

## 06209500 ROCK CREEK NEAR RED LODGE, MT

LOCATION.--Lat 45°05'10", long 109°19'45" (NAD 27), in NW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> 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 mi<sup>2</sup>.

PERIOD OF RECORD.--April to December 1932, May 1934 to September 1982, May 1985 to September 1986, January 2000 to current year. 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. Elevation of gage is 6,400 ft (NGVD 29). Prior to October 1986, water-stage recorder at elevation 6,099.42 ft, levels by U.S. Army Corps of Engineers, at previous site 3.1 mi downstream. Streamflows are equivalent.

REMARKS.--Records fair except those for the estimated daily discharges, which are poor. Flow partly regulated by Glacier Lake. No diversions upstream from station. U.S. Geological Survey satellite telemeter at station. Several unpublished observations of water temperature and specific conductance were made during the year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	103	55	e35	e20	e25	e20	20	27	218	415	220	190
2	99	65	e35	e20	e25	e20	21	26	204	442	228	184
3	94	49	e35	e20	e25	20	21	26	192	419	249	179
4	91	48	e35	e20	e20	20	21	27	192	356	232	175
5	69	47	e35	e20	e20	20	21	30	242	344	216	172
6	65	46	e35	e20	e20	20	21	39	356	357	206	167
7	64	45	e35	e20	e20	20	23	53	337	368	199	162
8	62	45	e35	e20	e20	20	24	53	255	376	195	153
9	61	45	e35	e20	e20	21	23	56	221	394	192	151
10	60	44	e35	e20	e20	21	21	63	202	420	193	152
11	59	43	e35	e20	e20	21	21	62	204	473	202	147
12	59	42	e30	e20	e20	21	22	54	220	407	193	148
13	61	44	e30	e15	e20	21	23	54	207	385	195	144
14	61	43	e30	e20	e25	e20	23	59	231	415	176	138
15	65	42	e30	e20	e20	e20	22	73	333	409	162	132
16	64	40	e30	e20	e20	e20	22	120	480	398	154	127
17	61	41	e30	e20	e20	20	23	214	642	412	150	125
18	60	40	31	e20	e20	e20	25	175	722	366	177	122
19	59	38	30	e25	e20	20	24	516	639	337	191	118
20	59	e35	e30	25	e20	20	24	985	649	320	169	113
21	58	e30	e25	24	e20	20	23	877	684	305	162	110
22	56	e35	e25	24	e20	20	24	710	776	295	165	109
23	56	e35	e20	24	e20	20	26	741	875	295	245	110
24	56	e35	e25	24	e20	e20	30	566	796	293	240	115
25	53	38	e25	23	e20	e25	31	379	668	299	230	114
26	54	36	e25	23	e20	e20	32	302	553	308	221	106
27	54	e35	e25	23	e20	20	31	284	468	264	214	103
28	53	e30	e25	23	e20	21	29	318	473	241	209	103
29	53	e30	e25	23	---	21	28	360	441	228	205	95
30	51	e30	e25	23	---	20	28	272	395	222	203	88
31	50	---	e25	e25	---	20	---	224	---	235	196	---
TOTAL	1,970	1,231	926	664	580	632	727	7,745	12,875	10,798	6,189	4,052
MEAN	63.5	41.0	29.9	21.4	20.7	20.4	24.2	250	429	348	200	135
MAX	103	65	35	25	25	25	32	985	875	473	249	190
MIN	50	30	20	15	20	20	20	26	192	222	150	88
AC-FT	3,910	2,440	1,840	1,320	1,150	1,250	1,440	15,360	25,540	21,420	12,280	8,040

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1932 - 2005, BY WATER YEAR (WY)\*

MEAN	81.1	54.4	41.0	33.6	30.5	29.3	39.6	218	584	486	255	140
MAX	124	77.7	56.1	45.1	42.4	39.7	99.2	460	1,129	1,088	427	219
(WY)	(1968)	(1962)	(1962)	(1942)	(1953)	(1972)	(1943)	(1958)	(1957)	(1975)	(1951)	(1971)
MIN	49.9	36.9	26.6	20.6	19.6	19.6	24.2	78.1	252	220	153	88.6
(WY)	(2004)	(2003)	(1955)	(2002)	(2000)	(2002)	(2005)	(2004)	(2004)	(2001)	(2001)	(1960)

YELLOWSTONE RIVER BASIN

06209500 ROCK CREEK NEAR RED LODGE, MT—Continued

SUMMARY STATISTICS	FOR 2004 CALENDAR YEAR		FOR 2005 WATER YEAR		WATER YEARS 1932 - 2005*	
ANNUAL TOTAL	36,640		48,389			
ANNUAL MEAN	100		133		169	
HIGHEST ANNUAL MEAN					251	1943
LOWEST ANNUAL MEAN					97.3	2001
HIGHEST DAILY MEAN	486	Jun 10	985	May 20	2,370	Jun 5, 1957
LOWEST DAILY MEAN	20	Jan 4	15	Jan 13	14	Nov 29, 1954
ANNUAL SEVEN-DAY MINIMUM	21	Jan 22	19	Jan 7	17	Jan 27, 2002
MAXIMUM PEAK FLOW			a1,670	May 20	c3,110	Jun 4, 1957
MAXIMUM PEAK STAGE			b8.32	Jan 3	b8.32	Jan 3, 2005
ANNUAL RUNOFF (AC-FT)	72,680		95,980		122,500	
10 PERCENT EXCEEDS	253		367		478	
50 PERCENT EXCEEDS	50		47		62	
90 PERCENT EXCEEDS	24		20		28	

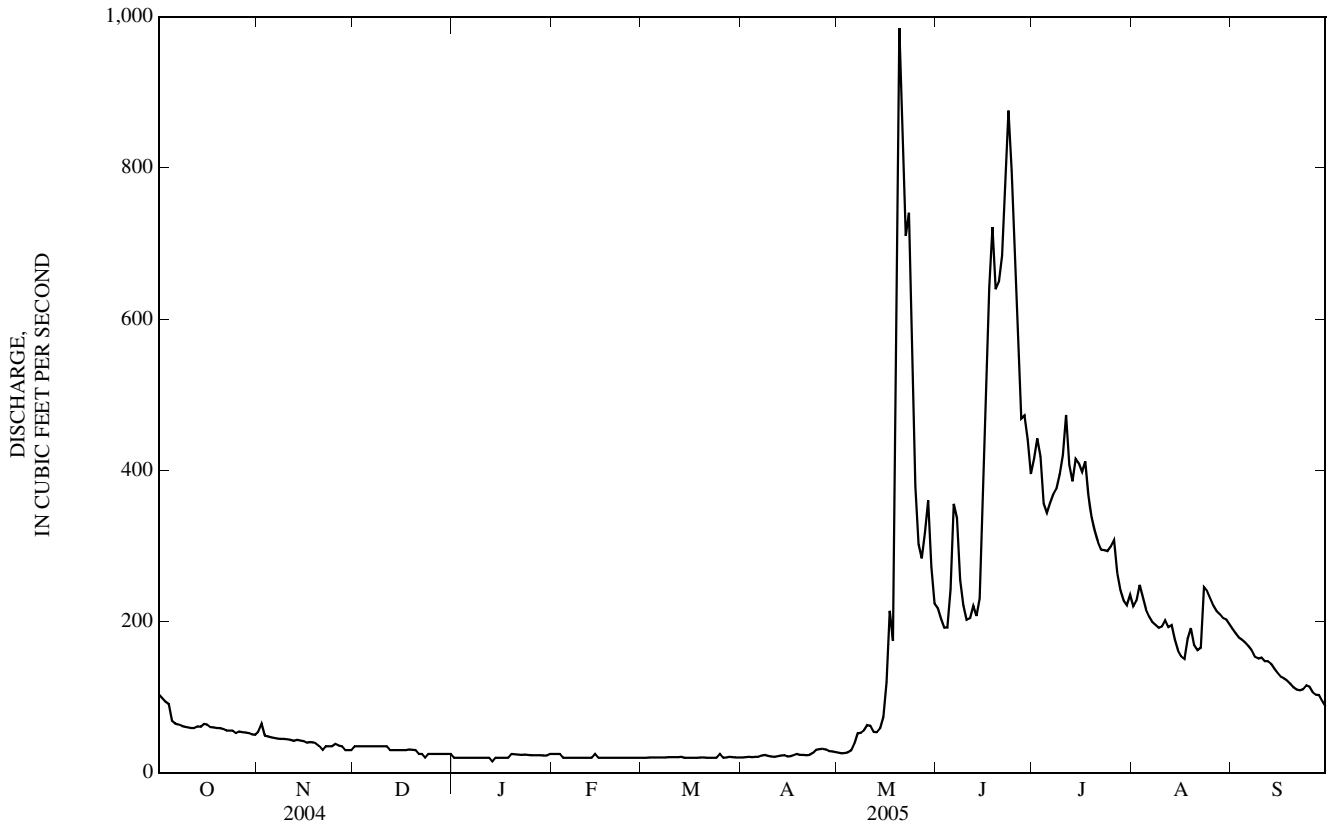
\*--During periods of operation (April 1932 to December 1932, May 1934 to September 1982, May 1985 to September 1986, January 2000 to current year).

a--Gage height, 7.18 ft.

b--Backwater from ice.

c--Gage height, 4.78 ft, previous site and datum.

e--Estimated.



## 06211000 RED LODGE CREEK ABOVE COONEY RESERVOIR, NEAR BOYD, MT

LOCATION.--Lat 45°26'16", long 109°15'11" (NAD 27), in NE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub>sec.33, T.4 S., R.20 E., Carbon County, Hydrologic Unit 10070006, on right bank 0.6 mi upstream from Cooney Reservoir, 9.5 mi west of Boyd, and at river mile 15.0.

DRAINAGE AREA.--143 mi<sup>2</sup>.

PERIOD OF RECORD.--May 1937 to current year (no winter records most years).

REVISED RECORDS.--WSP 1729: Drainage area. WSP 2116: 1937(M), 1942(M), 1943(P), 1944(M), 1948(M), 1952(M), 1957(P), 1962(M), 1963(M).

GAGE.--Water-stage recorder. Elevation of gage is 4,248.0 ft (NGVD 29).

REMARKS.--Seasonal records fair. Some return flow from lands irrigated by water diverted from Rock Creek and East Rosebud Creek basins. Diversions for irrigation of about 5,100 acres upstream from station. U.S. Geological Survey satellite telemeter at station. Several unpublished observations of water temperature and specific conductance were made during the year.

DISCHARGE, CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY TO DECEMBER 2005  
DAILY MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1				20	43	169	157	53	33	26		
2				20	39	159	159	51	32	26		
3				21	40	147	175	54	29	31		
4				21	41	147	169	60	26	37		
5				21	39	145	156	61	23	47		
6				20	41	147	144	52	22	47		
7				20	55	163	112	48	24	48		
8				21	165	163	111	47	22	49		
9				38	113	162	109	49	23	44		
10				30	480	164	110	46	27	43		
11				23	2,820	155	131	43	27	39		
12				21	924	167	118	46	28	37		
13				18	558	200	112	55	31	37		
14				15	494	171	100	59	32	36		
15				14	473	170	99	50	30	35		
16				14	439	193	92	47	27	34		
17				13	387	223	89	42	27	35		
18				13	366	236	89	41	28	35		
19				27	332	241	84	73	27	35		
20				35	329	237	77	72	25	34		
21				38	297	221	73	66	22	33		
22				46	272	222	71	64	21	34		
23				65	263	207	78	66	21	33		
24				64	263	216	84	59	25	33		
25				53	274	231	82	59	31	33		
26				44	268	188	110	56	29	34		
27				43	227	179	96	51	28	32		
28				47	206	195	84	43	30	31		
29				51	192	180	77	37	30	31		
30				49	195	175	72	33	28	32		
31				---	195	---	59	34	---	32		
TOTAL				925	10,830	5,573	3,279	1,617	808	1,113		
MEAN				30.8	349	186	106	52.2	26.9	35.9		
MAX				65	2,820	241	175	73	33	49		
MIN				13	39	145	59	33	21	26		
AC-FT				1,830	21,480	11,050	6,500	3,210	1,600	2,210		

## STATISTICS OF MONTHLY MEAN DATA FOR SEASONS 1937 - 2005\*

	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
MEAN	15.4	27.4	36.5	75.3	154	188	89.4	38.0	46.3	46.1	33.3	19.3	18.8	35.0	62.9	234	616	575	297	106	119	69.5	33.6	12.1	18.9	17.4	12.7	10.8	15.3	4.90	4.71	4.20	17.5	16.5	14.5	(1964)	(1962)	(1962)	(1973)	(1975)	(1967)	(1975)	(1993)	(1941)	(1942)	(1942)	(1958)																						
MIN	12.1	18.9	17.4	12.7	10.8	15.3	4.90	4.71	4.20	17.5	16.5	14.5	(1963)	(1964)	(1964)	(1961)	(1985)	(1954)	(1949)	(1946)	(1949)	(1954)	(1955)	(1946)																																													

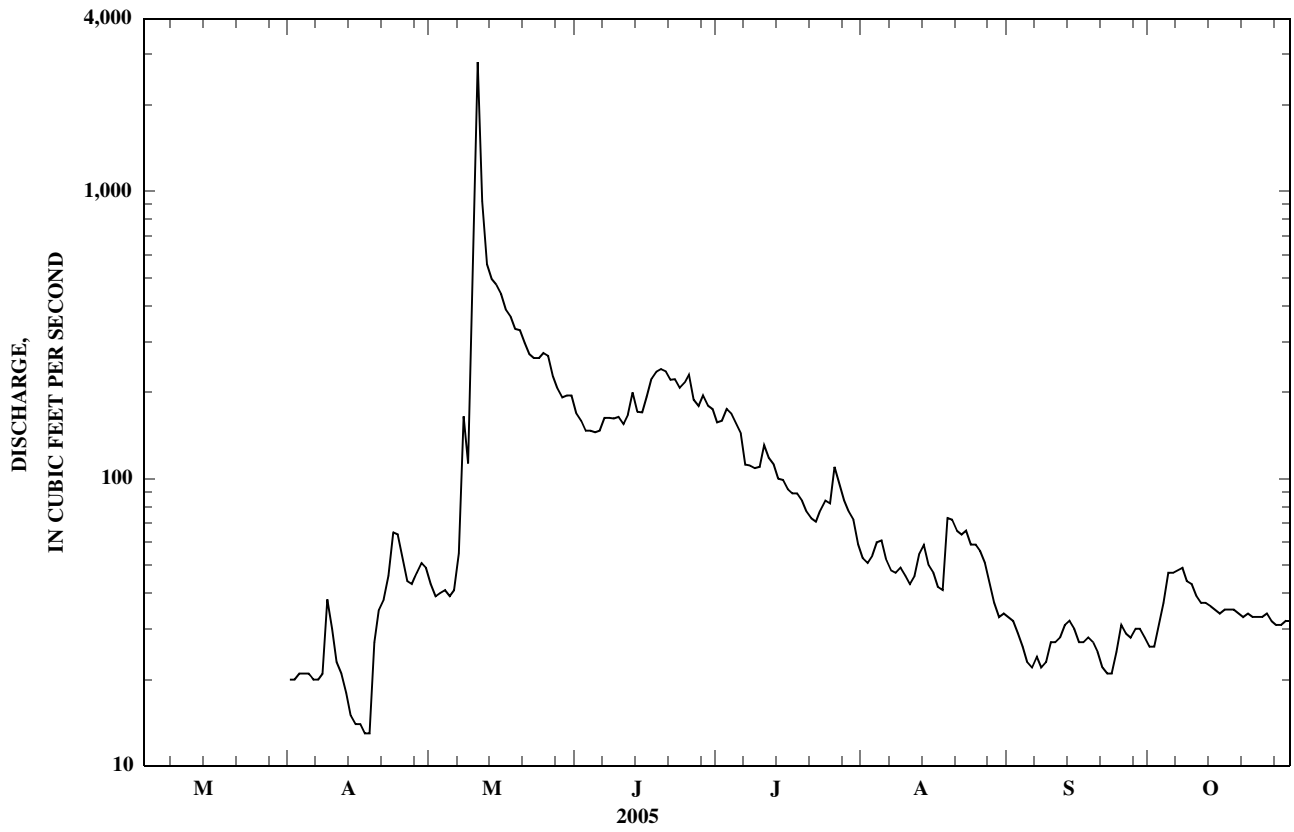
## SUMMARY STATISTICS

	FOR 2005 SEASON		SEASONS 1937 - 2005*	
ANNUAL MEAN			58.4	
HIGHEST ANNUAL MEAN			67.1	1963
LOWEST ANNUAL MEAN			49.8	1964
HIGHEST DAILY MEAN	2,820	May 11	2,820	May 11, 2005
LOWEST DAILY MEAN	13	Apr 17	0.00	Aug 1, 1949
MAXIMUM PEAK FLOW	a3,720	May 11	a3,720	May 11, 2005
MAXIMUM PEAK STAGE	7.35	May 11	7.35	May 11, 2005
INSTANTANEOUS LOW FLOW	b11	Apr 15	0.00	Aug 1, 1949
ANNUAL RUNOFF (AC-FT)			42,340	
10 PERCENT EXCEEDS			170	
50 PERCENT EXCEEDS			30	
90 PERCENT EXCEEDS			15	

\*--No winter records most years.

a--Result of slope-area measurement of peak flow.

b--Gage height, 1.44 ft.



## 06211500 WILLOW CREEK NEAR BOYD, MT

LOCATION.--Lat 45°25'20", long 109°13'47" (NAD 27), in SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub> sec.2, T.5 S., R.20 E., Carbon County, Hydrologic Unit 10070006, on left bank 0.5 mi upstream from Cooney Reservoir, 8 mi west of Boyd, and at river mile 2.1.

DRAINAGE AREA.--53.3 mi<sup>2</sup>.

PERIOD OF RECORD.--June 1937 to current year (no winter records except 1963-64).

REVISED RECORDS.--WSP 1729: Drainage area. WSP 2116: 1957, 1962. WDR MT-87-1: 1986.

GAGE.--Water-stage recorder. Elevation of gage is 4,260 ft (NGVD 29). Prior to Apr. 23, 1948, at site 0.5 mi downstream at different elevation.

REMARKS.--Seasonal records fair. Diversions for irrigation of about 1,800 acres upstream from station. Some return flow from lands irrigated by water diverted from Rock Creek basin. U.S. Geological Survey satellite telemeter at station. Several unpublished observations of water temperature and specific conductance were obtained during the year.

DISCHARGE, CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY TO DECEMBER 2005  
DAILY MEAN VALUES

DAY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1				11	21	50	56	47	27	22		
2				14	21	48	58	42	26	22		
3				16	22	47	57	40	25	25		
4				16	22	44	56	41	24	28		
5				17	21	41	55	40	24	30		
6				16	20	41	50	37	24	29		
7				15	22	39	48	37	24	32		
8				16	58	39	49	39	23	34		
9				24	36	40	49	38	23	31		
10				19	80	42	51	36	24	30		
11				14	1,220	41	68	38	24	28		
12				13	475	47	67	41	25	28		
13				12	257	56	57	48	26	27		
14				11	228	44	52	47	25	27		
15				11	170	41	51	42	23	27		
16				9.7	116	43	50	39	23	26		
17				9.1	99	44	49	38	23	26		
18				8.2	91	45	51	41	24	26		
19				13	78	46	50	49	24	25		
20				17	69	44	49	44	23	25		
21				17	66	39	48	40	22	25		
22				21	62	38	50	37	20	24		
23				32	59	40	52	35	21	25		
24				45	58	47	52	33	22	25		
25				28	59	55	53	34	25	24		
26				20	56	55	55	31	24	23		
27				20	53	57	52	30	22	22		
28				22	51	58	51	30	24	22		
29				22	48	59	47	28	23	22		
30				22	47	56	48	27	22	22		
31				---	50	---	48	27	---	21		
TOTAL				531.0	3,735	1,386	1,629	1,176	709	803		
MEAN				17.7	120	46.2	52.5	37.9	23.6	25.9		
MAX				45	1,220	59	68	49	27	34		
MIN				8.2	20	38	47	27	20	21		
AC-FT				1,050	7,410	2,750	3,230	2,330	1,410	1,590		

## STATISTICS OF MONTHLY MEAN DATA FOR 1963 - 2005\*

	8.00	12.1	15.3	33.1	48.3	54.8	55.6	39.9	36.9	30.2	22.0	17.0
MEAN	8.00	12.1	15.3	33.1	48.3	54.8	55.6	39.9	36.9	30.2	22.0	17.0
MAX	8.27	17.2	22.5	88.2	215	170	123	75.1	64.3	50.0	31.6	26.6
(WY)	(1963)	(1962)	(1962)	(1973)	(1975)	(1967)	(1978)	(1972)	(1965)	(1972)	(1974)	(1958)
MIN	7.73	5.76	5.89	6.29	3.08	2.05	3.20	11.8	6.02	12.7	14.7	10.6
(WY)	(1964)	(1964)	(1964)	(1961)	(1969)	(1961)	(1960)	(1961)	(1960)	(1940)	(1963)	(1963)

## SUMMARY STATISTICS

HIGHEST DAILY MEAN  
LOWEST DAILY MEAN  
MAXIMUM PEAK FLOW  
MAXIMUM PEAK STAGE  
INSTANTANEOUS LOW FLOW

## FOR 2005 SEASON

1,220 May 11  
8.20 Apr 18  
a2,100 May 11  
b8.59 May 11  
c6.70 Apr 18

## SEASONS 1938 - 2005\*

1,220 May 11, 2005  
0.00 May 29, 1969  
a2,100 May 11, 2005  
b8.59 May 11, 2005  
0.00 May 29, 1969

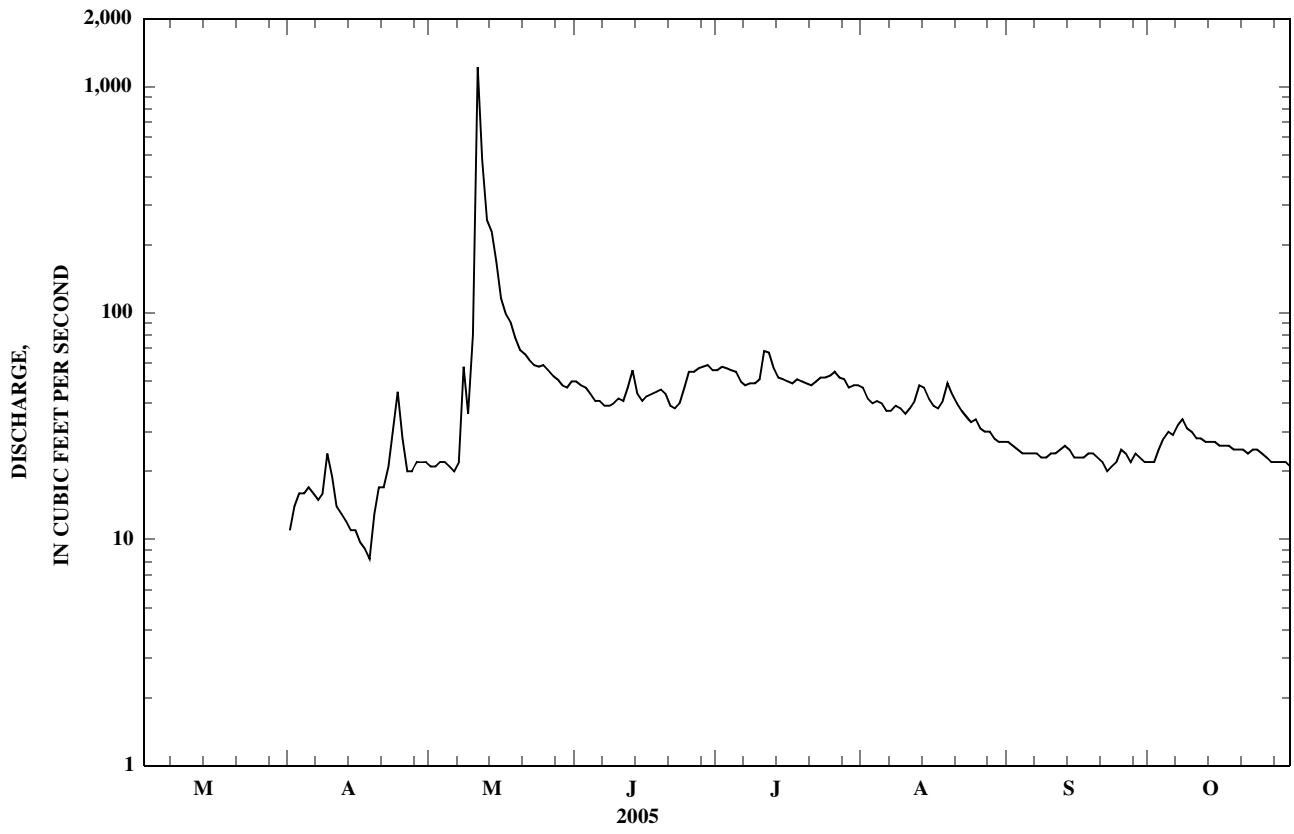
\*--Seasonal records except 1963 and 1964 water years.

a--From slope-area measurement of peak flow.

b--From highwater mark.

c--Gage height, 1.71 ft.

YELLOWSTONE RIVER BASIN  
06211500 WILLOW CREEK NEAR BOYD, MT—Continued



## 06214500 YELLOWSTONE RIVER AT BILLINGS, MT

LOCATION.--Lat 45°48'00", long 108°28'00" (NAD 27), in SE<sup>1</sup>/<sub>4</sub> SE<sup>1</sup>/<sub>4</sub> SE<sup>1</sup>/<sub>4</sub> 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 mi<sup>2</sup>.

PERIOD OF RECORD.--May 1904 to December 1905 (gage heights only January to March, December 1905), August 1928 to current year. Monthly discharge only for some periods, published in WSP 1309. Published as "near Billings" 1904-5.

