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Water-Data Report 2007

06186500 YELLOWSTONE RIVER AT YELLOWSTONE LAKE OUTLET, YELLOWSTONE NATIONAL PARK

Upper Yellowstone Basin
Yellowstone Headwaters Subbasin

LOCATION.--Lat 44°34′03″, long 110°22′48″ referenced to North American Datum of 1927, Teton County, WY, Hydrologic Unit 10070001, Yellowstone National Park, on left bank 450 ft downstream from Fishing Bridge, 0.3 mi downstream from outlet of Yellowstone Lake, and at river mile 616.4.

DRAINAGE AREA.--991 mi^2.

SURFACE-WATER RECORDS

PERIOD OF RECORD.--December 1922 to September 1982, October 1983 to September 1986, October 1988 to current year. Prior to October 1926, gage heights only. Monthly discharge only for winter periods in water years 1927-30, 1932-33, 1935-38, 1940, 1942-46 published in WSP 1309; figures of daily discharge for these months published in Water Supply Paper (WSP) 646, 666, 686, 701, 731, 746, 786, 806, 826, 856, 896, 956, 976, 1006, 1036, and 1056, have been found to be unreliable and should not be used.

REVISED RECORDS.-- WSP 1309: See PERIOD OF RECORD. WSP 1729: Drainage area. Water Data Report MT-03-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 7,729.58 ft, referenced to the National Geodetic Vertical Datum of 1929. Prior to Oct. 2, 1928, nonrecording gage at site 450 ft upstream at elevation 1.07 ft higher.

REMARKS.--Records are good except those for estimated daily discharges, which are poor. No artificial regulation. U.S. Geological Survey satellite telemeter is located at the station. Several unpublished observations of water temperature and specific conductance were made during the year.

06186500 YELLOWSTONE RIVER AT YELLOWSTONE LAKE OUTLET, YELLOWSTONE NATIONAL PARK—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	624	491	e400	e330	e300	e420	469	724	2,410	2,360	1,310	768
2	616	484	e390	e350	e280	e430	480	798	2,410	2,330	1,290	758
3	631	483	e380	e370	e300	e440	487	877	2,430	2,290	1,260	749
4	623	481	e370	e350	e330	e450	484	938	2,450	2,260	1,230	735
5	622	480	e370	e340	e350	e450	484	970	2,500	2,230	1,200	740
6	620	476	e370	e300	e360	e460	481	1,000	2,570	2,200	1,190	748
7	631	479	e370	e320	e360	e460	481	1,020	2,610	2,140	1,160	741
8	629	495	e380	e370	e370	e460	483	1,050	2,630	2,100	1,130	714
9	623	503	e390	e270	e380	e460	486	1,100	2,630	2,060	1,100	692
10	624	503	e390	e260	e390	e460	490	1,160	2,640	2,010	1,090	684
11	620	503	e390	e250	e400	e460	489	1,190	2,640	1,980	1,050	682
12	611	498	e390	e250	e410	e460	486	1,310	2,660	1,940	1,020	671
13	606	504	e390	e270	e410	e460	484	1,460	2,650	1,940	1,000	648
14	600	488	e370	e270	e410	e460	484	1,570	2,660	1,900	983	642
15	594	489	e360	e270	e410	e460	482	1,670	2,670	1,870	964	639
16	600	488	e340	e270	e420	466	484	1,760	2,670	1,830	947	628
17	581	482	e330	e280	e420	462	486	1,860	2,690	1,810	952	614
18	582	479	e320	e290	e430	458	496	1,950	2,690	1,770	961	602
19	574	473	e300	e300	e430	457	514	2,030	2,670	1,730	957	594
20	562	471	e310	e310	e430	458	516	2,130	2,660	1,690	954	591
21	555	471	e320	e300	e430	455	523	2,240	2,650	1,650	932	574
22	551	466	e330	e290	e440	453	524	2,290	2,640	1,610	910	562
23	543	471	e340	e310	e440	451	539	2,330	2,630	1,560	884	578
24	543	474	e340	e300	e440	448	555	2,360	2,610	1,520	874	557
25	537	456	e340	e290	e440	448	559	2,380	2,590	1,510	866	550
26	536	454	e380	e280	e440	447	567	2,380	2,550	1,470	851	547
27	532	459	e380	e280	e440	451	578	2,380	2,520	1,470	833	536
28	525	438	e320	e280	e440	459	590	2,390	2,470	1,440	815	529
29	521	e420	e300	e280	---	461	618	2,390	2,430	1,400	798	521
30	500	e410	e310	e290	---	465	664	2,410	2,390	1,360	781	513
31	498	---	e320	e310	---	465	---	2,410	---	1,320	775	---
Total	18,014	14,269	10,990	9,230	11,100	14,094	15,463	52,527	77,420	56,750	31,067	19,107
Mean	581	476	355	298	396	455	515	1,694	2,581	1,831	1,002	637
Max	631	504	400	370	440	466	664	2,410	2,690	2,360	1,310	768
Min	498	410	300	250	280	420	469	724	2,390	1,320	775	513
Ac-ft	35,730	28,300	21,800	18,310	22,020	27,960	30,670	104,200	153,600	112,600	61,620	37,900
Cfsm	0.59	0.48	0.36	0.30	0.40	0.46	0.52	1.71	2.60	1.85	1.01	0.64
In.	0.68	0.54	0.41	0.35	0.42	0.53	0.58	1.97	2.91	2.13	1.17	0.72

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1927 - 2007, BY WATER YEAR (WY) *

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	793	602	472	397	388	445	541	1,182	3,676	3,956	2,163	1,189
Max	1,259	984	775	699	637	717	801	2,214	8,574	7,160	4,031	1,954
(WY)	(1973)	(1951)	(1951)	(1998)	(1998)	(1962)	(1952)	(1997)	(1997)	(1982)	(1982)	(1982)
Min	327	276	246	168	122	130	175	605	1,707	1,272	812	538
(WY)	(1989)	(1989)	(1932)	(1989)	(1989)	(1935)	(1937)	(1953)	(1934)	(1934)	(1934)	(1934)

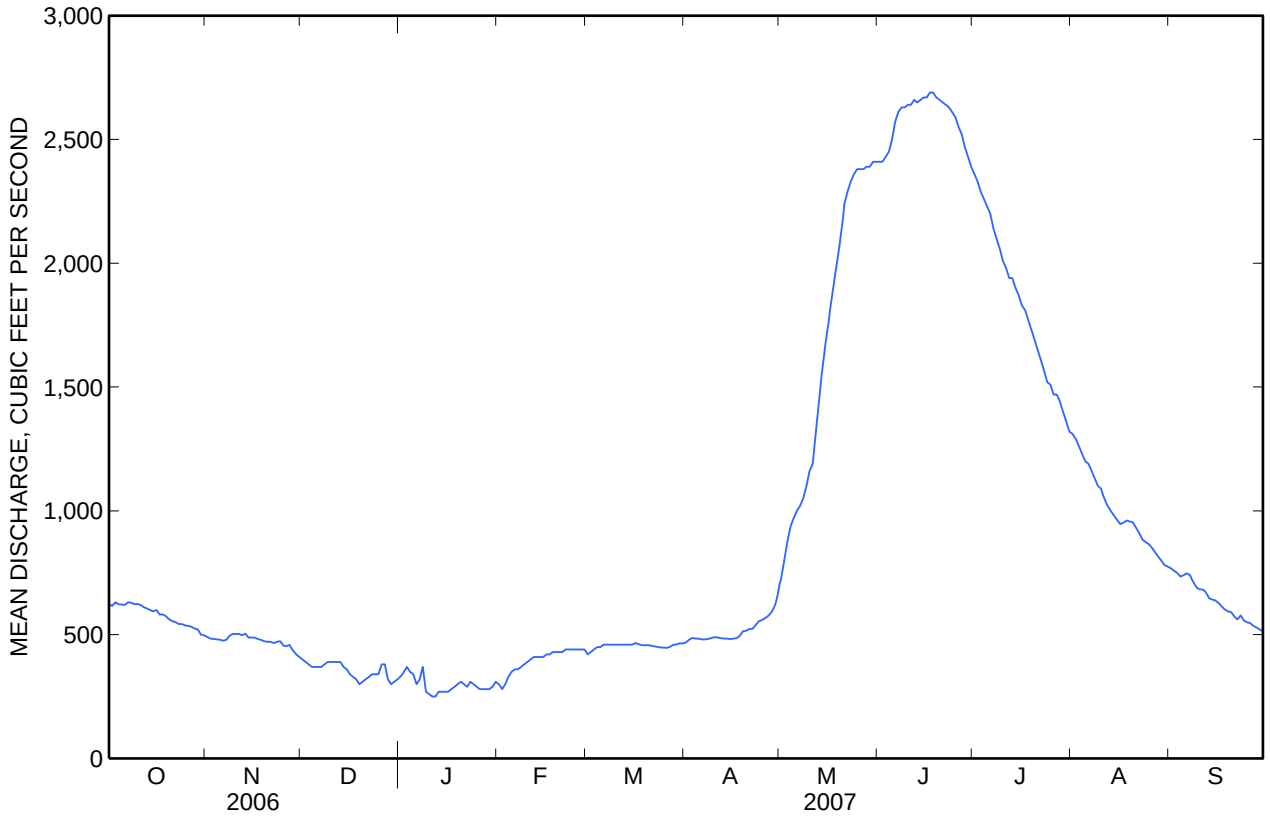
* During periods of operation (October 1926 to September 1982, October 1983 to September 1986, October 1988 to current year).

06186500 YELLOWSTONE RIVER AT YELLOWSTONE LAKE OUTLET, YELLOWSTONE NATIONAL PARK—Continued

SUMMARY STATISTICS

	Calendar Year 2006		Water Year 2007		Water Years 1927 - 2007*	
Annual total	472,203		330,031			
Annual mean	1,294		904		1,322	
Highest annual mean					2,253	1997
Lowest annual mean					682	1934
Highest daily mean	5,140	Jun 15	2,690	Jun 17	9,930	Jun 19, 1997
Lowest daily mean	300	Dec 19	250	Jan 11	100	Feb 18, 1993
Annual seven-day minimum	321	Dec 16	263	Jan 9	113	Feb 11, 1989
Maximum peak flow			2,750	Jun 16	9,950	Jun 18, 1997
Maximum peak stage			5.06	Jun 16	8.90	Jun 18, 1997
Instantaneous low flow			250	Jan 11		
Annual runoff (ac-ft)	936,600		654,600		957,700	
Annual runoff (cfsm)	1.31		0.912		1.33	
Annual runoff (inches)	17.73		12.39		18.12	
10 percent exceeds	3,930		2,380		3,440	
50 percent exceeds	582		536		673	
90 percent exceeds	458		326		340	

* During periods of operation (October 1926 to September 1982, October 1983 to September 1986, October 1988 to current year).



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Water-Data Report 2007

06187915 SODA BUTTE CREEK AT PARK BOUNDARY, AT SILVER GATE, MT

Upper Yellowstone Basin
Yellowstone Headwaters Subbasin

LOCATION.--Lat 45°00′11″, long 110°00′04″ referenced to North American Datum of 1927, in SW ¼ NW ¼ SW ¼ sec.33, T.9 S., R.14 E., Park County, MT, Hydrologic Unit 10070001, at Yellowstone National Park boundary, 0.25 mi downstream from Silver Creek, 0.75 mi southwest of Silver Gate, and at river mile 17.8.

DRAINAGE AREA.--31.2 mi^2.

SURFACE-WATER RECORDS

PERIOD OF RECORD.--October 1998 to current year. October 1998 to September 2002 records collected by the National Park Service and U.S. Department of Agriculture, Forest Service, under the general supervision of the U.S. Geological Survey.

GAGE.--Water-stage recorder. Elevation of gage is 7,340 ft, referenced to the National Geodetic Vertical Datum of 1929.

REMARKS.--Records are good except those for estimated daily discharges, which are poor. No known regulation or diversion upstream from station. U.S. Geological Survey satellite telemeter is located at the station.

06187915 SODA BUTTE CREEK AT PARK BOUNDARY, AT SILVER GATE, MT—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	8.7	e7.0	e7.0	e6.2	e2.5	e2.2	5.7	162	183	137	31	13
2	9.6	e8.0	e6.0	e6.8	e2.5	e2.2	e5.4	178	229	129	32	11
3	22	e8.0	e6.5	e7.4	e3.0	e2.4	e5.5	171	281	122	29	9.9
4	14	e8.0	e8.0	e6.0	e4.0	e3.0	e5.0	132	303	117	27	9.5
5	14	8.4	e9.0	e6.0	e3.5	e3.9	5.3	112	329	115	28	31
6	16	9.6	e9.5	e6.4	e3.0	3.2	5.5	101	347	110	26	16
7	58	29	e9.8	e6.8	e2.8	2.9	6.1	117	293	98	24	13
8	27	59	e9.8	e7.0	e2.7	2.6	7.8	151	240	92	22	11
9	21	30	e9.8	e6.4	e2.6	2.3	10	181	218	87	22	11
10	19	21	10	e6.0	e2.5	2.2	8.3	208	222	79	21	10
11	19	20	9.1	e4.0	e2.5	2.2	7.5	240	250	72	20	9.9
12	17	e18	8.4	e2.9	e2.5	2.4	7.5	280	259	66	19	9.5
13	17	e20	7.9	e2.0	e2.5	3.6	7.4	316	268	62	19	9.2
14	16	e20	e7.4	e2.5	e2.5	3.6	8.8	304	266	58	18	9.2
15	16	e15	e5.8	e3.0	e2.5	e3.0	11	275	280	55	17	9.0
16	18	e20	e5.0	e4.0	e2.5	2.8	13	270	279	52	17	8.7
17	16	e17	e3.0	e5.0	e2.7	3.2	17	274	268	49	20	8.7
18	13	16	e3.0	e5.4	e2.7	e4.3	18	275	220	47	20	9.0
19	15	e16	e5.6	e6.0	e2.7	4.7	16	290	207	44	19	8.7
20	15	e14	e5.6	e6.5	e2.7	5.8	e13	301	215	41	18	8.4
21	14	e13	e4.0	e5.0	e2.6	4.9	14	306	227	38	25	8.0
22	e14	e13	e3.8	e5.0	e2.5	4.6	14	250	228	35	15	10
23	14	e12	e4.2	e6.5	e2.4	4.3	16	209	216	34	18	37
24	15	e11	e5.5	e5.8	e2.3	4.7	19	179	204	48	15	18
25	15	e12	e6.8	e5.2	e2.3	6.1	24	163	187	50	13	12
26	13	e11	e9.0	e5.0	e2.3	7.1	27	156	170	58	12	11
27	14	e9.0	e7.0	e4.0	e2.3	8.2	31	175	161	55	12	10
28	e13	e5.0	e6.0	e3.5	e2.3	7.7	57	222	159	40	11	9.7
29	e11	e5.0	e5.0	e3.0	---	7.1	98	205	153	36	11	9.9
30	e9.0	e6.5	e4.0	e3.5	---	6.3	143	181	145	33	11	9.5
31	e7.0	---	e5.0	e4.0	---	5.9	---	177	---	31	11	---
Total	510.3	461.5	206.5	156.8	73.9	129.4	626.8	6,561	7,007	2,090	603	360.8
Mean	16.5	15.4	6.66	5.06	2.64	4.17	20.9	212	234	67.4	19.5	12.0
Max	58	59	10	7.4	4.0	8.2	143	316	347	137	32	37
Min	7.0	5.0	3.0	2.0	2.3	2.2	5.0	101	145	31	11	8.0
Ac-ft	1,010	915	410	311	147	257	1,240	13,010	13,900	4,150	1,200	716
Cfsm	0.53	0.49	0.21	0.16	0.08	0.13	0.67	6.78	7.49	2.16	0.62	0.39
In.	0.61	0.55	0.25	0.19	0.09	0.15	0.75	7.82	8.35	2.49	0.72	0.43

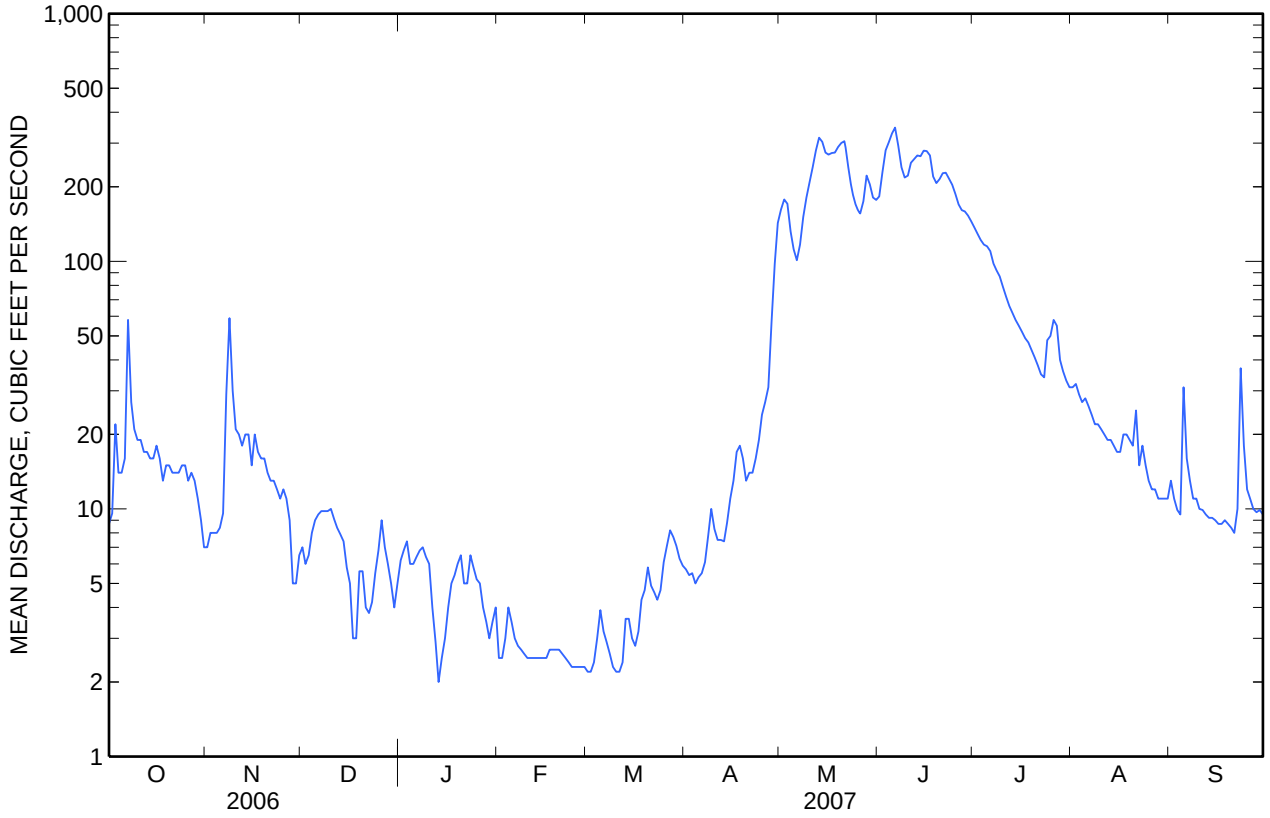
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1999 - 2007, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	11.1	7.60	4.46	3.23	2.25	2.13	11.1	152	302	120	25.6	14.3
Max	20.4	15.4	7.71	5.66	3.22	4.17	20.9	212	408	212	45.0	27.9
(WY)	(2005)	(2007)	(2005)	(2005)	(2005)	(2007)	(2007)	(2007)	(2003)	(1999)	(1999)	(2004)
Min	5.14	4.30	2.85	2.01	1.57	1.13	4.23	95.9	176	61.6	15.5	8.27
(WY)	(2002)	(2003)	(2001)	(2000)	(2004)	(2003)	(1999)	(1999)	(2001)	(2001)	(2001)	(2001)

06187915 SODA BUTTE CREEK AT PARK BOUNDARY, AT SILVER GATE, MT—Continued

SUMMARY STATISTICS

	Calendar Year 2006		Water Year 2007		Water Years 1999 - 2007	
Annual total	21,115.6		18,787.0			
Annual mean	57.9		51.5		54.7	
Highest annual mean					65.4	2003
Lowest annual mean					38.5	2001
Highest daily mean	439	Jun 8	347	Jun 6	735	Jun 1, 2002
Lowest daily mean	1.4	Mar 22	2.0	Jan 13	0.80	Feb 23, 2003
Annual seven-day minimum	1.4	Mar 22	2.3	Feb 24	0.99	Mar 23, 2003
Maximum peak flow			402	May 13	912	Jun 1, 2002
Maximum peak stage			2.77	May 13	3.49	Jun 1, 2002
Annual runoff (ac-ft)	41,880		37,260		39,660	
Annual runoff (cfsm)	1.85		1.65		1.75	
Annual runoff (inches)	25.18		22.40		23.84	
10 percent exceeds	236		207		204	
50 percent exceeds	11		12		9.0	
90 percent exceeds	2.2		2.9		2.0	



06187915 SODA BUTTE CREEK AT PARK BOUNDARY, AT SILVER GATE, MT—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--January 1999 to 2001, April 2003 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: April 2003 to current year.

INSTRUMENTATION.--Temperature recorder installed April 23, 2003.

REMARKS.--Daily water temperature record is rated excellent except for periods of missing or erroneous record due to temperature probe/DCP problems (Dec. 22 to Jan.03; May 23, 31; June 2-4, 14, 18, 27). Several unpublished observations of specific conductance and water temperature were made during the year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: Maximum, 18.0°C, July 22 and 30, 2007; minimum, 0.0°C, many days October through May.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURE: Maximum, 18.0°C, July 22 amd 30; minimum, 0.0°C, many days October through May.

06187915 SODA BUTTE CREEK AT PARK BOUNDARY, AT SILVER GATE, MT—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		October			November			December			January	
1	8.0	2.5	5.5	0.0	0.0	0.0	0.0	0.0	0.0	---	---	---
2	6.0	2.5	5.0	0.0	0.0	0.0	0.0	0.0	0.0	---	---	---
3	7.0	4.0	5.5	0.0	0.0	0.0	0.0	0.0	0.0	---	---	---
4	7.0	3.5	5.0	0.5	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0
5	7.0	3.5	5.5	1.5	0.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0
6	7.5	5.5	6.5	2.0	1.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0
7	6.5	4.0	5.5	2.0	1.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0
8	5.5	2.5	4.0	2.0	0.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0
9	4.0	1.0	2.0	2.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
10	4.0	0.0	2.0	0.5	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0
11	5.0	2.0	3.0	0.5	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0
12	5.5	1.0	3.5	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0
13	5.5	0.5	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	6.0	1.0	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	5.0	1.0	3.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0
16	4.0	1.5	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	4.0	0.0	1.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	2.5	0.0	1.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	2.5	0.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	2.5	0.0	1.5	0.5	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0
21	2.0	0.0	1.0	1.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
22	2.0	0.0	0.5	1.0	0.5	1.0	---	---	---	0.0	0.0	0.0
23	1.5	0.0	0.5	0.5	0.0	0.0	---	---	---	0.0	0.0	0.0
24	2.0	0.0	0.5	0.0	0.0	0.0	---	---	---	0.0	0.0	0.0
25	2.0	0.0	1.0	0.0	0.0	0.0	---	---	---	0.0	0.0	0.0
26	0.5	0.0	0.0	0.5	0.0	0.0	---	---	---	0.0	0.0	0.0
27	1.5	0.0	0.5	0.0	0.0	0.0	---	---	---	0.0	0.0	0.0
28	2.0	0.0	0.5	0.0	0.0	0.0	---	---	---	0.0	0.0	0.0
29	1.5	0.0	0.5	0.0	0.0	0.0	---	---	---	0.0	0.0	0.0
30	0.5	0.0	0.0	0.0	0.0	0.0	---	---	---	0.0	0.0	0.0
31	0.0	0.0	0.0	---	---	---	---	---	---	0.0	0.0	0.0
Month	8.0	0.0	2.5	2.0	0.0	0.5	---	---	---	---	---	---

06187915 SODA BUTTE CREEK AT PARK BOUNDARY, AT SILVER GATE, MT—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		February			March			April			May	
1	0.0	0.0	0.0	0.0	0.0	0.0	3.5	1.5	2.5	7.0	0.5	2.5
2	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.5	6.0	1.0	3.0
3	0.0	0.0	0.0	0.0	0.0	0.0	4.0	0.0	1.5	4.0	1.0	2.5
4	0.0	0.0	0.0	0.0	0.0	0.0	4.5	0.0	2.0	5.5	0.0	2.0
5	0.0	0.0	0.0	0.0	0.0	0.0	5.5	1.5	3.0	4.0	1.0	2.0
6	0.5	0.0	0.0	0.5	0.0	0.0	7.0	1.0	3.5	8.0	1.0	3.5
7	0.5	0.0	0.0	0.5	0.0	0.0	7.5	0.5	3.0	8.5	0.5	3.5
8	0.5	0.0	0.0	0.5	0.0	0.0	7.5	0.0	3.0	8.5	1.0	4.0
9	0.5	0.0	0.0	0.5	0.0	0.5	3.0	0.5	2.0	8.0	1.0	3.5
10	0.5	0.0	0.5	1.5	0.0	0.5	3.0	0.0	1.0	6.5	1.5	3.5
11	0.5	0.0	0.5	1.5	0.5	0.5	3.5	0.0	1.5	---	---	---
12	0.5	0.0	0.0	2.0	0.5	1.0	5.5	0.0	2.0	8.0	1.5	3.5
13	0.5	0.0	0.0	1.5	0.5	0.5	6.5	0.0	2.5	7.5	1.5	4.0
14	0.0	0.0	0.0	1.5	0.0	0.5	7.5	0.0	3.0	7.0	2.0	3.5
15	0.5	0.0	0.0	2.0	0.0	0.5	5.5	0.5	3.0	7.0	1.5	3.5
16	0.5	0.0	0.0	2.5	0.5	1.0	7.5	1.5	3.5	7.5	1.5	4.0
17	0.0	0.0	0.0	4.0	0.5	1.5	6.0	0.5	3.0	6.5	2.0	4.0
18	0.0	0.0	0.0	3.5	0.0	1.0	4.0	1.0	2.0	6.0	2.0	3.5
19	0.5	0.0	0.0	4.0	0.5	1.5	1.5	0.0	1.0	7.0	2.0	4.0
20	0.0	0.0	0.0	2.5	0.5	1.5	5.5	0.0	2.0	6.0	2.0	3.5
21	0.0	0.0	0.0	4.0	1.0	2.0	4.5	1.0	2.5	5.5	2.0	3.5
22	0.5	0.0	0.0	3.5	0.5	2.0	7.0	1.0	4.0	7.5	1.5	5.5
23	0.5	0.0	0.5	4.0	1.5	2.5	6.5	1.0	3.5	---	---	---
24	0.0	0.0	0.0	5.5	0.0	2.0	9.5	1.5	4.5	4.0	0.5	2.5
25	0.5	0.0	0.0	4.0	0.5	2.0	7.0	1.0	3.5	6.0	1.5	3.5
26	0.0	0.0	0.0	5.5	1.5	2.5	7.0	1.5	3.5	9.5	1.0	4.5
27	0.0	0.0	0.0	4.0	1.0	2.0	9.0	1.5	4.0	8.5	3.0	5.0
28	0.5	0.0	0.0	2.0	0.5	1.5	8.0	0.5	3.5	9.0	2.5	5.0
29	---	---	---	4.0	0.0	1.5	6.5	1.0	3.0	5.5	1.5	3.0
30	---	---	---	3.5	0.0	1.5	6.0	1.0	2.5	7.5	2.0	4.0
31	---	---	---	5.0	0.5	2.5	---	---	---	---	---	---
Month	0.5	0.0	0.0	5.5	0.0	1.0	9.5	0.0	2.5	---	---	---

06187915 SODA BUTTE CREEK AT PARK BOUNDARY, AT SILVER GATE, MT—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		June			July			August			September	
1	8.0	2.5	4.5	13.5	4.5	8.5	15.5	8.5	12.0	14.0	7.5	11.0
2	---	---	---	13.0	4.5	8.5	16.5	8.0	12.0	15.5	6.5	11.0
3	---	---	---	13.5	4.5	8.5	17.5	10.0	12.5	16.5	7.5	12.0
4	---	---	---	14.0	5.5	9.5	16.5	8.0	12.0	14.5	7.0	11.0
5	7.5	3.0	5.0	15.0	6.0	10.0	13.5	7.0	10.5	14.0	9.5	11.0
6	4.5	3.0	3.5	14.5	6.5	10.0	17.0	7.5	11.5	10.5	8.0	9.0
7	7.0	1.0	3.5	12.0	6.5	9.0	16.5	7.0	11.5	13.0	6.5	9.5
8	6.0	1.5	3.5	13.5	5.5	9.0	17.0	7.0	11.5	10.0	6.5	8.5
9	7.5	3.0	5.0	15.0	6.0	10.0	15.5	6.0	10.5	8.0	5.0	6.0
10	7.5	3.0	5.0	15.0	7.0	10.5	16.5	6.5	11.0	11.5	1.5	6.5
11	8.0	3.5	5.0	15.5	5.5	10.0	17.0	6.0	11.5	12.5	3.0	7.5
12	10.0	3.0	5.5	14.5	6.0	10.0	17.5	7.0	12.0	12.5	3.5	8.0
13	10.0	2.5	5.5	13.5	6.5	10.0	16.0	7.5	11.5	13.0	5.5	9.0
14	---	---	---	15.0	7.5	10.5	16.5	7.5	11.5	11.5	3.5	7.5
15	9.0	3.0	5.5	16.0	7.0	11.0	17.0	7.5	12.0	12.0	4.5	8.5
16	8.0	3.0	5.5	15.5	7.5	11.5	13.5	7.0	10.5	11.0	3.5	7.5
17	6.5	3.5	4.5	14.5	8.5	11.5	14.0	9.0	11.5	9.5	3.5	7.0
18	---	---	---	17.0	7.5	12.0	13.0	8.0	10.5	8.5	5.5	7.0
19	11.0	2.5	6.0	16.5	9.0	12.5	13.5	6.5	10.0	9.0	3.5	6.5
20	10.0	3.5	6.5	17.5	8.5	12.5	13.5	6.0	9.5	10.5	3.5	7.0
21	12.0	4.0	7.0	17.5	7.5	12.0	14.5	8.0	10.5	11.0	4.0	7.5
22	12.0	3.5	7.0	18.0	7.0	12.0	13.5	8.0	10.5	10.0	5.0	8.0
23	11.0	3.5	6.5	14.0	9.0	11.5	14.5	5.5	9.5	8.0	5.5	6.5
24	12.0	3.5	7.0	16.5	8.5	12.0	15.5	7.0	10.5	6.0	4.0	5.0
25	11.5	3.5	6.5	14.5	9.5	11.5	16.0	5.0	10.0	7.5	2.5	4.5
26	12.0	2.5	6.5	16.5	9.0	12.0	15.5	6.0	10.5	10.0	3.0	6.0
27	---	---	---	17.5	9.5	12.5	14.0	6.5	10.0	9.0	1.5	5.5
28	13.5	4.5	8.0	16.5	8.0	12.0	16.0	6.5	11.0	7.5	1.5	5.0
29	13.0	4.5	8.0	16.0	7.5	11.5	16.0	6.0	11.0	6.5	3.0	5.0
30	12.5	5.0	8.0	18.0	7.5	12.5	15.0	6.0	10.5	8.0	3.0	5.0
31	---	---	---	16.5	9.5	12.5	13.0	8.0	10.5	---	---	---
Month	---	---	---	18.0	4.5	11.0	17.5	5.0	11.0	16.5	1.5	7.5

USGS
science for a changing world

Water-Data Report 2007

06187950 SODA BUTTE CREEK NEAR LAMAR RANGER STATION, YELLOWSTONE NATIONAL PARK

Upper Yellowstone Basin
Yellowstone Headwaters Subbasin

LOCATION.--Lat 44°52′06″, long 110°09′53″ referenced to North American Datum of 1927, Park County, WY, Hydrologic Unit 10070001, Yellowstone National Park, on left bank, 4 mi southeast of Lamar Ranger Station, and at river mile 1.5.

DRAINAGE AREA.--99 mi².

SURFACE-WATER RECORDS

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

GAGE.--Water-stage recorder. Elevation of gage is 6,630 ft, referenced to the National Geodetic Vertical Datum of 1929.

REMARKS.--Records are good except those for estimated daily discharges, which are poor. No regulation or diversion occurs upstream from station. U.S. Geological Survey satellite telemeter is located at the station.

06187950 SODA BUTTE CREEK NEAR LAMAR RANGER STATION, YELLOWSTONE NATIONAL PARK—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	42	32	43	e35	e25	e25	41	453	345	211	85	48
2	43	36	38	36	e23	e20	41	516	396	201	90	46
3	66	46	40	36	e24	e24	38	505	478	190	83	43
4	57	46	40	e35	e25	27	39	389	517	182	78	42
5	53	43	41	e36	26	e25	41	332	561	177	76	62
6	54	44	47	e37	26	28	41	294	644	171	79	69
7	113	60	41	e37	27	26	42	309	574	165	70	55
8	91	122	39	e34	27	27	44	379	455	152	67	49
9	76	101	39	35	28	25	52	460	402	144	65	48
10	68	74	41	e34	28	24	48	520	395	136	62	47
11	67	68	42	e22	28	22	45	600	422	127	60	44
12	63	64	43	e19	28	23	44	700	440	120	57	43
13	61	59	43	e20	28	29	44	737	450	114	56	42
14	59	63	42	e20	28	31	47	728	453	111	56	42
15	58	58	44	e20	28	25	53	621	464	106	54	42
16	66	55	e38	e21	e26	26	55	593	463	102	54	41
17	62	58	e36	e23	e28	27	70	591	457	99	60	41
18	54	55	e34	e26	30	31	75	581	383	96	63	42
19	56	49	e34	e27	28	34	72	592	338	90	61	41
20	59	55	e36	e31	29	39	67	631	350	86	58	40
21	55	55	e40	e29	e29	38	67	652	352	82	68	39
22	51	54	e40	e27	29	36	65	536	354	78	59	39
23	48	57	e40	31	29	34	70	449	343	76	63	61
24	51	44	e37	31	e27	34	72	393	322	83	59	65
25	54	48	e37	e29	27	39	86	363	299	122	53	50
26	47	48	37	e28	27	44	99	335	269	129	50	44
27	50	44	37	e27	e27	48	105	350	253	175	48	42
28	48	e40	38	e27	e25	47	167	419	243	118	47	41
29	48	e36	e38	e26	---	40	288	413	236	102	45	41
30	e45	e38	e38	e25	---	41	398	359	223	93	44	40
31	e35	---	e35	e30	---	41	---	350	---	88	45	---
Total	1,800	1,652	1,218	894	760	980	2,416	15,150	11,881	3,926	1,915	1,389
Mean	58.1	55.1	39.3	28.8	27.1	31.6	80.5	489	396	127	61.8	46.3
Max	113	122	47	37	30	48	398	737	644	211	90	69
Min	35	32	34	19	23	20	38	294	223	76	44	39
Ac-ft	3,570	3,280	2,420	1,770	1,510	1,940	4,790	30,050	23,570	7,790	3,800	2,760

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 2007, BY WATER YEAR (WY)

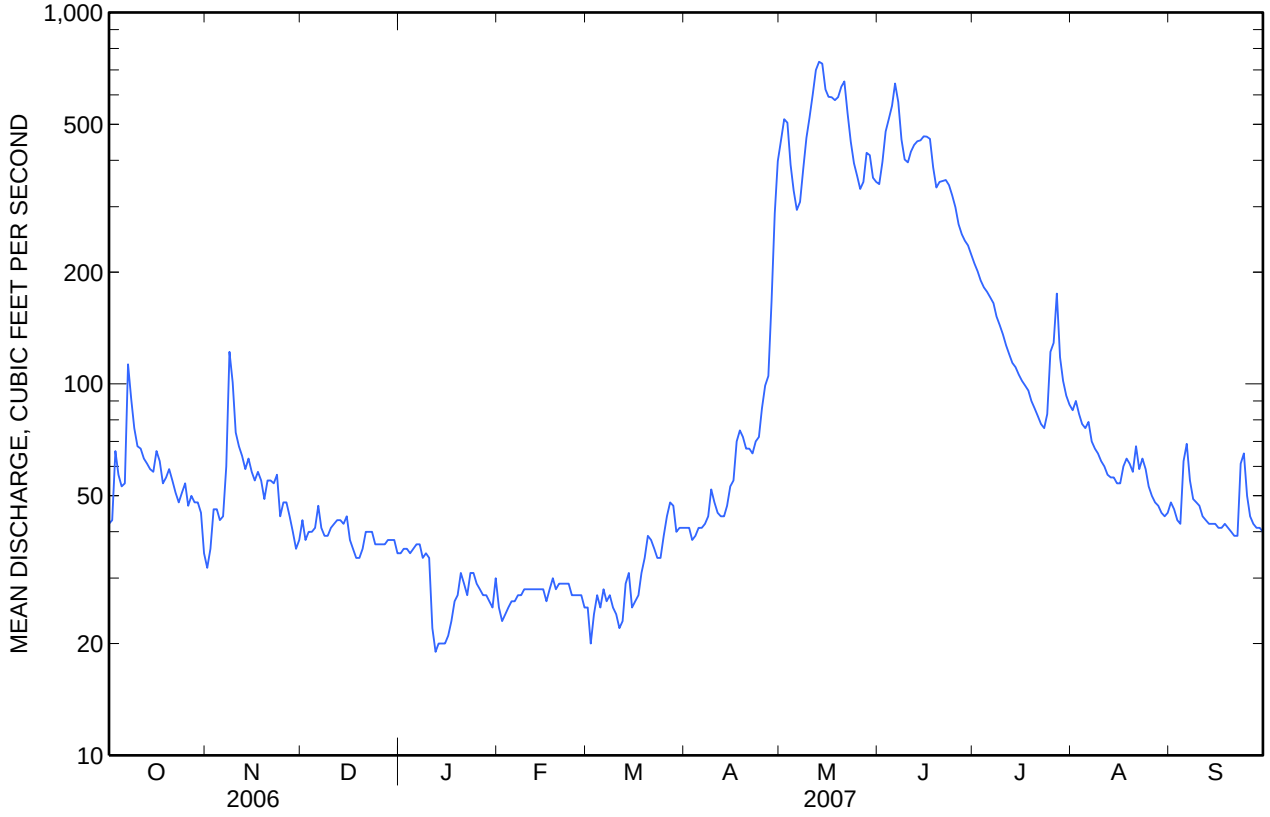
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	45.0	33.0	26.2	25.3	23.3	23.8	62.6	409	657	268	88.9	56.2
Max	68.8	55.1	39.3	33.3	32.0	32.0	127	580	1,251	447	162	92.0
(WY)	(1998)	(2007)	(2007)	(1997)	(2000)	(1997)	(1990)	(1993)	(1996)	(1998)	(1997)	(1997)
Min	27.8	21.4	16.0	16.7	16.2	17.2	32.3	217	338	106	51.0	36.1
(WY)	(1989)	(1995)	(1989)	(1989)	(2002)	(2002)	(1993)	(1995)	(2001)	(1994)	(2001)	(2001)

06187950 SODA BUTTE CREEK NEAR LAMAR RANGER STATION, YELLOWSTONE NATIONAL PARK—Continued

SUMMARY STATISTICS

	Calendar Year 2006		Water Year 2007		Water Years 1989 - 2007	
Annual total	54,545		43,981			
Annual mean	149		120		143	
Highest annual mean					204	1996
Lowest annual mean					96.5	2001
Highest daily mean	1,260	Jun 8	737	May 13	2,070	Jun 9, 1996
Lowest daily mean	12	Feb 18	19	Jan 12	12	Feb 4, 1989
Annual seven-day minimum	17	Feb 15	21	Jan 11	13	Feb 2, 1989
Maximum peak flow			911	May 13	[b]2,450	Jun 8, 1996
Maximum peak stage			6.22	May 13	7.20	May 28, 2003
Instantaneous low flow			[a]18	Mar 15	11	Jan 31, 1989
Annual runoff (ac-ft)	108,200		87,240		103,900	
10 percent exceeds	440		395		457	
50 percent exceeds	46		48		43	
90 percent exceeds	22		27		21	

[a] Gage height, 3.96 ft.
[b] Gage height, 5.61 ft.



06187950 SODA BUTTE CREEK NEAR LAMAR RANGER STATION, YELLOWSTONE NATIONAL PARK—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--November 1988, April 2005 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: April 2005 to current year.

INSTRUMENTATION.--Temperature recorder installed April 20, 2005.

REMARKS.--Daily water temperature record is rated good. Missing water temperature data for Jan. 15-20 due to ice. Missing data for June 22-28; July 2-5, 10, 13, 15; Aug. 16, 26, 30; and Sept. 4, 10-12, 14-17 due to equipment malfunction. Several unpublished observations of specific conductance and water temperature were made during the year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: Maximum, 21.0°C, Aug. 3, 2007; minimum, 0.0°C, many days from November though April most years.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURE: Maximum, 21.0°C, Aug. 3; minimum, 0.0°C, many days from November through April.

