

**12371100 Hell Roaring Creek near Polson, Mont.
Site Number 273**

LOCATION.--Lat 47°42'10", long 114°02'50" (NAD 27), in NW¼NW¼ sec.4, T.22 N., R.19 W., Lake County, on left bank just downstream from powerplant, 0.75 mi upstream from mouth, and 7 mi east of Polson.

DRAINAGE AREA.--6.22 mi² (revised).

PERIOD OF RECORD.--20 years (1917-37).

GAGE.--Water-stage recorder and concrete control. Altitude of gage is 3,150 ft (NGVD 29, by barometer).

REMARKS.--Records include water diverted by the Flathead irrigation project canal for irrigation of lands downstream. Flow regulated by powerplant and two reservoirs with a combined capacity of about 200 acre-ft.

Magnitude and probability of annual low flow
based on 14 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2.4	1.9	1.7	1.5	--	--
3	2.9	2.4	2.2	2.0	--	--
7	3.1	2.6	2.3	2.1	--	--
14	3.3	2.8	2.5	2.3	--	--
30	3.5	3.1	2.9	2.7	--	--
60	3.9	3.6	3.4	3.3	--	--
90	4.3	3.9	3.7	3.6	--	--
120	4.4	4.0	3.8	3.6	--	--
183	4.6	4.3	4.1	4.0	--	--

Magnitude and probability of seasonal low flow from
March-June based on 15 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2.6	2.0	1.8	1.6	--	--
3	3.2	2.6	2.4	2.2	--	--
7	3.5	2.9	2.6	2.3	--	--
14	3.7	3.0	2.7	2.5	--	--
30	3.9	3.2	3.0	2.8	--	--

Magnitude and probability of seasonal low flow from
November-February based on 15 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2.7	2.2	1.9	1.7	--	--
3	3.3	2.6	2.3	2.0	--	--
7	3.5	2.9	2.6	2.3	--	--
14	3.8	3.3	3.1	3.0	--	--
30	4.0	3.7	3.5	3.4	--	--

Duration of daily mean flows based on 15 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
2.4	2.8	3.0	3.4	4.0	4.4	4.8	5.2
40%	30%	20%	15%	10%	5%	2%	1%
5.6	6.4	7.5	8.1	13	21	30	36

Magnitude and probability of annual high flow
based on 15 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	29	46	55	65	--	--
3	24	39	49	63	--	--
7	21	35	45	58	--	--
15	18	29	37	48	--	--
30	15	24	31	40	--	--
60	12	19	24	31	--	--
90	10	16	20	27	--	--

Magnitude and probability of seasonal low flow from
July-October based on 15 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2.8	2.1	1.8	1.6	--	--
3	3.3	2.7	2.5	2.3	--	--
7	3.7	3.0	2.7	2.4	--	--
14	3.9	3.2	2.9	2.7	--	--
30	4.2	3.5	3.2	3.0	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	8.5	3.0	5.0	1.5	15
November	6.8	3.9	5.2	.86	15
December	8.2	4.1	5.2	1.1	15
January	7.1	3.4	4.7	1.0	15
February	5.8	3.5	4.5	.65	15
March	6.4	3.2	4.3	.87	15
April	14	2.9	7.2	3.4	15
May	32	5.2	13	7.7	15
June	33	4.1	14	9.6	16
July	18	3.3	7.3	4.0	16
August	9.2	3.5	5.8	1.6	17
September	7.6	3.1	5.3	1.2	16
Annual	10	4.4	6.6	1.7	15

12372000 Flathead River near Polson, Mont. Site Number 274

LOCATION.--Lat 47°40'49", long 114°14'45" (NAD 27), in SW¼NE¼SE¼ sec.11, T.22 N., R.21 W., Lake County, Hydrologic Unit 17010212, on left bank 0.5 mi downstream from Kerr Dam, 4.0 mi west of Polson, 5.0 mi downstream from Flathead Lake, and at river mile 71.5.

DRAINAGE AREA.--7,096 mi².

PERIOD OF RECORD.--July 1907 to current year (2002).

REVISED RECORDS.--WSP 652: 1926. WSP 752: 1932. WSP 1182: 1948. WSP 1216: Drainage area. WSP 1246: 1928(M). WSP 1636: 1958 (adjusted runoff).

GAGE.--Water-stage recorder. Altitude of gage is 2,692.70 ft (NGVD 29, levels by The Montana Power Co.). Prior to Oct. 1, 1941, nonrecording gages or water-stage recorder at several sites near highway bridge at old site of Michell's Ferry 6 mi downstream from present site, all at datum 2,629.20 ft (from river-profile survey).

REMARKS.--Flow regulated by Flathead Lake (Kerr Dam) after April 1938 (station number 12371500) and Hungry Horse Reservoir (station number 12362000) since September 1951. Diversions upstream from station for irrigation of about 10,000 acres. Flathead project pumps can divert up to 12,000 acre-ft per month when required for irrigation of lands downstream from station. U.S.Geological Survey satellite telemeter at station.

Unregulated streamflow period

Magnitude and probability of annual low flow
based on 41 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2,370	1,760	1,490	1,250	1,050	--
3	2,390	1,830	1,560	1,350	1,140	--
7	2,470	1,940	1,700	1,520	1,330	--
14	2,550	2,030	1,800	1,620	1,440	--
30	2,710	2,150	1,890	1,700	1,500	--
60	3,080	2,410	2,090	1,860	1,610	--
90	3,460	2,620	2,250	1,990	1,720	--
120	3,710	2,750	2,360	2,070	1,800	--
183	4,260	3,190	2,740	2,420	2,110	--

Magnitude and probability of seasonal low flow from
March-June based on 43 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2,970	2,090	1,760	1,470	1,180	--
3	3,010	2,150	1,790	1,540	1,290	--
7	3,090	2,270	1,950	1,720	1,500	--
14	3,180	2,370	2,050	1,830	1,620	--
30	3,420	2,500	2,150	1,900	1,670	--

Magnitude and probability of seasonal low flow from
November-February based on 43 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2,800	1,910	1,520	1,350	1,100	--
3	2,830	2,040	1,710	1,470	1,230	--
7	2,900	2,140	1,840	1,620	1,410	--
14	2,980	2,220	1,930	1,740	1,550	--
30	3,110	2,310	2,010	1,810	1,630	--

Duration of daily mean flows based on 43 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
1,650	1,850	2,270	2,580	3,200	3,820	4,520	5,570
40%	30%	20%	15%	10%	5%	2%	1%
7,270	10,300	16,900	23,900	32,300	43,700	55,300	65,000

Magnitude and probability of annual high flow
based on 43 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	49,700	62,600	69,000	75,400	79,100	--
3	49,500	62,600	68,900	75,000	78,500	--
7	48,800	61,900	67,900	73,400	76,300	--
15	47,100	59,900	65,700	70,800	73,500	--
30	43,800	55,200	60,000	64,000	66,000	--
60	37,400	45,800	48,700	50,800	51,700	--
90	30,800	37,600	40,000	41,800	42,500	--

Magnitude and probability of seasonal low flow from
July-October based on 43 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3,150	2,310	1,960	1,700	1,450	--
3	3,280	2,530	2,220	1,990	1,770	--
7	3,380	2,680	2,390	2,200	2,010	--
14	3,470	2,780	2,510	2,320	2,140	--
30	3,650	2,970	2,710	2,540	2,370	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	10,900	2,280	4,560	1,830	44
November	13,400	1,900	4,660	2,310	43
December	11,600	1,670	4,860	2,690	43
January	14,800	1,560	5,090	3,450	43
February	12,000	1,600	4,290	2,520	43
March	8,960	1,520	3,920	1,740	43
April	22,300	2,630	8,180	4,590	44
May	49,200	5,960	28,400	9,820	44
June	64,400	10,000	38,700	13,400	44
July	55,600	4,760	20,200	10,600	44
August	17,500	3,350	7,920	3,150	45
September	11,100	2,690	4,990	1,620	45
Annual	17,200	5,200	11,200	2,910	43

12372000 Flathead River near Polson, Mont.—Continued
Site Number 274

Regulated streamflow period

Magnitude and probability of annual low flow based on 50 years of record						
Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2,950	1,760	1,060	623	297	167
3	3,050	2,030	1,590	1,270	966	795
7	3,420	2,390	1,930	1,600	1,270	1,080
14	3,930	2,840	2,340	1,960	1,580	1,360
30	4,750	3,580	3,000	2,560	2,100	1,820
60	5,730	4,540	3,950	3,480	2,990	2,680
90	6,740	5,370	4,680	4,140	3,570	3,220
120	7,390	5,900	5,140	4,530	3,890	3,480
183	8,410	7,010	6,250	5,630	4,950	4,510

