

06065500 MISSOURI RIVER BELOW HAUSER DAM, NEAR HELENA, MT

LOCATION.--Lat 46°46'02", long 111°53'27" (NAD 27), in SE $\frac{1}{4}$ NW $\frac{1}{4}$ SW $\frac{1}{4}$ 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 miles 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. Monthly means 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. Elevation of gage is 3,580 ft (NGVD 29).

REMARKS.--Records excellent. Flow regulated by eight small irrigation reservoirs and two power plants, 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. Several observations of water temperature and specific conductance were obtained during the year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3,080	3,040	2,980	3,570	3,790	3,650	3,770	3,150	3,080	2,840	2,730	2,970
2	3,060	3,060	2,980	3,580	3,710	3,660	3,800	3,020	3,040	2,840	2,730	2,970
3	3,030	3,070	3,030	3,590	3,710	3,640	3,850	2,970	3,010	2,840	2,730	2,980
4	2,960	3,060	3,100	3,580	3,710	3,710	3,850	2,940	2,960	2,850	2,760	2,980
5	2,930	3,030	3,190	3,560	3,720	3,770	3,850	2,940	2,920	2,840	2,890	2,990
6	2,920	3,030	3,260	3,540	3,710	3,770	3,820	2,900	2,930	2,840	2,950	2,990
7	2,910	3,020	3,260	3,520	3,710	3,760	3,600	2,880	2,990	2,810	2,960	3,060
8	2,980	3,010	3,370	3,520	3,720	3,770	3,350	2,890	2,970	2,740	2,960	3,160
9	3,140	3,010	3,430	3,520	3,710	3,770	3,210	2,930	2,940	2,740	2,970	3,170
10	3,140	3,010	3,560	3,520	3,670	3,790	3,070	3,000	2,910	2,760	2,980	3,260
11	3,120	3,020	3,650	3,520	3,580	3,770	3,040	3,010	2,950	2,760	2,930	3,300
12	3,130	3,010	3,730	3,520	3,540	3,770	3,010	2,960	2,950	2,760	2,900	3,290
13	3,110	3,140	3,780	3,520	3,540	3,790	3,000	2,880	2,940	2,760	2,910	3,290
14	3,110	3,320	3,730	3,530	3,600	3,780	3,000	2,880	2,940	2,730	2,910	3,140
15	3,110	3,400	3,660	3,610	3,690	3,780	3,000	2,840	2,920	2,720	2,930	2,880
16	3,110	3,430	3,660	3,720	3,720	3,780	3,000	2,850	2,920	2,710	2,930	2,840
17	3,100	3,420	3,660	3,760	3,710	3,870	3,000	2,930	2,870	2,710	2,930	2,840
18	3,090	3,390	3,650	3,760	3,690	3,890	3,030	2,990	2,760	2,700	2,950	2,830
19	3,090	3,360	3,640	3,720	3,690	3,870	3,100	3,080	2,750	2,680	2,940	2,850
20	3,090	3,370	3,650	3,610	3,670	3,850	3,120	3,090	2,780	2,690	3,070	2,940
21	3,080	3,360	3,660	3,640	3,640	3,850	3,070	3,090	2,860	2,720	3,240	2,970
22	3,080	3,310	3,560	3,670	3,640	3,850	3,040	3,050	2,870	2,750	3,310	2,950
23	3,080	3,300	3,570	3,750	3,640	3,790	3,040	3,060	2,840	2,740	3,310	2,930
24	3,080	3,310	3,550	3,820	3,640	3,690	3,050	3,040	2,850	2,740	3,190	2,930
25	3,080	3,270	3,550	3,830	3,720	3,610	3,040	3,050	2,860	2,740	3,130	2,820
26	3,080	3,170	3,570	3,720	3,760	3,610	3,050	3,130	2,810	2,730	3,020	2,790
27	3,080	3,080	3,560	3,690	3,680	3,630	3,050	3,100	2,750	2,740	2,960	2,780
28	3,080	2,980	3,560	3,670	3,650	3,710	3,310	3,140	2,740	2,730	2,970	2,790
29	3,100	2,980	3,580	3,680	3,650	3,720	3,600	3,160	2,780	2,740	2,880	2,820
30	3,090	2,980	3,560	3,680	---	3,720	3,380	3,160	2,840	2,730	2,880	2,920
31	3,060	---	3,550	3,710	---	3,730	---	3,080	---	2,730	2,960	---
TOTAL	95,100	94,940	108,240	112,630	106,610	116,350	98,100	93,190	86,730	85,410	91,910	89,430
MEAN	3,068	3,165	3,492	3,633	3,676	3,753	3,270	3,006	2,891	2,755	2,965	2,981
MAX	3,140	3,430	3,780	3,830	3,790	3,890	3,850	3,160	3,080	2,850	3,310	3,300
MIN	2,910	2,980	2,980	3,520	3,540	3,610	3,000	2,840	2,740	2,680	2,730	2,780
AC-FT	188,600	188,300	214,700	223,400	211,500	230,800	194,600	184,800	172,000	169,400	182,300	177,400

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1923 - 2004, BY WATER YEAR (WY)*

MEAN	3,540	3,630	3,595	3,565	3,767	4,389	5,199	6,841	8,146	4,280	3,060	3,250
MAX	6,489	6,021	5,622	6,665	8,101	8,271	9,227	16,340	23,540	12,020	5,797	5,684
(WY)	(1998)	(1998)	(1996)	(1997)	(1997)	(1997)	(1942)	(1928)	(1927)	(1998)	(1998)	(1995)
MIN	1,944	1,998	1,935	1,896	1,666	2,398	2,585	2,381	2,546	1,208	971	1,495
(WY)	(1935)	(1935)	(1935)	(1937)	(1938)	(1938)	(1938)	(1934)	(1934)	(1934)	(1934)	(1934)

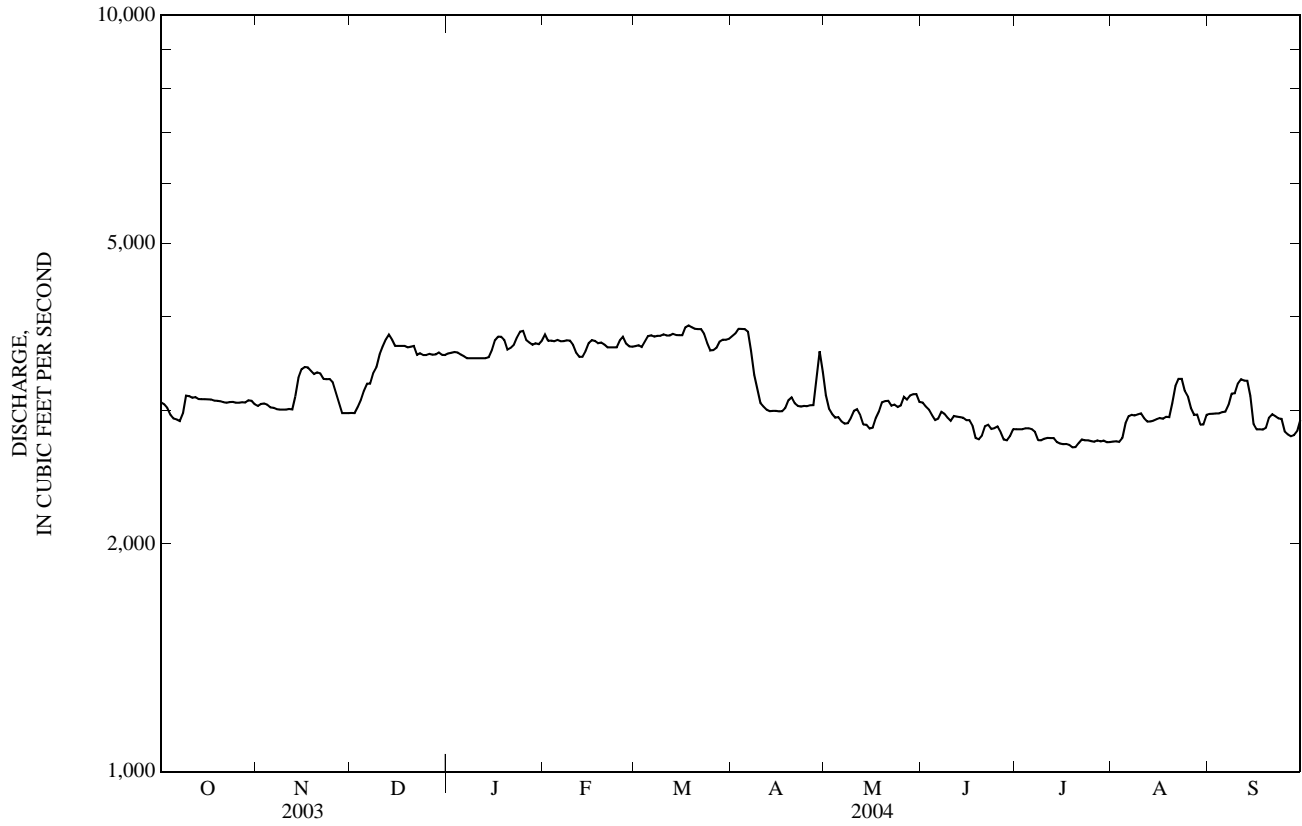
SUMMARY STATISTICS

	FOR 2003 CALENDAR YEAR	FOR 2004 WATER YEAR	WATER YEARS 1923 - 2004*
ANNUAL TOTAL	1,425,860	1,178,640	
ANNUAL MEAN	3,906	3,220	4,437
HIGHEST ANNUAL MEAN			7,862
LOWEST ANNUAL MEAN			2,381
HIGHEST DAILY MEAN	9,910	Jun 4	33,300
LOWEST DAILY MEAN	2,900	Aug 13	280
ANNUAL SEVEN-DAY MINIMUM	2,970	Oct 2	716
MAXIMUM PEAK FLOW		3,980	33,300
MAXIMUM PEAK STAGE		3.82	a78.80
INSTANTANEOUS LOW FLOW			280
ANNUAL RUNOFF (AC-FT)	2,828,000	2,338,000	3,214,000
10 PERCENT EXCEEDS	5,780	3,720	7,520
50 PERCENT EXCEEDS	3,630	3,080	3,640
90 PERCENT EXCEEDS	3,070	2,790	2,070

*During periods of operation (December 1922 to September 1942, October 1994 to present.

a--Site and datum then in use.

06065500 MISSOURI RIVER BELOW HAUSER DAM, NEAR HELENA, MT—Continued



06066500 MISSOURI RIVER BELOW HOLTER DAM, NEAR WOLF CREEK, MT

LOCATION.--Lat 46°59'41", long 112°00'37" (NAD 27), in NE¹/₄SW¹/₄SE¹/₄ 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.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1945 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 3,464.11 ft (NGVD 29).

REMARKS.--Water-discharge records good except those for July to September, which are fair. 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. U.S. Geological Survey satellite telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3,020	3,070	3,090	3,620	3,740	3,600	3,750	3,180	3,050	2,830	2,730	3,030
2	3,020	3,070	3,010	3,640	3,710	3,650	3,850	3,090	3,050	2,840	2,730	3,030
3	3,010	3,070	3,020	3,640	3,720	3,690	3,920	3,000	3,020	2,850	2,740	2,980
4	3,020	3,070	3,020	3,620	3,740	3,750	3,930	2,960	2,940	2,860	2,810	2,930
5	3,020	3,110	3,050	3,620	3,750	3,790	3,880	2,940	2,900	2,860	2,890	2,950
6	3,080	3,090	3,060	3,610	3,760	3,790	3,820	2,920	2,870	2,900	2,920	2,960
7	3,120	3,080	3,120	3,570	3,770	3,800	3,650	2,920	2,820	2,940	2,960	3,030
8	3,130	3,100	3,280	3,550	3,760	3,760	3,370	2,920	2,820	2,890	2,970	3,170
9	3,120	3,110	3,390	3,550	3,760	3,730	3,120	2,920	2,840	2,830	2,940	3,200
10	3,100	3,100	3,470	3,560	3,770	3,730	3,050	2,940	2,890	2,800	2,930	3,250
11	3,110	3,140	3,710	3,560	3,710	3,720	3,020	2,930	2,940	2,780	2,930	3,350
12	3,090	3,140	4,020	3,590	3,690	3,770	3,020	2,920	2,940	2,780	2,930	3,370
13	3,110	3,140	3,920	3,640	3,600	3,840	3,050	2,870	2,920	2,780	2,930	3,370
14	3,060	3,140	3,720	3,670	3,540	3,800	3,020	2,820	2,870	2,760	2,910	3,260
15	3,030	3,150	3,490	3,640	3,540	3,780	3,010	2,860	2,870	2,730	2,880	3,040
16	3,010	3,170	3,650	3,660	3,550	3,760	3,020	2,890	2,860	2,700	2,880	2,880
17	3,000	3,180	3,730	3,730	3,630	3,800	3,020	2,890	2,830	2,700	2,900	2,840
18	3,000	3,180	3,700	3,860	3,730	3,830	3,010	2,900	2,770	2,740	2,920	2,840
19	3,010	3,120	3,680	3,840	3,770	3,840	3,010	3,010	2,790	2,730	2,950	2,870
20	3,020	3,060	3,580	3,710	3,730	3,850	3,010	3,060	2,790	2,730	3,020	2,990
21	3,020	3,040	3,500	3,770	3,680	3,850	3,030	3,150	2,800	2,780	3,160	3,070
22	3,020	3,200	3,530	3,810	3,620	3,850	3,050	3,170	2,820	2,680	3,260	3,030
23	3,040	3,300	3,590	3,800	3,610	3,820	3,040	3,130	2,800	2,660	3,410	2,990
24	3,070	3,310	3,620	3,790	3,650	3,740	3,020	3,180	2,800	2,700	3,520	2,960
25	3,060	3,270	3,630	3,800	3,710	3,680	3,030	3,110	2,750	2,730	3,340	2,910
26	3,060	3,150	3,560	3,800	3,780	3,640	3,030	3,000	2,750	2,710	3,190	2,850
27	3,060	3,120	3,550	3,800	3,820	3,600	3,020	3,010	2,770	2,670	3,090	2,860
28	3,090	3,130	3,610	3,780	3,740	3,600	3,160	3,050	2,760	2,660	3,010	2,880
29	3,090	3,120	3,650	3,770	3,620	3,620	3,450	3,080	2,760	2,700	2,970	2,880
30	3,040	3,130	3,660	3,720	---	3,640	3,380	3,070	2,790	2,700	2,970	2,900
31	3,060	---	3,630	3,730	---	3,650	---	3,070	---	2,710	2,990	---
TOTAL	94,690	94,060	108,240	114,450	107,200	115,970	97,740	92,960	85,580	85,730	92,780	90,670
MEAN	3,055	3,135	3,492	3,692	3,697	3,741	3,258	2,999	2,853	2,765	2,993	3,022
MAX	3,130	3,310	4,020	3,860	3,820	3,850	3,930	3,180	3,050	2,940	3,520	3,370
MIN	3,000	3,040	3,010	3,550	3,540	3,600	3,010	2,820	2,750	2,660	2,730	2,840
AC-FT	187,800	186,600	214,700	227,000	212,600	230,000	193,900	184,400	169,700	170,000	184,000	179,800

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 2004, BY WATER YEAR (WY)

MEAN	4,469	4,772	4,974	5,020	4,975	5,098	5,531	6,744	8,917	5,865	4,249	4,193
MAX	10,140	8,500	9,645	6,637	7,954	9,186	11,130	15,710	23,370	16,580	7,590	10,010
(WY)	(1966)	(1966)	(1960)	(1997)	(1997)	(1968)	(1976)	(1948)	(1948)	(1975)	(1984)	(1984)
MIN	2,710	2,968	3,024	3,068	3,036	2,757	2,489	2,063	1,533	2,454	1,969	2,077
(WY)	(1954)	(1989)	(2002)	(2002)	(2002)	(1959)	(1959)	(1955)	(1955)	(1954)	(1954)	(1959)