06187950 SODA BUTTE CREEK NEAR LAMAR RANGER STATION, YELLOWSTONE NATIONAL PARK—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		October			November			December			January	
1	11.5	4.0	7.0	4.0	0.0	1.0	1.0	0.0	0.5	1.5	0.0	0.5
2	8.0	4.0	6.0	3.5	0.0	1.0	1.5	0.0	0.5	2.0	0.0	1.0
3	10.0	6.0	7.5	2.0	1.0	1.5	1.0	0.0	0.5	1.5	0.5	1.0
4	9.0	4.0	6.0	2.5	1.0	2.0	1.5	0.0	0.5	1.5	0.0	0.5
5	10.0	5.0	7.5	6.0	2.0	3.0	2.0	0.5	0.5	1.0	0.0	0.5
6	9.5	6.5	8.0	5.0	2.5	3.5	1.0	0.0	0.5	0.5	0.0	0.0
7	7.5	5.0	7.0	5.0	4.0	4.5	2.0	0.0	1.0	0.5	0.0	0.0
8	8.5	4.5	6.0	4.5	2.0	3.5	2.0	0.0	0.5	1.0	0.0	0.5
9	6.0	2.5	4.5	3.5	1.0	2.0	1.5	0.0	0.5	1.5	0.5	1.0
10	7.5	2.5	4.5	2.5	0.5	1.0	2.0	0.5	1.0	1.5	0.0	0.5
11	9.0	4.0	5.5	2.0	0.5	1.0	1.5	0.5	1.0	0.0	0.0	0.0
12	9.0	2.5	5.5	1.5	0.0	0.5	2.0	0.5	1.0	0.0	0.0	0.0
13	9.5	2.0	5.5	2.0	0.5	1.0	1.0	0.5	1.0	0.0	0.0	0.0
14	10.0	3.0	5.5	2.0	0.0	0.5	1.0	0.5	1.0	0.0	0.0	0.0
15	6.0	2.5	4.5	2.0	0.0	0.5	1.0	0.0	0.5	---	---	---
16	6.0	3.0	5.0	2.5	0.5	1.0	0.5	0.0	0.0	---	---	---
17	5.5	2.0	3.0	2.5	0.5	1.0	0.0	0.0	0.0	---	---	---
18	6.0	0.5	3.0	3.5	0.0	1.0	0.0	0.0	0.0	---	---	---
19	4.5	2.5	3.5	2.0	0.0	0.5	0.5	0.0	0.0	---	---	---
20	5.5	2.0	3.5	2.5	0.5	1.5	1.0	0.0	0.5	---	---	---
21	4.0	1.0	2.5	3.5	1.5	2.0	1.0	0.0	0.5	1.5	0.0	0.0
22	6.0	0.5	2.5	4.5	1.0	2.0	1.0	0.0	0.5	1.5	0.0	0.5
23	6.5	0.5	2.5	1.5	0.0	0.5	1.0	0.0	0.5	2.0	0.5	1.0
24	7.0	0.5	3.0	2.0	0.0	0.5	1.5	0.0	0.5	2.0	0.0	1.0
25	3.0	1.0	2.5	2.0	0.5	1.0	1.5	0.0	0.5	2.0	0.0	0.5
26	3.5	0.0	1.5	1.5	0.0	1.0	1.0	0.5	1.0	2.0	0.0	0.5
27	5.5	1.0	2.0	2.0	0.0	1.0	1.5	0.5	1.0	1.5	0.0	0.5
28	6.0	0.5	2.5	0.5	0.0	0.0	1.5	0.5	1.0	1.0	0.0	0.0
29	5.5	0.5	2.5	0.5	0.0	0.0	1.5	0.0	0.5	0.5	0.0	0.0
30	2.0	0.0	1.0	0.5	0.0	0.0	0.5	0.0	0.0	1.0	0.0	0.0
31	3.0	0.0	0.5	---	---	---	0.5	0.0	0.5	1.5	0.0	0.5
Month	11.5	0.0	4.0	6.0	0.0	1.5	2.0	0.0	0.5	---	---	---

06187950 SODA BUTTE CREEK NEAR LAMAR RANGER STATION, YELLOWSTONE NATIONAL PARK—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		February			March			April			May	
1	0.5	0.0	0.0	1.5	0.0	0.5	6.0	2.0	3.0	10.5	1.5	5.0
2	0.0	0.0	0.0	2.0	0.0	0.5	3.5	0.0	1.5	8.5	2.0	5.0
3	1.0	0.0	0.5	1.0	0.0	0.5	6.5	0.0	2.5	5.0	2.5	3.5
4	2.5	0.0	1.0	3.0	0.0	1.0	6.5	0.5	3.0	7.5	1.0	3.5
5	3.0	1.0	1.5	3.5	0.0	1.0	9.0	2.0	4.5	5.5	2.0	3.5
6	3.0	0.5	1.5	4.0	0.5	1.5	9.0	1.5	4.5	10.5	2.0	5.5
7	3.0	1.0	1.5	4.0	0.0	1.5	9.5	1.5	4.5	11.5	1.5	6.0
8	2.0	1.0	1.5	4.0	0.5	1.5	10.5	0.5	5.0	11.5	2.0	6.5
9	2.0	0.5	1.5	4.0	0.5	2.0	5.0	1.5	3.5	10.0	2.0	5.5
10	2.5	0.5	1.5	6.0	1.0	2.5	6.0	0.5	2.5	10.0	2.5	5.5
11	2.5	0.5	1.5	4.0	1.0	2.0	5.5	0.5	2.5	11.0	2.0	6.0
12	2.0	0.0	1.0	6.5	1.0	3.0	10.0	0.0	3.5	9.5	2.5	5.5
13	2.0	0.5	1.0	5.0	1.5	2.5	10.0	0.0	4.0	11.0	2.5	6.0
14	2.5	0.0	1.0	5.0	1.0	2.5	10.5	0.5	5.0	10.5	3.0	6.0
15	2.0	0.5	1.0	5.5	0.0	2.0	7.5	1.5	4.0	11.0	2.0	5.5
16	1.5	0.0	0.5	4.5	1.5	2.5	11.5	3.0	6.0	11.0	2.5	6.0
17	2.5	0.0	1.0	8.0	1.0	3.5	8.5	2.0	5.0	9.0	2.5	5.5
18	3.5	0.0	1.0	6.0	0.5	3.0	7.0	2.5	4.0	9.5	3.0	6.0
19	2.5	0.0	1.0	7.0	1.0	3.0	3.5	0.5	2.0	9.5	3.5	6.5
20	2.0	0.0	0.5	6.0	1.0	3.0	6.5	0.0	3.0	9.5	3.0	6.0
21	1.5	0.0	1.0	7.0	1.5	3.5	8.5	2.0	4.5	8.0	3.5	5.5
22	3.0	0.5	1.5	6.5	1.0	3.0	11.0	2.5	5.5	3.5	2.0	3.0
23	2.0	0.0	1.0	7.0	2.0	3.5	8.5	2.0	5.0	8.0	1.5	4.0
24	2.5	0.0	1.0	9.0	0.5	3.5	12.0	2.5	6.5	6.5	1.5	4.0
25	3.0	0.5	1.0	7.5	0.5	3.5	10.0	2.5	6.0	8.5	3.0	5.5
26	2.5	0.0	1.0	8.5	1.5	4.0	10.0	3.5	6.0	10.5	2.0	6.5
27	1.5	0.0	0.5	6.0	1.5	3.0	12.0	2.5	6.5	11.0	4.5	8.0
28	2.5	0.0	1.0	5.0	1.0	2.5	12.5	2.5	6.5	11.5	5.0	7.5
29	---	---	---	6.5	0.0	2.5	9.5	2.0	5.5	9.0	2.5	5.5
30	---	---	---	5.5	0.5	2.5	9.0	2.0	5.0	9.5	3.0	6.0
31	---	---	---	5.5	0.5	3.0	---	---	---	9.5	3.0	6.0
Month	3.5	0.0	1.0	9.0	0.0	2.5	12.5	0.0	4.5	11.5	1.0	5.5

06187950 SODA BUTTE CREEK NEAR LAMAR RANGER STATION, YELLOWSTONE NATIONAL PARK—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		June			July			August			September	
1	12.0	3.5	7.0	17.0	7.0	12.0	18.5	11.0	14.5	18.5	9.5	13.5
2	14.0	3.5	8.5	---	7.5	---	18.0	10.5	14.0	18.0	8.5	13.0
3	11.5	4.0	8.0	---	---	---	21.0	12.5	15.5	19.5	9.5	14.0
4	12.0	4.0	7.5	---	---	---	19.0	11.0	14.5	15.5	9.0	12.5
5	10.5	5.0	7.5	19.5	---	---	15.0	9.5	12.5	16.0	11.0	12.5
6	7.0	4.0	5.5	18.5	9.5	13.5	19.0	9.5	13.5	12.5	9.5	10.5
7	9.0	2.5	5.5	14.0	10.0	12.0	18.5	10.0	13.5	16.0	7.0	10.5
8	8.0	2.5	5.5	16.0	8.5	12.5	18.5	9.5	13.5	16.0	8.0	11.0
9	11.5	4.0	7.5	19.0	9.0	14.0	15.0	8.5	12.0	10.0	6.0	8.0
10	9.5	4.5	7.0	---	9.5	---	17.5	8.5	12.5	---	3.0	---
11	10.5	5.0	8.0	19.0	9.0	13.5	18.5	8.0	13.0	---	---	---
12	14.0	5.0	9.0	18.0	9.5	13.5	19.0	9.5	14.0	---	---	---
13	13.5	4.0	8.5	---	10.0	---	18.0	9.5	14.0	17.0	7.5	11.0
14	9.0	4.5	7.0	18.0	10.5	13.5	18.0	9.5	13.5	---	5.5	---
15	13.5	5.0	8.5	---	9.5	---	18.5	9.5	13.5	---	6.0	---
16	11.5	4.5	8.0	17.5	10.5	14.0	15.5	9.0	13.0	---	5.0	---
17	10.0	5.5	7.0	16.5	11.5	14.0	18.5	10.5	13.0	---	5.0	---
18	9.5	3.5	6.5	19.5	10.0	14.5	17.0	10.0	13.0	12.5	7.0	9.0
19	14.5	4.0	9.0	19.5	11.5	15.5	16.5	8.5	12.0	12.0	5.5	8.5
20	12.5	5.0	9.0	19.0	9.0	14.5	14.0	8.0	11.0	13.5	5.5	9.0
21	15.0	6.0	10.5	19.5	10.0	14.5	16.0	9.5	12.5	13.5	5.5	9.5
22	---	6.0	---	20.5	10.5	20.5	16.5	10.0	12.5	13.0	5.5	9.0
23	---	---	---	16.5	11.5	14.0	15.5	7.5	11.0	10.5	7.0	8.5
24	---	---	---	19.0	10.5	14.0	18.5	9.0	13.0	7.5	5.5	6.5
25	---	---	---	16.5	12.0	14.0	17.5	7.5	12.0	11.0	4.0	7.0
26	---	---	---	19.5	11.5	14.5	---	8.0	17.5	12.0	4.5	7.5
27	---	---	---	19.5	12.0	15.0	17.5	8.0	12.5	12.5	3.0	7.5
28	16.5	---	---	19.0	10.5	14.5	18.0	8.0	12.5	11.0	3.5	7.0
29	15.0	7.0	11.5	19.0	10.5	14.0	18.5	8.0	13.0	9.5	5.0	6.5
30	16.5	7.5	11.5	18.5	10.0	14.5	17.0	---	14.0	11.0	4.5	7.0
31	---	---	---	18.5	12.5	15.0	15.5	10.0	12.5	---	---	---
Month	---	---	---	---	---	---	---	---	13.0	---	---	---

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Water-Data Report 2007

06188000 LAMAR RIVER NEAR TOWER FALLS RANGER STATION, YELLOWSTONE NATIONAL PARK

Upper Yellowstone Basin
Yellowstone Headwaters Subbasin

LOCATION.--Lat 44°55′40″, long 110°23′35″ referenced to North American Datum of 1927, Park County, WY, Hydrologic Unit 10070001, Yellowstone National Park, on left bank 0.5 mi north of the Cooke City highway, 1.6 mi northeast of Tower Falls Ranger Station, 2.7 mi downstream from Slough Creek, and at river mile 0.5.

DRAINAGE AREA.--660 mi^2.

SURFACE-WATER RECORDS

PERIOD OF RECORD.--September 1922, April 1923 to September 1969, May 1985 to September 1986 (seasonal records only), October 1988 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 6,000 ft, referenced to the National Geodetic Vertical Datum of 1929. Prior to Sept. 16, 1925, nonrecording gage and Sept. 16, 1925 to July 29, 1927, water-stage recorder at same site at elevation 1.00 ft higher. July 29, 1927 to Sept. 30, 1969, water-stage recorder at same site and elevation. May 1985 to September 1986, nonrecording gage at same site and elevation.

REMARKS.--Records are good except those for estimated daily discharges, which are poor. No regulation or diversion occurs upstream from station. U.S. Geological Survey satellite telemeter is located at the station. Several unpublished observations of water temperature and specific conductance were made during the year.

06188000 LAMAR RIVER NEAR TOWER FALLS RANGER STATION, YELLOWSTONE NATIONAL PARK—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	144	e150	e150	e150	e90	e95	365	5,160	1,910	705	261	152
2	143	e160	e160	e170	e90	e90	363	5,520	2,110	662	273	147
3	240	e170	e160	e150	e110	e90	309	5,260	2,470	626	271	137
4	273	e180	e180	e140	e120	e110	311	3,430	2,560	595	261	130
5	217	189	e190	e150	e130	e100	335	2,740	2,690	582	244	168
6	207	182	e190	e150	e140	e120	355	2,180	3,040	550	275	301
7	338	280	e190	e150	e140	e130	394	2,340	2,920	536	252	243
8	507	687	e190	e160	e150	e150	468	3,260	2,290	525	219	185
9	352	731	e190	e170	e150	e160	636	4,220	2,060	487	206	162
10	295	435	e200	e120	e150	e180	567	4,730	2,000	451	199	160
11	278	383	e210	e100	e140	e200	480	5,310	2,020	425	190	154
12	261	338	e210	e80	e130	e230	421	5,740	2,010	400	180	143
13	248	308	e220	e85	e130	e250	424	6,080	1,990	386	171	137
14	238	e280	e220	e90	e120	e220	475	5,870	1,960	377	170	136
15	228	e250	e200	e95	e130	e200	653	4,760	1,900	369	164	135
16	248	e250	e150	e100	e130	e220	662	4,410	1,890	345	158	132
17	284	e240	e130	e110	e110	e250	1,060	4,420	1,830	333	190	128
18	238	e220	e120	e110	e120	e300	1,230	4,270	1,590	328	240	133
19	228	e210	e130	e120	e120	e350	1,030	4,270	1,370	302	227	143
20	252	e200	e150	e140	e120	e380	822	4,210	1,350	281	207	139
21	246	e210	e150	e120	e110	e360	803	4,180	1,320	268	200	128
22	218	e200	e150	e120	e120	e350	761	3,280	1,270	254	203	125
23	208	e190	e140	e130	e110	e330	839	2,650	1,210	245	202	155
24	227	e180	e150	e120	e110	309	927	2,300	1,120	258	201	215
25	252	e170	e160	e110	e110	404	1,260	2,080	1,040	398	181	192
26	209	e170	e190	e110	e100	491	1,600	1,890	951	406	162	162
27	214	e180	e200	e110	e100	605	1,540	1,960	885	518	150	148
28	206	e160	e180	e110	e100	585	2,380	2,480	835	409	146	141
29	199	e140	e160	e100	---	432	3,840	2,510	799	334	142	139
30	e180	e130	e150	e100	---	411	4,980	2,050	749	295	138	141
31	e160	---	e140	e110	---	382	---	2,010	---	272	138	---
Total	7,538	7,573	5,310	3,780	3,380	8,484	30,290	115,570	52,139	12,922	6,221	4,711
Mean	243	252	171	122	121	274	1,010	3,728	1,738	417	201	157
Max	507	731	220	170	150	605	4,980	6,080	3,040	705	275	301
Min	143	130	120	80	90	90	309	1,890	749	245	138	125
Ac-ft	14,950	15,020	10,530	7,500	6,700	16,830	60,080	229,200	103,400	25,630	12,340	9,340

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1923 - 2007, BY WATER YEAR (WY) *

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	213	158	121	107	102	116	490	2,905	4,161	1,311	345	228
Max	485	330	202	200	171	274	1,684	6,885	9,044	3,256	886	518
(WY)	(1942)	(1928)	(1951)	(1969)	(1969)	(2007)	(1990)	(1928)	(1996)	(1943)	(1968)	(1968)
Min	109	88.1	75.5	71.8	70.0	67.9	106	969	1,408	344	173	115
(WY)	(1989)	(1937)	(1953)	(1989)	(1942)	(1964)	(1945)	(1933)	(1934)	(1931)	(1940)	(1988)

* During periods of record [September 1922, April 1923 to September 1969, May 1985 to September 1986 (seasonal records only), October 1988 to current year].

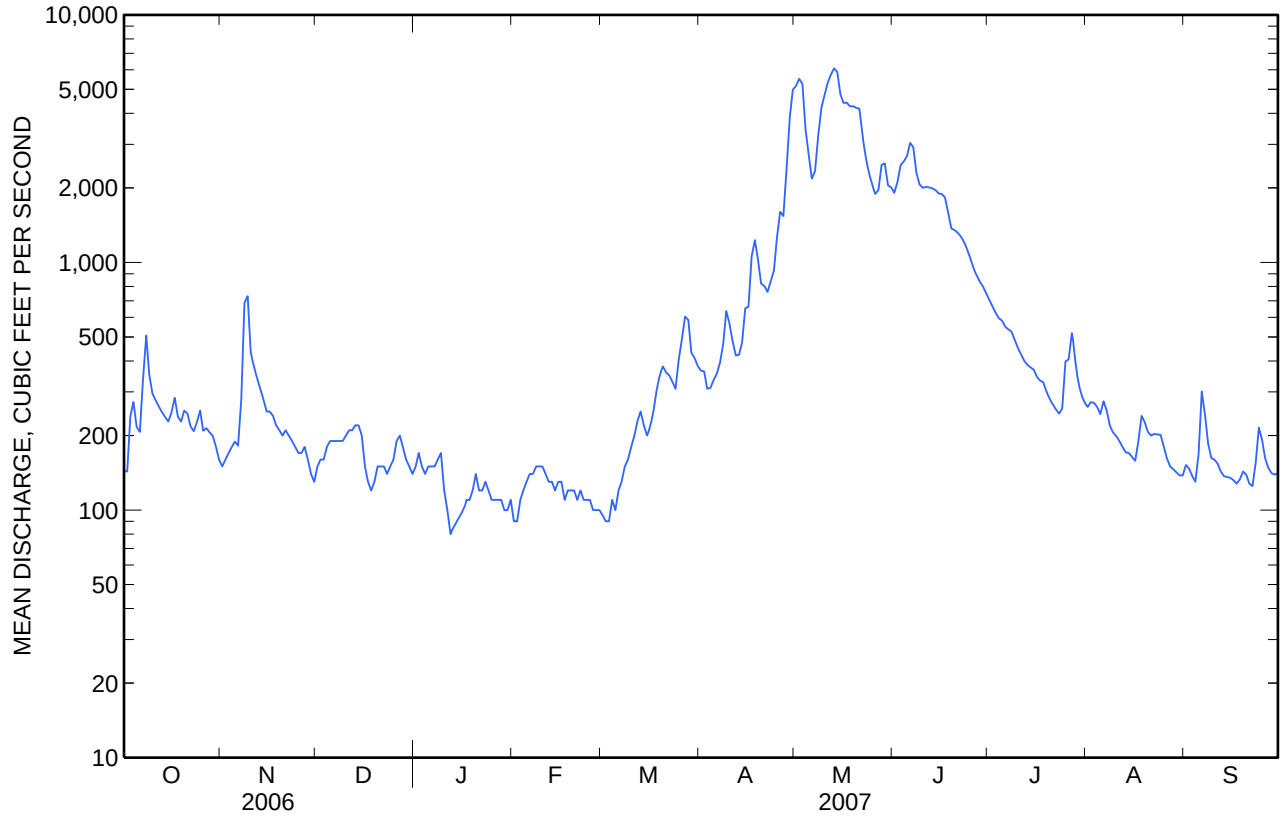
06188000 LAMAR RIVER NEAR TOWER FALLS RANGER STATION, YELLOWSTONE NATIONAL PARK—Continued

SUMMARY STATISTICS

	Calendar Year 2006		Water Year 2007		Water Years 1923 - 2007*	
Annual total	320,158		257,918			
Annual mean	877		707		861	
Highest annual mean					1,531	1997
Lowest annual mean					525	1934
Highest daily mean	8,570	May 19	6,080	May 13	15,600	Jun 10, 1996
Lowest daily mean	50	Feb 18	80	Jan 12	45	Mar 23, 1964
Annual seven-day minimum	70	Feb 15	94	Jan 11	57	Mar 5, 1964
Maximum peak flow			7,570	May 14	19,500	Jun 10, 1996
Maximum peak stage			7.54	May 14	12.15	Jun 10, 1996
Instantaneous low flow					[a]40	Mar 16, 1945
Annual runoff (ac-ft)	635,000		511,600		623,600	
10 percent exceeds	2,700		2,090		2,900	
50 percent exceeds	194		220		183	
90 percent exceeds	110		120		90	

* During periods of record [September 1922, April 1923 to September 1969, May 1985 to September 1986 (seasonal records only), October 1988 to current year].

[a] Observed, but may have been lower during periods of no gage-height record in the winter.



06190540 BOILING RIVER AT MAMMOTH, YELLOWSTONE NATIONAL PARK

Upper Yellowstone Basin
Yellowstone Headwaters Subbasin

LOCATION.--Lat 44°59'07", long 110°41'18" referenced to North American Datum of 1927, Park County, WY, Hydrologic Unit 10070001, Yellowstone National Park, on left bank 50 ft downstream from outfall, 150 ft upstream of mouth, and 0.8 mi northeast of U.S. Post Office at Mammoth.

DRAINAGE AREA.--Not determined.

SURFACE-WATER RECORDS

PERIOD OF RECORD.--October 1988 to September 1995, October 2002 to current year. Published as "Hot River" at Mammoth from 1989-94.

GAGE.--Water-stage recorder. Elevation of gage is 5,666.11 ft, referenced to the National Geodetic Vertical Datum of 1929 (levels by U.S. National Park Service).

REMARKS.--Records are good. No regulation or diversion occurs upstream from station, however, flow is added from sinkholes upstream from spring. U.S. Geological Survey satellite telemeter is located at the station.

06190540 BOILING RIVER AT MAMMOTH, YELLOWSTONE NATIONAL PARK—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
DAILY MEAN VALUES

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	28	24	24	25	24	23	24	28	27	27	28	27
2	28	26	24	25	25	22	24	28	27	27	28	27
3	28	26	24	25	25	23	24	28	27	27	28	26
4	28	27	24	25	25	24	24	28	27	27	28	26
5	28	27	25	24	24	24	24	28	27	27	28	27
6	28	27	26	25	24	24	24	28	27	27	28	27
7	28	27	26	25	24	24	25	28	27	27	28	27
8	28	27	26	25	25	23	25	27	27	27	27	27
9	28	27	26	25	25	23	25	27	27	27	27	27
10	28	27	26	25	25	23	25	27	27	27	27	27
11	28	27	26	23	25	23	25	28	27	27	27	27
12	28	26	26	22	25	23	24	28	27	27	27	27
13	28	27	26	23	25	23	25	28	27	27	27	27
14	28	27	26	25	25	23	25	28	27	27	27	27
15	28	26	26	26	25	23	25	28	27	27	27	27
16	28	27	24	26	24	23	25	28	27	27	27	27
17	28	27	23	26	24	24	26	28	27	27	27	27
18	28	27	24	25	24	24	26	28	27	27	27	27
19	28	27	24	25	24	24	26	28	27	27	27	27
20	28	27	25	25	24	24	26	28	27	27	27	27
21	28	27	25	25	24	24	26	28	27	27	27	27
22	28	27	24	25	24	24	26	27	27	27	27	27
23	28	27	24	25	24	24	26	27	27	27	27	27
24	28	26	24	24	23	24	26	27	27	27	27	28
25	28	27	25	24	23	25	27	27	27	27	27	28
26	27	27	26	24	24	25	27	27	27	27	27	27
27	27	27	25	23	24	25	27	27	27	28	27	27
28	28	24	25	24	23	25	27	27	27	28	27	27
29	28	24	25	25	---	24	27	27	27	28	27	27
30	27	24	25	25	---	24	28	27	27	28	27	27
31	24	---	26	25	---	24	---	27	---	28	27	---
Total	861	793	775	764	680	735	764	855	810	842	844	810
Mean	27.8	26.4	25.0	24.6	24.3	23.7	25.5	27.6	27.0	27.2	27.2	27.0
Max	28	27	26	26	25	25	28	28	27	28	28	28
Min	24	24	23	22	23	22	24	27	27	27	27	26
Ac-ft	1,710	1,570	1,540	1,520	1,350	1,460	1,520	1,700	1,610	1,670	1,670	1,610

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 2007, BY WATER YEAR (WY)*

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	26.6	25.5	25.2	25.4	24.9	25.0	26.5	29.1	28.8	27.5	26.7	26.3
Max	29.9	29.1	28.3	29.8	29.6	30.8	31.5	33.1	33.0	31.2	29.1	28.6
(WY)	(1989)	(2003)	(2003)	(2003)	(2003)	(2003)	(2003)	(1995)	(1995)	(1995)	(1995)	(1995)
Min	21.3	21.4	21.9	21.0	20.9	21.6	23.7	25.5	26.9	25.0	23.5	21.3
(WY)	(2004)	(2004)	(2004)	(2004)	(2004)	(2004)	(2004)	(2004)	(2004)	(2003)	(2004)	(2003)

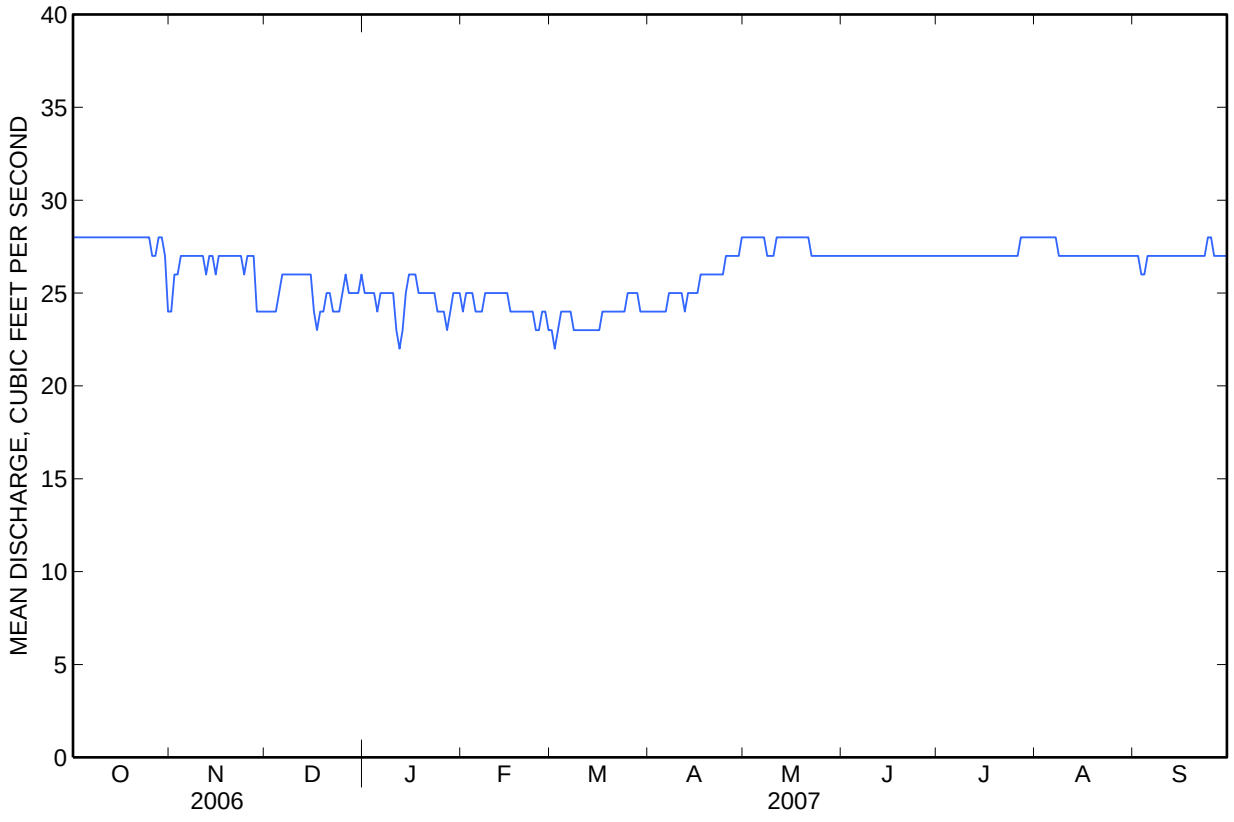
* During periods of operation (October 1988 to September 1995, October 2002 to current year).

06190540 BOILING RIVER AT MAMMOTH, YELLOWSTONE NATIONAL PARK—Continued

SUMMARY STATISTICS

	Calendar Year 2006		Water Year 2007		Water Years 1989 - 2007*	
Annual total	10,039		9,533			
Annual mean	27.5		26.1		26.5	
Highest annual mean					28.5	2003
Lowest annual mean					23.2	2004
Highest daily mean	31	May 3	28	Oct 1	36	May 20, 1995
Lowest daily mean	23	Dec 17	22	Jan 12	19	Nov 23, 1993
Annual seven-day minimum	24	Nov 28	23	Mar 8	20	Aug 10, 2004
Maximum peak flow			29	Oct 1[a]	[c]36	May 20, 1995
Maximum peak stage			1.32	Oct 1	1.50	May 17, 1993
Instantaneous low flow			[b]21	Mar 1	[d]17	Jan 30, 1994
Annual runoff (ac-ft)	19,910		18,910		19,180	
10 percent exceeds	29		28		30	
50 percent exceeds	28		27		27	
90 percent exceeds	25		24		23	

* During periods of operation (October 1988 to September 1995, October 2002 to current year).
[a] Occurred many days.
[b] Gage height, 1.08 ft.
[c] Gage height, 1.45 ft.
[d] Gage height, 1.06 ft.



06190540 BOILING RIVER AT MAMMOTH, YELLOWSTONE NATIONAL PARK—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1988 to September 1994, October 2002 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1988 to September 1990.
WATER TEMPERATURE: October 1988 to September 1994, October 2002 to current year.

INSTRUMENTATION.--Temperature recorder installed Sept. 25, 2002.

REMARKS.--Daily water temperature records are rated fair. Several unpublished observations of specific conductance and water temperature were made during the year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,410 microsiemens per centimeter (µS/cm) at 25.0°C, Jan. 29, 1990; minimum daily, 1,500 µS/cm at 25.0°C, July, 17, 22, 23, 1990.
WATER TEMPERATURE: Maximum, 59.0°C, many days October 2003 to January 2004, August 2004, and November 2006; minimum, 38.0°C, June 16, 27, 1989; April 19, 1990; and March 7, 2007.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURE: Maximum 59.0°C, Nov. 29; minimum, 38.0°C, Mar. 7.

06190540 BOILING RIVER AT MAMMOTH, YELLOWSTONE NATIONAL PARK—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		October			November			December			January	
1	47.5	46.5	47.0	58.0	48.0	53.0	57.0	55.5	56.0	51.5	50.5	50.5
2	47.0	46.0	46.5	54.0	48.0	49.5	56.0	55.5	56.0	50.5	50.0	50.5
3	47.0	46.0	46.5	48.5	48.0	48.0	55.5	55.0	55.5	51.0	50.5	50.5
4	47.0	46.0	46.5	48.5	48.0	48.5	55.0	54.5	55.0	57.0	50.0	50.5
5	47.0	46.5	47.0	48.5	48.0	48.0	54.5	50.5	52.5	57.0	50.5	53.0
6	47.5	47.0	47.0	48.0	48.0	48.0	50.5	50.0	50.5	53.0	50.0	50.5
7	47.0	46.5	46.5	48.0	48.0	48.0	50.5	50.0	50.0	50.0	49.5	49.5
8	47.0	46.0	46.5	48.0	47.5	47.5	50.5	50.5	50.5	50.5	50.0	50.5
9	46.5	46.0	46.0	47.5	47.5	47.5	50.5	50.5	50.5	50.5	50.5	50.5
10	46.5	45.5	46.0	48.0	47.5	47.5	50.5	50.5	50.5	50.5	50.0	50.5
11	47.0	46.0	46.5	48.0	47.5	48.0	50.5	50.0	50.5	57.5	50.0	56.0
12	46.5	46.0	46.5	54.0	47.0	48.5	50.0	50.0	50.0	58.0	55.5	57.0
13	47.0	46.0	46.5	48.0	47.0	47.5	50.5	50.0	50.5	56.0	53.5	55.0
14	47.0	46.0	46.5	50.0	47.5	48.0	50.5	50.5	50.5	53.5	50.0	51.5
15	47.0	46.0	46.5	55.5	47.5	50.0	50.5	50.0	50.5	50.0	48.0	49.0
16	46.5	46.0	46.5	48.0	47.5	47.5	57.0	50.0	55.0	48.0	47.5	48.0
17	46.0	45.5	46.0	48.0	47.5	47.5	57.5	54.0	57.0	49.5	47.5	48.0
18	46.5	45.5	46.0	48.0	47.5	48.0	56.0	55.0	56.0	50.0	49.5	49.5
19	46.5	46.0	46.0	48.5	48.0	48.0	55.0	54.0	54.5	50.0	50.0	50.0
20	46.5	46.0	46.0	48.5	48.0	48.5	54.0	53.0	53.5	50.5	50.0	50.0
21	46.0	45.5	46.0	48.5	48.0	48.0	54.0	53.0	53.5	50.5	50.0	50.5
22	46.5	45.5	46.0	48.5	48.0	48.0	54.0	54.0	54.0	51.5	50.5	50.5
23	46.5	45.5	46.0	51.5	48.0	48.5	54.0	54.0	54.0	51.0	50.5	51.0
24	46.5	46.0	46.0	53.5	49.0	50.5	54.0	53.0	53.5	51.5	51.0	51.5
25	46.5	46.0	46.0	49.0	49.0	49.0	53.0	51.0	52.5	57.5	51.0	52.0
26	48.5	45.5	46.5	54.0	48.5	49.0	51.0	50.0	50.5	51.0	51.0	51.0
27	47.0	46.5	46.5	56.5	48.0	49.0	51.0	50.5	50.5	57.5	51.0	54.0
28	47.0	46.0	46.5	57.5	48.5	55.5	57.5	50.5	51.0	55.5	49.0	52.0
29	47.0	46.0	46.5	59.0	56.5	58.0	57.5	50.0	52.0	51.0	48.0	50.0
30	53.0	46.0	47.5	58.0	57.0	57.5	55.0	49.5	51.5	51.0	48.5	50.0
31	58.0	48.0	53.5	---	---	---	51.0	49.5	50.0	53.5	49.5	51.0
Month	58.0	45.5	46.5	59.0	47.0	49.5	57.5	49.5	52.5	58.0	47.5	51.0

06190540 BOILING RIVER AT MAMMOTH, YELLOWSTONE NATIONAL PARK—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		February			March			April			May	
1	51.5	50.0	51.0	57.5	50.5	53.0	49.5	49.0	49.0	44.5	43.0	43.5
2	50.0	48.5	49.0	56.5	51.0	55.0	49.0	48.5	49.0	45.0	43.0	44.0
3	49.0	47.5	48.5	55.5	50.0	52.5	52.0	48.5	49.0	44.5	43.0	43.5
4	50.5	48.5	49.5	51.0	50.5	50.5	49.5	48.5	49.0	44.5	43.0	44.0
5	51.0	50.5	51.0	57.5	50.5	51.0	49.0	48.5	48.5	44.5	44.0	44.0
6	51.0	51.0	51.0	51.0	50.0	51.0	49.0	48.0	48.5	45.5	44.5	45.0
7	51.0	51.0	51.0	51.0	38.0	50.0	48.5	48.0	48.0	46.0	44.5	45.5
8	51.0	51.0	51.0	51.5	48.0	50.5	48.5	47.5	48.0	46.5	45.0	45.5
9	51.0	50.5	50.5	51.5	50.0	51.0	48.0	47.5	48.0	46.0	45.0	45.5
10	50.5	50.0	50.5	51.5	51.0	51.0	48.0	47.5	47.5	46.0	44.5	45.5
11	50.5	50.5	50.5	51.0	51.0	51.0	48.5	47.5	48.0	46.0	44.5	45.0
12	50.5	50.0	50.0	51.5	51.0	51.0	48.5	48.0	48.0	45.5	44.0	44.5
13	51.5	50.0	50.5	51.0	50.5	50.5	48.0	47.0	47.5	45.5	43.5	44.5
14	51.5	50.0	50.5	51.0	50.0	50.5	48.0	47.0	47.5	45.0	43.5	44.0
15	50.5	50.0	50.5	50.5	50.0	50.5	47.5	46.5	47.0	45.0	43.0	44.0
16	52.0	50.5	51.0	50.5	50.5	50.5	48.0	46.5	47.0	45.0	43.5	44.5
17	55.5	51.0	52.0	50.5	50.0	50.5	47.0	46.0	46.5	45.5	43.5	44.5
18	52.0	51.0	51.5	50.0	49.5	50.0	46.5	46.0	46.0	45.0	43.5	44.5
19	52.0	51.5	52.0	50.0	49.0	49.5	46.0	45.5	46.0	45.0	43.5	44.5
20	52.5	51.5	52.0	49.5	49.0	49.0	46.5	45.5	46.0	45.0	43.5	44.5
21	52.0	51.5	51.5	49.5	49.0	49.0	46.5	45.5	46.0	44.5	43.5	44.0
22	51.5	51.0	51.5	49.5	49.0	49.0	46.5	45.5	46.0	43.5	43.0	43.0
23	51.5	51.0	51.5	49.5	49.0	49.5	46.5	46.0	46.0	44.0	43.0	43.5
24	54.5	51.0	52.5	49.5	48.5	49.0	47.0	45.5	46.0	44.5	43.0	43.5
25	57.0	51.0	52.5	49.0	48.0	48.5	46.5	45.0	45.5	44.5	43.5	44.0
26	51.5	51.5	51.5	48.5	47.5	48.0	45.5	44.5	45.0	45.5	43.5	44.5
27	56.5	50.5	52.0	48.0	47.5	47.5	46.0	44.5	45.0	46.0	44.5	45.0
28	57.0	50.5	52.5	48.0	47.5	47.5	45.5	44.0	44.5	45.5	44.5	45.0
29	---	---	---	54.0	48.0	50.0	45.0	43.0	44.0	45.0	44.0	44.5
30	---	---	---	54.0	49.0	49.5	44.5	43.0	43.5	45.5	44.0	44.5
31	---	---	---	49.5	49.0	49.0	---	---	---	45.5	44.0	45.0
Month	57.0	47.5	51.0	57.5	38.0	50.0	52.0	43.0	47.0	46.5	43.0	44.5

06190540 BOILING RIVER AT MAMMOTH, YELLOWSTONE NATIONAL PARK—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		June			July			August			September	
1	46.0	44.5	45.0	47.5	45.5	46.5	48.0	46.5	47.0	48.5	47.0	48.0
2	46.0	44.5	45.5	47.5	45.5	46.5	47.5	46.5	47.0	49.0	47.5	48.5
3	46.5	44.5	45.5	48.0	45.5	46.5	48.0	46.5	47.5	49.5	48.0	49.0
4	46.0	44.5	45.5	48.0	46.0	47.0	47.5	46.0	47.0	49.5	48.0	48.5
5	46.0	45.0	45.5	48.0	46.0	47.0	47.0	46.0	46.5	48.5	47.5	48.0
6	45.5	43.0	44.5	48.5	46.5	47.5	48.0	46.0	47.0	47.5	46.5	47.0
7	44.5	43.0	43.5	47.5	46.5	47.0	48.0	46.5	47.0	47.5	46.0	47.0
8	45.0	43.5	44.5	47.5	46.0	46.5	48.0	46.0	47.0	48.0	47.0	47.5
9	46.0	44.0	45.0	48.0	46.0	47.0	47.5	46.0	47.0	47.5	46.5	47.0
10	45.5	44.5	45.0	48.0	46.0	47.0	47.5	46.0	47.0	47.5	46.0	47.0
11	46.0	44.5	45.0	48.0	46.0	47.0	48.0	46.0	47.0	48.0	46.5	47.5
12	46.0	44.5	45.5	47.5	46.0	46.5	48.0	46.0	47.0	48.5	47.0	48.0
13	46.0	44.5	45.5	47.5	46.0	47.0	48.5	46.5	47.5	48.5	47.5	48.0
14	46.0	45.0	45.5	47.5	46.5	47.0	48.0	47.0	47.5	48.0	47.0	47.5
15	46.5	45.0	45.5	47.5	46.0	47.0	48.0	46.5	47.5	48.5	47.0	48.0
16	46.5	45.0	46.0	48.0	46.0	47.0	48.5	46.5	47.5	48.5	47.0	48.0
17	46.0	45.0	45.5	48.0	46.5	47.5	48.0	47.0	47.5	48.0	47.0	47.5
18	46.0	44.5	45.0	48.5	46.5	47.5	48.0	47.0	47.5	48.0	47.0	47.0
19	47.0	45.0	45.5	48.5	47.0	47.5	47.5	46.5	47.0	47.5	46.5	47.0
20	47.5	45.5	46.5	48.0	46.0	47.0	47.0	46.5	47.0	48.5	47.0	47.5
21	47.5	46.0	46.5	48.0	46.0	47.0	48.0	46.5	47.0	48.5	47.0	48.0
22	47.5	45.5	46.5	48.0	46.0	47.0	47.5	46.5	47.0	48.5	47.5	48.0
23	47.5	46.0	46.5	47.5	46.5	47.0	47.5	46.0	46.5	48.0	46.5	47.5
24	47.5	45.5	46.5	48.0	46.5	47.0	47.5	46.0	47.0	46.5	45.5	46.0
25	47.5	45.5	46.5	48.0	47.0	47.0	48.0	46.0	47.0	47.0	45.5	46.0
26	47.0	45.0	46.0	47.5	46.5	47.0	48.5	46.5	47.5	47.5	46.0	46.5
27	47.0	45.0	46.0	48.0	46.5	47.0	48.5	47.0	47.5	47.5	46.5	47.0
28	47.5	45.5	46.5	47.5	46.0	47.0	48.5	47.0	48.0	47.5	46.5	47.0
29	47.5	45.5	46.5	48.0	46.0	47.0	48.5	47.0	48.0	47.5	46.5	47.0
30	47.5	45.5	46.5	48.0	46.0	47.0	49.0	47.0	48.0	47.0	46.0	46.5
31	---	---	---	48.0	46.5	47.0	48.5	47.5	48.0	---	---	---
Month	47.5	43.0	45.5	48.5	45.5	47.0	49.0	46.0	47.0	49.5	45.5	47.5

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Water-Data Report 2007

06191000 GARDNER RIVER NEAR MAMMOTH, YELLOWSTONE NATIONAL PARK

Upper Yellowstone Basin
Yellowstone Headwaters Subbasin

LOCATION.--Lat 44°59′33″, long 110°41′26″ referenced to North American Datum of 1927, Park County, MT, Hydrologic Unit 10070001, Yellowstone National Park, on left bank at Wyoming-Montana state line, 400 ft upstream from highway bridge, 0.5 mi downstream from Boiling River (formerly Hot River), 1.5 mi north of Mammoth, and at river mile 2.9.

DRAINAGE AREA.--202 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--October 1938 to September 1972, April l984 to current year. Prior to October 1959, published as Gardiner River near Mammoth.

REVISED RECORDS.-- Water Supply Paper 1729: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 5,623.97 ft, referenced to the National Geodetic Vertical Datum of 1929 (levels by National Park Service).

REMARKS.--Records are good. No regulation or diversion occurs upstream from station. U.S. Geological Survey satellite telemeter is located at the station. Several unpublished observations of water temperature and specific conductance were made during the year.

06191000 GARDNER RIVER NEAR MAMMOTH, YELLOWSTONE NATIONAL PARK—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
DAILY MEAN VALUES

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	118	98	98	102	88	88	118	486	265	162	114	97
2	121	111	102	103	78	80	119	527	276	159	113	95
3	151	120	99	97	95	81	111	586	285	155	111	93
4	132	116	103	96	93	99	110	468	290	152	110	93
5	127	115	104	96	92	91	115	390	295	150	115	98
6	128	117	108	92	94	93	121	334	333	147	125	104
7	156	127	107	93	94	95	123	321	327	145	112	100
8	143	148	105	102	94	95	132	356	283	147	108	96
9	137	142	105	100	94	92	154	413	264	143	105	96
10	130	119	105	100	94	92	141	466	256	139	105	96
11	131	118	106	89	97	92	128	521	255	136	104	94
12	127	112	104	81	95	99	121	556	249	133	101	93
13	124	107	103	91	93	111	121	601	242	135	99	92
14	123	110	102	94	92	112	129	604	240	138	99	93
15	123	110	109	93	92	103	144	535	239	134	99	92
16	136	112	90	95	88	100	150	503	235	131	98	92
17	130	115	76	97	89	103	183	502	236	128	107	92
18	122	115	86	95	92	109	194	502	226	125	112	95
19	125	112	95	97	92	111	181	506	214	119	109	95
20	128	113	101	98	83	116	163	504	206	117	104	93
21	124	115	98	98	89	115	162	508	202	116	107	92
22	119	113	106	96	91	113	160	441	197	115	103	92
23	121	112	100	96	91	113	171	390	191	116	105	95
24	121	100	103	94	86	113	178	352	186	118	106	100
25	120	108	102	92	90	121	193	325	181	124	102	96
26	114	110	105	93	90	133	217	295	179	135	99	93
27	119	110	103	88	88	142	224	284	176	148	97	91
28	117	107	102	85	90	135	274	309	174	127	97	90
29	116	87	99	92	---	117	373	299	169	121	96	91
30	112	90	87	91	---	115	476	278	165	117	95	91
31	93	---	97	95	---	116	---	268	---	116	96	---
Total	3,888	3,389	3,110	2,931	2,544	3,295	5,186	13,430	7,036	4,148	3,253	2,830
Mean	125	113	100	94.5	90.9	106	173	433	235	134	105	94.3
Max	156	148	109	103	97	142	476	604	333	162	125	104
Min	93	87	76	81	78	80	110	268	165	115	95	90
Ac-ft	7,710	6,720	6,170	5,810	5,050	6,540	10,290	26,640	13,960	8,230	6,450	5,610

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 2007, BY WATER YEAR (WY) *

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	126	112	102	96.7	92.8	93.9	143	510	693	294	159	135
Max	175	151	135	134	128	128	304	1,067	1,354	662	236	190
(WY)	(1969)	(1998)	(1998)	(1998)	(1998)	(1998)	(1990)	(1997)	(1971)	(1943)	(1943)	(1968)
Min	94.9	85.5	79.3	77.6	75.0	75.4	84.1	283	212	133	103	93.4
(WY)	(2002)	(1940)	(1941)	(1941)	(1940)	(1942)	(1945)	(1960)	(1987)	(1988)	(1988)	(1988)

* During periods of record (October 1938 to September 1972, April 1984 to present).