Magnitude and probability of seasonal low flow from March-June based on 51 seasons of record						
Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4,990	3,200	2,510	2,050	1,620	1,380
3	5,670	3,680	2,880	2,340	1,830	1,550
7	6,080	4,000	3,180	2,610	2,080	1,780
14	6,540	4,520	3,730	3,180	2,670	2,370
30	7,440	5,240	4,360	3,760	3,170	2,840

Magnitude and probability of seasonal low flow from November-February based on 50 seasons of record						
Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4,380	2,940	2,300	1,830	1,390	1,140
3	5,300	3,920	3,280	2,800	2,310	2,020
7	6,000	4,500	3,800	3,280	2,750	2,430
14	6,610	5,040	4,310	3,760	3,200	2,860
30	7,550	5,830	5,000	4,360	3,710	3,300

Duration of daily mean flows based on 51 years of record							
Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
2,340	3,090	3,780	4,750	6,330	7,480	8,630	9,850
40%	30%	20%	15%	10%	5%	2%	1%
11,100	12,600	15,300	16,700	21,500	29,900	40,400	46,400

Magnitude and probability of annual high flow based on 51 years of record						
Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	39,800	51,000	55,500	59,100	60,700	62,600
3	38,400	49,800	54,600	58,500	60,500	62,500
7	35,100	46,600	52,100	57,200	60,100	62,300
15	31,600	42,800	48,800	55,000	58,800	62,100
30	28,100	38,000	43,500	49,300	53,100	56,300
60	23,000	30,500	34,800	39,700	42,900	45,900
90	19,700	25,700	29,200	33,200	36,000	38,600

Magnitude and probability of seasonal low flow from July-October based on 50 seasons of record						
Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3,170	1,920	1,150	660	305	197
3	3,320	2,190	1,690	1,330	989	827
7	3,740	2,590	2,070	1,700	1,340	1,130
14	4,270	3,000	2,430	2,020	1,610	1,410
30	5,090	3,750	3,130	2,670	2,200	1,920

Monthly and annual mean discharges					
Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	14,000	3,710	8,200	2,140	51
November	12,900	3,360	9,270	2,190	51
December	16,300	5,710	10,400	2,230	51
January	16,500	5,560	10,600	2,470	51
February	17,300	3,710	10,300	3,290	51
March	23,300	2,330	9,260	3,910	51
April	22,200	3,770	10,500	4,800	51
May	33,500	5,200	18,100	7,680	51
June	49,800	6,400	25,700	10,400	51
July	29,900	5,220	14,000	5,180	51
August	11,700	2,340	6,520	2,150	51
September	12,000	3,010	6,890	2,120	51
Annual	17,000	6,450	11,600	2,450	51

**12374250 Mill Creek above Bassoo Creek, near Niarada, Mont.
Site Number 275**

LOCATION.--Lat 47°49'47", long 114°41'48" (NAD 27), in SE¼NW¼NE¼ sec.20, T.24 N., R.24 W., Sanders County, Hydrologic Unit 17010212, Flathead Indian Reservation, on right bank 0.3 mi upstream from Bassoo Creek, and 4.1 mi northwest of Niarada.

DRAINAGE AREA.--19.6 mi².

PERIOD OF RECORD.--October 1982 to current year (2002).

GAGE.--Water-stage recorder and crest-stage gage. Altitude of gage is 3,000 ft (NGVD 29). Prior to Sept. 23, 1987, at site 305 ft downstream at different datum.

Prior to July 23, 1991, at site 275 ft downstream at different datum.

REMARKS.-- No known regulation or diversion upstream from station.

Magnitude and probability of annual low flow
based on 19 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1.5	1.3	1.3	1.2	--	--
3	1.7	1.4	1.4	1.3	--	--
7	1.8	1.6	1.5	1.4	--	--
14	2.0	1.7	1.6	1.5	--	--
30	2.1	1.8	1.7	1.6	--	--
60	2.3	1.9	1.8	1.6	--	--
90	2.4	2.0	1.9	1.7	--	--
120	2.5	2.1	2.0	1.8	--	--
183	2.7	2.2	2.0	1.9	--	--

Magnitude and probability of seasonal low flow from
March-June based on 20 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2.9	1.9	1.5	1.3	--	--
3	3.0	1.9	1.6	1.4	--	--
7	3.2	2.1	1.7	1.5	--	--
14	3.6	2.4	2.0	1.7	--	--
30	4.9	3.1	2.5	2.1	--	--

Magnitude and probability of seasonal low flow from
November-February based on 20 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1.7	1.4	1.3	1.2	--	--
3	1.8	1.5	1.4	1.3	--	--
7	2.0	1.7	1.5	1.4	--	--
14	2.1	1.8	1.6	1.6	--	--
30	2.3	1.9	1.8	1.7	--	--

Duration of daily mean flows based on 20 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
1.5	1.6	1.9	2.1	2.3	2.6	3.0	3.6
40%	30%	20%	15%	10%	5%	2%	1%
4.5	6.7	12	15	21	31	46	62

Magnitude and probability of annual high flow
based on 20 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	40	72	99	142	--	--
3	38	67	91	129	--	--
7	34	59	79	110	--	--
15	30	49	64	88	--	--
30	26	42	55	76	--	--
60	21	35	46	63	--	--
90	18	29	38	52	--	--

Magnitude and probability of seasonal low flow from
July-October based on 19 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	2.0	1.7	1.5	1.4	--	--
3	2.1	1.7	1.6	1.4	--	--
7	2.1	1.8	1.6	1.5	--	--
14	2.2	1.9	1.7	1.5	--	--
30	2.3	2.0	1.8	1.6	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	5.1	1.9	2.7	0.70	20
November	8.6	2.0	3.5	1.6	20
December	17	2.1	3.6	3.3	20
January	9.8	1.9	3.3	1.9	20
February	14	1.7	3.9	3.1	20
March	35	2.5	7.5	7.4	20
April	50	5.0	21	14	20
May	87	11	26	17	20
June	38	4.9	16	9.3	20
July	13	2.5	5.8	2.9	20
August	5.6	1.9	3.1	.97	21
September	3.4	1.5	2.5	.50	20
Annual	19	3.9	8.2	4.1	20

**12375900 South Crow Creek near Ronan, Mont.
Site Number 276**

LOCATION.--Lat 47°29'30", long 114°01'33" (NAD 27), in NW¼NE¼SW¼ sec.16, T.20 N., R.19 W., Lake County, Hydrologic Unit 17010212, Flathead Indian Reservation, on right bank 200 ft upstream from Pablo Feeder Canal, 2.2 mi northeast of Kicking Horse Reservoir, 4.5 mi southeast of Ronan, and at river mile 2.6.

DRAINAGE AREA.--7.57 mi².

PERIOD OF RECORD.--October 1982 to current year (2002).

GAGE.--Water-stage recorder. Altitude of gage is 3,320 ft (NGVD 29).

REMARKS.--No known regulation or diversion upstream from station.

Magnitude and probability of annual low flow
based on 19 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	5.1	4.6	4.3	4.1	--	--
3	5.3	4.8	4.6	4.4	--	--
7	5.5	5.0	4.8	4.6	--	--
14	5.8	5.2	5.0	4.8	--	--
30	6.1	5.5	5.3	5.1	--	--
60	6.5	5.8	5.5	5.2	--	--
90	6.9	6.0	5.7	5.5	--	--
120	7.3	6.3	5.9	5.7	--	--
183	8.0	6.8	6.3	5.9	--	--

Magnitude and probability of seasonal low flow from
March-June based on 20 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	5.9	5.2	5.0	4.8	--	--
3	6.1	5.4	5.1	4.9	--	--
7	6.3	5.6	5.3	5.0	--	--
14	6.7	5.8	5.4	5.2	--	--
30	7.5	6.4	5.9	5.6	--	--

Magnitude and probability of seasonal low flow from
November-February based on 20 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	5.2	4.6	4.3	4.1	--	--
3	5.4	4.8	4.6	4.4	--	--
7	5.7	5.1	4.8	4.6	--	--
14	5.9	5.3	5.0	4.8	--	--
30	6.2	5.5	5.3	5.1	--	--