SUMMARY STATISTICS

FOR 2003 CALENDAR YEAR

FOR 2004 WATER YEAR

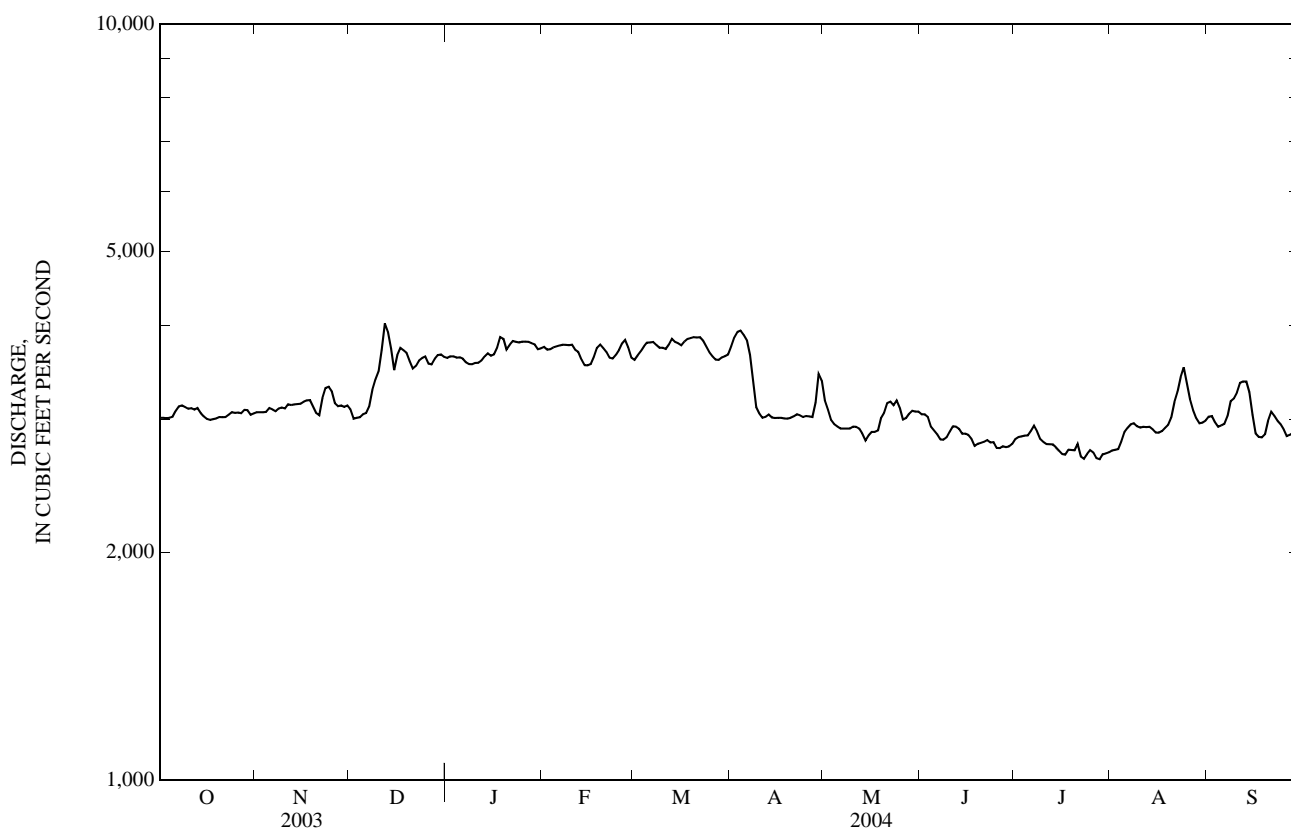
WATER YEARS 1946 - 2004

ANNUAL TOTAL	1,458,790	1,180,070		
ANNUAL MEAN	3,997	3,224		5,399
HIGHEST ANNUAL MEAN				8,497
LOWEST ANNUAL MEAN				3,008
HIGHEST DAILY MEAN	9,940	Jun 4	4,020	Dec 12
LOWEST DAILY MEAN	2,890	Aug 15	2,660	Jul 23
ANNUAL SEVEN-DAY MINIMUM	3,010	Oct 16	2,690	Jul 22
MAXIMUM PEAK FLOW			a4,070	Dec 12
MAXIMUM PEAK STAGE			2.96	Aug 23
INSTANTANEOUS LOW FLOW				11.70
ANNUAL RUNOFF (AC-FT)	2,894,000	2,341,000		3,911,000
10 PERCENT EXCEEDS	5,960	3,770		8,030
50 PERCENT EXCEEDS	3,720	3,080		4,690
90 PERCENT EXCEEDS	3,060	2,800		3,030

06066500 MISSOURI RIVER BELOW HOLTER DAM, NEAR WOLF CREEK, MT—Continued

SUMMARY STATISTICS	WATER YEARS 1946 - 1952*		WATER YEARS 1953 - 2004**	
ANNUAL MEAN	5,882		5,334	
HIGHEST ANNUAL MEAN	7,787	1948	8,497	1984
LOWEST ANNUAL MEAN	4,651	1946	3,008	2002
HIGHEST DAILY MEAN	34,000	Jun 8, 1948	25,600	Jun 20, 1964
LOWEST DAILY MEAN	1,560	Aug 31, 1946	747	May 27, 1962
ANNUAL SEVEN-DAY MINIMUM	2,310	Aug 2, 1949	1,040	May 16, 1957
MAXIMUM PEAK FLOW	34,800	Jun 8, 1948	27,100	Jun 19, 1964
MAXIMUM PEAK STAGE	11.70	Jun 8, 1948	10.04	Jun 19, 1964
INSTANTANEOUS LOW FLOW	c742	Nov 25, 1949	b250	Jul 26, 1968
ANNUAL RUNOFF (AC-FT)	4,261,000		3,864,000	
10 PERCENT EXCEEDS	10,800		7,830	
50 PERCENT EXCEEDS	4,520		4,730	
90 PERCENT EXCEEDS	3,350		3,020	

*--Before Canyon Ferry Dam completion.
 **--After Canyon Ferry Dam completion.
 a--Gage height, 2.87 ft.
 b--Gage height, 0.18 ft.
 c--Probably less than; during power plant operation.



WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--October 1999 to current year.
 WATER TEMPERATURE: October 1999 to current year.
 INSTRUMENTATION.--Temperature probe installed Sept. 30, 1999.
 REMARKS--Daily water temperature records rated good.
 EXTREMES FOR PERIOD OF DAILY RECORD.--
 WATER TEMPERATURE : Maximum, 21.0°C, July 25, 2002; minimum, 1.0°C, many days during winter period.
 EXTREMES FOR CURRENT YEAR.--
 WATER TEMPERATURE: Maximum, 20.0°C, July 20, 25, 26, and Aug. 3; minimum, 1.0°C, many days December through February.

06066500 MISSOURI RIVER BELOW HOLTER DAM, NEAR WOLF CREEK, MT—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	14.5	14.0	14.5	10.0	9.5	10.0	3.5	3.0	3.5	1.0	1.0	1.0
2	14.5	13.5	14.0	9.5	9.5	9.5	3.5	3.0	3.5	1.0	1.0	1.0
3	14.5	13.5	14.0	9.5	9.0	9.5	3.5	3.0	3.0	1.5	1.0	1.0
4	14.5	14.0	14.0	9.5	9.0	9.0	3.5	3.0	3.5	1.0	1.0	1.0
5	14.5	14.0	14.0	9.0	8.5	8.5	3.0	3.0	3.0	1.0	1.0	1.0
6	14.5	14.0	14.0	8.5	8.0	8.0	3.0	3.0	3.0	1.0	1.0	1.0
7	14.5	14.0	14.0	8.0	7.5	7.5	3.0	3.0	3.0	1.0	1.0	1.0
8	14.5	14.0	14.0	7.5	7.0	7.5	3.0	3.0	3.0	1.5	1.0	1.0
9	14.0	13.5	14.0	7.5	7.0	7.0	3.0	2.5	2.5	1.5	1.0	1.0
10	14.0	13.5	13.5	7.0	7.0	7.0	3.0	2.5	2.5	1.5	1.0	1.0
11	13.5	13.0	13.5	7.0	7.0	7.0	3.0	2.0	2.5	1.5	1.0	1.0
12	13.5	13.0	13.0	7.0	6.5	7.0	2.5	2.0	2.0	1.5	1.0	1.0
13	13.0	13.0	13.0	7.0	6.5	6.5	2.5	2.0	2.0	1.5	1.0	1.0
14	13.0	12.5	13.0	6.5	6.5	6.5	2.5	2.0	2.0	1.0	1.0	1.0
15	13.0	12.5	12.5	6.5	6.0	6.5	2.0	2.0	2.0	1.0	1.0	1.0
16	12.5	12.5	12.5	6.5	6.0	6.5	2.0	2.0	2.0	1.0	1.0	1.0
17	12.5	12.5	12.5	6.5	6.0	6.0	2.0	2.0	2.0	1.0	1.0	1.0
18	13.0	12.5	12.5	6.0	6.0	6.0	2.0	2.0	2.0	1.0	1.0	1.0
19	13.0	12.5	12.5	6.0	5.5	6.0	2.0	1.5	2.0	1.5	1.0	1.0
20	13.0	12.5	12.5	6.0	5.5	5.5	2.0	1.5	2.0	1.5	1.0	1.0
21	13.0	12.5	12.5	5.5	5.0	5.5	2.0	1.5	2.0	1.5	1.0	1.0
22	13.0	12.5	13.0	5.0	4.5	5.0	1.5	1.5	1.5	1.5	1.0	1.0
23	12.5	12.0	12.5	5.0	4.5	4.5	1.5	1.5	1.5	1.5	1.0	1.0
24	12.5	12.0	12.0	4.5	4.0	4.5	1.5	1.5	1.5	1.5	1.0	1.0
25	12.0	12.0	12.0	4.0	4.0	4.0	1.5	1.5	1.5	1.0	1.0	1.0
26	12.0	11.5	12.0	4.0	3.5	3.5	1.5	1.5	1.5	1.5	1.0	1.0
27	12.0	11.5	11.5	3.5	3.0	3.5	1.5	1.5	1.5	1.0	1.0	1.0
28	11.5	11.5	11.5	3.5	3.5	3.5	1.5	1.0	1.0	1.5	1.0	1.0
29	11.5	11.0	11.0	3.5	3.0	3.5	1.0	1.0	1.0	1.5	1.0	1.0
30	11.0	10.5	10.5	3.5	3.0	3.5	1.5	1.0	1.0	1.5	1.0	1.0
31	10.5	10.0	10.5	---	---	---	1.5	1.0	1.0	1.5	1.0	1.0
MONTH	14.5	10.0	13.0	10.0	3.0	6.5	3.5	1.0	2.0	1.5	1.0	1.0
	FEBRUARY			MARCH			APRIL			MAY		
1	1.5	1.0	1.0	2.0	1.5	2.0	4.5	4.0	4.0	10.5	8.0	9.0
2	1.5	1.0	1.0	2.0	1.5	2.0	4.5	4.0	4.0	10.5	8.5	9.5
3	1.5	1.0	1.0	2.0	1.5	2.0	5.0	4.0	4.5	9.5	8.5	9.0
4	1.0	1.0	1.0	2.0	2.0	2.0	5.0	4.5	5.0	10.5	8.5	9.5
5	1.0	1.0	1.0	2.0	2.0	2.0	6.0	5.0	5.5	9.5	8.0	9.0
6	1.0	1.0	1.0	2.0	1.5	2.0	6.0	4.5	5.5	9.5	8.0	9.0
7	1.0	1.0	1.0	2.0	2.0	2.0	5.5	4.5	5.0	10.5	8.5	10.0
8	1.0	1.0	1.0	2.5	2.0	2.0	6.0	5.0	5.5	11.0	9.0	10.0
9	1.0	1.0	1.0	2.5	2.0	2.0	5.0	4.5	5.0	11.5	9.0	10.0
10	1.0	1.0	1.0	2.5	2.0	2.5	6.0	5.0	5.5	10.0	8.5	9.0
11	1.0	1.0	1.0	2.5	2.0	2.5	7.0	5.5	6.0	9.0	7.5	8.0
12	1.5	1.0	1.0	2.5	2.5	2.5	7.5	6.5	7.0	9.5	7.5	8.5
13	1.5	1.0	1.0	2.5	2.5	2.5	7.5	6.5	7.0	11.0	9.0	10.0
14	1.0	1.0	1.0	2.5	2.5	2.5	6.5	6.0	6.5	11.0	10.0	10.5
15	1.5	1.0	1.0	2.5	2.5	2.5	7.0	6.0	6.5	11.0	9.5	10.0
16	1.5	1.0	1.0	2.5	2.5	2.5	7.5	6.5	7.0	10.0	9.0	9.5
17	1.5	1.0	1.5	2.5	2.5	2.5	7.5	6.5	7.0	10.5	9.5	10.0
18	1.5	1.0	1.5	3.0	2.5	2.5	7.0	6.5	6.5	10.5	9.5	10.0
19	1.5	1.0	1.5	3.0	2.5	2.5	8.5	7.0	8.0	11.5	9.5	10.5
20	1.5	1.5	1.5	3.0	2.5	2.5	8.5	7.5	8.0	11.0	10.0	10.5
21	1.5	1.0	1.5	3.0	2.5	3.0	8.5	7.5	8.0	10.0	9.5	10.0
22	1.5	1.5	1.5	3.0	2.5	3.0	8.0	7.5	7.5	10.5	9.0	10.0
23	2.0	1.5	1.5	3.0	3.0	3.0	9.0	7.5	8.5	9.0	8.5	8.5
24	2.0	1.5	1.5	3.5	3.0	3.0	8.5	7.5	8.0	10.5	9.0	9.5
25	2.0	1.5	1.5	3.5	3.0	3.0	8.5	7.5	8.0	11.0	10.0	10.5
26	2.0	1.5	1.5	3.5	3.0	3.5	10.0	7.5	9.0	11.0	10.5	10.5
27	2.0	1.5	1.5	3.5	3.0	3.5	10.0	7.5	9.0	11.5	10.5	11.0
28	2.0	1.5	1.5	4.0	3.0	3.5	7.5	6.0	6.5	11.0	10.5	11.0
29	2.0	1.5	1.5	4.0	3.5	3.5	9.0	6.5	8.0	11.5	10.0	11.0
30	---	---	---	4.0	3.5	4.0	9.0	8.5	8.5	11.5	10.0	10.5
31	---	---	---	5.0	4.0	4.5	---	---	---	11.5	10.5	11.0
MONTH	2.0	1.0	1.0	5.0	1.5	2.5	10.0	4.0	6.5	11.5	7.5	10.0

06066500 MISSOURI RIVER BELOW HOLTER DAM, NEAR WOLF CREEK, MT—Continued

TEMPERATURE, WATER, DEGREES CELSIUS—CONTINUED
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	12.5	11.0	11.5	17.5	15.0	16.0	19.0	17.0	18.0	17.5	16.5	17.0
2	13.0	11.0	12.0	17.0	16.0	17.0	18.5	17.0	18.0	17.0	15.5	16.5
3	12.5	11.5	12.0	17.5	16.0	16.5	20.0	18.0	19.0	17.0	16.0	16.5
4	13.5	12.0	12.5	17.5	15.0	16.0	19.5	18.0	18.5	17.0	16.0	16.5
5	15.0	11.5	13.0	17.0	15.0	16.0	19.0	18.0	18.5	16.5	16.0	16.5
6	13.0	11.0	12.0	18.0	16.0	17.0	19.5	18.5	19.0	16.5	16.0	16.5
7	13.5	10.5	12.0	17.0	15.5	16.5	18.5	17.0	18.0	16.5	16.0	16.5
8	12.0	10.5	11.5	17.0	15.5	16.5	18.5	18.0	18.5	17.0	15.5	16.0
9	11.5	11.0	11.5	18.0	16.0	17.0	18.0	17.5	18.0	16.5	16.0	16.0
10	13.0	11.0	12.5	17.0	16.5	17.0	18.5	17.5	18.0	16.5	15.5	16.0
11	13.0	11.5	12.5	17.5	16.0	16.5	18.5	18.0	18.0	17.0	16.0	16.5
12	13.5	11.5	12.5	17.5	16.5	17.0	18.5	18.0	18.0	16.5	15.5	16.0
13	13.5	11.0	12.5	17.5	16.5	17.0	18.5	17.5	18.0	16.5	15.5	16.0
14	13.5	11.0	12.5	18.0	17.0	17.5	18.5	17.5	18.0	16.0	15.5	16.0
15	13.0	10.5	12.0	18.5	17.0	17.5	18.0	17.5	18.0	16.0	15.5	16.0
16	13.5	12.0	13.0	18.5	17.5	18.0	18.0	17.5	18.0	16.0	15.5	15.5
17	13.0	11.5	12.5	19.0	17.5	18.0	19.0	17.5	18.5	16.0	15.5	15.5
18	13.0	12.5	12.5	18.5	17.0	18.0	18.5	17.0	18.0	15.5	15.0	15.5
19	13.0	12.5	12.5	19.5	17.5	18.5	19.5	17.5	18.5	15.5	14.5	15.0
20	14.0	12.0	13.0	20.0	17.5	18.5	19.5	17.5	18.5	15.0	14.5	14.5
21	14.0	12.5	13.5	19.0	17.5	18.5	19.5	17.5	18.5	15.0	14.5	14.5
22	14.5	13.0	13.5	18.5	16.5	17.5	18.5	17.5	18.0	14.5	14.5	14.5
23	15.5	13.0	14.0	19.0	17.5	18.0	18.5	17.5	18.0	14.5	14.5	14.5
24	14.0	13.0	13.5	19.5	18.0	18.5	18.5	17.5	18.0	15.0	14.5	14.5
25	14.5	13.0	14.0	20.0	18.0	19.0	18.5	17.5	18.0	15.0	14.5	14.5
26	14.5	13.5	14.0	20.0	17.5	19.0	17.5	17.0	17.5	14.5	14.0	14.5
27	15.0	13.5	14.0	18.5	16.5	17.5	18.0	17.0	17.5	14.5	14.0	14.0
28	16.0	14.5	15.0	19.0	18.0	18.5	17.5	17.0	17.0	15.0	14.0	14.5
29	17.0	15.0	15.5	19.0	18.0	18.5	17.5	16.5	17.0	14.5	13.5	14.0
30	16.0	14.5	15.0	19.5	18.0	18.5	17.5	17.0	17.0	14.0	13.5	13.5
31	---	---	---	19.5	18.0	18.5	18.0	16.5	17.0	---	---	---
MONTH	17.0	10.5	13.0	20.0	15.0	17.5	20.0	16.5	18.0	17.5	13.5	15.5

LITTLE PRICKLY PEAR CREEK BASIN

06071300 LITTLE PRICKLY PEAR CREEK AT WOLF CREEK, MT

LOCATION.--Lat 47°00'19", long 112°04'10" (NAD 27), in NE¹/₄NW¹/₄NE¹/₄ sec.2, T.14N., R.4W., 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.