06191000 GARDNER RIVER NEAR MAMMOTH, YELLOWSTONE NATIONAL PARK—Continued

SUMMARY STATISTICS

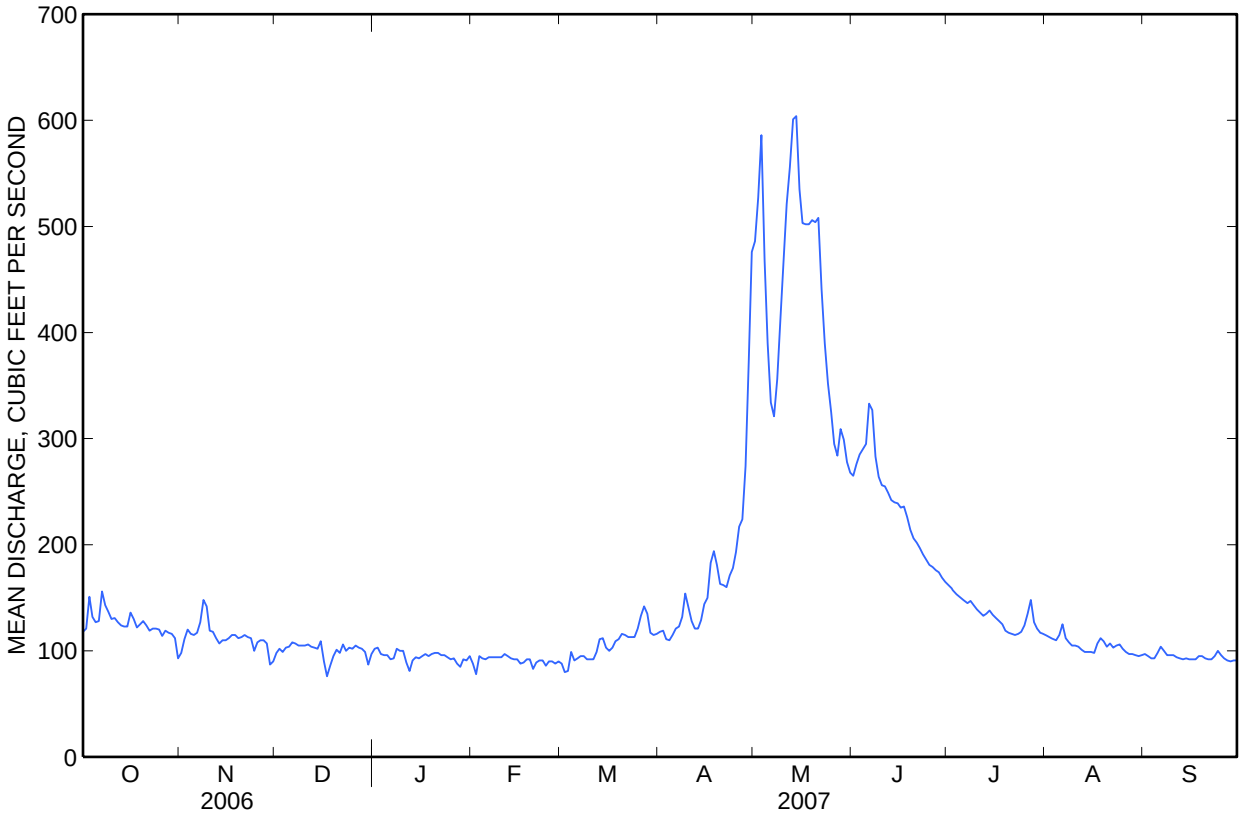
	Calendar Year 2006		Water Year 2007		Water Years 1939 - 2007*	
Annual total	81,576		55,040			
Annual mean	223		151		213	
Highest annual mean					324	1997
Lowest annual mean					138	1988
Highest daily mean	1,250	May 21	604	May 14	1,830	May 29, 1956
Lowest daily mean	76	Dec 17	76	Dec 17	53	Dec 15, 1988
Annual seven-day minimum	90	Feb 14	87	Feb 25	61	Feb 1, 1989
Maximum peak flow			672	May 14	[b]2,080	Jun 4, 1956
Maximum peak stage			3.35	May 14	5.03	Jun 2, 1997
Instantaneous low flow			[a]58	Oct 31	[c]35	Mar 28, 1942
Annual runoff (ac-ft)	161,800		109,200		154,600	
10 percent exceeds	551		283		498	
50 percent exceeds	124		112		121	
90 percent exceeds	94		92		87	

* During periods of record (October 1938 to September 1972, April 1984 to present).

[a] Gage height, 1.81 ft, result of freezeup.

[b] Gage height, 4.46 ft.

[c] Gage height, 1.08 ft.



06191500 YELLOWSTONE RIVER AT CORWIN SPRINGS, MT

Upper Yellowstone Basin

LOCATION.--Lat 45°06′43″, long 110°47′37″ referenced to North American Datum of 1927, in NW ¼ SE ¼ NW ¼ sec.30, T.8 S., R.8 E., Park County, MT, Hydrologic Unit 10070002, on left bank 20 ft downstream from county road bridge at Corwin Springs, 1.3 mi upstream from Mol Heron Creek, 7 mi northwest of Gardiner, and at river mile 549.7.

DRAINAGE AREA.--2,619 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--August 1889 to November 1893 (published as "at Horr"), September 1910 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.-- WSP 1309: 1912. WSP 1509: 1889-94, 1911, 1913, 1916-18, 1920-21, 1925, 1927. WSP 1559: Drainage area. WDR MT-04-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 5,079.09 ft, referenced to the National Geodetic Vertical Datum of 1929. Nonrecording gages located at site 2 mi upstream at different elevations from Aug. 12, 1889 to Nov. 4, 1893. Nonrecording gages on bridge at present elevation from Sept. 2, 1910 to Apr. 19, 1935.

REMARKS.--Records are good. Natural storage occurs in Yellowstone Lake. Diversions are made for irrigation of about 960 acres of which 40 acres are downstream from station. U.S. Geological Survey satellite telemeter is located at the station. Several unpublished observations of water temperature and specific conductance were made during the year.

06191500 YELLOWSTONE RIVER AT CORWIN SPRINGS, MT—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	1,130	907	858	789	e550	873	1,240	8,930	5,550	3,690	1,970	1,290
2	1,120	958	747	792	e560	802	1,270	9,630	5,860	3,570	1,970	1,270
3	1,320	1,090	e800	797	e600	782	1,200	9,910	6,420	3,480	1,950	1,240
4	1,350	1,090	921	812	e650	842	1,190	6,930	6,630	3,390	1,910	1,210
5	1,260	1,070	914	808	673	869	1,200	5,630	6,790	3,310	1,870	1,240
6	1,240	1,060	912	783	689	888	1,230	4,620	7,270	3,230	1,920	1,410
7	1,400	1,140	904	777	720	909	1,270	4,610	7,450	3,180	1,860	1,380
8	1,710	1,600	912	790	789	927	1,360	5,780	6,360	3,120	1,780	1,300
9	1,470	1,940	897	794	815	921	1,590	7,430	6,010	3,010	1,720	1,230
10	1,370	1,460	902	818	823	912	1,610	8,310	5,890	2,900	1,680	1,200
11	1,330	1,350	939	e600	844	916	1,450	9,340	5,900	2,820	1,660	1,190
12	1,310	1,270	941	e450	862	937	1,350	10,200	5,910	2,750	1,600	1,160
13	1,280	1,230	944	e480	848	1,070	1,330	11,000	5,860	2,730	1,560	1,140
14	1,260	1,270	938	e550	848	1,200	1,380	11,000	5,820	2,700	1,540	1,120
15	1,230	1,100	954	e580	848	1,110	1,590	9,380	5,790	2,660	1,510	1,110
16	1,290	1,230	833	e650	863	1,060	1,650	8,790	5,740	2,590	1,470	1,100
17	1,350	1,210	e550	e700	813	1,040	2,140	8,990	5,720	2,550	1,530	1,090
18	1,230	1,180	e500	e650	850	1,100	2,500	8,870	5,370	2,520	1,630	1,090
19	1,230	1,120	e580	e700	880	1,170	2,340	8,880	5,010	2,440	1,620	1,090
20	1,260	1,130	e600	e750	868	1,280	2,010	8,930	4,930	2,360	1,580	1,080
21	1,220	1,160	e640	788	857	1,320	1,940	9,040	4,880	2,300	1,540	1,060
22	1,170	1,140	e660	748	860	1,240	1,870	7,740	4,790	2,240	1,510	1,040
23	1,150	1,120	e680	738	916	1,220	1,940	6,730	4,660	2,200	1,470	1,070
24	1,170	1,010	e720	737	880	1,160	2,080	6,170	4,520	2,170	1,470	1,160
25	1,200	1,040	e750	729	861	1,230	2,420	5,820	4,380	2,360	1,420	1,110
26	1,130	1,070	795	729	884	1,370	3,000	5,470	4,250	2,350	1,380	1,080
27	1,140	1,030	798	724	859	1,510	2,980	5,510	4,120	2,610	1,350	1,040
28	1,130	1,030	806	706	850	1,590	4,020	6,190	4,020	2,340	1,330	1,020
29	1,110	e800	791	e650	---	1,310	6,500	6,340	3,930	2,200	1,300	1,010
30	1,120	e750	e750	e600	---	1,290	8,690	5,720	3,790	2,090	1,270	1,010
31	942	---	e720	e650	---	1,280	---	5,640	---	2,020	1,260	---
Total	38,622	34,555	24,656	21,869	22,360	34,128	66,340	237,530	163,620	83,880	49,630	34,540
Mean	1,246	1,152	795	705	799	1,101	2,211	7,662	5,454	2,706	1,601	1,151
Max	1,710	1,940	954	818	916	1,590	8,690	11,000	7,450	3,690	1,970	1,410
Min	942	750	500	450	550	782	1,190	4,610	3,790	2,020	1,260	1,010
Ac-ft	76,610	68,540	48,910	43,380	44,350	67,690	131,600	471,100	324,500	166,400	98,440	68,510

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1889 - 2007, BY WATER YEAR (WY) *

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	1,510	1,185	960	848	837	921	1,564	6,161	11,330	6,671	3,133	1,928
Max	2,429	2,058	1,424	1,361	1,340	1,376	3,542	13,590	22,540	13,260	5,688	3,207
(WY)	(1973)	(1928)	(1984)	(1997)	(1997)	(1997)	(1990)	(1928)	(1997)	(1982)	(1982)	(1968)
Min	781	702	551	448	411	412	576	2,575	4,245	2,025	1,319	938
(WY)	(1989)	(1989)	(1937)	(1937)	(1937)	(1937)	(1937)	(1975)	(1934)	(1919)	(1919)	(1988)

* During periods of operation (August 1889 to November 1893, September 1910 to current year).

06191500 YELLOWSTONE RIVER AT CORWIN SPRINGS, MT—Continued

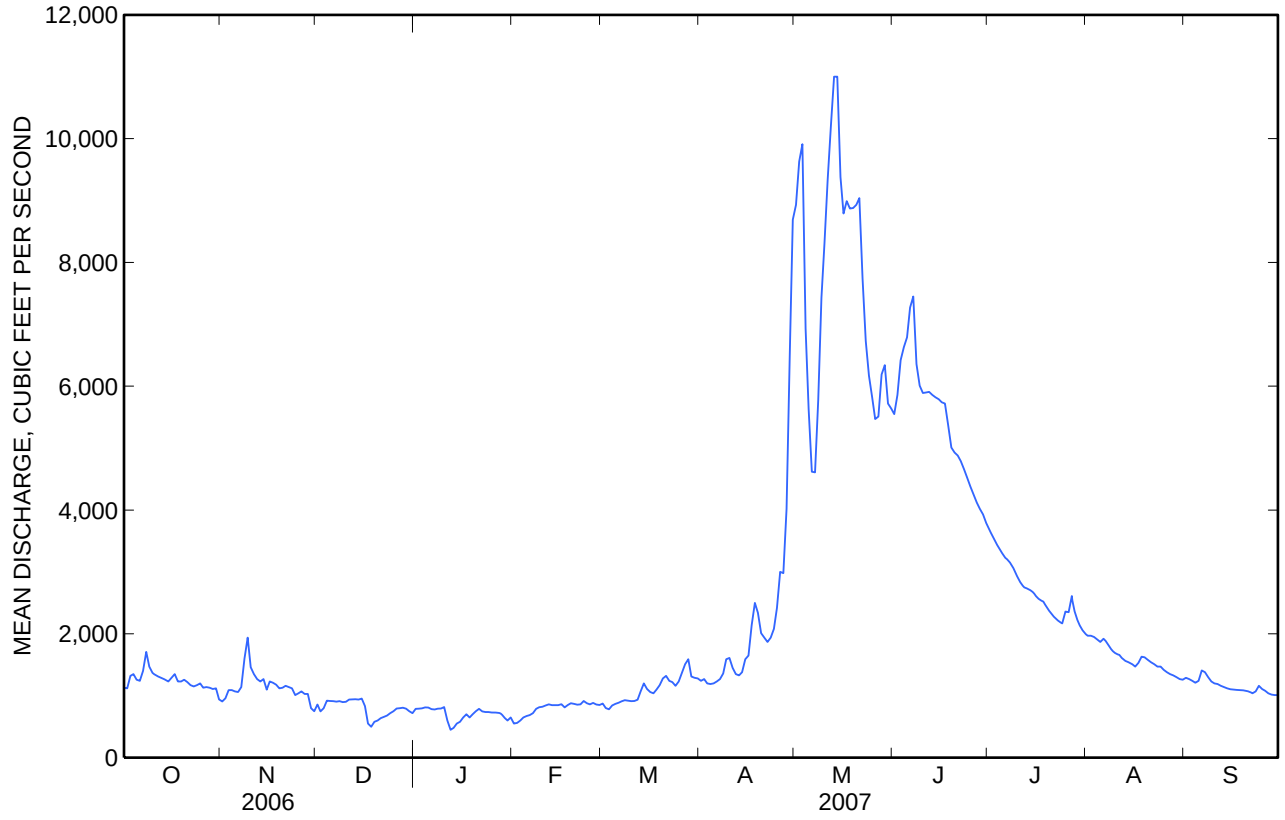
SUMMARY STATISTICS

	Calendar Year 2006		Water Year 2007		Water Years 1889 – 2007*	
Annual total	1,113,250		811,730			
Annual mean	3,050		2,224		3,096	
Highest annual mean					5,158	1997
Lowest annual mean					1,903	1934
Highest daily mean	17,200	May 21	11,000	May 13	32,000	Jun 14, 1918
Lowest daily mean	500	Dec 18	450	Jan 12	380	Feb 5, 1989
Annual seven-day minimum	601	Dec 17	573	Jan 11	393	Feb 4, 1937
Maximum peak flow			13,100	May 14	[a]32,200	Jun 10, 1996
Maximum peak stage			6.92	May 14	11.50	Jun 14, 1918
Instantaneous low flow					[b]343	Feb 2, 1989
Annual runoff (ac-ft)	2,208,000		1,610,000		2,243,000	
10 percent exceeds	9,040		5,840		8,420	
50 percent exceeds	1,280		1,240		1,400	
90 percent exceeds	872		749		760	

* During periods of operation (August 1889 to November 1893, September 1910 to current year).

[a] Gage height, 10.92 ft.

[b] Gage height, 0.12 ft, result of freezeup.



06192500 YELLOWSTONE RIVER NEAR LIVINGSTON, MT

Upper Yellowstone Basin

LOCATION.--Lat 45°35′50″, long 110°33′55″ referenced to North American Datum of 1927, in NE ¼ NW ¼ NW ¼ sec.12, T.3 S., R.9 E., Park County, MT, Hydrologic Unit 10070002, on right bank 50 ft downstream from bridge on Montana Secondary Highway 540, 2 mi downstream from Suce Creek, 4 mi south of Livingston, and at river mile 501.4.

DRAINAGE AREA.--3,551 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--May 1897 to December 1905, August 1928 to September 1932, October 1937 to current year. Monthly discharge only for some periods, published in Water Supply Paper (WSP) 1309.

REVISED RECORDS.-- WSP 1309: 1899. WSP 1509: 1902. WSP 1629: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 4,542.49 ft, referenced to the National Geodetic Vertical Datum of 1929. May 2, 1897, to Dec. 31, 1905, nonrecording gage on highway bridge at different elevation. Aug. 23, 1928, to Sept. 30, 1932, and Mar. 14, 1938, to Feb. 3, 1951, nonrecording gage on highway bridge at present elevation.

REMARKS.--Records are good except those for estimated daily discharges, which are fair. Diversions for irrigation of about 24,200 acres of which about 2,000 acres occurs downstream from the station. U.S. Geological Survey satellite telemeter is located at the station. Several observations of water temperature and specific conductance were made during the year.

06192500 YELLOWSTONE RIVER NEAR LIVINGSTON, MT—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	1,460	1,300	e800	1,110	e1,000	1,200	1,750	9,810	7,000	4,250	2,070	1,420
2	1,480	1,320	e950	1,170	e900	1,200	1,740	10,500	7,320	4,090	2,110	1,420
3	1,620	1,460	e840	1,190	e950	1,070	1,720	11,300	8,000	3,930	2,120	1,390
4	1,810	1,580	e1,000	1,190	1,020	1,160	1,640	9,140	8,460	3,770	2,090	1,360
5	1,710	1,550	1,330	1,160	1,130	1,240	1,660	7,280	8,700	3,640	2,060	1,350
6	1,650	1,520	1,290	1,110	1,180	1,240	1,680	6,100	9,390	3,520	2,090	1,470
7	1,740	1,540	1,310	1,090	1,140	1,270	1,700	5,660	10,200	3,400	2,080	1,580
8	2,090	1,840	1,390	1,220	1,150	1,270	1,750	6,360	8,760	3,370	1,990	1,490
9	2,120	2,450	1,360	1,170	1,170	1,300	1,920	7,900	8,160	3,270	1,890	1,420
10	1,950	2,230	1,300	1,180	1,180	1,260	2,180	8,870	8,070	3,150	1,880	1,370
11	1,850	1,920	1,320	e900	1,250	1,270	2,040	10,000	8,100	3,060	1,850	1,350
12	1,830	1,860	1,340	e800	1,250	1,310	1,930	11,200	8,050	2,950	1,810	1,320
13	1,780	1,740	1,350	e700	1,240	1,410	1,850	12,600	7,770	2,890	1,750	1,290
14	1,750	1,770	1,350	e750	1,180	1,540	1,850	13,200	7,620	2,920	1,720	1,280
15	1,720	1,710	1,360	e750	1,230	1,580	1,960	11,600	7,620	2,900	1,700	1,260
16	1,800	1,640	1,330	e800	1,260	1,480	2,210	10,500	7,580	2,820	1,660	1,260
17	1,850	1,720	e950	e850	1,230	1,460	2,360	10,500	7,520	2,720	1,650	1,240
18	1,780	1,670	e750	e900	1,210	1,490	2,940	10,500	7,110	2,650	1,780	1,260
19	1,700	1,630	e700	e1,000	1,240	1,580	3,070	10,700	6,480	2,590	1,810	1,260
20	1,750	1,590	e800	e1,100	1,240	1,680	2,760	10,800	6,180	2,480	1,770	1,260
21	1,760	1,610	e1,000	e1,300	1,210	1,800	2,570	10,800	6,080	2,410	1,740	1,230
22	1,690	1,620	1,110	e1,200	1,230	1,750	2,500	9,830	6,010	2,380	1,700	1,220
23	1,630	1,610	1,090	e1,200	1,250	1,690	2,480	8,550	5,800	2,320	1,670	1,210
24	1,640	1,530	1,100	e1,180	1,270	1,650	2,660	7,780	5,600	2,320	1,660	1,290
25	1,660	1,430	1,090	e1,150	1,210	1,610	2,780	7,440	5,390	2,330	1,630	1,280
26	1,670	1,520	1,240	e1,150	1,220	1,780	3,350	7,000	5,150	2,500	1,570	1,270
27	1,580	1,670	1,270	e1,100	1,230	1,950	3,630	6,900	4,930	2,570	1,530	1,250
28	1,600	e1,300	1,280	e1,080	1,200	2,140	4,140	7,670	4,780	2,560	1,490	1,220
29	1,580	e950	1,200	e1,050	---	1,980	6,340	8,080	4,590	2,350	1,460	1,210
30	1,570	e850	1,130	e1,050	---	1,740	8,990	7,480	4,430	2,210	1,390	1,200
31	1,480	---	1,090	e1,100	---	1,760	---	7,160	---	2,110	1,410	---
Total	53,300	48,130	35,420	32,700	32,970	46,860	80,150	283,210	210,850	90,430	55,130	39,430
Mean	1,719	1,604	1,143	1,055	1,178	1,512	2,672	9,136	7,028	2,917	1,778	1,314
Max	2,120	2,450	1,390	1,300	1,270	2,140	8,990	13,200	10,200	4,250	2,120	1,580
Min	1,460	850	700	700	900	1,070	1,640	5,660	4,430	2,110	1,390	1,200
Ac-ft	105,700	95,470	70,260	64,860	65,400	92,950	159,000	561,700	418,200	179,400	109,400	78,210

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1897 - 2007, BY WATER YEAR (WY)*

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	2,007	1,677	1,380	1,219	1,214	1,296	1,982	7,076	13,200	7,537	3,571	2,376
Max	3,115	2,599	1,984	1,757	1,800	1,901	3,852	13,070	27,140	14,990	6,000	3,806
(WY)	(1973)	(1984)	(1984)	(1984)	(1898)	(1898)	(1990)	(1897)	(1997)	(1975)	(1899)	(1968)
Min	1,131	1,099	930	727	763	899	1,174	2,751	4,999	2,748	1,713	1,281
(WY)	(1989)	(1932)	(2002)	(1989)	(1989)	(1964)	(1961)	(1905)	(1987)	(1931)	(1988)	(2001)

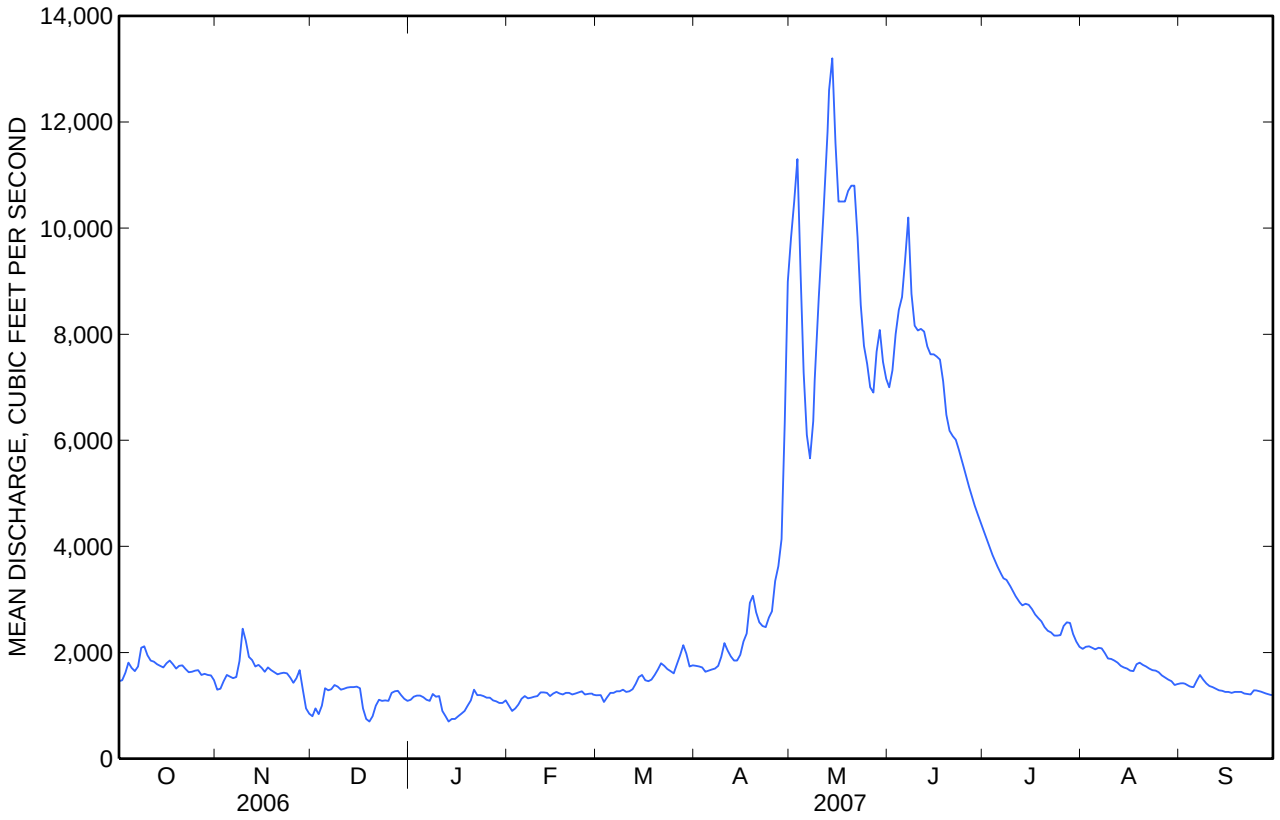
* During periods of operation (May 1897 to December 1905, August 1928 to September 1932, October 1937 to current year).

06192500 YELLOWSTONE RIVER NEAR LIVINGSTON, MT—Continued

SUMMARY STATISTICS

	Calendar Year 2006		Water Year 2007		Water Years 1897 - 2007*	
Annual total	1,315,920		1,008,580			
Annual mean	3,605		2,763		3,710	
Highest annual mean					6,119	1997
Lowest annual mean					2,395	2001
Highest daily mean	20,400	May 21	13,200	May 14	36,000	Jun 6, 1997
Lowest daily mean	700	Dec 19	700	Dec 19	540	Feb 4, 1989
Annual seven-day minimum	914	Dec 17	793	Jan 11	571	Feb 1, 1989
Maximum peak flow			15,200	May 14	38,000	Jun 6, 1997
Maximum peak stage			7.55	May 14	10.72	Jun 6, 1997
Annual runoff (ac-ft)	2,610,000		2,001,000		2,687,000	
10 percent exceeds	10,100		7,600		9,690	
50 percent exceeds	1,660		1,660		1,880	
90 percent exceeds	1,210		1,110		1,130	

* During periods of operation (May 1897 to December 1905, August 1928 to September 1932, October 1937 to current year).



06192500 YELLOWSTONE RIVER NEAR LIVINGSTON, MT—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1965, 1970-94, 1999-2003, 2007.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: December 1999 to September 2003, April 1 to Sept. 30, 2007.
SUSPENDED-SEDIMENT DISCHARGE: May 1985 to September 1986.

INSTRUMENTATION.--Water temperature recorder installed Nov. 23, 1999. Water temperature record not funded for water years 2004-06.

REMARKS.--Seasonal daily water temperature record is rated good. Several unpublished records of instantaneous water temperature and specific conductance were made during the year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: Maximum, 23.5°C, July 18,19, and 21, 2007; minimum, 0.0°C, many days during winter period.
SEDIMENT CONCENTRATION: Maximum daily mean, 70 mg/L, May 28, 1986; minimum daily mean, 4 mg/L on several days in August 1985 and September 1986.
SEDIMENT LOAD: Maximum daily, 33,700 tons, June 2, 1986; minimum daily, 28 tons on several days in August and September 1985 and 1986.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURE: Maximum 23.5°C, on July 18, 19, and 21; minimum, 3.0°C, Apr. 7.

06192500 YELLOWSTONE RIVER NEAR LIVINGSTON, MT—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
SEASON APRIL 2007 TO SEPTEMBER 2007

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		April			May			June	
1	8.0	6.0	7.0	11.0	7.0	9.0	13.5	9.0	11.0
2	7.0	5.5	6.0	11.0	7.0	9.0	14.5	10.0	12.5
3	8.5	4.0	6.0	9.5	7.0	8.5	14.5	11.0	13.0
4	6.5	4.5	5.5	8.5	5.5	7.0	15.5	11.0	13.0
5	7.5	4.0	5.5	7.0	5.0	6.0	14.5	11.5	13.0
6	7.5	4.0	5.5	9.0	5.5	7.0	13.5	10.0	11.5
7	5.5	3.0	4.0	11.5	6.5	9.0	10.0	8.0	8.5
8	10.5	4.0	6.5	13.0	8.5	11.0	11.0	8.0	9.5
9	9.0	7.5	8.0	12.5	8.5	10.5	12.5	8.5	10.5
10	7.5	6.0	7.0	11.0	7.5	9.5	12.0	10.0	11.0
11	7.5	5.5	6.5	11.5	7.5	9.5	14.0	10.0	12.0
12	8.5	5.0	6.5	12.0	8.0	10.0	14.5	10.5	12.5
13	10.0	4.5	7.0	11.5	8.0	9.5	15.0	11.0	13.0
14	11.0	6.5	8.5	11.0	8.0	9.5	14.5	12.0	13.0
15	11.0	8.5	9.5	11.5	7.5	9.0	15.0	12.0	13.5
16	12.5	8.5	10.0	12.0	7.5	9.5	16.5	12.0	14.5
17	12.5	9.0	11.0	12.5	8.5	10.5	15.5	13.0	14.0
18	11.0	8.0	9.5	12.0	9.0	10.5	14.0	11.5	12.5
19	8.0	7.0	7.5	12.0	9.0	10.5	15.0	10.0	12.5
20	8.5	5.5	7.0	12.0	9.0	10.5	15.5	12.0	14.0
21	9.0	6.5	7.5	11.5	8.5	10.0	17.5	13.5	15.5
22	10.5	6.0	8.5	10.0	6.5	8.0	18.5	14.0	16.5
23	10.0	8.0	9.0	8.0	5.5	6.5	18.0	14.5	16.5
24	13.0	7.0	10.0	9.0	5.5	7.5	18.0	14.5	16.5
25	13.5	9.5	11.5	9.5	7.0	8.0	17.0	14.5	15.5
26	12.0	10.0	11.0	12.5	7.5	9.5	17.0	13.5	15.0
27	12.5	9.0	11.0	13.5	9.5	11.5	17.0	13.5	15.5
28	13.0	9.5	11.5	13.0	10.5	11.5	19.0	14.5	16.5
29	12.5	9.5	11.0	11.0	8.5	10.0	19.0	15.5	17.5
30	11.5	8.0	9.5	12.0	8.5	10.0	19.5	16.0	17.5
31	---	---	---	11.5	9.0	10.5	---	---	---
Month	13.5	3.0	8.0	13.5	5.0	9.5	19.5	8.0	13.5

06192500 YELLOWSTONE RIVER NEAR LIVINGSTON, MT—Continued

TEMPERATURE, WATER, DEGREES CELSIUS
SEASON APRIL 2007 TO SEPTEMBER 2007

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		July			August			September	
1	20.5	16.5	18.5	22.0	18.0	20.0	20.0	15.5	17.5
2	19.5	17.0	18.5	21.0	18.5	19.5	20.5	15.5	18.0
3	20.5	16.5	18.5	23.0	19.0	20.5	21.5	16.5	19.0
4	21.5	17.5	19.5	21.5	18.5	19.5	19.0	16.0	18.0
5	22.5	18.0	20.0	19.5	17.0	18.5	19.5	16.0	17.5
6	23.0	19.0	21.0	21.0	16.5	18.5	18.0	15.0	16.5
7	22.0	19.5	21.0	19.5	16.5	18.0	17.5	14.0	16.0
8	22.0	17.5	20.0	20.5	16.0	18.5	16.5	13.0	14.5
9	22.0	18.0	20.0	20.0	16.0	18.5	15.0	11.5	13.0
10	21.0	17.0	19.0	19.0	16.0	18.0	15.0	9.5	12.5
11	21.5	17.0	19.5	19.0	15.0	17.0	16.5	10.5	13.5
12	21.5	17.5	19.5	21.0	15.5	18.0	16.5	11.5	14.0
13	22.0	18.0	20.5	21.0	16.5	18.5	15.5	11.0	13.0
14	22.0	19.0	20.0	20.5	16.5	18.5	14.5	11.0	12.5
15	22.0	17.5	20.0	20.0	16.5	18.5	16.0	11.0	13.5
16	21.5	18.0	20.0	19.0	16.0	18.0	15.0	11.0	13.0
17	21.5	19.0	20.5	18.5	16.5	17.5	14.0	11.5	13.0
18	23.5	19.0	21.0	19.0	16.0	17.0	15.0	12.0	13.5
19	23.5	20.0	22.0	20.0	16.0	17.5	14.0	11.5	12.5
20	23.0	18.5	21.0	17.5	15.0	16.5	15.5	11.5	13.0
21	23.5	18.5	21.0	19.0	15.5	17.0	15.5	10.5	13.0
22	23.0	18.0	21.0	17.0	15.0	16.0	13.0	12.0	12.5
23	22.5	19.0	21.0	18.0	13.5	16.0	13.0	11.0	12.0
24	21.0	18.5	20.0	19.0	14.5	16.5	12.0	10.0	11.0
25	23.0	19.0	21.0	19.5	14.5	17.0	13.0	9.5	11.5
26	21.5	19.5	20.5	19.0	14.5	17.0	13.5	10.0	11.5
27	23.0	19.0	21.0	19.0	14.5	17.0	14.0	9.5	11.5
28	23.0	19.0	21.0	19.0	14.5	16.5	13.0	10.0	11.5
29	22.0	18.5	20.5	19.5	14.5	17.0	11.5	10.0	10.5
30	21.5	18.0	20.0	19.5	14.5	17.5	11.0	7.5	9.5
31	23.0	18.5	20.5	18.5	15.5	17.0	---	---	---
Month	23.5	16.5	20.0	23.0	13.5	18.0	21.5	7.5	13.5

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Water-Data Report 2007

06195600 SHIELDS RIVER NEAR LIVINGSTON, MT

Upper Yellowstone Basin
Shields Subbasin

LOCATION.--Lat 45°44′18″, long 110°28′45″ referenced to North American Datum of 1927, in NE ¼ SE ¼ NW ¼ sec.22, T.1 S., R.10 E., Park County, MT, Hydrologic Unit 10070003, on right bank 0.2 mi downstream from private road bridge, 6.5 mi northeast of Livingston, and at river mile 2.0.

DRAINAGE AREA.--852 mi².

SURFACE-WATER RECORDS

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

GAGE.--Water-stage recorder. Elevation of gage is 4,420 ft, referenced to the National Geodetic Vertical Datum of 1929. Oct. 1, 1978, to Aug. 12, 1980, water-stage recorder at site 0.2 mi upstream at elevation 7.89 ft higher.

REMARKS.--Records are good except those for estimated daily discharges, which are poor. Diversions for irrigation of about 32,000 acres occur upstream from the station. National Weather Service satellite telemeter is located at the station. Several unpublished observations of water temperature and specific conductance were made during the year.

06195600 SHIELDS RIVER NEAR LIVINGSTON, MT—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	68	129	e90	e75	e60	74	205	594	797	156	36	31
2	68	138	e100	e75	e60	66	211	688	709	150	37	31
3	80	144	e110	e75	e70	59	196	779	711	139	36	31
4	78	142	e120	e75	e80	80	193	768	708	128	37	29
5	79	141	e125	e75	e85	87	199	606	729	116	40	30
6	80	139	e120	e72	e80	188	197	481	838	107	46	34
7	96	140	e110	e72	e75	400	182	412	1,180	102	45	33
8	111	180	e110	e80	e70	538	177	375	1,140	111	41	32
9	111	213	e110	e74	e65	411	187	373	918	107	42	35
10	112	190	119	e68	e65	286	209	383	807	97	40	41
11	109	179	116	e60	e70	261	195	451	737	93	40	41
12	106	172	114	e55	74	339	187	467	640	87	38	38
13	104	158	116	e50	81	793	181	542	516	79	36	35
14	104	159	116	e55	77	483	176	e650	474	73	36	35
15	106	142	118	e60	84	263	179	e530	498	70	35	38
16	139	152	e80	e65	85	227	195	e440	458	64	35	40
17	163	148	e70	e65	90	200	215	e380	460	61	36	39
18	143	137	e60	e65	81	220	240	347	456	59	36	42
19	135	132	e65	e70	88	230	284	372	399	51	37	42
20	153	145	e70	e70	91	225	265	383	348	47	36	45
21	173	145	e75	e70	88	224	246	425	326	45	36	51
22	153	142	e80	e65	82	201	229	401	299	42	39	55
23	143	144	e80	e70	83	189	225	396	287	39	38	57
24	138	126	e80	e70	74	191	234	339	261	40	39	60
25	137	131	e80	e75	74	197	247	410	242	42	36	62
26	136	e100	e85	e70	77	216	297	369	232	55	35	60
27	132	e85	e85	e70	70	231	319	331	223	48	32	62
28	129	e75	e82	e65	68	271	311	432	203	44	32	65
29	126	e70	e78	e65	---	220	385	670	186	41	32	69
30	127	e80	e74	e65	---	209	503	889	171	39	32	73
31	112	---	e70	e65	---	211	---	856	---	37	31	---
Total	3,651	4,178	2,908	2,106	2,147	7,790	7,069	15,539	15,953	2,369	1,147	1,336
Mean	118	139	93.8	67.9	76.7	251	236	501	532	76.4	37.0	44.5
Max	173	213	125	80	91	793	503	889	1,180	156	46	73
Min	68	70	60	50	60	59	176	331	171	37	31	29
Ac-ft	7,240	8,290	5,770	4,180	4,260	15,450	14,020	30,820	31,640	4,700	2,280	2,650

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1979 - 2007, BY WATER YEAR (WY)

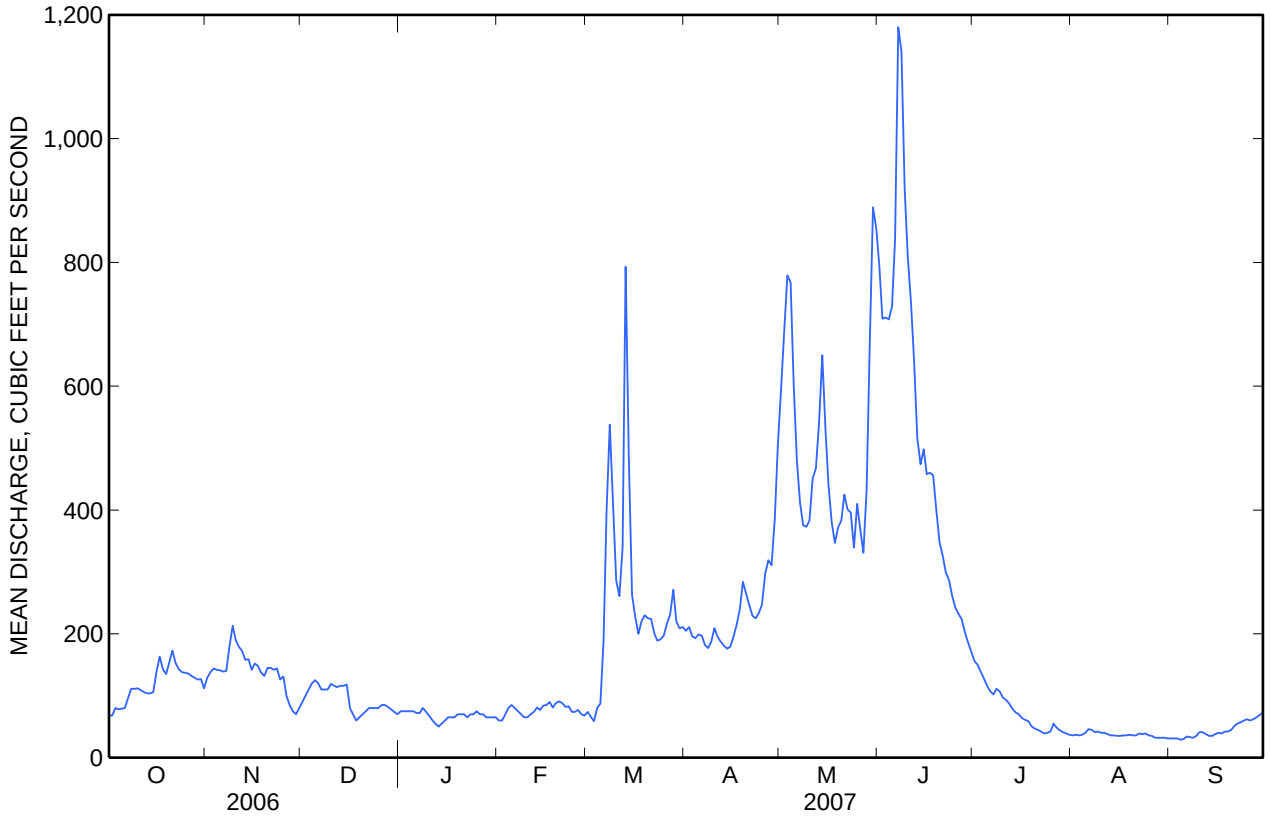
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	143	130	106	99.2	117	176	364	770	730	290	119	121
Max	275	195	145	225	363	461	627	1,962	2,260	1,135	677	388
(WY)	(1979)	(1984)	(1990)	(1984)	(1996)	(1997)	(1996)	(1997)	(1997)	(1993)	(1993)	(1993)
Min	51.5	73.8	73.6	55.5	59.8	76.9	145	127	152	53.6	25.6	31.2
(WY)	(1989)	(1989)	(1988)	(1988)	(1988)	(2002)	(2000)	(2004)	(1985)	(1988)	(1988)	(1988)

06195600 SHIELDS RIVER NEAR LIVINGSTON, MT—Continued

SUMMARY STATISTICS

	Calendar Year 2006		Water Year 2007		Water Years 1979 - 2007	
Annual total	77,041		66,193			
Annual mean	211		181		264	
Highest annual mean					610	1997
Lowest annual mean					114	2000
Highest daily mean	1,220	May 21	1,180	Jun 7	4,760	Jun 20, 1979
Lowest daily mean	29	Aug 28	29	Sep 4	20	Aug 21, 1988
Annual seven-day minimum	30	Aug 25	31	Aug 30	22	Aug 20, 1988
Maximum peak flow			1,320	Jun 7	5,600	Jun 20, 1979
Maximum peak stage			3.86	Jun 7	[b]6.80	Jun 20, 1979
Instantaneous low flow			[a]28	Sep 3	[c]17	Aug 20, 1988
Annual runoff (ac-ft)	152,800		131,300		191,400	
10 percent exceeds	629		444		653	
50 percent exceeds	112		107		131	
90 percent exceeds	35		39		66	

[a] Gage height, 1.68 ft.
[b] Site and datum then in use.
[c] Gage height, 1.44 ft.



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Water-Data Report 2007

06200000 BOULDER RIVER AT BIG TIMBER, MT

Upper Yellowstone Basin

LOCATION.--Lat 45°50'03", long 109°56'17" referenced to North American Datum of 1927, in SE ¼ NE ¼ SE ¼ sec.14, T.1 N., R.14 E., Sweet Grass County, MT, Hydrologic Unit 10070002, on left bank 150 ft upstream from Old Boulder Bridge, 1 mi east of Big Timber, and at river mile 1.6.

DRAINAGE AREA.--523 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--April 1947 to December 1953, March 1955 to current year. Monthly discharge only for April 1947, published in Water Supply Paper 1309.

GAGE.--Water-stage recorder. Elevation of gage is 4,056.39 ft, referenced to the National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.--Records are good except those for estimated daily discharges, which are poor. Diversions for irrigation of about 13,300 acres, of which about 250 acres are downstream from station. U.S. Geological Survey satellite telemeter is located at the station. Several unpublished observations of water temperature and specific conductance were made during the year.