Duration of daily mean flows based on 20 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
4.4	4.7	5.7	6.1	6.9	7.6	8.7	10
40%	30%	20%	15%	10%	5%	2%	1%
12	16	29	40	55	74	93	119

Magnitude and probability of annual high flow
based on 20 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	130	193	236	294	--	--
3	111	157	189	231	--	--
7	95	127	149	177	--	--
15	83	106	122	141	--	--
30	75	93	103	116	--	--
60	62	77	85	95	--	--
90	50	62	68	76	--	--

Magnitude and probability of seasonal low flow from
July-October based on 19 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	7.4	6.3	5.8	5.4	--	--
3	7.5	6.5	6.0	5.7	--	--
7	7.7	6.7	6.2	5.8	--	--
14	7.8	6.8	6.3	5.9	--	--
30	8.1	6.9	6.4	6.0	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	14	6.1	9.2	2.3	20
November	19	6.3	9.6	3.3	20
December	15	5.8	7.9	2.2	20
January	11	5.4	7.2	1.5	20
February	10	5.0	6.7	1.3	20
March	13	4.9	7.9	1.7	20
April	25	8.8	16	4.5	20
May	69	25	45	12	20
June	104	36	68	19	20
July	74	16	37	18	20
August	22	7.9	14	4.1	20
September	20	6.9	9.6	3.0	20
Annual	27	14	20	4.1	20

**12377150 Mission Creek above reservoir, near St. Ignatius, Mont.
Site Number 277**

LOCATION.--Lat 47°19'23", long 113°58'43" (NAD 27), in NW¼SW¼NE¼ sec.14, T.18 N., R.19 W., Lake County, Hydrologic Unit 17010212, Flathead Indian Reservation, on right bank, 0.2 mi southwest of upper Bureau of Indian Affairs campground, 0.5 mi upstream from Mission Reservoir, and 5.3 mi east of St. Ignatius.

DRAINAGE AREA.--12.4 mi².

PERIOD OF RECORD.--October 1982 to current year (2002).

GAGE.--Water-stage recorder. Altitude of gage is 3,460 ft (NGVD 29).

REMARKS.--No known regulation or diversions upstream from station.

Magnitude and probability of annual low flow
based on 19 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	7.1	6.4	6.0	5.7	--	--
3	7.3	6.7	6.4	6.2	--	--
7	7.7	7.1	6.7	6.5	--	--
14	8.1	7.4	7.0	6.7	--	--
30	8.5	7.8	7.4	7.1	--	--
60	9.6	8.6	8.2	7.9	--	--
90	11	9.6	9.2	8.9	--	--
120	13	11	10	9.9	--	--
183	18	15	13	12	--	--

Magnitude and probability of seasonal low flow from
March-June based on 20 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	8.0	7.1	6.7	6.4	--	--
3	8.2	7.3	6.9	6.7	--	--
7	8.5	7.5	7.1	6.8	--	--
14	9.1	8.0	7.5	7.1	--	--
30	10	8.9	8.2	7.7	--	--

Magnitude and probability of seasonal low flow from
November-February based on 20 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	7.3	6.4	6.0	5.7	--	--
3	7.6	6.8	6.5	6.2	--	--
7	8.0	7.2	6.9	6.6	--	--
14	8.3	7.5	7.1	6.8	--	--
30	8.7	7.9	7.5	7.2	--	--

Duration of daily mean flows based on 20 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
6.3	6.8	8.2	9.2	11	14	17	23
40%	30%	20%	15%	10%	5%	2%	1%
30	44	77	106	139	186	254	302

Magnitude and probability of annual high flow
based on 20 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	353	417	450	483	--	--
3	301	359	389	420	--	--
7	258	311	341	374	--	--
15	222	266	291	318	--	--
30	193	224	241	259	--	--
60	163	188	201	215	--	--
90	134	156	167	180	--	--

Magnitude and probability of seasonal low flow from
July-October based on 19 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	19	15	13	12	--	--
3	19	15	14	12	--	--
7	20	16	14	12	--	--
14	21	16	14	13	--	--
30	22	17	15	13	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	37	14	25	7.7	20
November	28	12	19	4.7	20
December	21	10	13	2.6	20
January	15	8.2	11	1.7	20
February	13	6.7	9.0	1.4	20
March	15	7.2	11	1.9	20
April	44	11	26	9.7	20
May	168	54	101	29	20
June	222	104	173	33	20
July	180	53	116	41	20
August	75	25	49	15	20
September	67	16	30	11	20
Annual	61	36	49	7.6	20

**12381400 South Fork Jocko River near Arlee, Mont.
Site Number 278**

LOCATION.--Lat 47°11'44", long 113°50'59" (NAD 27), in NE¼NW¼NE¼ sec.35, T.17 N., R.18 W., Lake County, Hydrologic Unit 17010212, Flathead Indian Reservation, on right bank 600 ft upstream from confluence with Jocko River and Twin Campground and 12 mi northeast of Arlee.

DRAINAGE AREA.--56.0 mi².

PERIOD OF RECORD.--October 1982 to current year (2002). Records published as "near Jocko" 1912-16 and in WSP 1246, 1316 are not equivalent.

GAGE.--Water-stage recorder. Altitude of gage is 3,970 ft (NGVD 29).

REMARKS.--No known regulation or diversion upstream from station. U.S. Geological Survey telemeter at station.

Magnitude and probability of annual low flow
based on 19 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4.2	3.0	2.5	2.1	--	--
3	4.6	3.4	2.9	2.5	--	--
7	5.6	4.1	3.5	3.0	--	--
14	7.0	5.3	4.5	3.8	--	--
30	8.4	6.1	5.1	4.3	--	--
60	10	7.3	6.1	5.2	--	--
90	11	8.6	7.8	7.2	--	--
120	13	10	9.4	8.8	--	--
183	16	13	12	11	--	--

Magnitude and probability of seasonal low flow from
March-June based on 20 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	8.1	5.9	5.2	4.8	--	--
3	8.8	6.4	5.7	5.3	--	--
7	9.5	6.9	6.1	5.6	--	--
14	10	7.9	7.3	7.0	--	--
30	12	9.4	8.9	8.6	--	--

Magnitude and probability of seasonal low flow from
November-February based on 20 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4.5	3.1	2.5	2.2	--	--
3	5.0	3.5	2.9	2.5	--	--
7	6.2	4.4	3.6	3.0	--	--
14	7.8	5.6	4.6	3.9	--	--
30	9.0	6.3	5.2	4.4	--	--

Duration of daily mean flows based on 20 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
4.3	5.3	7.2	9.4	13	16	19	24
40%	30%	20%	15%	10%	5%	2%	1%
31	46	83	114	158	233	337	413

Magnitude and probability of annual high flow
based on 20 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	346	510	639	827	--	--
3	326	475	590	757	--	--
7	303	428	519	644	--	--
15	269	370	443	541	--	--
30	233	322	390	488	--	--
60	185	250	299	368	--	--
90	151	200	235	284	--	--

Magnitude and probability of seasonal low flow from
July-October based on 19 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	17	15	13	13	--	--
3	18	15	14	13	--	--
7	18	15	14	13	--	--
14	19	16	14	13	--	--
30	20	17	15	14	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	42	13	22	6.1	20
November	26	11	18	4.3	20
December	37	9.3	15	6.8	20
January	22	3.7	12	5.1	20
February	23	4.4	10	4.1	20
March	56	7.7	15	10	20
April	113	25	56	29	20
May	459	118	197	73	20
June	446	70	192	92	20
July	140	37	77	27	20
August	54	22	38	9.3	20
September	44	16	26	7.0	20
Annual	108	35	57	17	20

12383500 Big Knife Creek near Arlee, Mont. Site Number 279

LOCATION.--Lat 47°08'51", long 113°58'24" (NAD 27), in NW¼SW¼NW¼ sec.14, T.16 N., R.19 W., Lake County, Hydrologic Unit 17010212, Flathead Indian Reservation, on left bank, 150 ft upstream from S Canal, 1 mi upstream from mouth, and 5.5 mi east of Arlee.

DRAINAGE AREA.--6.88 mi².

PERIOD OF RECORD.--August 1910 to September 1916 (no winter records), October 1982 to current year (2002). Monthly discharge only for some periods, published in WSP 1316. Published as "near Jocko" 1910-16 and in WSP 916, and as "above Big Knife Canal, near Jocko" in WSP 1246, 1316.

REVISED RECORDS.--WSP 1246: 1916. WSP 1316: 1910-12, 1915-16.