GAGE.--Water-stage recorder. Elevation of gage is 3,547.38 ft (NGVD 29). May 10, 1962 to July 6, 1965, water-stage recorder on left bank at present elevation. July 7, 1965 to Apr. 11, 1966, non-recording gage on bridge 0.25 mi upstream at elevation 3.27 ft higher. Apr. 12, 1966 to Sept. 30, 1967, water-stage recorder on right bank 23 ft upstream at present elevation.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Diversions for irrigation of about 2,500 acres upstream from station. U.S.Geological Survey satellite telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 7, 1975, reached a stage of 7.45 ft, present elevation, from floodmarks, discharge, 4,500 ft³/s.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	26	34	51	e32	e35	48	90	54	137	69	23	27
2	26	41	50	e25	39	47	94	53	129	61	24	26
3	26	39	51	e22	39	48	87	53	118	58	25	25
4	25	35	50	e20	36	48	88	53	104	61	26	25
5	25	33	46	e20	38	49	91	55	98	65	29	25
6	25	40	48	e30	35	47	96	55	95	59	36	25
7	26	42	51	e40	39	47	106	56	94	56	34	25
8	27	43	48	e42	40	77	99	58	99	54	29	25
9	26	50	45	44	40	146	107	60	103	52	29	24
10	26	53	41	44	39	104	107	61	98	50	27	24
11	27	58	35	45	38	80	106	68	95	51	25	23
12	28	57	41	42	26	74	103	71	88	47	22	24
13	28	53	50	41	28	77	97	69	84	46	21	30
14	28	51	48	42	34	72	94	68	80	42	22	29
15	29	51	45	39	43	68	97	67	76	41	23	28
16	32	50	44	40	42	65	99	66	74	41	21	27
17	31	51	45	38	41	68	89	67	76	39	20	27
18	28	52	41	34	45	73	79	64	75	37	24	27
19	28	58	33	38	48	78	75	68	76	37	31	32
20	28	57	37	39	50	76	70	67	74	35	36	45
21	28	46	46	38	49	72	67	74	68	33	30	39
22	28	28	43	38	46	69	65	92	66	29	27	35
23	29	33	36	39	44	70	63	128	66	27	42	33
24	29	47	40	39	45	74	55	159	63	27	41	32
25	30	51	45	e20	48	78	54	166	61	26	35	30
26	31	52	42	e20	51	79	54	207	62	23	34	29
27	32	51	41	e18	50	76	54	218	60	23	35	29
28	32	50	e38	e20	50	73	57	205	60	24	33	29
29	39	51	e35	e30	47	70	56	184	58	23	33	29
30	41	53	e30	e40	---	69	55	163	57	23	31	29
31	35	---	e35	e37	---	71	---	148	---	22	29	---
TOTAL	899	1,410	1,331	1,056	1,205	2,193	2,454	2,977	2,494	1,281	897	857
MEAN	29.0	47.0	42.9	34.1	41.6	70.7	81.8	96.0	83.1	41.3	28.9	28.6
MAX	41	58	51	45	51	146	107	218	137	69	42	45
MIN	25	28	30	18	26	47	54	53	57	22	20	23
AC-FT	1,780	2,800	2,640	2,090	2,390	4,350	4,870	5,900	4,950	2,540	1,780	1,700

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 2004, BY WATER YEAR (WY)*

MEAN	50.3	53.1	49.0	43.5	59.2	68.4	132	224	197	78.9	44.4	47.7
MAX	131	98.5	74.9	69.1	190	109	372	580	684	175	95.4	127
(WY)	(1966)	(1966)	(1966)	(1965)	(1996)	(2003)	(1965)	(1965)	(1967)	(1965)	(1993)	(1965)
MIN	29.0	31.5	26.0	30.8	29.3	42.0	64.8	35.5	30.5	17.7	14.2	18.5
(WY)	(2004)	(1993)	(2002)	(1993)	(2001)	(2002)	(2000)	(1992)	(1992)	(2000)	(2000)	(2000)

06071300 LITTLE PRICKLY PEAR CREEK AT WOLF CREEK, MT—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1962 - 2004*	
ANNUAL TOTAL	24,534		19,054			
ANNUAL MEAN	67.2		52.1		86.4	
HIGHEST ANNUAL MEAN					179	1965
LOWEST ANNUAL MEAN					35.2	2000
HIGHEST DAILY MEAN	506	Mar 14	218	May 27	2,440	Jun 9, 1964
LOWEST DAILY MEAN	18	Jan 10	18	Jan 27	10	Aug 13, 1992
ANNUAL SEVEN-DAY MINIMUM	21	Aug 15	22	Aug 12	11	Jul 29, 2000
MAXIMUM PEAK FLOW			a225	May 27	3,110	Jun 9, 1964
MAXIMUM PEAK STAGE			b4.11	Jan 28	7.65	Jun 9, 1964
INSTANTANEOUS LOW FLOW					c9.6	Aug 2, 2000
ANNUAL RUNOFF (AC-FT)	48,660		37,790		62,620	
10 PERCENT EXCEEDS	155		90		166	
50 PERCENT EXCEEDS	43		44		53	
90 PERCENT EXCEEDS	25		25		27	

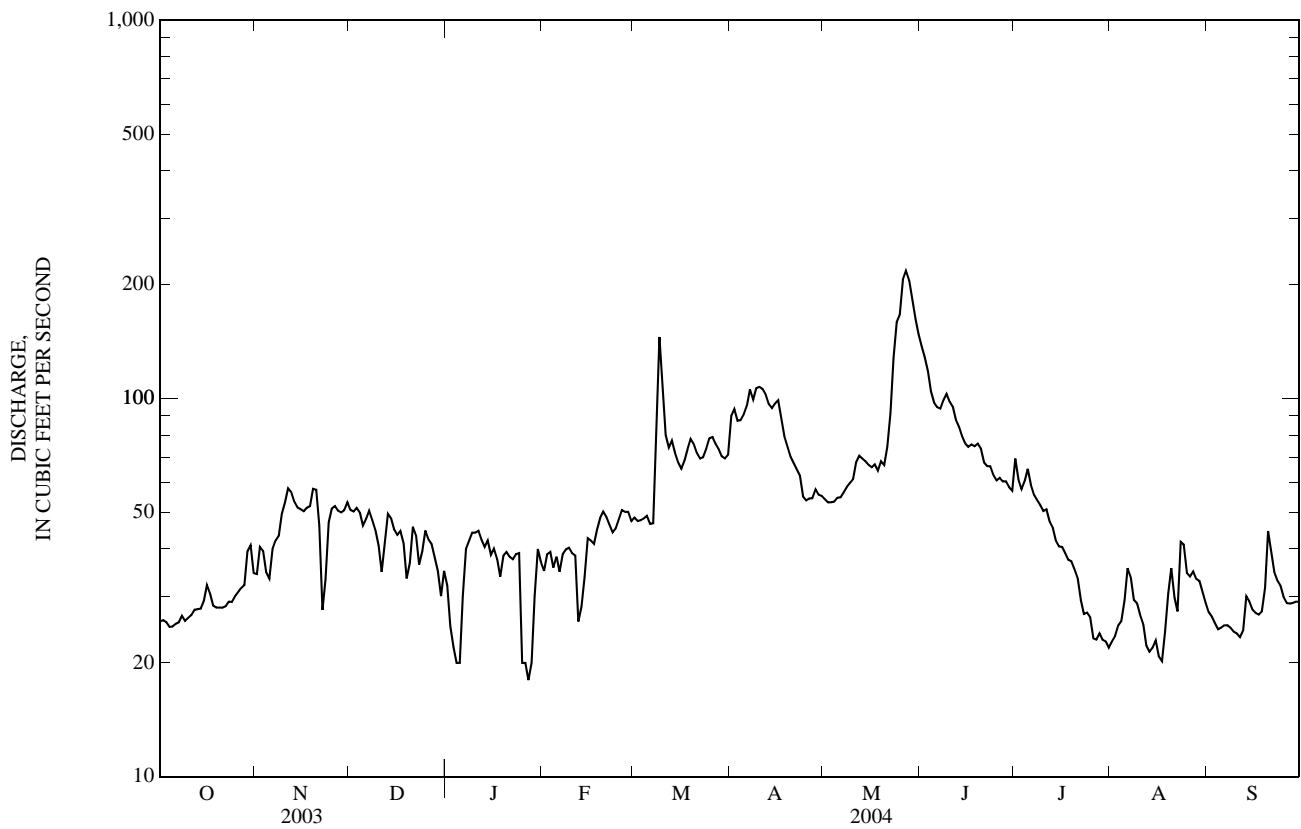
*--During period of operation (May 1962 to September 1967, October 1991 to current year).

a--Gage height, 3.76 ft.

b--Backwater from ice.

c--Gage height, 2.54 ft.

e--Estimated.



DEARBORN RIVER BASIN

06073500 DEARBORN RIVER NEAR CRAIG, MT

LOCATION.--Lat 47°11'57", long 112°05'44" (NAD 27), in NW $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ 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.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1945 to September 1969, October 1993 to current year.

GAGE.--Water-stage recorder. Elevation 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 0.2 mi downstream, all at same previous elevation.

REMARKS.--Water-discharge records good except those for estimated daily discharges, which are poor. U.S. Geological Survey satellite telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	e25	e40	e25	e30	35	99	247	531	180	54	27
2	31	e35	44	e20	e30	35	101	250	461	171	56	26
3	31	e33	42	e17	e30	e28	98	273	437	170	61	26
4	31	e30	40	e15	e30	e30	108	320	415	181	58	26
5	31	e28	40	e15	e32	e30	120	370	430	212	55	25
6	30	e30	45	e20	e33	33	133	385	477	184	54	25
7	28	e32	41	e30	e35	36	152	375	424	166	52	24
8	29	e35	34	e35	e35	45	172	325	392	157	54	24
9	29	e40	30	e40	e35	51	207	318	377	146	51	23
10	29	e45	e25	e45	e35	54	196	300	346	148	46	22
11	31	50	e22	e45	e30	50	188	308	318	151	46	21
12	31	48	e25	e43	e25	47	187	270	290	136	43	22
13	30	45	e30	e40	e27	51	199	235	274	129	42	23
14	31	43	e35	e42	e30	49	225	218	263	125	39	23
15	32	41	e38	e45	e32	48	243	205	252	120	39	22
16	35	40	e40	e45	e34	48	234	189	236	113	39	21
17	31	39	e40	e42	e36	49	220	181	262	108	38	21
18	30	38	e38	e40	e38	51	211	177	245	105	45	21
19	30	41	e40	e42	e40	55	197	211	228	105	38	26
20	29	41	e45	e40	e39	57	195	237	222	98	36	38
21	29	e30	e42	e40	e38	57	181	312	207	92	33	41
22	29	e17	e40	e45	37	57	173	404	195	87	30	44
23	28	e20	e40	e45	38	58	168	543	196	84	45	45
24	29	e30	e45	e40	40	61	171	561	191	80	43	45
25	29	e35	e40	e30	40	66	176	595	190	70	38	44
26	29	e35	e35	e25	38	70	176	690	197	66	36	45
27	28	e35	e30	e20	37	70	189	785	191	64	37	46
28	29	e40	e23	e25	35	69	266	820	182	66	33	47
29	34	e45	e20	e30	35	68	276	774	181	64	33	47
30	34	e40	e22	e35	---	69	262	672	189	62	31	48
31	e28	---	e30	e32	---	72	---	575	---	58	29	---
TOTAL	937	1,086	1,101	1,053	994	1,599	5,523	12,125	8,799	3,698	1,334	938
MEAN	30.2	36.2	35.5	34.0	34.3	51.6	184	391	293	119	43.0	31.3
MAX	35	50	45	45	40	72	276	820	531	212	61	48
MIN	28	17	20	15	25	28	98	177	181	58	29	21
AC-FT	1,860	2,150	2,180	2,090	1,970	3,170	10,950	24,050	17,450	7,330	2,650	1,860

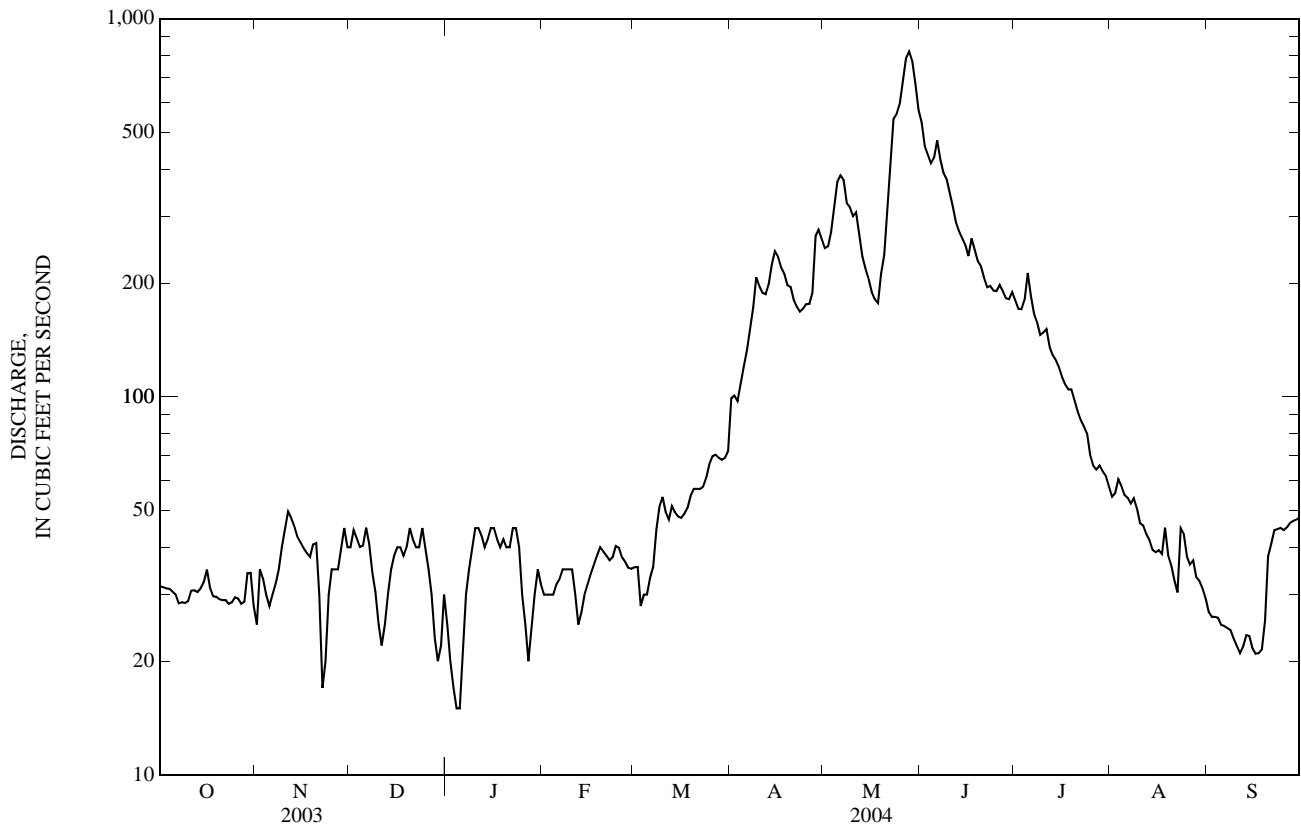
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 2004, BY WATER YEAR (WY)*

MEAN	72.4	73.3	65.1	55.2	59.7	85.0	235	676	754	206	66.7	56.2
MAX	187	165	155	104	184	187	519	1,337	2,104	583	163	230
(WY)	(1966)	(1947)	(1947)	(1947)	(1996)	(1947)	(1969)	(1995)	(1964)	(1951)	(1951)	(1993)
MIN	17.0	33.8	23.9	22.2	22.5	33.8	51.0	135	113	27.2	13.1	18.8
(WY)	(1957)	(2002)	(2002)	(2002)	(2002)	(2002)	(1961)	(2000)	(2000)	(2000)	(2000)	(1956)

06073500 DEARBORN RIVER NEAR CRAIG, MT—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1946 - 2004*	
ANNUAL TOTAL	41,259		39,187			
ANNUAL MEAN	113		107		200	
HIGHEST ANNUAL MEAN					363	1948
LOWEST ANNUAL MEAN					58.3	2000
HIGHEST DAILY MEAN	905	Mar 13	820	May 28	12,500	Jun 9, 1964
LOWEST DAILY MEAN	15	Jan 10	15	Jan 4	8.5	Aug 17, 1961
ANNUAL SEVEN-DAY MINIMUM	18	Sep 2	20	Dec 31	11	Aug 14, 1961
MAXIMUM PEAK FLOW			860	May 29	a15,400	Jun 9, 1964
MAXIMUM PEAK STAGE			4.72	May 29	b13.50	Jun 9, 1964
INSTANTANEOUS LOW FLOW					c8.0	Aug 17, 1961
ANNUAL RUNOFF (AC-FT)	81,840		77,730		145,000	
10 PERCENT EXCEEDS	319		264		540	
50 PERCENT EXCEEDS	40		44		74	
90 PERCENT EXCEEDS	23		26		34	

*--During periods of operation (October 1945 to September 1969, October 1993 to current year).
 a--From rating curve extended above 7,000 ft³/s on basis of slope-area measurement of peak flow.
 b--From floodmark.
 c--Site and datum then in use.
 e--Estimated.



WATER-QUALITY RECORDS

PERIOD OF RECORD.--June 1999 to to current year.

PERIOD OF DAILY RECORD.--August to September 1991, November 1993 to current year.

INSTRUMENTATION.--Temperature recorder installed Nov. 3, 1993.

REMARKS.--Daily water temperature record rated good.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 28.5°C, Aug. 1, 2, 2000; minimum, 0.0°C on many days during winter.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 26.0°C, July 16; minimum, 0.0°C on many days October through March.