06200000 BOULDER RIVER AT BIG TIMBER, MT—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	67	e120	e140	e120	e100	e90	190	966	1,150	806	110	59
2	70	e130	e160	e170	e90	e90	218	1,260	1,360	700	106	60
3	96	244	e190	171	e110	e90	191	1,640	1,860	616	108	59
4	144	251	e220	156	e130	e100	177	1,360	2,190	563	106	58
5	131	229	e240	115	e150	e110	186	997	2,430	528	102	60
6	127	213	232	e90	143	113	178	757	2,950	515	107	62
7	174	223	221	e85	133	113	170	619	3,260	508	107	68
8	308	374	226	e100	e120	114	164	635	2,410	462	94	65
9	307	446	215	e150	e110	113	170	864	2,280	423	88	65
10	280	363	203	170	e110	110	198	1,210	2,310	379	85	64
11	274	320	194	e100	e110	110	183	1,580	2,560	339	84	62
12	265	313	183	e60	111	113	177	1,820	2,600	314	82	60
13	251	269	185	e50	97	122	169	2,480	2,410	294	78	59
14	243	300	179	e70	e90	139	158	2,690	2,360	275	74	60
15	233	255	182	e80	e110	136	159	2,140	2,640	266	73	60
16	285	271	154	e100	130	123	176	1,850	2,650	249	72	61
17	309	274	112	e110	110	122	177	1,960	2,760	242	69	60
18	258	256	e70	e120	125	126	203	2,040	2,390	247	68	64
19	242	242	e100	e140	118	136	241	2,120	1,820	216	71	69
20	278	240	e120	e160	112	140	234	2,330	1,740	186	68	69
21	282	233	e140	e150	111	151	218	2,380	1,790	155	67	70
22	258	227	e160	e140	108	149	214	1,940	1,770	125	70	69
23	238	225	e170	e160	108	141	235	1,490	1,650	113	67	69
24	239	203	182	e170	102	141	267	1,190	1,510	114	67	70
25	239	e160	182	e140	100	141	252	1,150	1,350	123	69	73
26	238	e130	181	e130	e100	159	283	935	1,180	153	66	72
27	220	e110	189	e120	e95	175	314	1,010	1,050	148	64	72
28	221	e100	177	e120	e90	226	321	1,620	996	145	62	70
29	210	e110	e140	e110	---	210	431	1,680	954	131	61	68
30	217	e120	e100	e100	---	189	710	1,360	885	122	61	69
31	158	---	e100	e120	---	186	---	1,230	---	115	59	---
Total	6,862	6,951	5,247	3,777	3,123	4,178	6,964	47,303	59,265	9,572	2,465	1,946
Mean	221	232	169	122	112	135	232	1,526	1,976	309	79.5	64.9
Max	309	446	240	171	150	226	710	2,690	3,260	806	110	73
Min	67	100	70	50	90	90	158	619	885	113	59	58
Ac-ft	13,610	13,790	10,410	7,490	6,190	8,290	13,810	93,830	117,600	18,990	4,890	3,860

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1948 - 2007, BY WATER YEAR (WY) *

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	214	189	152	133	126	127	208	1,136	2,699	1,198	228	181
Max	417	282	214	214	197	179	390	2,241	4,638	4,307	709	534
(WY)	(1973)	(1998)	(1976)	(1984)	(1985)	(1979)	(1962)	(1976)	(1997)	(1975)	(1968)	(1968)
Min	74.9	108	71.8	54.7	55.2	92.9	66.7	429	894	193	21.9	27.7
(WY)	(2002)	(1988)	(1988)	(2001)	(2001)	(2002)	(1961)	(1953)	(1987)	(1988)	(1961)	(1988)

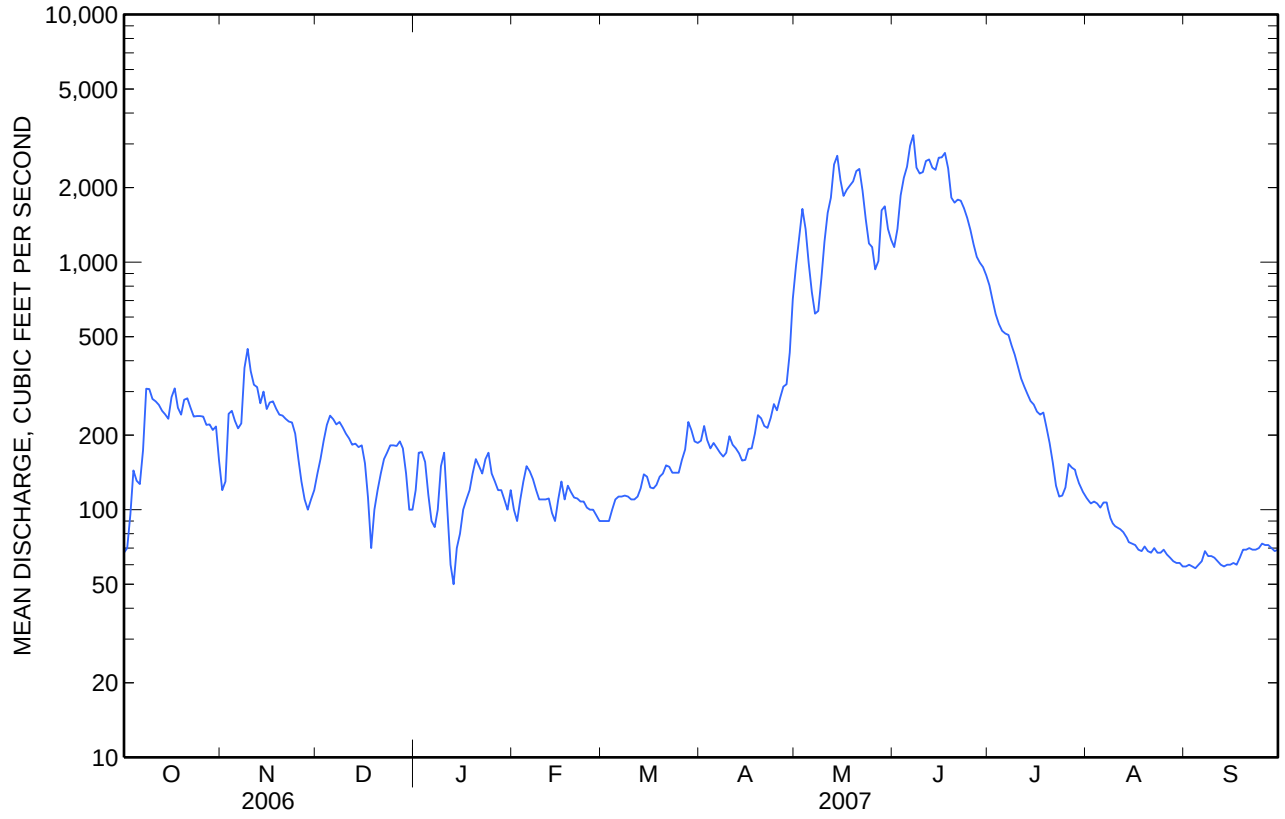
* During periods of operation (April 1947 to December 1953, March 1955 to current year).

06200000 BOULDER RIVER AT BIG TIMBER, MT—Continued

SUMMARY STATISTICS

	Calendar Year 2006		Water Year 2007		Water Years 1948 - 2007*	
Annual total	151,445		157,653			
Annual mean	415		432		552	
Highest annual mean					905	1975
Lowest annual mean					310	2001
Highest daily mean	3,940	Jun 9	3,260	Jun 7	8,540	Jul 5, 1975
Lowest daily mean	41	Sep 14	50	Jan 13	12	Aug 26, 1961
Annual seven-day minimum	42	Sep 8	59	Aug 30	13	Aug 25, 1961
Maximum peak flow			3,760	Jun 7	[a]9,940	Jun 5, 1997
Maximum peak stage			5.60	Jun 7	9.00	Jun 5, 1997
Instantaneous low flow					10	Aug 26, 1961
Annual runoff (ac-ft)	300,400		312,700		399,600	
10 percent exceeds	1,170		1,540		1,700	
50 percent exceeds	143		164		177	
90 percent exceeds	63		69		98	

* During periods of operation (April 1947 to December 1953, March 1955 to current year).
[a] From rating curve extended above 6,000 ft³/s.



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06204000 MYSTIC LAKE NEAR ROSCOE, MT

Upper Yellowstone Basin
Stillwater Subbasin

LOCATION.--Lat 45°13'30", long 109°45'36" referenced to North American Datum of 1927, in sec.9, T.7 S., R.16 E., Stillwater County, MT, Hydrologic Unit 10070005, (unsurveyed) at dam on West Rosebud Creek, 15 mi southwest of Roscoe, 25 mi southwest of Absarokee and at river mile 28.8.

DRAINAGE AREA.--46.9 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--January 1936 to current year. Records prior to September 1939, published only in WSP 1309. Record of daily elevations since October 1965 are in files of the USGS Water Science Center located in Helena, Montana. Water-stage recorder. Prior to October 1965, only monthend figures furnished.

REVISED RECORDS.-- Water Supply Paper 1916: Drainage area.

GAGE.--Elevation of gage is at sea level (levels by the Montana Power Company).

COOPERATION.--Records furnished by PPL EnergyPlus, LLC.

REMARKS.--Reservoir is formed by thin-section reinforced concrete arch dam completed in 1925. All elevations are referenced to the National Geodetic Vertical Datum of 1929. Usable capacity is 21,000 acre-ft between elevation 7,612.00 ft, minimum operating level, and 7,673.50 ft, top of 3.5 ft stop logs. Reservoir has no dead storage. Figures given herein represent usable contents. Water is used for power development and recreation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 21,130 acre-ft, July 10, 1983, elevation, 7,673.8 ft; no storage most days Mar. 23 to May 5, 1981, Apr. 10 to May 19, 1982, May 4,5, 1983, May 14, 1984, Mar. 23,26,27, 1986, Apr. 8-11, 1988, Apr. 18-20, 1999, Apr. 12 to May 1, 2000, and several days in April 2003.

EXTREMES FOR CURRENT YEAR.--Maximum contents observed, 21,030 acre-ft, July 7, elevation, 7,673.58 ft; minimum observed, 396 acre-ft, Apr. 25, elevation 7,613.41.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, SEPTEMBER 2006 TO SEPTEMBER 2007

Date	Elevation (feet)	Contents (acre-feet)	Change in Contents (acre-feet)
September 30	7,658.96	15,040	--
October 31	7,661.29	15,940	+900
November 30	7,654.99	13,570	-2,370
December 31	7,646.22	10,510	-3,060
Calendar Year 2006	--	--	+1,380
January 31	7,635.60	7,070	-3,440
February 28	7,624.78	3,770	-3,300
March 31	7,616.92	1,420	-2,350
April 30	7,614.19	615	-805
May 31	7,641.21	8,860	+8,240
June 30	7,673.50	21,000	+12,140
July 31	7,673.27	20,900	-100
August 31	7,670.42	19,670	-1,230
September 30	7,666.52	18,030	-1,640
Water Year 2007	--	--	+2,990

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Water-Data Report 2007

06204050 WEST ROSEBUD CREEK NEAR ROSCOE, MT

Upper Yellowstone Basin
Stillwater Subbasin

LOCATION.--Lat 45°14′35″, long 109°43′50″ referenced to North American Datum of 1927, in NE ¼ sec.10, T.7 S., R.16 E., Stillwater County, MT, Hydrologic Unit 10070005, on left bank at Mystic Lake powerplant, 2.0 mi downstream from Mystic Lake, 13.5 mi southwest of Roscoe, and at river mile 26.8.

DRAINAGE AREA.--52.1 mi^2.

SURFACE-WATER RECORDS

PERIOD OF RECORD.--September 1965 to current year.

GAGE.--Water-stage recorder and rectangular weir. Elevation of gage is 6,535.60 ft, referenced to the National Geodetic Vertical Datum of 1929.

REMARKS.--Records are good. Flow is regulated by Mystic Lake (station number 06204000). U.S. Geological Survey satellite telemeter is located at the station. Several unpublished observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE FOR PERIOD OF RECORD.--42 years, 121 ft^3/s, 31.54 in/yr, 87,660 acre-ft/yr, adjusted for change in contents in Mystic Lake.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,630 ft^3/s, July 6, 1975, gage height, 4.71 ft; minimum daily, 2.5 ft^3/s, Apr. 3, 4, 6, 7, 1967.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 425 ft^3/s, June 25, gage height, 2.03 ft; minimum daily, 5.7 ft^3/s, April 27.

06204050 WEST ROSEBUD CREEK NEAR ROSCOE, MT—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
DAILY MEAN VALUES

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	101	86	83	83	85	86	52	115	43	340	217	120
2	102	86	85	81	85	86	52	137	39	338	217	119
3	103	86	85	80	85	86	52	116	40	318	215	116
4	92	86	83	81	84	86	51	95	41	306	215	115
5	72	86	84	81	84	86	51	95	42	308	212	119
6	71	85	84	80	84	86	52	93	52	324	209	119
7	72	86	83	80	85	86	51	93	65	331	206	118
8	71	89	83	86	86	86	51	93	57	326	205	119
9	72	88	82	86	87	75	52	93	53	304	193	118
10	47	86	83	85	85	51	51	96	51	288	155	118
11	6.8	87	82	84	84	50	51	97	52	283	155	117
12	6.3	87	81	84	84	50	51	99	53	274	156	118
13	6.2	87	82	84	84	52	51	101	73	261	156	120
14	5.9	87	82	84	84	52	51	102	140	258	156	119
15	5.9	80	83	86	84	51	52	97	204	249	151	118
16	8.8	91	82	84	84	51	53	98	205	245	143	117
17	39	85	82	84	84	51	47	72	207	244	145	114
18	85	84	84	84	84	51	29	41	138	243	145	117
19	83	85	84	84	84	51	37	41	47	248	143	118
20	85	84	83	84	84	51	36	41	132	249	137	117
21	84	84	82	84	84	51	35	42	244	243	132	116
22	85	84	83	84	84	51	35	41	312	230	133	114
23	85	84	81	84	84	51	37	40	395	200	101	114
24	85	84	83	84	84	51	37	39	406	199	122	117
25	84	84	81	84	84	51	36	40	384	250	122	116
26	84	85	81	84	85	52	30	39	362	290	122	116
27	84	83	82	84	87	52	5.7	39	316	292	122	115
28	85	86	82	84	86	52	5.8	42	303	282	122	114
29	86	85	81	84	---	52	19	42	322	264	121	117
30	86	82	83	84	---	52	74	41	323	239	119	116
31	86	---	84	84	---	51	---	46	---	225	120	---
Total	2,068.9	2,562	2,563	2,589	2,368	1,890	1,287.5	2,266	5,101	8,451	4,867	3,511
Mean	66.7	85.4	82.7	83.5	84.6	61.0	42.9	73.1	170	273	157	117
Max	103	91	85	86	87	86	74	137	406	340	217	120
Min	5.9	80	81	80	84	50	5.7	39	39	199	101	114
Ac-ft	4,100	5,080	5,080	5,140	4,700	3,750	2,550	4,490	10,120	16,760	9,650	6,960

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 2007, BY WATER YEAR (WY)

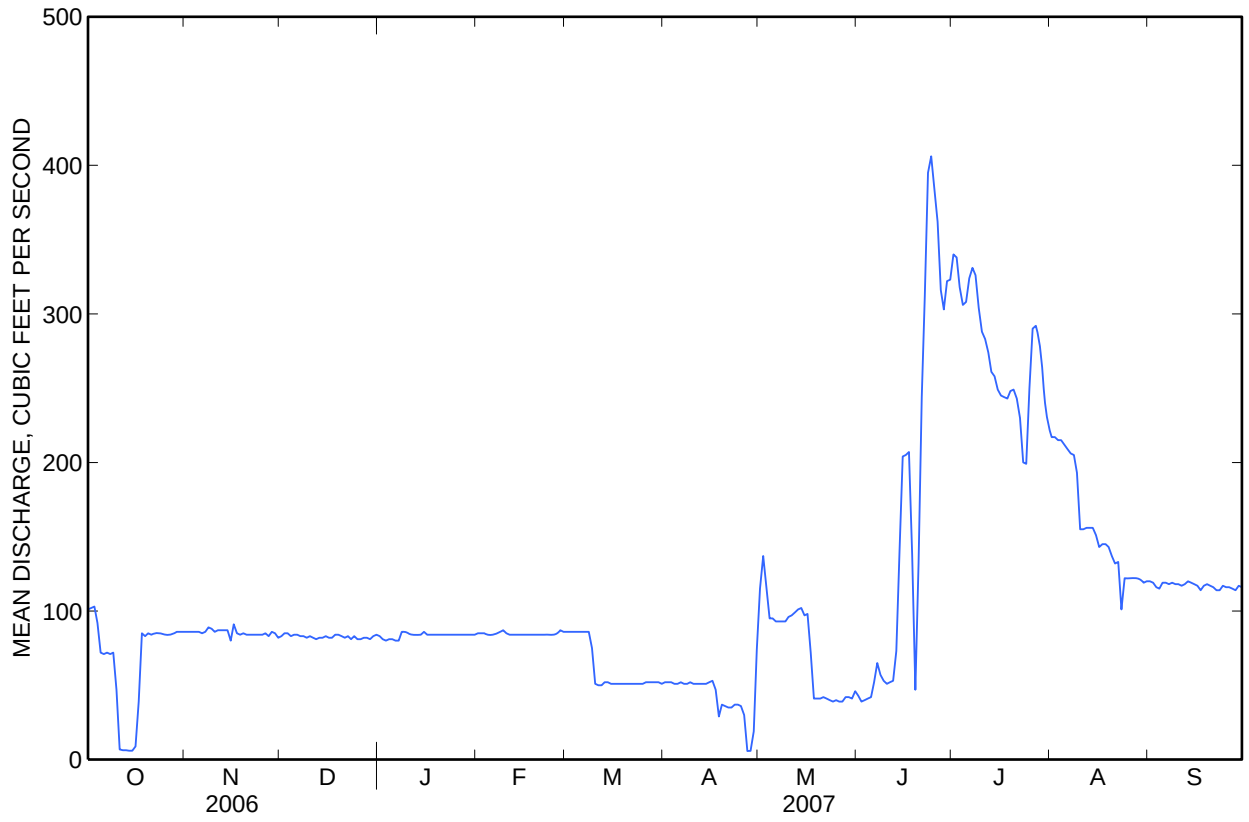
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	93.9	83.4	74.3	67.6	61.4	55.2	42.7	73.0	213	359	194	120
Max	167	178	118	148	92.0	124	108	134	558	712	277	183
(WY)	(1977)	(1986)	(1980)	(1980)	(1979)	(1979)	(1979)	(1969)	(1974)	(1975)	(1997)	(1971)
Min	33.4	31.2	28.4	25.7	28.9	21.7	3.57	16.2	72.9	158	103	38.5
(WY)	(1989)	(1975)	(1979)	(1979)	(1985)	(1987)	(1967)	(1978)	(2004)	(1985)	(1988)	(1988)

06204050 WEST ROSEBUD CREEK NEAR ROSCOE, MT—Continued

ADJUSTED FOR CHANGE IN CONTENTS OF MYSTIC LAKE

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	81.3	45.5	32.9	27.6	25.5	22.8	29.3	207	374	271	137	89.4
Cfsm	1.56	0.87	0.63	0.53	0.48	0.44	0.56	3.97	7.18	5.20	2.63	1.72
In	1.80	0.98	0.73	0.61	0.50	0.50	0.63	4.58	8.01	6.00	3.03	1.91
Ac-ft	5,000	2,710	2,020	1,700	1,400	1,400	1,745	12,730	22,260	16,660	8,420	5,320

OBSERVED										
Calendar Year 2006	Total	38,600	Mean	106	Max	427	Min	5.9	Ac-ft	76,560
Water Year 2007	Total	39,524	Mean	108	Max	406	Min	5.7	Ac-ft	78,400
ADJUSTED										
Calendar year 2006	Total	39,294	Mean	108	Cfsm	2.07	In	28.05	Ac-ft	77,940
Water Year 2007	Total	41,021	Mean	112	Cfsm	2.15	In	29.29	Ac-ft	81,390



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Water-Data Report 2007

06204070 WEST ROSEBUD CREEK AT EMERALD LAKE CAMPGROUND, NEAR ROSCOE, MT

Upper Yellowstone Basin
Stillwater Subbasin

LOCATION.--Lat 45°15′16″, long 109°41′57″ referenced to North American Datum of 1927, in SW ¼ sec.1, T.7 S., R.16 E., Stillwater County, MT, Hydrologic Unit 10070005, on left bank at Emerald Lake Campground, 1,000 ft upstream from Emerald Lake, 11.5 mi southwest of Roscoe, and at river mile 25.0.

DRAINAGE AREA.--66.3 mi^2.

SURFACE-WATER RECORDS

PERIOD OF RECORD.--June 2006 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 6,435 ft, referenced to National Geodetic Vertical Datum of 1929.

REMARKS.--Records are good. Flow is regulated by Mystic Lake (station number 06204000). U.S. Geological Survey satellite telemeter is located at the station. Several unpublished observations of water temperature and specific conductance were made during the year.

06204070 WEST ROSEBUD CREEK AT EMERALD LAKE CAMPGROUND, NEAR ROSCOE, MT—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	102	89	85	84	85	87	55	122	67	411	232	124
2	102	90	86	84	85	87	55	155	64	409	229	123
3	106	90	86	84	85	87	53	142	75	382	228	120
4	101	91	86	84	85	87	53	107	80	363	225	119
5	82	90	85	84	85	87	54	103	86	357	223	126
6	81	93	82	82	85	87	53	98	119	377	221	130
7	86	91	82	81	84	88	53	96	141	392	218	128
8	87	86	85	79	85	88	53	97	115	392	215	130
9	87	96	86	80	84	88	55	101	107	338	210	129
10	e75	96	84	85	85	73	55	109	105	323	169	127
11	e30	87	85	85	85	50	52	118	115	318	167	126
12	e30	92	85	85	85	48	53	124	117	294	166	124
13	30	90	84	85	85	49	52	133	121	267	165	126
14	28	89	84	85	85	51	52	134	185	263	163	125
15	25	88	85	84	85	51	53	123	290	287	161	123
16	22	89	84	85	85	51	53	122	283	245	151	122
17	23	89	85	85	85	50	53	91	282	255	152	120
18	48	87	85	84	85	52	45	58	224	249	152	123
19	91	88	85	84	85	54	39	70	104	256	151	121
20	94	89	85	84	85	54	36	82	133	260	148	121
21	93	87	85	84	85	53	36	87	292	254	141	120
22	94	88	85	84	85	54	36	78	395	237	142	117
23	93	87	85	84	85	53	36	68	481	216	129	119
24	93	e90	85	84	85	53	34	61	500	200	111	121
25	92	e90	85	84	85	53	34	61	477	272	118	120
26	92	91	85	84	85	54	36	57	445	345	124	120
27	92	87	85	84	86	55	22	59	388	347	128	119
28	90	87	85	84	86	56	17	76	356	328	128	118
29	90	87	84	84	---	55	17	77	384	291	126	120
30	91	86	84	84	---	55	46	70	392	262	124	119
31	89	---	84	85	---	54	---	72	---	244	123	---
Total	2,339	2,680	2,626	2,598	2,380	1,964	1,341	2,951	6,923	9,434	5,140	3,680
Mean	75.5	89.3	84.7	83.8	85.0	63.4	44.7	95.2	231	304	166	123
Max	106	96	86	85	86	88	55	155	500	411	232	130
Min	22	86	82	79	84	48	17	57	64	200	111	117
Ac-ft	4,640	5,320	5,210	5,150	4,720	3,900	2,660	5,850	13,730	18,710	10,200	7,300

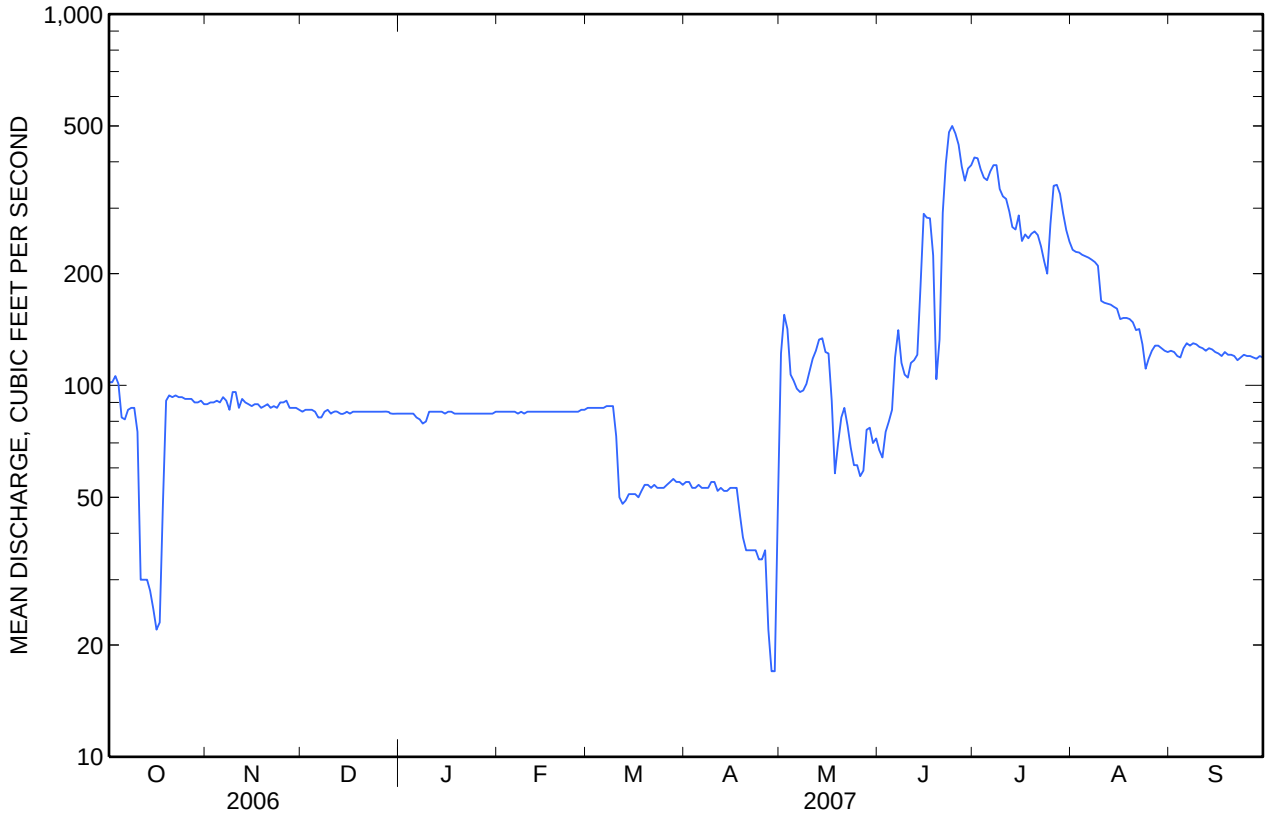
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2006 - 2007, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	75.5	89.3	84.7	83.8	85.0	63.4	44.7	95.2	226	316	168	107
Max	75.5	89.3	84.7	83.8	85.0	63.4	44.7	95.2	231	327	170	123
(WY)	(2007)	(2007)	(2007)	(2007)	(2007)	(2007)	(2007)	(2007)	(2007)	(2006)	(2006)	(2007)
Min	75.5	89.3	84.7	83.8	85.0	63.4	44.7	95.2	221	304	166	91.8
(WY)	(2007)	(2007)	(2007)	(2007)	(2007)	(2007)	(2007)	(2007)	(2006)	(2007)	(2007)	(2006)

06204070 WEST ROSEBUD CREEK AT EMERALD LAKE CAMPGROUND, NEAR ROSCOE, MT—Continued

SUMMARY STATISTICS

	Water Year 2007		Water Years 2006 - 2007	
Annual total	44,056			
Annual mean	121		121	
Highest annual mean			121	2007
Lowest annual mean			121	2007
Highest daily mean	500	Jun 24	539	Jul 8, 2006
Lowest daily mean	17	Apr 28	17	Apr 28, 2007
Annual seven-day minimum	27	Oct 11	27	Oct 11, 2006
Maximum peak flow	581	Jul 15	581	Jul 15, 2007
Maximum peak stage	2.80	Jul 15	2.80	Jul 15, 2007
Annual runoff (ac-ft)	87,390		87,440	
10 percent exceeds	255		255	
50 percent exceeds	87		87	
90 percent exceeds	53		53	



06205000 STILLWATER RIVER NEAR ABSAROKEE, MT

Upper Yellowstone Basin
Stillwater Subbasin

LOCATION.--Lat 45°33′04″, long 109°23′12″ referenced to North American Datum of 1927, in NE ¼ NE ¼ NW ¼ sec.28, T.3 S., R.19 E., Stillwater County, MT, Hydrologic Unit 10070005, on right bank 3 mi downstream from Rosebud Creek, 3.5 mi northeast of Absarokee, 9 mi southwest of Columbus, and at river mile 9.4.

DRAINAGE AREA.--975 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--July 1910 to September 1914 (no winter records), March 1935 to September 1995, October 1995 to September 2000 (seasonal records only), October 2000 to current year.

REVISED RECORDS.-- Water Supply Paper (WSP) 1309: 1911, maximum discharge. WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 3,950 ft, referenced to the National Geodetic Vertical Datum of 1929. Prior to Oct. 1, 1914, nonrecording gage; Mar. 26, 1935, to July 16, 1942, nonrecording gage at bridge 0.5 mi upstream at different elevations; July 17, 1942 to Mar. 23, 2005, water-stage recorder 1.5 mi downstream at elevation 3,873.8 ft (levels by U.S. Army Corps of Engineers).

REMARKS.--Records are good. Flow is partly regulated by Mystic Lake (station number 06204000). Diversions for irrigation include about 24,300 acres, of which 400 acres lies downstream from station. U.S. Geological Survey satellite telemeter is located at the station. Several unpublished observations of water temperature and specific conductance were made during the year.

06205000 STILLWATER RIVER NEAR ABSAROKEE, MT—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	426	422	276	323	270	259	300	1,060	1,170	1,610	672	303
2	424	446	326	361	243	239	328	1,290	1,210	e1,500	672	304
3	545	492	316	344	266	244	302	1,530	1,570	e1,500	668	301
4	538	494	390	319	331	271	285	1,320	1,930	e1,400	668	285
5	515	476	421	266	419	273	296	1,100	2,220	e1,400	659	299
6	511	459	407	248	452	268	290	942	2,890	e1,300	680	339
7	581	467	393	233	340	266	275	844	3,510	e1,300	654	369
8	765	534	444	279	308	266	271	842	2,640	e1,200	619	417
9	810	652	430	371	288	262	285	1,010	2,260	e1,200	591	419
10	772	596	390	356	300	256	303	1,240	2,230	e1,100	549	429
11	745	540	370	271	309	242	294	1,510	2,520	1,080	524	414
12	671	522	360	204	282	239	288	1,770	2,740	1,020	498	392
13	620	460	360	209	252	246	284	2,260	2,570	951	459	389
14	589	526	355	231	258	255	281	2,490	2,610	927	415	398
15	567	477	368	243	269	256	282	2,160	3,020	905	406	391
16	604	486	319	e270	e290	243	306	1,870	3,180	815	383	380
17	654	497	244	e300	e300	238	315	1,890	3,250	809	379	370
18	585	473	248	331	307	236	347	1,930	2,810	814	396	397
19	604	452	286	337	291	247	382	1,940	2,080	781	417	419
20	666	468	338	377	270	253	350	2,060	1,900	763	401	428
21	665	445	318	400	278	258	324	2,170	2,060	740	375	432
22	617	435	413	370	265	254	317	1,860	2,270	683	375	409
23	593	427	331	376	270	249	380	1,520	2,350	647	386	404
24	580	377	328	373	256	244	434	1,230	2,350	617	364	442
25	572	337	334	364	246	243	403	1,110	2,180	733	349	462
26	558	e330	398	345	269	252	446	966	1,940	913	329	454
27	540	e310	372	312	244	266	481	944	1,760	948	329	470
28	525	e290	355	283	242	310	493	1,250	1,650	915	329	462
29	505	e280	323	291	---	301	628	1,610	1,660	848	339	453
30	507	277	270	272	---	287	868	1,390	1,650	768	324	461
31	439	---	306	294	---	284	---	1,260	---	705	305	---
Total	18,293	13,447	10,789	9,553	8,115	8,007	10,838	46,368	68,180	30,892	14,514	11,892
Mean	590	448	348	308	290	258	361	1,496	2,273	997	468	396
Max	810	652	444	400	452	310	868	2,490	3,510	1,610	680	470
Min	424	277	244	204	242	236	271	842	1,170	617	305	285
Ac-ft	36,280	26,670	21,400	18,950	16,100	15,880	21,500	91,970	135,200	61,270	28,790	23,590

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1935 - 2007, BY WATER YEAR (WY) *

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	511	402	317	276	264	283	406	1,497	3,397	2,280	853	595
Max	852	574	430	413	449	565	1,185	2,879	5,776	6,368	1,639	1,099
(WY)	(1942)	(1984)	(1962)	(1942)	(1972)	(1979)	(1943)	(1976)	(1957)	(1975)	(1997)	(1941)
Min	270	227	184	116	103	162	144	661	1,565	626	280	275
(WY)	(1937)	(1936)	(1937)	(1937)	(1936)	(1936)	(1961)	(1960)	(1939)	(1936)	(1988)	(1939)

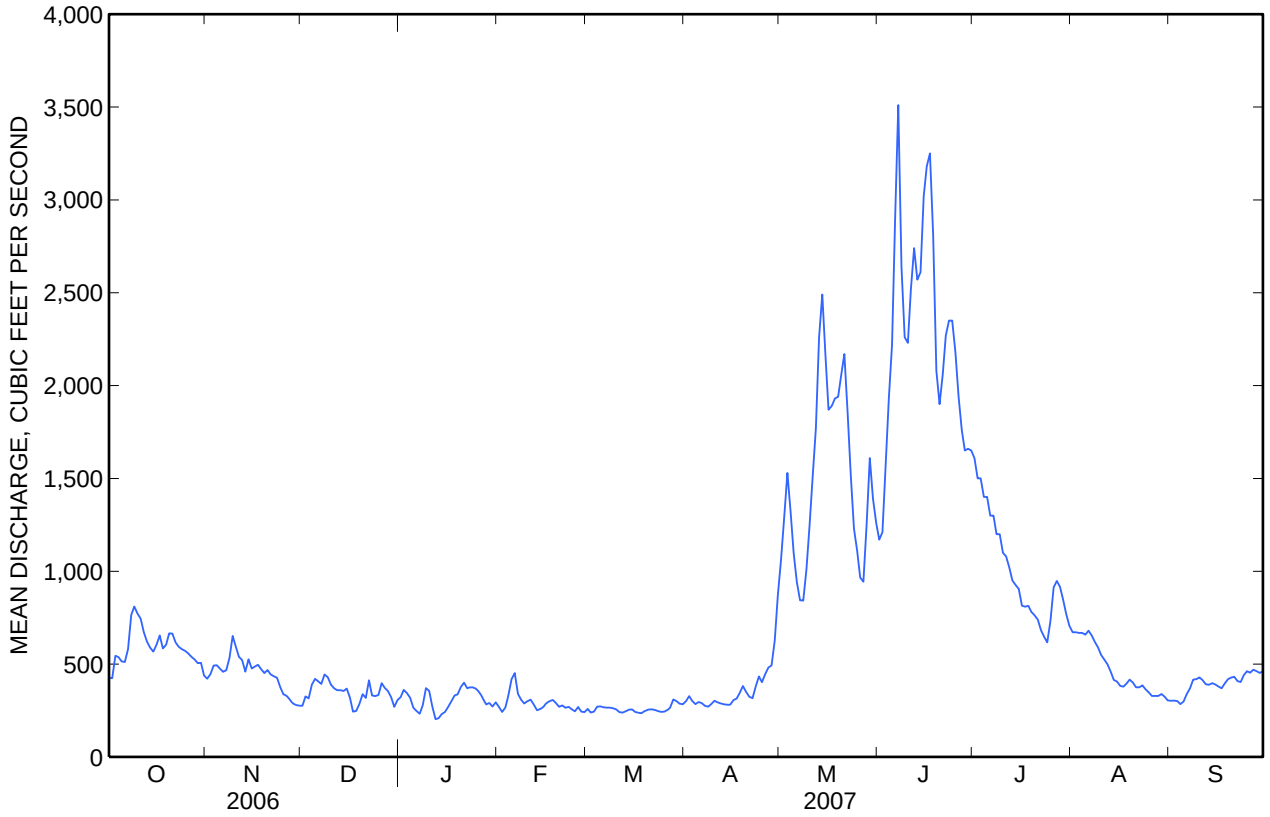
* During periods of operation (1911-12, 1936 to current year. Seasonal records from 1996-2000).

06205000 STILLWATER RIVER NEAR ABSAROKEE, MT—Continued

SUMMARY STATISTICS

	Calendar Year 2006		Water Year 2007		Water Years 1935 - 2007*	
Annual total	255,145		250,888			
Annual mean	699		687		922	
Highest annual mean					1,468	1975
Lowest annual mean					507	1936
Highest daily mean	4,350	Jun 9	3,510	Jun 7	10,900	Jun 18, 1974
Lowest daily mean	184	Feb 18	204	Jan 12	58	Apr 2, 1936
Annual seven-day minimum	224	Feb 14	245	Mar 12	72	Mar 29, 1936
Maximum peak flow			3,850	Jun 7	[b]12,000	Jun 15, 1967
Maximum peak stage			4.75	Jun 7	[b]7.17	Jun 15, 1967
Instantaneous low flow			[a]179	Jan 12	[c]58	Apr 2, 1936
Annual runoff (ac-ft)	506,100		497,600		668,200	
10 percent exceeds	1,800		1,650		2,460	
50 percent exceeds	421		417		441	
90 percent exceeds	245		264		230	

* During periods of operation (1911-12, 1936 to current year. Seasonal records from 1996-2000).
[a] Gage height, 1.28 ft.
[b] Previous site and datum.
[c] Observed.



06207500 CLARKS FORK YELLOWSTONE RIVER NEAR BELFRY, MT

Upper Yellowstone Basin
Clarks Fork Yellowstone Subbasin

LOCATION.--Lat 45°00′37″, long 109°03′53″ referenced to North American Datum of 1927, in NW ¼ SW ¼ NW ¼ sec.32, T.9 S., R.22 E., Carbon County, MT, Hydrologic Unit 10070006, on left bank 0.2 mi upstream from county road bridge and Big Sand Coulee, 0.8 mi north of Wyoming-Montana State line, 9.5 mi southwest of Belfry, and at river mile 71.2.

DRAINAGE AREA.--1,154 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--July 1921 to current year. Monthly discharge only for some periods, published in Water Supply Paper (WSP) 1309. Published as Clarks Fork at Chance prior to October 1956 and as Clarks Fork Yellowstone River at Chance October 1956 to September 1968.

REVISED RECORDS.-- WSP 1309: 1922, maximum discharge. WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 3,986.24 ft, referenced to the National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Nov. 15, 1934, nonrecording gage, and Nov. 15, 1934, to July 26, 1951, water-stage recorder at bridge 0.4 mi downstream from different elevation. July 27, 1951 to Sept. 30, 1953, water-stage recorder at present site at elevation 0.98 ft higher.

REMARKS.--Records are good except those for estimated daily discharges, which are poor. Diversions for irrigation of about 11,100 acres occur upstream from station. A U.S. Geological Survey satellite telemeter is located at the station. Several unpublished observations of water temperature and specific conductance were made during the year.

06207500 CLARKS FORK YELLOWSTONE RIVER NEAR BELFRY, MT—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	109	181	e160	e200	e160	196	302	2,530	1,660	1,270	337	107
2	115	199	e170	e210	e170	191	320	3,000	1,640	1,240	309	109
3	121	243	e180	e220	e180	175	308	3,160	2,160	1,170	284	107
4	160	265	204	e220	e170	190	284	2,420	2,740	1,090	274	104
5	153	245	255	e200	e180	212	281	1,920	3,240	1,030	247	105
6	155	231	276	e150	e190	204	282	1,480	4,240	1,010	260	183
7	177	230	276	e140	e190	213	283	1,330	4,810	983	246	174
8	371	405	290	e190	202	225	290	1,530	3,380	947	215	156
9	386	576	290	e230	196	231	332	2,060	2,600	877	195	138
10	403	462	272	e230	195	221	373	2,700	2,420	787	184	143
11	431	381	263	e200	197	211	328	3,270	2,450	728	182	143
12	411	381	258	e190	197	211	309	3,870	2,590	673	173	133
13	363	326	267	e170	210	229	297	4,390	2,650	614	160	128
14	332	362	266	e190	194	300	295	4,730	2,730	571	146	122
15	304	320	269	e210	188	305	338	4,090	2,750	518	142	118
16	289	295	e220	e220	220	243	391	3,600	2,940	471	135	114
17	320	345	e150	e210	207	235	414	3,690	3,050	437	133	108
18	308	315	e150	e200	204	245	509	3,670	2,810	431	170	109
19	277	295	e150	e200	211	309	602	3,700	2,190	410	169	111
20	286	276	e180	e200	201	341	486	3,800	1,890	401	145	109
21	294	293	e200	e200	206	358	449	3,890	1,900	376	135	106
22	285	281	e210	e200	203	314	437	3,250	2,020	349	153	100
23	268	271	e210	213	207	284	451	2,470	2,130	320	142	101
24	267	255	e220	211	208	263	521	1,920	2,100	286	162	107
25	267	213	235	212	191	255	590	1,570	1,970	343	158	117
26	272	e210	283	206	206	323	694	1,330	1,760	504	142	110
27	234	e210	287	e190	197	370	703	1,240	1,550	552	137	105
28	241	e200	264	e180	191	392	833	1,650	1,390	587	129	103
29	236	e180	e220	e170	---	353	1,370	2,260	1,310	521	128	101
30	248	e170	e200	e170	---	318	2,190	2,070	1,260	449	117	102
31	226	---	e170	e160	---	299	---	1,820	---	380	110	---
Total	8,309	8,616	7,045	6,092	5,471	8,216	15,262	84,410	72,330	20,325	5,619	3,573
Mean	268	287	227	197	195	265	509	2,723	2,411	656	181	119
Max	431	576	290	230	220	392	2,190	4,730	4,810	1,270	337	183
Min	109	170	150	140	160	175	281	1,240	1,260	286	110	100
Ac-ft	16,480	17,090	13,970	12,080	10,850	16,300	30,270	167,400	143,500	40,310	11,150	7,090

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1921 - 2007, BY WATER YEAR (WY)

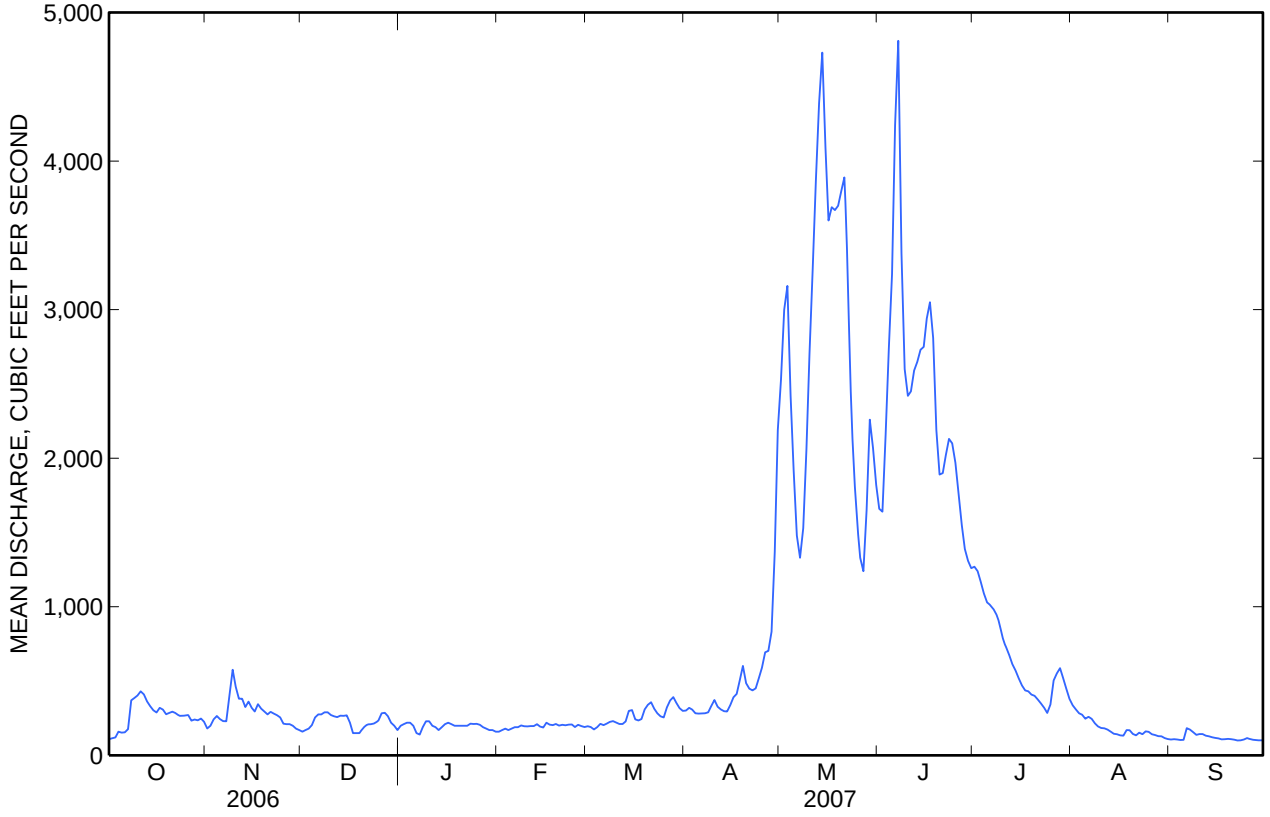
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	276	294	261	230	222	223	426	2,058	4,048	2,141	595	306
Max	725	648	379	359	329	364	1,167	5,704	7,225	5,744	1,453	834
(WY)	(1931)	(1928)	(1951)	(1997)	(1963)	(1972)	(1943)	(1928)	(1997)	(1975)	(1951)	(1941)
Min	45.5	115	110	110	100	96.3	110	839	1,607	349	66.5	50.1
(WY)	(1989)	(1989)	(1922)	(1922)	(1922)	(1922)	(1961)	(1968)	(1987)	(1988)	(1988)	(1988)

06207500 CLARKS FORK YELLOWSTONE RIVER NEAR BELFRY, MT—Continued

SUMMARY STATISTICS

	Calendar Year 2006		Water Year 2007		Water Years 1921 - 2007	
Annual total	278,778		245,268			
Annual mean	764		672		925	
Highest annual mean					1,485	1997
Lowest annual mean					547	1977
Highest daily mean	6,330	May 21	4,810	Jun 7	12,300	Jun 9, 1981
Lowest daily mean	74	Sep 14	100	Sep 22	33	Apr 26, 1961
Annual seven-day minimum	78	Sep 8	106	Sep 18	37	Oct 8, 1988
Maximum peak flow			5,570	Jun 6	14,800	Jun 9, 1981
Maximum peak stage			5.90	Jun 6	9.97	Jun 9, 1981
Instantaneous low flow			[a]96	Aug 30	[b]32	Apr 26, 1961
Annual runoff (ac-ft)	553,000		486,500		670,000	
10 percent exceeds	2,170		2,170		2,840	
50 percent exceeds	258		267		298	
90 percent exceeds	103		139		169	

[a] Gage height, 0.49 ft.
[b] Result of discharge measurement.