GAGE.--Water-stage recorder and crest-stage gage. Altitude of gage is 3,720 ft (NGVD 29). Prior to July 28, 1998, at site 38 ft upstream at different datum.

REMARKS.-- No known regulation or diversion upstream from station.

Magnitude and probability of annual low flow
based on 19 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3.5	2.7	2.2	1.9	--	--
3	3.6	2.9	2.5	2.2	--	--
7	3.8	3.2	2.8	2.5	--	--
14	4.0	3.5	3.2	2.9	--	--
30	4.1	3.6	3.4	3.1	--	--
60	4.5	4.0	3.7	3.5	--	--
90	5.1	4.5	4.1	3.9	--	--
120	5.5	4.8	4.4	4.1	--	--
183	6.8	5.9	5.4	5.0	--	--

Magnitude and probability of seasonal low flow from
March-June based on 20 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3.8	3.3	3.1	3.0	--	--
3	3.9	3.4	3.2	3.0	--	--
7	4.0	3.5	3.3	3.1	--	--
14	4.1	3.6	3.4	3.2	--	--
30	4.3	3.7	3.5	3.3	--	--

Magnitude and probability of seasonal low flow from
November-February based on 20 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3.7	2.7	2.3	1.9	--	--
3	3.8	3.0	2.6	2.2	--	--
7	4.1	3.4	2.9	2.6	--	--
14	4.3	3.7	3.4	3.1	--	--
30	4.5	3.9	3.6	3.4	--	--

Duration of daily mean flows based on 20 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
3.0	3.2	3.8	4.3	5.1	5.9	7.1	8.4
40%	30%	20%	15%	10%	5%	2%	1%
10	13	16	20	24	31	41	46

Magnitude and probability of annual high flow
based on 20 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	36	49	56	64	--	--
3	35	47	53	60	--	--
7	32	43	50	57	--	--
15	29	39	46	53	--	--
30	26	35	40	45	--	--
60	23	30	34	38	--	--
90	20	26	29	32	--	--

Magnitude and probability of seasonal low flow from
July-October based on 23 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	7.6	6.5	5.8	5.2	--	--
3	7.6	6.5	5.8	5.2	--	--
7	7.8	6.5	5.8	5.3	--	--
14	7.9	6.7	6.0	5.5	--	--
30	8.2	7.0	6.4	5.8	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	10	5.3	8.2	1.4	24
November	8.9	4.5	6.9	1.2	22
December	8.4	4.1	5.9	1.1	21
January	6.3	3.7	5.1	.79	20
February	6.5	3.0	4.5	.79	20
March	7.1	3.0	4.5	.90	20
April	8.9	3.9	6.1	1.5	22
May	28	9.0	15	4.1	25
June	48	8.5	28	9.7	26
July	55	9.6	21	8.7	26
August	28	8.1	14	3.7	27
September	18	6.6	10	2.2	27
Annual	15	6.6	10	2.0	20

**12388200 Jocko River at Dixon, Mont.
Site Number 280**

LOCATION.--Lat 47°18'43", long 114°17'48" (NAD 27), in NW¼NW¼NE¼ sec.20, T.18 N., R.21 W., Sanders County, Hydrologic Unit 17010212, Flathead Indian Reservation, on right bank 38 ft downstream from State Highway 212 bridge, 0.8 mi east of Dixon, and at river mile 0.8.

DRAINAGE AREA.--380 mi².

PERIOD OF RECORD.--April 1990 to current year (2002). Miscellaneous measurements made at this site 1977 and 1987 water years.

GAGE.--Water-stage recorder. Altitude of gage is 2,521.87 ft (NGVD 29).

REMARKS.--Some regulation and diversion upstream from gage for irrigation.

Magnitude and probability of annual low flow
based on 11 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	97	85	79	74	--	--
3	101	90	83	77	--	--
7	108	97	91	85	--	--
14	112	104	100	96	--	--
30	117	108	105	102	--	--
60	122	114	111	110	--	--
90	132	121	116	113	--	--
120	142	128	123	118	--	--
183	155	140	133	127	--	--

Magnitude and probability of seasonal low flow from
March-June based on 12 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	113	102	98	96	--	--
3	115	103	100	98	--	--
7	119	108	105	103	--	--
14	124	113	110	109	--	--
30	135	121	117	115	--	--

Magnitude and probability of seasonal low flow from
November-February based on 12 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	97	86	80	75	--	--
3	102	90	84	78	--	--
7	109	98	92	86	--	--
14	114	105	100	96	--	--
30	118	108	105	102	--	--

Duration of daily mean flows based on 12 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
94	97	103	115	134	147	160	173
40%	30%	20%	15%	10%	5%	2%	1%
186	220	262	315	405	633	947	1,230

Magnitude and probability of annual high flow
based on 12 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	683	1,170	1,600	--	--	--
3	649	1,100	1,500	--	--	--
7	601	1,000	1,340	--	--	--
15	540	914	1,240	--	--	--
30	495	846	1,160	--	--	--
60	420	695	936	--	--	--
90	355	565	749	--	--	--

Magnitude and probability of seasonal low flow from
July-October based on 12 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	148	132	125	120	--	--
3	149	133	126	121	--	--
7	152	134	127	122	--	--
14	157	138	130	123	--	--
30	164	143	134	127	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	227	145	184	25	12
November	227	138	175	27	12
December	265	123	158	38	12
January	188	102	133	23	12
February	208	108	131	29	12
March	246	118	149	38	12
April	390	130	222	87	13
May	1,300	203	425	283	13
June	1,540	149	562	387	13
July	512	140	271	104	13
August	228	131	174	30	13
September	225	137	181	24	13
Annual	445	157	228	82	12

**12388400 Revais Creek below West Fork, near Dixon, Mont.
Site Number 281**

LOCATION.--Lat 47°15'59", long 114°24'21" (NAD 27), in SE¼NE¼NW¼ sec.4, T.17 N., R.22 W., Sanders County, Hydrologic Unit 17010212, Flathead Indian Reservation, on right bank, 0.3 mi downstream from West Fork, 7.3 mi southwest of Dixon, and at river mile 5.2.

DRAINAGE AREA.--23.4 mi².

PERIOD OF RECORD.--October 1982 to current year (2002).

GAGE.--Water-stage recorder and crest-stage gage. Altitude of gage is 3,420 ft (NGVD 29).

REMARKS.--No known regulation or diversion upstream from station.

Magnitude and probability of annual low flow
based on 19 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3.4	2.9	2.8	2.7	--	--
3	3.6	3.1	2.9	2.8	--	--
7	3.8	3.3	3.1	3.0	--	--
14	4.0	3.5	3.3	3.2	--	--
30	4.2	3.6	3.4	3.3	--	--
60	4.5	3.8	3.5	3.3	--	--
90	4.7	4.0	3.7	3.5	--	--
120	5.0	4.2	3.9	3.7	--	--
183	5.4	4.4	4.1	3.9	--	--

Magnitude and probability of seasonal low flow from
March-June based on 20 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4.4	3.3	3.0	2.8	--	--
3	4.6	3.5	3.1	3.0	--	--
7	4.9	3.7	3.3	3.1	--	--
14	5.1	3.9	3.5	3.3	--	--
30	6.2	4.4	3.9	3.6	--	--

Magnitude and probability of seasonal low flow from
November-February based on 19 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3.7	3.0	2.8	2.7	--	--
3	3.9	3.2	2.9	2.8	--	--
7	4.1	3.4	3.1	3.0	--	--
14	4.2	3.5	3.3	3.2	--	--
30	4.3	3.6	3.4	3.3	--	--

Duration of daily mean flows based on 20 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
3.0	3.1	3.6	4.2	4.8	5.4	6.2	7.5
40%	30%	20%	15%	10%	5%	2%	1%
9.5	13	23	34	48	72	117	157

Magnitude and probability of annual high flow
based on 20 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	139	195	234	287	--	--
3	128	176	209	252	--	--
7	112	155	185	226	--	--
15	92	129	157	196	--	--
30	76	107	133	173	--	--
60	58	79	97	123	--	--
90	46	63	76	96	--	--

Magnitude and probability of seasonal low flow from
July-October based on 19 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	5.1	4.2	3.8	3.5	--	--
3	5.1	4.2	3.8	3.5	--	--
7	5.2	4.3	3.8	3.5	--	--
14	5.3	4.3	3.9	3.6	--	--
30	5.5	4.5	4.1	3.8	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	12	4.0	6.4	2.2	20
November	15	4.3	6.9	2.8	20
December	28	3.8	6.7	5.3	20
January	12	3.5	5.4	2.2	20
February	20	3.5	5.7	3.7	20
March	24	4.0	8.0	5.3	20
April	56	9.1	23	12	20
May	165	45	67	26	20
June	134	19	57	32	20
July	26	10	17	5.8	20
August	11	5.5	8.1	1.5	20
September	11	4.2	6.4	1.6	20
Annual	35	12	18	6.0	20

**12388700 Flathead River at Perma, Mont.
Site Number 282**

LOCATION.--Lat 47°22'03", long 114°35'03" (NAD 27), in SE¼NE¼NE¼ sec.36, T.19 N., R.24 W., Sanders County, Hydrologic Unit 17010212, Flathead Indian Reservation, on right bank 0.3 mi north of Perma, 0.4 mi downstream from Camas Creek, and at river mile 10.9.