REVISED RECORDS.--WDR MT 1968: 1967 (M). WSP 1729: Drainage area. WDR-MT-2003-2: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 3,080 ft (NGVD 29). May 1904 to December 1905, nonrecording gage at bridge 0.3 ft upstream at different elevation. Aug. 24, 1928, to June 30, 1932, nonrecording gage at bridge 0.3 mi upstream at elevation 2.0 ft higher. July 1, 1932, to Oct. 12, 1937, water-stage recorder at old diversion dam 3.3 mi upstream at different elevation. Oct. 13, 1937, to Jan. 9, 1963 and Dec. 2, 1967 to Sept. 12, 1990, water-stage recorder 0.3 mi upstream at elevation 3,081.36 ft. Jan. 10, 1963 to Dec. 2, 1967, water-stage recorder 2.1 mi upstream at elevation 3,069.9 ft.

REMARKS.--Records good except those for estimated daily discharges and discharges below 2,000 ft<sup>3</sup>/s, which are poor. Diversions for irrigation of about 350,000 acres upstream from station. U.S. Army Corps of Engineers satellite telemeter at station. Several unpublished observations of water temperature and specific conductance were made during the year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3,750	4,040	e2,300	e2,000	2,390	1,980	2,110	4,850	16,400	16,400	3,660	2,480
2	3,870	3,910	e2,000	e1,800	2,290	2,010	2,070	4,530	16,000	15,900	3,570	2,480
3	3,780	3,630	2,490	e1,800	2,310	2,010	2,030	4,220	16,100	15,800	3,670	2,460
4	3,630	3,740	3,020	e1,800	2,420	2,030	2,070	4,180	14,700	15,100	4,160	2,420
5	3,540	3,880	2,900	e1,900	2,320	2,040	2,200	4,220	14,300	13,600	4,080	2,380
6	3,450	3,760	2,810	e2,100	1,980	2,040	2,270	4,580	14,800	12,300	3,690	2,410
7	3,380	3,690	2,660	e2,100	e1,800	2,030	2,260	5,940	18,200	11,600	3,410	2,850
8	3,360	3,650	2,690	e1,900	e1,700	2,070	2,130	8,060	19,500	11,400	3,210	2,130
9	3,340	3,590	2,870	e1,900	e1,800	2,130	2,420	8,450	17,400	11,100	3,130	1,930
10	3,330	3,540	2,820	e2,000	2,060	2,150	2,660	8,990	15,800	11,200	3,050	1,910
11	3,380	3,500	2,780	e2,100	2,310	2,210	2,650	17,200	14,600	12,100	3,120	1,900
12	3,450	3,550	2,850	e2,100	2,330	2,240	2,440	24,200	14,100	12,600	3,240	1,960
13	3,410	3,460	2,830	e1,800	2,300	2,260	2,220	15,500	14,700	11,100	3,450	2,110
14	3,500	3,310	2,530	e1,700	2,350	2,240	2,090	13,200	14,900	9,730	3,730	2,180
15	4,120	3,200	2,660	e1,900	2,190	2,170	2,140	12,500	13,700	9,170	3,610	2,160
16	4,470	3,150	2,750	e2,000	1,940	2,050	2,630	13,300	15,500	8,590	3,240	2,190
17	4,340	3,130	2,670	e2,200	1,800	2,120	2,540	16,400	20,000	8,090	2,930	2,230
18	4,300	3,120	2,580	e2,500	1,780	2,170	2,420	20,300	23,200	7,740	2,860	2,300
19	4,210	3,210	2,570	2,680	1,910	2,140	3,410	17,500	25,200	7,110	3,300	2,350
20	4,100	3,130	2,570	3,680	2,110	2,120	4,630	20,600	23,100	6,320	3,870	2,340
21	4,110	3,100	2,480	3,840	2,260	2,130	4,300	29,600	23,500	5,810	4,360	2,230
22	4,020	2,890	2,380	3,650	2,210	2,180	4,010	34,500	25,500	5,330	3,810	2,200
23	4,030	2,830	e2,000	3,540	2,130	2,190	3,880	30,700	27,900	5,080	3,410	2,240
24	4,080	e2,900	e2,000	3,350	2,050	2,260	3,780	32,100	31,100	4,860	3,210	2,730
25	4,070	e3,000	e2,000	3,210	2,020	2,210	4,140	29,300	28,500	4,860	3,050	3,350
26	3,980	e3,100	2,000	2,910	2,010	2,140	4,990	23,400	24,700	5,130	2,920	3,490
27	3,840	3,030	2,330	2,690	1,990	2,100	6,140	19,600	21,900	5,060	2,800	3,680
28	3,910	2,930	2,650	2,630	1,980	2,140	6,500	18,200	20,000	4,760	2,700	3,430
29	4,660	2,580	2,550	2,500	---	2,140	6,000	18,500	19,000	4,300	2,580	3,220
30	5,230	e2,500	2,800	2,470	---	2,200	5,270	19,500	17,500	4,050	2,420	3,200
31	4,410	---	2,210	2,370	---	2,200	---	18,300	---	3,860	2,400	---
TOTAL	121,050	99,050	78,750	75,120	58,740	66,100	98,400	502,420	581,800	280,050	102,640	74,940
MEAN	3,905	3,302	2,540	2,423	2,098	2,132	3,280	16,210	19,390	9,034	3,311	2,498
MAX	5,230	4,040	3,020	3,840	2,420	2,260	6,500	34,500	31,100	16,400	4,360	3,680
MIN	3,330	2,500	2,000	1,700	1,700	1,980	2,030	4,180	13,700	3,860	2,400	1,900
AC-FT	240,100	196,500	156,200	149,000	116,500	131,100	195,200	996,600	1,154,000	555,500	203,600	148,600

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 2005, BY WATER YEAR (WY)

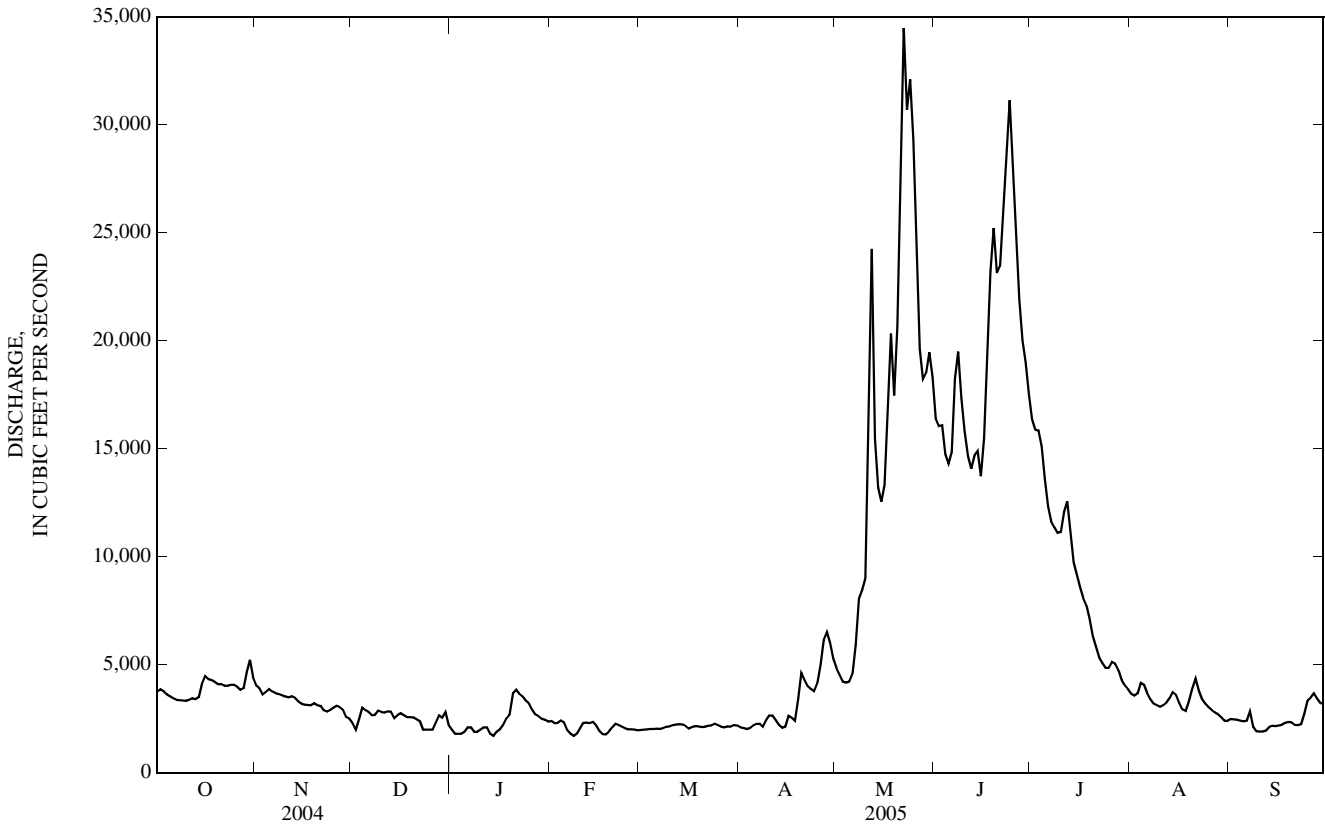
MEAN	3,987	3,534	2,782	2,469	2,634	2,997	4,104	12,680	25,090	13,400	5,087	3,999
MAX	6,803	5,163	4,451	3,834	4,382	5,478	8,799	24,070	53,910	37,180	9,776	7,301
(WY)	(1942)	(1984)	(1976)	(1984)	(1997)	(1979)	(1943)	(1997)	(1997)	(1975)	(1997)	(1968)
MIN	2,128	2,283	1,579	1,363	1,559	1,767	1,438	5,635	9,849	3,410	1,462	1,527
(WY)	(2002)	(1932)	(1933)	(1940)	(1932)	(2002)	(1961)	(1953)	(1934)	(1934)	(2001)	(2001)

YELLOWSTONE RIVER BASIN

06214500 YELLOWSTONE RIVER AT BILLINGS, MT—Continued

SUMMARY STATISTICS	FOR 2004 CALENDAR YEAR		FOR 2005 WATER YEAR		WATER YEARS 1929 - 2005	
ANNUAL TOTAL	1,668,310		2,139,060			
ANNUAL MEAN	4,558		5,860		6,903	
HIGHEST ANNUAL MEAN					12,100	1997
LOWEST ANNUAL MEAN					3,763	2001
HIGHEST DAILY MEAN	25,700	Jun 11	34,500	May 22	80,100	Jun 12, 1997
LOWEST DAILY MEAN	1,450	Aug 17	1,700	Jan 14	450	Dec 12, 1932
ANNUAL SEVEN-DAY MINIMUM	1,610	Aug 13	1,910	Jan 2	794	Dec 10, 1932
MAXIMUM PEAK FLOW			35,900	May 22	82,000	Jun 12, 1997
MAXIMUM PEAK STAGE			10.13	May 22	15.00	Jun 12, 1997
INSTANTANEOUS LOW FLOW					430	Dec 12, 1932
ANNUAL RUNOFF (AC-FT)	3,309,000		4,243,000		5,001,000	
10 PERCENT EXCEEDS	10,700		16,200		17,500	
50 PERCENT EXCEEDS	3,130		3,150		3,680	
90 PERCENT EXCEEDS	1,900		2,030		2,140	

e--Estimated.





## 06216000 PRYOR CREEK AT PRYOR, MT

LOCATION.--Lat 45°26'06", long 108°32'01" (NAD 27), in NE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> 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 mi<sup>2</sup>.

PERIOD OF RECORD.--June 1921 to September 1924 (no winter records), November 1966 to current year. 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. Elevation 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 elevation.

REMARKS.--Records good. Diversions for irrigation of about 1,100 acres upstream from station. U.S. Geological Survey satellite telemeter at station. Several unpublished observations of water temperature and specific conductance were made during the year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	13	12	14	15	14	14	16	18	15	6.2	9.3
2	11	13	13	14	15	14	14	16	18	15	6.4	9.5
3	11	12	13	14	15	14	14	16	18	15	6.5	8.3
4	10	13	13	14	15	14	14	16	17	14	6.6	9.2
5	9.9	13	13	14	15	14	15	16	18	14	6.2	9.7
6	9.8	13	13	14	15	14	15	15	18	14	5.9	11
7	10	12	13	14	15	14	14	17	19	13	5.6	12
8	10	13	13	14	15	15	13	23	20	13	5.6	11
9	11	12	13	14	15	14	20	23	19	11	6.0	9.5
10	10	12	13	14	15	14	18	21	20	12	6.2	8.4
11	11	13	14	14	15	14	16	72	19	14	6.4	9.8
12	11	12	14	14	15	14	15	114	20	13	6.5	12
13	9.8	12	14	14	15	14	15	57	19	9.8	6.6	13
14	11	11	14	14	15	15	15	41	19	8.7	7.2	11
15	14	12	14	14	15	15	15	35	19	8.3	7.5	11
16	13	12	14	14	15	15	15	34	19	8.1	6.8	12
17	12	11	14	14	15	15	14	34	19	8.1	6.1	13
18	12	12	14	15	15	15	15	41	19	8.9	7.1	14
19	12	12	14	16	15	15	21	37	18	9.9	7.2	14
20	12	11	14	16	15	15	21	33	19	9.0	7.6	12
21	12	11	14	15	15	15	20	31	14	8.1	7.3	12
22	12	12	14	14	15	15	21	28	11	7.9	6.9	12
23	12	12	14	15	15	15	22	25	11	8.0	6.9	14
24	13	13	14	15	15	16	23	24	12	7.6	7.2	17
25	13	13	14	16	15	15	21	23	13	8.3	6.8	21
26	13	13	14	15	15	15	19	23	13	8.5	7.0	19
27	12	12	14	15	14	15	19	22	13	8.3	7.0	17
28	13	13	14	15	14	15	17	21	14	7.0	7.0	16
29	19	13	15	15	---	15	18	19	17	7.2	7.7	16
30	16	13	15	15	---	15	17	19	16	8.0	8.4	16
31	14	---	14	15	---	15	---	19	---	6.6	8.9	---
TOTAL	369.5	369	425	450	418	454	510	931	509	319.3	211.3	379.7
MEAN	11.9	12.3	13.7	14.5	14.9	14.6	17.0	30.0	17.0	10.3	6.82	12.7
MAX	19	13	15	16	15	16	23	114	20	15	8.9	21
MIN	9.8	11	12	14	14	14	13	15	11	6.6	5.6	8.3
AC-FT	733	732	843	893	829	901	1,010	1,850	1,010	633	419	753

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 2005, BY WATER YEAR (WY)

MEAN	30.7	30.4	29.6	28.5	29.3	31.2	31.3	52.8	39.4	22.6	20.5	26.1
MAX	62.9	62.0	69.7	54.3	55.7	70.9	58.8	251	158	69.3	49.5	61.0
(WY)	(1976)	(1976)	(1976)	(1976)	(1976)	(1979)	(1976)	(1978)	(1975)	(1975)	(1975)	(1978)
MIN	11.9	12.3	13.7	14.5	14.9	14.6	12.6	13.7	10.7	6.56	6.15	8.52
(WY)	(2005)	(2005)	(2005)	(2005)	(2005)	(2005)	(2003)	(2004)	(2004)	(2003)	(2003)	(2003)

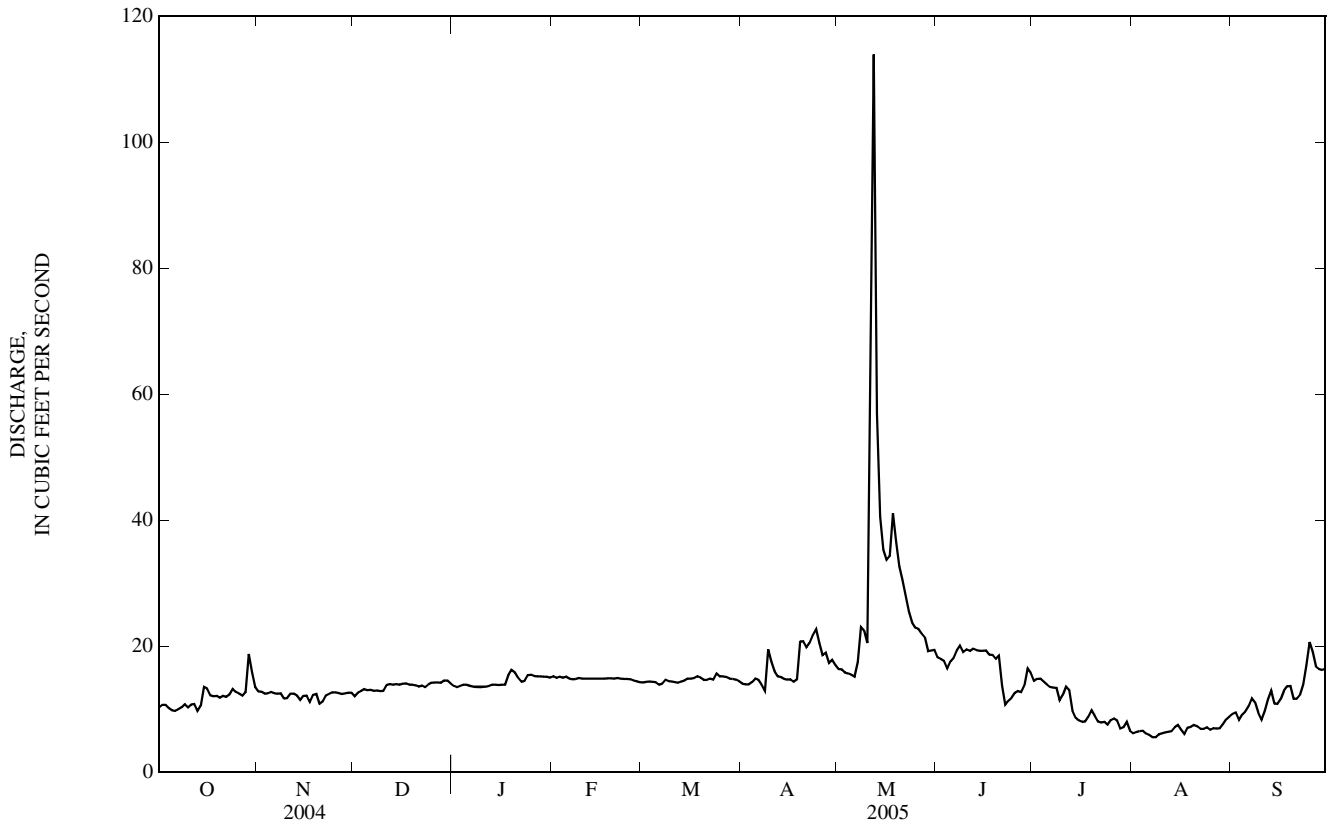
06216000 PRYOR CREEK AT PRYOR, MT—Continued

SUMMARY STATISTICS	FOR 2004 CALENDAR YEAR		FOR 2005 WATER YEAR		WATER YEARS 1968 - 2005	
ANNUAL TOTAL	4,807.9		5,345.8			
ANNUAL MEAN	13.1		14.6		31.0	
HIGHEST ANNUAL MEAN					66.3	1975
LOWEST ANNUAL MEAN					13.7	2003
HIGHEST DAILY MEAN	20	Feb 29	114	May 12	1,700	May 19, 1978
LOWEST DAILY MEAN	5.1	Jul 17	5.6	Aug 7	3.2	Aug 1, 1988
ANNUAL SEVEN-DAY MINIMUM	5.6	Jul 12	6.0	Aug 5	5.1	Jul 29, 2003
MAXIMUM PEAK FLOW			200	May 11	b2,280	May 19, 1978
MAXIMUM PEAK STAGE			4.78	May 11	c8.88	May 19, 1978
INSTANTANEOUS LOW FLOW			a5.3	Aug 5	1.8	Jul 31, 1988
ANNUAL RUNOFF (AC-FT)	9,540		10,600		22,490	
10 PERCENT EXCEEDS	17		19		47	
50 PERCENT EXCEEDS	14		14		27	
90 PERCENT EXCEEDS	7.6		8.1		15	

a--Gage height, 2.61 ft.

b--From rating curve extended above 410 ft<sup>3</sup>/s on basis of contracted-opening measurement.

c--From floodmark.



## 06279500 BIGHORN RIVER AT KANE, WY

LOCATION.--Lat 44°45'31", long 108°10'51" (NAD 27), in NW<sup>1</sup>/<sub>4</sub> NE<sup>1</sup>/<sub>4</sub> SW<sup>1</sup>/<sub>4</sub> sec.9, T.55 N., R.94 W., Big Horn County, Hydrologic Unit 10080010, on right bank 180 ft upstream from Bighorn Canyon National Recreation Area boundary, 0.5 mi upstream from normal high-water line of Bighorn Lake at elevation 3,660 ft, 1.3 mi upstream from Five Springs Creek, and 5.9 mi south of Kane.

DRAINAGE AREA.--15,762 mi<sup>2</sup>. Area at sites used prior to May 17, 1956, 15,846 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1928 to current year.

REVISED RECORDS.--WSP 1309: 1929(M). WSP 1509: 1929. WSP 1709: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 3,660 ft above NGVD of 1929, from topographic map. August 29, 1928 to April 25, 1932, nonrecording gage, and April 25, 1932 to May 16, 1956, water-stage recorder at site 12.5 mi downstream from station at different datum. U.S. Army Corps of Engineers data collection platform with satellite telemetry at station.

REMARKS.--Water-discharge records fair except those for estimated daily discharges, which are poor. Some regulation by Boysen Reservoir since October 1951. Diversions for irrigation of about 376,000 acres upstream from station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1923, 14.8 ft, September 30, 1923, site and datum in use April 1932 to May 1956.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,050	924	869	934	811	840	571	1,130	4,670	4,870	1,040	975
2	1,020	907	868	869	818	860	550	1,090	4,580	3,620	1,030	1,000
3	973	887	e860	713	792	853	529	1,030	4,390	3,410	1,090	1,010
4	922	891	e780	680	796	847	656	930	4,350	4,290	1,150	1,020
5	912	900	e780	e620	808	867	629	932	4,340	4,210	1,140	1,020
6	890	905	e760	e660	841	865	592	949	4,560	3,780	1,070	1,010
7	877	895	e800	701	e800	854	729	1,160	5,180	2,740	1,040	924
8	867	883	861	700	e730	810	797	2,820	5,920	2,110	1,040	854
9	864	881	878	e660	e700	784	1,020	3,090	5,280	2,010	1,000	883
10	889	889	878	e640	758	790	1,330	2,030	4,900	1,740	949	902
11	911	884	e860	e640	808	761	1,240	4,890	4,580	1,650	915	950
12	902	885	e780	e660	780	760	1,030	10,200	4,430	1,630	982	986
13	870	882	e720	e700	780	740	1,630	5,770	4,770	1,550	1,030	1,040
14	878	870	e740	e620	e780	733	2,840	2,530	4,780	1,450	1,060	1,140
15	867	863	772	e620	e760	715	1,430	2,150	4,070	1,370	1,100	1,150
16	894	858	e800	e600	e700	732	938	2,010	4,330	1,330	1,020	1,190
17	917	847	e820	e560	e720	734	875	2,400	4,920	1,300	905	1,190
18	917	843	887	e700	741	711	826	4,110	6,260	1,320	913	1,220
19	927	848	893	e800	735	707	862	4,270	6,740	1,320	1,000	1,250
20	907	842	838	926	745	699	1,130	4,630	6,370	1,290	1,060	1,250
21	894	828	e820	959	767	724	1,570	5,870	6,130	e1,050	1,060	1,240
22	907	805	e800	967	784	735	1,770	7,830	5,510	958	1,020	1,260
23	920	820	e740	981	797	687	1,550	6,880	6,130	869	974	1,200
24	932	858	e440	971	791	659	1,260	6,790	6,980	856	951	1,260
25	929	860	e400	930	796	692	1,120	6,540	7,260	904	995	1,460
26	923	855	e560	907	795	675	1,090	5,020	6,870	966	948	1,680
27	914	848	e700	854	795	668	1,060	4,740	6,850	1,140	928	1,570
28	918	e820	e860	818	819	673	1,140	4,480	6,580	1,220	947	1,510
29	934	e770	969	835	---	646	1,200	4,430	6,310	1,160	961	1,490
30	954	e800	952	818	---	600	1,190	4,610	6,380	1,070	935	1,470
31	938	---	1,000	823	---	589	---	4,960	---	1,050	923	---
TOTAL	28,417	25,848	24,685	23,866	21,747	23,010	33,154	120,271	164,420	58,233	31,176	35,104
MEAN	917	862	796	770	777	742	1,105	3,880	5,481	1,878	1,006	1,170
MAX	1,050	924	1,000	981	841	867	2,840	10,200	7,260	4,870	1,150	1,680
MIN	864	770	400	560	700	589	529	930	4,070	856	905	854
AC-FT	56,370	51,270	48,960	47,340	43,140	45,640	65,760	238,600	326,100	115,500	61,840	69,630

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 2005, BY WATER YEAR (WY)\*

MEAN	1,762	1,637	1,428	1,341	1,504	1,785	1,769	3,131	5,685	3,069	1,416	1,503
MAX	3,994	2,871	2,506	2,871	3,164	3,171	3,454	7,505	14,680	11,650	6,388	3,673
(WY)	(1983)	(1984)	(1983)	(1972)	(1983)	(1972)	(1943)	(1947)	(1944)	(1967)	(1930)	(1973)
MIN	524	680	627	580	550	740	677	744	1,032	501	305	386
(WY)	(1936)	(2004)	(1961)	(1937)	(1933)	(1989)	(2004)	(2002)	(1934)	(1961)	(1940)	(1935)



## YELLOWSTONE RIVER BASIN

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06279500 BIGHORN RIVER AT KANE, WY—Continued

Date	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Ortho- phos- phate, water, fltrd, mg/L as P (00671)	E coli, modif. m-TEC, water, col/ 100 mL (90902)	Fecal coli- form, M-FC 0.7u MF col/ 100 mL (31625)	Sus- pended sedi- ment concen- tration mg/L (80154)	Sus- pended sedi- ment dis- charge, tons/d (80155)
NOV 17...	.30	<.008	<.02	E4	E1	29	65
JAN 31...	.39	E.007	<.02	E13	E9	146	328
JUN 15...	.18	<.008	<.02	270	450	466	5,150
AUG 30...	.44	E.005	<.02	51	54	--	--
31...	--	--	--	--	--	72	174

E--Estimated.