USGS
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Water-Data Report 2007

06208500 CLARKS FORK YELLOWSTONE RIVER AT EDGAR, MT

Upper Yellowstone Basin
Clarks Fork Yellowstone Subbasin

LOCATION.--Lat 45°27′58″, long 108°50′35″ referenced to North American Datum of 1927, in SE ¼ SE ¼ SE ¼ sec.23, T.4 S., R.23 E., Carbon County, MT, Hydrologic Unit 10070006, on right bank 400 ft downstream from county bridge, 0.5 mi east of Edgar, 6 mi upstream from Rock Creek, and at river mile 22.1.

DRAINAGE AREA.--2,022 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--July 1921 to September 1969, October 1986 to current year.

REVISED RECORDS.-- Water Supply Paper (WSP) 1509: 1924; 1932, maximum discharge. WSP 1729: Drainage area. Water Data Report MT-04-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 3,460 ft, referenced to the National Geodetic Vertical Datum of 1929. Prior to Aug. 31, 1953, nonrecording gage located at same site and elevation.

REMARKS.--Records are good except those for the estimated daily discharges, which are poor. Diversions for irrigation include about 41,500 acres, of which about 840 acres lie downstream from the station. In addition, about 6,300 acres of land upstream from the station are irrigated by diversions from the adjoining Rock Creek basin. U.S. Geological Survey satellite telemeter is located at the station. Several unpublished observations of water temperature and specific conductance were made during the year. **Discharge values and summary statistics given herein have the diversions to White Horse Canal subtracted**.

06208500 CLARKS FORK YELLOWSTONE RIVER AT EDGAR, MT—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	460	513	e300	e280	e270	331	458	2,460	1,890	1,030	347	99
2	449	458	e330	e300	e280	329	520	2,830	1,800	977	300	96
3	481	481	e330	e320	e290	327	502	3,100	1,990	915	315	104
4	474	531	e350	e310	e310	309	462	2,790	2,530	848	306	110
5	518	538	e340	e300	e320	326	447	2,270	2,960	767	282	106
6	502	517	e350	e280	e320	351	439	1,890	3,620	726	261	105
7	522	493	e350	e250	e310	349	434	1,590	6,780	690	242	123
8	545	497	e350	e270	e300	381	430	1,620	4,480	716	220	174
9	822	778	e350	e280	e280	386	445	2,000	3,110	643	181	179
10	880	868	e350	e280	e290	377	527	2,560	2,730	531	146	212
11	864	718	e340	e230	e300	359	543	3,070	2,660	477	138	241
12	875	661	e330	e150	e280	348	477	3,540	2,840	423	136	241
13	799	649	e330	e200	e270	351	458	3,990	2,820	382	137	211
14	745	592	e330	e250	e270	376	439	4,310	2,810	344	127	210
15	703	628	e320	e280	e280	448	439	4,060	2,820	349	118	223
16	695	561	e310	e300	e300	429	500	3,510	2,920	264	113	214
17	715	564	e250	e280	e320	376	528	3,390	3,010	236	121	207
18	724	604	e260	e300	e330	368	574	3,380	2,960	224	123	217
19	669	565	e260	e300	e340	384	727	3,360	2,470	182	125	231
20	670	529	e280	e300	e330	449	771	3,420	1,980	166	139	248
21	711	533	e300	e300	e320	474	638	3,490	1,840	194	124	245
22	668	542	e320	e300	e320	484	624	3,270	1,870	250	112	246
23	625	530	e330	e310	e320	437	598	2,750	1,970	219	107	262
24	599	509	e340	e320	e320	409	628	2,190	1,980	156	107	305
25	596	487	e350	e320	e320	386	676	1,770	1,900	136	114	293
26	592	480	e350	e310	347	391	780	1,520	1,720	168	124	338
27	581	e450	e350	e300	356	460	869	1,300	1,530	367	111	327
28	542	e300	e330	e290	337	533	837	1,370	1,340	536	106	318
29	547	e250	e300	e280	---	533	1,220	1,960	1,170	577	102	324
30	541	e280	e280	e280	---	492	1,950	2,180	1,080	489	98	337
31	539	---	e250	e280	---	471	---	1,930	---	409	101	---
Total	19,653	16,106	9,910	8,750	8,630	12,424	18,940	82,870	75,580	14,391	5,083	6,546
Mean	634	537	320	282	308	401	631	2,673	2,519	464	164	218
Max	880	868	350	320	356	533	1,950	4,310	6,780	1,030	347	338
Min	449	250	250	150	270	309	430	1,300	1,080	136	98	96
Ac-ft	38,980	31,950	19,660	17,360	17,120	24,640	37,570	164,400	149,900	28,540	10,080	12,980

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1921 - 2007, BY WATER YEAR (WY) *

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	534	503	408	351	349	364	556	2,109	3,995	1,966	589	465
Max	1,010	777	593	512	584	554	1,398	5,578	7,256	4,771	1,541	1,395
(WY)	(1942)	(1928)	(1996)	(1997)	(1963)	(1943)	(1943)	(1928)	(1996)	(1943)	(1951)	(1941)
Min	298	310	217	200	180	220	123	757	1,768	290	49.5	156
(WY)	(1956)	(1936)	(1937)	(1922)	(1922)	(1924)	(1961)	(1968)	(1987)	(1988)	(1988)	(1988)

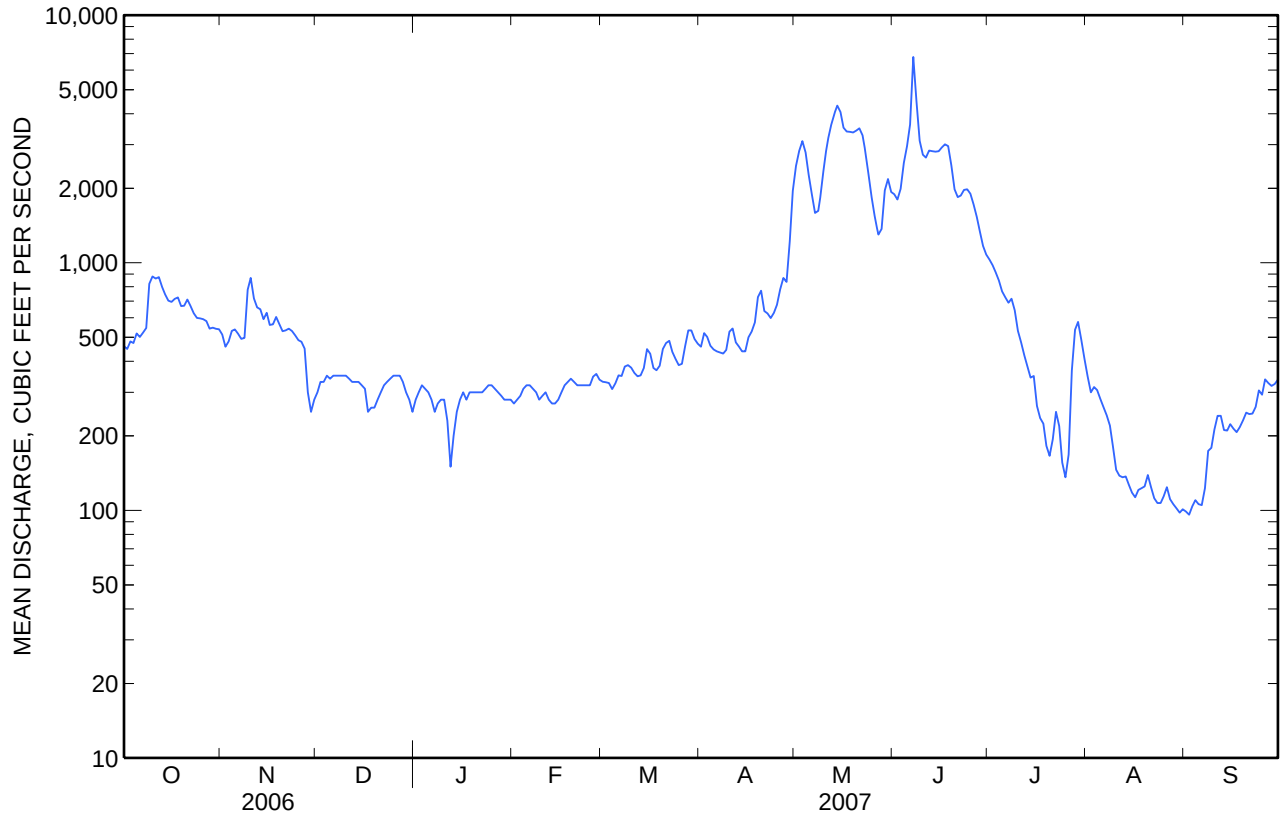
* During periods of operation (water years 1921-69, 1987 to current year).

06208500 CLARKS FORK YELLOWSTONE RIVER AT EDGAR, MT—Continued

SUMMARY STATISTICS

	Calendar Year 2006		Water Year 2007		Water Years 1921 - 2007*	
Annual total	292,365		278,883			
Annual mean	801		764		1,017	
Highest annual mean					1,623	1997
Lowest annual mean					644	2001
Highest daily mean	5,390	May 22	6,780	Jun 7	10,600	Jun 2, 1936
Lowest daily mean	66	Aug 26	96	Sep 2	37	May 11, 1961
Annual seven-day minimum	72	Aug 25	101	Aug 28	43	Apr 18, 1961
Maximum peak flow			7,830	Jun 7	11,100	Jun 12, 1997
Maximum peak stage			8.00	Jun 7	9.30	Jun 12, 1997
Instantaneous low flow					36	Apr 22, 1961
Annual runoff (ac-ft)	579,900		553,200		736,700	
10 percent exceeds	1,890		2,180		2,790	
50 percent exceeds	415		381		465	
90 percent exceeds	96		180		270	

* During periods of operation (water years 1921-69, 1987 to current year).



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06209500 ROCK CREEK NEAR RED LODGE, MT

Upper Yellowstone Basin
Clarks Fork Yellowstone Subbasin

LOCATION.--Lat 45°05′10″, long 109°19′45″ referenced to North American Datum of 1927, in NW ¼ NE ¼ SW ¼ sec.36, T.8 S., R.19 E., Carbon County, MT, Hydrologic Unit 10070006, on left bank 40 ft downstream from county bridge, 6.7 mi south of Red Lodge, and at river mile 49.1.

DRAINAGE AREA.--105 mi².

SURFACE-WATER RECORDS

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.-- Water Supply Paper 1729: Drainage area. WDR MT-00-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 6,400 ft, referenced to the National Geodetic Vertical Datum of 1929. 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 are fair except those for the estimated daily discharges, which are poor. Flow is partly regulated by Glacier Lake. No diversions occur upstream from station. U.S. Geological Survey satellite telemeter is located at the station. Several unpublished observations of water temperature and specific conductance were made during the year.

06209500 ROCK CREEK NEAR RED LODGE, MT—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	76	e60	e40	e35	e30	e25	30	178	238	374	226	172
2	75	e60	e40	e35	e30	e25	30	229	275	356	220	166
3	80	e60	e40	34	e30	e25	30	235	379	337	217	161
4	75	e60	e40	35	e30	e25	29	161	404	326	208	159
5	74	56	e40	e35	28	e25	29	130	462	323	205	179
6	74	56	e40	e35	28	26	28	112	607	333	207	177
7	90	62	e40	e35	28	26	31	99	518	330	194	163
8	97	78	e40	e35	28	26	30	106	443	315	183	159
9	93	69	e40	e35	27	25	30	151	438	301	171	156
10	90	57	e40	e30	27	25	30	237	451	301	160	149
11	88	57	40	e25	27	26	29	306	498	283	153	142
12	85	56	39	e30	28	29	29	370	516	269	147	136
13	83	55	40	e30	e25	31	29	434	497	269	145	134
14	81	56	39	e30	e25	29	29	381	520	275	146	132
15	79	61	40	e30	e25	27	31	300	569	274	138	130
16	81	53	e35	e30	e25	27	32	290	567	273	134	126
17	76	52	e35	e30	27	28	34	325	558	280	139	124
18	72	53	e35	e30	27	29	36	343	473	291	140	125
19	72	56	e35	e30	26	29	37	336	422	281	140	123
20	74	53	e35	e30	26	30	34	357	427	277	137	118
21	72	52	e35	e30	27	30	34	346	446	259	153	115
22	70	51	e35	e30	27	32	34	273	462	246	162	112
23	69	50	e35	30	27	31	39	227	457	237	200	117
24	68	e50	e35	30	26	29	39	201	449	241	202	118
25	67	e50	e35	30	e25	30	41	186	432	276	190	113
26	64	e45	e35	29	26	31	44	169	393	279	184	110
27	64	e40	37	30	e25	31	44	192	363	267	182	107
28	62	e30	35	e30	e25	31	50	329	349	265	181	104
29	61	e35	e35	e30	---	e25	69	322	362	261	175	104
30	57	e40	e35	e30	---	e25	128	255	369	247	169	101
31	e60	---	e35	e30	---	e25	---	243	---	235	166	---
Total	2,329	1,613	1,160	968	755	858	1,139	7,823	13,344	8,881	5,374	4,032
Mean	75.1	53.8	37.4	31.2	27.0	27.7	38.0	252	445	286	173	134
Max	97	78	40	35	30	32	128	434	607	374	226	179
Min	57	30	35	25	25	25	28	99	238	235	134	101
Ac-ft	4,620	3,200	2,300	1,920	1,500	1,700	2,260	15,520	26,470	17,620	10,660	8,000

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1932 - 2007, BY WATER YEAR (WY) *

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	80.6	54.2	40.8	33.5	30.3	29.1	39.4	218	578	479	252	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)

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

06209500 ROCK CREEK NEAR RED LODGE, MT—Continued

SUMMARY STATISTICS

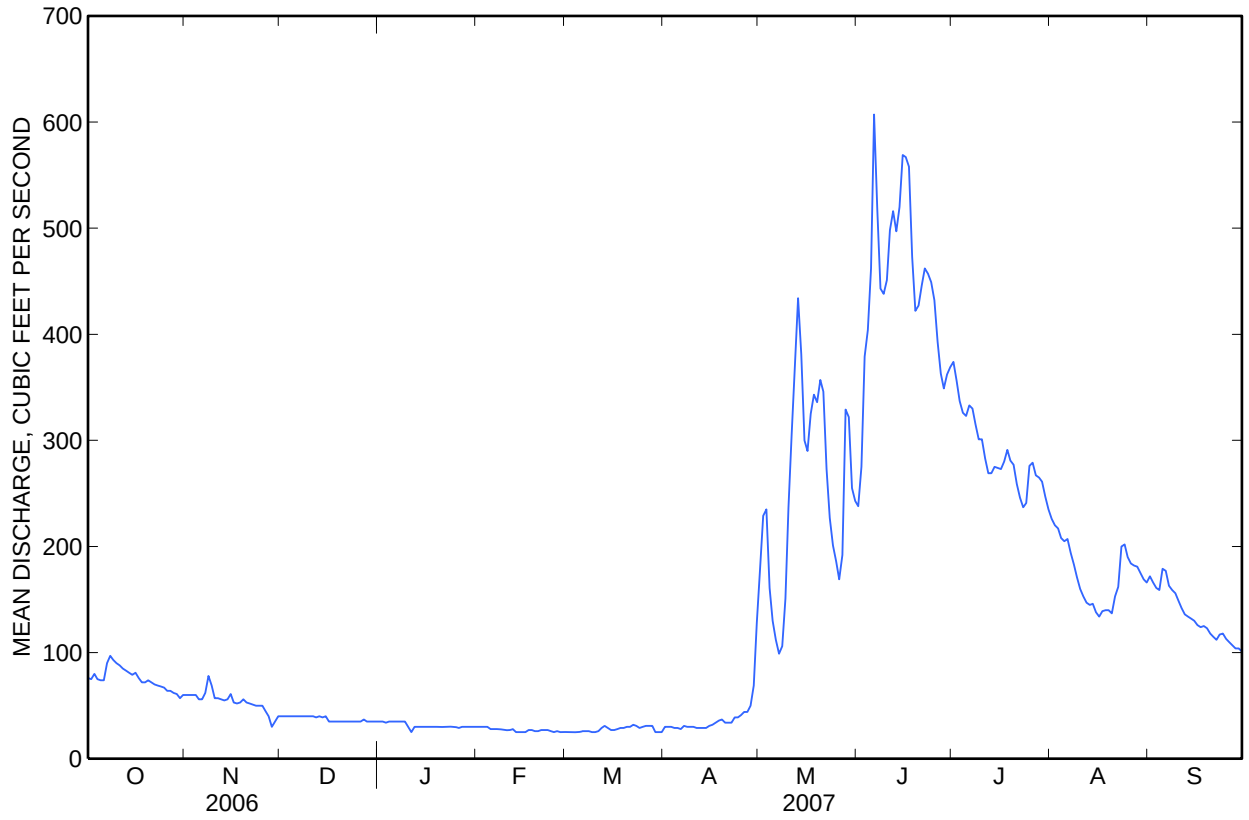
	Calendar Year 2006		Water Year 2007		Water Years 1932 – 2007*	
Annual total	42,706		48,276			
Annual mean	117		132		167	
Highest annual mean					251	1943
Lowest annual mean					97.3	2001
Highest daily mean	517	May 21	607	Jun 6	2,370	Jun 5, 1957
Lowest daily mean	20	Feb 16	25	Jan 11	14	Nov 29, 1954
Annual seven-day minimum	20	Mar 2	25	Feb 27	17	Jan 27, 2002
Maximum peak flow			[a]684	Jun 6	[c]3,110	Jun 4, 1957
Maximum peak stage			[b]7.87	Dec 23	[b]8.53	Feb 18, 2006
Annual runoff (ac-ft)	84,710		95,760		121,300	
10 percent exceeds	306		339		470	
50 percent exceeds	56		64		62	
90 percent exceeds	20		28		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, 6.44 ft.

[b] Backwater from ice.

[c] Gage height, 4.78 ft, previous site and datum.



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

Upper Yellowstone Basin
Clarks Fork Yellowstone Subbasin

LOCATION.--Lat 45°26′16″, long 109°15′11″ referenced to North American Datum of 1927, in NE ¼ SE ¼ SE ¼ sec.33, T.4 S., R.20 E., Carbon County, MT, 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 mi².

SURFACE-WATER RECORDS

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

REVISED RECORDS.-- Water Supply Paper (WSP) 1729: Drainage area. WSP 2116: 1937, maximum discharge (M); 1942 (M); 1943, peak discharge (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, referenced to the National Geodetic Vertical Datum of 1929.

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

06211000 RED LODGE CREEK ABOVE COONEY RESERVOIR, NEAR BOYD, MT—Continued

DISCHARGE, CUBIC FEET PER SECOND
CALENDAR YEAR JANUARY TO DECEMBER 2007
DAILY MEAN VALUES

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1				41	41	68	72	56	23	44		
2				50	40	64	70	56	26	39		
3				45	37	59	68	54	24	39		
4				38	42	64	63	54	23	43		
5				37	45	77	61	50	20	54		
6				37	48	210	61	56	27	73		
7				33	46	660	53	53	35	73		
8				33	43	280	52	49	45	65		
9				37	34	215	45	45	67	56		
10				39	35	182	45	41	73	43		
11				35	37	180	41	37	65	36		
12				33	36	181	39	39	58	33		
13				32	39	163	38	35	53	32		
14				34	35	145	34	38	55	31		
15				34	35	156	33	46	55	31		
16				38	34	154	35	45	52	31		
17				39	33	142	52	40	45	29		
18				36	31	131	52	38	51	29		
19				48	30	126	55	39	57	30		
20				51	31	113	54	37	56	35		
21				44	28	109	55	35	56	39		
22				44	27	104	53	33	53	36		
23				40	65	101	54	36	49	36		
24				75	54	101	50	38	50	36		
25				54	54	99	56	40	55	33		
26				45	56	93	70	37	56	31		
27				46	51	87	81	31	49	32		
28				41	43	86	72	29	45	30		
29				40	49	82	69	34	41	29		
30				40	57	75	64	35	43	26		
31				---	60	---	59	25	---	30		
Total				1,239	1,296	4,307	1,706	1,281	1,407	1,204		
Mean				41.3	41.8	144	55.0	41.3	46.9	38.8		
Max				75	65	660	81	56	73	73		
Min				32	27	59	33	25	20	26		
Ac-ft				2,460	2,570	8,540	3,380	2,540	2,790	2,390		

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1937 - 2007, BY WATER YEAR (WY) *

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean	15.4	27.4	36.5	73.1	153	185	88.5	38.0	45.7	46.4	33.3	19.3
Max	18.8	35.0	62.9	234	616	575	297	90.2	106	119	69.5	33.6
(WY)	(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
(WY)	(1963)	(1964)	(1964)	(1961)	(1985)	(1954)	(1949)	(1946)	(1949)	(1954)	(1955)	(1946)

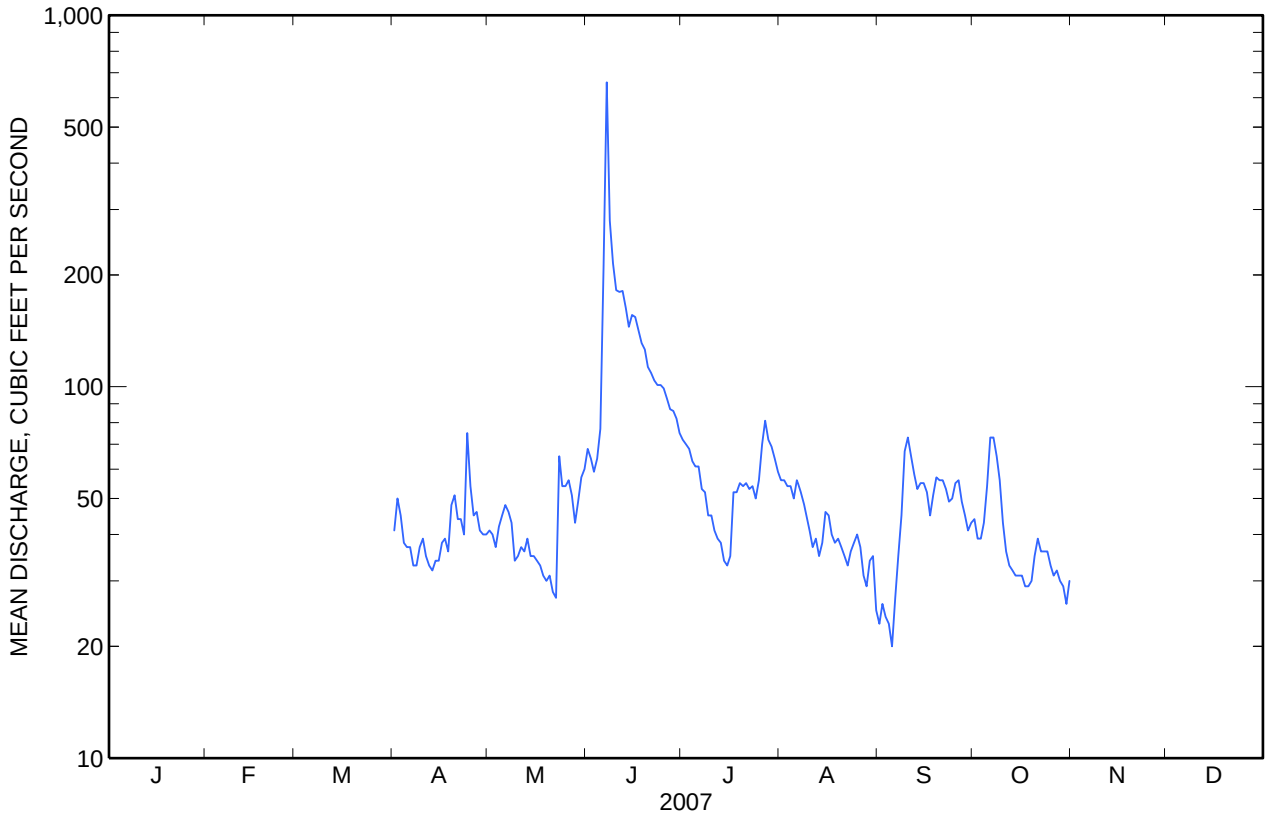
* No winter records most years.

06211000 RED LODGE CREEK ABOVE COONEY RESERVOIR, NEAR BOYD, MT—Continued

SUMMARY STATISTICS

	2007 Season		Water Years 1937 – 2007*	
Annual mean			58.4	
Highest annual mean			67.1	1963
Lowest annual mean			49.8	1964
Highest daily mean	660	Jun 7	2,820	May 11, 2005
Lowest daily mean	20	Sep 5	0.00	Aug 1, 1949
Maximum peak flow	921	Oct 12	[b]3,720	May 11, 2005
Maximum peak stage	4.54	Oct 12	7.35	May 11, 2005
Instantaneous low flow	[a]18	Sep 4	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] Gage height, 1.78 ft.
[b] Result of slope-area measurement of peak flow.



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06211500 WILLOW CREEK NEAR BOYD, MT

Upper Yellowstone Basin
Clarks Fork Yellowstone Subbasin

LOCATION.--Lat 45°25′20″, long 109°13′47″ referenced to North American Datum of 1927, in SW ¼ SW ¼ SW ¼ sec.2, T.5 S., R.20 E., Carbon County, MT, 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^2.

SURFACE-WATER RECORDS

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

REVISED RECORDS.-- Water Supply Paper (WSP) 1729: Drainage area. WSP 2116: 1957, 1962. Water Data Report MT-87-1: 1986.

GAGE.--Water-stage recorder. Elevation of gage is 4,260 ft, referenced to the National Geodetic Vertical Datum of 1929. Prior to Apr. 23, 1948, at site 0.5 mi downstream at different elevation.

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

06211500 WILLOW CREEK NEAR BOYD, MT—Continued

DISCHARGE, CUBIC FEET PER SECOND
CALENDAR YEAR JANUARY TO DECEMBER 2007
DAILY MEAN VALUES

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1				21	19	22	47	37	23	23		
2				23	19	22	48	35	23	24		
3				21	18	18	46	35	23	24		
4				18	17	17	43	32	23	24		
5				19	18	15	40	28	23	29		
6				18	20	142	40	29	24	32		
7				17	19	471	44	26	25	30		
8				17	16	132	44	25	26	29		
9				18	14	101	39	25	28	27		
10				20	13	88	40	24	28	25		
11				20	13	80	43	22	25	25		
12				19	13	76	39	22	25	25		
13				19	14	69	39	19	25	25		
14				20	11	65	37	21	26	25		
15				22	12	68	40	21	27	25		
16				23	10	66	39	20	26	25		
17				24	6.6	63	38	21	26	25		
18				22	6.7	60	40	22	25	25		
19				24	9.4	57	36	22	24	24		
20				25	9.2	51	35	23	24	26		
21				24	9.6	52	34	23	23	26		
22				23	10	52	33	24	23	25		
23				23	26	50	32	24	23	25		
24				36	19	48	31	25	23	25		
25				27	16	48	35	25	25	24		
26				24	18	47	46	25	24	23		
27				24	16	49	47	24	25	23		
28				22	16	51	44	24	25	22		
29				21	16	48	43	24	24	22		
30				20	17	46	41	22	24	22		
31				---	16	---	37	21	---	23		
Total				654	457.5	2,174	1,240	770	738	777		
Mean				21.8	14.8	72.5	40.0	24.8	24.6	25.1		
Max				36	26	471	48	37	28	32		
Min				17	6.6	15	31	19	23	22		
Ac-ft				1,300	907	4,310	2,460	1,530	1,460	1,540		

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1938 - 2007, BY WATER YEAR (WY) *

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Mean	8.00	12.1	15.3	32.5	47.2	54.5	55.0	39.4	36.5	30.4	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)

* Seasonal records except 1963 and 1964 water years.

06211500 WILLOW CREEK NEAR BOYD, MT—Continued

SUMMARY STATISTICS

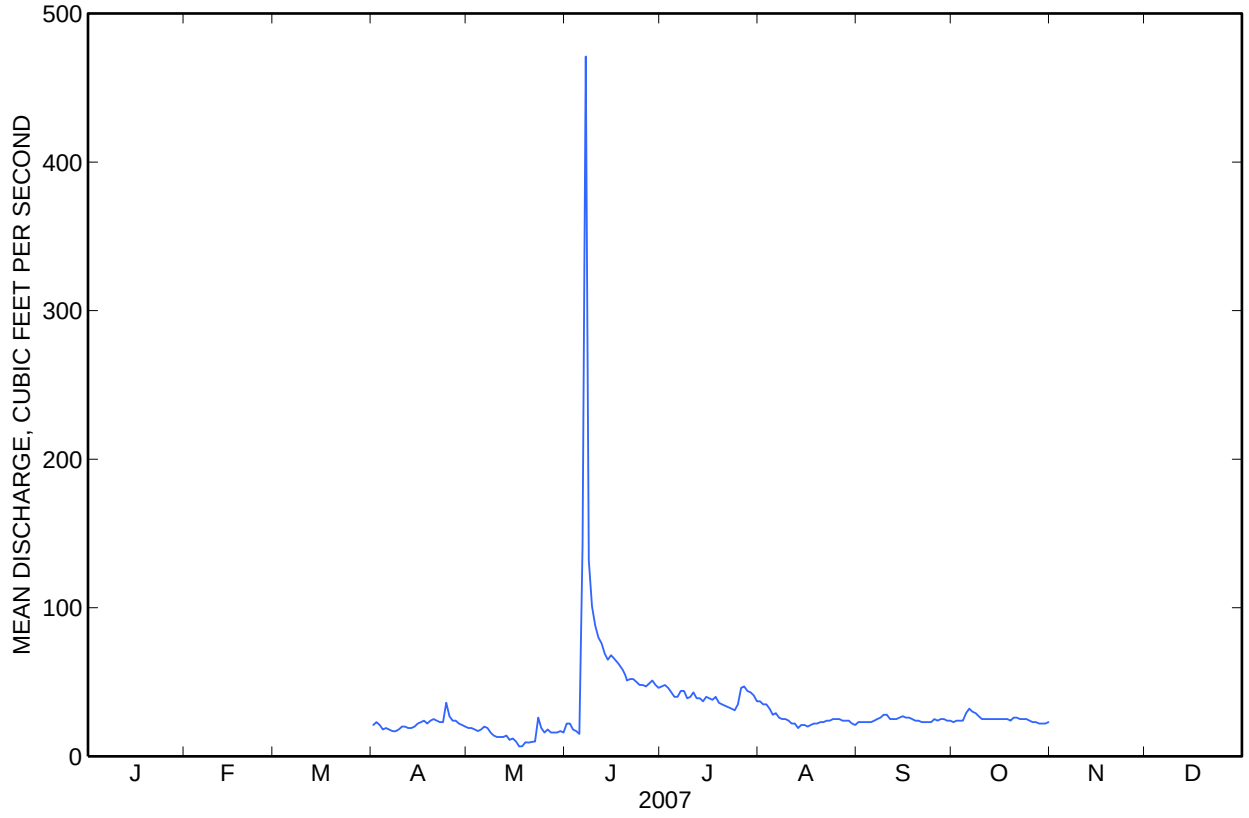
	2007 Season		Seasons 1938 – 2007*	
Highest daily mean	471	Jun 7	1,220	May 11, 2005
Lowest daily mean	6.6	May 17	0.00	May 29, 1969
Maximum peak flow	747	Jun 7	[b]2,100	May 11, 2005
Maximum peak stage	6.97	Jun 7	[c]8.59	May 11, 2005
Instantaneous low flow	[a]4.9	May 17	0.00	May 29, 1969

* Seasonal records except 1963 and 1964 water years.

[a] Gage height, 2.35 ft, may have been less outside period of record.

[b] From slope-area measurement of peak flow.

[c] From surveyed highwater mark.



06214500 YELLOWSTONE RIVER AT BILLINGS, MT

Upper Yellowstone Basin
Upper Yellowstone-Pompeys Pillar Subbasin

LOCATION.--Lat 45°48′00″, long 108°28′00″ referenced to North American Datum of 1927, in SE ¼ SE ¼ SE ¼ sec.27, T.1 N., R.26 E., Yellowstone County, MT, Hydrologic Unit 10070007, on right bank 0.3 mi downstream from bridge on U.S. Highway 87, 1 mi northeast of Billings, 10 mi upstream from Pryor Creek, and at river mile 360.3.

DRAINAGE AREA.--11,805 mi² of which 397 mi² probably is noncontributing.

SURFACE-WATER RECORDS

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 Water Supply Paper (WSP) 1309. Published as "near Billings" 1904-5.

REVISED RECORDS.-- Water Data Report (WDR) MT 1968: 1967, maximum discharge. WSP 1729: Drainage area. WDR-MT-2003-2: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 3,080 ft, referenced to the National Geodetic Vertical Datum of 1929. 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 are good except those for estimated daily discharges, which are poor. Diversions for irrigation include about 350,000 acres upstream from station. U.S. Army Corps of Engineers satellite telemeter is located at the station. Several unpublished observations of water temperature and specific conductance were made during the year.

06214500 YELLOWSTONE RIVER AT BILLINGS, MT—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	2,540	3,240	e2,400	2,160	2,130	2,340	3,430	e12,000	12,700	7,520	2,630	1,860
2	2,530	3,010	e2,500	2,270	1,970	2,270	3,700	e15,000	12,000	7,190	2,490	1,850
3	2,720	3,060	e2,600	2,750	1,760	2,200	3,750	17,500	12,500	6,620	2,470	1,840
4	2,920	3,330	e2,700	2,920	1,770	2,310	3,420	18,300	14,500	6,140	2,490	1,850
5	3,040	3,510	e2,800	2,630	2,180	2,360	3,300	15,300	15,900	5,770	2,480	1,830
6	3,140	3,450	2,870	2,300	2,770	2,610	3,270	12,500	18,000	5,460	2,480	1,830
7	3,280	3,360	3,100	1,990	2,840	2,770	3,170	10,500	26,000	5,550	2,470	1,890
8	3,560	3,400	3,160	1,730	2,610	3,110	3,100	9,510	25,100	6,020	2,420	2,080
9	4,450	4,110	3,180	2,220	2,390	3,230	3,140	10,200	19,300	5,430	2,310	2,150
10	5,080	5,340	3,210	2,900	2,320	2,890	3,320	12,800	17,400	4,830	2,240	2,160
11	4,730	5,150	3,070	2,610	2,340	2,690	3,770	15,200	17,200	4,340	2,160	2,160
12	4,640	4,440	3,000	e2,000	2,470	2,590	3,700	17,400	17,900	4,020	2,130	2,160
13	4,480	4,180	3,020	e1,600	2,330	2,590	3,460	19,700	17,600	3,650	2,110	2,120
14	4,210	3,890	3,030	e1,700	2,080	2,950	3,280	22,100	16,900	3,400	2,040	2,100
15	4,010	3,910	3,070	e1,700	2,010	3,130	3,180	22,100	17,000	3,440	2,000	2,130
16	4,180	3,760	2,910	e1,800	2,140	3,000	3,210	18,900	17,600	3,310	1,990	2,120
17	5,030	3,570	e2,700	e1,900	2,640	2,770	3,520	17,400	17,600	3,060	1,980	2,080
18	4,800	3,700	e2,400	1,970	2,810	2,640	3,690	17,400	17,800	3,030	1,990	2,130
19	4,410	3,600	e2,300	2,060	2,800	2,620	5,000	17,300	15,500	2,900	2,030	2,180
20	4,430	3,470	e2,400	2,160	2,760	2,770	5,610	17,500	13,000	2,750	2,150	2,230
21	4,590	3,430	e2,400	2,390	2,700	2,870	5,060	17,900	12,400	2,700	2,090	2,280
22	4,490	3,410	e2,500	2,470	2,570	3,030	4,480	18,500	12,300	2,700	2,000	2,240
23	4,230	3,390	2,560	2,450	2,550	3,050	4,360	16,900	12,200	2,680	2,000	2,320
24	4,080	3,330	2,400	2,570	2,530	2,900	4,590	13,900	12,000	2,620	2,000	2,340
25	3,920	3,160	2,370	2,540	2,510	2,820	4,810	12,500	11,400	2,570	1,990	2,320
26	3,860	2,890	2,620	2,580	2,510	2,770	5,000	11,600	10,600	2,750	1,990	2,380
27	3,820	3,070	2,870	2,510	2,440	2,890	5,690	10,600	9,710	3,470	1,950	2,370
28	3,690	e2,900	2,950	2,330	2,380	3,440	6,260	10,600	8,910	3,440	1,900	2,330
29	3,590	e2,700	2,880	2,240	---	3,830	6,710	12,900	8,340	3,630	1,900	2,320
30	3,590	e2,400	2,390	2,200	---	3,770	9,770	14,000	7,910	3,180	1,900	2,300
31	3,520	---	2,060	2,120	---	3,430	---	12,900	---	2,870	1,870	---
Total	121,560	106,160	84,420	69,770	67,310	88,640	128,750	470,910	447,270	127,040	66,650	63,950
Mean	3,921	3,539	2,723	2,251	2,404	2,859	4,292	15,190	14,910	4,098	2,150	2,132
Max	5,080	5,340	3,210	2,920	2,840	3,830	9,770	22,100	26,000	7,520	2,630	2,380
Min	2,530	2,400	2,060	1,600	1,760	2,200	3,100	9,510	7,910	2,570	1,870	1,830
Ac-ft	241,100	210,600	167,400	138,400	133,500	175,800	255,400	934,000	887,200	252,000	132,200	126,800

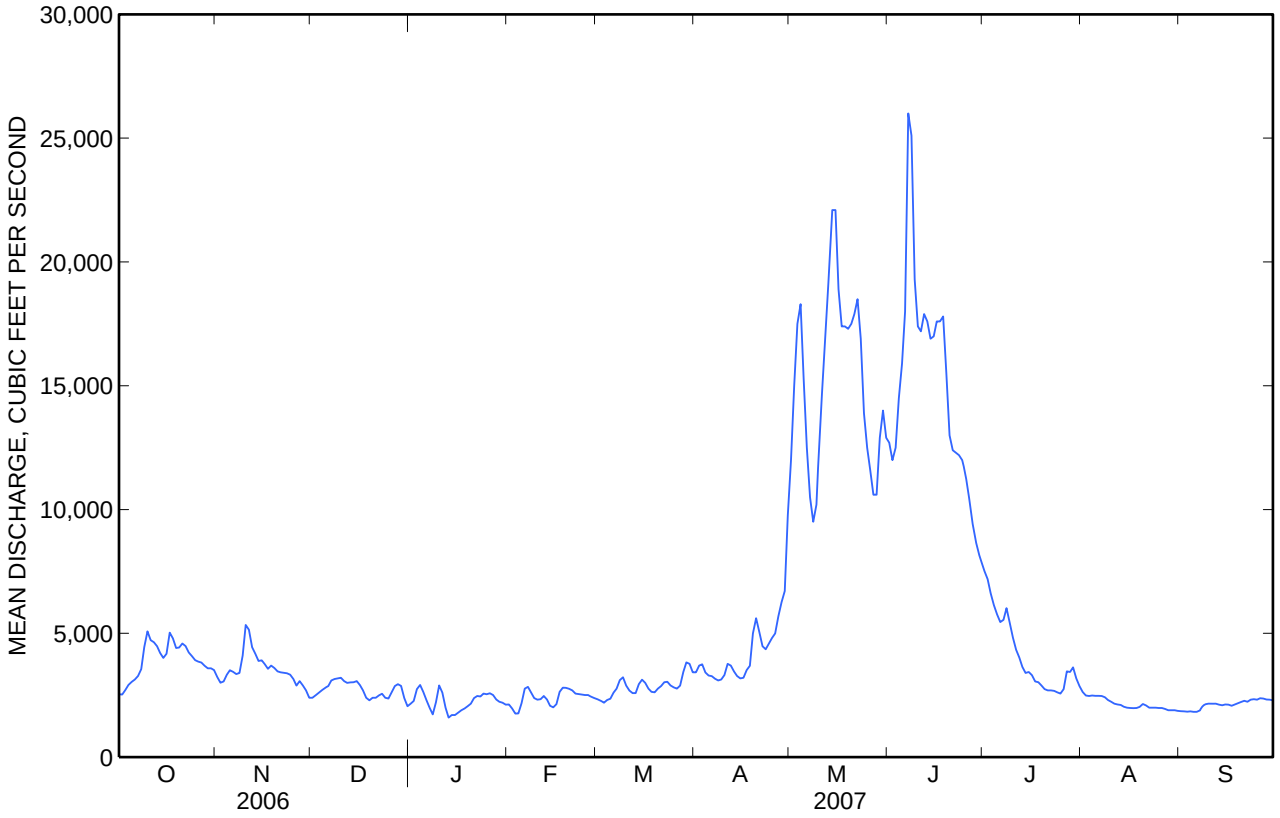
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 2007, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	3,985	3,536	2,785	2,470	2,629	2,989	4,109	12,760	24,880	13,200	5,016	3,954
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)

06214500 YELLOWSTONE RIVER AT BILLINGS, MT—Continued

SUMMARY STATISTICS

	Calendar Year 2006		Water Year 2007		Water Years 1929 - 2007	
Annual total	2,110,110		1,842,430			
Annual mean	5,781		5,048		6,866	
Highest annual mean					12,100	1997
Lowest annual mean					3,763	2001
Highest daily mean	31,900	Jun 10	26,000	Jun 7	80,100	Jun 12, 1997
Lowest daily mean	1,870	Sep 14	1,600	Jan 13	450	Dec 12, 1932
Annual seven-day minimum	1,920	Sep 8	1,810	Jan 12	794	Dec 10, 1932
Maximum peak flow			30,200	Jun 7	82,000	Jun 12, 1997
Maximum peak stage			9.35	Jun 7	15.00	Jun 12, 1997
Instantaneous low flow					430	Dec 12, 1932
Annual runoff (ac-ft)	4,185,000		3,654,000		4,974,000	
10 percent exceeds	14,100		12,900		17,400	
50 percent exceeds	3,040		3,010		3,660	
90 percent exceeds	2,290		2,050		2,140	



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Water-Data Report 2007

06216000 PRYOR CREEK AT PRYOR, MT

Upper Yellowstone Basin
Pryor Subbasin

LOCATION.--Lat 45°26′06″, long 108°32′01″ referenced to North American Datum of 1927, in NE ¼ NW ¼ NE ¼ sec.5, T.5 S., R.26 E., Big Horn County, MT, Hydrologic Unit 10070008, on left bank 60 ft upstream from county bridge, 0.5 mi north of Pryor, 1.4 mi downstream from Lost Creek, and at river mile 82.7.