DRAINAGE AREA.--8,795 mi².

PERIOD OF RECORD.--October 1983 to current year (2002).

GAGE.--Water-stage recorder. Altitude of gage is 2,469.31 ft (NGVD 29).

REMARKS.--Flow affected by regulation from Hungry Horse Reservoir (station number 12362000) and by Flathead Lake (station number 12371500). Diversions for irrigation of about 160,500 acres upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 18 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4,480	3,740	3,380	3,100	--	--
3	4,590	3,800	3,430	3,150	--	--
7	4,690	3,890	3,550	3,300	--	--
14	4,990	4,230	3,900	3,660	--	--
30	5,870	4,820	4,290	3,880	--	--
60	6,750	5,420	4,730	4,190	--	--
90	7,860	6,100	5,230	4,540	--	--
120	8,700	6,800	5,780	4,960	--	--
183	9,420	7,620	6,620	5,790	--	--

Magnitude and probability of seasonal low flow from
March-June based on 19 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	5,660	4,110	3,580	3,240	--	--
3	5,970	4,290	3,700	3,310	--	--
7	6,260	4,480	3,880	3,490	--	--
14	6,600	4,940	4,400	4,060	--	--
30	7,530	5,790	5,210	4,840	--	--

Magnitude and probability of seasonal low flow from
November-February based on 18 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	6,050	4,820	4,250	3,820	--	--
3	6,590	5,120	4,440	3,920	--	--
7	7,160	5,420	4,610	4,000	--	--
14	7,540	5,670	4,790	4,130	--	--
30	8,350	6,260	5,250	4,480	--	--

Duration of daily mean flows based on 19 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
3,340	3,590	4,350	5,450	6,960	8,190	9,340	10,400
40%	30%	20%	15%	10%	5%	2%	1%
11,500	13,100	15,100	16,100	17,400	24,900	36,300	44,100

Magnitude and probability of annual high flow
based on 19 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	32,500	45,000	51,500	58,100	--	--
3	31,300	43,500	50,200	57,300	--	--
7	28,400	40,100	47,000	55,000	--	--
15	25,800	37,000	44,200	53,100	--	--
30	22,700	32,900	40,200	49,800	--	--
60	19,100	26,700	32,300	40,000	--	--
90	16,900	23,100	27,400	33,300	--	--

Magnitude and probability of seasonal low flow from
July-October based on 18 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	4,620	4,070	3,850	3,680	--	--
3	4,860	4,150	3,870	3,680	--	--
7	5,170	4,300	3,940	3,690	--	--
14	5,550	4,540	4,110	3,800	--	--
30	6,430	5,090	4,450	3,960	--	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	12,100	4,300	8,900	2,240	19
November	13,200	4,050	10,700	1,970	19
December	17,300	6,160	11,100	2,660	19
January	15,200	6,100	10,700	2,610	19
February	18,300	4,230	9,930	3,290	19
March	23,400	4,120	9,450	4,160	19
April	23,400	4,400	10,400	4,470	19
May	36,900	5,880	15,500	7,640	19
June	45,500	9,090	23,100	10,700	19
July	22,800	6,280	13,300	4,980	19
August	12,700	4,160	8,160	2,600	19
September	13,100	4,010	8,160	2,570	19
Annual	18,000	7,040	11,600	2,860	19

**12389000 Clark Fork near Plains, Mont.
Site Number 283**

LOCATION.--Lat 47°25'47", long 114°51'18" (NAD 27), in E½SW¼ sec.1, T.19 N., R.26 W., Sanders County, Hydrologic Unit 17010213, on right bank 2.4 mi southeast of Plains, 6.0 mi downstream from Flathead River, and at river mile 239.0.

DRAINAGE AREA.--19,958 mi².

PERIOD OF RECORD.--October 1910 to current year (2002). Monthly discharge only for some periods, published in WSP 1316.

REVISED RECORDS.--WSP 1246: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 2,449.11 ft (NGVD 29, levels by U.S. Army Corps of Engineers). Prior to Nov. 28, 1911, nonrecording gage at site 50 ft upstream at same datum.

REMARKS.--Flow partly regulated by Hungry Horse Reservoir (station number 12362000) and by Flathead Lake (station number 12371500). Diversions for irrigation of about 335,000 acres upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 91 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	5,930	4,800	4,260	3,840	3,410	3,140
3	6,190	4,990	4,430	4,000	3,560	3,280
7	6,460	5,190	4,600	4,150	3,690	3,410
14	6,750	5,370	4,750	4,270	3,790	3,490
30	7,270	5,710	5,000	4,460	3,910	3,570
60	8,140	6,290	5,440	4,800	4,140	3,740
90	8,910	6,730	5,750	5,020	4,270	3,830
120	9,510	7,120	6,040	5,240	4,420	3,930
183	10,500	7,890	6,660	5,720	4,770	4,200

Magnitude and probability of seasonal low flow from
March-June based on 92 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	8,620	6,340	5,460	4,860	4,290	3,970
3	8,940	6,530	5,600	4,960	4,350	3,990
7	9,240	6,740	5,770	5,100	4,470	4,100
14	9,650	6,990	5,960	5,240	4,550	4,150
30	10,500	7,560	6,420	5,620	4,870	4,430

Magnitude and probability of seasonal low flow from
November-February based on 91 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	7,240	5,490	4,700	4,110	3,520	3,150
3	7,680	5,750	4,880	4,230	3,570	3,290
7	8,130	6,000	5,050	4,340	3,700	3,420
14	8,560	6,210	5,180	4,420	3,800	3,500
30	9,160	6,540	5,400	4,580	3,920	3,590

Duration of daily mean flows based on 92 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time						
99%	98%	95%	90%	80%	70%	60%
4,400	4,690	5,560	6,570	8,100	9,730	11,500
						13,400
40%	30%	20%	15%	10%	5%	2%
15,500	18,900	25,700	33,600	45,200	63,400	84,800
						95,600

Magnitude and probability of annual high flow
based on 92 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	76,900	101,000	113,000	123,000	130,000	135,000
3	75,700	99,700	111,000	122,000	128,000	133,000
7	72,300	96,100	108,000	119,000	126,000	131,000
15	67,600	90,800	103,000	114,000	121,000	127,000
30	61,500	82,400	93,100	104,000	110,000	115,000
60	51,800	67,900	75,900	83,700	88,200	91,900
90	43,300	56,300	62,800	69,300	73,100	76,300

Magnitude and probability of seasonal low flow from
July-October based on 91 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	6,540	5,290	4,740	4,320	3,900	3,640
3	6,800	5,510	4,940	4,520	4,080	3,820
7	7,100	5,760	5,160	4,720	4,270	3,990
14	7,460	6,020	5,380	4,910	4,430	4,140
30	8,040	6,440	5,710	5,170	4,620	4,280

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	23,600	4,760	10,600	3,340	92
November	21,200	4,590	11,500	3,910	92
December	27,600	4,080	12,000	4,590	92
January	22,300	3,340	12,000	4,720	92
February	30,100	3,940	11,900	5,060	92
March	31,400	4,640	11,900	5,050	92
April	47,800	6,110	19,400	8,470	92
May	89,800	10,000	44,500	16,000	92
June	102,000	10,000	54,900	21,500	92
July	76,900	7,840	25,900	11,700	92
August	24,800	5,660	11,000	3,510	92
September	16,900	4,770	9,660	2,740	92
Annual	29,400	8,840	19,600	4,830	92

**12389500 Thompson River near Thompson Falls, Mont.
Site Number 284**

LOCATION.--Lat 47°35'31", long 115°13'43" (NAD 27), in NW¼NE¼SE¼ sec.7, T.21 N., R.28 W., Sanders County, Hydrologic Unit 17010213, Lolo National Forest, on right bank 1.2 mi upstream from mouth and 5.5 mi east of Thompson Falls.