## 06285100 SHOSHONE RIVER NEAR LOVELL, WY

LOCATION.--Lat 44°50'19", long 108°26'04" (NAD 27), in NW<sup>1</sup>/<sub>4</sub> NE<sup>1</sup>/<sub>4</sub> NE<sup>1</sup>/<sub>4</sub> sec.17, T.56 N., R.96 W., Big Horn County, Hydrologic Unit 10080014, on left bank 20 ft downstream from bridge on County Road 9 and 1.5 mi west of Lovell.

DRAINAGE AREA.--2,350 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1966 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 3,850 ft above NGVD of 1929, from topographic map. Prior to October 1, 1976, at site 500 ft downstream from station, at datum 2.00 ft higher. October 1, 1976 to September 30, 1980, at site 500 ft downstream from station at datum 1.00 ft higher. October 1, 1981 to November 13, 1986, at site 500 ft downstream from station at same datum. U.S. Geological Survey data collection platform with satellite telemetry at station.

REMARKS.--Water-discharge records fair except those for estimated daily discharges, which are poor. Flow regulated by Buffalo Bill Reservoir. Natural flow of stream affected by storage reservoirs, power development, diversions upstream from station for irrigation of about 143,000 acres, of which about 8,000 acres are downstream from station, and return flow from irrigated areas.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	529	361	e500	400	381	346	362	228	1,290	1,800	638	541
2	537	352	e490	397	380	351	352	228	1,250	1,590	579	580
3	507	443	e480	440	379	351	364	142	1,100	2,930	551	626
4	471	428	483	408	379	352	336	222	1,110	3,260	533	694
5	427	435	475	e390	377	351	312	328	1,160	2,270	515	802
6	396	468	474	e400	372	354	274	381	1,270	1,340	520	734
7	372	443	476	e410	370	357	259	392	1,410	901	545	556
8	375	439	478	e410	e360	367	252	1,190	1,940	711	546	496
9	373	430	475	e420	e370	371	349	543	1,900	429	461	520
10	344	410	473	e410	e370	377	312	655	1,890	241	493	576
11	354	422	474	e400	367	379	245	2,730	1,980	284	717	619
12	379	486	482	e400	362	378	239	2,170	2,030	243	620	755
13	375	544	475	e410	365	368	136	652	2,150	188	696	842
14	409	539	e470	e400	369	367	162	513	1,300	150	827	856
15	462	535	479	e380	361	363	292	523	1,170	135	801	866
16	519	518	476	e400	352	372	316	356	1,120	160	663	883
17	485	526	472	e400	353	375	384	377	913	200	574	797
18	557	523	461	e400	364	371	474	709	991	274	537	793
19	576	514	465	e400	354	363	709	442	1,420	198	675	818
20	586	509	466	e390	337	364	774	389	1,440	149	634	738
21	520	489	463	e390	331	372	788	377	1,300	158	673	752
22	483	506	460	e390	332	368	683	354	2,640	193	704	810
23	441	520	418	e390	329	361	924	331	4,130	256	609	768
24	425	528	e390	e390	329	341	605	285	5,390	241	527	935
25	417	510	e420	e390	328	359	358	265	5,670	341	478	1,080
26	394	507	e420	e390	333	366	229	1,120	5,820	474	522	1,040
27	376	496	e410	e390	340	370	194	1,080	5,690	521	525	1,010
28	363	489	e410	e390	342	370	360	634	3,110	500	517	981
29	644	e490	412	e390	---	366	191	914	2,970	504	556	856
30	478	e500	416	e380	---	365	204	1,360	2,480	503	502	722
31	381	---	411	e380	---	364	---	1,290	---	536	506	---
TOTAL	13,955	14,360	14,154	12,335	9,986	11,279	11,439	21,180	68,034	21,680	18,244	23,046
MEAN	450	479	457	398	357	364	381	683	2,268	699	589	768
MAX	644	544	500	440	381	379	924	2,730	5,820	3,260	827	1,080
MIN	344	352	390	380	328	341	136	142	913	135	461	496
AC-FT	27,680	28,480	28,070	24,470	19,810	22,370	22,690	42,010	134,900	43,000	36,190	45,710

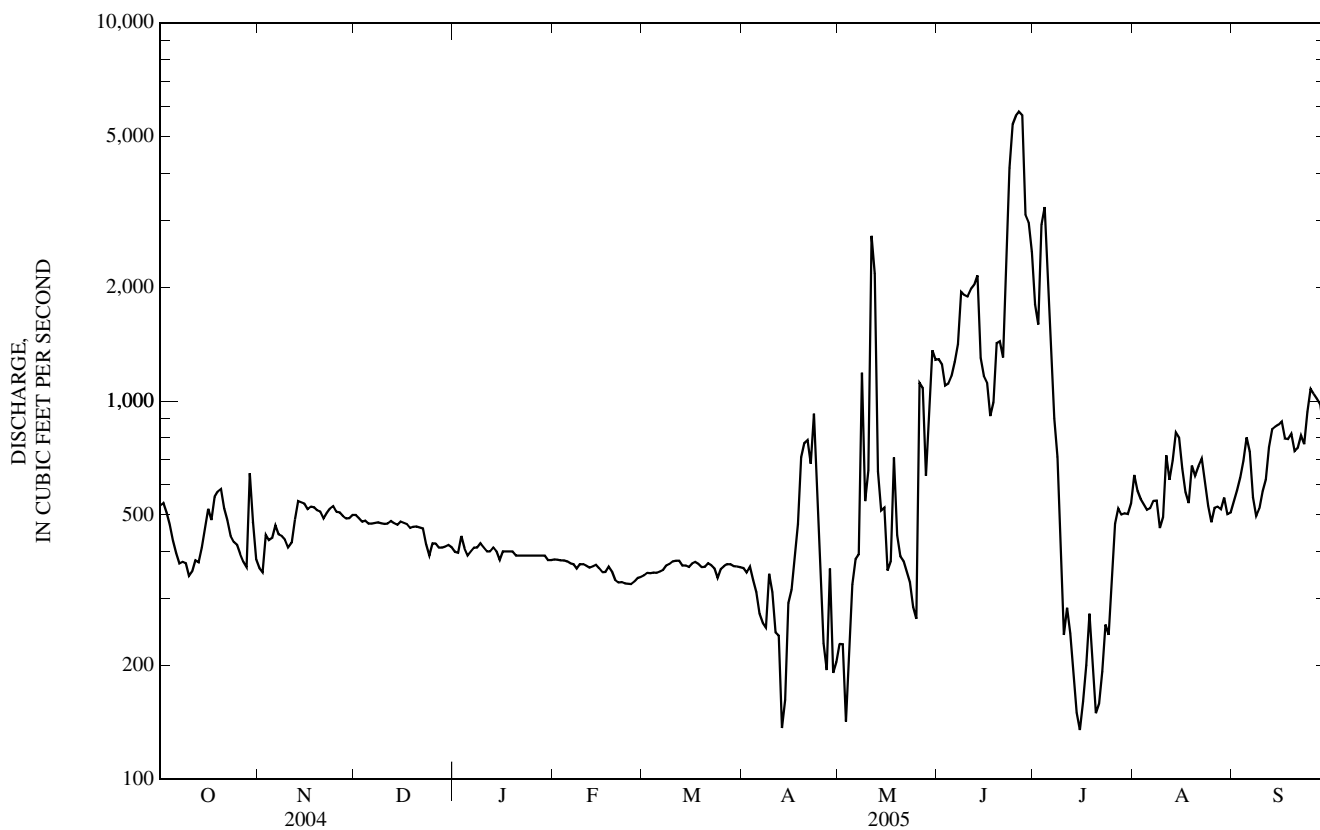
## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 2005, BY WATER YEAR (WY)

MEAN	743	693	626	560	580	648	764	849	1,834	1,653	715	762
MAX	1,251	1,146	1,168	1,065	1,139	1,951	3,353	2,925	4,935	4,686	1,305	1,354
(WY)	(1972)	(1969)	(1969)	(1973)	(1973)	(1997)	(1997)	(1996)	(1981)	(1982)	(1982)	(1991)
MIN	369	297	306	226	228	243	234	193	203	149	207	245
(WY)	(1989)	(1986)	(1995)	(1991)	(1989)	(1995)	(2004)	(1977)	(1977)	(1977)	(1977)	(1977)

06285100 SHOSHONE RIVER NEAR LOVELL, WY—Continued

SUMMARY STATISTICS	FOR 2004 CALENDAR YEAR		FOR 2005 WATER YEAR		WATER YEARS 1967 - 2005	
ANNUAL TOTAL	141,649		239,692		870	
ANNUAL MEAN	387		657		1,659	
HIGHEST ANNUAL MEAN					1997	
LOWEST ANNUAL MEAN					356	
HIGHEST DAILY MEAN	726	Aug 27	5,820	Jun 26	15,200	Jun 10, 1981
LOWEST DAILY MEAN	101	Apr 9	135	Jul 15	27	May 31, 1977
ANNUAL SEVEN-DAY MINIMUM	165	Apr 8	181	Jul 14	48	May 30, 1977
MAXIMUM PEAK FLOW			a6,100	Jun 27	c16,400	Jun 10, 1981
MAXIMUM PEAK STAGE			b10.49	Jan 7	11.27	Jun 13, 2001
ANNUAL RUNOFF (AC-FT)	281,000		475,400		630,000	
10 PERCENT EXCEEDS	536		1,140		1,390	
50 PERCENT EXCEEDS	380		460		640	
90 PERCENT EXCEEDS	260		323		310	

a--Gage height, 9.92 ft.  
 b--Backwater from ice.  
 c--Gage height, 9.16 ft, site then in use, at present datum.  
 e--Estimated.



## YELLOWSTONE RIVER BASIN

06285100 SHOSHONE RIVER NEAR LOVELL, WY—Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1967-97, October 1999 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1966 to September 1983.

WATER TEMPERATURES: October 1966 to September 1983.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005

Date	Time	Instantaneous discharge, cfs (00061)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specific conductance, wat unfiltered uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)
NOV									
17...	1455	518	669	--	--	8.1	1,070	14.5	8.5
JAN									
31...	1725	378	665	11.5	100	8.5	1,070	6.0	3.5
JUN									
16...	0745	1,170	659	8.6	99	8.0	557	19.5	15.0
AUG									
30...	1440	539	659	10.8	127	8.5	704	15.0	16.0

Date	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)	Orthophosphate, water, fltrd, mg/L as P (00671)	E coli, modif. m-TEC, water, col/100 mL (90902)	Fecal coliform, M-FC 0.7u MF col/100 mL (31625)
NOV						
17...	<.04	1.34	E.004	<.02	110	65
JAN						
31...	E.04	1.01	.011	<.02	28	22
JUN						
16...	<.04	.85	E.006	.03	780	700
AUG						
30...	<.04	1.53	.010	<.02	300	340

E--Estimated.



## 06286400 BIGHORN LAKE NEAR ST. XAVIER, MT

LOCATION.--Lat 45°18'27", long 107°57'26" (NAD 27), in SW<sup>1</sup>/<sub>4</sub> SE<sup>1</sup>/<sub>4</sub> sec.18, T.6 S., R.30 E., Big Horn County, Hydrologic Unit 10080010, in block 13 of Yellowtail Dam on Bighorn River, 1.3 mi upstream from Grapevine Creek, 15.5 mi southwest of St. Xavier, and at river mile 86.6.

DRAINAGE AREA.--19,626 mi<sup>2</sup>.

PERIOD OF RECORD.--November 1965 to current year (monthend contents only). Prior to October 1969, published as "Yellowtail Reservoir." Records of daily elevations and contents are in files located in the USGS Water Science Center located in Helena, Montana.

GAGE.--Water-stage recorder in powerhouse control room. Elevation of gage is 3,296.5 ft (NGVD 29) (levels by Bureau of Reclamation).

REMARKS.--Reservoir is formed by thin concrete-arch dam; construction began in 1961; completed in 1967. Storage began Nov. 3, 1965. Usable capacity, 1,312,000 acre-ft, between elevation 3,296.50 ft, river outlet invert, and 3,657.00 ft, top of flood control. Elevation of spillway crest, 3,593.00 ft. Normal maximum operating level, 1,097,000 acre-ft, between elevation, 3,640.00 ft and 3,657.00 ft. Minimum operating level, 483,400 acre-ft, elevation, 3,547.00 ft. Dead storage, 16,010 acre-ft, below elevation 3,296.50 ft. All elevations are referenced to the National Geodetic Vertical Datum of 1929. Figures given herein represent usable contents. Water is used for power production, flood control, irrigation, and recreation.

COOPERATION.--Elevations and capacity table furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,346,000 acre-ft, July 6, 1967, elevation, 3,656.43 ft; minimum since first filling, 519,400 acre-ft, Mar. 11, 2003, elevation 3,572.81 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,091,000 acre-ft, July 1, elevation, 3,642.82 ft; minimum, 641,900 acre-ft, Apr. 8, elevation, 3,583.29 ft.

## MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, SEPTEMBER 2004 TO SEPTEMBER 2005

Date	Elevation (feet)	Contents (acre-feet)	Change in Contents (acre-feet)
September 30	3,593.63	694,300	--
October 31	3,599.05	723,400	+29,100
November 30	3598.85	722,300	-1,100
December 31	3592.50	688,400	-33,900
Calendar Year 2004	--	--	-69,200
January 31	3,589.03	670,600	-17,800
February 28	3,586.40	657,300	-13,300
March 31	3,584.32	646,900	-10,400
April 30	3,588.21	666,400	+19,500
May 31	3,624.91	897,400	+231,000
June 30	3,642.66	1,089,000	+191,600
July 31	3,635.85	1,004,000	-85,000
August 31	3,633.33	977,100	-26,900
September 30	3634.03	984,500	+7,400
Water Year 2005	--	--	+290,200

## 06287000 BIGHORN RIVER NEAR ST. XAVIER, MT

LOCATION.--Lat 45°19'00", long 107°55'05" (NAD 27), in NW<sup>1</sup>/<sub>4</sub> NW<sup>1</sup>/<sub>4</sub> NE<sup>1</sup>/<sub>4</sub> 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 mi<sup>2</sup>. Area at site used prior to Apr. 16, 1963, 19,626 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1934 to current year.

GAGE.--Water-stage recorder. Elevation 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 elevation. Apr. 1, 1965, to July 31, 1966, water-stage recorder at site 1,300 ft downstream at present elevation.

REMARKS.--Records fair. **Figures of discharge given herein are sum of river flow and flow of Bighorn Canal.** Some regulation by 14 reservoirs in Wyoming with combined capacity of 1,400,000 acre-ft and complete regulation by Bighorn Lake (see preceding page) since Nov. 3, 1965. Diversions for irrigation of about 375,000 acres upstream from station. Bureau of Reclamation satellite telemeter at station. Several unpublished observations of water temperature and specific conductance were made during the year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,390	1,540	1,670	1,520	1,560	1,590	1,470	1,460	1,920	6,910	2,750	2,720
2	1,460	1,520	1,670	1,510	1,570	1,490	1,490	1,470	2,470	6,920	2,760	2,720
3	1,460	1,550	1,680	1,540	1,580	1,500	1,480	1,470	2,560	6,950	2,770	2,700
4	1,450	1,560	1,680	1,550	1,590	1,480	1,480	1,460	2,540	6,920	2,750	2,700
5	1,440	1,550	1,690	1,560	1,500	1,480	1,470	1,460	2,540	6,950	2,750	2,670
6	1,400	1,540	1,710	1,570	1,500	1,480	1,480	1,460	2,570	6,940	2,710	2,600
7	1,430	1,550	1,710	1,580	1,510	1,480	1,500	1,460	2,680	6,920	2,700	2,570
8	1,490	1,560	1,720	1,580	1,520	1,490	1,500	1,460	2,800	6,970	2,670	2,570
9	1,480	1,560	1,720	1,590	1,530	1,480	1,500	1,460	3,300	6,890	2,660	2,560
10	1,470	1,570	1,730	1,600	1,530	1,480	1,500	1,460	3,800	6,850	2,620	2,540
11	1,470	1,570	1,730	1,610	1,530	1,480	1,490	1,470	4,260	6,490	2,520	2,530
12	1,460	1,580	1,740	1,620	1,530	1,490	1,500	1,470	4,310	5,410	2,450	2,490
13	1,440	1,580	1,740	1,630	1,530	1,480	1,500	1,460	4,340	4,410	2,450	2,470
14	1,440	1,600	1,740	1,640	1,540	1,490	1,580	1,460	4,380	3,790	2,430	2,440
15	1,440	1,590	1,750	1,470	1,540	1,490	1,520	1,460	4,390	3,200	2,430	2,410
16	1,440	1,590	1,750	1,480	1,550	1,480	1,480	1,460	4,400	2,800	2,540	2,380
17	1,440	1,600	1,760	1,480	1,550	1,490	1,480	1,460	4,480	2,780	2,710	2,370
18	1,430	1,600	1,760	1,490	1,540	1,490	1,480	1,460	4,560	2,750	2,830	2,360
19	1,420	1,600	1,770	1,490	1,560	1,490	1,460	1,450	4,640	2,740	2,790	2,310
20	1,420	1,630	1,770	1,510	1,550	1,490	1,480	1,450	4,660	2,720	2,750	2,320
21	1,410	1,630	1,790	1,510	1,560	1,490	1,490	1,450	4,630	2,700	2,730	2,480
22	1,410	1,630	1,800	1,540	1,570	1,490	1,500	1,450	5,140	2,680	2,710	2,720
23	1,400	1,640	1,790	1,530	1,570	1,490	1,500	1,450	5,660	2,860	2,690	2,730
24	1,400	1,630	1,790	1,540	1,570	1,490	1,500	1,450	6,300	2,840	2,800	2,720
25	1,460	1,640	1,810	1,540	1,570	1,490	1,470	1,440	7,050	2,830	2,790	2,730
26	1,490	1,640	1,820	1,530	1,580	1,490	1,480	1,440	7,070	2,860	2,760	2,690
27	1,500	1,650	1,770	1,530	1,590	1,480	1,430	1,450	7,110	2,840	2,740	2,630
28	1,500	1,650	1,670	1,550	1,590	1,480	1,490	1,440	7,200	2,820	2,720	2,570
29	1,510	1,660	1,490	1,560	---	1,480	1,470	1,440	7,290	2,800	2,720	2,530
30	1,530	1,660	1,500	1,560	---	1,480	1,470	1,450	6,940	2,780	2,690	2,500
31	1,530	---	1,510	1,570	---	1,480	---	1,910	---	2,760	2,720	---
TOTAL	45,010	47,870	53,230	47,980	43,410	46,160	44,640	45,590	135,990	137,080	83,110	76,730
MEAN	1,452	1,596	1,717	1,548	1,550	1,489	1,488	1,471	4,533	4,422	2,681	2,558
MAX	1,530	1,660	1,820	1,640	1,590	1,590	1,580	1,910	7,290	6,970	2,830	2,730
MIN	1,390	1,520	1,490	1,470	1,500	1,480	1,430	1,440	1,920	2,680	2,430	2,310
AC-FT	89,280	94,950	105,600	95,170	86,100	91,560	88,540	90,430	269,700	271,900	164,800	152,200

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1935 - 2005, BY WATER YEAR (WY)

MEAN	2,890	2,849	2,673	2,546	2,609	2,850	2,835	3,735	6,871	5,398	2,844	2,688
MAX	5,142	5,151	4,999	5,267	4,384	4,809	6,675	8,744	17,900	18,890	6,784	4,544
(WY)	(1972)	(1983)	(1968)	(1968)	(1976)	(1976)	(1972)	(1947)	(1935)	(1967)	(1997)	(1973)
MIN	1,224	856	1,095	1,090	888	327	678	900	1,078	1,144	1,260	1,074
(WY)	(1978)	(1966)	(1935)	(1935)	(1936)	(1966)	(1966)	(1966)	(1966)	(1960)	(1966)	(1966)

## SUMMARY STATISTICS

	FOR 2004 CALENDAR YEAR	FOR 2005 WATER YEAR	WATER YEARS 1935 - 2005
ANNUAL TOTAL	591,340	806,800	
ANNUAL MEAN	1,616	2,210	3,400
HIGHEST ANNUAL MEAN			5,059
LOWEST ANNUAL MEAN			1,649
HIGHEST DAILY MEAN	2,140	Jan 25	7,290
LOWEST DAILY MEAN	1,270	Sep 6	1,390
ANNUAL SEVEN-DAY MINIMUM	1,340	Sep 24	1,410
MAXIMUM PEAK FLOW			7,600
MAXIMUM PEAK STAGE			62.58
INSTANTANEOUS LOW FLOW			49
ANNUAL RUNOFF (AC-FT)	1,173,000	1,600,000	2,463,000
10 PERCENT EXCEEDS	1,800	3,240	5,700
50 PERCENT EXCEEDS	1,600	1,580	2,770
90 PERCENT EXCEEDS	1,440	1,460	1,500

06287000 BIGHORN RIVER NEAR ST. XAVIER, MT—Continued

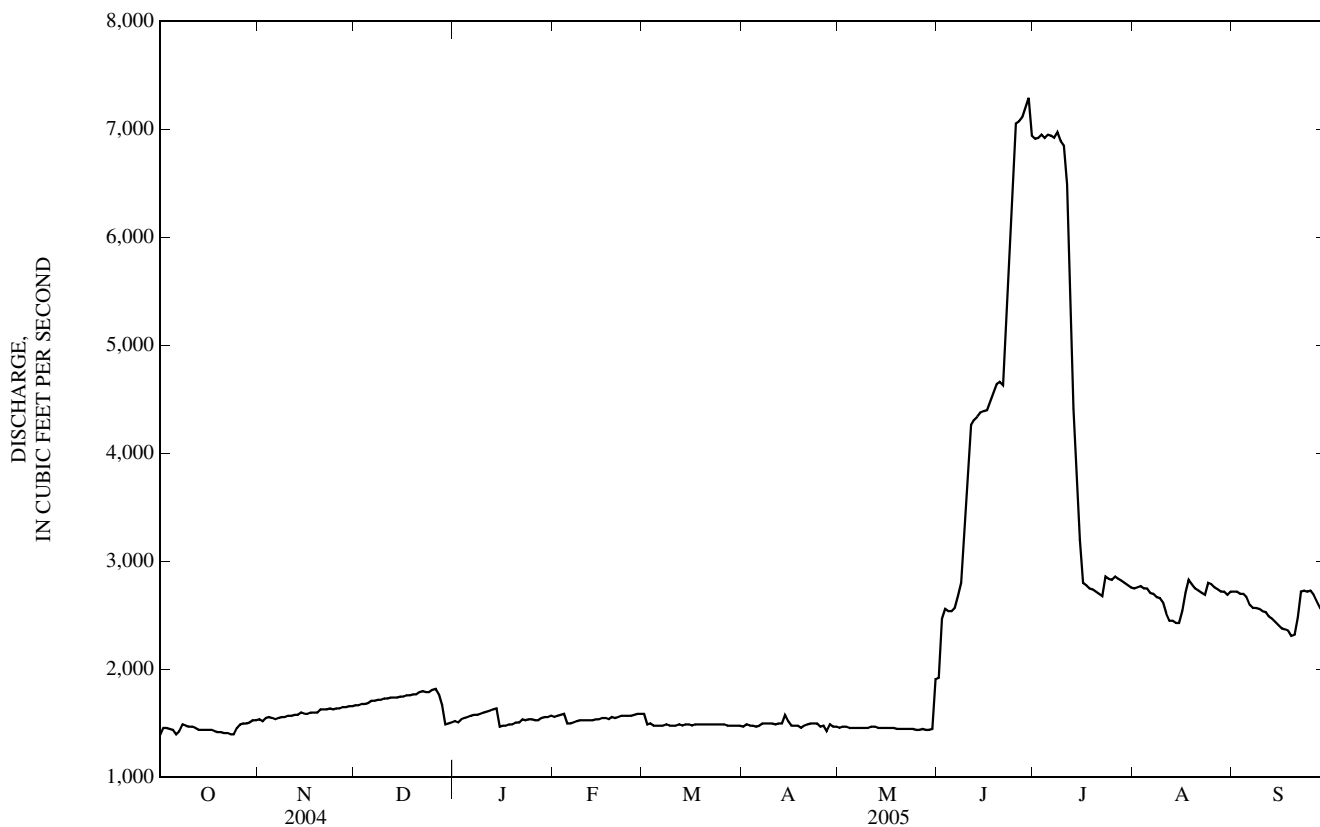
SUMMARY STATISTICS

	WATER YEARS 1935 - 1961*		WATER YEARS 1967 - 2005**	
ANNUAL MEAN	3,426		3,356	
HIGHEST ANNUAL MEAN	5,059	1947	4,839	1999
LOWEST ANNUAL MEAN	1,706	1961	1,649	2002
HIGHEST DAILY MEAN	37,400	Jun 16 1935	24,800	Jul 6, 1967
LOWEST DAILY MEAN	300	Dec 20 1951	112	Apr 2, 1967
ANNUAL SEVEN-DAY MINIMUM	656	Dec 25 1934	518	Mar 25, 1970
MAXIMUM PEAK FLOW	37,400	Jun 19 1935	25,300	Jul 5, 1967
INSTANTANEOUS LOW FLOW	228	Dec 9 1937	a112	Apr 2, 1967
ANNUAL RUNOFF (AC-FT)	2,482,000		2,432,000	
10 PERCENT EXCEEDS	6,640		5,360	
50 PERCENT EXCEEDS	2,450		3,000	
90 PERCENT EXCEEDS	1,370		1,620	

\*--Prior to construction of Yellowtail Dam.