06073500 DEARBORN RIVER NEAR CRAIG, MT—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	15.5	7.0	11.0	1.0	0.5	0.5	2.5	0.5	1.0	0.0	0.0	0.0
2	15.5	7.5	11.5	1.0	0.5	0.5	4.5	2.0	3.0	0.0	0.0	0.0
3	15.0	7.0	11.0	1.5	0.0	0.5	4.5	1.0	3.0	0.0	0.0	0.0
4	15.5	7.0	11.0	0.5	0.0	0.5	2.5	0.5	1.0	0.0	0.0	0.0
5	16.5	7.5	12.0	0.5	0.0	0.0	2.0	0.0	1.0	0.5	0.0	0.0
6	16.5	8.5	12.0	0.5	0.0	0.0	5.0	2.0	3.0	0.5	0.0	0.0
7	13.5	10.5	12.0	0.5	0.0	0.5	4.0	0.5	2.5	0.5	0.0	0.5
8	16.0	10.0	12.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.0	0.5
9	13.5	9.5	11.5	0.5	0.5	0.5	1.0	0.5	0.5	0.5	0.0	0.0
10	11.5	6.5	9.0	3.0	0.5	1.5	0.5	0.5	0.5	0.5	0.0	0.0
11	9.0	5.0	7.0	3.5	1.5	2.5	1.0	0.0	0.5	0.5	0.0	0.0
12	13.0	6.5	9.0	3.0	0.5	1.5	1.0	0.5	0.5	0.5	0.0	0.0
13	12.5	6.5	9.0	4.5	0.5	2.5	1.0	0.5	0.5	0.5	0.0	0.0
14	9.5	5.5	7.5	5.0	0.5	2.5	0.5	0.5	0.5	0.5	0.0	0.0
15	10.0	6.0	8.0	5.0	1.0	3.0	1.0	0.5	0.5	0.5	0.0	0.0
16	9.5	6.0	7.5	4.5	2.0	3.0	0.5	0.5	0.5	0.5	0.0	0.0
17	14.5	8.5	11.0	4.5	2.0	3.0	0.5	0.5	0.5	0.5	0.0	0.0
18	14.5	8.0	11.0	5.5	1.5	3.5	1.0	0.5	0.5	0.5	0.0	0.0
19	14.0	8.0	10.5	7.0	4.0	5.5	1.0	0.5	0.5	0.5	0.0	0.0
20	13.5	9.0	11.0	4.5	1.0	2.5	1.0	0.5	0.5	0.5	0.0	0.0
21	15.0	11.0	12.5	1.0	0.0	0.5	1.0	0.5	0.5	0.5	0.0	0.5
22	14.5	8.5	11.0	1.0	0.5	0.5	1.0	0.5	0.5	0.5	0.0	0.5
23	12.0	7.5	9.5	1.0	0.5	0.5	1.0	0.5	0.5	0.5	0.0	0.0
24	9.5	4.5	6.5	0.5	0.5	0.5	1.0	0.5	0.5	0.5	0.0	0.0
25	9.0	2.5	5.5	0.5	0.5	0.5	1.0	0.5	0.5	0.0	0.0	0.0
26	11.5	5.5	8.0	0.5	0.0	0.5	0.5	0.0	0.5	0.0	0.0	0.0
27	9.5	7.5	9.0	0.5	0.0	0.5	0.5	0.5	0.5	0.0	0.0	0.0
28	10.0	6.0	8.0	1.0	0.5	0.5	1.0	0.0	0.5	0.0	0.0	0.0
29	9.5	0.5	4.5	1.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
30	0.5	0.0	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.5	0.0	0.0
31	1.0	0.5	0.5	---	---	---	0.0	0.0	0.0	0.5	0.0	0.0
MONTH	16.5	0.0	9.0	7.0	0.0	1.5	5.0	0.0	1.0	0.5	0.0	0.0
	FEBRUARY			MARCH			APRIL			MAY		
1	0.0	0.0	0.0	3.5	1.5	2.5	9.0	3.0	5.5	15.5	6.0	10.5
2	0.5	0.0	0.0	3.0	0.0	1.5	8.0	2.5	5.5	12.5	8.0	10.5
3	0.5	0.0	0.0	0.5	0.0	0.5	11.5	3.5	7.5	14.0	8.0	11.0
4	0.5	0.0	0.0	1.5	0.0	0.5	11.5	6.0	8.5	14.5	7.5	11.0
5	0.5	0.0	0.0	3.5	0.0	1.5	13.0	4.5	8.5	14.0	9.0	11.5
6	0.5	0.0	0.0	4.5	0.0	1.5	14.5	7.0	10.0	12.5	7.0	10.0
7	0.5	0.0	0.0	6.0	0.0	3.0	13.5	5.5	9.0	14.0	8.0	11.0
8	0.5	0.0	0.0	11.0	4.0	7.0	9.5	6.0	8.0	14.0	9.0	11.5
9	0.5	0.0	0.0	10.0	4.0	6.5	9.0	4.0	6.5	14.0	7.5	10.5
10	0.5	0.0	0.0	8.0	2.5	5.0	10.5	4.0	7.0	11.0	6.0	7.5
11	0.5	0.0	0.0	8.5	1.0	4.5	13.0	4.5	8.5	6.5	4.0	5.0
12	0.5	0.0	0.0	10.0	3.0	5.5	14.0	5.5	9.5	7.5	3.5	5.5
13	0.5	0.0	0.0	8.0	2.0	5.0	13.5	6.5	10.0	10.5	4.5	7.5
14	0.5	0.0	0.0	7.0	1.5	4.0	13.0	7.5	10.0	12.5	6.0	9.0
15	0.5	0.0	0.0	4.0	1.5	3.5	9.5	6.0	7.5	14.0	6.5	10.5
16	0.5	0.0	0.0	5.0	2.5	4.0	11.0	4.5	7.5	11.5	9.0	9.5
17	0.5	0.0	0.0	8.0	4.0	5.5	9.0	6.0	7.0	15.5	6.5	10.5
18	0.5	0.0	0.0	11.0	4.5	7.0	11.0	4.5	7.5	12.5	8.5	9.5
19	0.5	0.0	0.0	9.5	4.0	6.5	11.5	5.0	8.5	13.5	8.0	10.0
20	2.5	0.0	1.0	9.0	1.0	5.0	11.0	6.5	8.5	13.5	8.5	11.0
21	3.5	0.0	1.5	7.5	3.0	5.0	12.5	5.0	8.5	12.5	8.5	10.0
22	4.0	0.0	1.5	11.5	3.5	7.0	13.0	4.5	8.5	8.5	7.0	7.5
23	4.5	0.5	2.0	12.5	4.0	8.0	14.5	6.0	10.0	7.0	4.5	5.5
24	6.0	0.5	3.0	10.5	4.5	7.5	14.0	7.0	10.0	10.5	4.5	7.0
25	6.5	1.5	4.0	9.0	3.0	6.0	14.0	5.5	10.0	12.5	5.5	9.0
26	6.0	2.0	4.0	7.5	4.0	5.5	16.0	6.5	11.0	12.5	7.5	10.0
27	8.0	1.0	4.0	6.5	2.0	4.0	15.5	9.0	12.0	12.5	8.0	10.0
28	3.5	1.0	2.5	11.0	1.5	6.0	12.0	4.5	6.5	11.0	8.0	9.5
29	6.0	1.0	3.0	12.5	2.5	7.5	11.5	2.0	6.5	13.0	6.5	9.5
30	---	---	---	13.5	5.0	9.0	13.0	5.5	9.5	13.5	6.0	10.0
31	---	---	---	14.0	6.0	9.5	---	---	---	13.0	7.5	10.5
MONTH	8.0	0.0	1.0	14.0	0.0	5.0	16.0	2.0	8.5	15.5	3.5	9.5

06073500 DEARBORN RIVER NEAR CRAIG, MT—Continued

TEMPERATURE, WATER, DEGREES CELSIUS—CONTINUED
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	15.0	7.5	11.0	21.5	14.5	18.0	24.5	14.5	19.5	20.5	14.0	17.0
2	16.0	8.0	12.0	19.5	14.5	17.0	21.5	15.5	18.5	18.5	11.5	15.0
3	17.0	9.5	13.0	19.5	13.0	16.5	22.5	15.0	18.0	18.5	9.5	13.5
4	16.5	10.5	14.0	15.5	13.0	14.5	24.5	15.0	19.0	19.0	10.0	14.0
5	17.0	10.0	13.5	20.0	11.5	15.5	22.0	15.5	18.5	18.0	11.0	14.0
6	15.5	10.0	13.0	18.5	12.5	16.0	22.5	14.0	18.0	19.5	10.0	14.5
7	12.0	8.0	9.5	18.5	13.5	15.5	21.0	15.0	18.0	17.0	11.5	14.0
8	9.5	7.5	8.0	18.5	10.5	14.0	21.0	12.5	16.5	19.0	10.0	14.5
9	8.5	7.5	8.0	20.5	10.5	15.5	22.0	14.0	17.5	17.5	11.5	14.5
10	10.0	8.5	9.0	20.0	13.5	16.5	23.0	13.0	17.5	19.5	11.5	15.0
11	16.5	8.5	12.5	20.5	12.5	16.5	23.0	12.5	18.0	18.0	12.0	15.0
12	14.5	9.0	12.0	21.5	11.5	16.5	23.5	12.5	18.0	15.0	12.5	13.5
13	16.5	10.0	13.0	23.0	13.5	18.0	24.0	13.0	18.0	16.0	11.5	13.0
14	17.0	10.0	13.0	24.0	15.5	19.5	24.0	13.5	18.5	16.0	10.0	12.5
15	13.5	9.0	11.0	25.0	16.0	20.5	24.0	14.0	19.0	13.5	9.0	11.5
16	16.5	8.0	12.0	26.0	17.0	21.0	22.0	15.5	18.5	16.0	9.5	12.5
17	13.5	10.0	12.0	25.5	16.5	21.0	24.5	15.5	19.5	15.0	9.0	12.5
18	11.5	8.5	10.0	23.0	17.0	20.0	21.5	16.0	18.5	14.5	11.0	12.5
19	12.5	8.5	10.0	24.5	17.0	20.0	22.5	14.0	17.5	11.5	8.0	10.0
20	15.5	8.0	11.5	23.5	16.5	19.5	23.5	14.0	18.5	13.0	7.5	9.5
21	19.0	10.0	14.0	22.5	14.5	18.5	23.0	16.0	19.0	12.5	7.0	9.5
22	16.5	12.0	14.5	21.5	14.5	17.5	20.0	15.0	17.5	15.0	8.0	11.0
23	19.0	11.0	15.0	22.0	13.5	17.0	16.0	13.0	14.5	15.5	9.5	12.0
24	17.5	12.5	14.5	23.5	13.0	18.0	15.0	11.5	13.5	17.0	9.0	13.0
25	17.5	11.5	14.5	25.0	15.0	19.5	14.5	12.0	13.0	17.5	10.5	13.5
26	14.5	11.5	13.0	24.5	16.0	20.0	15.0	11.0	13.0	16.5	10.0	13.0
27	17.5	10.0	13.5	22.5	15.5	18.5	19.5	11.5	15.0	17.0	9.5	13.0
28	20.5	11.0	15.5	23.0	14.5	18.0	14.5	11.5	13.5	17.0	10.0	13.0
29	21.0	13.5	17.0	23.5	14.0	18.5	19.5	11.0	15.0	16.5	9.5	12.5
30	20.5	13.5	16.5	23.0	14.5	19.0	21.5	12.0	16.5	12.5	9.5	11.0
31	---	---	---	24.0	14.5	19.0	22.0	12.0	17.0	---	---	---
MONTH	21.0	7.5	12.5	26.0	10.5	18.0	24.5	11.0	17.0	20.5	7.0	13.0

06077200 SMITH RIVER BELOW EAGLE CREEK, NEAR FORT LOGAN, MT

LOCATION.--Lat 46°49'41", long 111°11'29" (NAD 27), in SW $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 2, T.12 S., R.4 E., Meagher County, Hydrologic Unit 10030103, on right bank at downstream side of private bridge, 0.6 mi downstream from Eagle Creek, 11.3 mi north of Fort Logan, and at river mile 80.8.

DRAINAGE AREA.--1,088 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1996 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 4,350 ft (NGVD 29).

REMARKS.--Water-discharge records good except those for estimated daily discharges, which are poor. Flow slightly regulated by Smith River Reservoir (station number 06075000) and Newlan Creek Reservoir. Diversion for irrigation of about 19,300 acres upstream from station. U.S. Geological Survey satellite telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	89	e75	e75	e50	e75	e75	223	309	577	277	108	103
2	88	e110	e80	e45	e75	e70	202	297	511	277	100	101
3	88	e110	e75	e40	e75	e65	181	325	474	274	100	102
4	86	e80	e70	e35	e70	e70	190	363	440	286	105	103
5	86	e90	e75	e30	e75	e70	213	392	432	294	103	104
6	85	e90	e80	e35	e75	e80	232	398	482	294	99	106
7	85	e90	e70	e50	e80	86	247	392	492	270	89	107
8	92	e90	e65	e70	e80	153	265	381	491	254	83	104
9	90	e95	e60	e80	e80	211	299	354	470	235	80	103
10	87	e110	e60	e80	e70	201	265	334	485	222	76	100
11	87	e110	e55	e80	e60	178	234	320	1,370	211	74	97
12	88	e100	e55	e80	e60	169	224	291	1,650	200	74	97
13	88	e100	e70	e80	e60	151	238	262	1,330	187	77	112
14	88	e100	e70	e85	e60	132	270	235	1,120	177	70	128
15	92	e110	e65	e80	e70	128	308	217	918	175	71	137
16	101	e110	e70	e80	e80	125	298	199	792	176	73	129
17	103	e110	e70	e75	e85	134	276	216	684	162	72	125
18	98	e120	e70	e75	e90	149	273	219	614	147	81	117
19	96	e130	e70	e80	e80	161	258	294	559	167	83	121
20	96	e90	e70	e75	e75	151	249	291	520	164	82	172
21	94	e70	e70	e70	e70	143	249	308	466	152	75	168
22	94	e60	e70	e75	e65	139	236	403	414	140	75	146
23	95	e60	e70	e90	e65	147	223	661	383	139	112	135
24	93	e70	e70	e80	e70	162	233	662	381	143	159	132
25	94	e70	e70	e60	e90	174	235	641	357	138	131	128
26	98	e70	e65	e60	e85	169	239	670	336	134	131	123
27	100	e65	e60	e55	e80	151	273	712	324	122	122	118
28	102	e75	e50	e60	e80	145	357	731	304	122	117	118
29	118	e80	e45	e70	e80	140	351	762	296	117	118	119
30	110	e75	e45	e90	---	155	338	719	292	117	117	121
31	76	---	e50	e80	---	187	---	643	---	111	109	---
TOTAL	2,887	2,715	2,040	2,095	2,160	4,271	7,679	13,001	17,964	5,884	2,966	3,576
MEAN	93.1	90.5	65.8	67.6	74.5	138	256	419	599	190	95.7	119
MAX	118	130	80	90	90	211	357	762	1,650	294	159	172
MIN	76	60	45	30	60	65	181	199	292	111	70	97
AC-FT	5,730	5,390	4,050	4,160	4,280	8,470	15,230	25,790	35,630	11,670	5,880	7,090

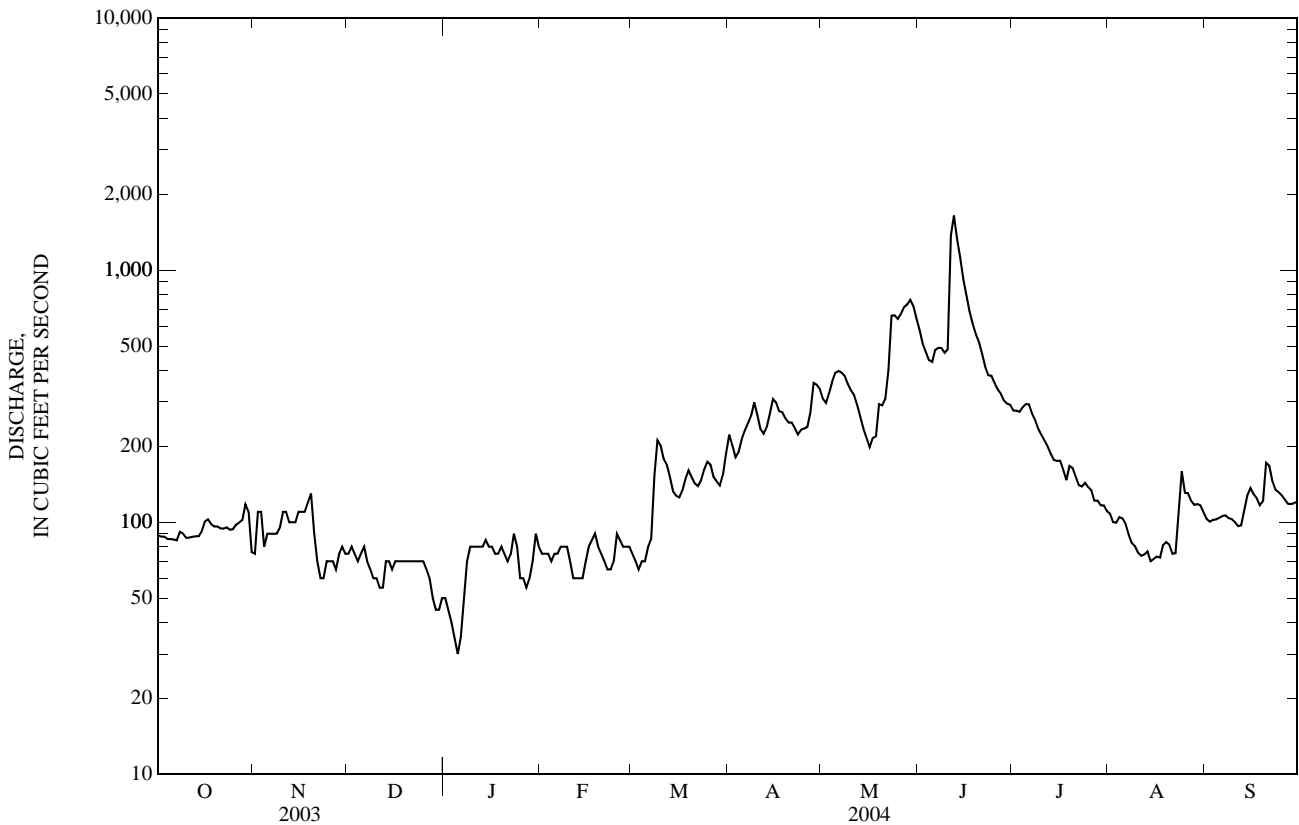
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1997 - 2004, BY WATER YEAR (WY)

MEAN	122	122	106	118	106	166	247	458	588	248	113	107
MAX	213	185	167	249	145	281	432	1,119	1,893	607	276	219
(WY)	(1998)	(1999)	(1998)	(1997)	(1997)	(2003)	(2003)	(1997)	(1997)	(1998)	(1997)	(1997)
MIN	67.0	73.6	65.8	66.9	65.8	71.5	134	249	152	83.6	43.7	53.6
(WY)	(2002)	(2002)	(2004)	(2002)	(2002)	(2002)	(2002)	(2002)	(2001)	(2003)	(2000)	(2001)

06077200 SMITH RIVER BELOW EAGLE CREEK, NEAR FORT LOGAN, MT—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1997 - 2004	
ANNUAL TOTAL	71,402		67,238			
ANNUAL MEAN	196		184		209	
HIGHEST ANNUAL MEAN					458	
LOWEST ANNUAL MEAN					109	
HIGHEST DAILY MEAN	2,000	Mar 14	1,650	Jun 12	3,510	Jun 12, 1997
LOWEST DAILY MEAN	43	Aug 25	30	Jan 5	30	Jan 5, 2004
ANNUAL SEVEN-DAY MINIMUM	45	Aug 21	41	Dec 31	32	Aug 25, 2000
MAXIMUM PEAK FLOW			1,760	Jun 11	a3,900	Jun 12, 1997
MAXIMUM PEAK STAGE			5.72	Jun 11	b9.30	Jan 1, 1997
INSTANTANEOUS LOW FLOW					28	Aug 26, 2000
ANNUAL RUNOFF (AC-FT)	141,600		133,400		151,200	
10 PERCENT EXCEEDS	528		382		413	
50 PERCENT EXCEEDS	90		110		128	
90 PERCENT EXCEEDS	55		70		65	

a--Gage height, 7.00 ft.
 b--Backwater from ice.
 e--Estimated.



WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--Water years 1997 to present. Data for water years 1997 to 2001 not published.

INSTRUMENTATION.--Water temperature recorder installed Nov. 4, 1997.

REMARKS.--Daily water temperature record good except for ice-affected days in March and April, which are fair.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 27.5°C, July 14, 2002; minimum 0.0°C, many days during winter months.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 25.0°C, July 17; minimum 0.0°C, many days October through February.

06077200 SMITH RIVER BELOW EAGLE CREEK, NEAR FORT LOGAN, MT—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	12.5	6.0	9.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	12.0	6.5	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	12.0	6.0	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	12.5	6.0	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	12.5	6.0	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	12.5	7.0	9.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	13.5	8.0	10.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	14.5	10.0	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	12.0	8.5	10.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	10.5	7.5	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	7.5	5.0	6.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	10.0	6.0	7.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	10.0	6.5	8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	6.5	4.0	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	8.5	4.5	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	8.0	4.5	6.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	12.0	6.5	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	11.5	6.5	8.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	11.0	6.0	8.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	10.0	7.0	8.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21	13.5	8.5	10.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	11.5	7.0	9.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	10.0	6.0	8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24	6.0	3.5	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	5.0	1.0	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26	7.5	2.5	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27	7.5	5.5	6.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28	6.0	4.5	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	6.0	0.0	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.5	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
31	0.5	0.0	0.0	---	---	---	0.0	0.0	0.0	0.0	0.0	0.0
MONTH	14.5	0.0	7.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	FEBRUARY			MARCH			APRIL			MAY		
1	0.0	0.0	0.0	1.0	1.0	1.0	6.0	4.0	5.0	11.5	5.0	8.5
2	0.0	0.0	0.0	1.5	1.0	1.0	6.0	3.0	4.5	13.0	7.0	10.0
3	0.0	0.0	0.0	1.5	1.0	1.0	8.5	3.0	5.5	13.0	9.0	11.0
4	0.0	0.0	0.0	2.5	1.0	1.5	8.5	4.5	6.5	14.0	8.0	11.0
5	0.0	0.0	0.0	3.0	1.5	1.5	10.0	4.0	7.0	13.5	9.0	11.5
6	0.0	0.0	0.0	2.5	1.0	1.5	10.0	6.0	8.0	12.5	8.5	11.0
7	0.0	0.0	0.0	3.0	0.5	1.5	9.5	4.5	7.0	13.0	8.5	11.0
8	0.0	0.0	0.0	4.0	1.5	2.5	10.0	6.0	7.5	13.0	8.5	11.0
9	0.0	0.0	0.0	4.5	1.0	2.5	7.5	4.5	6.0	12.0	8.0	10.0
10	0.0	0.0	0.0	4.5	1.0	2.5	7.5	3.0	5.0	10.0	6.5	7.5
11	0.0	0.0	0.0	4.5	1.0	2.0	10.0	3.0	6.5	7.0	4.5	6.0
12	0.0	0.0	0.0	5.0	1.0	2.5	11.5	4.5	8.0	6.0	3.0	4.5
13	0.0	0.0	0.0	5.0	2.0	3.5	11.5	6.0	8.5	7.5	3.5	5.5
14	0.0	0.0	0.0	5.0	2.5	3.5	12.0	7.5	9.5	9.0	4.0	6.5
15	0.0	0.0	0.0	5.5	2.5	4.0	9.0	6.5	7.5	11.0	4.5	8.0
16	0.0	0.0	0.0	5.5	3.5	4.5	8.5	4.0	6.5	9.5	7.0	8.0
17	0.0	0.0	0.0	7.5	4.0	5.0	7.0	5.0	6.0	11.0	6.0	8.5
18	0.0	0.0	0.0	8.5	5.0	6.5	7.0	4.0	5.5	9.0	7.5	8.0
19	0.0	0.0	0.0	8.0	5.0	6.0	8.5	4.5	6.5	11.0	7.0	8.5
20	0.0	0.0	0.0	6.0	2.5	4.5	9.0	5.5	7.0	12.0	7.5	9.5
21	0.0	0.0	0.0	6.5	3.0	5.0	8.5	4.5	7.0	12.5	9.5	10.5
22	0.0	0.0	0.0	7.5	3.0	5.0	11.0	5.0	8.0	10.0	8.5	9.0
23	1.0	0.0	0.0	9.5	3.5	6.0	12.0	5.0	8.5	8.5	5.5	6.5
24	1.0	1.0	1.0	9.0	4.0	6.5	10.5	7.0	8.5	8.5	4.5	6.5
25	1.0	1.0	1.0	7.0	3.5	5.5	11.0	5.0	8.0	10.5	4.5	7.5
26	1.0	1.0	1.0	5.0	3.0	4.0	13.0	6.0	9.5	9.5	7.5	8.5
27	1.0	1.0	1.0	5.5	1.5	3.5	12.5	7.5	10.0	11.0	7.5	9.5
28	1.0	1.0	1.0	7.5	1.5	4.0	10.5	5.5	7.0	10.5	9.0	9.5
29	1.0	1.0	1.0	9.5	1.5	5.0	8.5	3.0	5.5	10.5	7.0	8.5
30	---	---	---	10.5	2.5	6.0	10.5	4.5	7.5	10.5	6.5	8.5
31	---	---	---	11.0	3.5	6.5	---	---	---	10.5	7.0	8.5
MONTH	1.0	0.0	0.0	11.0	0.5	3.5	13.0	3.0	7.0	14.0	3.0	8.5

06077200 SMITH RIVER BELOW EAGLE CREEK, NEAR FORT LOGAN, MT—Continued

TEMPERATURE, WATER, DEGREES CELSIUS—CONTINUED
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	12.5	6.5	9.5	21.5	16.0	18.5	22.0	13.5	17.5	18.5	13.0	15.5
2	14.0	8.0	11.5	19.5	15.5	17.5	21.5	16.0	18.5	18.0	12.5	15.0
3	16.0	9.5	13.0	18.5	14.0	16.5	22.0	16.0	19.0	15.0	9.0	12.0
4	16.0	11.5	14.0	18.5	14.0	16.5	23.5	15.0	19.0	16.0	8.5	12.0
5	17.0	11.5	14.5	18.0	13.5	16.0	22.5	16.0	19.0	14.5	9.5	12.0
6	15.5	12.0	14.0	18.5	13.0	16.0	22.0	15.0	18.5	15.5	9.0	12.0
7	13.0	9.0	11.0	18.5	15.5	16.5	20.5	15.0	17.5	15.0	10.5	12.5
8	12.0	9.0	10.0	17.0	12.0	14.5	20.5	12.0	16.0	17.0	9.5	13.0
9	14.0	8.5	11.0	19.0	11.5	15.5	20.5	12.0	16.5	16.0	11.0	13.5
10	12.5	10.5	11.5	20.0	15.0	17.5	21.5	13.0	17.0	18.0	11.5	14.0
11	12.5	9.0	10.5	21.0	14.0	17.5	21.0	12.0	16.5	17.5	11.0	14.0
12	12.5	8.5	10.5	21.0	13.5	17.5	21.5	11.5	16.5	15.0	12.5	13.5
13	12.5	9.5	11.0	22.0	14.5	18.5	22.0	12.5	17.0	13.5	10.5	12.0
14	13.5	9.5	11.5	24.0	16.5	20.0	23.0	13.5	18.0	13.5	10.0	11.5
15	12.5	9.0	10.5	24.5	17.5	21.0	22.5	13.5	18.0	11.0	8.5	10.0
16	12.5	8.0	10.5	24.5	17.5	21.0	20.0	15.0	17.5	13.0	9.0	11.0
17	13.0	9.0	11.0	25.0	17.5	21.5	22.5	15.5	18.5	13.5	9.5	11.5
18	11.0	9.0	10.0	23.0	18.5	20.5	20.5	15.5	18.0	14.5	9.5	11.5
19	11.5	8.0	9.5	23.0	18.0	20.5	21.0	13.5	17.0	12.0	7.5	10.0
20	13.5	8.5	11.0	22.5	18.0	20.0	21.5	15.0	18.0	9.5	6.0	7.5
21	16.5	10.5	13.0	22.0	15.5	18.5	22.5	14.5	18.0	9.5	6.0	7.5
22	15.5	11.5	14.0	21.0	15.0	18.0	18.5	15.0	17.0	10.5	5.5	8.0
23	17.5	11.5	14.5	19.0	15.0	17.0	16.0	12.0	14.0	11.5	7.0	9.5
24	18.0	13.0	15.5	22.0	13.5	17.5	14.5	10.5	12.5	14.0	8.0	10.5
25	18.0	13.5	15.5	23.0	15.5	19.5	15.0	12.0	13.0	14.5	8.0	11.0
26	18.5	13.0	15.5	23.5	17.0	20.0	13.0	11.5	12.0	13.5	8.5	11.0
27	18.0	13.5	15.5	21.0	15.5	18.0	14.5	10.0	12.0	14.5	8.5	11.5
28	20.0	13.5	16.5	20.5	14.0	17.5	13.0	9.5	11.5	14.0	8.5	11.0
29	20.0	14.5	17.5	21.5	14.5	18.0	16.5	9.5	12.5	13.5	7.5	10.5
30	20.5	15.5	18.0	21.0	14.5	17.5	18.5	11.0	14.5	11.5	8.0	10.0
31	---	---	---	21.0	14.0	17.5	19.5	11.5	15.5	---	---	---
MONTH	20.5	6.5	12.5	25.0	11.5	18.0	23.5	9.5	16.5	18.5	5.5	11.5

06078200 MISSOURI RIVER NEAR ULM, MT

LOCATION.--Lat 47°26'09", long 111°23'12" (NAD 27), in NE $\frac{1}{4}$ NW $\frac{1}{4}$ NW $\frac{1}{4}$ 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.

GAGE.--Water-stage recorder. Elevation of gage is 3,313.27 ft (NGVD 29).

REMARKS.--Records good except those for estimated daily discharges, which are fair. Flow regulated by 10 smaller irrigation reservoirs and power plants, 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. Several observations of water temperature and specific conductance were made during the year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1953 reached a stage of about 17 ft; discharge, 35,000 ft³/s. Flood in June 1948 reached a stage of about 16 ft; discharge, 32,000 ft³/s, from information by local residents.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3,080	3,260	3,410	e3,800	e3,900	3,930	4,030	4,170	5,100	3,590	2,730	2,900
2	3,080	3,240	3,420	e3,800	e3,900	3,890	4,230	3,970	4,880	3,560	2,720	2,920
3	3,080	3,250	3,330	e3,700	e3,900	3,910	4,330	3,870	4,660	3,520	2,740	2,900
4	3,080	3,240	3,270	e3,600	e3,900	3,930	4,350	3,860	4,480	3,520	2,760	2,900
5	3,070	3,230	3,280	e3,600	e3,900	4,010	4,340	3,860	4,310	3,530	2,830	2,820
6	3,070	3,250	3,320	e3,700	e3,900	4,030	4,320	3,920	4,290	3,630	2,870	2,810
7	3,080	3,250	3,330	e3,800	e4,000	4,090	4,320	3,940	4,220	3,610	2,930	2,830
8	3,130	3,250	3,340	e3,800	e4,000	4,020	4,220	3,920	4,200	3,560	2,940	2,890
9	3,160	3,280	3,420	e3,800	e4,000	4,010	4,070	3,890	4,210	3,450	2,970	3,020
10	3,160	3,350	3,560	e3,800	e4,000	4,050	3,870	3,830	4,230	3,350	2,920	3,070
11	3,160	3,320	3,670	e3,800	e3,900	4,100	3,800	3,860	4,320	3,270	2,870	3,120
12	3,170	3,370	4,030	e3,800	e3,900	4,090	3,710	3,950	5,070	3,210	2,880	3,200
13	3,170	3,380	e4,200	e3,900	e3,800	4,050	3,650	3,870	5,540	3,180	2,870	3,280
14	3,160	3,370	e4,000	e3,900	e3,700	4,140	3,660	3,720	5,230	3,150	2,870	3,290
15	3,170	3,350	e3,900	e3,900	e3,700	4,130	3,670	3,580	4,900	3,080	2,870	3,240
16	3,180	3,370	3,850	e3,900	e3,700	4,090	3,730	3,560	4,650	3,000	2,850	3,080
17	3,180	3,390	3,800	e3,900	e3,800	4,040	3,760	3,530	4,530	2,960	2,830	2,880
18	3,070	3,460	3,950	e4,000	e3,900	4,100	3,730	3,510	4,430	2,910	2,870	2,800
19	3,090	3,470	3,920	e4,100	e4,000	4,080	3,720	3,560	4,220	2,930	2,920	2,820
20	3,080	3,340	3,880	e4,000	e4,000	4,070	3,660	3,700	4,140	2,920	2,920	2,990
21	3,120	3,310	3,800	e4,000	e3,900	4,130	3,620	3,850	4,080	2,890	2,920	3,110
22	3,070	e3,300	3,730	e4,000	e3,900	4,140	3,610	4,020	3,970	2,920	2,980	3,220
23	3,110	e3,500	3,700	e4,000	e3,900	4,140	3,620	4,460	3,890	2,880	3,240	3,170
24	3,090	e3,600	3,760	e4,000	3,930	4,110	3,540	5,080	3,850	2,820	3,410	3,100
25	3,170	e3,600	3,810	e3,900	3,940	4,040	3,520	5,400	3,800	2,820	3,540	3,040
26	3,210	e3,500	3,810	e3,900	3,960	4,020	3,550	5,410	3,680	2,850	3,420	2,980
27	3,180	e3,400	3,770	e3,800	4,030	4,020	3,570	5,690	3,630	2,790	3,280	2,910
28	3,180	e3,400	3,710	e3,900	4,060	3,950	3,520	5,820	3,600	2,760	3,160	2,920
29	3,170	e3,400	e3,600	e3,900	4,020	3,940	3,890	5,780	3,540	2,730	3,020	2,940
30	3,240	3,420	e3,700	e4,000	---	3,960	4,170	5,650	3,530	2,770	2,960	2,930
31	3,280	---	e3,800	e4,000	---	3,930	---	5,360	---	2,760	2,910	---
TOTAL	97,240	100,850	114,070	120,000	113,440	125,140	115,780	132,590	129,180	96,920	92,000	90,080
MEAN	3,137	3,362	3,680	3,871	3,912	4,037	3,859	4,277	4,306	3,126	2,968	3,003
MAX	3,280	3,600	4,200	4,100	4,060	4,140	4,350	5,820	5,540	3,630	3,540	3,290
MIN	3,070	3,230	3,270	3,600	3,700	3,890	3,520	3,510	3,530	2,730	2,720	2,800
AC-FT	192,900	200,000	226,300	238,000	225,000	248,200	229,600	263,000	256,200	192,200	182,500	178,700