DRAINAGE AREA.--642 mi².

PERIOD OF RECORD.--March to September 1911, October 1911 to September 1916 (occasional gage heights, discharges, and discharge measurements), April 1956 to current year (2002).

REVISED RECORDS.--WSP 1246: 1911.

GAGE.--Water-stage recorder. Altitude of gage is 2,429.97 ft (NGVD 29, Bureau of Public Roads bench mark). October 1911 to September 1916, nonrecording gage at site 0.2 mi upstream at different datum.

REMARKS.--Minor diversions upstream from station for irrigation, acreage unknown. Diversion from headwaters of Alder Creek in SW¼ sec.16, T.23 N., R.25 W., to supplement water supply for storage in Upper Dry Fork Reservoir in Little Bitterroot River basin. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 45 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	100	82	74	67	61	--
3	111	92	83	76	69	--
7	125	103	92	84	76	--
14	136	113	102	94	85	--
30	145	122	111	102	93	--
60	156	130	117	108	97	--
90	161	134	121	110	99	--
120	169	139	124	113	102	--
183	185	149	133	121	109	--

Magnitude and probability of seasonal low flow from
March-June based on 47 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	196	137	116	102	89	--
3	200	142	121	108	95	--
7	210	151	131	117	106	--
14	225	164	143	130	118	--
30	285	199	168	148	129	--

Magnitude and probability of seasonal low flow from
November-February based on 46 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	102	82	74	68	61	--
3	114	93	84	77	69	--
7	130	104	93	85	76	--
14	139	113	102	95	88	--
30	150	123	114	108	103	--

Duration of daily mean flows based on 46 years of record

Discharge, in ft ³ /s, which was equalled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
96	100	113	133	160	186	218	252
40%	30%	20%	15%	10%	5%	2%	1%
308	409	658	869	1,120	1,580	2,160	2,720

Magnitude and probability of annual high flow
based on 46 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	2,160	3,270	3,980	4,840	5,450	--
3	2,050	3,030	3,630	4,340	4,820	--
7	1,850	2,670	3,150	3,680	4,040	--
15	1,610	2,320	2,750	3,240	3,570	--
30	1,420	2,050	2,430	2,890	3,200	--
60	1,190	1,700	2,000	2,340	2,560	--
90	1,020	1,440	1,680	1,950	2,120	--

Magnitude and probability of seasonal low flow from
July-October based on 46 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	163	135	121	110	98	--
3	165	137	122	110	98	--
7	167	138	123	111	99	--
14	170	140	125	113	100	--
30	175	144	128	115	102	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	343	112	183	45	46
November	501	115	200	75	46
December	880	101	209	125	46
January	719	112	208	111	46
February	1,230	103	254	183	46
March	1,340	120	354	228	47
April	1,830	238	794	396	48
May	3,150	374	1,340	602	48
June	2,370	244	1,040	519	48
July	724	140	414	148	48
August	382	113	242	64	48
September	288	105	196	45	48
Annual	804	176	447	158	46

**12390700 Prospect Creek at Thompson Falls, Mont.
Site Number 285**

LOCATION.--Lat 47°35'10", long 115°21'15" (NAD 27), in lot 12, SE¼SE¼SE¼ sec.7, T.21 N., R.29 W., Sanders County, Hydrologic Unit 17010213, on right bank 500 ft downstream from Dry Creek, 0.5 mi upstream from mouth, and 0.7 mi south of Thompson Falls.

DRAINAGE AREA.--182 mi².

PERIOD OF RECORD.--April 1956 to current year (2002).

GAGE.--Water-stage recorder. Altitude of gage is 2,382.40 ft (NGVD 29).

REMARKS.--No known regulation or diversions upstream from station. U.S. Geological Survey satellite telemeter at station.

Magnitude and probability of annual low flow
based on 45 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	40	33	29	27	24	--
3	41	33	30	27	25	--
7	42	34	31	28	25	--
14	43	35	32	29	26	--
30	45	36	33	30	27	--
60	47	38	34	31	28	--
90	50	40	35	32	29	--
120	53	42	37	34	30	--
183	67	49	42	37	33	--

Magnitude and probability of seasonal low flow from
March-June based on 46 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	107	62	46	35	25	--
3	110	64	47	35	26	--
7	114	66	48	37	27	--
14	125	72	53	40	29	--
30	173	99	71	53	37	--

Magnitude and probability of seasonal low flow from
November-February based on 46 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	42	33	29	27	25	--
3	42	33	30	28	26	--
7	44	34	31	29	26	--
14	45	35	32	30	28	--
30	50	37	33	30	28	--

Duration of daily mean flows based on 46 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
28	33	37	43	54	64	81	106
40%	30%	20%	15%	10%	5%	2%	1%
148	228	378	510	685	976	1,340	1,570

Magnitude and probability of annual high flow
based on 46 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	1,460	2,160	2,650	3,280	3,760	--
3	1,370	1,910	2,230	2,610	2,860	--
7	1,210	1,610	1,830	2,060	2,210	--
15	1,030	1,370	1,560	1,770	1,900	--
30	880	1,190	1,360	1,560	1,680	--
60	730	971	1,100	1,230	1,320	--
90	619	819	921	1,020	1,080	--

Magnitude and probability of seasonal low flow from
July-October based on 46 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	48	39	34	31	27	--
3	48	39	35	31	27	--
7	49	40	35	31	28	--
14	50	40	36	32	28	--
30	52	42	37	33	29	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	168	29	55	21	46
November	469	29	81	82	46
December	701	30	115	125	46
January	735	29	118	117	46
February	875	26	161	153	46
March	828	32	221	153	46
April	1,330	84	498	240	47
May	1,600	297	812	302	47
June	1,470	142	546	288	47
July	317	74	163	62	47
August	109	48	84	17	47
September	80	36	62	12	47
Annual	441	86	240	83	46

**12391400 Clark Fork below Noxon Rapids Dam, near Noxon, Mont.
Site Number 286**

LOCATION.--Lat 47°57'40", long 115°43'58" (NAD 27), in SW¼ sec.33, T.26 N., R.32 W., Sanders County, Hydrologic Unit 17010213, at Noxon Rapids Dam, 1 mi upstream from Rock Creek, 3 mi southeast of Noxon, and at river mile 169.7.

DRAINAGE AREA.--21,833 mi².

PERIOD OF RECORD.--May 1960 to current year (2002).

GAGE.--Plant generator rating or discharge through powerplant. Water-stage recorder on reservoir determines head on taintor gates. Altitude of gage is 2,320 ft (NGVD 29, levels by the Washington Water Power Co.).

REMARKS.--Flow regulated by Hungry Horse Reservoir (station number 12362000) and Flathead Lake (station number 12371500). Diversions for irrigation of about 350,000 acres upstream from station. Some subsurface flow indicated by comparison with records for adjacent gaging stations. Figures of discharge given herein are combined flows through turbines and spillway.

Magnitude and probability of annual low flow
based on 41 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1,350	395	183	90	38	--
3	6,380	4,610	3,780	3,150	2,530	--
7	6,380	4,610	3,780	3,150	2,530	--
14	7,300	5,490	4,620	3,950	3,270	--
30	8,240	6,350	5,420	4,700	3,950	--
60	9,500	7,560	6,570	5,800	4,980	--
90	10,600	8,580	7,540	6,700	5,800	--
120	11,200	9,230	8,150	7,280	6,340	--
183	12,200	10,300	9,320	8,540	7,680	--

Magnitude and probability of seasonal low flow from
March-June based on 42 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	6,290	3,340	2,310	1,680	1,150	--
3	9,770	6,520	5,230	4,340	3,500	--
7	12,200	8,530	6,970	5,850	4,750	--
14	13,300	9,460	7,770	6,530	5,320	--
30	14,700	10,700	8,970	7,760	6,570	--

Magnitude and probability of seasonal low flow from
November-February based on 42 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	3,670	1,460	734	369	149	--
3	6,540	4,760	3,850	3,260	2,600	--
7	9,020	6,860	5,780	4,940	4,080	--
14	10,000	7,930	6,900	6,090	5,240	--
30	10,900	8,790	7,820	7,080	6,320	--