\*\*--After completion of Yellowtail Dam.

a--Result of discharge measurement.



## 06289000 LITTLE BIGHORN RIVER AT STATE LINE, NEAR WYOLA, MT

LOCATION.--Lat 45°00'25", long 107°36'52" (NAD 27), in SW<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub> 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 mi<sup>2</sup>.

PERIOD OF RECORD.--March 1939 to current year. Prior to October 1940, published as Little Horn River at State Line, near Wyola.

REVISED RECORDS.--WSP 1729: Drainage area. WDR MT-04-1: Drainage area.

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

REMARKS.--Records fair. Diversions for irrigation of 163 acres upstream from station. Bureau of Reclamation satellite telemeter at station. Several unpublished observations of water temperature and specific conductance were made during the year .

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	55	45	44	29	41	52	48	61	281	200	105	85
2	53	47	48	30	40	52	50	60	272	192	102	84
3	51	53	51	35	40	52	52	61	260	183	102	83
4	50	50	50	34	40	52	52	63	269	174	101	82
5	50	49	48	33	40	52	53	72	277	166	100	82
6	50	49	47	33	37	52	52	102	312	161	97	82
7	50	49	45	35	36	52	54	153	313	158	96	82
8	50	48	45	39	33	53	57	195	289	154	96	82
9	50	49	45	41	40	52	64	148	270	149	96	81
10	50	48	45	40	41	53	57	174	248	148	97	81
11	50	47	45	43	42	52	53	199	241	151	103	82
12	50	44	45	43	42	54	54	170	264	144	99	83
13	53	48	37	41	41	53	55	153	282	138	100	84
14	53	46	46	41	41	52	60	153	261	135	98	83
15	54	45	46	41	39	51	55	170	278	131	94	83
16	53	44	44	41	41	52	54	238	299	128	93	80
17	53	46	44	44	49	52	58	366	343	127	93	79
18	53	46	44	51	49	51	69	325	348	126	94	81
19	50	46	44	51	55	51	63	448	330	121	99	80
20	52	43	44	47	55	50	61	750	317	118	93	80
21	57	36	44	47	55	50	61	903	302	117	91	78
22	55	46	40	45	55	50	58	710	291	115	91	77
23	52	46	24	45	53	50	60	721	302	115	92	77
24	52	46	43	45	53	49	68	624	316	112	91	83
25	47	47	48	44	53	48	77	450	274	114	89	80
26	52	47	47	43	53	48	75	358	267	118	89	78
27	51	41	45	42	52	50	69	324	250	112	87	77
28	52	44	44	42	52	50	65	335	231	109	87	77
29	53	26	44	42	---	51	62	337	224	106	86	74
30	50	35	43	41	---	49	62	297	213	104	86	73
31	51	---	39	40	---	48	---	271	---	105	87	---
TOTAL	1,602	1,356	1,368	1,268	1,268	1,583	1,778	9,391	8,424	4,231	2,934	2,413
MEAN	51.7	45.2	44.1	40.9	45.3	51.1	59.3	303	281	136	94.6	80.4
MAX	57	53	51	51	55	54	77	903	348	200	105	85
MIN	47	26	24	29	33	48	48	60	213	104	86	73
AC-FT	3,180	2,690	2,710	2,520	2,520	3,140	3,530	18,630	16,710	8,390	5,820	4,790

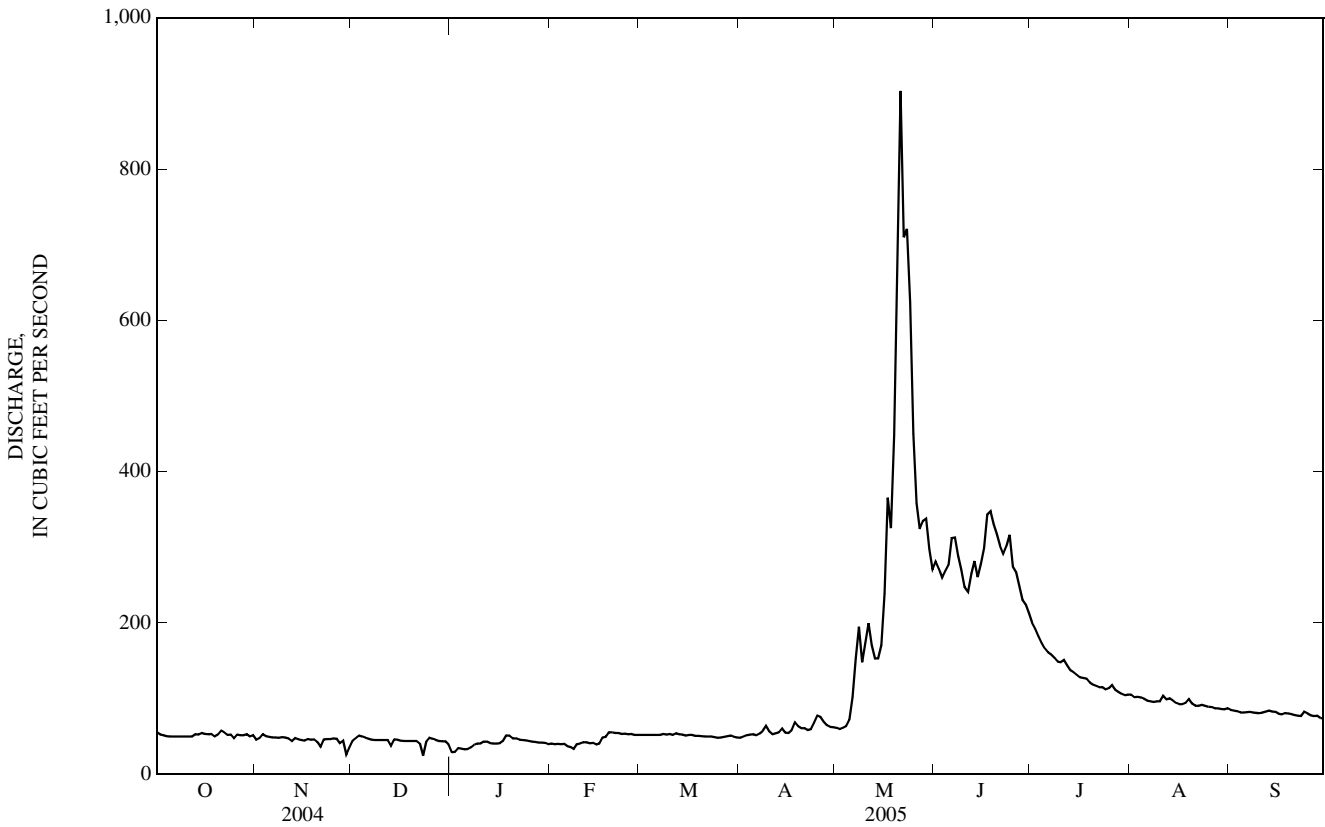
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 2005, BY WATER YEAR (WY)

MEAN	85.6	74.8	67.2	62.2	61.1	61.3	84.2	321	507	215	121	96.8
MAX	120	104	91.2	84.9	88.0	86.4	172	533	1,125	689	228	151
(WY)	(1976)	(1942)	(1976)	(1946)	(1946)	(1946)	(1946)	(1977)	(1975)	(1975)	(1975)	(1975)
MIN	51.7	45.2	44.1	40.9	40.2	46.8	50.7	127	135	87.6	62.0	53.9
(WY)	(2005)	(2005)	(2005)	(2005)	(2003)	(2003)	(1961)	(1953)	(2004)	(2004)	(2004)	(2004)

06289000 LITTLE BIGHORN RIVER AT STATE LINE, NEAR WYOLA, MT—Continued

SUMMARY STATISTICS	FOR 2004 CALENDAR YEAR		FOR 2005 WATER YEAR		WATER YEARS 1940 - 2005	
ANNUAL TOTAL	26,165		37,616		147	
ANNUAL MEAN	71.5		103		253	
HIGHEST ANNUAL MEAN					76.0	
LOWEST ANNUAL MEAN					1975	
HIGHEST DAILY MEAN	185	May 8	903	May 21	2,340	Jun 4, 1944
LOWEST DAILY MEAN	24	Dec 23	24	Dec 23	18	Feb 2, 1989
ANNUAL SEVEN-DAY MINIMUM	40	Jan 1	33	Jan 1	27	Dec 18, 1983
MAXIMUM PEAK FLOW			1,180	May 20	a2,730	Jun 3, 1944
MAXIMUM PEAK STAGE			3.75	May 20	b5.93	Jun 9, 1944
INSTANTANEOUS LOW FLOW					18	Feb 2, 1989
ANNUAL RUNOFF (AC-FT)	51,900		74,610		106,200	
10 PERCENT EXCEEDS	130		265		328	
50 PERCENT EXCEEDS	59		54		82	
90 PERCENT EXCEEDS	45		41		56	

a--Gage height, 4.97 ft, from rating curve extended above 1,400 ft<sup>3</sup>/s.  
 b--Result of log jam.



## 06289600 WEST PASS CREEK NEAR PARKMAN, WY

LOCATION.--Lat 44°59'16", long 107°28'56" (NAD 27), in NE<sup>1</sup>/<sub>4</sub> NE<sup>1</sup>/<sub>4</sub> SE<sup>1</sup>/<sub>4</sub> sec.21, T.58 N., R.88 W., Sheridan County, Hydrologic Unit 10080016, on right bank, anchored to concrete headwall of culvert on county road and 7.6 mi northwest of Parkman.

DRAINAGE AREA.--15.4 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1982 to current year (no winter records water years 1985-87).

GAGE.--Water-stage recorder. Elevation of gage is 4,540 ft above NGVD of 1929, from topographic map. Prior to April 2, 1985, at site 100 ft north (on abandoned channel) at datum 4.28 ft lower. April 2, 1985 to March 27, 1986, at site 300 ft upstream from station at datum 0.95 ft higher. April 2, 1985 to September 30, 1998, at same site at datum 1.00 ft lower. U.S. Geological Survey data collection platform with satellite telemetry at station.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Natural flow of stream affected by diversions for irrigation upstream from station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.5	4.8	4.9	4.5	4.1	4.0	4.4	6.8	16	9.2	6.8	5.3
2	4.3	4.7	5.1	e4.3	4.1	4.0	4.3	6.8	16	9.2	6.8	5.3
3	4.3	4.9	4.8	e4.2	4.1	4.0	4.4	7.0	15	9.1	7.0	5.3
4	4.3	4.9	5.1	e4.1	4.0	4.0	4.5	7.0	14	8.7	6.8	5.3
5	4.7	4.8	5.3	e3.9	4.1	4.0	4.5	7.3	14	8.3	6.7	5.3
6	4.3	4.7	5.2	e3.8	e3.8	3.9	4.5	7.8	15	8.0	6.6	5.3
7	4.3	4.9	5.2	e4.0	e3.5	3.9	4.6	25	16	7.9	6.6	5.3
8	4.3	4.9	5.2	e4.2	e3.3	4.1	4.9	27	17	8.1	6.5	5.3
9	4.3	5.0	5.1	e4.4	e3.6	4.0	7.3	15	14	7.9	6.4	5.3
10	4.2	4.9	5.2	e4.3	e3.8	4.1	5.4	26	14	8.0	6.4	4.9
11	4.3	4.9	5.3	e4.2	e4.0	3.9	5.3	68	13	7.9	6.4	4.9
12	4.3	4.9	5.6	e4.0	4.1	4.0	5.3	40	13	7.8	6.6	5.0
13	4.2	4.9	e5.4	e3.8	4.1	4.1	5.3	36	17	7.7	6.5	4.9
14	4.5	5.0	5.3	e3.6	4.2	4.0	5.3	31	14	7.6	6.3	4.9
15	4.9	5.1	5.6	e3.8	e4.0	4.1	5.3	29	14	7.5	6.1	4.9
16	4.5	5.1	5.3	e4.0	e3.8	4.3	5.3	29	14	7.4	5.9	4.9
17	4.5	5.1	5.3	e4.2	e3.8	4.3	5.3	34	13	7.3	5.7	4.9
18	5.2	5.1	5.2	e4.4	e3.7	4.1	5.5	33	13	7.6	6.1	5.1
19	4.5	5.1	5.2	e4.7	e3.8	4.1	5.8	30	13	7.2	5.9	4.9
20	4.5	5.2	5.1	4.9	e3.9	4.2	6.2	33	13	7.2	5.7	4.9
21	4.6	e5.0	e5.0	4.7	4.1	4.5	6.6	34	12	7.2	5.7	4.9
22	4.5	5.1	e4.8	4.3	4.0	4.3	8.2	32	11	7.2	5.7	4.9
23	4.5	5.3	e4.6	4.5	4.0	4.1	7.1	31	11	7.1	5.7	4.9
24	4.7	5.0	e4.8	4.4	4.0	4.0	6.9	29	11	7.1	5.6	5.3
25	4.5	5.1	e5.2	4.3	4.0	4.3	6.8	26	10	7.5	5.5	5.1
26	4.5	5.0	5.3	4.3	4.0	4.2	6.7	23	10	7.8	5.5	5.0
27	4.6	e5.0	4.7	4.3	4.0	4.4	7.0	20	10	7.3	5.5	4.9
28	4.7	e4.6	4.8	4.3	4.0	4.3	7.1	19	10	7.1	5.5	5.1
29	5.4	e4.0	4.8	4.2	---	4.3	6.9	18	10	7.1	5.5	5.0
30	4.9	4.7	4.8	4.2	---	4.3	6.9	18	9.7	7.0	5.5	4.9
31	5.0	---	4.6	4.1	---	4.3	---	17	---	7.0	5.3	---
TOTAL	140.8	147.7	157.8	130.9	109.9	128.1	173.6	765.7	392.7	239.0	188.8	151.9
MEAN	4.54	4.92	5.09	4.22	3.92	4.13	5.79	24.7	13.1	7.71	6.09	5.06
MAX	5.4	5.3	5.6	4.9	4.2	4.5	8.2	68	17	9.2	7.0	5.3
MIN	4.2	4.0	4.6	3.6	3.3	3.9	4.3	6.8	9.7	7.0	5.3	4.9
AC-FT	279	293	313	260	218	254	344	1,520	779	474	374	301

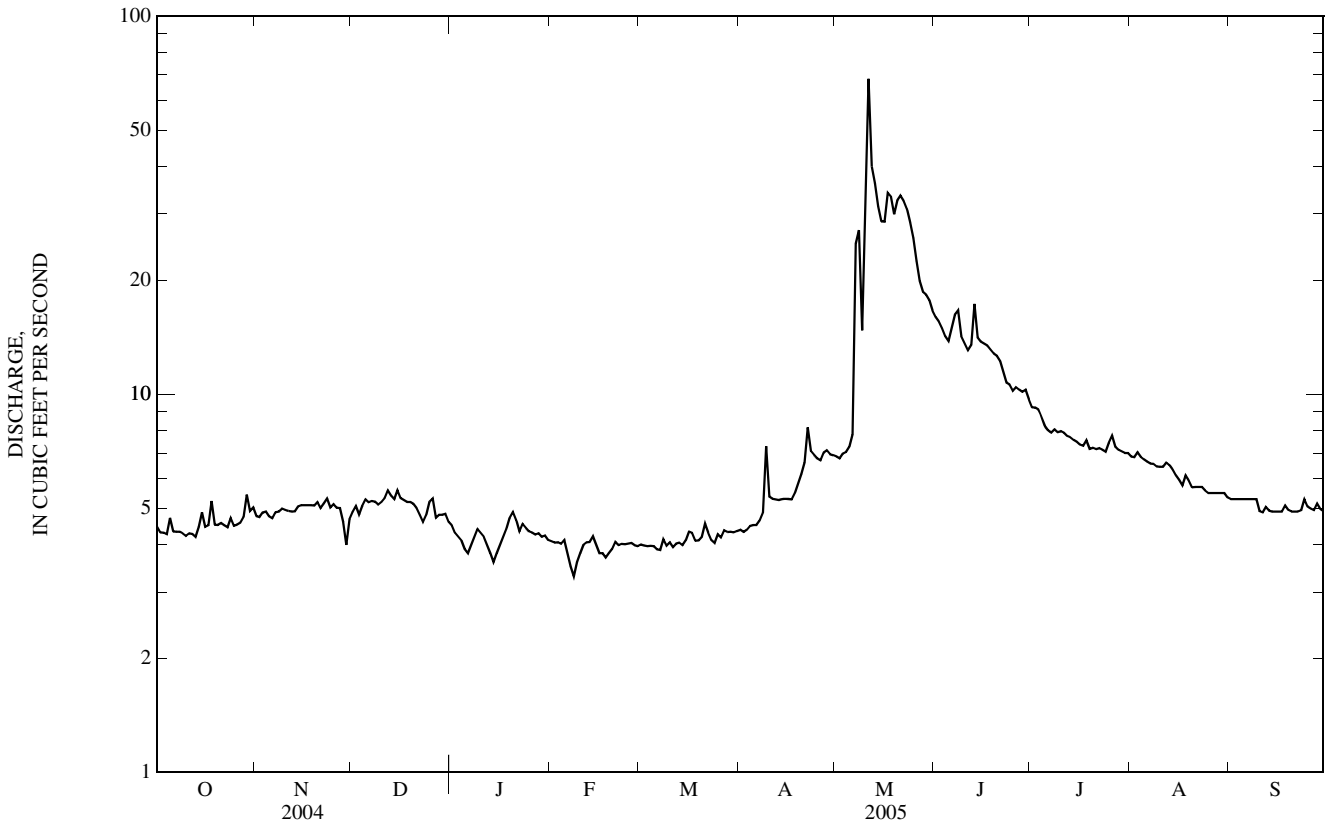
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 2005, BY WATER YEAR (WY)\*

MEAN	7.39	7.07	6.31	6.11	5.92	7.15	12.5	31.3	23.2	12.2	8.35	7.39
MAX	9.95	9.30	9.02	8.10	7.98	10.5	25.2	79.9	60.6	26.9	14.9	11.6
(WY)	(1996)	(1996)	(1996)	(1996)	(1996)	(1997)	(1994)	(1995)	(1995)	(1995)	(1995)	(1995)
MIN	4.54	4.42	4.64	4.22	3.92	4.13	5.79	7.62	6.38	5.21	4.21	4.00
(WY)	(2005)	(2002)	(2003)	(2005)	(2005)	(2005)	(2005)	(2004)	(2004)	(1985)	(2004)	(2004)

06289600 WEST PASS CREEK NEAR PARKMAN, WY—Continued

SUMMARY STATISTICS	FOR 2004 CALENDAR YEAR		FOR 2005 WATER YEAR		WATER YEARS 1983 - 2005*	
ANNUAL TOTAL	1,961.8		2,726.9		11.6	
ANNUAL MEAN	5.36		7.47		21.2	
HIGHEST ANNUAL MEAN					1995	
LOWEST ANNUAL MEAN					2004	
HIGHEST DAILY MEAN	9.5	May 13,14	68	May 11	291	May 9, 1995
LOWEST DAILY MEAN	3.7	Aug 27	3.3	Feb 8	a0.00	Dec 25, 1998
ANNUAL SEVEN-DAY MINIMUM	3.8	Sep 4	3.7	Feb 4	0.81	Feb 3, 1989
MAXIMUM PEAK FLOW			114	May 11	b340	May 9, 1995
MAXIMUM PEAK STAGE			3.24	May 11	c4.76	Apr 28, 1984
ANNUAL RUNOFF (AC-FT)	3,890		5,410		8,430	
10 PERCENT EXCEEDS	6.9		14		23	
50 PERCENT EXCEEDS	5.1		5.1		7.6	
90 PERCENT EXCEEDS	4.1		4.0		5.0	

\*--For period of operation.  
a--Result of channel blockage or diversion upstream.  
b--Gage height, 3.97 ft.  
c--Backwater from ice, site and datum then in use.  
e--Estimated.



## YELLOWSTONE RIVER BASIN

06289820 EAST PASS CREEK NEAR DAYTON, WY

LOCATION.--Lat 44°59'26", long 107°25'20" (NAD 27), in NE<sup>1</sup>/<sub>4</sub> SE<sup>1</sup>/<sub>4</sub> NE<sup>1</sup>/<sub>4</sub> sec.24, T.58 N., R.88 W., Sheridan County, Hydrologic Unit 10080016, on right bank 0.4 mi downstream from bridge on Sheridan County Road 144, 5.0 mi northwest of Parkman, and 11.2 mi northwest of Dayton.

DRAINAGE AREA.--21.7 mi<sup>2</sup>.

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

GAGE.--Water-stage recorder. Elevation of gage is 4,405 ft above NGVD of 1929, from topographic map. October 1982 to August 1995, at site 270 ft upstream from station at different datum. August 1995 to April 1996, at site 0.3 mi downstream from station at different datum. U.S. Geological Survey data collection platform with satellite telemetry at station.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Several small reservoirs upstream from station, combined capacity, 415 acre-ft, for irrigation. Diversions for irrigation of about 2,900 acres upstream from station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.6	5.5	e4.9	4.6	6.2	5.7	5.3	6.4	20	9.8	4.7	3.0
2	5.3	5.2	5.1	4.7	6.1	5.6	5.0	6.3	19	10	4.5	4.4
3	5.3	5.4	5.0	e4.6	6.1	5.6	5.1	6.4	20	11	4.9	5.3
4	5.3	5.6	4.9	e4.5	6.1	5.6	5.4	6.4	17	8.4	4.9	5.0
5	5.3	5.3	4.9	e4.2	6.2	5.6	5.5	6.6	17	8.8	4.7	5.0
6	5.2	5.1	4.7	e4.0	5.7	5.6	5.2	6.8	19	6.8	4.6	5.0
7	5.2	5.0	4.7	e4.2	e5.4	5.6	4.8	14	21	5.4	4.6	4.9
8	5.2	4.9	4.9	e4.6	e5.2	5.8	5.2	50	21	5.5	4.6	4.9
9	5.0	4.9	4.9	e4.9	e5.0	5.6	8.9	35	19	5.1	4.7	4.8
10	4.9	5.2	4.9	e4.8	e5.4	5.7	7.5	34	18	6.2	4.8	4.7
11	4.8	5.1	4.9	e4.6	e5.8	5.5	7.2	98	17	5.0	5.1	4.9
12	4.9	5.3	e4.6	e4.4	6.1	5.5	7.2	78	18	5.3	5.3	5.5
13	5.0	5.0	e4.4	e4.2	6.1	5.6	7.4	55	20	6.7	5.4	5.4
14	4.7	5.0	5.0	e4.0	6.3	5.6	7.5	44	19	6.5	5.2	5.3
15	5.6	4.9	4.9	e4.4	5.9	5.5	7.6	41	19	6.1	5.0	5.2
16	5.1	4.9	4.9	e4.7	e6.0	5.6	7.0	42	16	5.4	4.8	5.1
17	5.1	4.9	4.7	e5.2	e5.8	5.6	6.5	51	16	5.6	4.8	5.3
18	5.2	4.9	4.7	e5.6	e5.8	5.6	6.7	48	14	5.1	5.2	5.5
19	5.0	5.0	4.8	e6.2	e6.0	5.5	7.5	46	13	4.6	5.5	5.4
20	4.9	4.9	e4.9	e7.0	e6.2	5.5	6.7	54	13	4.9	4.5	5.0
21	5.0	4.7	e4.6	7.8	6.0	5.7	6.6	55	13	4.8	4.7	4.7
22	5.0	4.9	e4.2	7.2	5.9	5.7	6.8	52	12	4.9	3.9	4.8
23	5.0	5.2	e4.3	7.2	5.8	5.7	7.1	48	12	4.8	3.5	4.9
24	5.6	5.3	e4.6	7.1	5.9	5.8	6.8	41	12	4.7	4.0	5.3
25	5.3	5.3	e5.2	6.9	6.0	5.5	6.7	37	12	5.2	3.8	5.2
26	5.3	5.3	e5.6	6.8	6.0	5.6	6.7	33	9.9	5.9	3.3	5.0
27	5.3	5.0	6.0	6.6	5.9	5.5	7.1	29	11	5.4	3.0	5.4
28	5.5	e4.9	5.8	6.6	5.8	5.3	6.9	27	10	5.1	3.3	5.6
29	6.6	e4.2	5.8	6.6	---	5.5	6.8	26	10	4.9	3.7	5.3
30	6.0	e4.6	5.7	6.6	---	5.5	6.6	24	11	4.8	3.0	5.2
31	5.8	---	5.4	6.5	---	5.5	---	22	---	4.8	3.7	---
TOTAL	163.0	151.4	153.9	171.3	164.7	173.2	197.3	1,122.9	468.9	187.5	137.7	151.0
MEAN	5.26	5.05	4.96	5.53	5.88	5.59	6.58	36.2	15.6	6.05	4.44	5.03
MAX	6.6	5.6	6.0	7.8	6.3	5.8	8.9	98	21	11	5.5	5.6
MIN	4.7	4.2	4.2	4.0	5.0	5.3	4.8	6.3	9.9	4.6	3.0	3.0
AC-FT	323	300	305	340	327	344	391	2,230	930	372	273	300

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 2005, BY WATER YEAR (WY)