DRAINAGE AREA.--117 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--June 1921 to September 1924 (no winter records), November 1966 to current year. Monthly discharge only for some periods, published in Water Supply Paper (WSP) 1309.

REVISED RECORDS.-- WSP 1729: Drainage area. WDR MT-87-1: 1982-83, maximum discharge (M); 1986 (M).

GAGE.--Water-stage recorder. Elevation of gage is 4,007.35 ft, referenced to the National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Oct. 14, 1966, nonrecording gage at approximately same site at different elevation.

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

06216000 PRYOR CREEK AT PRYOR, MT—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	14	18	17	17	17	21	28	53	91	42	15	19
2	e13	18	17	18	18	21	31	56	124	41	16	20
3	e18	18	17	19	19	21	29	60	96	40	16	21
4	17	18	17	19	19	21	27	60	80	39	16	22
5	15	18	17	18	21	22	28	66	76	38	18	22
6	15	17	18	17	29	24	27	62	75	38	18	23
7	17	18	18	17	24	25	26	53	290	30	18	28
8	17	18	18	17	21	25	26	50	288	30	17	29
9	18	e18	18	17	21	23	27	48	221	30	18	28
10	19	e20	17	18	21	22	35	48	168	28	18	28
11	e18	19	17	16	21	22	36	48	139	28	18	27
12	e17	19	17	17	21	22	31	47	124	30	17	26
13	e17	18	17	17	20	22	30	46	106	26	17	26
14	16	19	17	17	20	22	32	44	95	25	16	26
15	16	19	18	17	20	21	32	43	88	25	17	26
16	18	18	18	17	21	21	29	42	81	25	17	26
17	24	18	17	17	20	21	28	41	76	25	17	25
18	20	18	17	17	22	21	27	39	71	21	19	26
19	19	18	17	17	25	21	35	38	66	17	19	26
20	22	18	17	18	24	20	38	38	62	16	18	27
21	23	17	17	18	24	20	40	37	59	16	19	27
22	22	17	18	18	23	20	32	41	56	16	19	26
23	20	18	17	18	23	20	30	57	53	15	19	26
24	20	17	17	18	22	20	29	48	52	15	18	29
25	19	17	17	19	22	20	28	42	50	15	19	27
26	19	17	18	19	22	20	27	42	48	16	16	27
27	18	17	18	19	22	20	30	41	47	17	15	27
28	19	16	18	18	22	23	31	43	46	16	17	26
29	18	17	18	18	---	25	33	48	44	16	18	26
30	18	17	17	18	---	24	43	51	42	14	19	27
31	18	---	17	19	---	26	---	56	---	16	19	---
Total	564	535	538	549	604	676	925	1,488	2,914	766	543	769
Mean	18.2	17.8	17.4	17.7	21.6	21.8	30.8	48.0	97.1	24.7	17.5	25.6
Max	24	20	18	19	29	26	43	66	290	42	19	29
Min	13	16	17	16	17	20	26	37	42	14	15	19
Ac-ft	1,120	1,060	1,070	1,090	1,200	1,340	1,830	2,950	5,780	1,520	1,080	1,530

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 2007, BY WATER YEAR (WY)

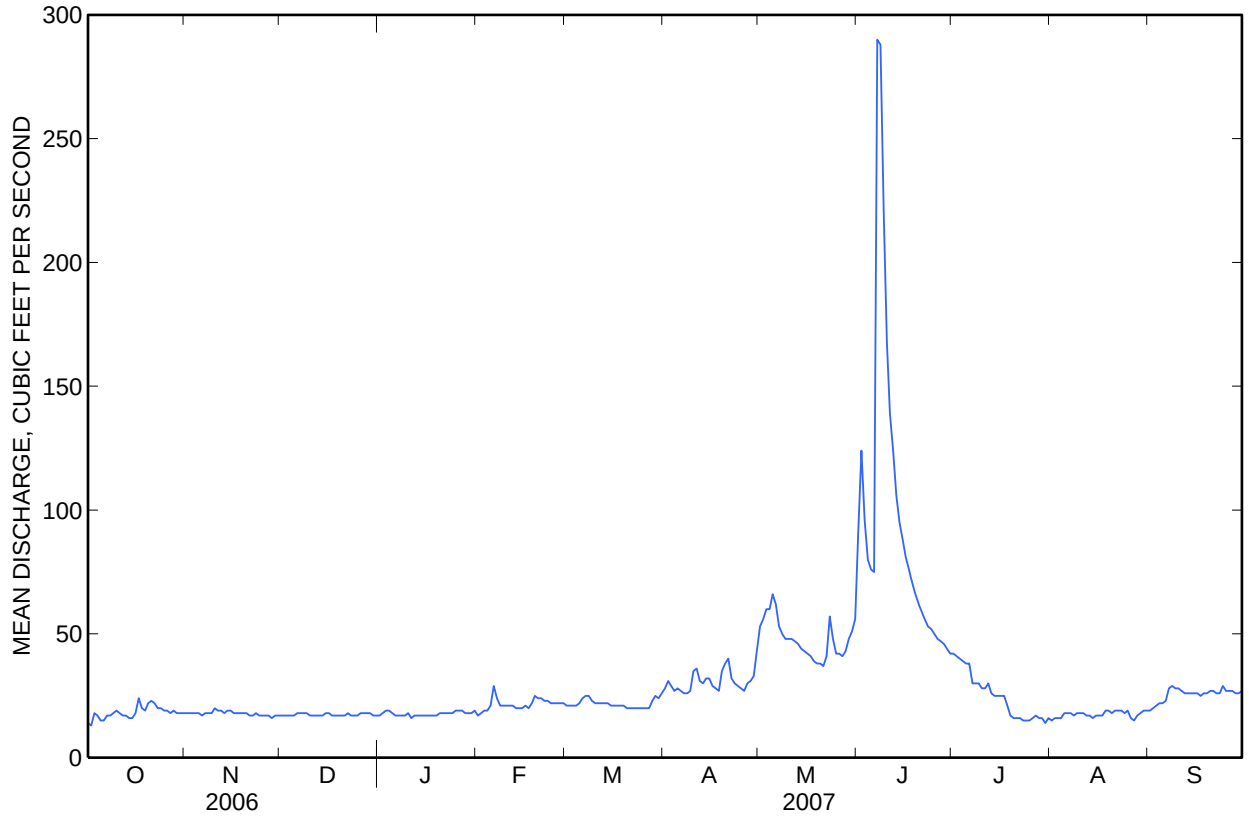
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	30.1	29.8	29.1	27.9	28.9	30.7	30.9	51.8	40.2	22.3	20.1	25.7
Max	62.9	62.0	69.7	54.3	55.7	70.9	58.8	251	158	69.3	49.5	61.0
(WY)	(1976)	(1976)	(1976)	(1976)	(1976)	(1979)	(1976)	(1978)	(1975)	(1975)	(1975)	(1978)
Min	11.9	12.3	13.7	14.5	14.9	14.6	12.6	13.7	10.7	6.17	6.15	8.52
(WY)	(2005)	(2005)	(2005)	(2005)	(2005)	(2005)	(2003)	(2004)	(2004)	(2006)	(2003)	(2003)

06216000 PRYOR CREEK AT PRYOR, MT—Continued

SUMMARY STATISTICS

	Calendar Year 2006		Water Year 2007		Water Years 1968 - 2007	
Annual total	5,391.5		10,871			
Annual mean	14.8		29.8		30.6	
Highest annual mean					66.3	1975
Lowest annual mean					13.7	2003
Highest daily mean	29	Mar 30	290	Jun 7	1,700	May 19, 1978
Lowest daily mean	4.6	Jul 15	13	Oct 2	3.2	Aug 1, 1988
Annual seven-day minimum	5.3	Jul 13	16	Oct 1	5.1	Jul 29, 2003
Maximum peak flow			486	Jun 7	[b]2,280	May 19, 1978
Maximum peak stage			6.78	Jun 7	[c]8.88	May 19, 1978
Instantaneous low flow			[a]12	Oct 1	1.8	Jul 31, 1988
Annual runoff (ac-ft)	10,690		21,560		22,180	
10 percent exceeds	19		49		47	
50 percent exceeds	17		21		26	
90 percent exceeds	6.9		17		14	

[a] Gage height, 2.96 ft.
[b] From rating curve extended above 401 ft³/s on basis of contracted-opening measurement of peak flow.
[c] From floodmark.



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Water-Data Report 2007

06286400 BIGHORN LAKE NEAR ST. XAVIER, MT

Big Horn Basin
Big Horn Lake Subbasin

LOCATION.--Lat 45°18′27″, long 107°57′26″ referenced to North American Datum of 1927, in SW ¼ SE ¼ sec.18, T.6 S., R.30 E., Big Horn County, MT, 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 mi².

SURFACE-WATER RECORDS

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 on file at the U.S. Geological Survey, Water Science Center in Helena, Montana.

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

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

REMARKS.--Reservoir is formed by thin concrete-arch dam; construction began in 1961 and was completed in 1967. Storage began Nov. 3, 1965. Usable capacity is 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 is 3,593.00 ft. Normal maximum operating level is 1,097,000 acre-ft, between elevation, 3,640.00 ft and 3,657.00 ft. Minimum operating level is 483,400 acre-ft, elevation, 3,547.00 ft. Dead storage is 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.

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, 1,032,000 acre-ft, June 25, and 26, elevation, 3,638.22 ft; minimum, 746,500 acre-ft, Oct. 1, elevation, 3,603.19 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400 HOURS, SEPTEMBER 2006 TO SEPTEMBER 2007

Date	Elevation (feet)	Contents (acre-feet)	Change in Contents (acre-feet)
September 30	3,603.07	745,800	--
October 31	3,609.42	783,600	+37,800
November 30	3,611.54	797,100	+13,500
December 31	3,610.62	791,200	-5,900
Calendar Year 2006	--	--	-119,200
January 31	3,607.27	770,300	-20,900
February 28	3,607.09	769,300	-1,000
March 31	3,609.20	782,200	+12,900
April 30	3,611.65	797,800	+15,600
May 31	3,626.58	911,900	+114,100
June 30	3,638.03	1,030,000	+118,100
July 31	3,634.27	987,100	-42,900
August 31	3,630.58	949,100	-38,000
September 30	3,629.71	940,700	-8,400
Water Year 2007	--	--	+194,900

06287000 BIGHORN RIVER NEAR ST. XAVIER, MT

Big Horn Basin
Lower Bighorn Subbasin

LOCATION.--Lat 45°19′00″, long 107°55′05″ referenced to North American Datum of 1927, in NW ¼ NW ¼ NE ¼ sec.16, T.6 S., R.31 E., Big Horn County, MT, Hydrologic Unit 10080015, on right bank 800 ft downstream from Yellowtail dam, 1,500 ft downstream from Lime Kiln Creek, 14 mi southwest of St. Xavier, and at river mile 83.9.

DRAINAGE AREA.--19,667 mi². Area at site used prior to Apr. 16, 1963, 19,626 mi².

SURFACE-WATER RECORDS

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

GAGE.--Water-stage recorder. Elevation of gage is 3,158.38 ft, referenced to National Geodetic Vertical Datum of 1929 (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 are fair. Figures of discharge and summary statistics given herein are the sum of river flow and flow of Bighorn Canal. Some regulation occurs by 14reservoirs in Wyoming with combined capacity of 1,400,000 acre-ft and complete regulation by Bighorn Lake (06286400) since Nov. 3, 1965. Diversions for irrigation include about 375,000 acres upstream from station. Bureau of Reclamation satellite telemeter is located at the station. Several unpublished observations of water temperature and specific conductance were made during the year.

06287000 BIGHORN RIVER NEAR ST. XAVIER, MT—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
DAILY MEAN VALUES

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	1,540	1,590	1,630	1,570	1,500	1,510	1,570	1,500	1,630	2,140	2,120	2,130
2	1,480	1,590	1,640	1,570	1,510	1,510	1,550	1,490	1,640	2,140	2,120	2,130
3	1,400	1,600	1,640	1,580	1,510	1,510	1,550	1,500	1,630	2,140	2,120	2,130
4	1,350	1,610	1,650	1,590	1,510	1,520	1,560	1,500	1,640	2,140	2,120	2,120
5	1,340	1,610	1,660	1,590	1,520	1,520	1,520	1,500	1,630	2,140	2,120	2,070
6	1,380	1,620	1,670	1,600	1,520	1,520	1,500	1,500	1,610	2,140	2,120	2,030
7	1,480	1,620	1,680	1,600	1,530	1,530	1,500	1,500	1,550	2,140	2,120	1,980
8	1,470	1,630	1,680	1,610	1,520	1,530	1,490	1,500	1,500	2,130	2,120	1,970
9	1,450	1,640	1,690	1,580	1,530	1,520	1,590	1,500	1,500	2,070	2,160	1,960
10	1,440	1,640	1,700	1,530	1,530	1,510	1,510	1,500	1,500	2,110	2,190	1,970
11	1,430	1,650	1,640	1,560	1,540	1,510	1,490	1,500	1,500	2,200	2,190	1,960
12	1,410	1,650	1,530	1,600	1,540	1,530	1,510	1,500	1,500	2,230	2,190	1,930
13	1,400	1,660	1,550	1,630	1,540	1,540	1,510	1,500	1,500	2,250	2,190	1,890
14	1,380	1,620	1,570	1,670	1,550	1,520	1,500	1,500	1,500	2,250	2,190	1,880
15	1,370	1,520	1,590	1,700	1,530	1,520	1,510	1,500	1,540	2,250	2,200	1,870
16	1,350	1,520	1,610	1,650	1,500	1,540	1,500	1,500	1,760	2,240	2,190	1,870
17	1,390	1,530	1,630	1,500	1,500	1,530	1,500	1,500	1,760	2,230	2,190	1,870
18	1,070	1,530	1,640	1,510	1,550	1,530	1,480	1,500	1,760	2,220	2,190	1,850
19	1,510	1,540	1,660	1,520	1,510	1,540	1,490	1,500	1,810	2,220	2,190	1,820
20	1,520	1,550	1,680	1,530	1,500	1,540	1,500	1,500	1,900	2,220	2,190	1,810
21	1,530	1,550	1,630	1,540	1,500	1,530	1,500	1,540	1,970	2,220	2,190	1,820
22	1,530	1,560	1,500	1,550	1,510	1,540	1,500	1,620	1,990	2,220	2,190	1,810
23	1,540	1,570	1,510	1,560	1,510	1,550	1,500	1,670	1,990	2,220	2,190	1,800
24	1,540	1,580	1,520	1,570	1,510	1,540	1,500	1,710	1,990	2,220	2,190	1,790
25	1,550	1,580	1,520	1,580	1,500	1,550	1,500	1,730	1,990	2,220	2,200	1,780
26	1,560	1,590	1,530	1,590	1,510	1,560	1,500	1,730	2,010	2,190	2,190	1,770
27	1,560	1,600	1,530	1,600	1,520	1,550	1,500	1,730	2,060	2,130	2,190	1,770
28	1,560	1,610	1,540	1,610	1,510	1,550	1,500	1,730	2,120	2,080	2,190	1,760
29	1,570	1,610	1,550	1,610	---	1,560	1,500	1,730	2,140	2,110	2,180	1,750
30	1,580	1,620	1,560	1,620	---	1,540	1,500	1,700	2,140	2,110	2,170	1,720
31	1,580	---	1,560	1,590	---	1,540	---	1,670	---	2,110	2,140	---
Total	45,260	47,790	49,690	49,110	42,510	47,490	45,330	48,550	52,760	67,430	67,240	57,010
Mean	1,460	1,593	1,603	1,584	1,518	1,532	1,511	1,566	1,759	2,175	2,169	1,900
Max	1,580	1,660	1,700	1,700	1,550	1,560	1,590	1,730	2,140	2,250	2,200	2,130
Min	1,070	1,520	1,500	1,500	1,500	1,510	1,480	1,490	1,500	2,070	2,120	1,720
Ac-ft	89,770	94,790	98,560	97,410	84,320	94,200	89,910	96,300	104,600	133,700	133,400	113,100

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1935 - 2007, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	2,866	2,830	2,656	2,533	2,593	2,825	2,811	3,689	6,744	5,310	2,821	2,662
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)

06287000 BIGHORN RIVER NEAR ST. XAVIER, MT—Continued

SUMMARY STATISTICS

	Calendar Year 2006		Water Year 2007		Water Years 1935 - 2007	
Annual total	770,570		620,170			
Annual mean	2,111		1,699		3,363	
Highest annual mean					5,059	1947
Lowest annual mean					1,474	2002
Highest daily mean	2,960	May 24	2,250	Jul 13	37,400	Jun 16, 1935
Lowest daily mean	1,070	Oct 18	1,070	Oct 18	112	Apr 2, 1967
Annual seven-day minimum	1,270	Sep 5	1,340	Oct 12	195	Mar 25, 1966
Maximum peak flow			[a]2,300	Jul 25	37,400	Jun 16, 1935
Maximum peak stage			[b]60.58	Oct 17		
Instantaneous low flow					49	Mar 29, 1966
Annual runoff (ac-ft)	1,528,000		1,230,000		2,436,000	
10 percent exceeds	2,660		2,170		5,620	
50 percent exceeds	2,360		1,580		2,730	
90 percent exceeds	1,520		1,500		1,500	

	Water Years 1935 - 1961*		Water Years 1967 - 2007**	
Annual mean	3,426		3,292	
Highest annual mean	5,059	1947	4,839	1999
Highest annual mean	1,706	1961	1,474	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 16, 1935	25,300	Jun 16, 1967
Instantaneous low flow	228	Dec 9, 1937	[c]112	Mar 29, 1967
Annual runoff (ac-ft)	2,482,000		2,385,000	
10 percent exceeds	6,640		5,260	
50 percent exceeds	2,450		2,920	
90 percent exceeds	1,370		1,570	

* Prior to construction of Yellowtail Dam.

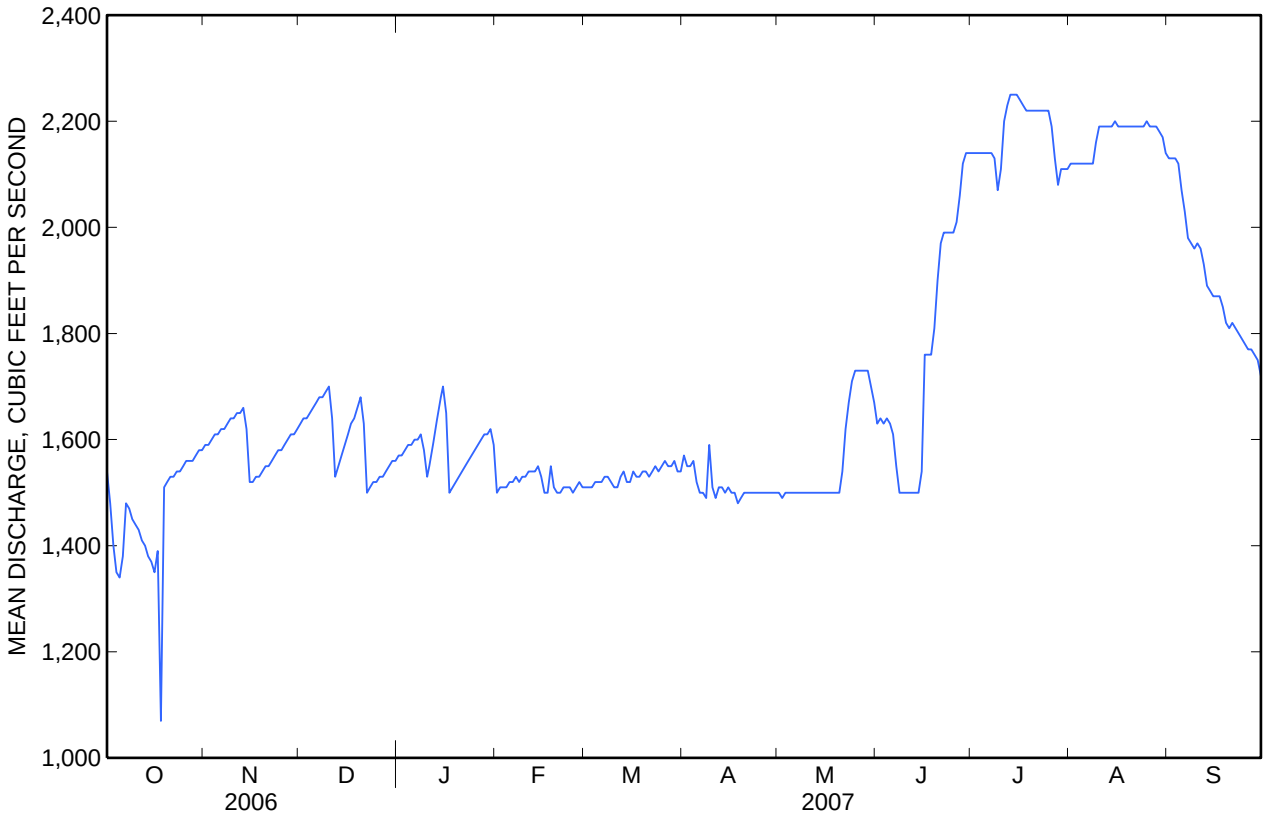
** After completion of Yellowtail Dam.

[a] Gage height, 59.51 ft, combined flow with Bighorn Canal.

[b] Backwater from algae.

[c] Result of discharge measurement.

06287000 BIGHORN RIVER NEAR ST. XAVIER, MT—Continued



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

Big Horn Basin
Little Bighorn Subbasin

LOCATION.--Lat 45°00′25″, long 107°36′52″ referenced to North American Datum of 1927, in SW ¼ NW ¼ sec.36, T.9 S., R.33 E., Big Horn County, MT, Hydrologic Unit 10080016, on right bank 20 ft downstream from county bridge, 0.5 mi north of Wyoming-Montana State line, 1 mi downstream from West Fork, 13 mi southwest of Wyola, and at river mile 115.2.

DRAINAGE AREA.--182 mi².

SURFACE-WATER RECORDS

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

REVISED RECORDS.-- Water Supply Paper 1729: Drainage area. Water Data Report MT-04-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 4,350 ft, referenced to the National Geodetic Vertical Datum of 1929.

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

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

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
DAILY MEAN VALUES

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	71	49	61	58	46	51	78	367	784	330	165	116
2	70	57	58	61	39	50	76	454	831	318	161	115
3	73	79	57	60	50	46	73	618	848	308	162	114
4	71	75	74	59	53	56	70	597	842	297	159	113
5	70	73	75	54	62	53	71	456	913	286	157	114
6	71	71	68	53	59	53	68	352	954	277	156	118
7	74	76	65	56	56	54	66	334	1,250	273	153	114
8	76	82	64	59	55	55	67	347	1,200	289	152	114
9	74	78	63	58	53	53	70	408	1,220	267	148	119
10	71	72	62	57	53	54	73	545	1,180	254	146	116
11	73	72	62	45	52	55	71	777	1,130	245	144	113
12	71	71	61	27	51	58	70	1,070	1,010	238	142	110
13	72	69	62	38	44	59	70	1,170	928	231	140	111
14	72	73	61	38	44	62	72	1,050	886	226	139	109
15	72	66	63	42	49	58	77	846	840	223	137	108
16	74	73	60	52	55	58	82	785	787	214	136	106
17	72	70	38	58	51	60	88	838	761	215	135	106
18	66	67	36	56	52	65	106	900	684	208	136	108
19	72	66	45	57	52	65	124	937	608	203	133	107
20	74	70	53	60	52	68	116	963	563	199	132	107
21	70	69	56	59	51	70	114	922	528	194	130	107
22	69	68	68	56	51	65	111	797	499	188	131	105
23	68	68	68	60	52	66	115	642	473	184	133	110
24	71	64	65	58	51	65	117	558	449	184	130	112
25	73	60	62	55	51	68	125	511	431	186	127	107
26	68	59	62	55	52	71	135	463	407	205	125	106
27	71	64	60	47	52	76	130	471	386	185	123	104
28	70	44	60	47	51	85	145	595	367	178	123	104
29	71	38	57	55	---	57	199	633	353	172	122	106
30	68	46	46	44	---	67	294	531	342	169	118	108
31	48	---	52	53	---	80	---	541	---	167	117	---
Total	2,186	1,989	1,844	1,637	1,439	1,903	3,073	20,478	22,454	7,113	4,312	3,307
Mean	70.5	66.3	59.5	52.8	51.4	61.4	102	661	748	229	139	110
Max	76	82	75	61	62	85	294	1,170	1,250	330	165	119
Min	48	38	36	27	39	46	66	334	342	167	117	104
Ac-ft	4,340	3,950	3,660	3,250	2,850	3,770	6,100	40,620	44,540	14,110	8,550	6,560

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 2007, BY WATER YEAR (WY)

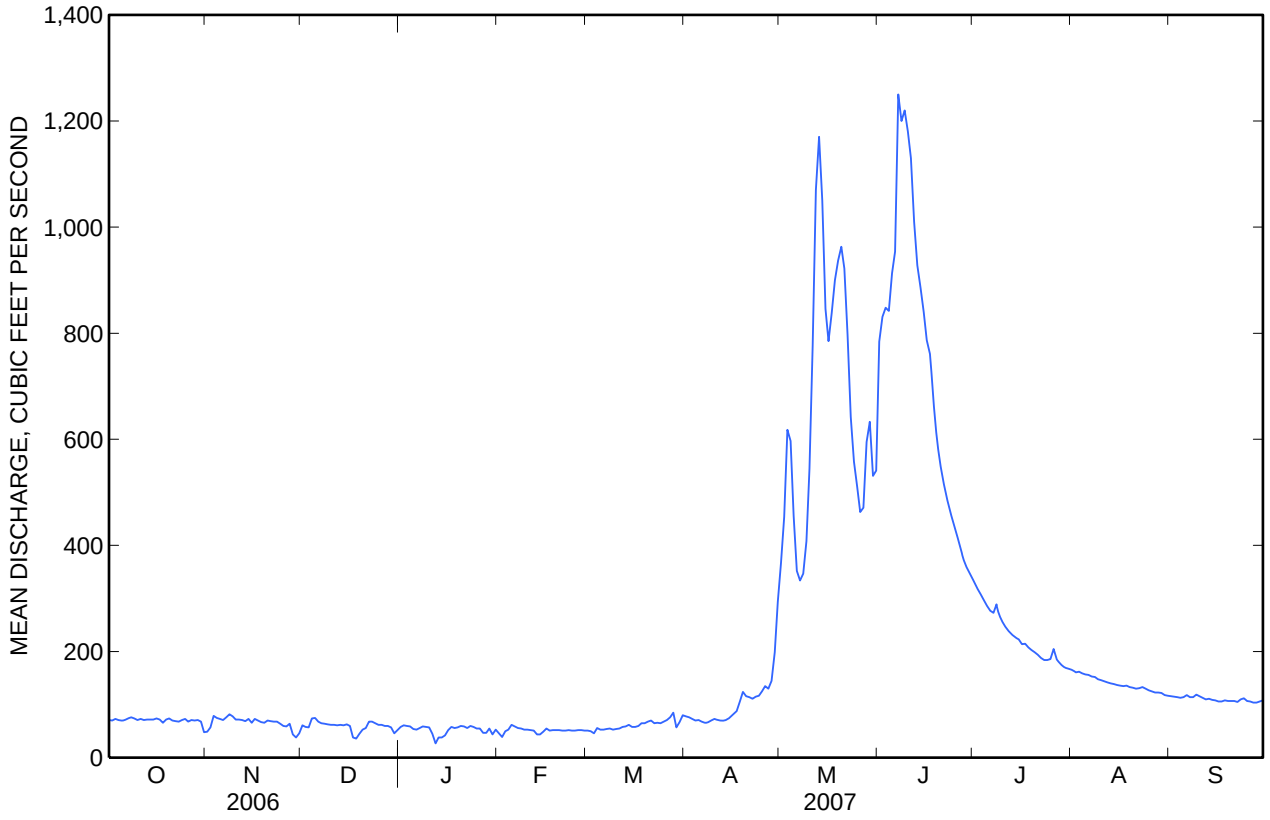
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	85.2	74.5	66.9	62.0	60.9	61.2	84.4	325	505	214	121	96.5
Max	120	104	91.2	84.9	88.0	86.4	172	661	1,125	689	228	151
(WY)	(1976)	(1942)	(1976)	(1946)	(1946)	(1946)	(1946)	(2007)	(1975)	(1975)	(1975)	(1975)
Min	51.7	45.2	44.1	40.9	40.2	46.8	50.7	127	135	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

	Calendar Year 2006		Water Year 2007		Water Years 1940 - 2007	
Annual total	33,825		71,735			
Annual mean	92.7		197		147	
Highest annual mean					253	1975
Lowest annual mean					76.0	2004
Highest daily mean	743	May 23	1,250	Jun 7	2,340	Jun 4, 1944
Lowest daily mean	36	Dec 18	27	Jan 12	18	Feb 2, 1989
Annual seven-day minimum	50	Dec 15	43	Jan 10	27	Dec 18, 1983
Maximum peak flow			1,830	Jun 7	[b]2,730	Jun 3, 1944
Maximum peak stage			4.24	Jun 7	[c]5.93	Jun 9, 1944
Instantaneous low flow			[a]23	Jan 12	18	Feb 2, 1989
Annual runoff (ac-ft)	67,090		142,300		106,200	
10 percent exceeds	145		576		328	
50 percent exceeds	69		74		82	
90 percent exceeds	54		52		55	

[a] Gage height, 1.30 ft.
[b] Gage height, 4.97 ft, from rating curve extended above 1,400 ft³/s.
[c] Result of log jam.



06290000 PASS CREEK NEAR WYOLA, MT

Big Horn Basin
Little Bighorn Subbasin

LOCATION.--Lat 45°03′23″, long 107°21′19″ referenced to North American Datum of 1927, in NE ¼ NE ¼ SE ¼ sec.13, T.9 S., R.35 E., Big Horn County, MT, 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^2. Drainage area at site used prior to Sept. 30, 1956, 119 mi^2.

SURFACE-WATER RECORDS

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, referenced to the National Geodetic Vertical Datum of 1929. 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 are fair except those for estimated daily discharges, which are poor. Diversions for irrigation of about 2,500 acres occur upstream from station. U.S. Geological Survey satellite telemeter is located at the 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^3/s, gage height, 10.90 ft.

06290000 PASS CREEK NEAR WYOLA, MT—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	7.1	e15	e15	e20	e8.5	e15	75	118	727	64	24	8.0
2	5.9	e15	e15	e25	e7.0	e10	99	128	636	64	21	9.7
3	7.5	18	e15	e25	e8.5	e15	92	147	448	61	20	12
4	7.8	18	e15	e25	e10	e30	80	181	346	58	21	14
5	7.8	18	e15	e25	e15	e50	72	261	269	52	20	12
6	7.7	17	e15	e25	e15	e70	64	505	246	49	20	14
7	8.4	17	e20	e25	e10	e100	59	267	e2,200	47	19	16
8	9.9	18	e20	e25	e10	e200	56	192	e1,200	47	20	20
9	10	20	e20	e25	e10	e400	59	161	671	45	18	21
10	13	22	e20	e25	e10	e320	115	163	540	42	19	23
11	12	22	e20	e20	e10	e290	154	182	440	42	14	22
12	14	23	e20	e10	e9.0	e270	101	190	379	42	12	20
13	14	22	e20	e10	e8.0	269	81	190	323	35	12	20
14	13	23	e20	e10	e7.0	153	94	178	279	32	12	21
15	13	23	e20	e10	e7.0	96	168	153	249	31	14	21
16	13	22	e20	e15	e7.0	70	191	128	226	29	13	20
17	16	22	e15	e15	e10	62	161	113	202	29	14	18
18	15	22	e15	e15	e15	69	125	103	185	28	13	19
19	14	22	e15	e15	e20	73	172	103	158	28	12	21
20	17	21	e15	e15	e30	63	168	105	142	28	13	21
21	21	21	e15	e15	e30	57	131	106	134	28	14	21
22	19	20	e20	e15	e20	50	115	126	123	25	13	21
23	17	20	e20	e15	e20	45	105	133	115	24	16	21
24	17	20	e20	e15	e20	42	99	117	108	23	14	25
25	19	19	e20	e15	e15	40	95	99	101	26	14	24
26	25	e15	e20	e15	e15	40	94	87	93	28	13	23
27	22	e10	e20	e10	e15	39	94	78	86	26	8.9	22
28	22	e9.0	e20	e10	e15	47	90	75	83	24	8.4	22
29	21	e8.0	e20	e10	---	40	94	114	75	26	10	22
30	20	e10	e15	e10	---	105	112	132	69	23	11	25
31	19	---	e20	e10	---	60	---	174	---	22	8.8	---
Total	448.1	552.0	560	520	377.0	3,190	3,215	4,809	10,853	1,128	462.1	578.7
Mean	14.5	18.4	18.1	16.8	13.5	103	107	155	362	36.4	14.9	19.3
Max	25	23	20	25	30	400	191	505	2,200	64	24	25
Min	5.9	8.0	15	10	7.0	10	56	75	69	22	8.4	8.0
Ac-ft	889	1,090	1,110	1,030	748	6,330	6,380	9,540	21,530	2,240	917	1,150

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 2007, BY WATER YEAR (WY) *

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	16.9	17.7	16.2	17.2	23.7	38.9	50.3	98.5	89.3	27.8	12.3	12.9
Max	27.8	27.9	33.6	32.3	57.8	115	107	324	375	92.6	38.5	29.1
(WY)	(1945)	(1946)	(1943)	(1984)	(1948)	(1947)	(2007)	(1984)	(1944)	(1944)	(1944)	(1944)
Min	5.73	4.76	5.73	6.55	7.79	8.81	11.9	10.2	6.46	2.99	1.08	1.22
(WY)	(1955)	(2004)	(2002)	(2001)	(2005)	(2002)	(2005)	(2004)	(2004)	(2006)	(2004)	(2004)

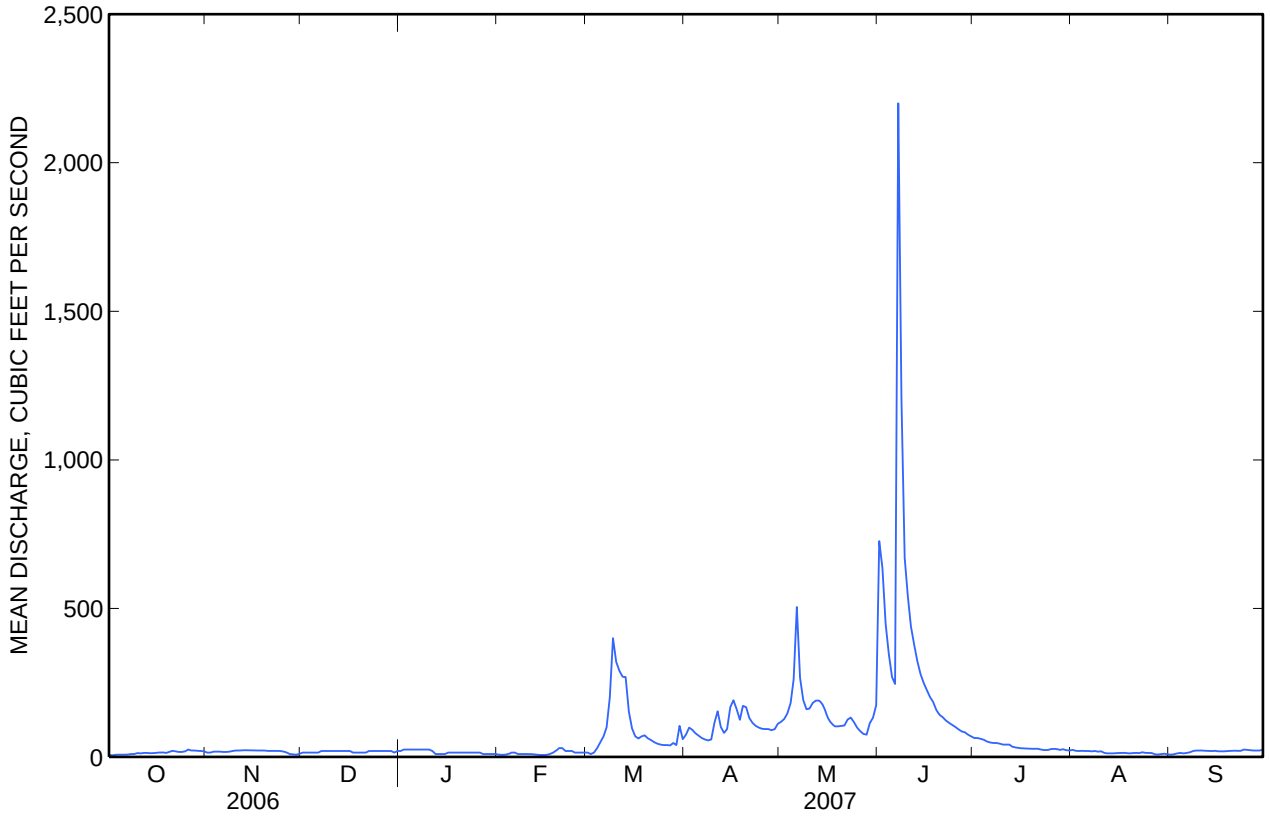
* During periods of operation (1939-56, 1983 to current year).

06290000 PASS CREEK NEAR WYOLA, MT—Continued

SUMMARY STATISTICS

	Calendar Year 2006		Water Year 2007		Water Years 1939 – 2007*	
Annual total	5,011.4		26,692.9			
Annual mean	13.7		73.1		35.1	
Highest annual mean					76.8	1944
Lowest annual mean					8.53	2004
Highest daily mean	40	May 24	2,200	Jun 7	2,200	Jun 7, 2007
Lowest daily mean	1.1	Jul 29	5.9	Oct 2	0.00	Sep 1, 2002
Annual seven-day minimum	1.5	Aug 25	7.5	Oct 1	0.00	Sep 1, 2002
Maximum peak flow			[a]3,120	Jun 7	[a]3,120	Jun 7, 2007
Maximum peak stage			[b]8.00	Jun 7	[b]8.00	Jun 7, 2007
Instantaneous low flow			[c]5.3	Oct 2	0.00	Aug 3, 1935
Annual runoff (ac-ft)	9,940		52,950		25,460	
10 percent exceeds	24		170		76	
50 percent exceeds	12		22		20	
90 percent exceeds	2.5		10		7.5	

* During periods of operation (1939-56, 1983 to current year).
[a] Result of contracted-opening measurement of peak flow ¼ mile upstream of gage.
[b] May have been higher due to bypass flow immediately upstream of gage.
[c] Gage height, 1.18 ft.



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

Big Horn Basin
Little Bighorn Subbasin

LOCATION.--Lat 45°07′35″, long 107°36′00″ referenced to North American Datum of 1927, in SE ¼ NE ¼ NE ¼ sec.24, T.8 S., R.33 E., Big Horn County, MT, 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^2.

SURFACE-WATER RECORDS

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

REVISED RECORDS.-- Water Supply Paper (WSP) 1559: 1944-47. WSP 1629: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 4,170 ft, referenced to the National Geodetic Vertical Datum of 1929. March 1939 to September 1974 recording gage located 0.1 mi upstream at different elevation. Flows are equivalent.

REMARKS.--Records are fair October 1 to January 9, poor January 10 to February 16, and good February 17 to September 30. Diversions for irrigation of about 400 acres occur upstream from station. U.S. Geological Survey satellite telemeter is located at the station. Several unpublished observations of water temperature and specific conductance were made during the year.

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

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	11	12	11	15	e9.0	18	36	108	415	139	41	26
2	11	11	11	15	e8.0	19	44	141	342	129	41	26
3	12	12	11	25	e9.0	20	34	207	328	120	41	25
4	12	14	11	21	e10	18	31	255	324	111	41	24
5	12	14	12	19	e15	18	31	274	339	102	39	24
6	11	15	15	19	e25	21	30	209	371	94	39	25
7	13	15	17	16	e20	53	28	129	728	89	38	25
8	14	16	19	15	e15	62	27	119	488	85	38	28
9	15	19	19	15	e15	48	32	138	395	79	36	30
10	16	20	19	e15	e15	37	54	176	453	74	35	28
11	16	20	18	e10	e10	41	44	252	463	73	34	25
12	15	21	18	e9.0	e10	59	33	309	462	70	34	23
13	14	20	18	e10	e10	43	38	369	427	66	33	24
14	14	22	17	e10	e10	36	61	390	415	63	33	24
15	13	20	18	e10	e10	27	74	320	410	63	33	24
16	16	22	17	e10	e15	23	71	278	408	60	33	22
17	19	20	14	e10	19	22	52	275	401	59	34	22
18	16	20	12	e15	20	23	44	295	357	59	34	24
19	15	19	11	e15	27	22	93	312	302	56	34	24
20	20	19	10	e15	23	21	52	319	278	54	33	23
21	22	19	10	e15	23	21	45	320	263	52	32	23
22	20	18	11	e15	21	20	41	299	249	51	32	22
23	18	18	12	e15	22	19	41	265	234	49	34	23
24	17	18	13	e15	21	17	42	211	223	47	34	26
25	21	17	15	e15	19	18	41	185	214	51	31	24
26	21	16	19	e15	19	19	42	162	200	57	29	23
27	17	15	19	e15	18	19	42	147	185	53	28	22
28	15	14	19	e15	18	25	42	163	169	49	29	21
29	14	12	18	e15	---	21	48	210	158	46	30	23
30	15	12	22	e15	---	19	78	185	149	45	27	26
31	13	---	17	e10	---	21	---	322	---	43	26	---
Total	478	510	473	449.0	456.0	850	1,371	7,344	10,150	2,188	1,056	729
Mean	15.4	17.0	15.3	14.5	16.3	27.4	45.7	237	338	70.6	34.1	24.3
Max	22	22	22	25	27	62	93	390	728	139	41	30
Min	11	11	10	9.0	8.0	17	27	108	149	43	26	21
Ac-ft	948	1,010	938	891	904	1,690	2,720	14,570	20,130	4,340	2,090	1,450

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 2007, BY WATER YEAR (WY) *

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	20.6	18.7	16.6	16.3	16.6	20.1	31.1	118	192	61.5	27.3	21.7
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)

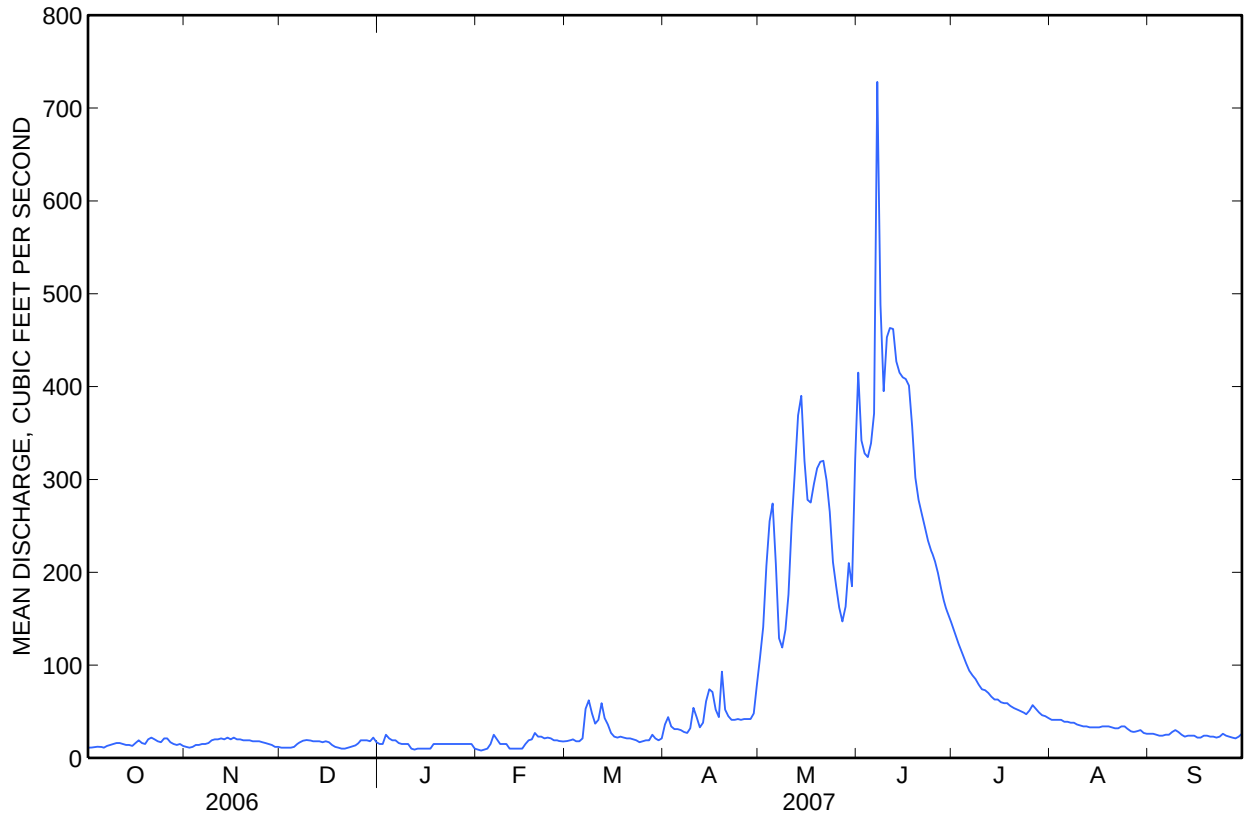
* During periods of operation (1940-74, 1983 to current year).