Duration of daily mean flows based on 42 years of record

Discharge, in ft ³ /s, which was equaled or exceeded for indicated percent of time							
99%	98%	95%	90%	80%	70%	60%	50%
3,180	4,140	5,610	7,270	9,750	11,800	13,600	15,300
40%	30%	20%	15%	10%	5%	2%	1%
17,200	21,400	26,400	32,300	41,800	58,900	80,200	93,300

Magnitude and probability of annual high flow
based on 42 years of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and exceedance probability, in percent					
	2	5	10	25	50	100
	50%	20%	10%	4%	2%	1%
1	72,000	98,300	113,000	128,000	137,000	--
3	70,200	96,900	111,000	127,000	136,000	--
7	65,700	92,100	107,000	123,000	133,000	--
15	60,400	85,300	99,600	115,000	125,000	--
30	54,400	76,700	89,400	104,000	113,000	--
60	46,100	63,100	72,700	83,100	89,800	--
90	39,500	53,100	60,600	68,600	73,800	--

Magnitude and probability of seasonal low flow from
July-October based on 42 seasons of record

Period of consecutive days	Discharge, in ft ³ /s, for indicated recurrence interval, in years, and non-exceedance probability, in percent					
	2	5	10	20	50	100
	50%	20%	10%	5%	2%	1%
1	1,930	521	225	170	78	--
3	6,860	4,980	4,060	3,370	2,670	--
7	6,860	4,980	4,060	3,370	2,670	--
14	7,650	5,760	4,850	4,150	3,440	--
30	8,550	6,550	5,580	4,820	4,040	--

Monthly and annual mean discharges

Month	Maximum (ft ³ /s)	Minimum (ft ³ /s)	Mean (ft ³ /s)	Standard deviation (ft ³ /s)	Years of record
October	16,200	6,170	11,800	2,430	42
November	19,900	6,830	13,200	2,820	42
December	31,500	8,610	14,200	3,920	42
January	22,200	7,620	14,400	3,150	42
February	34,600	6,180	15,100	5,260	42
March	33,700	6,920	16,400	5,780	42
April	46,400	4,870	22,600	9,050	42
May	88,200	10,000	40,600	16,100	42
June	92,600	10,000	50,800	21,800	43
July	40,700	8,330	23,300	8,660	43
August	17,700	5,350	10,600	2,900	43
September	16,400	4,840	10,300	2,840	43
Annual	31,900	10,000	20,300	5,090	42

Selected References

- Ludwig, A.H., 1992, Flow duration and low-flow characteristics of selected Arkansas streams: U.S. Geological Survey Water-Resources Investigations Report 92-4026, 57 p.
- Omang, R.J., 1984, Streamflow characteristics of the Yellowstone River basin, Montana, through September 1982: U.S. Geological Survey Water-Resources Investigations Report 84-4063, 78 p.
- Parrett, Charles, 1997, Regional analysis of annual precipitation maxima in Montana: U.S. Geological Survey Water-Resources Investigations Report 97-4004, 51 p.
- Parrett, Charles, and Johnson, D.R., 2004, Methods for estimating flood frequency in Montana based on data through water year 1998: U.S. Geological Survey Water-Resources Investigations Report 03-4308, 101 p.
- Riggs, H.C., 1972, Low-flow investigations: Techniques of Water-Resources Investigations of the United States Geological Survey, book 4, chap. B1, 18 p.
- Searcy, J.K., 1959, Flow duration curves: U.S. Geological Survey Water-Supply Paper 1542-A, 33 p.
- Shields, R.R., and White, M.K., 1981, Streamflow characteristics of the Hudson Bay and upper Missouri River basins, Montana, through 1979: U.S. Geological Survey Water-Resources Investigations Report 81-32, 144 p.
- Tortorelli, R.L., 2002, Statistical summaries of streamflow in Oklahoma through 1999: U.S. Geological Survey Water-Resources Investigations Report 02-4025, 510 p.
- U.S. Geological Survey, 1930, Surface water supply of the United States, 1927, Part 6, Missouri River basin: U.S. Geological Survey Water-Supply Paper 646, 216 p.
- U.S. Geological Survey, 1931a, Surface water supply of the United States, 1928, Part 6, Missouri River basin: U.S. Geological Survey Water-Supply Paper 666, 207 p.
- U.S. Geological Survey, 1931b, Surface water supply of the United States, 1927, Part 12, North Pacific drainage basins; A. Pacific drainage basins in Washington and upper Columbia River basin: U.S. Geological Survey Water-Supply Paper 652, 111 p.
- U.S. Geological Survey, 1932, Surface water supply of the United States, 1929, Part 6, Missouri River basin: U.S. Geological Survey Water-Supply Paper 686, 290 p.
- U.S. Geological Survey, 1932, Surface water supply of the United States, 1930, Part 6, Missouri River basin: U.S. Geological Survey Water-Supply Paper 701, 302 p.
- U.S. Geological Survey, 1933, Surface water supply of the United States, 1932, Part 6, Missouri River basin: U.S. Geological Survey Water-Supply Paper 731, 349 p.
- U.S. Geological Survey, 1935a, Surface water supply of the United States, 1933, Part 6, Missouri River basin: U.S. Geological Survey Water-Supply Paper 746, 276 p.
- U.S. Geological Survey, 1935b, Surface water supply of the United States, 1933, Part 12, North Pacific drainage basins; A. Pacific drainage basins in Washington and upper Columbia River basin: U.S. Geological Survey Water-Supply Paper 752, 182 p.
- U.S. Geological Survey, 1936, Surface water supply of the United States, 1935, Part 6, Missouri River basin: U.S. Geological Survey Water-Supply Paper 786, 353 p.
- U.S. Geological Survey, 1938, Surface water supply of the United States, 1936, Part 6, Missouri River basin: U.S. Geological Survey Water-Supply Paper 806, 370 p.
- U.S. Geological Survey, 1938, Surface water supply of the United States, 1937, Part 6, Missouri River basin: U.S. Geological Survey Water-Supply Paper 826, 376 p.
- U.S. Geological Survey, 1940, Surface water supply of the United States, 1938, Part 6, Missouri River basin: U.S. Geological Survey Water-Supply Paper 856, 419 p.
- U.S. Geological Survey, 1942, Surface water supply of the United States, 1940, Part 6, Missouri River basin: U.S. Geological Survey Water-Supply Paper 896, 457 p.
- U.S. Geological Survey, 1943a, Summary of records of surface waters of upper Columbia River basin in Montana and Idaho, 1898-1938: U.S. Geological Survey Water-Supply Paper 916, 216 p.
- U.S. Geological Survey, 1943b, Surface water supply of the United States, 1941, Part 6, Missouri River basin: U.S. Geological Survey Water-Supply Paper 926, 478 p.
- U.S. Geological Survey, 1944, Surface water supply of the United States, 1942, Part 6, Missouri River basin: U.S. Geological Survey Water-Supply Paper 956, 482 p.
- U.S. Geological Survey, 1945, Surface water supply of the United States, 1943, Part 6, Missouri River basin: U.S. Geological Survey Water-Supply Paper 976, 470 p.
- U.S. Geological Survey, 1946, Surface water supply of the United States, 1944, Part 6, Missouri River basin: U.S. Geological Survey Water-Supply Paper 1006, 473 p.
- U.S. Geological Survey, 1947a, Surface water supply of the United States, 1945, Part 6, Missouri River basin: U.S. Geological Survey Water-Supply Paper 1036, 476 p.
- U.S. Geological Survey, 1947b, Surface water supply of the United States, 1945, Part 12, Pacific slope basins in Washington and upper Columbia River basin: U.S. Geological Survey Water-Supply Paper 1092, 476 p.
- U.S. Geological Survey, 1948, Surface water supply of the United States, 1945, Part 12, Pacific slope basins in Washington and upper Columbia River basin: U.S. Geological Survey Water-Supply Paper 1042, 287 p.
- U.S. Geological Survey, 1949a, Floods of May-June 1948 in Columbia River basin, *with a section on* Magnitude and frequency of floods: U.S. Geological Survey Water-Supply Paper 1080, 476 p.
- U.S. Geological Survey, 1949b, Surface water supply of the United States, 1946, Part 6, Missouri River basin: U.S. Geological Survey Water-Supply Paper 1056, 588 p.
- U.S. Geological Survey, 1950a, Surface water supply of the United States, 1947, Part 6, Missouri River basin: U.S. Geological Survey Water-Supply Paper 1086, 659 p.
- U.S. Geological Survey, 1950b, Surface water supply of the United States, 1947, Part 12, Pacific slope basins in Washington and upper Columbia River basin: U.S. Geological Survey Water-Supply Paper 1092, 349 p.