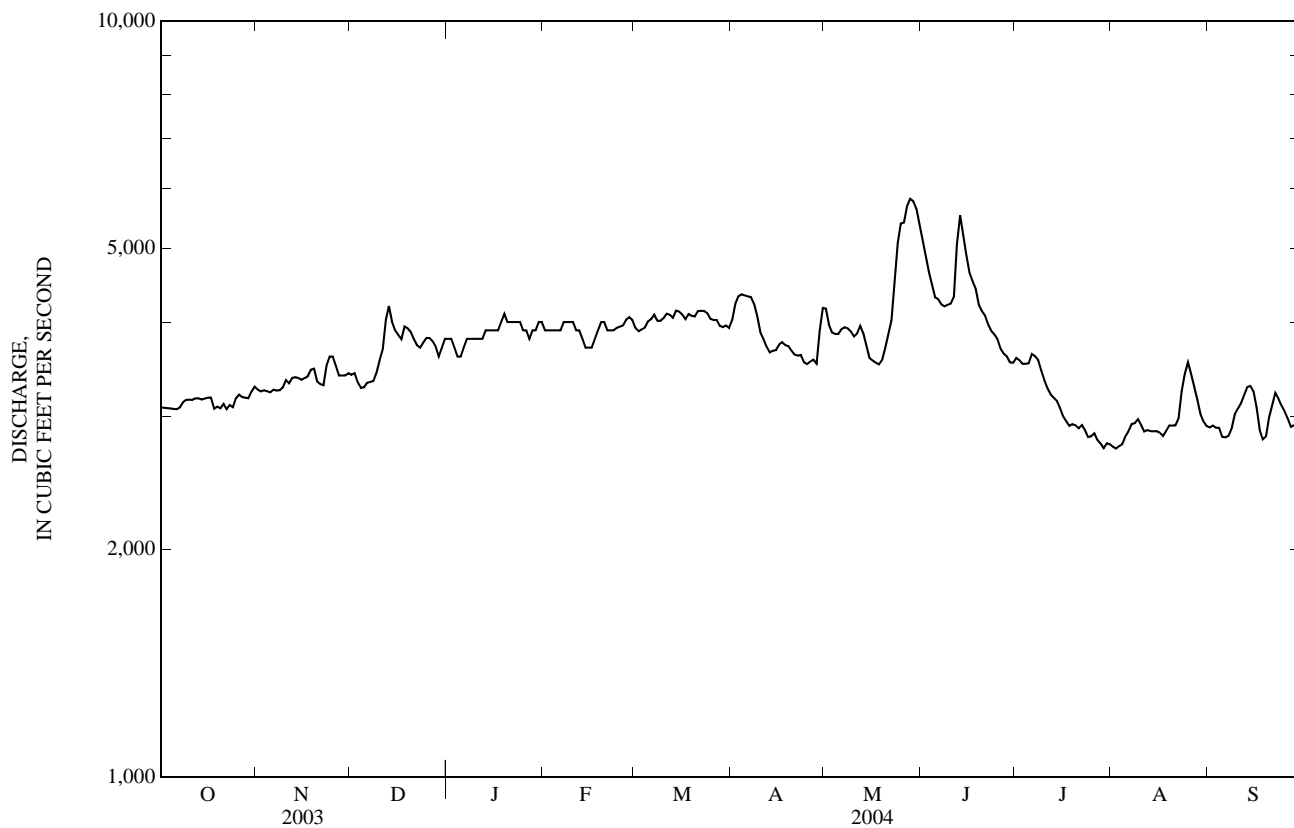
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1957 - 2004, BY WATER YEAR (WY)

MEAN	4,892	5,262	5,490	5,600	5,716	5,847	6,475	8,857	10,730	7,285	4,814	4,574
MAX	11,230	9,497	10,690	7,213	9,501	9,652	12,070	19,800	24,260	19,480	8,741	9,990
(WY)	(1966)	(1966)	(1960)	(1984)	(1996)	(1968)	(1976)	(1976)	(1981)	(1975)	(1993)	(1984)
MIN	2,977	3,090	3,095	3,129	3,096	3,152	3,070	3,501	2,965	2,868	2,968	2,283
(WY)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(1961)	(1961)	(1961)	(1985)	(2004)	(1959)

06078200 MISSOURI RIVER NEAR ULM, MT—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1957 - 2004	
ANNUAL TOTAL	1,569,510		1,327,290			
ANNUAL MEAN	4,300		3,626		6,295	
HIGHEST ANNUAL MEAN					9,653	
LOWEST ANNUAL MEAN					3,479	
HIGHEST DAILY MEAN	11,100	Jun 5	5,820	May 28	28,200	May 24, 1981
LOWEST DAILY MEAN	2,830	Aug 17	2,720	Aug 2	1,700	Jun 17, 1961
ANNUAL SEVEN-DAY MINIMUM	2,920	Sep 2	2,740	Jul 28	2,150	Sep 4, 1959
MAXIMUM PEAK FLOW			a5,840	May 28	c28,500	May 24, 1981
MAXIMUM PEAK STAGE			b6.75	Jan 1	15.20	Jun 17, 1997
ANNUAL RUNOFF (AC-FT)	3,113,000		2,633,000		4,560,000	
10 PERCENT EXCEEDS	6,200		4,180		9,880	
50 PERCENT EXCEEDS	3,800		3,640		5,500	
90 PERCENT EXCEEDS	3,090		2,910		3,370	

a--Gage height, 4.90 ft.
 b--Backwater from ice.
 c--Gage height, 14.99 ft.
 e--Estimated.



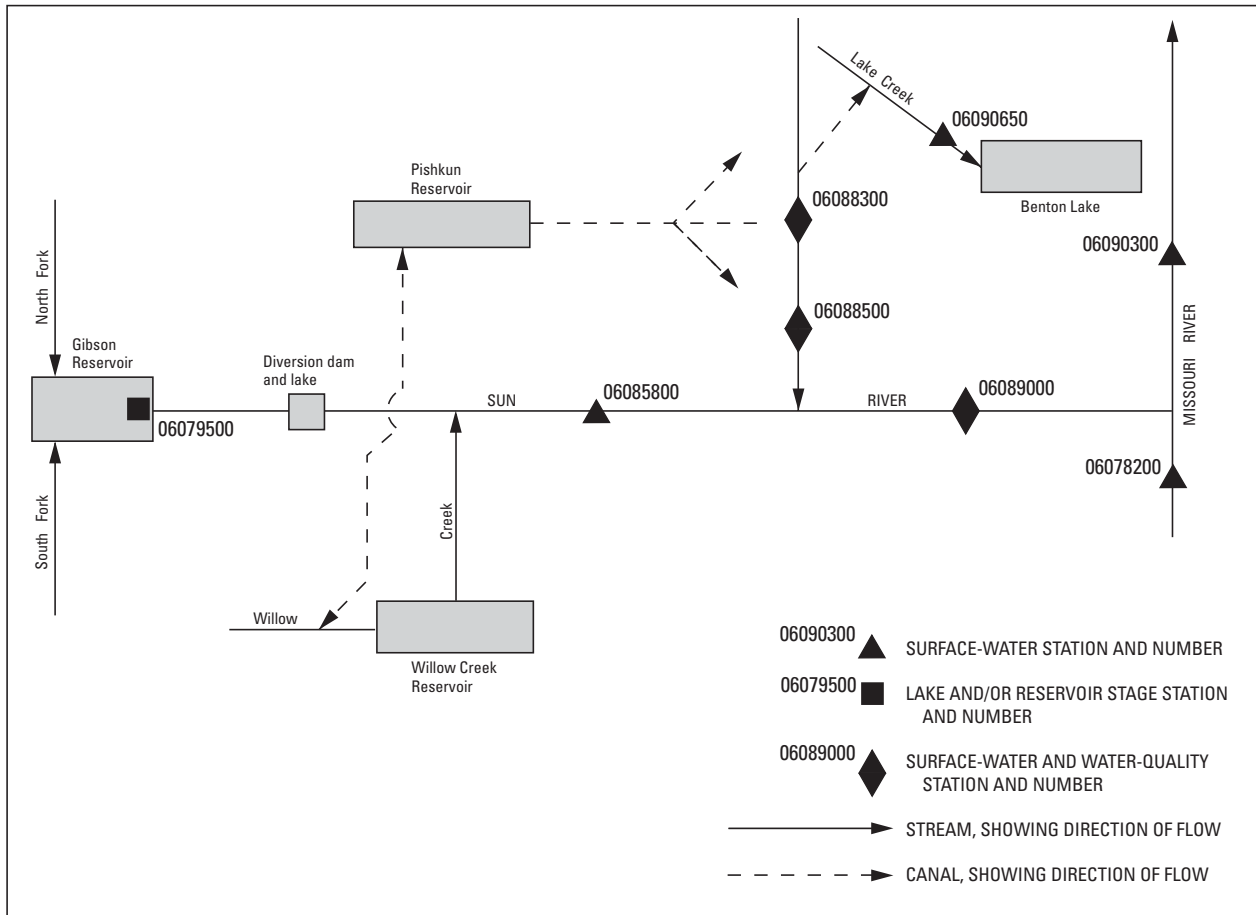


Figure 10. Schematic diagram showing diversions and storage in Sun River basin.

06085800 SUN RIVER AT SIMMS, MT

LOCATION (REVISED).--Lat 47°30'09", long 111°55'54" (NAD 27), in NW $\frac{1}{4}$ NW $\frac{1}{4}$ SE $\frac{1}{4}$ sec. 12, T. 20 N., R.3 W., Cascade County, Hydrologic Unit 10030104, on left bank on downstream side of Montana Secondary Highway 565 bridge, 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.

REVISED RECORDS.--WDR MT-75-1: 1964 (M).

GAGE.--Water-stage recorder. Elevation of gage is 3,570 ft (NGVD 29). May 1941 to October 1965, nonrecording gage at different elevation. April 1966 to September 1979, water-stage recorder at site about 500 ft downstream at different elevation.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow regulated by Gibson, Pishkun, Willow Creek, and Nilan Reservoirs. Diversions for irrigation of about 105,000 acres upstream from station. U.S. Geological Survey satellite telemeter at station. Several observations of water temperature and specific conductance were made during the year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	109	e110	e110	e85	e90	e130	136	58	1,120	167	45	149
2	101	e120	e120	e80	e95	e110	141	45	747	121	52	146
3	101	e110	e110	e75	e100	e120	125	51	472	73	68	149
4	106	e100	e100	e70	e110	e120	117	49	181	59	144	144
5	106	e100	e110	e75	e110	e120	115	46	145	58	88	137
6	104	e100	e120	e80	e120	125	107	60	1,010	59	66	127
7	106	e100	e100	e100	e130	127	89	47	1,360	41	67	124
8	107	e100	e95	e120	e140	158	81	56	1,030	36	73	128
9	103	e110	e95	e130	e150	144	99	99	675	41	77	121
10	89	e120	e90	e140	e140	137	96	806	325	38	81	108
11	95	e120	e90	e140	e120	127	87	1,380	153	43	76	95
12	97	e120	e100	e145	e130	124	83	1,290	143	59	59	95
13	93	e130	e100	e150	e140	125	77	849	269	56	49	108
14	122	e140	e100	e155	e140	121	74	636	210	52	47	122
15	151	e150	e100	e150	e150	120	73	571	140	38	42	124
16	185	e150	e100	e150	e150	119	85	534	128	33	35	135
17	181	153	e100	e140	e160	117	91	261	129	40	33	147
18	166	152	e100	e140	e140	118	79	73	97	52	73	137
19	163	e150	e100	e150	e130	117	94	101	62	63	101	142
20	161	e140	e110	e140	e130	116	61	108	55	56	87	162
21	160	e120	e100	e140	e130	116	40	141	59	53	95	150
22	155	e100	e100	e150	e130	117	42	134	66	54	97	138
23	149	e110	e100	e160	e130	117	57	185	63	53	203	129
24	138	e110	e110	e140	e130	115	59	259	80	53	311	125
25	135	e110	e100	e120	e140	115	57	397	83	55	283	118
26	133	e110	e95	e100	e140	114	e30	575	105	58	325	108
27	138	e120	e95	e80	e130	113	e20	650	117	58	309	109
28	144	e130	e90	e85	e130	111	e25	835	122	65	218	118
29	148	e140	e85	e90	e130	111	44	1,060	111	56	203	115
30	143	e110	e80	e100	---	112	44	1,270	103	43	192	106
31	e120	---	e90	e95	---	112	---	1,400	---	38	181	---
TOTAL	4,009	3,635	3,095	3,675	3,765	3,748	2,328	14,026	9,360	1,771	3,780	3,816
MEAN	129	121	99.8	119	130	121	77.6	452	312	57.1	122	127
MAX	185	153	120	160	160	158	141	1,400	1,360	167	325	162
MIN	89	100	80	70	90	110	20	45	55	33	33	95
AC-FT	7,950	7,210	6,140	7,290	7,470	7,430	4,620	27,820	18,570	3,510	7,500	7,570

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 2004, BY WATER YEAR (WY)*

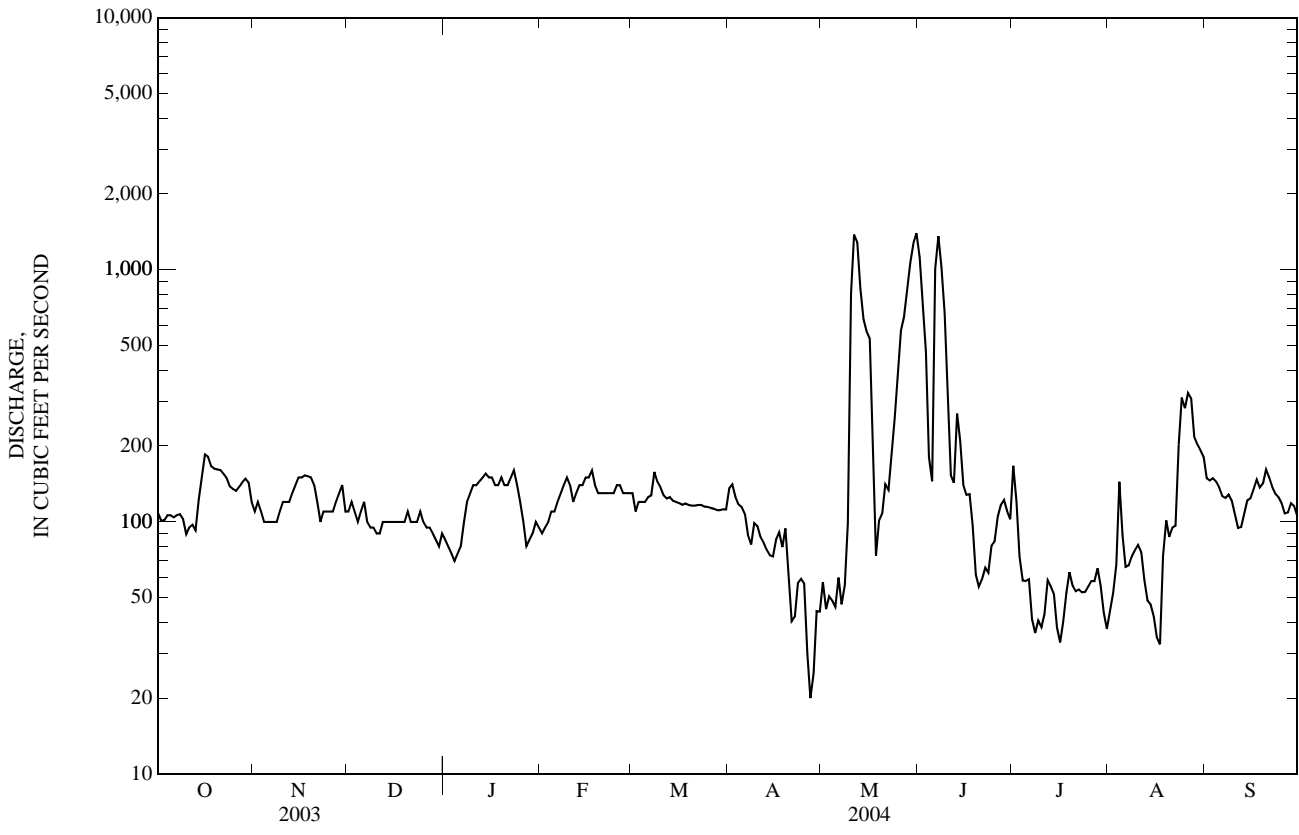
MEAN	204	217	192	191	188	216	313	1,129	2,142	385	161	147
MAX	519	596	456	314	291	473	1,125	4,123	8,558	2,165	383	422
(WY)	(1972)	(1976)	(1976)	(1976)	(1976)	(1969)	(1969)	(1976)	(1975)	(1975)	(1972)	(1972)
MIN	89.0	120	99.8	119	96.3	104	77.6	72.1	109	44.3	48.8	49.3
(WY)	(1978)	(1978)	(2004)	(2004)	(1977)	(1977)	(2004)	(2001)	(1977)	(2003)	(2000)	(1977)

SUN RIVER BASIN

06085800 SUN RIVER AT SIMMS, MT—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1966 - 2004*	
ANNUAL TOTAL	77,961		57,008			
ANNUAL MEAN	214		156		449	
HIGHEST ANNUAL MEAN					1,177	1975
LOWEST ANNUAL MEAN					123	2001
HIGHEST DAILY MEAN	3,520	May 30	1,400	May 31	35,000	Jun 20, 1975
LOWEST DAILY MEAN	26	Jul 12	20	Apr 27	19	Sep 29, 1977
ANNUAL SEVEN-DAY MINIMUM	32	Jul 7	38	Apr 26	26	Sep 19, 1977
MAXIMUM PEAK FLOW			1,480	May 11	50,000	Jun 9, 1964
MAXIMUM PEAK STAGE			3.73	May 11	a13.70	Jun 9, 1964
ANNUAL RUNOFF (AC-FT)	154,600		113,100		325,400	
10 PERCENT EXCEEDS	278		182		811	
50 PERCENT EXCEEDS	130		112		179	
90 PERCENT EXCEEDS	43		55		80	

*--During period of operation (April 1966 to September 1979, April 1997 to current year).
 a--About, from floodmark.
 e--Estimated.



06088300 MUDDY CREEK NEAR VAUGHN, MT

LOCATION.--Lat 47°37'30", long 111°38'05" (NAD 27), in NE $\frac{1}{4}$ NE $\frac{1}{4}$ NW $\frac{1}{4}$ 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.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1968 to September 1987, March 1996 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 3,441.79 ft (NGVD 29) (levels by U.S. Army Corps of Engineers).