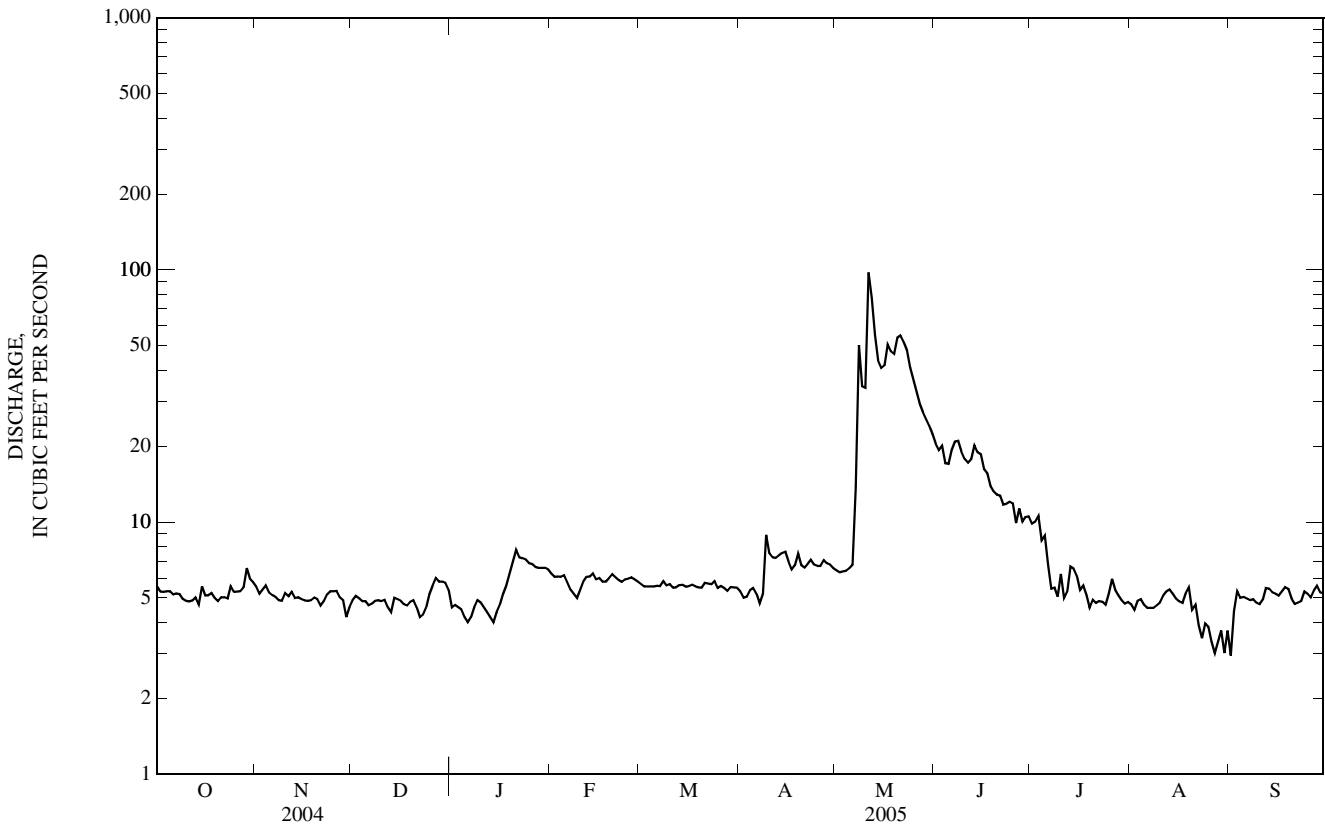
MEAN	8.35	8.48	8.05	8.25	8.21	9.52	15.5	41.1	32.6	12.1	6.80	6.94
MAX	13.9	11.4	10.5	10.5	10.6	14.2	32.4	90.8	82.8	32.9	14.8	14.8
(WY)	(1996)	(1996)	(1996)	(1996)	(1996)	(1997)	(1994)	(1995)	(1995)	(1992)	(1993)	(1995)
MIN	5.26	5.05	4.96	5.53	5.88	5.59	6.58	8.15	5.86	4.83	2.73	3.92
(WY)	(2005)	(2005)	(2005)	(2005)	(2005)	(2005)	(2005)	(2004)	(2004)	(2004)	(1988)	(2002)



06289820 EAST PASS CREEK NEAR DAYTON, WY—Continued

SUMMARY STATISTICS	FOR 2004 CALENDAR YEAR		FOR 2005 WATER YEAR		WATER YEARS 1983 - 2005	
ANNUAL TOTAL	2,152.7		3,242.8			
ANNUAL MEAN	5.88		8.88		13.8	
HIGHEST ANNUAL MEAN					23.6	1984
LOWEST ANNUAL MEAN					6.00	2004
HIGHEST DAILY MEAN	13	May 10	98	May 11	304	May 9, 1995
LOWEST DAILY MEAN	3.0	Several days	3.0	Several days	a0.84	Nov 14, 2002
ANNUAL SEVEN-DAY MINIMUM	3.1	Aug 14	3.3	Aug 26	1.9	Sep 10, 2002
MAXIMUM PEAK FLOW			128	May 11	b511	May 9, 1995
MAXIMUM PEAK STAGE			6.54	May 11	c9.00	Feb 6, 1996
ANNUAL RUNOFF (AC-FT)	4,270		6,430		10,030	
10 PERCENT EXCEEDS	8.1		17		26	
50 PERCENT EXCEEDS	5.7		5.5		8.8	
90 PERCENT EXCEEDS	4.0		4.6		5.3	

a--Result of pumping upstream.  
 b--Gage height, 4.47 ft, site and datum then in use, from rating curve extended above 221 ft<sup>3</sup>/s.  
 c--Ice jam, site and datum then in use.  
 e--Estimated.



## YELLOWSTONE RIVER BASIN

06290000 PASS CREEK NEAR WYOLA, MT

LOCATION.--Lat 45°03'23", long 107°21'19" (NAD 27), in NE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub> 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 mi<sup>2</sup>. Drainage area at site used prior to Sept. 30, 1956, 119 mi<sup>2</sup>.

PERIOD OF RECORD.--June 1935 to September 1956 (no winter records prior to 1939), October 1982 to current year.

GAGE.--Water-stage recorder. Elevation 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 elevation. Flow is equivalent.

REMARKS.--Records fair except those for Oct. 1 to Apr. 23, which are poor. Diversions for irrigation of about 2,500 acres upstream from station. U.S. Geological Survey satellite telemeter at station. Several unpublished observations of water temperature and specific conductance were made during the year.

EXTREMES OUTSIDE PERIOD OF RECORD.--May 19, 1978, 5,560 ft<sup>3</sup>/s, gage height, 10.90 ft.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e1.5	e9.0	e9.0	e5.0	e8.0	e8.0	e9.0	13	40	12	4.7	2.3
2	e1.5	e10	e10	e6.0	e8.0	e8.0	e9.0	12	40	10	4.6	3.1
3	e1.5	e11	e10	e7.0	e8.0	e8.0	e10	12	37	14	4.7	2.3
4	e1.5	e10	e9.0	e7.0	e8.0	e8.0	e10	11	34	12	5.2	2.5
5	e1.5	e10	e9.0	e7.0	e8.0	e8.0	e10	10	32	11	5.2	3.2
6	e1.5	e10	e9.0	e7.0	e7.0	e8.0	e10	10	32	9.4	4.6	3.4
7	e1.5	e10	e8.0	e8.0	e7.0	e8.0	e10	19	42	7.7	4.2	3.5
8	e1.5	e10	e9.0	e8.0	e6.0	e9.0	e10	151	53	6.6	4.1	3.5
9	e1.5	e10	e9.0	e9.0	e7.0	e9.0	e15	104	42	5.6	4.0	3.3
10	e1.0	e10	e9.0	e9.0	e8.0	e9.0	e10	72	39	4.6	3.9	3.7
11	e1.5	e10	e9.0	e9.0	e8.0	e10	e10	345	36	6.3	4.3	3.7
12	e2.0	e9.0	e9.0	e9.0	e8.0	e10	e10	351	35	6.1	5.3	4.4
13	e3.0	e9.0	e8.0	e8.0	e8.0	e10	e10	209	47	5.4	6.8	6.1
14	e2.5	e9.0	e9.0	e8.0	e8.0	e10	e15	153	41	5.2	6.8	5.5
15	e5.0	e9.0	e9.0	e8.0	e8.0	e13	e10	111	36	6.0	6.3	4.5
16	e10	e9.0	e9.0	e8.0	e7.0	e15	e10	97	32	5.4	5.6	5.0
17	e9.0	e9.0	e8.0	e8.0	e8.0	e15	e9.0	101	28	4.8	5.2	4.8
18	e8.0	e9.0	e8.0	e9.0	e8.0	e15	e15	106	26	5.7	5.5	6.1
19	e8.0	e9.0	e8.0	e9.0	e8.0	e15	e10	92	23	5.8	6.2	6.5
20	e8.0	e9.0	e8.0	e10	e8.0	e10	e10	93	22	5.1	5.8	6.3
21	e9.0	e8.0	e8.0	e10	e8.0	e10	e10	93	20	4.2	4.7	5.9
22	e10	e9.0	e8.0	e9.0	e8.0	e10	e10	87	13	4.1	3.4	5.9
23	e10	e9.0	e7.0	e9.0	e8.0	e10	e15	84	13	3.8	3.7	6.4
24	e10	e9.0	e8.0	e9.0	e8.0	e10	21	76	14	3.8	3.5	7.2
25	e9.0	e9.0	e9.0	e9.0	e8.0	e10	19	67	14	3.9	3.0	7.7
26	e10	e9.0	e8.0	e9.0	e8.0	e10	14	60	12	5.6	2.8	7.6
27	e10	e9.0	e8.0	e8.0	e8.0	e10	14	51	14	6.2	2.3	8.6
28	e10	e9.0	e8.0	e8.0	e8.0	e10	14	47	13	5.2	2.0	9.3
29	e11	e7.0	e8.0	e8.0	---	e10	14	44	13	5.4	2.3	9.5
30	e10	e8.0	e8.0	e8.0	---	e10	13	44	12	4.6	2.2	9.3
31	e10	---	e7.0	e8.0	---	e9.0	---	42	---	4.3	2.2	---
TOTAL	180.5	277.0	263.0	254.0	218.0	315.0	356.0	2,767	855	199.8	135.1	161.1
MEAN	5.82	9.23	8.48	8.19	7.79	10.2	11.9	89.3	28.5	6.45	4.36	5.37
MAX	11	11	10	10	8.0	15	21	351	53	14	6.8	9.5
MIN	1.0	7.0	7.0	5.0	6.0	8.0	9.0	10	12	3.8	2.0	2.3
AC-FT	358	549	522	504	432	625	706	5,490	1,700	396	268	320

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 2005, BY WATER YEAR (WY)\*

MEAN	17.0	17.8	16.3	17.4	24.3	37.7	49.6	98.9	84.5	28.2	12.5	12.9
MAX	27.8	27.9	33.6	32.3	57.8	115	106	324	375	92.6	38.5	29.1
(WY)	(1945)	(1946)	(1943)	(1984)	(1948)	(1947)	(1994)	(1984)	(1944)	(1944)	(1944)	(1944)
MIN	5.73	4.76	5.73	6.55	7.79	8.81	11.9	10.2	6.46	4.75	1.08	1.22
(WY)	(1955)	(2004)	(2002)	(2001)	(2005)	(2002)	(2005)	(2004)	(2004)	(2004)	(2004)	(2004)

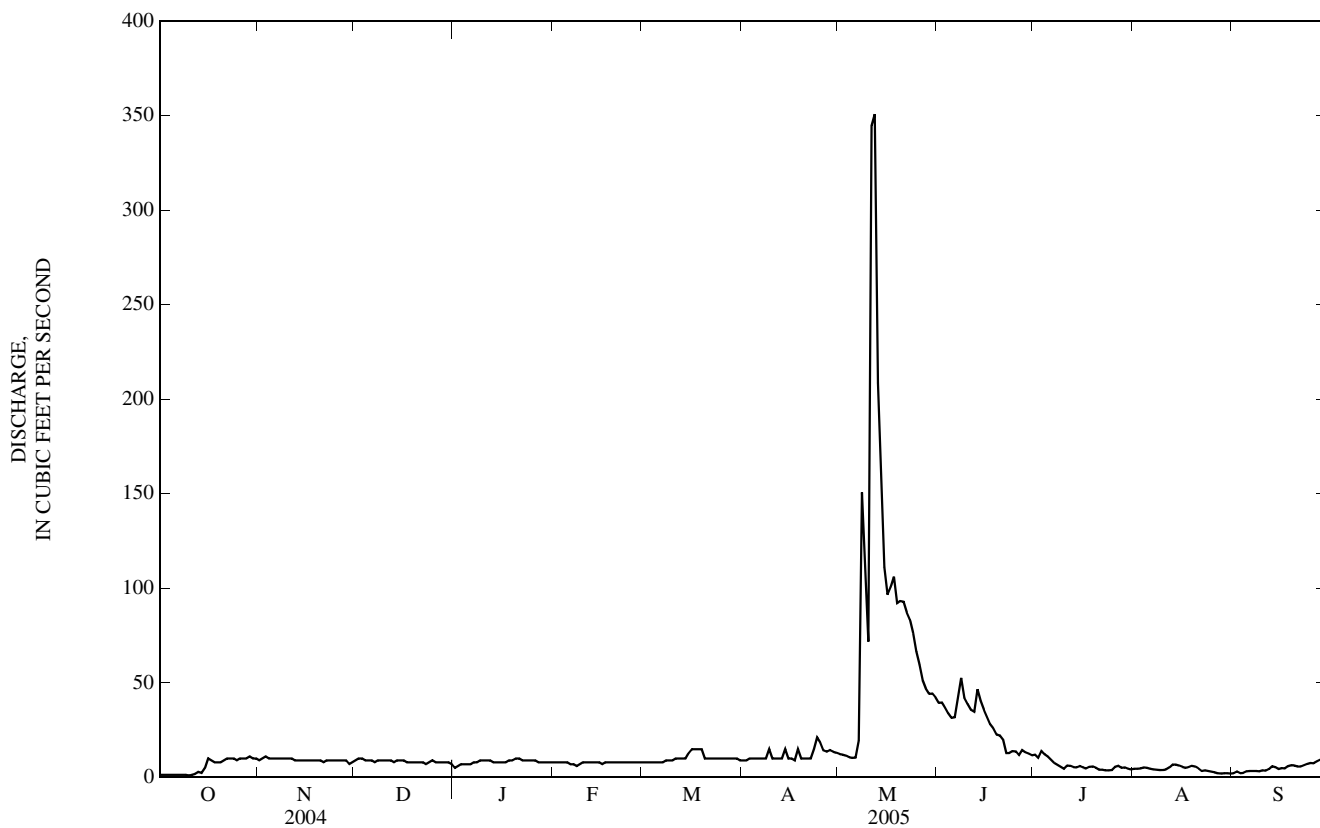
06290000 PASS CREEK NEAR WYOLA, MT—Continued

SUMMARY STATISTICS	FOR 2004 CALENDAR YEAR		FOR 2005 WATER YEAR		WATER YEARS 1939 - 2005*	
ANNUAL TOTAL	2,968.41		5,981.5			
ANNUAL MEAN	8.11		16.4		34.8	
HIGHEST ANNUAL MEAN					76.8	1944
LOWEST ANNUAL MEAN					8.53	2004
HIGHEST DAILY MEAN	52	Mar 19	351	May 12	1,120	Jun 20, 1947
LOWEST DAILY MEAN	0.70	Aug 18	1.0	Oct 10	0.00	Sep 1, 2002
ANNUAL SEVEN-DAY MINIMUM	0.89	Aug 13	1.4	Oct 4	0.00	Sep 1, 2002
MAXIMUM PEAK FLOW			606	May 11	a1,150	Jun 4, 1944
MAXIMUM PEAK STAGE			5.40	May 11	6.96	May 9, 1995
INSTANTANEOUS LOW FLOW					0.00	Aug 3, 1935
ANNUAL RUNOFF (AC-FT)	5,890		11,860		25,190	
10 PERCENT EXCEEDS	13		34		76	
50 PERCENT EXCEEDS	9.0		9.0		20	
90 PERCENT EXCEEDS	1.0		3.8		7.5	

\*--During period of operation (1939-56, 1983 to current year).

a--Gage height, 4.83 ft, from rating curve extended above 400 ft<sup>3</sup>/s, previous site and datum.

e--Estimated.



## 06291500 LODGE GRASS CREEK ABOVE WILLOW CREEK DIVERSION, NEAR WYOLA, MT

LOCATION.--Lat 45°07'35", long 107°36'00" (NAD 27), in SE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> 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 mi<sup>2</sup>.

PERIOD OF RECORD.--March 1939 to September 1974, October 1982 to current year.

REVISED RECORDS.--WSP 1559: 1944-47. WSP 1629: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 4,170 ft (NGVD 29). March 1939 to September 1974 recording gage 0.1 mi upstream at different elevation. Flows are equivalent.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Diversions for irrigation of about 400 acres upstream from station. U.S. Geological Survey satellite telemeter at station. Several unpublished observations of water temperature and specific conductance were made during the year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	13	7.9	3.1	11	8.6	7.9	17	102	77	27	14
2	10	12	8.0	4.4	11	8.8	7.8	17	98	73	27	13
3	11	12	8.8	4.2	11	8.8	7.9	13	91	69	27	13
4	9.6	12	9.1	3.5	11	8.8	7.9	12	100	65	26	12
5	9.5	12	11	4.2	12	8.8	8.3	12	103	61	24	13
6	9.5	11	11	6.5	11	8.9	8.4	12	127	55	22	13
7	9.5	11	11	7.6	e10	8.7	8.6	39	140	52	22	12
8	9.5	11	11	6.8	e7.0	10	9.7	93	125	49	21	12
9	9.3	11	11	6.6	e7.0	9.4	27	68	109	47	22	11
10	8.9	11	11	7.3	7.1	10	16	73	98	48	22	11
11	9.0	11	11	7.0	6.9	9.4	14	183	92	49	23	12
12	9.4	11	12	e8.0	8.0	8.8	12	119	97	46	24	14
13	10	11	10	e8.0	8.5	9.2	12	90	112	45	25	15
14	9.9	11	8.8	e7.0	9.1	9.6	11	78	109	42	24	14
15	13	11	11	e8.0	8.5	8.8	11	77	122	40	22	13
16	12	11	11	e8.0	11	9.0	11	95	140	38	20	13
17	12	11	11	e9.0	13	11	11	151	169	40	19	13
18	12	11	11	e10	13	9.8	12	154	180	39	20	14
19	12	11	11	e10	8.9	9.4	17	159	168	36	22	13
20	12	11	11	e10	9.3	9.2	17	226	156	35	19	11
21	12	10	11	e10	10	9.4	20	266	148	34	18	11
22	13	8.8	10	13	9.9	9.3	26	244	138	36	17	12
23	13	11	6.0	13	10	9.1	20	237	132	35	17	12
24	13	11	6.8	13	9.5	9.5	16	216	122	34	17	15
25	12	11	6.2	12	8.6	9.0	15	174	113	34	17	15
26	12	11	5.9	12	8.7	9.0	16	145	110	36	16	14
27	12	11	5.5	12	8.6	8.3	18	126	106	32	15	13
28	12	10	5.4	12	8.6	8.2	19	120	94	31	15	13
29	16	8.7	5.5	12	---	7.9	19	128	88	30	14	13
30	14	8.4	5.4	11	---	7.8	17	119	82	29	14	12
31	13	---	4.6	11	---	8.2	---	108	---	28	15	---
TOTAL	351.1	326.9	279.9	270.2	268.2	280.7	423.5	3,571	3,571	1,365	633	386
MEAN	11.3	10.9	9.03	8.72	9.58	9.05	14.1	115	119	44.0	20.4	12.9
MAX	16	13	12	13	13	11	27	266	180	77	27	15
MIN	8.9	8.4	4.6	3.1	6.9	7.8	7.8	12	82	28	14	11
AC-FT	696	648	555	536	532	557	840	7,080	7,080	2,710	1,260	766

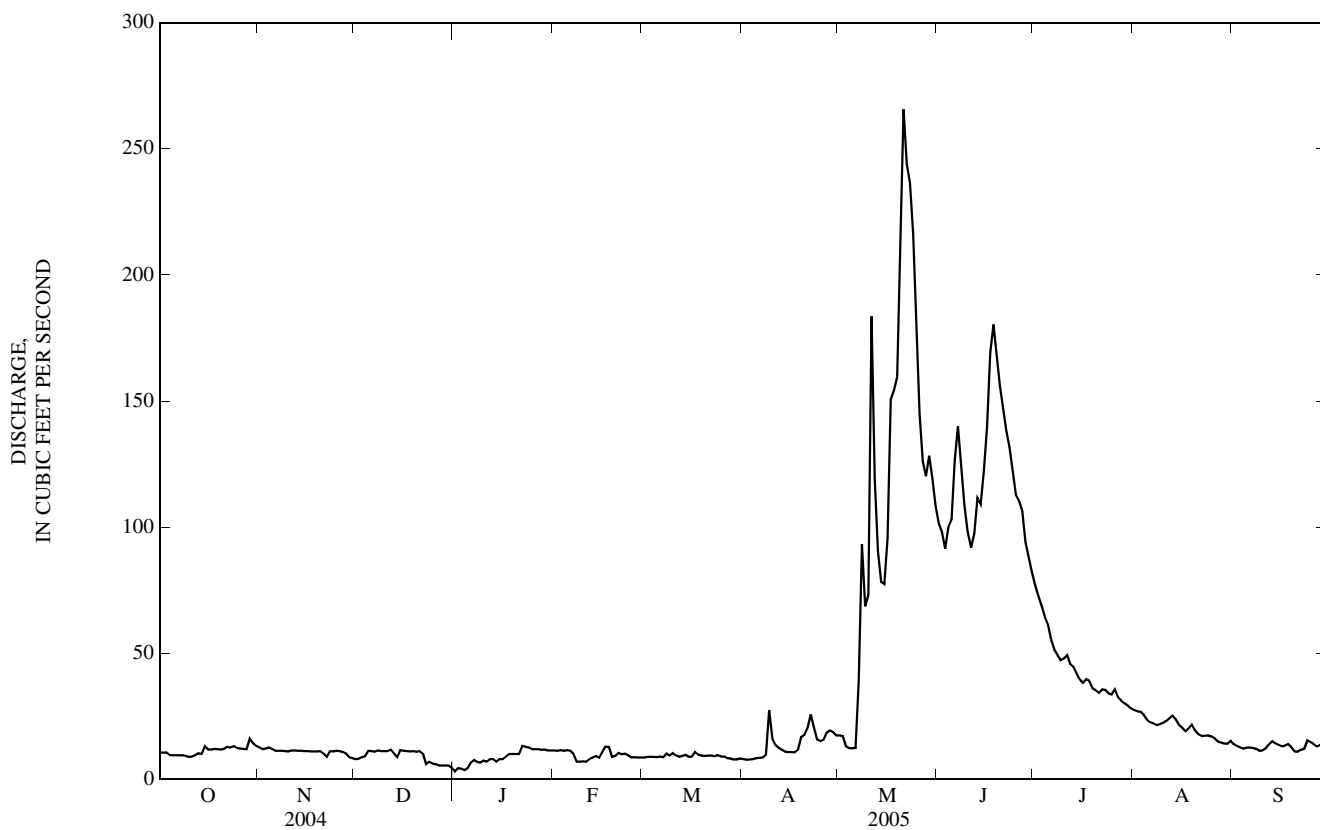
## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 2005, BY WATER YEAR (WY)\*

MEAN	20.8	18.8	16.7	16.4	16.7	20.1	31.1	116	192	62.1	27.4	21.8
MAX	35.5	28.0	25.0	30.3	32.0	36.9	71.4	257	445	176	50.7	40.1
(WY)	(1942)	(1943)	(1969)	(1974)	(1972)	(1972)	(1994)	(1984)	(1964)	(1964)	(1968)	(1964)
MIN	11.3	10.7	8.58	4.87	9.00	9.05	11.2	36.2	52.6	20.1	9.25	6.80
(WY)	(2005)	(1961)	(1950)	(1950)	(1940)	(2005)	(2001)	(1950)	(2001)	(1961)	(2004)	(2002)

06291500 LODGE GRASS CREEK ABOVE WILLOW CREEK DIVERSION, NEAR WYOLA, MT—Continued

SUMMARY STATISTICS	FOR 2004 CALENDAR YEAR		FOR 2005 WATER YEAR		WATER YEARS 1940 - 2005*	
ANNUAL TOTAL	7,168.5		11,726.5			
ANNUAL MEAN	19.6		32.1		46.7	
HIGHEST ANNUAL MEAN					85.6	
LOWEST ANNUAL MEAN					21.1	
HIGHEST DAILY MEAN	74	Jun 7	266	May 21	908	Jun 9, 1964
LOWEST DAILY MEAN	4.6	Dec 31	3.1	Jan 1	2.7	Apr 6, 2001
ANNUAL SEVEN-DAY MINIMUM	5.5	Dec 25	4.2	Dec 30	3.0	Apr 13, 2001
MAXIMUM PEAK FLOW			282	May 21	a1,130	Jun 9, 1964
MAXIMUM PEAK STAGE			3.56	May 21	6.14	Jun 9, 1964
ANNUAL RUNOFF (AC-FT)	14,220		23,260		33,850	
10 PERCENT EXCEEDS	45		104		112	
50 PERCENT EXCEEDS	14		12		22	
90 PERCENT EXCEEDS	8.1		8.0		12	

\*--During period of operation (1940-74, 1983 to current year).  
 a--From rating curve extended above 600 ft<sup>3</sup>/s.  
 e--Estimated.