- U.S. Geological Survey, 1951a, Surface water supply of the United States, 1948, Part 6, Missouri River basin: U.S. Geological Survey Water-Supply Paper 1116, 703 p.
- U.S. Geological Survey, 1951b, Surface water supply of the United States, 1949, Part 6, Missouri River basin: U.S. Geological Survey Water-Supply Paper 1146, 781 p.
- U.S. Geological Survey, 1952, Surface water supply of the United States, 1949, Part 12, Pacific slope basins in Washington and upper Columbia River basin: U.S. Geological Survey Water-Supply Paper 1152, 377 p.
- U.S. Geological Survey 1953a, Surface water supply of the United States, 1950, Part 6, Missouri River basin: U.S. Geological Survey Water-Supply Paper 1176, 826 p.
- U.S. Geological Survey, 1953b, Surface water supply of the United States, 1950, Part 12, Pacific slope basins in Washington and upper Columbia River basin: U.S. Geological Survey Water-Supply Paper 1182, 363 p.
- U.S. Geological Survey, 1954a, Surface water supply of the United States, 1951, Part 6-A, Missouri River basin, Missouri River basin above Sioux City, Iowa: U.S. Geological Survey Water-Supply Paper 1209, 456 p.
- U.S. Geological Survey, 1954b, Surface water supply of the United States, 1951, Part 12, Pacific slope basins in Washington and upper Columbia River basin: U.S. Geological Survey Water-Supply Paper 1216, 357 p.
- U.S. Geological Survey, 1954c, Surface water supply of the United States, 1952, Part 12, Pacific slope basins in Washington and upper Columbia River basin: U.S. Geological Survey Water-Supply Paper 1246, 358 p.
- U.S. Geological Survey, 1955a, Compilation of records of surface waters of the United States through September 1950, Part 12, Pacific slope basins in Washington and upper Columbia River basin: U.S. Geological Survey Water-Supply Paper 1316, 592 p.
- U.S. Geological Survey, 1955b, Floods of April 1952 in the Missouri River basin: U.S. Geological Survey Water-Supply Paper 1260-B, p. 49-302.
- U.S. Geological Survey, 1957a, Floods of May-June 1953 in the Missouri River basin in Montana: U.S. Geological Survey Water-Supply Paper 1320-B, p. 69-153.
- U.S. Geological Survey, 1957b, Surface water supply of the United States, 1955, Part 6-A, Missouri River basin, Missouri River basin above Sioux City, Iowa: U.S. Geological Survey Water-Supply Paper 1389, 423 p.
- U.S. Geological Survey, 1958, Surface water supply of the United States, 1957, Part 6-A, Missouri River basin above Sioux City, Iowa: U.S. Geological Survey Water-Supply Paper 1509, 454 p.
- U.S. Geological Survey, 1959a, Compilation of records of surface waters of the United States through September, 1950, Part 5, Hudson Bay and upper Mississippi River basins: U.S. Geological Survey Water-Supply Paper 1308, 708 p.
- U.S. Geological Survey, 1959b, Compilation of records of surface waters of the United States through September 1950, Part 6-A, Missouri River basin above Sioux City, Iowa: U.S. Geological Survey Water-Supply Paper 1309, 672 p.
- U.S. Geological Survey, 1959c, Surface water supply of the United States, 1957, Part 5, Hudson Bay and upper Mississippi River basins: U.S. Geological Survey Water-Supply Paper 1508, 624 p.
- U.S. Geological Survey, 1960a, Surface water supply of the United States, 1958, Part 6-A, Missouri River basin above Sioux City, Iowa: U.S. Geological Survey Water-Supply Paper 1559, 434 p.
- U.S. Geological Survey, 1960b, Surface water supply of the United States, 1959, Part 6-A, Missouri River basin above Sioux City, Iowa: U.S. Geological Survey Water-Supply Paper 1629, 415 p.
- U.S. Geological Survey, 1960c, Surface water supply of the United States, 1959, Part 12, Pacific slope basins in Washington and upper Columbia River basin: U.S. Geological Survey Water-Supply Paper 1636, 402 p.
- U.S. Geological Survey, 1961, Surface water supply of the United States, 1960, Part 6-A, Missouri River basin above Sioux City, Iowa: U.S. Geological Survey Water-Supply Paper 1709, 449 p.
- U.S. Geological Survey, 1964a, Compilation of records of surface waters of the United States, October 1950 to September 1960, Part 5, Hudson Bay and upper Mississippi River basins: U.S. Geological Survey Water-Supply Paper 1728, 576 p.
- U.S. Geological Survey, 1964b, Compilation of records of surface waters of the United States, October 1950 to September 1960, Part 6-A, Missouri River basin above Sioux City, Iowa: U.S. Geological Survey Water-Supply 1729, 507 p.
- U.S. Geological Survey, 1964c, Compilation of records of surface waters of the United States, October 1950 to September 1960, Part 12: U.S. Geological Survey Water-Supply Paper 1736, 415 p.
- U.S. Geological Survey, 1964d, Floods of June 1964 in northwestern Montana: U.S. Geological Survey Water-Supply Paper 1840-B, p. B1-B242.
- U.S. Geological Survey, 1964e, Quality of surface waters of the United States, 1962, Parts 1 and 2, North Atlantic slope basins and South Atlantic and eastern Gulf of Mexico basins: U.S. Geological Survey Water-Supply Paper 1941, 434 p.
- U.S. Geological Survey, 1964f, Quality of surface waters of the United States, 1962, Parts 5 and 6, Hudson Bay and upper Mississippi River basins and Missouri River basin: U.S. Geological Survey Water-Supply Paper 1943, 413 p.
- U.S. Geological Survey, 1966, Quality of surface waters of the United States, 1963, Parts 5 and 6, Hudson Bay and upper Missouri River basins and Missouri River basin: U.S. Geological Survey Water-Supply Paper 1949, 411 p.
- U.S. Geological Survey, 1969, Surface water supply of the United States, 1961-65, Part 6, Missouri River basin, v. 1, Missouri River basin above Williston, North Dakota: U.S. Geological Survey Water-Supply Paper 1916, 800 p.
- U.S. Geological Survey, 1970, Quality of surface waters of the United States, 1964, Parts 12-15, Pacific slope basins in Washington and upper Columbia River basin to Alaska: U.S. Geological Survey Water-Supply Paper 1959, 428 p.

- U.S. Geological Survey, 1971a, Surface water supply of the United States 1961-65, Part 5, Hudson Bay and upper Missouri River basins, v. 1, Hudson Bay basin: U.S. Geological Survey Water-Supply Paper 1913, 407 p.
- U.S. Geological Survey, 1971b, Surface water supply of the United States 1961-65, Part 12, Pacific slope basins in Washington, v. 2, upper Columbia River basin: U.S. Geological Survey Water-Supply Paper 1933, 685 p.
- U.S. Geological Survey, 1974, Surface water supply of the United States, 1966-70, Part 6, Missouri River basin, v. 1, Missouri River basin above Williston, North Dakota: U.S. Geological Survey Water-Supply Paper 2116, 835 p.
- U.S. Geological Survey, 1975, Surface water supply of the United States, 1966-70, Part 12, Pacific slope basins in Washington, v. 2, upper Columbia River basin: U.S. Geological Survey Water-Supply Paper 2133, 674 p.
- U.S. Geological Survey, 2002a, Input and Output for a Watershed Data Management (WDM) file (IOWDM); computer program, Version 4.1. [Available from U.S. Geological Survey at <http://water.usgs.gov/software/surface-water.html>].
- U.S. Geological Survey, 2002b, Surface-Water Statistics (SWSTAT); computer program, Version 4.1. [Available from U.S. Geological Survey at http://water.usgs.gov/software/surface_water.html].
- U.S. Geological Survey, 2002c, Water resources data, Montana, water year 2001: U.S. Geological Survey Water-Data Report MT-01-1, 671 p.
- U.S. Geological Survey, 2003, User's manual for the National Water Information System of the U.S. Geological Survey; Automated Data Processing System (ADAPS): U.S. Geological Survey Open-File Report 03-123, 407 p.
- U.S. Geological Survey, issued annually, Water resources data, Montana: Helena, Mont., U.S. Geological Survey Water-Data Report.
- Waltemeyer, S.D., and Shields, R.R., 1982, Streamflow characteristics of the upper Columbia River basin, Montana, through 1979: U.S. Geological Survey Water-Resources Investigations Report 81-82, 74 p.

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