REMARKS.--Water-discharge records good except those for estimated daily discharges, which are poor. 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 SW $\frac{1}{4}$ sec. 2, T. 22 N., R.1 W, to supplement water supply for Benton Lake Wildlife Refuge. U.S. Geological Survey satellite telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	e30	e45	e22	e22	30	31	25	102	169	201	163
2	50	e35	e48	e20	e23	28	33	20	110	190	180	151
3	50	e32	e40	e18	e24	e26	32	19	102	243	185	158
4	50	e30	e35	e16	e25	e27	32	18	81	219	253	148
5	46	e30	e35	e17	e25	e28	26	16	124	363	261	143
6	48	e30	e40	e18	e26	28	23	16	124	272	236	139
7	47	e32	e30	e20	e30	29	22	16	198	242	183	134
8	47	e35	e25	e26	e30	45	22	16	241	224	165	137
9	45	e40	e25	e29	e32	43	22	15	276	262	176	126
10	44	e50	e22	e30	e30	39	22	15	265	280	162	141
11	43	e55	e22	e30	e28	29	21	19	260	230	174	162
12	42	e50	e23	e28	e29	30	21	76	238	268	162	162
13	40	e50	e25	e28	e31	30	21	76	197	269	177	160
14	40	e50	e25	e33	e30	26	20	87	191	258	184	157
15	41	e50	e25	e35	e33	25	21	66	186	250	197	203
16	46	49	e27	e35	e32	25	30	58	189	243	179	204
17	39	47	e27	e32	e36	24	25	93	238	235	175	156
18	34	46	e27	e30	e34	24	23	65	279	255	255	142
19	37	48	e28	e35	e32	24	21	133	234	282	219	120
20	36	e40	e30	e32	e30	24	21	113	244	248	222	113
21	35	e35	e28	e30	e29	26	22	121	290	251	216	81
22	35	e30	e27	e32	e29	24	20	140	264	234	205	79
23	35	e32	e27	e35	e30	23	20	192	204	249	378	71
24	32	e35	e30	e30	e31	22	18	272	204	195	386	66
25	33	e35	e25	e25	e37	21	19	174	206	197	275	64
26	33	e35	e24	e22	e40	21	19	148	223	204	226	61
27	37	e38	e23	e20	e35	21	18	103	232	179	225	60
28	50	e42	e21	e21	e32	20	23	100	308	174	198	55
29	54	e50	e20	e23	30	23	25	121	189	210	183	54
30	33	e45	e20	e25	---	22	30	153	226	248	179	56
31	e32	---	e23	e25	---	20	---	124	---	224	173	---
TOTAL	1,270	1,206	872	822	875	827	703	2,610	6,225	7,367	6,590	3,666
MEAN	41.0	40.2	28.1	26.5	30.2	26.7	23.4	84.2	208	238	213	122
MAX	54	55	48	35	40	45	33	272	308	363	386	204
MIN	32	30	20	16	22	20	18	15	81	169	162	54
AC-FT	2,520	2,390	1,730	1,630	1,740	1,640	1,390	5,180	12,350	14,610	13,070	7,270

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 2004, BY WATER YEAR (WY)*

MEAN	74.9	53.8	41.1	33.0	35.3	57.7	39.8	112	202	257	240	132
MAX	145	71.4	58.5	59.8	65.1	238	162	264	455	367	402	218
(WY)	(1976)	(1986)	(1986)	(1997)	(1986)	(1978)	(1975)	(1975)	(1969)	(1970)	(1975)	(1972)
MIN	40.8	34.9	21.7	19.3	17.5	23.4	21.3	56.3	101	137	123	42.1
(WY)	(2002)	(2002)	(1973)	(1973)	(1985)	(2002)	(2000)	(2001)	(1985)	(1980)	(2003)	(2003)

06088300 MUDDY CREEK NEAR VAUGHN, MT—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1968 - 2004*	
ANNUAL TOTAL	27,970		33,033			
ANNUAL MEAN	76.6		90.3		107	
HIGHEST ANNUAL MEAN					160	
LOWEST ANNUAL MEAN					77.2	
HIGHEST DAILY MEAN	336	Jun 21	386	Aug 24	2,250	May 7, 1975
LOWEST DAILY MEAN	15	Feb 22	15	May 9	8.0	Dec 8, 1972
ANNUAL SEVEN-DAY MINIMUM	18	Feb 20	16	May 4	13	Dec 8, 1972
MAXIMUM PEAK FLOW			520	Aug 23	3,560	May 22, 1981
MAXIMUM PEAK STAGE			5.20	Aug 23	b14.72	May 22, 1981
INSTANTANEOUS LOW FLOW			a4.8	Mar 7	c4.8	Mar 7, 2004
ANNUAL RUNOFF (AC-FT)	55,480		65,520		77,860	
10 PERCENT EXCEEDS	225		235		254	
50 PERCENT EXCEEDS	37		38		59	
90 PERCENT EXCEEDS	22		21		27	

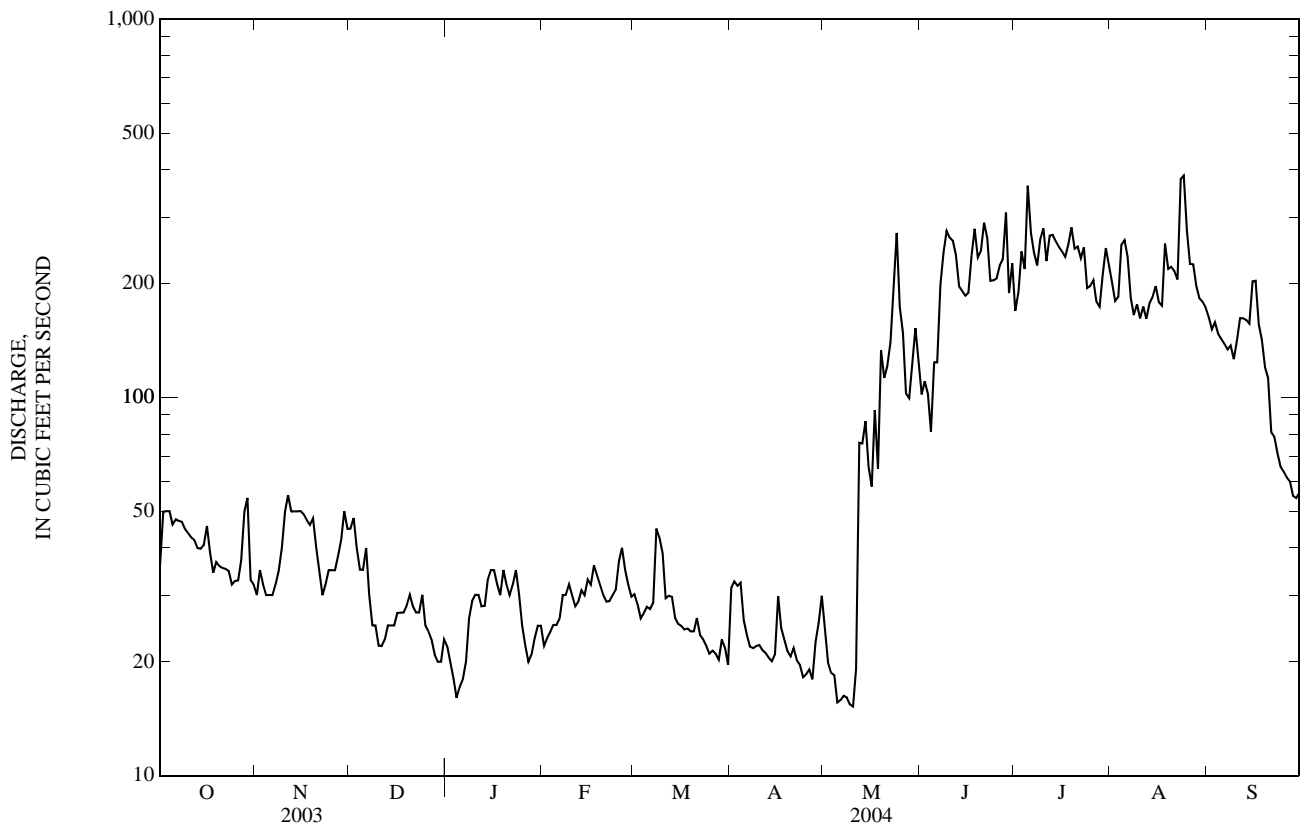
*--During periods of operation (July 1968 to September 1987, March 1996 to current year).

a--Gage height, 1.62 ft, result of freezeup.

b--From floodmark.

c--May have been lower during a period of ice effect.

e--Estimated.



06088300 MUDDY CREEK NEAR VAUGHN, MT—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1968 to September 1982, March 1996 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: July 1968 to September 1982.

SUSPENDED-SEDIMENT DISCHARGE: July 1968 to September 1982.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 6,400 microsiemens per centimeter ($\mu\text{S}/\text{cm}$) at 25°C, Apr. 29, 1976; minimum daily, 365 $\mu\text{S}/\text{cm}$ at 25°C, Feb. 20, 1969.

SEDIMENT CONCENTRATION: Maximum daily mean, 13,000 mg/L, Mar. 18, 1978; minimum daily mean observed, 11 mg/L, Oct. 19, 1968, Oct. 19, 1972, Oct. 30, 1973.

SEDIMENT LOAD: Maximum daily, 63,900 tons, May 22, 1981; minimum daily, 0.84 ton, Jan. 8, 1973.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Time	Instantaneous discharge, cfs (00061)	pH, water, unfltrd field, std units (00400)	Specific conductance, water unfltrd $\mu\text{S}/\text{cm}$ 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water, fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Total nitrogen, water unfltrd mg/L (62855)
OCT 22...	1100	35	8.4	856	17.0	10.0	E.005	1.83	.012	1.83
JAN 14...	0800	33	8.4	940	6.0	.0	.070	3.11	.018	3.69
MAR 24...	0930	23	8.6	1,110	11.0	6.0	<.010	2.22	.017	2.75
APR 21...	0800	23	8.5	1,170	4.5	7.5	E.007	2.01	.017	2.54
MAY 18...	1500	77	8.7	719	18.0	13.0	.025	.747	.012	1.77
JUN 24...	0930	210	8.4	606	12.5	14.0	E.006	.863	.007	1.54
JUL 21...	1600	274	8.6	587	25.0	20.0	E.007	.956	.008	1.49
AUG 18...	1640	253	8.6	670	27.0	19.0	E.009	.839	.011	1.49
SEP 07...	1630	136	8.9	602	22.0	15.0	E.007	.982	.007	1.15

Date	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, unfltrd mg/L (00665)	Selenium, water, unfltrd $\mu\text{g}/\text{L}$ (01147)	Suspended sediment, percent <.063mm (70331)	Suspended sediment concentration mg/L (80154)	Suspended sediment discharge, tons/d (80155)
OCT 22...	<.006	.013	1.5	70	20	1.9
JAN 14...	E.005	.040	3.0	48	103	9.2
MAR 24...	<.006	.049	3.1	94	47	2.9
APR 21...	<.006	.063	3.1	91	86	5.3
MAY 18...	.008	.25	1.7	96	223	46
JUN 24...	.041	.26	1.5	84	279	158
JUL 21...	.072	.194	1.6	71	166	123
AUG 18...	.013	.113	1.4	92	96	66
SEP 07...	<.006	.019	1.3	97	62	23

E--Estimated.

06088500 MUDDY CREEK AT VAUGHN, MT

LOCATION (REVISED).--Lat 47°33'39", long 111°32'26" (NAD 27), in SW $\frac{1}{4}$ SE $\frac{1}{4}$ NE $\frac{1}{4}$ 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.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1925 to January 1926, April 1934 to September 1968, July 1971 to current year.

REVISED RECORDS.--WSP 856: 1937. WSP 1509: 1934-35, 1941(M). WSP 1559: 1956. WSP 1629: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 3,330 ft (NGVD 29). May 21, 1925 to Feb. 8, 1926, nonrecording gage at site 500 ft downstream at different elevation. Apr. 19, 1934 to Sept. 30, 1955, at previous site at elevation. 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 elevation. July 1, 1971 to May 9, 1996, 700 ft upstream at previous elevation.

REMARKS.--Water-discharge records good except those for estimated daily discharges, which are poor. 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. U.S. Geological Survey satellite telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1908 reached a stage of about 24 ft, previous elevation (discharge not determined); flood in June 1932 reached a stage of about 19 ft, previous elevation (discharge not determined); from information by local residents.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	92	e33	e50	e24	e24	e32	29	25	179	213	292	238
2	101	e38	e52	e22	e25	e30	35	21	165	216	275	230
3	99	e35	e45	e20	e26	e28	31	18	167	259	269	232
4	100	e33	e40	e18	e27	e30	32	18	145	260	330	226
5	98	e33	e40	e19	e27	e32	27	16	159	362	334	223
6	97	e33	e45	e20	e29	e32	25	37	178	325	323	220
7	96	e35	e35	e22	e32	e33	23	47	253	294	291	215
8	94	e38	e28	e28	e33	51	23	42	304	281	264	215
9	90	e45	e28	e31	e35	48	23	35	313	299	273	212
10	93	54	e25	e33	e33	e45	23	54	310	315	250	225
11	90	60	e25	e33	e31	e35	23	85	304	284	260	239
12	91	53	e26	e30	e32	31	22	134	292	307	240	234
13	87	52	e27	e30	e34	30	22	138	264	324	261	239
14	74	52	e27	e34	e33	26	21	146	260	312	266	228
15	46	52	e27	e37	e36	26	21	99	253	296	276	243
16	46	51	e29	e37	e35	25	28	118	257	286	261	266
17	45	51	e29	e34	e39	24	27	134	279	282	241	234
18	37	50	e29	e34	e37	24	24	113	318	297	295	225
19	38	54	e31	e37	e35	24	23	166	290	318	286	194
20	38	e50	e32	e35	e33	22	22	165	289	304	284	196
21	38	e40	e30	e33	e32	27	23	171	332	310	279	150
22	38	e33	e30	e35	e32	24	22	198	312	286	281	140
23	38	e34	e30	e37	e33	23	21	240	261	290	364	133
24	36	e38	e32	e32	e34	23	20	309	252	269	383	126
25	35	e38	e28	e27	e40	21	19	238	252	260	324	123
26	36	e39	e27	e24	e45	21	20	218	275	277	294	120
27	36	e41	e26	e23	e40	21	19	181	269	255	295	118
28	49	44	e23	e24	e35	20	21	176	339	256	281	112
29	58	e55	e22	e25	e33	21	24	193	248	268	269	109
30	e40	e50	e22	e27	---	23	28	225	246	314	256	111
31	e35	---	e25	e27	---	21	---	209	---	301	253	---
TOTAL	1,991	1,314	965	892	960	873	721	3,969	7,765	8,920	8,850	5,776
MEAN	64.2	43.8	31.1	28.8	33.1	28.2	24.0	128	259	288	285	193
MAX	101	60	52	37	45	51	35	309	339	362	383	266
MIN	35	33	22	18	24	20	19	16	145	213	240	109
AC-FT	3,950	2,610	1,910	1,770	1,900	1,730	1,430	7,870	15,400	17,690	17,550	11,460

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1925 - 2004, BY WATER YEAR (WY)*

MEAN	99.2	59.8	44.0	34.3	37.2	54.3	41.3	137	238	275	283	175
MAX	200	113	131	68.5	96.9	283	182	305	480	416	488	270
(WY)	(1963)	(1964)	(1957)	(1997)	(1952)	(1978)	(1975)	(1953)	(1953)	(1966)	(1975)	(1972)
MIN	26.3	30.7	16.8	17.3	10.0	22.4	18.3	52.6	86.0	52.1	44.0	40.2
(WY)	(1926)	(1926)	(1926)	(1936)	(1936)	(1988)	(1968)	(1935)	(1936)	(1925)	(1925)	(1925)

06088500 MUDDY CREEK AT VAUGHN, MT—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1925 - 2004*	
ANNUAL TOTAL	35,532		42,996			
ANNUAL MEAN	97.3		117		124	
HIGHEST ANNUAL MEAN					185	1975
LOWEST ANNUAL MEAN					61.2	1936
HIGHEST DAILY MEAN	419	Jun 21	383	Aug 24	3,500	Jun 4, 1953
LOWEST DAILY MEAN	17	Feb 23	16	May 5	4.8	Mar 29, 1977
ANNUAL SEVEN-DAY MINIMUM	21	Feb 21	20	Apr 22	7.0	Jan 24, 1936
MAXIMUM PEAK FLOW			486	Aug 23	b7,600	Jun 4, 1953
MAXIMUM PEAK STAGE			5.62	Aug 23	c17.70	Jun 4, 1953
INSTANTANEOUS LOW FLOW			a14	May 6	d2.0	Mar 16, 1972
ANNUAL RUNOFF (AC-FT)	70,480		85,280		90,180	
10 PERCENT EXCEEDS	258		290		293	
50 PERCENT EXCEEDS	45		45		70	
90 PERCENT EXCEEDS	26		23		26	

*--During periods of operation (June 1925 to January 1926, May 1934 to September 1968, July 1971 to current year).