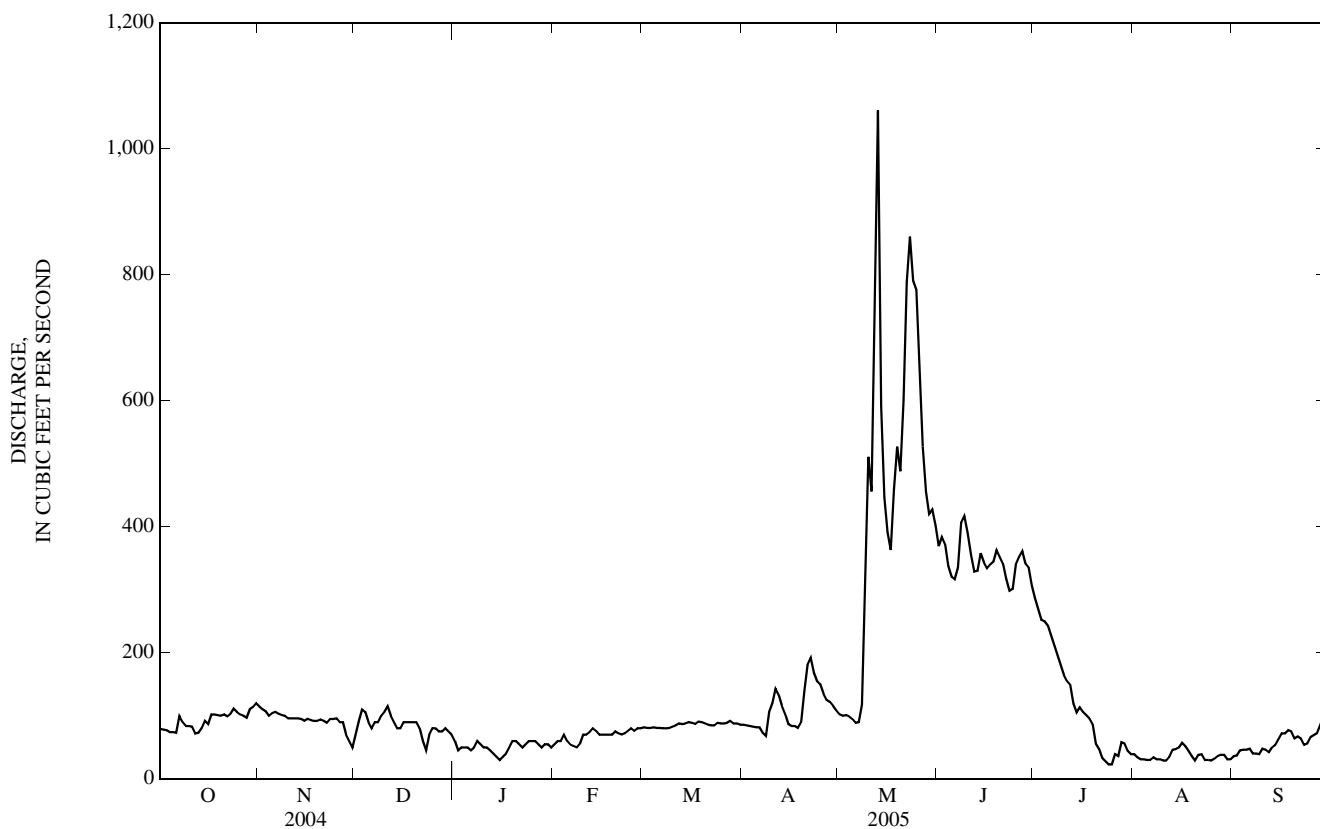




06294000 LITTLE BIGHORN RIVER NEAR HARDIN, MT—Continued

SUMMARY STATISTICS	FOR 2004 CALENDAR YEAR		FOR 2005 WATER YEAR		WATER YEARS 1954 - 2005	
ANNUAL TOTAL	37,404		48,757			
ANNUAL MEAN	102		134		273	
HIGHEST ANNUAL MEAN					676	1975
LOWEST ANNUAL MEAN					70.4	1961
HIGHEST DAILY MEAN	403	Feb 26	1,060	May 13	15,800	May 20, 1978
LOWEST DAILY MEAN	25	Jul 24	23	Jul 24	0.30	Aug 5, 1961
ANNUAL SEVEN-DAY MINIMUM	37	May 1	31	Aug 5	0.40	Aug 3, 1961
MAXIMUM PEAK FLOW			1,210	May 13	a22,600	May 19, 1978
MAXIMUM PEAK STAGE			4.55	May 13	b11.78	Mar 20, 1960
INSTANTANEOUS LOW FLOW					c0.20	Aug 7, 1961
ANNUAL RUNOFF (AC-FT)	74,190		96,710		197,600	
10 PERCENT EXCEEDS	161		344		591	
50 PERCENT EXCEEDS	95		85		160	
90 PERCENT EXCEEDS	49		39		71	

a--Gage height, 11.20 ft.  
 b--Site and datum then in use.  
 c--Result of discharge measurement.  
 e--Estimated.



## 06294500 BIGHORN RIVER ABOVE TULLOCK CREEK, NEAR BIGHORN, MT

LOCATION.--Lat 46°07'29", long 107°28'06" (NAD 27), in SE<sup>1</sup>/<sub>4</sub> SE<sup>1</sup>/<sub>4</sub> NE<sup>1</sup>/<sub>4</sub> 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 mi<sup>2</sup>. Area at site used Oct. 7, 1955, to Sept. 30, 1981, 22,885 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1981 to current year. Previously published as "06294700 Bighorn River at Bighorn, MT" from 1956-81, and as "06294700 Bighorn River near Custer" from 1945-55. Flows are equivalent at all sites.

GAGE.--Water-stage recorder. Elevation 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 elevation. Oct. 7, 1955 to Sept. 30, 1981, at site 2.3 mi downstream at different elevation.

REMARKS.--Records good except those for estimated daily discharges, which are poor. 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. Several observations of water temperature and specific conductance were made during the year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,280	1,590	1,790	1,660	1,810	1,800	1,490	1,480	2,160	7,570	2,360	2,050
2	1,320	1,580	1,830	e1,700	1,790	1,830	1,490	1,440	2,290	7,470	2,260	2,110
3	1,410	1,570	1,870	e1,700	1,770	1,730	1,500	1,320	2,740	7,450	2,310	2,110
4	1,390	1,580	1,910	e1,700	1,790	1,760	1,480	1,400	2,800	7,400	2,290	2,160
5	1,400	1,590	1,910	e1,800	1,810	1,760	1,470	1,370	2,810	7,330	2,250	2,200
6	1,400	1,590	1,900	e1,800	1,710	e1,700	1,460	1,370	2,840	7,300	2,250	2,140
7	1,420	1,580	1,950	e1,800	1,690	e1,700	1,460	1,400	2,960	7,210	2,190	2,080
8	1,390	1,580	2,000	e1,800	1,690	e1,700	1,470	1,430	3,170	7,060	2,150	1,980
9	1,470	1,600	2,020	e1,800	e1,700	e1,700	1,670	1,490	3,340	6,940	2,110	1,970
10	1,440	1,600	2,030	e1,800	1,730	e1,700	1,650	1,900	3,940	6,800	2,070	1,940
11	1,420	1,600	2,060	e1,800	1,730	e1,600	1,620	2,010	4,470	6,930	2,000	1,930
12	1,450	1,610	2,090	e1,800	1,730	e1,600	1,630	2,520	4,940	6,270	1,940	1,930
13	1,430	1,620	2,050	e1,800	1,730	e1,600	1,590	3,220	4,960	5,040	1,950	1,990
14	1,410	1,630	2,050	e1,800	1,730	e1,600	1,540	2,680	4,900	3,900	1,950	1,940
15	1,480	1,640	2,120	e1,700	1,710	e1,600	1,570	2,200	4,830	3,260	1,880	1,920
16	1,470	1,640	2,140	e1,700	1,690	1,610	1,500	1,980	4,670	2,670	1,810	1,880
17	1,440	1,640	2,180	e1,700	1,700	1,590	1,430	1,860	4,960	2,300	1,860	1,840
18	1,460	1,650	2,200	e1,700	1,690	1,580	1,430	1,970	4,840	2,270	2,120	1,860
19	1,450	1,660	2,230	e1,700	1,690	1,570	1,550	2,070	4,810	2,200	2,340	1,850
20	1,440	1,680	2,280	e1,700	1,710	1,560	1,710	1,990	4,870	2,150	2,270	1,810
21	1,440	1,700	2,270	e1,700	1,730	1,540	1,930	1,990	4,770	2,150	2,240	1,770
22	1,450	1,690	2,250	e1,700	1,700	1,550	2,110	2,160	4,710	2,100	2,180	2,250
23	1,430	1,720	e2,200	e1,700	1,690	1,530	2,020	2,350	5,190	2,120	2,120	2,720
24	1,460	1,740	e2,300	e1,800	1,700	1,590	1,870	2,280	5,770	2,320	2,070	2,710
25	1,440	1,750	2,300	e1,800	1,700	1,550	1,750	2,240	6,740	2,310	2,140	2,720
26	1,490	1,770	2,340	e1,800	1,700	1,530	1,620	2,170	7,530	2,400	2,100	2,700
27	1,520	1,770	2,360	e1,800	1,720	1,530	1,570	1,980	7,730	2,380	2,090	2,660
28	1,530	1,780	2,320	e1,800	1,770	1,520	1,500	1,800	7,700	2,410	2,100	2,610
29	1,590	1,770	1,980	e1,800	---	1,510	1,520	1,700	7,970	2,400	2,110	2,550
30	1,580	1,750	1,670	1,770	---	1,500	1,490	1,700	7,880	2,360	2,080	2,460
31	1,580	---	1,640	1,760	---	1,490	---	1,760	---	2,370	2,040	---
TOTAL	44,880	49,670	64,240	54,390	48,310	50,130	48,090	59,230	143,290	134,840	65,630	64,840
MEAN	1,448	1,656	2,072	1,755	1,725	1,617	1,603	1,911	4,776	4,350	2,117	2,161
MAX	1,590	1,780	2,360	1,800	1,810	1,830	2,110	3,220	7,970	7,570	2,360	2,720
MIN	1,280	1,570	1,640	1,660	1,690	1,490	1,430	1,320	2,160	2,100	1,810	1,770
AC-FT	89,020	98,520	127,400	107,900	95,820	99,430	95,390	117,500	284,200	267,500	130,200	128,600

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945 - 2005, BY WATER YEAR (WY)

MEAN	3,151	3,224	3,086	2,973	3,133	3,610	3,465	4,275	6,788	5,213	2,804	2,796
MAX	5,546	5,599	4,907	5,478	5,314	6,580	7,881	9,102	15,180	19,090	6,972	4,952
(WY)	(1972)	(1974)	(1968)	(1968)	(1971)	(1972)	(1997)	(1947)	(1948)	(1967)	(1997)	(1973)
MIN	1,103	1,223	1,280	1,382	1,544	908	1,063	1,304	1,050	707	868	1,009
(WY)	(2003)	(1978)	(1961)	(1961)	(2003)	(1966)	(1966)	(1966)	(1966)	(1960)	(1961)	(1966)

## SUMMARY STATISTICS

## FOR 2004 CALENDAR YEAR

## FOR 2005 WATER YEAR

## WATER YEARS 1945 - 2005

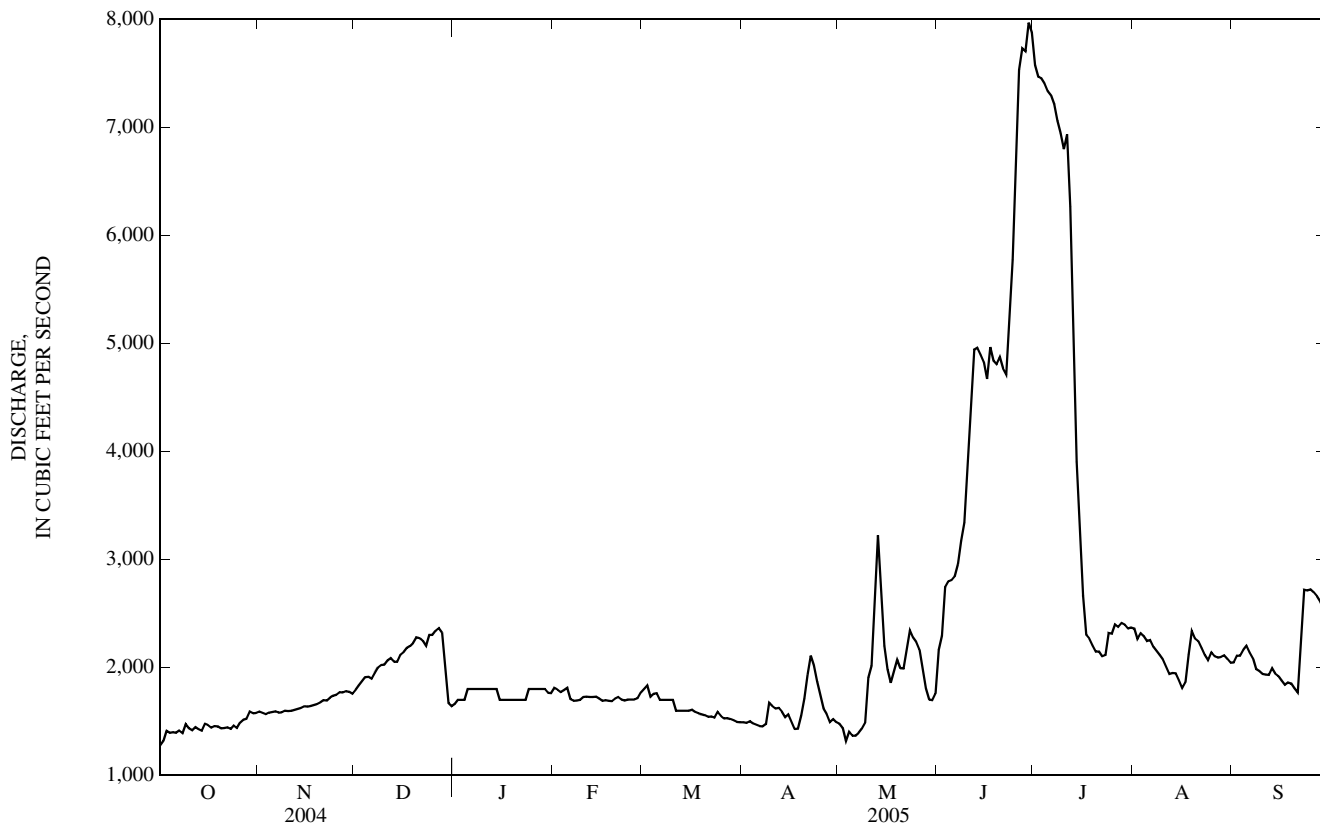
ANNUAL TOTAL	584,800	827,540				
ANNUAL MEAN	1,598	2,267				
HIGHEST ANNUAL MEAN				3,693		
LOWEST ANNUAL MEAN				5,594		
HIGHEST DAILY MEAN	2,420	Jun 11	7,970	Jun 29	50,000	May 20, 1978
LOWEST DAILY MEAN	1,060	Sep 1	1,280	Oct 1	400	Apr 4, 1967
ANNUAL SEVEN-DAY MINIMUM	1,120	Aug 26	1,370	Oct 1	528	May 6, 1961
MAXIMUM PEAK FLOW			8,190	Jun 29	a59,200	May 20, 1978
MAXIMUM PEAK STAGE			4.56	Jun 29	b14.21	Apr 2, 1965
INSTANTANEOUS LOW FLOW					275	Nov 15, 1959
ANNUAL RUNOFF (AC-FT)	1,160,000	1,641,000			2,675,000	
10 PERCENT EXCEEDS	1,960	3,290			6,200	
50 PERCENT EXCEEDS	1,560	1,800			3,110	
90 PERCENT EXCEEDS	1,290	1,470			1,610	



06294500 BIGHORN RIVER ABOVE TULLOCK CREEK, NEAR BIGHORN, MT—Continued

SUMMARY STATISTICS	WATER YEARS 1946 - 1961 *		WATER YEARS 1967 - 2005**	
ANNUAL MEAN	3,358		3,707	
HIGHEST ANNUAL MEAN	5,501	1947	5,594	1997
LOWEST ANNUAL MEAN	1,623	1961	1,474	2003
HIGHEST DAILY MEAN	25,700	Jun 23, 1947	50,000	May 20, 1978
LOWEST DAILY MEAN	462	May 12, 1961	400	Apr 4, 1967
ANNUAL SEVEN-DAY MINIMUM	528	May 6, 1961	843	Nov 18, 1977
MAXIMUM PEAK FLOW	c26,200	Jun 24, 1947	f59,200	May 20, 1978
MAXIMUM PEAK STAGE	10.65	May 20, 1947	g14.15	May 20, 1978
INSTANTANEOUS LOW FLOW	d275	Nov 15, 1959		
ANNUAL RUNOFF (AC-FT)	2,578,000		2,686,000	
10 PERCENT EXCEEDS	6,200		6,150	
50 PERCENT EXCEEDS	2,810		3,290	
90 PERCENT EXCEEDS	1,500		1,690	

\*Prior to construction of Yellowtail Dam.  
 \*\*--After completion of Yellowtail Dam.  
 a--Gage height, 14.15 ft, at different site and datum.  
 b--About, result of ice jam, at different site and datum.  
 c--Gage height, 8.79 ft, at different site and datum.  
 d--About, result of freezeup.  
 e--Estimated.  
 f--Gage height, 14.50 ft, at different site and datum.  
 g--Previous site and datum.



## 06295000 YELLOWSTONE RIVER AT FORSYTH, MT

LOCATION.--Lat 46°15'58", long 106°41'24" (NAD 27), in NE<sup>1</sup>/<sub>4</sub> NW<sup>1</sup>/<sub>4</sub> NW<sup>1</sup>/<sub>4</sub>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 mi<sup>2</sup>.

PERIOD OF RECORD.--July 16, 1921 to September 30, 1923 (no winter records), October 1977 to current year. Miscellaneous discharge measurements were made in 1974 to 1976 and are available in files at the USGS Water Science Center located in Helena, Montana.

REVISED RECORDS.--WDR MT-04-1: Drainage area.

GAGE.--Water-stage recorder. Elevation 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 elevation. March 1922 to September 1923, nonrecording gage on discontinued highway bridge 10 ft downstream from gage at elevation 2 ft higher.

REMARKS.--Records good except those for estimated daily discharges, which are poor. 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. U.S. Geological Survey satellite telemeter at station. Several unpublished observations of water temperature and specific conductance were made during the year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of 1918 reached a stage of about 20 ft, elevation used in 1921, information from local residents.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5,510	6,550	4,830	e4,500	e4,400	e3,800	3,710	6,550	20,000	25,200	6,280	e4,470
2	5,550	6,180	4,850	e4,000	e4,300	e3,800	3,680	6,170	18,600	24,200	6,040	e4,480
3	5,730	6,000	4,540	e3,800	e4,300	e3,800	3,600	5,810	18,200	23,800	5,870	e4,600
4	5,700	5,760	4,640	e3,600	e4,200	3,790	3,580	5,520	18,600	23,300	5,890	e4,540
5	5,580	5,680	5,140	e3,600	e4,200	3,760	3,570	5,450	17,300	22,400	6,030	e4,600
6	5,490	5,850	5,220	e3,600	e4,300	3,740	3,620	5,410	16,900	20,800	6,210	e4,510
7	5,410	5,820	5,070	e3,800	e4,200	3,710	3,740	5,750	17,400	19,200	5,940	e4,380
8	5,330	5,720	5,100	e4,000	e3,900	3,690	3,810	6,640	20,800	18,100	5,650	4,400
9	5,320	5,690	5,080	e4,000	e3,600	3,700	4,080	8,550	22,400	17,600	5,400	4,350
10	5,280	5,650	5,220	e3,800	e3,500	3,740	4,550	9,740	20,800	17,200	5,220	3,940
11	5,260	5,600	5,250	e3,800	e3,600	3,730	4,420	10,100	19,900	17,300	5,170	3,880
12	5,260	5,530	5,240	e4,000	e3,900	3,770	4,610	17,400	19,200	18,000	5,080	3,930
13	5,330	5,580	5,250	e4,000	e4,100	3,840	4,410	26,800	19,100	17,600	5,130	4,020
14	5,320	5,570	5,230	e4,000	e4,100	3,850	4,150	19,700	19,400	15,400	5,320	4,140
15	5,400	5,480	5,080	e3,800	e4,100	3,860	3,930	16,300	19,500	13,000	5,560	4,250
16	5,790	5,380	5,120	e3,600	e4,100	3,850	3,930	14,800	18,300	11,800	5,510	4,260
17	6,110	5,340	5,210	e3,700	e4,100	3,740	3,990	15,100	20,300	10,700	5,200	4,240
18	6,050	5,310	5,260	e3,800	e4,000	3,780	4,290	17,500	24,500	9,950	5,070	4,310
19	6,130	5,280	5,210	e4,200	e3,800	3,800	4,110	21,600	27,600	9,440	5,270	4,320
20	6,060	5,290	5,200	e4,400	e3,600	3,790	5,070	19,500	30,300	8,850	5,620	4,360
21	6,000	5,330	5,180	e4,700	e3,800	3,750	6,610	21,400	28,400	8,010	5,980	4,320
22	5,940	5,290	5,220	e5,500	e4,000	3,740	6,680	30,300	28,300	7,470	6,510	4,330
23	5,850	5,200	e4,800	e5,600	e4,000	3,800	6,350	35,400	30,400	7,090	6,260	4,710
24	5,880	5,100	e4,700	e5,500	e4,000	3,820	6,070	32,800	33,200	6,950	5,730	5,040
25	5,910	5,100	e4,300	e5,300	e4,000	3,890	5,960	34,000	37,300	6,910	5,490	5,230
26	5,880	5,250	e4,400	e5,200	e3,900	3,850	5,720	31,700	36,300	6,810	5,420	5,790
27	5,920	5,290	e4,400	e5,100	e3,800	3,770	5,990	25,500	32,900	7,160	5,290	5,960
28	5,830	5,240	e4,500	e5,000	e3,800	3,730	6,740	21,400	30,000	7,160	5,150	6,170
29	5,880	5,180	e4,800	e4,700	---	3,700	7,390	19,700	28,400	7,060	e4,880	6,130
30	6,330	4,890	e5,000	e4,600	---	3,670	7,160	19,800	27,200	6,670	e4,870	5,940
31	6,970	---	e4,600	e4,400	---	3,680	---	20,900	---	6,440	e4,680	---
TOTAL	178,000	165,130	153,640	133,600	111,600	116,940	145,520	537,290	721,500	421,570	171,720	139,600
MEAN	5,742	5,504	4,956	4,310	3,986	3,772	4,851	17,330	24,050	13,600	5,539	4,653
MAX	6,970	6,550	5,260	5,600	4,400	3,890	7,390	35,400	37,300	25,200	6,510	6,170
MIN	5,260	4,890	4,300	3,600	3,500	3,670	3,570	5,410	16,900	6,440	4,680	3,880
AC-FT	353,100	327,500	304,700	265,000	221,400	232,000	288,600	1,066,000	1,431,000	836,200	340,600	276,900

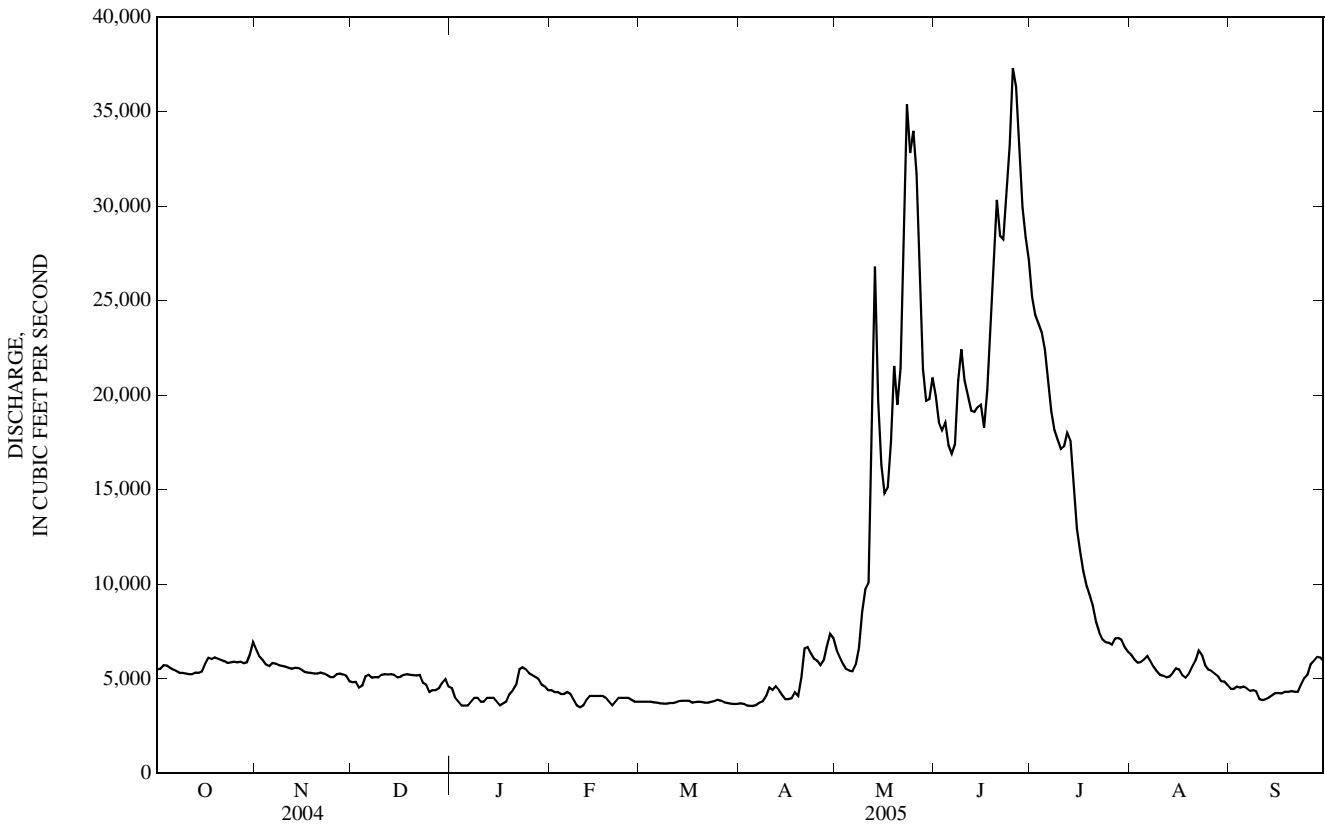
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 2005, BY WATER YEAR (WY)

MEAN	7,202	6,757	5,919	5,535	5,900	6,845	7,465	16,780	28,940	17,510	7,768	6,686
MAX	10,720	10,490	8,927	7,796	10,210	15,120	13,270	27,850	63,710	34,430	17,570	11,320
(WY)	(1983)	(1983)	(1983)	(1983)	(1997)	(1979)	(1997)	(1997)	(1997)	(1982)	(1997)	(1978)
MIN	3,519	4,186	3,624	3,242	3,511	3,223	4,220	7,570	14,690	6,135	2,742	2,723
(WY)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(1981)	(2004)	(1987)	(1988)	(2001)	(2001)

06295000 YELLOWSTONE RIVER AT FORSYTH, MT—Continued

SUMMARY STATISTICS	FOR 2004 CALENDAR YEAR		FOR 2005 WATER YEAR		WATER YEARS 1978 - 2005	
ANNUAL TOTAL	2,342,840		2,996,110			
ANNUAL MEAN	6,401		8,209		10,280	
HIGHEST ANNUAL MEAN					17,590	
LOWEST ANNUAL MEAN					6,026	
HIGHEST DAILY MEAN	29,200	Jun 12	37,300	Jun 25	97,000	May 21, 1978
LOWEST DAILY MEAN	3,200	Feb 15	3,500	Feb 10	1,400	Nov 23, 1977
ANNUAL SEVEN-DAY MINIMUM	3,350	Aug 19	3,630	Mar 31	2,030	Aug 26, 2001
MAXIMUM PEAK FLOW			38,400		106,000	
MAXIMUM PEAK STAGE			7.35		14.53	
ANNUAL RUNOFF (AC-FT)	4,647,000		5,943,000		7,451,000	
10 PERCENT EXCEEDS	11,000		19,800		21,600	
50 PERCENT EXCEEDS	5,220		5,280		7,020	
90 PERCENT EXCEEDS	3,900		3,800		4,200	

e--Estimated.