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

SUMMARY STATISTICS

	Calendar Year 2006		Water Year 2007		Water Years 1940 - 2007*	
Annual total	9,679.4		26,054.0			
Annual mean	26.5		71.4		46.8	
Highest annual mean					85.6	1970
Lowest annual mean					21.1	2004
Highest daily mean	306	May 24	728	Jun 7	908	Jun 9, 1964
Lowest daily mean	5.0	Feb 17	8.0	Feb 2	2.7	Apr 6, 2001
Annual seven-day minimum	7.7	Feb 11	9.9	Jan 11	3.0	Apr 13, 2001
Maximum peak flow			1,260	Jun 7	[a]1,260	Jun 7, 2007
Maximum peak stage			6.21	Jun 7	6.21	Jun 7, 2007
Annual runoff (ac-ft)	19,200		51,680		33,900	
10 percent exceeds	47		253		113	
50 percent exceeds	15		24		22	
90 percent exceeds	10		12		12	

* During periods of operation (1940-74, 1983 to current year).
[a] From rating curve extended above 600 ft³/s.



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Water-Data Report 2007

06294000 LITTLE BIGHORN RIVER NEAR HARDIN, MT

Big Horn Basin
Little Bighorn Subbasin

LOCATION.--Lat 45°44′09″, long 107°33′24″ referenced to North American Datum of 1927, in SE ¼ NE ¼ NE ¼ sec.19, T.1 S., R.34 E., Big Horn County, MT, Hydrologic Unit 10080016, on left bank 50 ft downstream from bridge on Sarpy Road, 0.2 mi upstream from terminal wasteway of Agency Canal, 0.6 mi upstream from mouth, and 2.3 mi east of Hardin.

DRAINAGE AREA.--1,294 mi².

SURFACE-WATER RECORDS

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

REVISED RECORDS.-- Water Data Report MT-86-1: 1978.

GAGE.--Water-stage recorder. Elevation of gage is 2,882.29 ft, referenced to the National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to Oct. 7, 1953, nonrecording gage located at site 0.4 mi downstream. Oct. 7, 1953 to May 6, 1963, water-stage recorder located at site 0.3 mi downstream. May 6, 1963 to Nov. 6, 1963, nonrecording gage located at site 0.4 mi downstream. All locations had different elevations. Nov. 7, 1963 to Aug. 15, 1976, water-stage recorder located at site 35 ft downstream at present elevation. Aug. 15, 1976 to Sept. 30, 1979, water-stage recorders were located on each bank downstream from Sarpy Road bridge and were used depending on control conditions.

REMARKS.--Records are good except those for estimated daily discharges, which are poor. Flow partly regulated by Willow Creek Reservoir (capacity 23,000 acre-ft). Diversions for irrigation include 20,980 acres upstream from station. **Discharge values and summary statistics given herein include the flow of terminal wasteway of Agency Canal**. U.S. Geological Survey satellite telemeter is located at the station. Several unpublished observations of water temperature and specific conductance were made during the year.

06294000 LITTLE BIGHORN RIVER NEAR HARDIN, MT—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	87	113	e80	e90	e70	e90	199	317	1,220	579	153	130
2	84	88	e80	e100	e60	e100	242	388	2,070	532	143	130
3	83	84	e100	e100	e70	e110	330	449	2,550	493	140	128
4	88	99	e110	e100	e70	e140	371	572	2,360	451	139	126
5	87	106	e100	e100	e80	e200	334	751	1,950	401	144	125
6	93	109	e100	e100	e90	e250	308	872	1,770	384	144	124
7	89	108	e100	e100	e80	e300	283	1,280	1,920	360	137	116
8	90	106	e110	e100	e80	e350	257	1,130	2,480	349	130	128
9	96	105	e120	e100	e80	e500	244	709	3,340	326	125	152
10	107	111	e110	e100	e80	677	256	637	4,320	314	115	175
11	111	117	e100	e80	e80	930	340	628	3,700	299	118	180
12	117	120	e100	e60	e80	896	532	736	3,070	218	158	189
13	114	115	e100	e70	e80	1,120	418	892	2,710	228	166	175
14	117	114	e100	e70	e80	776	325	1,100	2,480	200	161	172
15	111	112	e100	e80	e90	787	340	1,280	2,270	186	155	178
16	107	120	e80	e90	e90	543	440	1,290	2,120	170	145	184
17	117	116	e70	e100	e90	368	524	1,080	2,020	156	152	182
18	120	116	e80	e100	e90	292	486	993	1,920	142	159	178
19	126	115	e80	e100	e90	282	434	983	1,820	135	163	182
20	120	111	e90	e100	e90	282	630	1,030	1,630	119	163	183
21	124	109	e100	e100	e90	263	833	1,070	1,440	106	152	157
22	148	110	e100	e100	e90	235	485	1,180	1,300	110	152	148
23	154	109	e100	e110	e90	218	389	1,220	1,170	121	146	144
24	139	107	e100	e100	e90	198	338	1,160	1,080	121	151	148
25	128	101	e100	e90	e90	187	316	973	1,010	118	152	140
26	127	e70	e110	e80	e90	179	297	799	936	122	161	143
27	134	e50	e100	e80	e90	172	288	692	850	152	152	138
28	141	e40	e100	e80	e90	177	285	624	769	186	142	134
29	128	e50	e80	e80	---	209	277	630	690	185	132	133
30	123	e60	e70	e70	---	235	278	794	612	173	136	133
31	118	---	e80	e80	---	197	---	900	---	162	134	---
Total	3,528	2,991	2,950	2,810	2,340	11,263	11,079	27,159	57,577	7,598	4,520	4,555
Mean	114	99.7	95.2	90.6	83.6	363	369	876	1,919	245	146	152
Max	154	120	120	110	90	1,120	833	1,290	4,320	579	166	189
Min	83	40	70	60	60	90	199	317	612	106	115	116
Ac-ft	7,000	5,930	5,850	5,570	4,640	22,340	21,980	53,870	114,200	15,070	8,970	9,030

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 2007, BY WATER YEAR (WY)

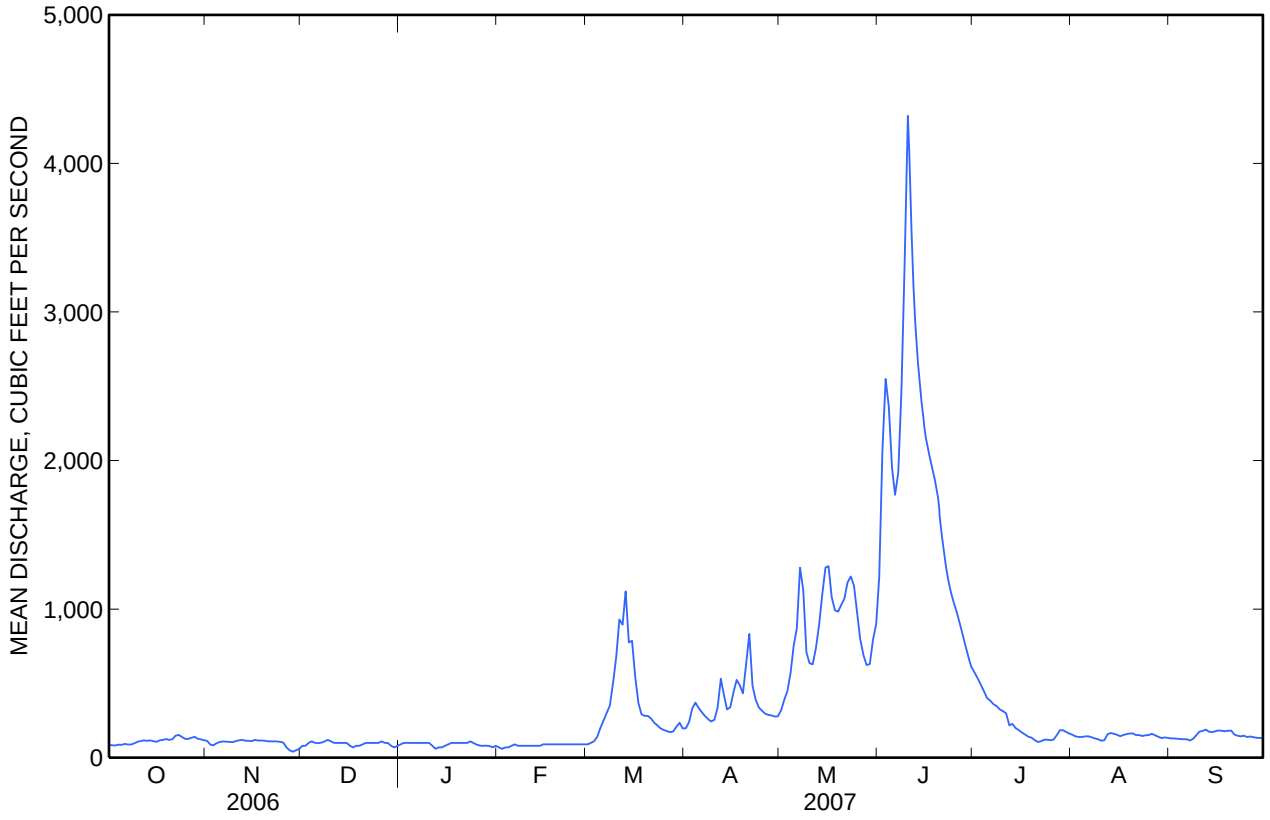
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	150	149	132	136	193	303	304	598	807	253	114	124
Max	276	248	223	366	610	987	748	2,852	1,981	1,333	382	267
(WY)	(1979)	(1979)	(1979)	(1975)	(1971)	(1972)	(1965)	(1978)	(1968)	(1975)	(1975)	(1978)
Min	60.7	82.6	65.6	50.5	68.5	71.1	54.8	71.9	117	8.50	2.46	19.1
(WY)	(2002)	(2002)	(2002)	(2005)	(2005)	(2002)	(1961)	(1961)	(1961)	(1961)	(1961)	(1960)

06294000 LITTLE BIGHORN RIVER NEAR HARDIN, MT—Continued

SUMMARY STATISTICS

	Calendar Year 2006		Water Year 2007		Water Years 1954 - 2007	
Annual total	41,368.2		138,370			
Annual mean	113		379		272	
Highest annual mean					676	1975
Lowest annual mean					70.4	1961
Highest daily mean	759	May 25	4,320	Jun 10	15,800	May 20, 1978
Lowest daily mean	1.1	Aug 22	40	Nov 28	0.30	Aug 5, 1961
Annual seven-day minimum	1.5	Aug 17	61	Nov 26	0.40	Aug 3, 1961
Maximum peak flow			4,580	Jun 10	[a]22,600	May 19, 1978
Maximum peak stage			8.31	Jun 10	[b]11.78	Mar 20, 1960
Instantaneous low flow					[c]0.20	Aug 7, 1961
Annual runoff (ac-ft)	82,050		274,500		196,900	
10 percent exceeds	173		1,020		589	
50 percent exceeds	109		140		160	
90 percent exceeds	6.8		80		70	

[a] Gage height, 11.20 ft.
[b] Site and datum then in use.
[c] Result of discharge measurement.



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Water-Data Report 2007

06294500 BIGHORN RIVER ABOVE TULLOCK CREEK, NEAR BIGHORN, MT

Big Horn Basin
Lower Bighorn Subbasin

LOCATION.--Lat 46°07′29″, long 107°28′06″ referenced to North American Datum of 1927, in SE ¼ SE ¼ NE ¼ sec.3, T.4 N., R.34 E., Treasure County, MT, Hydrologic Unit 10080015, on right bank 1.9 mi upstream from Tullock Creek, 3.6 mi southwest of Bighorn, 4.5 mi southeast of Custer, and at river mile 3.0.

DRAINAGE AREA.--22,414 mi². Area at site used Oct. 7, 1955, to Sept. 30, 1981, 22,885 mi².

SURFACE-WATER RECORDS

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, referenced to the National Geodetic Vertical Datum of 1929. May 11, 1945 to Dec. 6, 1945, nonrecording gage, and Dec. 7, 1945 to Oct. 6, 1955, water-stage recorder located 1.7 mi upstream at different elevation. Oct. 7, 1955 to Sept. 30, 1981, located at site 2.3 mi downstream at different elevation.

REMARKS.--Records are good except those for estimated daily discharges, which are poor. Since November 1965, flow has been regulated by Bighorn Lake (usable capacity, 1,312,000 acre-ft). Major regulation prior to November 1965 occurred from 14 reservoirs in Wyoming and one in Montana with a combined usable capacity of about 1,400,000 acre-ft. Diversion for irrigation of about 445,200 acres occurs upstream from the station. U.S. Army Corps of Engineers satellite telemeter is located at the station. Several unpublished observations of water temperature and specific conductance were made during the year.

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

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	1,560	1,540	e1,600	e1,800	e2,000	1,770	1,900	1,950	4,180	2,130	1,950	2,140
2	1,540	1,530	e1,500	e1,900	e1,900	1,760	2,320	2,030	5,570	2,130	1,930	2,150
3	1,530	1,530	e1,500	1,890	e1,900	1,730	2,820	2,120	5,190	2,100	1,970	2,150
4	1,480	1,550	e1,600	1,940	e1,900	1,740	2,630	2,290	4,680	2,060	2,020	2,170
5	1,420	1,560	e1,600	1,970	e1,900	1,740	2,440	2,490	3,860	2,070	2,020	2,160
6	1,380	1,580	e1,600	1,980	e1,900	1,790	2,290	2,770	3,500	2,040	2,010	2,110
7	1,390	1,580	e1,700	2,010	e1,900	1,890	2,140	3,030	3,890	2,000	1,950	2,110
8	1,520	1,590	1,870	2,010	e1,900	2,130	2,060	3,080	7,080	2,100	1,930	2,090
9	1,480	1,590	1,770	2,020	e1,900	2,250	1,980	2,560	7,130	2,020	1,900	2,100
10	1,510	1,600	1,790	2,010	e1,900	2,480	2,100	2,320	6,990	2,010	1,900	2,130
11	1,510	1,610	1,810	1,960	e1,900	2,650	2,180	2,290	6,460	1,950	1,950	2,130
12	1,520	1,620	1,760	e2,000	e1,900	2,700	2,450	2,310	4,980	1,930	1,980	2,130
13	1,510	1,610	1,660	e2,000	e1,900	2,820	2,380	2,470	4,330	1,900	2,060	2,110
14	1,480	1,620	1,680	e2,100	e1,900	2,630	2,160	2,660	3,970	1,930	2,030	2,050
15	1,440	1,590	1,700	e2,100	e2,000	2,570	2,100	2,770	3,670	1,930	2,040	2,030
16	1,440	1,470	1,720	e2,100	e2,100	2,370	2,190	2,840	3,450	1,930	2,050	2,040
17	1,520	1,480	1,740	e2,000	e2,100	2,140	2,310	2,690	3,540	1,900	2,090	2,030
18	1,600	1,470	e1,700	e1,900	e2,100	1,970	2,330	2,530	3,410	1,900	2,140	2,000
19	1,280	1,470	e1,700	e1,900	e2,100	1,910	2,360	2,490	3,280	1,900	2,180	2,030
20	1,660	1,480	e1,800	e1,900	e2,100	1,910	2,570	2,530	3,060	1,870	2,180	2,000
21	1,720	1,480	1,770	e1,900	e2,100	1,890	3,320	2,570	2,830	1,870	2,120	1,970
22	1,810	1,480	1,740	e1,900	e2,100	1,850	2,670	3,020	2,860	1,880	2,080	1,910
23	1,750	1,490	1,620	e1,900	2,130	1,830	2,300	3,220	2,770	1,890	2,090	1,890
24	1,650	1,490	1,640	e1,900	2,020	1,800	2,160	3,180	2,700	1,890	2,120	1,960
25	1,610	1,490	1,660	e1,900	1,940	1,780	2,080	3,210	2,610	1,960	2,110	1,890
26	1,600	1,490	1,700	e2,000	1,900	1,770	2,030	2,850	2,470	1,910	2,120	1,890
27	1,610	1,470	1,720	e2,000	1,860	1,750	2,020	2,620	2,370	2,000	2,120	1,820
28	1,590	1,540	1,800	e2,000	1,830	1,780	1,990	2,480	2,310	2,010	2,080	1,790
29	1,590	e1,500	1,800	e2,000	---	2,000	1,970	2,450	2,300	1,980	2,090	1,780
30	1,590	e1,500	1,800	e2,000	---	1,980	1,940	2,580	2,170	2,020	2,100	1,760
31	1,570	---	e1,800	e2,000	---	1,910	---	2,850	---	1,970	2,140	---
Total	47,860	46,000	52,850	60,990	55,080	63,290	68,190	81,250	117,610	61,180	63,450	60,520
Mean	1,544	1,533	1,705	1,967	1,967	2,042	2,273	2,621	3,920	1,974	2,047	2,017
Max	1,810	1,620	1,870	2,100	2,130	2,820	3,320	3,220	7,130	2,130	2,180	2,170
Min	1,280	1,470	1,500	1,800	1,830	1,730	1,900	1,950	2,170	1,870	1,900	1,760
Ac-ft	94,930	91,240	104,800	121,000	109,300	125,500	135,300	161,200	233,300	121,400	125,900	120,000

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945 - 2007, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	3,115	3,190	3,055	2,951	3,103	3,565	3,434	4,221	6,672	5,107	2,771	2,764
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)

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

SUMMARY STATISTICS

	Calendar Year 2006		Water Year 2007		Water Years 1945 - 2007	
Annual total	750,840		778,270			
Annual mean	2,057		2,132		3,645	
Highest annual mean					5,594	1997
Lowest annual mean					1,474	2003
Highest daily mean	3,570	Apr 1	7,130	Jun 9	50,000	May 20, 1978
Lowest daily mean	1,140	Sep 12	1,280	Oct 19	400	Apr 4, 1967
Annual seven-day minimum	1,210	Sep 6	1,450	Oct 4	528	May 6, 1961
Maximum peak flow			[a]8,420	Jun 8	[d]59,200	May 20, 1978
Maximum peak stage			[b]6.17	Dec 1	[e]14.21	Apr 2, 1965
Instantaneous low flow			[c]847	Oct 19	[f]275	Nov 15, 1959
Annual runoff (ac-ft)	1,489,000		1,544,000		2,641,000	
10 percent exceeds	2,650		2,770		6,140	
50 percent exceeds	2,220		1,980		3,060	
90 percent exceeds	1,480		1,540		1,600	

	Water Years 1946 - 1961*		Water Years 1967 - 2007**	
Annual mean	3,358		3,635	
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, 1962	400	Apr 4, 1967
Annual seven-day minimum	528	May 6, 1961	843	Nov 18, 1977
Maximum peak flow	[g]26,200	Jun 24, 1947	[e]59,200	May 20, 1978
Maximum peak stage	[d]10.65	May 24, 1947	e14.15	May 20, 1978
Instantaneous low flow	[e]275	Nov 15, 1959		
Annual runoff (ac-ft)	2,578,000		2,663,300	
10 percent exceeds	6,200		6,030	
50 percent exceeds	2,810		3,200	
90 percent exceeds	1,500		1,670	

*Prior to construction of Yellowtail Dam.

** After completion of Yellowtail Dam.

[a] Gage height, 4.65 ft.

[b] Backwater from ice.

[c] Gage height, 0.03 ft.

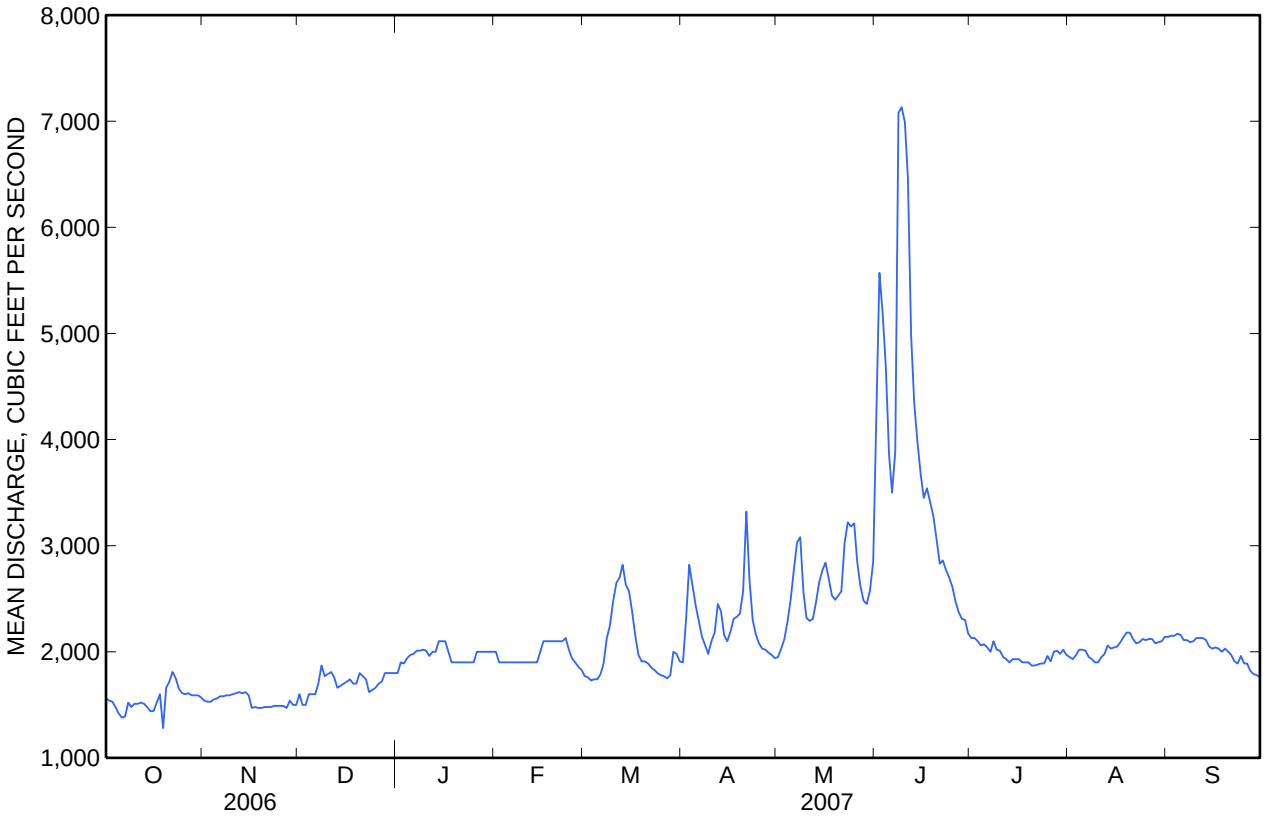
[d] Gage height, 14.15 ft, at different site and datum.

[e] Ice jam.

[f] Prior to construction of Yellowtail Dam.

[g] Gage height, 8.79 ft, at different site and datum.

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



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Water-Data Report 2007

06295000 YELLOWSTONE RIVER AT FORSYTH, MT

Lower Yellowstone Basin
Lower Yellowstone-Sunday Subbasin

LOCATION.--Lat 46°15′58″, long 106°41′24″ referenced to North American Datum of 1927, in NE ¼ NW ¼ NW ¼ sec.23, T.6 N., R.40 E., Rosebud County, MT, Hydrologic Unit 10100001, on right bank 0.3 mi downstream from U.S. Highway 12 bridge, at Forsyth, and at river mile 238.2.

DRAINAGE AREA.--40,146 mi² of which 691 mi² probably is noncontributing.

SURFACE-WATER RECORDS

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.-- Wate Data Report MT-04-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 2,504.62 ft, referenced to the National Geodetic Vertical Datum of 1929, 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 are good except those for estimated daily discharges, which are poor. Diversions for irrigation include about 838,000 acres upstream from station. Flow is regulated to some extent by Bighorn Lake, usable capacity, 1,312,000 acre-ft, on Bighorn River. Small diversion dam is located about 4,200 ft downstream from station. U.S. Geological Survey satellite telemeter is located at the 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.

06295000 YELLOWSTONE RIVER AT FORSYTH, MT—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
DAILY MEAN VALUES

[e, estimated; &, affected value]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	4,770	5,700	e4,600	e4,600	e4,500	e4,900	6,070	10,900	17,700	9,050	4,610	3,470
2	4,750	5,550	e4,600	e4,700	e4,400	e4,800	6,190	15,800	18,700	8,620	4,330	3,450
3	4,700	5,330	e4,500	e5,100	e4,500	e4,600	7,140	17,800	18,300	8,210	4,120	3,450
4	4,780	5,260	e4,600	e5,100	e4,700	e5,000	7,410	19,400	17,900	7,720	4,090	3,430
5	4,940	5,400	e4,700	e5,000	e5,000	e5,200	6,840	20,900	19,000	7,170	4,150	3,440
6	4,950	5,650	e4,800	e5,000	e4,900	e5,400	6,430	19,700	19,900	6,770	4,130	3,460
7	5,100	5,710	e4,900	e5,000	e4,800	e5,600	6,210	17,100	22,100	6,430	4,070	3,460
8	5,240	5,640	e5,100	e5,000	e4,800	e5,600	6,050	14,600	30,700	6,300	3,970	3,600
9	5,480	5,600	e5,400	e5,000	e4,800	e5,600	5,910	13,100	34,200	7,080	3,940	3,750
10	5,920	5,810	e5,500	e5,000	e4,900	e6,000	5,870	12,800	27,600	6,550	3,810	4,010
11	6,780	6,970	e5,500	e4,600	e4,900	e6,400	6,090	15,300	25,100	6,050	3,670	4,100
12	6,670	7,220	e5,400	e4,200	e4,800	6,820	6,550	18,800	23,300	5,600	3,650	4,160
13	6,560	6,690	e5,300	e4,200	e4,700	6,280	6,900	21,100	22,800	5,360	3,640	4,100
14	6,470	6,370	e5,200	e4,200	e4,700	6,270	6,480	23,200	22,200	5,140	3,570	4,100
15	6,190	6,180	e5,200	e4,300	e4,500	6,150	6,130	26,100	21,100	4,970	3,520	3,980
16	6,030	6,020	e5,200	e4,500	e4,500	6,520	5,950	27,300	20,800	4,820	3,450	4,000
17	6,090	5,900	e5,200	e4,400	e4,800	6,160	6,060	24,100	21,500	4,820	3,470	4,030
18	6,710	5,750	e5,000	e4,400	e5,000	5,730	6,280	22,100	21,300	4,540	3,510	4,000
19	6,960	5,740	e4,800	e4,500	e5,200	5,370	6,560	21,600	21,300	4,390	3,540	3,980
20	6,400	5,770	e4,600	e4,600	e5,200	5,250	7,460	21,300	19,200	4,390	3,610	4,070
21	6,550	5,660	e4,600	e4,500	e5,200	5,250	8,730	21,500	16,400	4,150	3,620	4,130
22	6,710	5,600	e4,700	e4,700	e5,100	5,300	8,910	22,600	15,300	4,000	3,640	4,190
23	6,850	5,580	e4,700	e4,900	e5,100	5,350	7,770	24,900	15,100	3,910	3,500	4,140
24	6,530	5,530	e4,700	e5,000	e5,100	5,440	7,380	23,500	14,800	3,910	3,410	4,110
25	6,290	5,500	e4,600	e5,000	e5,100	5,330	7,120	20,400	14,500	3,810	3,470	4,430
26	6,080	5,570	e4,600	e4,900	e5,100	5,230	7,230	18,400	13,600	3,890	3,490	4,290
27	6,040	e5,000	e4,700	e4,800	e5,000	5,150	7,340	16,500	12,600	3,990	3,500	4,270
28	6,020	e5,100	e4,900	e4,900	e5,000	5,170	7,670	14,600	11,500	4,570	3,490	4,390
29	5,920	e5,100	e4,900	e4,800	---	5,660	8,470	13,800	10,500	4,970	3,370	4,430
30	5,780	e5,000	e4,800	e4,700	---	6,220	8,640	15,900	9,650	5,030	3,340	4,280
31	5,720	---	e4,800	e4,700	---	6,310	---	17,800	---	5,000	3,400	---
Total	183,980	171,900	152,100	146,300	136,300	174,060	207,840	592,900	578,650	171,210	115,080	118,700
Mean	5,935	5,730	4,906	4,719	4,868	5,615	6,928	19,130	19,290	5,523	3,712	3,957
Max	6,960	7,220	5,500	5,100	5,200	6,820	8,910	27,300	34,200	9,050	4,610	4,430
Min	4,700	5,000	4,500	4,200	4,400	4,600	5,870	10,900	9,650	3,810	3,340	3,430
Ac-ft	364,900	341,000	301,700	290,200	270,400	345,200	412,300	1,176,000	1,148,000	339,600	228,300	235,400

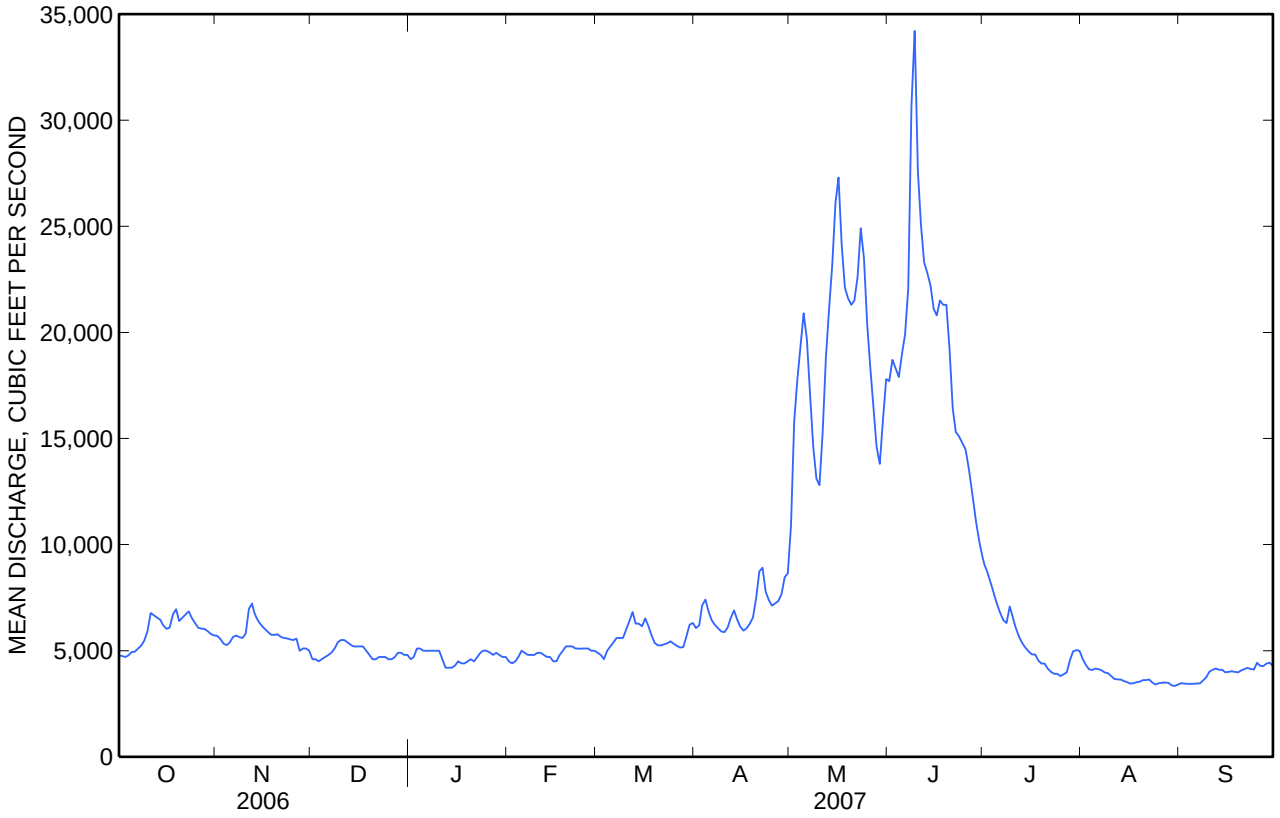
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 2007, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	7,142	6,725	5,883	5,511	5,841	6,746	7,431	16,920	28,370	16,810	7,495	6,505
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	5,523	2,742	2,723
(WY)	(2002)	(2002)	(2002)	(2002)	(2002)	(2002)	(1981)	(2004)	(1987)	(2007)	(2001)	(2001)

06295000 YELLOWSTONE RIVER AT FORSYTH, MT—Continued

SUMMARY STATISTICS

	Calendar Year 2006		Water Year 2007		Water Years 1978 - 2007	
Annual total	2,911,170		2,749,020			
Annual mean	7,976		7,532		10,120	
Highest annual mean					17,590	1997
Lowest annual mean					6,026	2001
Highest daily mean	34,200	Jun 11	34,200	Jun 9	97,000	May 21, 1978
Lowest daily mean	2,860	Sep 12	3,340	Aug 30	1,400	Nov 23, 1977
Annual seven-day minimum	2,910	Sep 7	3,420	Aug 29	2,030	Aug 26, 2001
Maximum peak flow			37,300	Jun 9	106,000	May 21, 1978
Maximum peak stage			7.22	Jun 9	14.53	May 21, 1978
Annual runoff (ac-ft)	5,774,000		5,453,000		7,335,000	
10 percent exceeds	16,400		18,100		21,200	
50 percent exceeds	5,500		5,230		6,960	
90 percent exceeds	3,810		3,960		4,200	



06295113 ROSEBUD CREEK AT RESERVATION BOUNDARY, NEAR KIRBY, MT

Lower Yellowstone Basin
Rosebud Subbasin

LOCATION.--Lat 45°21′40″, long 106°59′23″ referenced to North American Datum of 1927, in NE ¼ NE ¼ SW ¼ sec.36, T.5 S., R.38 E., Big Horn County, MT, 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^2.

SURFACE-WATER RECORDS

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

GAGE.--Water-stage recorder. Elevation of gage is 3,780 ft, referenced to the National Geodetic Vertical Datum of 1929.

REMARKS.--Records are poor. Numerous small diversions for irrigation are upstream from station. U.S. Geological Survey satellite telemeter is located at the station.

EXTREMES OUTSIDE PERIOD OF RECORD.--A discharge of 231 ft^3/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.

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

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	0.68	1.8	e2.0	e2.0	e1.5	e2.0	14	20	79	20	8.0	3.7
2	0.74	1.8	e1.5	e2.0	e1.0	e1.5	17	19	156	19	7.0	3.4
3	0.86	2.0	e1.5	e2.5	e1.0	e2.0	19	18	132	18	7.0	3.2
4	1.1	2.1	e3.0	e2.5	e1.5	e2.0	18	23	96	16	6.7	3.1
5	1.1	2.2	e3.0	e2.0	e2.0	e2.0	17	27	72	15	6.3	3.0
6	1.1	2.2	e2.5	e2.0	e2.0	e2.0	17	37	62	14	5.9	2.9
7	1.2	2.3	e2.5	e2.0	e2.0	e2.5	15	43	97	14	5.6	3.1
8	1.3	2.5	e2.5	e2.5	e2.0	e2.5	14	53	133	14	5.6	3.3
9	1.5	2.4	e2.5	e2.0	e2.0	e3.0	14	43	157	13	5.6	4.0
10	1.4	2.6	e2.5	e2.0	e2.0	e2.5	17	36	112	13	4.9	4.8
11	1.7	2.6	e2.5	e1.5	e2.0	e2.0	18	31	84	12	4.5	4.9
12	1.8	2.4	e2.5	e1.0	e1.5	e2.0	19	29	65	11	4.1	4.9
13	1.8	2.3	e2.5	e1.0	e1.5	e2.0	20	28	55	11	4.2	4.5
14	1.7	2.3	e3.0	e1.5	e1.5	e5.0	21	27	47	10	4.1	4.1
15	1.6	2.3	e2.5	e1.5	e1.0	e10	21	25	41	9.8	4.3	4.2
16	1.8	2.4	e2.5	e1.5	e1.5	e20	21	23	37	9.5	4.2	4.1
17	2.1	2.4	e2.5	e2.0	e2.0	e20	24	20	35	9.3	4.0	3.8
18	2.0	2.2	e2.0	e2.0	e2.0	20	30	16	33	9.3	4.5	4.4
19	2.0	2.2	e2.0	e2.0	e2.0	19	45	13	31	8.8	5.0	5.2
20	2.6	2.2	e2.0	e2.0	e2.0	18	56	11	29	8.6	5.0	5.2
21	3.3	2.2	e2.5	e2.0	e2.0	18	61	9.1	29	8.4	4.3	5.3
22	3.3	2.2	e2.5	e2.0	e2.0	16	46	13	29	8.3	4.4	5.0
23	2.7	2.1	e2.0	e2.5	e2.0	14	46	16	29	8.1	4.4	4.8
24	2.2	2.1	e2.0	e2.5	e2.0	11	37	20	30	7.7	4.9	5.4
25	2.0	2.1	e2.0	e2.0	e2.0	8.9	34	37	32	8.0	4.8	5.4
26	2.0	2.0	e2.5	e2.0	e2.0	8.0	31	52	32	8.8	4.6	5.4
27	1.9	2.2	e2.5	e2.0	e2.0	7.5	30	30	29	10	4.1	5.3
28	2.4	e1.5	e2.5	e2.0	e2.0	9.2	28	23	28	11	4.0	5.2
29	1.7	e1.0	e2.0	e2.0	---	12	26	23	25	10	4.1	5.2
30	1.8	e1.5	e2.0	e2.0	---	15	23	23	23	9.5	4.1	5.6
31	1.8	---	e2.0	e2.0	---	15	---	34	---	8.9	3.9	---
Total	55.18	64.1	72.0	60.5	50.0	274.6	799	822.1	1,839	354.0	154.1	132.4
Mean	1.78	2.14	2.32	1.95	1.79	8.86	26.6	26.5	61.3	11.4	4.97	4.41
Max	3.3	2.6	3.0	2.5	2.0	20	61	53	157	20	8.0	5.6
Min	0.68	1.0	1.5	1.0	1.0	1.5	14	9.1	23	7.7	3.9	2.9
Ac-ft	109	127	143	120	99	545	1,580	1,630	3,650	702	306	263

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 2007, BY WATER YEAR (WY)

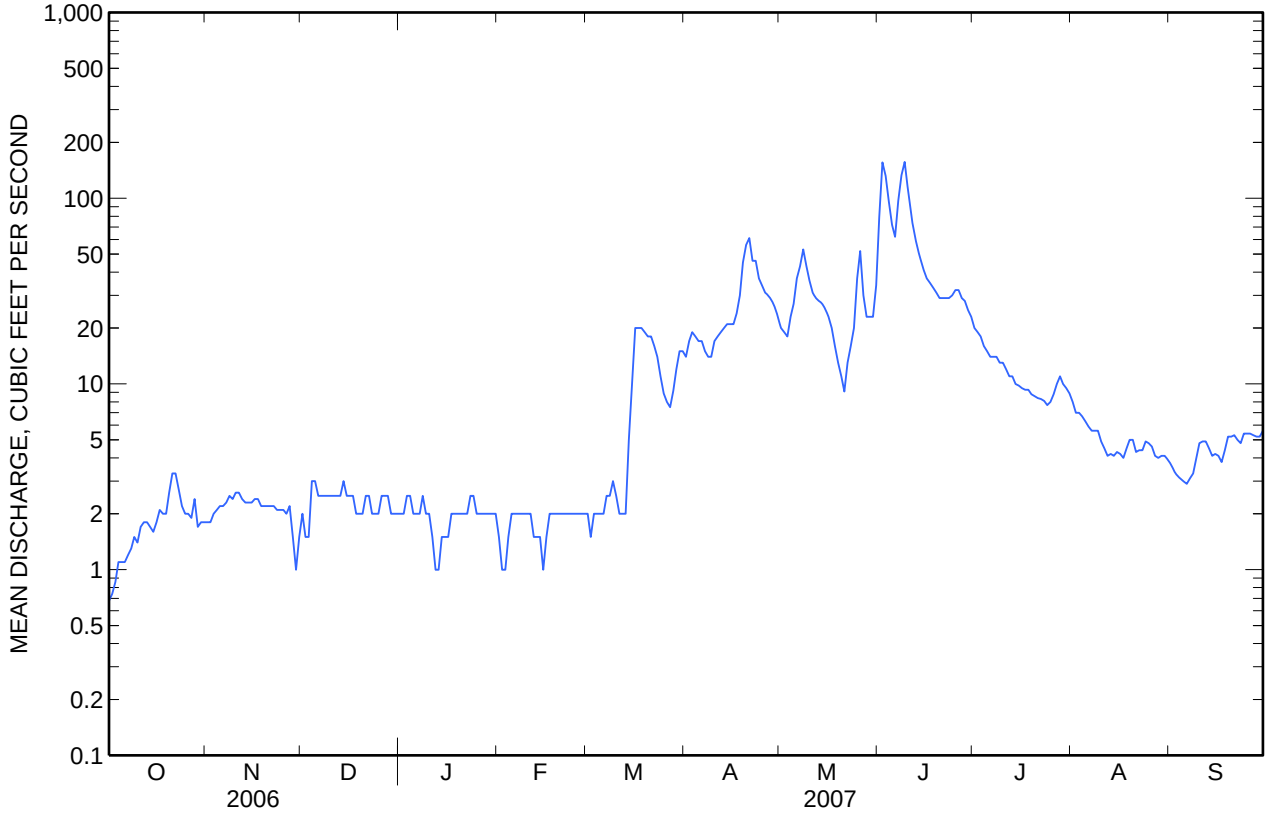
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	2.55	2.87	2.90	3.01	5.53	12.0	14.3	12.4	9.75	3.54	1.62	1.57
Max	8.02	11.7	12.7	10.0	29.0	41.8	40.7	26.5	61.3	11.4	4.97	4.41
(WY)	(1980)	(1980)	(1980)	(1980)	(1996)	(1996)	(1985)	(2007)	(2007)	(2007)	(2007)	(2007)
Min	0.33	0.37	0.34	0.62	0.96	1.01	1.32	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

	Calendar Year 2006		Water Year 2007		Water Years 1980 - 2007	
Annual total	1,387.89		4,676.98			
Annual mean	3.80		12.8		6.00	
Highest annual mean					12.8	2007
Lowest annual mean					0.77	2002
Highest daily mean	39	Apr 4	157	Jun 9	170	Mar 13, 1996
Lowest daily mean	0.00	Jul 24	0.68	Oct 1	0.00	Sep 16, 1990
Annual seven-day minimum	0.00	Jul 24	0.97	Oct 1	0.00	Sep 26, 2001
Maximum peak flow			171	Jun 2	[a]219	Mar 17, 1996
Maximum peak stage			8.14	Jun 2	[b]8.28	Mar 13, 1996
Instantaneous low flow					0.00	Many days
Annual runoff (ac-ft)	2,750		9,280		4,350	
10 percent exceeds	8.7		31		14	
50 percent exceeds	1.8		4.1		3.1	
90 percent exceeds	0.06		1.8		0.67	

[a] Gage height, 6.30 ft.
[b] Backwater from ice.