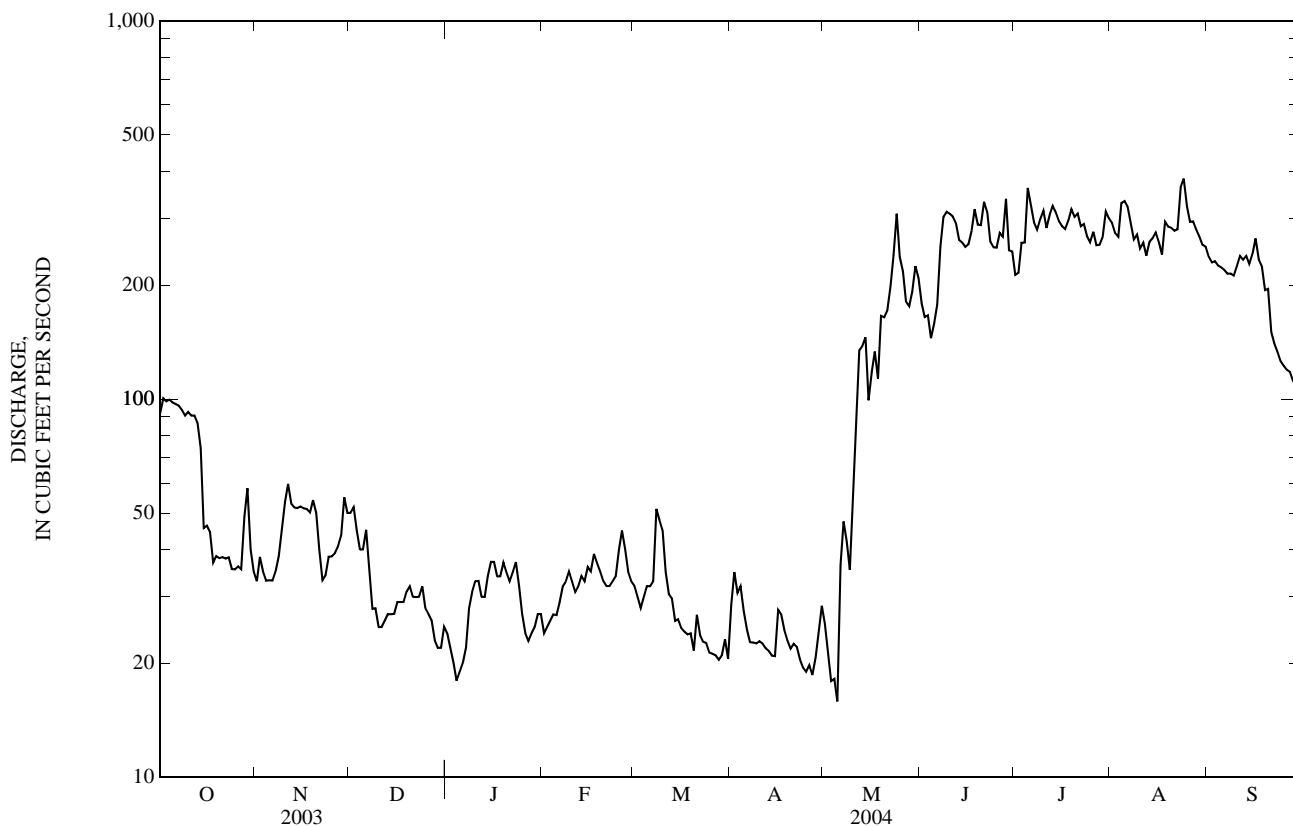
a--Gage height, 2.05 ft.

b--From rating curve extended above 3,000 ft³/s on basis of slope-area measurement of peak flow.

c--From floodmark, site and datum then in use.

d--Gage height, 1.20 ft, result of freezeup.

e--Estimated.



06088500 MUDDY CREEK AT VAUGHN, MT—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1968, 1971-82, October 1991 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1967 to September 1968, July 1972 to September 1982.

WATER TEMPERATURE: October 1967 to September 1968, July 1971 to September 1979.

SUSPENDED-SEDIMENT DISCHARGE: July 1971 to September 1982.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 5,400 microsiemens per centimeter ($\mu\text{S}/\text{cm}$) at 25.0°C, Apr. 30, 1976; minimum daily, 470 $\mu\text{S}/\text{cm}$ at 25.0°C, June 8, 1974. WATER TEMPERATURE: Maximum daily, 25.5°C, June 18, 1974, June 28, 1979; minimum daily, 0.0°C, on many days during winters.

SEDIMENT CONCENTRATION: Maximum daily, 21,100 mg/L, May 22, 1981; minimum daily, 10 mg/L, Feb. 10, 1973.

SEDIMENT LOAD: Maximum daily, 127,000 tons, May 22, 1981; minimum daily, 0.68 ton, Feb. 10, 1973.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Time	Instantaneous discharge, cfs (00061)	pH, water, unfltrd field, std units (00400)	Specific conductance, water unfltrd $\mu\text{S}/\text{cm}$ 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Total nitrogen, water unfltrd mg/L (62855)
OCT 22...	1330	38	8.6	851	22.0	12.5	E.005	1.60	.009	2.05
JAN 14...	0930	34	8.4	963	6.0	.0	.061	3.16	.020	3.69
MAR 24...	1010	24	8.8	1,090	13.0	7.0	E.009	1.86	.015	2.27
APR 21...	1010	22	8.9	1,280	9.0	9.5	.015	1.56	.014	1.97
MAY 18...	1645	104	8.5	596	15.0	14.0	.035	.323	.009	.98
JUN 24...	1145	257	8.5	594	16.0	14.5	<.010	.719	.005	1.40
JUL 22...	1000	285	8.5	581	20.0	17.0	E.006	.868	.004	1.43
AUG 16...	1400	266	8.5	605	23.0	19.0	.010	.634	.005	.98
SEP 08...	0820	213	8.6	603	10.0	12.5	E.009	.663	.004	.87

Date	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, unfltrd mg/L (00665)	Selenium, water, unfltrd $\mu\text{g}/\text{L}$ (01147)	Suspended sediment, percent <.063mm (70331)	Suspended sediment concentration mg/L (80154)	Suspended sediment discharge, tons/d (80155)
OCT 22...	<.006	.011	1.5	65	42	4.3
JAN 14...	<.006	.033	2.8	58	42	3.9
MAR 24...	<.006	.031	2.9	96	49	3.2
APR 21...	<.006	.030	2.9	96	73	4.3
MAY 18...	E.004	.158	.9	93	179	50
JUN 24...	.029	.24	1.4	79	277	192
JUL 22...	.049	.194	1.2	77	229	176
AUG 16...	E.005	.059	1.4	78	75	54
SEP 08...	<.006	.052	1.2	80	91	52

E--Estimated.

06089000 SUN RIVER NEAR VAUGHN, MT

LOCATION.--Lat 47°31'33", long 111°30'43" (NAD 27), in SE $\frac{1}{4}$ SW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.32, T.21 N., R.2 E., Cascade County, Hydrologic Unit 10030104, on right bank 2.3 mi downstream from Muddy Creek, 2.8 mi southeast of Vaughn, and at river mile 15.0.

DRAINAGE AREA.--1,849 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July to October 1897 (gage heights and discharge measurements only, published as "near Great Falls"), April 1934 to current year. Monthly discharge only for April 1934, published in WSP 1309.

REVISED RECORDS.--WSP 786: 1934. WSP 1729: Drainage area. WDR MT-03-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 3,340 ft (NGVD 29). July 11 to Oct. 30, 1897, nonrecording gage at site 0.6 mi downstream at different elevation. Apr. 19 to Aug. 3, 1934, non-recording gage 1.4 mi downstream at different elevation. Aug. 4, 1934 to Oct. 15, 2002, water-stage recorder 1.4 mi downstream at different elevation.

REMARKS.--Water-discharge records good except those for estimated daily discharges, which are poor. 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.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1964 exceeded the stage of the June 1908 flood by about 3 ft and is the highest since 1908, from information by local residents.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	240	e220	e250	e170	e170	206	181	130	1,410	401	386	584
2	240	e240	e250	e160	e180	203	208	130	1,070	466	398	541
3	238	e230	e240	e140	e180	e180	197	122	748	433	389	554
4	244	e220	e230	e130	e190	188	185	122	480	404	577	533
5	240	e220	e240	e140	e190	e190	176	111	331	555	622	524
6	241	e220	e250	e150	e200	e190	168	97	742	515	515	509
7	242	e230	e230	e170	e210	192	156	102	1,560	454	441	501
8	250	e240	e210	e200	e210	222	143	103	1,690	374	393	474
9	237	e250	e190	e220	e220	237	142	100	1,220	399	438	463
10	231	e270	e180	e240	e210	219	152	281	995	419	423	455
11	226	e260	e180	e260	e200	202	147	1,300	713	372	452	452
12	229	e240	e190	e240	e210	194	139	1,480	595	429	416	452
13	231	e240	e200	e230	e220	191	136	1,240	571	448	444	497
14	231	e240	e210	e240	e210	184	130	856	638	426	428	522
15	270	e250	e220	e240	e220	178	127	698	515	402	447	534
16	290	253	e220	e230	e230	173	134	634	487	411	448	563
17	291	250	e210	e220	e240	178	142	590	517	408	405	521
18	270	242	e220	e220	e230	174	141	372	573	432	495	505
19	255	258	e220	e230	e220	171	133	384	480	489	605	476
20	255	264	e230	e220	e210	173	140	417	458	471	577	542
21	251	e210	e220	e230	e210	171	132	405	519	475	559	483
22	258	e200	e210	e230	e210	170	132	454	501	449	559	431
23	247	e210	e210	228	e220	168	131	535	432	476	764	399
24	229	e220	e220	e190	e230	164	128	751	418	441	1,190	376
25	225	e230	e200	e170	241	162	127	664	436	421	915	367
26	223	e240	e190	e160	239	162	124	733	456	456	858	344
27	227	e250	e190	e150	235	159	105	812	458	427	861	330
28	242	e270	e180	e160	221	159	102	933	576	446	731	331
29	259	e290	e170	e170	210	159	131	1,160	466	462	678	337
30	254	e270	e160	e190	---	159	137	1,430	433	477	647	326
31	e230	---	e180	e180	---	157	---	1,590	---	420	625	---
TOTAL	7,596	7,227	6,500	6,108	6,166	5,635	4,326	18,736	20,488	13,658	17,686	13,926
MEAN	245	241	210	197	213	182	144	604	683	441	571	464
MAX	291	290	250	260	241	237	208	1,590	1,690	555	1,190	584
MIN	223	200	160	130	170	157	102	97	331	372	386	326
AC-FT	15,070	14,330	12,890	12,120	12,230	11,180	8,580	37,160	40,640	27,090	35,080	27,620

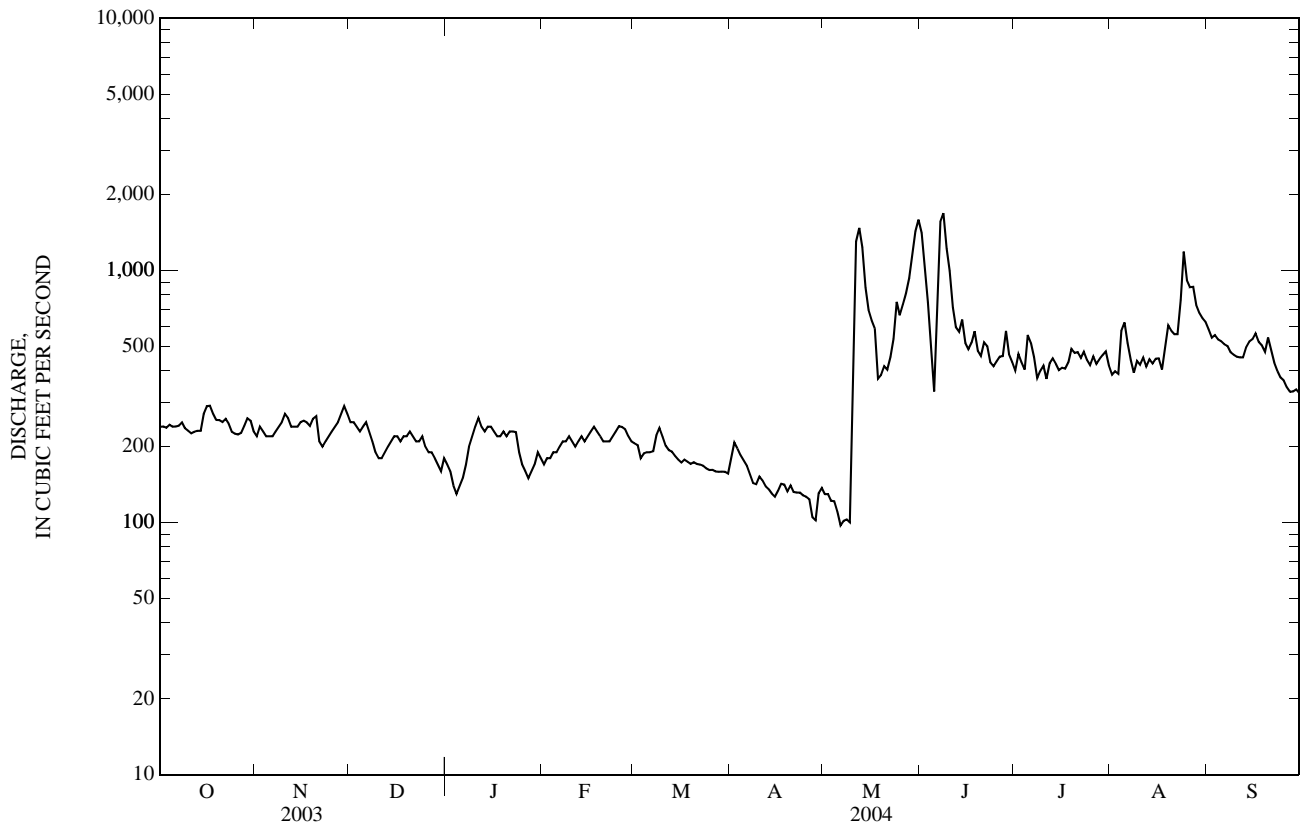
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1934 - 2004, BY WATER YEAR (WY)

MEAN	379	337	300	255	264	323	494	1,557	2,512	777	562	441
MAX	779	908	896	656	601	868	3,000	4,333	8,014	2,508	1,025	1,040
(WY)	(1952)	(1990)	(1996)	(1986)	(1986)	(1969)	(1934)	(1976)	(1964)	(1975)	(1975)	(1993)
MIN	143	149	114	66.5	82.4	133	93.3	87.1	280	265	250	164
(WY)	(1937)	(1937)	(1936)	(1937)	(1936)	(1941)	(1941)	(1941)	(1941)	(1939)	(1940)	(1936)

06089000 SUN RIVER NEAR VAUGHN, MT—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1934 - 2004	
ANNUAL TOTAL	137,672		128,052			
ANNUAL MEAN	377		350		678	
HIGHEST ANNUAL MEAN					1,307	1943
LOWEST ANNUAL MEAN					210	1941
HIGHEST DAILY MEAN	3,510	May 31	1,690	Jun 8	37,000	Jun 10, 1964
LOWEST DAILY MEAN	160	Dec 30	97	May 6	23	May 26, 1941
ANNUAL SEVEN-DAY MINIMUM	181	Dec 25	108	May 3	38	May 21, 1941
MAXIMUM PEAK FLOW			1,800	Jun 8	b53,500	Jun 9, 1964
MAXIMUM PEAK STAGE			3.29	Jun 8	c23.40	Jun 9, 1964
INSTANTANEOUS LOW FLOW			a87	May 6	d20	Apr 24, 1944
ANNUAL RUNOFF (AC-FT)	273,100		254,000		491,100	
10 PERCENT EXCEEDS	578		592		1,370	
50 PERCENT EXCEEDS	250		240		360	
90 PERCENT EXCEEDS	200		151		178	

a--Gage height, 1.80 ft.
 b--42,200 ft³/s in main channel, plus 11,300 ft³/s in bypass channel.
 c--From floodmark.
 d--Gage height, 0.52 ft, result of irrigation.
 e--Estimated.



06089000 SUN RIVER NEAR VAUGHN, MT—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1969 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1968 to September 2003.

WATER TEMPERATURE: October 1968 to September 1979, August 1999 to September 2003.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 2,610 microsiemens per centimeter ($\mu\text{S}/\text{cm}$) at 25°C, Apr. 8, 1977; minimum daily, 214 $\mu\text{S}/\text{cm}$ at 25°C, June 8, 1970.

WATER TEMPERATURE: Maximum daily, 29.5°C, July 14, 18, 2002; minimum daily, 0.0°C on many days during winter.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

Date	Time	Instantaneous discharge, cfs (00061)	pH, water, unfltrd field, std units (00400)	Specif. conductance, water, unfltrd $\mu\text{S}/\text{cm}$ 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Total nitrogen, water, unfltrd by analysis, mg/L (62855)
OCT										
22...	1530	254	8.5	692	22.0	13.5	.013	.450	.005	.66
JAN										
14...	1130	242	8.4	714	7.0	0.0	.026	.980	.006	1.12
MAR										
24...	1200	165	8.6	721	17.0	10.0	.031	.340	.004	.63
APR										
21...	1200	138	8.8	799	12.0	12.5	.035	.296	.005	.60
MAY										
19...	0930	328	8.6	610	10.0	12.0	.029	.157	.004	.53
JUN										
24...	1415	433	8.5	643	17.0	20.0	<.010	.405	.004	.79
JUL										
20...	1230	483	8.5	613	28.0	22.0	.024	.508	.004	1.08
AUG										
16...	1640	453	8.5	623	25.0	22.0	E.007	.350	.003	.67
SEP										
08...	0950	463	8.6	620	16.5	14.0	.016	.386	.004	.62

Date	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, unfltrd mg/L (00665)	Selenium, water, unfltrd $\mu\text{g}/\text{L}$ (01147)	Suspended sediment, percent <.063mm (70331)	Suspended sediment concentration mg/L (80154)	Suspended sediment discharge, tons/d (80155)
OCT						
22...	<.006	.021	.6	76	44	30
JAN						
14...	<.006	.008	1.2	62	11	7.2
MAR						
24...	<.006	.019	1.0	93	27	12
APR						
21...	<.006	.028	.9	87	56	21
MAY						
19...	.009	.064	.8	99	54	48
JUN						
24...	.010	.080	1.1	93	72	84
JUL						
20...	.033	.139	1.0	99	99	129
AUG						
16...	E.004	.050	.9	94	47	57
SEP						
08...	<.006	.036	1.0	97	64	80

E--Estimated.