## 06295113 ROSEBUD CREEK AT RESERVATION BOUNDARY, NEAR KIRBY, MT

LOCATION.--Lat 45°21'40", long 106°59'23" (NAD 27), in NE<sup>1</sup>/<sub>4</sub> NE<sup>1</sup>/<sub>4</sub> SW<sup>1</sup>/<sub>4</sub> 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 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1979 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 3,780 ft (NGVD 29).

REMARKS.--Water-discharge records poor. Numerous small diversions for irrigation upstream from station. U.S. Geological Survey satellite telemeter at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--A discharge of 231 ft<sup>3</sup>/s was measured May 9, 1978, at site 1.9 mi upstream from present site. Flow was known to be higher during flood of May 19-21, 1978, from information by local resident.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.9	0.69	e1.0	e0.30	e1.0	1.4	1.7	3.4	6.0	2.1	0.30	0.08
2	1.5	0.65	e1.5	e0.25	e1.0	1.4	1.7	4.2	8.0	2.1	0.27	0.07
3	1.3	0.57	e2.0	e0.30	e1.0	1.4	1.7	4.3	8.8	2.0	0.31	0.05
4	1.2	0.56	e1.0	e0.30	e1.0	1.4	1.8	4.3	8.9	2.1	0.33	0.04
5	1.2	0.59	e0.90	e0.30	e1.0	1.4	1.5	4.1	8.0	1.9	0.34	0.02
6	1.1	0.57	e0.80	e0.30	e1.0	1.4	1.3	4.0	7.4	1.7	0.29	0.01
7	1.1	0.61	e0.70	e0.30	e1.0	1.5	1.3	5.0	7.5	1.7	0.27	0.01
8	0.95	0.65	e0.70	e0.30	e1.0	1.5	1.3	12	8.0	1.6	0.23	0.00
9	0.91	0.73	e0.90	e0.30	e1.0	1.5	2.8	19	7.9	1.4	0.17	0.00
10	0.80	0.81	e1.0	e0.30	e1.0	1.7	3.9	24	8.4	1.3	0.20	0.00
11	0.74	0.85	e0.80	e0.30	e1.0	1.7	2.9	37	10	1.3	0.21	0.00
12	0.70	0.82	e0.70	e0.35	e1.5	1.9	2.3	54	12	1.1	0.25	0.00
13	0.62	0.90	e0.50	e0.40	e1.5	1.9	1.9	116	14	1.0	0.32	0.03
14	0.56	0.94	e0.50	e0.40	e1.5	1.9	1.6	61	12	0.89	0.38	0.06
15	0.80	0.97	e0.60	e0.50	e1.0	1.9	1.4	53	11	0.82	0.35	0.07
16	0.63	0.98	e0.70	e0.50	e0.50	2.0	0.46	50	9.7	0.75	0.31	0.05
17	0.54	1.0	e0.80	e0.60	e0.50	2.1	0.28	27	8.2	0.62	0.20	0.05
18	0.57	1.1	e0.80	e0.70	e0.50	2.2	1.6	19	8.2	0.68	0.22	0.07
19	0.60	1.1	e0.80	e0.70	e0.50	2.2	1.8	15	6.6	0.69	0.41	0.11
20	0.53	1.1	e0.80	e0.80	e0.50	2.1	2.7	13	5.3	0.57	0.35	0.07
21	0.50	1.1	e0.70	e0.90	e0.50	2.2	3.5	12	3.7	0.60	0.29	0.08
22	0.52	1.0	e0.50	e1.0	e1.0	2.3	3.8	9.6	2.6	0.51	0.34	0.10
23	0.56	e0.50	e0.50	e1.0	e1.0	2.3	4.0	7.8	2.4	0.45	0.20	0.06
24	0.59	e0.50	e0.50	e1.0	e1.0	2.3	3.9	6.8	2.5	0.40	0.19	0.14
25	0.56	e0.50	e0.70	e1.0	e1.0	2.2	3.7	6.2	3.1	0.46	0.16	0.15
26	0.57	e0.50	e0.60	e1.0	e1.0	2.3	3.3	5.3	2.3	0.67	0.12	0.13
27	0.50	e0.60	e0.50	e1.0	e1.0	2.2	3.3	4.9	2.2	0.56	0.15	0.13
28	0.52	e0.70	e0.45	e1.0	e1.4	2.2	3.2	4.2	2.2	0.43	0.12	0.20
29	0.76	e0.80	e0.40	e1.0	---	2.2	3.2	3.8	2.0	0.58	0.10	0.26
30	0.61	e0.90	e0.40	e1.0	---	2.0	3.5	3.7	1.8	0.53	0.08	0.22
31	0.73	---	e0.40	e1.0	---	1.8	---	5.5	---	0.42	0.06	---
TOTAL	24.67	23.29	23.15	19.10	26.90	58.5	71.34	599.1	200.7	31.93	7.52	2.26
MEAN	0.80	0.78	0.75	0.62	0.96	1.89	2.38	19.3	6.69	1.03	0.24	0.08
MAX	1.9	1.1	2.0	1.0	1.5	2.3	4.0	116	14	2.1	0.41	0.26
MIN	0.50	0.50	0.40	0.25	0.50	1.4	0.28	3.4	1.8	0.40	0.06	0.00
AC-FT	49	46	46	38	53	116	142	1,190	398	63	15	4.5

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 2005, BY WATER YEAR (WY)

MEAN	2.63	2.97	2.99	3.11	5.81	12.4	13.6	12.1	8.08	3.36	1.55	1.49
MAX	8.02	11.7	12.7	10.0	29.0	41.8	40.7	23.9	19.7	11.1	4.60	3.18
(WY)	(1980)	(1980)	(1980)	(1980)	(1996)	(1996)	(1985)	(1984)	(1986)	(1993)	(1993)	(1984)
MIN	0.33	0.37	0.34	0.62	0.96	1.01	1.32	1.31	1.04	0.03	0.01	0.00
(WY)	(2002)	(2002)	(2002)	(2005)	(2005)	(2002)	(2004)	(2004)	(2002)	(2002)	(2002)	(2002)

## 06295113 ROSEBUD CREEK AT RESERVATION BOUNDARY, NEAR KIRBY, MT—Continued

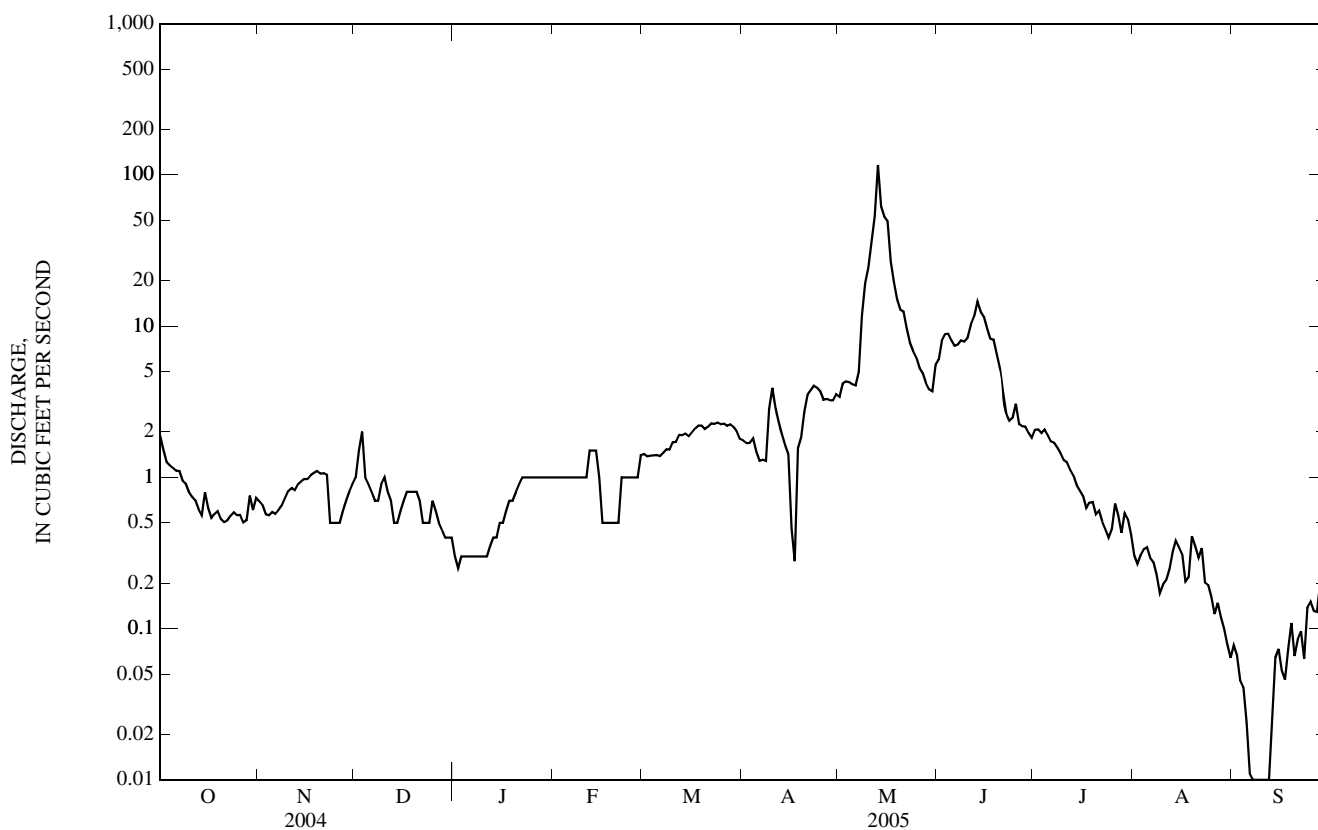
SUMMARY STATISTICS	FOR 2004 CALENDAR YEAR		FOR 2005 WATER YEAR		WATER YEARS 1980 - 2005	
ANNUAL TOTAL	623.28		1,088.46			
ANNUAL MEAN	1.70		2.98		5.83	
HIGHEST ANNUAL MEAN					11.7	1996
LOWEST ANNUAL MEAN					0.77	2002
HIGHEST DAILY MEAN	8.0	Feb 21	116	May 13	170	Mar 13, 1996
LOWEST DAILY MEAN	0.00	Sep 11	0.00	Sep 8	0.00	Jul 29, 1984
ANNUAL SEVEN-DAY MINIMUM	0.05	Jul 24	0.00	Sep 6	0.00	Sep 26, 2001
MAXIMUM PEAK FLOW			a152	May 13	b219	Mar 17, 1996
MAXIMUM PEAK STAGE			6.52	May 13	c8.28	Mar 13, 1996
INSTANTANEOUS LOW FLOW			0.00	Sep 5	0.00	Sep 6, 1989
ANNUAL RUNOFF (AC-FT)	1,240		2,160		4,230	
10 PERCENT EXCEEDS	4.6		6.1		14	
50 PERCENT EXCEEDS	1.1		1.0		3.1	
90 PERCENT EXCEEDS	0.29		0.20		0.68	

a--From indirect measurement of culvert flow.

b--Gage height, 6.30 ft.

c--Backwater from ice.

e--Estimated.



## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1980-84, July 2003 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1982 to September 1983, April 2005 to October 2005 (seasonal record).

REMARKS.--Missing daily specific conductance values for Aug. 1 to Sept. 23 due to no flow or the water level was below the probe. The daily specific conductance record is rated good to excellent except for the period Apr. 11 to June 9, which is rated fair and the period Oct. 14-19, 2005, which is rated poor. Several unpublished observations of water temperature and specific conductance were made during the year.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,200 microsiemens per centimeter ( $\mu\text{S}/\text{cm}$ ) at 25.0 °C, May 6 and 7, 2005; minimum daily, 569  $\mu\text{S}/\text{cm}$  at 25.0 °C, Sept. 26, 2005.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,200 microsiemens per centimeter ( $\mu\text{S}/\text{cm}$ ) at 25.0 °C, May 6 and 7; minimum daily, 569  $\mu\text{S}/\text{cm}$  at 25.0 °C, Sept. 26.

## 06295113 ROSEBUD CREEK AT RESERVATION BOUNDARY, NEAR KIRBY, MT—Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005

Date	Time	Instantaneous discharge, cfs (00061)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specific conductance, wat unf uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Hardness, water, mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	
OCT	14...	0945	.51	666	7.3	72	8.1	1,060	15.0	8.5	570	79.9	91.1	11.2
NOV	05...	0815	.59	*	*	*	8.3	1,020	3.0	3.0	550	80.2	83.8	9.86
DEC	03...	0830	E2.0	664	11.8	94	7.9	1,170	5.0	0.0	600	86.9	93.8	9.49
FEB	08...	0950	E1.0	666	11.3	89	8.0	1,040	-5.0	0.0	550	79.4	85.6	8.29
MAR	08...	0930	1.5	669	9.8	85	8.0	997	7.0	3.5	530	76.7	83.2	7.89
APR	05...	0930	1.1	668	7.2	73	8.1	1,070	15.0	10.0	540	75.8	84.3	8.44
MAY	16...	0945	51	656	7.6	88	8.1	894	24.0	15.0	450	71.3	66.8	10.8
JUN	09...	1145	8.1	662	7.9	89	8.3	1,010	17.0	14.0	520	72.2	81.9	7.54
JUL	26...	1000	.81	673	5.3	64	8.1	1,010	16.0	18.0	480	56.3	81.8	8.42
AUG	24...	0920	.21	663	5.7	66	7.9	1,080	14.5	15.5	540	66.5	90.2	10.9
SEP	07...	0945	.02	670	7.3	79	8.1	1,110	20.0	13.0	560	67.2	94.5	11.2

Date	Sodium adsorption ratio (00931)	Sodium, water, fltrd, mg/L (00930)	Sodium, percent (00932)	Alkalinity, wat flt fxd end lab, mg/L as CaCO3 (29801)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/ acre-ft (70303)	Residue water, fltrd, tons/d (70302)	
OCT	14...	.9	49.2	15	546	4.65	.9	12.7	93.9	671	.91	.92
NOV	05...	.9	46.0	15	523	4.65	.9	17.0	103	660	.90	1.05
DEC	03...	.9	52.6	16	565	4.85	.9	19.3	138	745	1.01	E4.02
FEB	08...	.8	43.2	14	492	4.06	.8	16.3	137	670	.91	E1.81
MAR	08...	.8	42.7	15	467	3.71	.7	16.1	136	647	.88	2.62
APR	05...	.9	45.9	15	490	4.01	.8	16.2	138	667	.91	1.98
MAY	16...	.4	21.8	9	285	2.57	.5	16.9	199	561	.76	77.2
JUN	09...	.6	30.2	11	407	3.35	.7	9.31	185	635	.86	13.9
JUL	26...	.9	47.3	17	471	3.45	.9	14.4	129	624	.85	1.37
AUG	24...	1	52.6	17	508	3.87	.9	11.9	134	676	.92	.38
SEP	07...	1	52.5	17	490	4.66	.9	8.74	137	677	.92	.04

\*--Equipment problems.  
E--Estimated.

## 06295113 ROSEBUD CREEK AT RESERVATION BOUNDARY, NEAR KIRBY, MT—Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005—CONTINUED

Date	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 nitro- gen, wat unfltrd by anal- ysis, mg/L (62855)	Ortho- phos- phate, water, fltrd, mg/L as P (00671)	Phos- phorus, water, unfltrd mg/L (00665)	Suspnd. sedi- ment, sieve diametr percent <.063mm (70331)	Sus- pended sedi- ment concen- tration mg/L (80154)	Sus- pended sedi- ment dis- charge, tons/d (80155)
OCT 14...	--	<.016	E.001	.40	.015	.041	87	53	.07
NOV 05...	--	<.016	E.001	.35	.016	.040	53	22	.04
DEC 03...	--	<.016	E.001	.29	.010	.029	67	30	E.16
FEB 08...	--	.018	.002	.27	E.004	.029	68	60	E.16
MAR 08...	E.009	<.016	E.001	.30	.009	.030	88	25	.10
APR 05...	E.006	<.016	E.001	.50	E.005	.063	71	74	.22
MAY 16...	--	--	--	--	--	--	96	113	16
JUN 09...	E.008	E.010	<.002	.48	.007	.034	67	37	.81
JUL 26...	--	--	--	--	--	--	77	44	.10
AUG 24...	--	--	--	--	--	--	82	76	.04
SEP 07...	E.005	<.016	<.002	.54	.026	.072	42	38	.00

Date	Alum- inum, water, fltrd, ug/L (01106)	Alum- inum, water, unfltrd recover- able, ug/L (01105)	Arsenic water, fltrd, ug/L (01000)	Arsenic water, unfltrd ug/L (01002)	Barium, water, fltrd, ug/L (01005)	Barium, water, unfltrd recover- able, ug/L (01007)	Beryll- ium, water, fltrd, ug/L (01010)	Beryll- ium, water, unfltrd recover- able, ug/L (01012)	Cadmium water, fltrd, ug/L (01025)	Cadmium water, unfltrd ug/L (01027)	Chrom- ium, water, fltrd, ug/L (01030)	Chrom- ium, water, unfltrd recover- able, ug/L (01034)	Copper, water, fltrd, ug/L (01040)
MAY 16...	2	865	1.4	E2	120	132	<.06	.09	--	--	--	--	--
JUN 09...	6	45	1.3	E1	100	119	<.06	<.06	E.03	<.04	<.8	E.5	4.7
JUL 26...	5	94	3.3	2	87	89	<.06	<.06	--	--	--	--	--
AUG 24...	E1	190	2.3	2.4	98	105	<.06	<.06	--	--	--	--	--
SEP 07...	<1	81	2.0	2.1	94	99	<.06	<.06	<.04	E.02	.04	.17	.9

Date	Copper, water, unfltrd recover- able, ug/L (01042)	Iron, water, fltrd, ug/L (01046)	Iron, water, unfltrd recover- able, ug/L (01045)	Lead, water, fltrd, ug/L (01049)	Lead, water, unfltrd recover- able, ug/L (01051)	Mangan- ese, water, fltrd, ug/L (01056)	Mangan- ese, water, unfltrd recover- able, ug/L (01055)	Nickel, water, fltrd, ug/L (01065)	Nickel, water, unfltrd recover- able, ug/L (01067)	Selen- ium, water, fltrd, ug/L (01145)	Selen- ium, water, unfltrd ug/L (01147)	Zinc, water, fltrd, ug/L (01090)	Zinc, water, unfltrd recover- able, ug/L (01092)
MAY 16...	--	23	2,340	--	--	78.9	167	--	--	.9	1.1	--	--
JUN 09...	4.3	28	240	.56	.09	20.0	28	4.70	3.22	E.3	.8	5.5	2
JUL 26...	--	20	250	--	--	33.1	40	--	--	.5	.6	--	--
AUG 24...	--	26	350	--	--	40.4	68	--	--	E.2	<.4	--	--
SEP 07...	1.4	15	260	E.07	.15	17.8	45	1.44	3.23	E.05	.18	1.7	2

E--Estimated.

## 06295113 ROSEBUD CREEK AT RESERVATION BOUNDARY, NEAR KIRBY, MT—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS  
SEASON APRIL 2005 TO OCTOBER 2005

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	---	---	---	1,170	1,150	1,160	1,040	1,020	1,030	980	958	972
2	---	---	---	1,170	1,150	1,160	1,030	1,020	1,020	981	955	968
3	---	---	---	1,180	1,160	1,170	---	---	---	980	964	972
4	---	---	---	1,180	1,160	1,180	1,040	1,020	1,030	983	956	972
5	---	---	---	1,190	1,170	1,180	1,040	1,020	1,030	979	955	967
6	---	---	---	1,200	1,180	1,190	1,090	1,040	1,070	978	952	969
7	---	---	---	1,200	1,080	1,170	1,080	1,040	1,060	983	959	972
8	---	---	---	1,130	1,040	1,080	1,050	1,030	1,040	983	956	974
9	---	---	---	1,140	1,060	1,110	1,060	1,030	1,050	982	963	974
10	---	---	---	1,100	990	1,070	1,050	1,030	1,040	976	962	971
11	---	---	#1,040	990	859	900	1,050	992	1,030	973	957	968
12	1,090	1,050	1,080	989	900	972	994	898	962	975	962	971
13	1,110	1,090	1,100	904	843	866	991	844	922	977	965	973
14	1,120	1,100	1,110	897	849	873	1,020	991	1,010	983	972	977
15	1,120	1,110	1,110	926	884	912	1,030	968	1,000	985	973	980
16	1,120	1,110	1,110	928	850	910	970	936	956	985	973	980
17	1,120	1,110	1,120	950	928	941	993	964	985	985	975	981
18	1,130	1,120	1,130	963	945	955	1,020	993	1,010	992	975	983
19	1,130	1,100	1,120	978	962	971	1,020	995	1,010	998	985	993
20	1,100	1,040	1,080	981	967	976	1,020	992	1,010	1,020	994	1,010
21	1,050	1,030	1,040	974	956	968	1,020	984	1,000	1,010	992	999
22	1,050	1,020	1,040	969	959	964	1,020	983	1,000	1,020	998	1,010
23	1,090	1,030	1,070	---	---	#990	1,010	982	996	1,020	999	1,010
24	1,120	1,090	1,110	1,000	992	998	1,010	954	989	---	---	#1,010
25	1,130	1,100	1,120	1,010	996	1,000	969	917	949	---	---	#1,030
26	1,140	1,100	1,130	1,010	997	1,010	968	919	941	1,040	1,030	1,040
27	1,150	1,130	1,140	1,020	1,000	1,010	948	920	931	---	---	1,030
28	1,150	1,110	1,140	1,030	1,010	1,020	975	941	952	---	---	1,030
29	1,170	1,140	1,160	1,050	1,020	1,040	975	951	963	1,040	1,030	1,040
30	1,170	1,150	1,160	1,050	1,030	1,040	973	956	965	1,040	1,030	1,040
31	---	---	---	1,040	1,030	1,040	---	---	---	---	---	#1,030
MONTH	1,170	1,020	1,110	1,200	843	1,030	1,090	844	998	1,040	952	993
	AUGUST			SEPTEMBER			OCTOBER					
1							797	788	794			
2							803	788	798			
3							801	783	794			
4							851	794	833			
5							839	825	831			
6							833	820	828			
7							853	829	838			
8							880	853	864			
9							913	868	888			
10							990	913	953			
11							1,030	990	1,010			
12							1,040	1,030	1,040			
13							1,060	1,040	1,050			
14							1,070	1,060	1,070			
15							1,080	1,070	1,080			
16							1,100	1,080	1,090			
17							1,120	1,090	1,110			
18							1,160	1,110	1,140			
19							1,170	1,160	1,170			
20							1,170	1,160	1,160			
21							1,160	1,150	1,160			
22							1,160	1,150	1,160			
23							1,160	1,140	1,150			
24			*1080	---	---	#640	1,160	1,140	1,150			
25			---	681	659	673	1,150	1,130	1,140			
26				706	569	638	1,150	1,130	1,140			
27				703	690	697	1,140	1,130	1,140			
28				720	698	707	1,140	1,130	1,140			
29				840	709	764	1,140	1,130	1,140			
30				793	785	791	1,150	1,130	1,140			
31				---	---	---	1,150	1,140	1,150			
MONTH				840	569	701	1,170	783	1,030			

#--Value computed from partial day with greater than 50 percent of day recorded.

\*--Instantaneous measurement of specific conductance from water-quality sample.



## 06295250 ROSEBUD CREEK NEAR COLSTRIP, MT

LOCATION.--Lat 45°46'03", long 106°34'10" (NAD 27), in SE<sup>1</sup>/<sub>4</sub> SW<sup>1</sup>/<sub>4</sub> NE<sup>1</sup>/<sub>4</sub> sec.8, T.1 S., R.42 E., Rosebud County, Hydrologic Unit 10100003, on left bank 100 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 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1974 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 3,000 ft (NGVD 29).

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Diversions for irrigation of about 800 acres upstream from station. U.S. Geological Survey satellite telemeter at station. Several unpublished observations of water temperature and specific conductance were made during the year.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	0.00	0.00	e1.0	e5.0	4.3	5.5	8.9	16	12	2.1	0.02
2	0.00	0.00	0.00	e1.5	e5.0	4.2	4.5	8.2	17	12	1.7	0.02
3	0.00	0.00	0.00	e1.5	e5.0	4.3	4.1	e7.0	17	13	1.4	0.02
4	0.00	0.00	0.00	e1.5	e5.0	4.4	3.9	e7.0	15	15	1.1	0.02
5	0.00	0.00	0.00	e1.5	e5.0	4.9	3.8	e7.0	15	14	1.3	0.02
6	0.00	0.00	0.00	e1.5	e4.5	4.8	3.7	e6.0	13	13	1.0	0.02
7	0.00	0.00	0.00	e1.5	e4.0	4.7	3.5	e8.0	12	13	0.83	0.01
8	0.00	0.00	0.00	e1.5	e4.0	5.0	3.2	e20	13	12	0.67	0.00
9	0.00	0.00	0.00	e1.5	e3.5	5.6	4.6	e40	13	12	0.70	0.00
10	0.00	0.00	0.00	e1.5	e3.5	5.2	7.3	e35	13	12	0.62	0.00
11	0.00	0.00	0.00	e1.5	e3.5	4.7	12	e20	13	12	0.54	0.00
12	0.00	0.00	0.00	e1.5	e4.0	4.2	15	e30	13	10	0.60	0.00
13	0.00	0.00	0.00	e1.0	e4.0	4.1	11	e40	13	10	0.62	0.00
14	0.00	0.00	0.00	e1.0	e3.5	4.2	9.6	e50	17	10	0.64	0.00
15	0.00	0.00	0.00	e1.5	e3.0	4.2	8.9	e50	15	9.3	0.65	0.00
16	0.00	0.00	0.00	e1.5	e3.5	4.0	8.5	e30	15	8.7	0.53	0.00
17	0.00	0.00	0.00	e2.0	e4.0	3.7	7.7	e30	20	8.1	0.48	0.00
18	0.00	0.00	0.00	e2.5	e4.0	4.4	7.4	e20	24	7.6	0.48	0.00
19	0.00	0.00	0.01	e3.0	e4.0	4.6	7.2	e20	23	7.1	0.49	0.01
20	0.00	0.00	0.01	e3.5	e4.0	4.1	8.5	e20	20	7.0	0.44	0.01
21	0.00	0.00	0.01	e3.0	e4.0	3.8	10	e20	19	6.8	0.33	0.01
22	0.00	0.00	0.01	e2.5	e4.2	4.1	14	e30	17	6.0	0.28	0.01
23	0.00	0.00	0.04	e3.5	e4.2	4.3	15	e20	16	5.1	0.23	0.02
24	0.00	0.00	0.04	e4.0	e4.3	5.3	13	e20	21	4.1	0.23	0.02
25	0.00	0.00	1.1	e5.0	e4.2	5.1	12	e20	15	4.2	0.22	0.02
26	0.00	0.00	3.0	e5.0	e4.4	4.6	11	e20	13	4.6	0.17	0.01
27	0.00	0.00	3.0	e5.0	e4.5	4.3	10	e15	14	4.5	0.12	0.02
28	0.00	0.00	2.9	e5.0	e4.5	4.8	9.7	e10	12	4.7	0.10	0.03
29	0.00	0.00	2.8	e5.0	---	5.5	9.7	e10	18	4.5	0.08	0.05
30	0.00	0.00	e2.0	e5.0	---	5.2	9.5	e10	12	3.4	0.05	0.03
31	0.00	---	e1.5	e5.0	---	5.4	---	e10	---	3.0	0.03	---
TOTAL	0.00	0.00	16.42	81.5	116.3	142.0	253.8	642.1	474	268.7	18.73	0.37
MEAN	0.00	0.00	0.53	2.63	4.15	4.58	8.46	20.7	15.8	8.67	0.60	0.01
MAX	0.00	0.00	3.0	5.0	5.0	5.6	15	50	24	15	2.1	0.05
MIN	0.00	0.00	0.00	1.0	3.0	3.7	3.2	6.0	12	3.0	0.03	0.00
AC-FT	0.00	0.00	33	162	231	282	503	1,270	940	533	37	0.7

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1975 - 2005, BY WATER YEAR (WY)

	8.71	11.2	11.4	13.8	25.5	44.7	37.8	48.1	33.7	17.1	8.35	6.14
MEAN	8.71	11.2	11.4	13.8	25.5	44.7	37.8	48.1	33.7	17.1	8.35	6.14
MAX	47.5	46.2	46.0	70.3	105	164	185	306	212	104	57.1	55.8
(WY)	(1979)	(1979)	(1979)	(1975)	(1996)	(1994)	(1979)	(1975)	(1978)	(1975)	(1975)	(1978)
MIN	0.00	0.00	0.00	0.00	3.05	4.58	6.65	2.19	0.60	0.00	0.00	0.00
(WY)	(1991)	(2003)	(2003)	(2003)	(2003)	(2005)	(2004)	(2004)	(2004)	(2002)	(2001)	(1983)

SUMMARY STATISTICS

FOR 2004 CALENDAR YEAR

FOR 2005 WATER YEAR

WATER YEARS 1975 - 2005

ANNUAL TOTAL	1,264.20	2,013.92	
ANNUAL MEAN	3.45	5.52	22.2*
HIGHEST ANNUAL MEAN			95.9
LOWEST ANNUAL MEAN			2.96
HIGHEST DAILY MEAN	80	Feb 20	50
LOWEST DAILY MEAN	0.00	Jul 17	0.00
ANNUAL SEVEN-DAY MINIMUM	0.00	Jul 17	0.00
MAXIMUM PEAK FLOW			Unknown
MAXIMUM PEAK STAGE			Unknown
ANNUAL RUNOFF (AC-FT)	2,510	3,990	16,060
10 PERCENT EXCEEDS	8.0	15	48
50 PERCENT EXCEEDS	0.17	3.5	11
90 PERCENT EXCEEDS	0.00	0.00	0.01

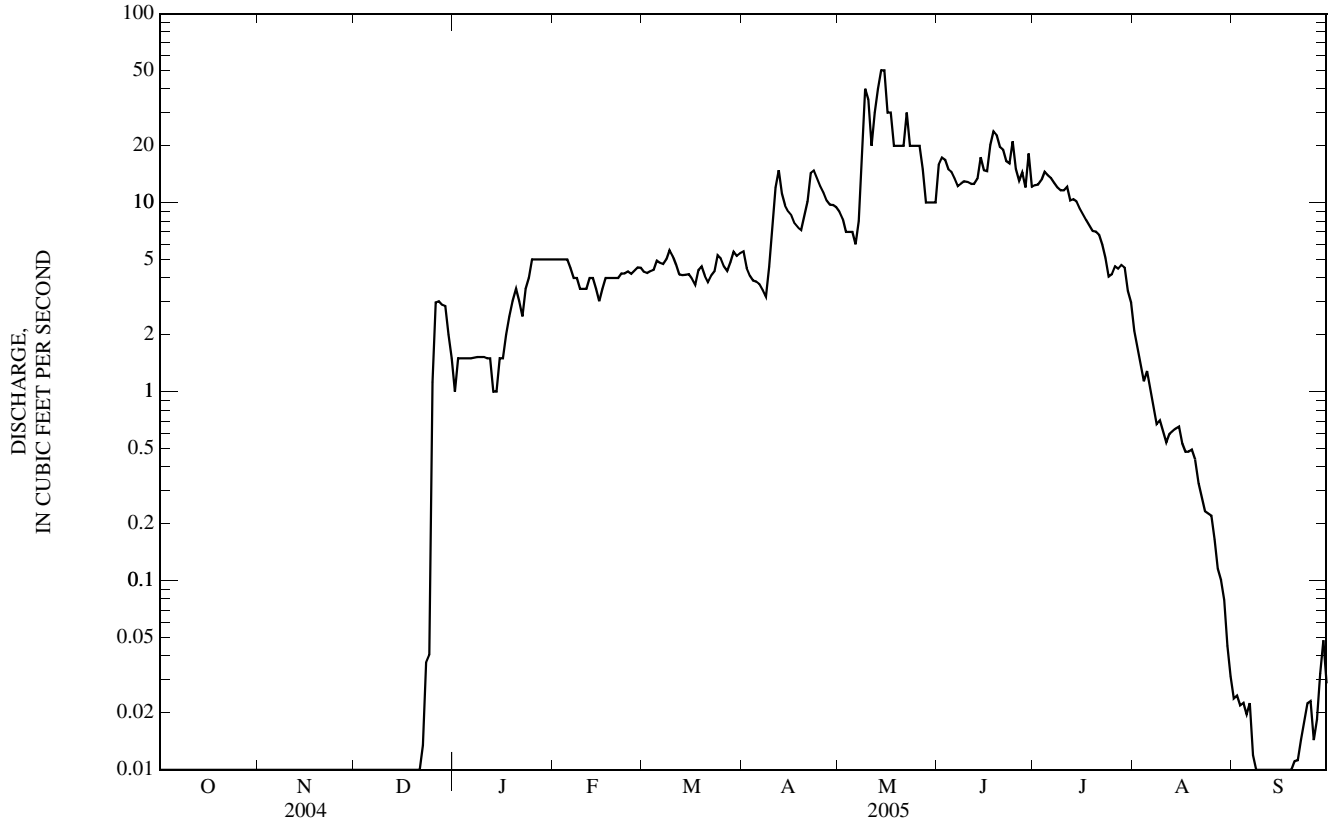
\*--Median of yearly mean discharge, 14.1 ft<sup>3</sup>/s, 10,200 acre-ft/yr.

a--No flow many days most years.

b--Gage height, 8.42 ft.

e--Estimated.

YELLOWSTONE RIVER BASIN  
06295250 ROSEBUD CREEK NEAR COLSTRIP, MT—Continued



## 06296003 ROSEBUD CREEK AT MOUTH, NEAR ROSEBUD, MT

LOCATION.--Lat 46°15'53", long 106°28'30" (NAD 27), in SW<sup>1</sup>/<sub>4</sub> NW<sup>1</sup>/<sub>4</sub> NE<sup>1</sup>/<sub>4</sub> 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 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1974 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 2,480 ft (NGVD 29).

REMARKS.--Water-discharge records fair except those for estimated daily discharges, which are poor. Diversions for irrigation of about 2,000 acres upstream from station. U.S. Geological Survey satellite telemeter at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.01	4.0	0.61	e0.05	0.50	0.22	0.15	0.69	12	24	0.51	0.00
2	0.03	1.8	0.69	e0.05	0.47	0.22	0.13	0.78	14	19	0.16	0.00
3	0.03	1.3	0.71	e0.01	0.46	0.21	0.12	0.77	16	15	0.31	0.00
4	0.05	1.1	0.67	0.00	0.44	0.21	0.16	0.64	22	14	0.45	0.00
5	0.07	0.72	0.72	0.00	0.43	0.22	0.25	0.57	17	13	0.44	0.00
6	0.03	0.48	0.67	0.00	0.35	0.22	0.13	0.56	15	6.4	0.46	0.00
7	0.08	0.39	0.66	e0.05	0.25	0.21	0.12	0.75	17	2.9	0.46	0.00
8	0.09	0.41	0.64	e0.05	0.20	0.24	0.13	41	50	1.9	0.54	0.00
9	0.07	0.40	0.64	e0.05	0.18	0.22	0.57	262	159	1.9	0.44	0.00
10	0.06	0.36	0.57	e0.01	0.26	0.20	19	200	150	2.4	0.08	e0.00
11	0.05	0.28	0.50	0.00	0.32	0.16	26	63	40	2.1	0.14	e0.00
12	0.12	0.28	0.47	0.00	0.34	0.17	8.6	83	42	0.70	0.33	e0.00
13	0.13	0.28	0.44	0.00	0.36	0.16	1.1	138	46	0.40	0.45	0.00
14	0.14	0.30	0.24	e0.01	0.36	0.17	1.1	286	41	e0.20	0.37	0.00
15	0.18	0.43	0.17	0.01	0.32	0.19	0.85	297	25	0.19	0.35	0.00
16	0.24	0.53	0.16	e0.05	0.25	0.19	0.78	89	19	0.81	0.32	0.00
17	0.27	0.75	0.16	e0.10	0.27	0.22	0.69	55	e10	0.35	0.29	0.00
18	0.27	0.70	0.17	e1.0	0.26	0.27	0.57	49	e8.0	0.04	0.31	0.00
19	0.32	0.73	0.19	e5.0	0.27	0.27	0.68	50	e7.0	0.11	0.36	0.00
20	0.23	0.72	e0.15	e10	0.24	0.27	0.84	58	e5.0	0.28	0.25	0.00
21	0.33	0.71	e0.10	e20	0.27	0.33	40	53	e4.0	0.72	0.21	0.00
22	0.22	0.84	e0.05	e10	0.26	0.32	62	80	e3.0	0.20	0.16	0.00
23	0.12	0.74	e0.01	16	0.25	0.35	28	50	8.7	0.34	0.16	0.00
24	0.17	0.79	e0.05	7.0	0.26	0.42	6.4	40	5.0	0.62	0.15	0.00
25	0.10	0.79	0.14	2.7	0.29	0.44	1.1	33	e3.0	0.27	0.09	0.00
26	0.10	0.90	0.12	1.4	0.29	0.28	0.50	28	16	0.51	0.12	0.00
27	0.14	0.89	e0.10	0.85	0.27	0.11	0.31	24	35	0.66	0.00	0.00
28	0.16	0.92	0.08	0.82	0.25	0.13	0.30	15	38	0.35	0.00	0.00
29	0.45	0.85	0.04	0.91	---	0.16	0.48	13	147	0.37	0.00	0.00
30	23	0.72	e0.15	0.76	---	0.13	0.63	11	69	0.50	0.00	0.00
31	12	---	e0.10	0.54	---	0.18	---	11	---	0.64	0.00	---
TOTAL	39.26	24.11	10.17	77.42	8.67	7.09	201.69	2,033.76	1,043.7	110.86	7.91	0.00
MEAN	1.27	0.80	0.33	2.50	0.31	0.23	6.72	65.6	34.8	3.58	0.26	0.00
MAX	23	4.0	0.72	20	0.50	0.44	62	297	159	24	0.54	0.00
MIN	0.01	0.28	0.01	0.00	0.18	0.11	0.12	0.56	3.0	0.04	0.00	0.00
AC-FT	78	48	20	154	17	14	400	4,030	2,070	220	16	0.00

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1975 - 2005, BY WATER YEAR (WY)

MEAN	7.65	8.55	9.19	17.5	36.0	68.3	39.9	57.7	38.7	16.5	7.43	7.72
MAX	45.7	47.6	47.8	159	187	428	180	478	286	133	47.8	77.3
(WY)	(1979)	(1979)	(1979)	(1999)	(1997)	(1994)	(1979)	(1978)	(1978)	(1993)	(1975)	(1978)
MIN	0.00	0.01	0.03	0.02	0.07	0.04	0.03	0.08	0.48	0.00	0.00	0.00
(WY)	(2002)	(2002)	(2002)	(2004)	(2002)	(2002)	(2004)	(2004)	(1988)	(2002)	(2003)	(1990)

## SUMMARY STATISTICS

## FOR 2004 CALENDAR YEAR

## FOR 2005 WATER YEAR

## WATER YEARS 1975 - 2005

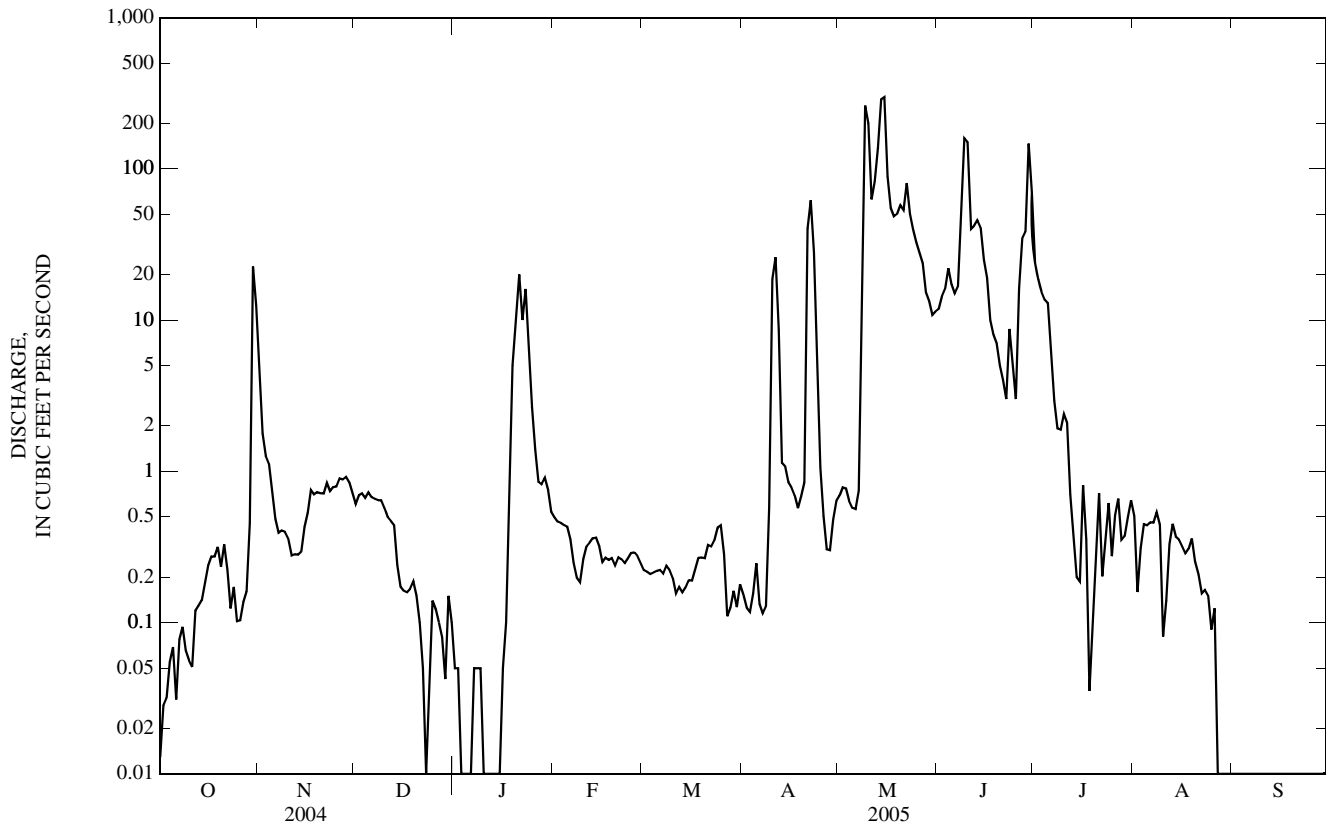
ANNUAL TOTAL	1,555.34	3,564.64	
ANNUAL MEAN	4.25	9.77	26.2*
HIGHEST ANNUAL MEAN			113
LOWEST ANNUAL MEAN			1.00
HIGHEST DAILY MEAN	250	Feb 22	297
LOWEST DAILY MEAN	0.00	Jan 6	0.00
ANNUAL SEVEN-DAY MINIMUM	0.00	Jan 15	0.00
MAXIMUM PEAK FLOW			468
MAXIMUM PEAK STAGE			3.96
ANNUAL RUNOFF (AC-FT)	3,090	7,070	19,000
10 PERCENT EXCEEDS	2.3	24	58
50 PERCENT EXCEEDS	0.09	0.34	6.6
90 PERCENT EXCEEDS	0.00	0.00	0.07

\*--Median of yearly mean discharge 14.8 ft<sup>3</sup>/s, 10,700 acre-ft/yr.

a--No flow many days in 1984, 1990-92, 2000-2005.

e--Estimated.

06296003 ROSEBUD CREEK AT MOUTH, NEAR ROSEBUD, MT—Continued



## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1975-86, 1988-93, May 1999 June 2003, May 2005 to August 2005.

REMARKS.--Unable to collect a sample in September due to no flow. Several unpublished observations of specific conductance and water temperature were made during the year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005

Date	Time	Instantaneous discharge, cfs (00061)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specific conductance, wat unfltrd uS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Hardness, water, mg/L as CaCO <sub>3</sub> (00900)	Calcium water, fltrd, mg/L (00915)	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	
MAY														
	10...	0830	226	694	9.5	99	8.3	427	10.0	13.0	35	8.77	3.18	4.24
	18...	1340	48	689	8.8	105	8.4	2,100	22.0	18.5	870	102	149	15.4
JUN														
	09...	1145	155	693	8.6	92	8.2	597	20.0	14.0	68	15.3	7.11	4.85
JUL														
	14...	1145	E.20	--	--	--	8.5	2,770	28.0	28.0	790	79.5	143	12.5
AUG														
	03...	1205	.30	701	7.6	95	8.5	3,500	20.0	21.5	940	73.8	183	14.4

E--Estimated.

## 06296003 ROSEBUD CREEK AT MOUTH, NEAR ROSEBUD, MT—Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005—CONTINUED

Date	Sodium adsorption ratio (00931)	Sodium, water, fltrd, mg/L (00930)	Sodium, percent (00932)	Alkalinity, wat flt fxd end lab, mg/L as CaCO3 (29801)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/ acre-ft (70303)	Residue water, fltrd, tons/d (70302)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)
MAY 10...	6	76.1	80	118	1.27	.4	8.51	70.9	244	.33	149	--	--
MAY 18...	3	203	33	407	12.6	.6	16.5	802	1,550	2.10	201	E.006	<.016
JUN 09...	5	97.7	74	135	2.03	.4	6.68	154	369	.50	154	--	--
JUL 14...	6	399	52	434	16.5	.7	4.47	1,120	2,040	2.77	E1.10	--	--
AUG 03...	8	565	56	450	23.5	.8	.86	1,520	2,650	3.60	2.14	--	--
Date	Nitrite water, fltrd, mg/L as N (00613)	Ortho-phosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, unfltrd mg/L (00665)	Total nitrogen, wat unfltrd by analysis, mg/L (62855)	Aluminum, water, fltrd, ug/L (01106)	Aluminum, water, unfltrd recover-able, ug/L (01105)	Arsenic water, fltrd, ug/L (01000)	Arsenic water unfltrd ug/L (01002)	Barium, water, fltrd, ug/L (01005)	Barium, water, unfltrd recover-able, ug/L (01007)	Beryllium, water, fltrd, ug/L (01010)	Beryllium, water, unfltrd recover-able, ug/L (01012)	Cadmium water, fltrd, ug/L (01025)
MAY 10...	--	--	--	--	49	57,400	.8	11	23	906	<.06	6.70	--
MAY 18...	<.002	<.006	.172	1.11	E2	2,620	1.4	E2	130	150	<.06	.22	<.04
JUN 09...	--	--	--	--	12	59,800	.8	10	37	1,440	<.06	11.4	--
JUL 14...	--	--	--	--	3	454	1.5	E1	147	145	<.12	<.12	--
AUG 03...	--	--	--	--	6	228	1.3	<1	101	115	<.12	<.12	<.08
Date	Cadmium water, unfltrd ug/L (01027)	Chromium, water, fltrd, ug/L (01030)	Chromium, water, unfltrd recover-able, ug/L (01034)	Copper, water, fltrd, ug/L (01040)	Copper, water, unfltrd recover-able, ug/L (01042)	Iron, water, fltrd, ug/L (01046)	Iron, water, unfltrd recover-able, ug/L (01045)	Lead, water, fltrd, ug/L (01049)	Lead, water, unfltrd recover-able, ug/L (01051)	Manganese, water, fltrd, ug/L (01056)	Manganese, water, unfltrd recover-able, ug/L (01055)	Nickel, water, fltrd, ug/L (01065)	Nickel, water, unfltrd recover-able, ug/L (01067)
MAY 10...	--	--	--	--	--	37	61,300	--	--	2.6	1,030	--	--
MAY 18...	.10	1.5	4.0	9.1	15.8	1,630	3,410	<.08	4.02	12.7	194	4.45	10.3
JUN 09...	--	--	--	--	--	10	70,100	--	--	.8	1,870	--	--
JUL 14...	--	--	--	--	--	<18	510	--	--	15.4	50	--	--
AUG 03...	<.08	<.8	E.5	4.4	4.7	<18	260	E.13	.38	.9	44	4.46	5.48

E--Estimated.

## YELLOWSTONE RIVER BASIN

06296003 ROSEBUD CREEK AT MOUTH, NEAR ROSEBUD, MT—Continued

## WATER-QUALITY DATA, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005—CONTINUED

Date	Selenium, water, fltrd, ug/L (01145)	Selenium, water, unfltrd ug/L (01147)	Zinc, water, fltrd, ug/L (01090)	Zinc, water, unfltrd recover -able, ug/L (01092)	Suspnd. sedi- ment, sieve diametr percent <.063mm (70331)	Sus- pended sedi- ment concen- tration mg/L (80154)	Sus- pended sedi- ment dis- charge, tons/d (80155)
MAY							
10...	1.1	2.0	--	--	99	6,620	4,040
18...	.7	1.4	3.5	18	99	253	33
JUN							
09...	1.8	2.7	--	--	99	11,900	4,970
JUL							
14...	.9	1.0	--	--	99	89	E.05
AUG							
03...	1.6	1.9	8.2	6	76	81	.07

E--Estimated.