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

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, seasonal records beginning October 2004 to current year.

REMARKS.--Seasonal daily specific conductance records are published through the end of the irrigation season (October 2007). Records are rated fair to good for most of the season, but rated poor for 73 days due to siltation of the sensor. The water-quality sample collected on July 9 was made in conjunction with aquatic ecology samples collected for an interagency task group studying the effects of coal-bed natural gas development. Additional information is available at http://wy.water.usgs.gov/projects/atg/index.htm. 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 (µS/cm) at 25.0°C, Sept. 26, 2005; minimum daily, 569 µS/cm at 25.0°C, May 6 and 7, 2005.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 1,020 µS/cm at 25.0°C on Apr. 16; minimum daily, 582 µS/cm at 25.0°C, June 8.

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 1 of 5

[Remark codes: <, less than; E, estimated.]

Date	Time	Instantaneous discharge, cfs (00061)	Turbdty white light, det ang 90+/-30 corrctd NTRU (63676)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfltrd field, std units (00400)	Specif. conductance, wat unf lab, µS/cm 25 degC (90095)	Specific conductance, wat unf µS/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)
Oct													
24...	1015	2.3	--	662	11.5	99	8.4	866	--	4.0	3.0	530	76.5
Feb													
20...	1015	E2.0	--	652	12.4	100	8.0	932	902	1.0	.0	500	77.8
Mar													
26...	1000	7.4	--	667	10.6	101	8.4	975	944	6.0	7.5	480	75.9
Apr													
10...	1015	16	--	654	10.7	101	8.6	1,050	1,020	3.0	6.0	530	80.6
May													
15...	1030	25	--	672	9.5	100	8.5	945	918	15.0	12.0	490	83.5
Jun													
26...	1100	33	--	672	8.4	102	8.3	863	861	22.0	18.5	470	82.0
Jul													
09...	1700	13	6.0	--	--	--	8.3	--	816	--	25.5	--	--
24...	0945	7.7	--	661	7.5	104	8.4	844	842	21.0	24.0	410	64.9
Aug													
07...	1015	5.6	--	660	8.0	100	8.4	854	835	23.0	19.0	410	60.1

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

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 2 of 5
[Remark codes: <, less than; E, estimated.]

Date	Magnesium, water, fltrd, mg/L (00925)	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)	Sodium, water, fltrd, mg/L (00930)	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)	Dissolved solids, sum of constituents mg/L (70301)	Dissolved solids, tons/ acre-ft (70303)	Dissolved solids, tons/d (70302)	Ammonia water, fltrd, mg/L as N (00608)
Oct													
24...	81.2	8.23	.7	38.2	465	4.65	.71	15.1	160	663	.90	4.12	--
Feb													
20...	73.7	8.94	.6	29.4	436	4.16	.62	21.6	102	580	.79	E3.13	--
Mar													
26...	71.3	7.79	.6	30.4	382	3.73	.59	14.4	179	612	.83	12.2	.044
Apr													
10...	80.6	7.29	.6	33.6	412	3.76	.58	11.6	204	670	.91	28.9	--
May													
15...	69.3	6.73	.4	22.5	393	2.80	.56	12.8	154	588	.80	39.7	E.015
Jun													
26...	64.7	6.04	.4	20.1	390	2.54	.57	16.3	119	545	.74	48.5	--
Jul													
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
24...	60.9	6.82	.5	23.3	399	2.84	.66	14.2	86.6	499	.68	10.4	--
Aug													
07...	62.6	7.01	.6	26.2	386	3.01	.62	15.0	95.5	501	.68	7.58	--

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

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 3 of 5
[Remark codes: <, less than; E, estimated.]

Date	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Total nitro-gen, water, unfltrd, mg/L (62855)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Total phos-phorus, water, unfltrd mg/L (00665)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Arsenic water, fltrd, µg/L (01000)	Arsenic water, unfltrd µg/L (01002)	Barium, water, fltrd, µg/L (01005)	Barium, water, unfltrd recover-able, µg/L (01007)	Beryll-ium, water, fltrd, µg/L (01010)	Beryll-ium, water, unfltrd recover-able, µg/L (01012)
Oct													
24...	--	--	--	--	--	9.8	23	1.0	1.6	85	77.7	<.06	<.06
Feb													
20...	--	--	--	--	--	1.6	50	.58	.87	75	77.4	<.06	<.06
Mar													
26...	.018	.003	.48	.010	.049	2.5	134	.98	1.4	93	90.0	<.06	<.06
Apr													
10...	--	--	--	--	--	3.2	134	.81	1.1	86	95.1	<.06	<.06
May													
15...	<.016	<.002	.52	.009	.055	2.3	210	1.5	1.8	102	102	<.06	<.06
Jun													
26...	--	--	--	--	--	3.2	142	1.7	2.1	128	135	<.06	<.06
Jul													
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	7.4	63	2.0	2.2	111	117	<.06	<.06
Aug													
07...	--	--	--	--	--	E1.1	26	2.0	1.9	113	114	<.06	<.06

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

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 4 of 5
[Remark codes: <, less than; E, estimated.]

Date	Cadmium water, fltrd, µg/L (01025)	Cadmium water, unfltrd µg/L (01027)	Chrom-ium, water, fltrd, µg/L (01030)	Chrom-ium, water, unfltrd recover-able, µg/L (01034)	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recover-able, µg/L (01042)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover-able, µg/L (01045)	Lead, water, fltrd, µg/L (01049)	Lead, water, unfltrd recover-able, µg/L (01051)	Mangan-ese, water, fltrd, µg/L (01056)	Mangan-ese, water, unfltrd recover-able, µg/L (01055)
Oct												
24...	--	--	--	--	--	--	30	146	--	--	8.6	8.9
Feb												
20...	--	--	--	--	--	--	67	219	--	--	40.2	41.8
Mar												
26...	<.04	E.02	<.12	E.35	1.0	3.6	32	666	.14	.28	83.7	97.6
Apr												
10...	--	--	--	--	--	--	30	554	--	--	65.8	86.0
May												
15...	E.02	E.01	E.08	E.47	2.7	1.8	16	630	.12	.41	33.4	53.9
Jun												
26...	--	--	--	--	--	--	15	470	--	--	19.2	37.0
Jul												
09...	--	--	--	--	--	--	--	--	--	--	--	--
24...	--	--	--	--	--	--	11	171	--	--	5.3	11.0
Aug												
07...	--	--	--	--	--	--	15	96	--	--	7.2	9.5

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

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 5 of 5
[Remark codes: <, less than; E, estimated.]

Date	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recover-able, µg/L (01067)	Selen-ium, water, fltrd, µg/L (01145)	Selen-ium, water, unfltrd µg/L (01147)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recover-able, µg/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)
Oct									
24...	--	--	.20	.41	--	--	57	40	.25
Feb									
20...	--	--	.27	.28	--	--	40	21	E.11
Mar									
26...	1.7	2.72	.31	.32	5.1	6	81	79	1.6
Apr									
10...	--	--	.30	.28	--	--	80	89	3.8
May									
15...	1.7	2.0	.30	.31	8.0	2.5	74	66	4.5
Jun									
26...	--	--	.33	.30	--	--	54	114	10
Jul									
09...	--	--	--	--	--	--	--	--	--
24...	--	--	.28	.21	--	--	67	47	.98
Aug									
07...	--	--	.27	.28	--	--	66	46	.70

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

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
APRIL 2007 TO OCTOBER 2007

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		April			May			June			July	
1				958	947	953	804	715	771	717	708	712
2				965	958	962	938	769	879	719	706	713
3				973	934	965	824	691	754	717	713	714
4				946	929	938	710	689	702	715	711	712
5				933	887	916	698	686	692	712	706	709
6				887	875	884	695	686	691	725	709	718
7				891	868	881	687	629	675	730	719	724
8				893	867	884	629	582	605	733	719	727
9				898	887	894	703	626	690	743	728	735
10				892	874	885	732	703	721	740	726	733
11				877	867	872	741	726	735	739	724	731
12				886	864	876	750	736	744	742	722	732
13				901	878	889	766	750	758	746	728	738
14				916	898	907	778	763	771	752	734	744
15				935	903	913	788	774	782	764	745	755
16	1,020	990	#1,010	903	873	888	788	778	784	774	757	766
17	998	934	971	875	868	871	791	783	787	779	765	771
18	934	916	925	869	858	863	796	784	790	791	777	783
19	920	880	896	883	847	873	804	790	797	797	786	791
20	886	853	873	869	858	864	825	797	808	832	797	800
21	865	844	852	873	846	862	823	807	814	840	811	815
22	867	850	858	846	827	833	824	810	816	825	817	822
23	876	854	867	827	806	815	827	811	817	831	823	828
24	888	875	882	816	795	808	826	812	819	845	812	829
25	893	887	890	833	782	796	833	816	824	840	820	832
26	904	888	896	864	833	860	861	809	840	861	834	850
27	921	903	914	872	857	864	809	747	775	872	832	848
28	935	918	928	866	850	858	747	726	736	871	853	861
29	947	931	939	852	842	848	731	722	726	858	841	849
30	950	942	947	852	828	840	722	713	718	845	813	832
31	---	---	---	830	778	808	---	---	---	837	829	833
Month	*998	*844	*910	973	778	876	938	582	761	872	706	774

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

* Monthly mean computed from available daily means. A specific conductance greater than or less than the reported maximum or minimum may have occurred during the period of missing record.

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

**SPECIFIC CONDUCTANCE, WATER, UNFILTERED,
MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
APRIL 2007 TO OCTOBER 2007**

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		August			September			October	
1	838	824	831	863	826	850	915	898	910
2	841	812	829	860	829	846	918	904	913
3	848	831	841	863	832	850	922	910	916
4	846	833	840	872	830	854	923	905	915
5	844	830	837	885	849	867	922	907	916
6	844	829	836	896	842	867	919	907	912
7	839	823	831	923	855	874	919	908	914
8	828	808	817	918	879	891	918	909	914
9	824	811	817	911	892	901	925	911	918
10	825	806	814	910	891	902	927	912	921
11	827	801	811	913	880	896	930	915	923
12	822	803	812	892	874	884	931	909	924
13	818	801	811	896	869	882	927	911	921
14	824	808	818	896	879	889	929	917	923
15	824	804	816	896	875	887	932	920	927
16	822	802	813	897	872	888	936	921	929
17	823	805	815	898	863	884	935	905	925
18	843	800	826	890	865	878	926	906	917
19	862	816	837	884	863	876	923	904	916
20	864	825	846	880	857	872	907	896	903
21	893	842	862	890	866	873	928	905	917
22	895	851	873	893	866	882	926	914	920
23	889	867	876	897	888	892	919	910	915
24	882	856	865	904	892	896	916	898	909
25	875	852	863	906	892	901	908	895	902
26	870	853	862	914	897	904	908	900	904
27	869	840	853	915	896	908	914	905	910
28	863	844	854	916	884	906	922	908	916
29	863	843	855	922	906	913	925	912	919
30	862	842	854	919	906	912	925	913	920
31	862	838	850	---	---	---	930	917	923
Month	895	800	838	923	826	884	936	895	917

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06296003 ROSEBUD CREEK AT MOUTH, NEAR ROSEBUD, MT

Lower Yellowstone Basin
Rosebud Subbasin

LOCATION.--Lat 46°15′53″, long 106°28′30″ referenced to North American Datum of 1927, in SW ¼ NW ¼ NE ¼ sec.21, T.6 N., R.42 E., Rosebud County, MT, Hydrologic Unit 10100003, on left bank 0.4 mi upstream from bridge on Interstate Highway 94, 0.8 mi upstream from mouth, and 1.6 mi southwest of Rosebud.

DRAINAGE AREA.--1,302 mi².

GAGE--None. Elevation at the site is 2,480 ft referenced to the National Geodetic Vertical Datum of 1929.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1975-86, 1988-93, May 1999 to June 2003, May 2004 to current year.

REMARKS.--The water-quality sample collected at this site was made in conjunction with aquatic ecology samples collected for an interagency task group studying the effects of coal-bed natural gas development. Additional information is available at http://wy.water.usgs.gov/projects/atg/index.htm.

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 1 of 2

Date	Time	Instantaneous discharge, cfs (00061)	Turbdty white light, det ang 90+/-30 corrctd NTRU (63676)	pH, water, unfltrd field, std units (00400)	Specific conductance, wat unf µS/cm 25 degC (00095)	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)	Sodium adsorption ratio (00931)	Sodium, water, fltrd, mg/L (00930)	Alkalinity, wat flt fxd end lab, mg/L as CaCO3 (29801)
Jul 23...	1700	19	45	8.3	1,790	30.0	670	68.8	120	12.2	2.8	166	384

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 2 of 2

Date	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Dissolved solids, sum of constituents mg/L (70301)	Dissolved solids, tons/acre-ft (70303)	Dissolved solids, tons/d (70302)
Jul 23...	8.92	.70	10.9	617	1,230	1.68	64.3

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Water-Data Report 2007

06299980 TONGUE RIVER AT MONARCH, WY

Tongue Basin
Upper Tongue Subbasin

LOCATION.--Lat 44°54′01″, long 107°01′13″ referenced to North American Datum of 1927, in NW ¼ NW ¼ SE ¼ sec.20, T.57 N., R.84 W., Sheridan County, WY, Hydrologic Unit 10090101, on right bank at county bridge, 0.4 mi downstream from South Dry Creek, and 0.9 mi east of Monarch.

DRAINAGE AREA.--478 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--May 2004 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 3,620 ft above NGVD of 1929, from topographic map. U.S. Geological Survey data collection platform with satellite telemetry at station.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Numerous diversions for irrigation upstream from station.

06299980 TONGUE RIVER AT MONARCH, WY—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	96	e50	e76	e72	e64	e58	127	841	1,770	411	120	71
2	92	e56	e70	e70	e66	e60	234	1,010	1,580	385	111	68
3	90	e68	e74	e70	e72	e60	262	1,230	1,410	341	98	64
4	104	87	e82	e70	e70	e90	197	1,370	1,320	324	101	67
5	97	89	e84	e66	e68	e110	184	1,290	1,310	304	99	68
6	91	85	e80	e62	e66	e140	152	1,290	1,480	277	99	76
7	89	87	e82	e66	e66	e180	131	773	2,720	266	105	92
8	96	105	e80	e76	e64	e210	120	838	2,370	e294	95	90
9	103	112	e78	e72	e62	e240	145	902	1,920	e271	87	91
10	104	106	e76	e72	e62	e210	254	1,040	1,770	e234	82	105
11	98	90	e76	e62	e60	e190	279	1,450	1,670	e211	78	99
12	97	89	e74	e47	e60	e170	183	1,680	1,620	e219	77	93
13	94	81	e76	e74	e56	e160	147	1,830	1,500	e185	75	85
14	90	82	e80	e72	e58	e150	152	1,820	1,420	e189	75	85
15	88	83	e82	e72	e63	e140	185	1,540	1,350	e196	72	85
16	90	80	e72	e72	e66	129	219	1,430	1,290	e189	68	79
17	93	90	e52	e74	e62	115	209	1,440	1,230	177	67	73
18	86	83	e54	e70	e66	122	216	1,470	1,130	162	68	81
19	77	78	e64	e66	e66	129	352	1,460	990	152	66	90
20	108	81	e70	e64	e64	120	333	1,480	895	141	78	92
21	123	87	e68	e70	e62	121	251	1,460	843	134	84	88
22	104	86	e74	e66	e64	112	211	1,480	792	124	78	91
23	89	83	e72	e62	e66	103	202	1,270	737	116	94	86
24	85	79	e72	e64	e64	97	215	1,080	692	118	112	102
25	90	e60	e70	e66	e60	93	224	1,060	650	130	97	101
26	99	e60	e72	e64	e62	99	258	941	598	137	87	95
27	83	e70	e72	e60	e62	111	247	918	555	160	78	82
28	88	e52	e72	e66	e62	166	279	982	525	156	76	84
29	84	e52	e70	e66	---	140	427	1,230	478	141	76	86
30	83	e66	e58	e62	---	92	736	1,090	436	134	76	110
31	e56	---	e72	e66	---	108	---	1,120	---	131	71	---
Total	2,867	2,377	2,254	2,081	1,783	4,025	7,131	38,815	37,051	6,409	2,650	2,579
Mean	92.5	79.2	72.7	67.1	63.7	130	238	1,252	1,235	207	85.5	86.0
Max	123	112	84	76	72	240	736	1,830	2,720	411	120	110
Min	56	50	52	47	56	58	120	773	436	116	66	64
Ac-ft	5,690	4,710	4,470	4,130	3,540	7,980	14,140	76,990	73,490	12,710	5,260	5,120

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2004 - 2007, BY WATER YEAR (WY)

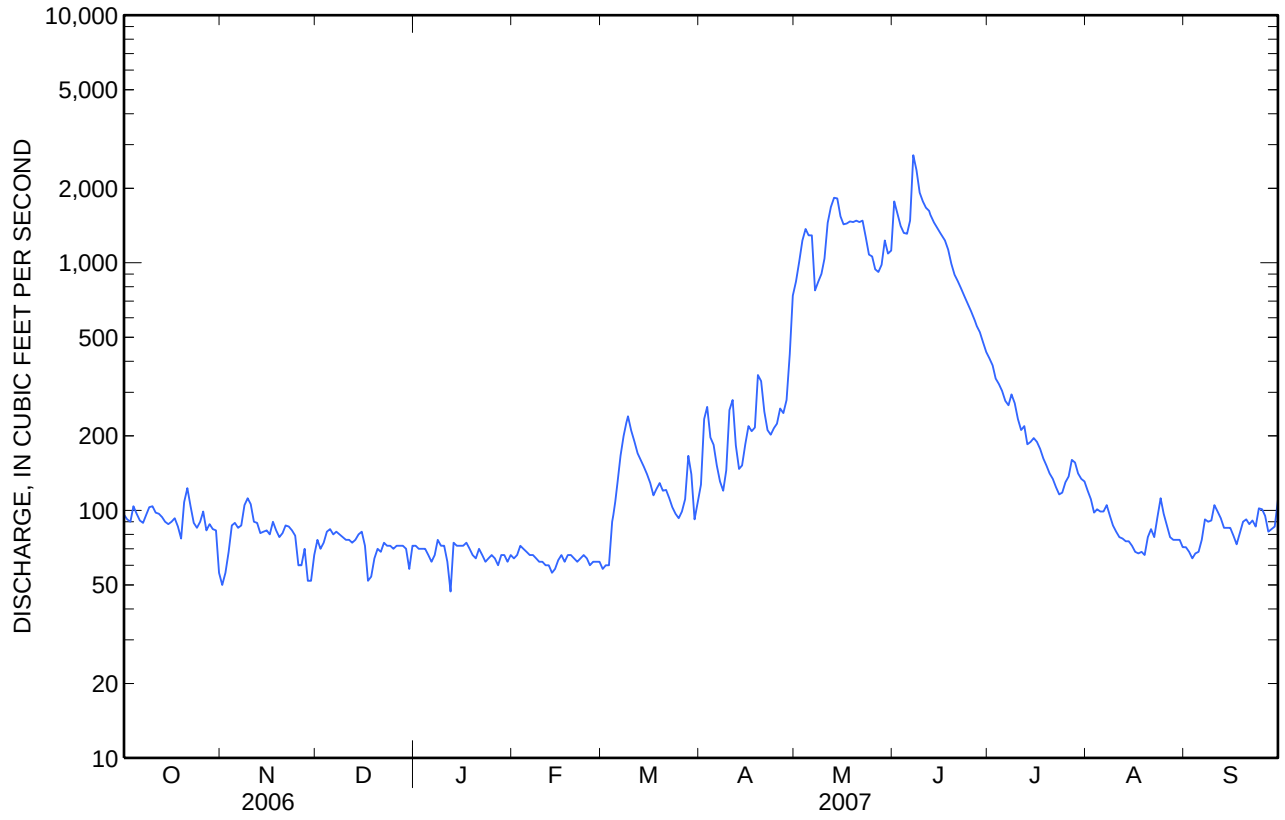
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	88.4	74.2	71.8	67.9	60.8	81.6	166	697	579	136	63.3	66.3
Max	96.4	79.2	77.6	72.7	64.2	130	238	1,252	1,235	207	101	86.0
(WY)	(2006)	(2007)	(2006)	(2006)	(2006)	(2007)	(2007)	(2007)	(2007)	(2007)	(2005)	(2007)
Min	76.3	66.1	65.1	64.0	54.5	51.7	120	174	157	37.8	26.8	50.4
(WY)	(2005)	(2005)	(2005)	(2005)	(2005)	(2005)	(2005)	(2004)	(2004)	(2006)	(2006)	(2004)

06299980 TONGUE RIVER AT MONARCH, WY—Continued

SUMMARY STATISTICS

	Calendar Year 2006		Water Year 2007		Water Years 2004 - 2007	
Annual total	39,645		110,022			
Annual mean	109		301		208	
Highest annual mean					301	2007
Lowest annual mean					109	2006
Highest daily mean	933	May 24	2,720	Jun 7	2,720	Jun 7, 2007
Lowest daily mean	14	Jul 22[a]	47	Jan 12	14	Jul 22, 2006[b]
Annual seven-day minimum	15	Jul 19	60	Feb 9	15	Jul 19, 2006
Maximum peak flow			3,910	Jun 7	3,910	Jun 7, 2007
Maximum peak stage			8.52	Jun 7	8.52	Jun 7, 2007
Annual runoff (ac-ft)	78,640		218,200		150,900	
10 percent exceeds	219		1,120		605	
50 percent exceeds	74		93		80	
90 percent exceeds	27		64		52	

[a] Also, July 23, 24.
[b] Also, July 23, 24, 2006.



06299980 TONGUE RIVER AT MONARCH, WY—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1974-80, 1982-83, 2004 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: May 2004 to current year (seasonal records).

INSTRUMENTATION.--Specific conductance probe installed in May 2004.

REMARKS.--Specific conductance records are published through the end of the irrigation season (October 2007) Records are rated good to excellent except those for June 2-7, which are rated fair. Missing daily specific conductance data for July 8-19 are due to equipment problems. The water-quality sample collected on Aug. 29 was made in conjunction with aquatic ecology samples collected for an interagency task group studying the effects of coal-bed natural gas development. Additional information is available at http://wy.water.usgs.gov/projects/atg/index.htm. Water quality samples and records are provided by the Montana Water Science Center.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE (seasonal records): Maximum recorded, 594 microsiemens per centimeter at 25°C (µS/cm), August24, 2006; minimum recorded, 146 µS/cm, May 24, 2005.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE (seasonal records): Maximum recorded, 581 µS/cm, Apr. 13; minimum recorded, 162 µS/cm, May 3 and 14.

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 1 of 6

[Remark codes: E, estimated.]

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 µS/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													
02...	1730	90	666	10.2	111	8.5	362	18.5	13.0	190	43.4	18.7	1.27
Dec													
13...	0745	E76	666	12.8	100	7.9	416	-2.0	0.0	210	50.6	20.2	1.17
Feb													
16...	0930	E66	666	12.0	94	7.7	470	4.5	0.0	230	53.7	22.2	1.43
Mar													
05...	1745	E110	671	13.6	106	8.1	432	7.0	0.0	200	47.1	19.9	1.83
Apr													
12...	0800	194	668	11.3	99	8.3	532	5.0	4.0	230	50.7	24.8	4.18
25...	0745	222	672	9.0	87	8.4	414	4.0	8.5	190	46.6	18.4	1.53
May													
10...	0945	1,080	672	9.9	98	8.1	230	17.5	9.5	110	28.9	9.70	1.88
17...	0830	1,530	668	9.4	94	8.0	190	14.5	9.5	86	22.9	7.04	.98
Jun													
07...	1100	2,520	666	8.4	85	8.0	280	9.0	10.0	110	25.6	12.2	4.08
27...	1030	556	673	8.9	98	8.2	270	20.0	14.0	150	38.0	12.8	1.21
Jul													
10...	0800	E234	673	8.3	99	8.2	295	20.0	18.0	150	37.6	12.9	1.13
Aug													
07...	0800	112	664	6.8	87	8.2	409	14.5	20.5	200	46.8	20.1	1.73
29...	1335	59	671	11.6	145	8.4	427	28.5	19.8	--	--	--	--

06299980 TONGUE RIVER AT MONARCH, WY—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 2 of 6
[Remark codes: E, estimated.]

Date	Sodium adsorption ratio (00931)	Sodium, water, fltrd, mg/L (00930)	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)	Dissolved solids, sum of constituents mg/L (70301)	Dissolved solids, tons/ acre-ft (70303)	Dissolved solids, tons/d (70302)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspended sediment concentration mg/L (80154)	Suspended sediment discharge, tons/d (80155)
Oct													
02...	.3	8.94	162	1.38	.13	4.58	37.9	214	.29	52.0	98	9	2.2
Dec													
13...	.3	9.88	186	1.27	.17	7.06	45.8	248	.34	E50.8	58	18	E3.7
Feb													
16...	.4	12.5	199	1.63	.20	8.44	60.2	281	.38	E50.1	84	5	E.89
Mar													
05...	.3	10.3	180	1.86	.15	7.06	55.4	252	.34	E74.7	36	17	E5.0
Apr													
12...	.7	25.5	178	3.60	.20	6.53	110	332	.45	174	99	125	65
25...	.4	12.9	166	2.13	.17	5.10	58.3	245	.33	147	--	--	--
May													
10...	.2	5.93	100	1.30	E.09	8.26	21.1	137	.19	399	--	--	--
17...	.2	3.29	84	.72	E.08	8.25	12.0	106	.14	436	79	73	302
Jun													
07...	.5	13.0	94	1.68	.16	8.48	46.7	168	.23	1,140	--	--	--
27...	.2	6.34	127	.83	.16	7.68	18.6	161	.22	242	--	--	--
Jul													
10...	.2	5.60	132	.94	.14	7.49	19.7	165	.22	E104	--	--	--
Aug													
07...	.3	9.98	185	1.42	.15	6.58	34.6	233	.32	70.3	99	17	5.1
29...	--	--	--	--	--	--	--	--	--	--	--	--	--

06299980 TONGUE RIVER AT MONARCH, WY—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 3 of 6
[Remark codes: <, less than; E, estimated.]

Date	Time	Ammonia water, fltrd, mg/L as N (00608)	Nitrate + nitrite water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Total nitro-gen, water, unfltrd, mg/L (62855)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Total phos-phorus, water, unfltrd mg/L (00665)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Arsenic water, fltrd, µg/L (01000)	Arsenic water, unfltrd µg/L (01002)	Barium, water, fltrd, µg/L (01005)	Barium, water, unfltrd recover-able, µg/L (01007)
Oct													
02...	1730	E.011	E.008	<.002	.20	<.006	.014	2.2	103	.37	.49	42	42.7
Feb													
16...	0930	.085	.169	.003	.39	.009	.019	<1.6	56	.33	.51	45	43.8
Apr													
12...	0800	<.020	.107	.002	.88	.039	.154	1.8	1,320	.62	1.4	50	86.0
May													
17...	0830	<.020	.033	E.001	.39	.009	.079	9.6	521	.33	.71	25	35.5
Aug													
07...	0800	<.020	<.016	<.002	.29	.009	.044	2.2	181	.71	.81	47	53.2

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 4 of 6
[Remark codes: <, less than; E, estimated.]

Date	Beryll-ium, water, fltrd, µg/L (01010)	Beryll-ium, water, unfltrd recover-able, µg/L (01012)	Boron, water, fltrd, µg/L (01020)	Cadmium water, fltrd, µg/L (01025)	Cadmium water, unfltrd µg/L (01027)	Chrom-ium, water, fltrd, µg/L (01030)	Chrom-ium, water, unfltrd recover-able, µg/L (01034)	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recover-able, µg/L (01042)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover-able, µg/L (01045)	Lead, water, fltrd, µg/L (01049)	Lead, water, unfltrd recover-able, µg/L (01051)
Oct													
02...	<.06	<.06	31	<.04	<.02	--	E.45	.83	E.7	17	167	<.12	.17
Feb													
16...	<.06	<.06	30	<.04	<.02	--	E.44	1.4	1.2	13	87	E.06	.07
Apr													
12...	<.06	.14	--	--	--	--	--	--	--	19	1,200	--	--
May													
17...	<.06	E.05	--	<.04	.02	.13	.86	.80	1.7	30	996	E.10	.84
Aug													
07...	<.06	<.06	--	--	--	--	--	--	--	14	348	--	--

06299980 TONGUE RIVER AT MONARCH, WY—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 5 of 6
[Remark codes: E, estimated.]

Date	Lithium water, fltrd, µg/L (01130)	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recoverable, µg/L (01055)	Mercury water, unfltrd ng/L (50286)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recoverable, µg/L (01067)	Selenium, water, fltrd, µg/L (01145)	Selenium, water, unfltrd µg/L (01147)	Strontium, water, fltrd, µg/L (01080)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recoverable, µg/L (01092)
Oct											
02...	8.2	4.6	10.5	--	.38	.87	.15	.21	181	.86	E1
Feb											
16...	10.2	8.0	10.5	--	.47	1.43	.23	.28	248	1.9	E1
Apr											
12...	--	28.4	60.7	--	--	--	.72	.73	--	--	--
May											
17...	--	6.1	42.7	--	.53	1.2	.11	.21	--	3.0	4.3
Aug											
07...	--	5.5	31.6	1.47	--	--	.17	.18	--	--	--

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 6 of 6
[Remark codes: <, less than.]

Date	Time	Turbdty white light, det ang 90+/-30 corrctd NTRU (63676)	Biomass periphyton, ashfree drymass g/m2 (49954)	Periphyton biomass ash weight, g/m2 (00572)	Periphyton biomass dry weight, g/m2 (00573)	Biomass chlorophyll ratio, periphyton, number (70950)	Chlorophyll a periphyton, chromofluoro, mg/m2 (70957)	Pheophytin a, periphyton, mg/m2 (62359)
Aug								
29...	1335	11	<5.4	240	249	1,930	2.3	1.3

06299980 TONGUE RIVER AT MONARCH, WY—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
MARCH 2007 TO OCTOBER 2007

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		March			April			May			June	
1				459	425	443	209	175	194	289	278	284
2				551	444	467	209	166	185	294	284	289
3				464	418	434	195	162	172	295	258	272
4				495	455	476	253	168	197	---	---	#255
5				534	495	513	295	200	230	---	---	#250
6				526	500	513	351	250	309	261	221	243
7				544	526	539	351	318	334	291	254	265
8				568	543	557	318	274	286	307	289	303
9				578	540	557	283	245	257	289	253	264
10				559	457	497	256	229	237	265	243	251
11				513	448	472	232	195	205	253	239	244
12				559	513	546	202	184	192	245	235	239
13				581	541	565	199	182	189	241	238	240
14				568	528	554	198	162	186	241	232	236
15				532	497	520	178	163	169	239	233	236
16	495	461	476	497	455	474	181	172	176	240	232	236
17	518	495	507	499	462	481	193	181	185	241	233	237
18	523	492	506	488	430	468	193	176	183	244	239	241
19	508	479	489	463	394	426	189	173	180	251	244	248
20	500	476	485	436	398	425	188	171	179	255	251	253
21	497	466	475	449	420	436	200	176	186	257	254	255
22	466	444	451	441	423	435	211	197	204	265	254	258
23	461	451	457	443	417	435	238	210	224	262	256	260
24	462	453	457	418	411	414	250	236	242	266	262	265
25	476	462	469	417	365	397	237	218	229	271	266	269
26	478	457	467	383	334	361	258	236	247	274	269	271
27	461	429	440	345	335	340	264	252	258	277	268	272
28	432	334	390	356	304	332	265	249	255	275	271	273
29	364	331	344	318	245	276	257	247	250	279	272	275
30	406	353	377	259	185	209	265	256	259	292	278	283
31	438	406	422	---	---	---	284	263	269	---	---	---
Month	---	---	---	581	185	452	351	162	222	*307	*221	*259

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

* Monthly mean computed from available daily means. A specific conductance greater than or less than the reported maximum or minimum may have occurred during the period of missing record.

06299980 TONGUE RIVER AT MONARCH, WY—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
MARCH 2007 TO OCTOBER 2007

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		July			August			September			October	
1	289	282	286	391	377	384	444	432	438	432	417	425
2	294	285	290	395	380	384	443	435	439	424	404	417
3	300	290	296	404	395	398	440	433	436	433	413	427
4	305	295	301	402	388	395	436	432	434	435	423	430
5	306	300	303	394	389	392	434	430	433	428	423	425
6	309	301	306	402	391	398	433	424	429	427	418	424
7	---	---	#313	406	392	399	427	407	418	418	400	408
8	---	---	---	402	393	397	437	401	414	409	403	405
9	---	---	---	416	402	410	431	413	418	420	409	413
10	---	---	---	426	416	421	428	419	423	412	402	407
11	---	---	---	434	421	427	430	423	426	416	410	412
12	---	---	---	428	421	424	430	424	428	416	409	412
13	---	---	---	430	421	426	431	424	428	417	409	412
14	---	---	---	435	425	429	431	421	426	418	407	411
15	---	---	---	425	420	423	431	424	427	414	408	411
16	---	---	---	429	419	425	---	---	#432	415	409	411
17	---	---	---	433	426	430	437	434	435	420	402	411
18	---	---	---	444	432	438	451	432	437	419	402	412
19	---	---	---	441	435	438	444	423	429	428	401	416
20	---	---	#353	438	428	433	423	411	418	419	397	407
21	368	357	360	429	417	422	416	411	414	415	391	401
22	382	368	375	426	413	420	418	412	417	420	407	414
23	385	373	378	440	418	429	418	412	416	428	401	418
24	387	373	380	425	406	416	420	401	414	401	383	390
25	382	369	376	428	411	417	403	400	401	392	379	386
26	389	374	379	425	419	422	413	401	411	388	371	378
27	385	369	377	428	419	425	433	412	424	381	365	371
28	377	367	372	429	422	426	451	429	438	395	372	382
29	378	371	374	433	422	427	436	427	433	402	385	393
30	384	373	378	447	433	440	437	424	429	397	382	389
31	387	378	382	441	433	437	---	---	---	393	379	386
Month	---	---	---	447	377	418	*451	*400	*426	435	365	407

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

* Monthly mean computed from available daily means. A specific conductance greater than or less than the reported maximum or minimum may have occurred during the period of missing record.

06305700 GOOSE CREEK NEAR ACME, WY

Tongue Basin
Upper Tongue Subbasin

LOCATION.--Lat 44°53′11″, long 106°59′18″ referenced to North American Datum of 1927, in SE ¼ SE ¼ NE ¼ sec.28, T.57 N., R.84 W., Sheridan County, WY, Hydrologic Unit 10090101, on right bank 0.2 mi north of county road, 1.6 mi south of Acme, and 3.4 mi upstream from mouth.

DRAINAGE AREA.--413 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--May 1984 to September 2007.

GAGE.--Water-stage recorder. Elevation of gage is 3,620 ft above NGVD of 1929, from topographic map. U.S. Geological Survey data collection platform with satellite telemetry at station.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Some regulation by many small reservoirs, combined capacity, about 15,000 acre-ft. Natural flow of stream affected by transbasin diversions, storage reservoirs, diversions for irrigation, and return flow from irrigated areas.

06305700 GOOSE CREEK NEAR ACME, WY—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	43	e47	e76	e80	e52	e64	155	392	527	188	29	35
2	42	e52	e72	e76	e47	e62	164	424	466	168	26	36
3	46	e60	e76	e80	e52	e56	157	483	481	140	25	34
4	46	70	e76	e90	e64	e78	136	624	510	120	26	30
5	52	70	e80	e74	e80	e100	139	763	574	111	34	27
6	48	67	e84	e64	e78	e130	128	1,120	715	95	39	29
7	41	67	e80	e70	e70	e150	120	674	1,620	120	42	37
8	43	69	e80	e78	e68	e170	111	576	1,940	200	37	46
9	51	75	e78	e74	e64	e180	122	600	1,270	130	30	65
10	49	87	e76	e80	e68	e190	162	681	1,160	99	25	87
11	51	76	e74	e58	e72	e200	192	890	1,150	77	22	81
12	53	73	e74	e43	e68	e190	158	1,180	1,170	65	19	69
13	53	70	e76	e45	e66	e180	140	1,370	1,110	53	16	56
14	51	71	e74	e58	e58	e160	144	1,450	1,010	45	17	59
15	49	74	e70	e62	e52	145	167	1,160	1,010	46	17	62
16	61	66	e50	e66	e66	114	200	939	1,030	44	17	59
17	60	76	e43	e70	e62	103	189	866	1,070	37	20	57
18	60	70	e41	e66	e66	116	178	1,010	964	38	26	61
19	53	66	e45	e70	e62	134	295	1,080	803	31	32	76
20	72	66	e68	e72	e68	133	267	1,050	615	28	31	81
21	72	73	e64	e66	e68	134	216	988	562	23	31	76
22	69	68	e64	e70	e64	122	192	925	535	22	30	77
23	61	66	e62	e76	e74	106	183	748	515	26	45	69
24	62	65	e68	e80	e66	100	226	604	480	20	59	73
25	70	57	e60	e78	e70	96	246	565	420	19	61	85
26	77	e50	e68	e72	e66	98	247	527	341	34	49	84
27	67	e44	e72	e62	e66	106	240	469	309	80	40	76
28	64	e50	e70	e70	e66	153	244	482	304	63	40	69
29	62	e60	e62	e64	---	148	301	677	249	50	45	67
30	62	e70	e54	e58	---	111	375	588	212	39	43	95
31	e50	---	e58	e62	---	136	---	503	---	32	38	---
Total	1,740	1,975	2,095	2,134	1,823	3,965	5,794	24,408	23,122	2,243	1,011	1,858
Mean	56.1	65.8	67.6	68.8	65.1	128	193	787	771	72.4	32.6	61.9
Max	77	87	84	90	80	200	375	1,450	1,940	200	61	95
Min	41	44	41	43	47	56	111	392	212	19	16	27
Ac-ft	3,450	3,920	4,160	4,230	3,620	7,860	11,490	48,410	45,860	4,450	2,010	3,690

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 2007, BY WATER YEAR (WY)

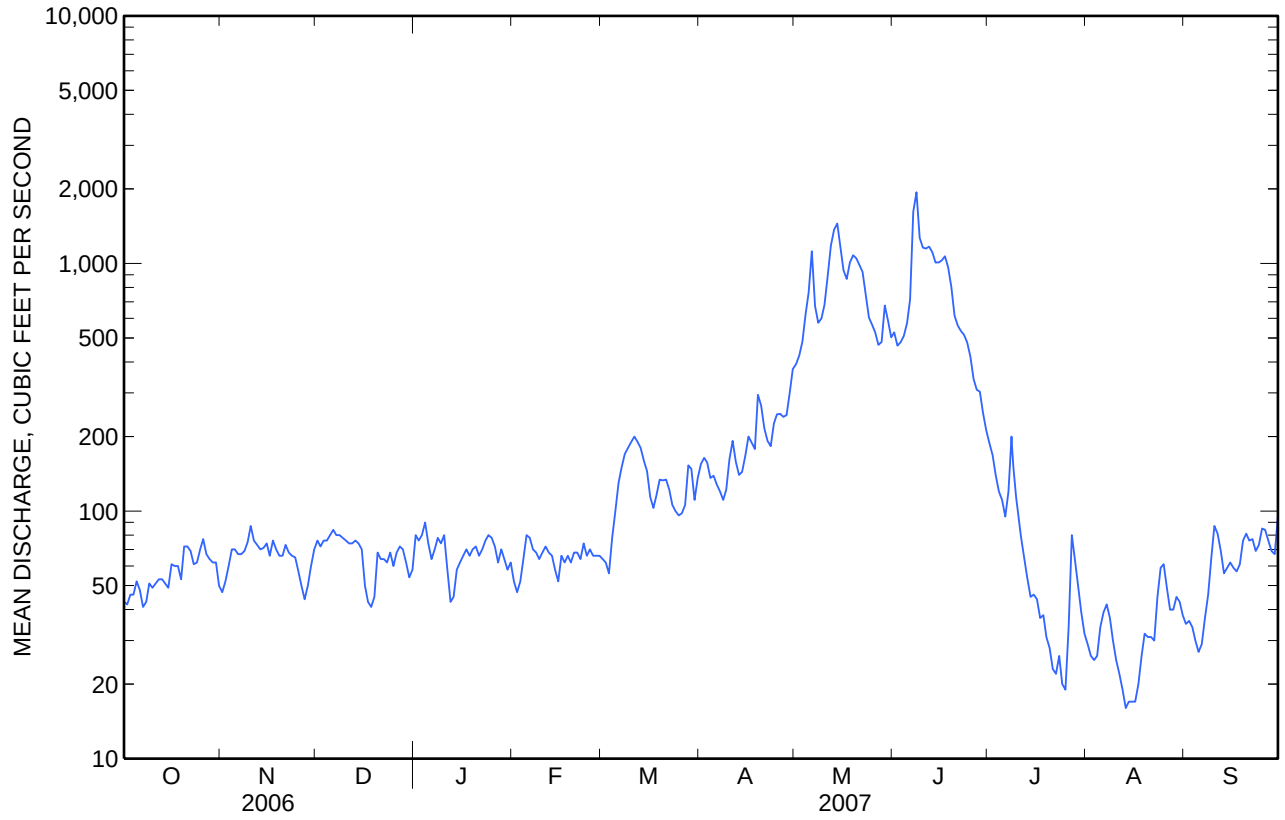
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	94.0	87.7	73.4	67.3	78.7	95.0	127	386	539	133	54.6	79.2
Max	156	144	107	109	137	185	195	891	1,592	547	157	158
(WY)	(1985)	(1999)	(1996)	(1990)	(1996)	(1994)	(1994)	(1984)	(1995)	(1995)	(1998)	(1998)
Min	41.6	47.1	42.3	43.5	36.7	46.0	54.2	32.6	39.2	6.96	8.82	28.0
(WY)	(2002)	(2003)	(2002)	(2002)	(1989)	(2002)	(2005)	(2004)	(2001)	(2006)	(2006)	(2001)

06305700 GOOSE CREEK NEAR ACME, WY—Continued

SUMMARY STATISTICS

	Calendar Year 2006		Water Year 2007		Water Years 1984 - 2007	
Annual total	22,078.4		72,168			
Annual mean	60.5		198		146	
Highest annual mean					303	1995
Lowest annual mean					50.4	2002
Highest daily mean	541	May 24	1,940	Jun 8	3,040	Jun 17, 1995
Lowest daily mean	3.4	Jul 21	16	Aug 13	3.0	Aug 24, 2001
Annual seven-day minimum	4.6	Jul 18	18	Aug 11	4.3	Aug 22, 2001
Maximum peak flow			3,430	Jun 8	3,430	Jun 8, 2007
Maximum peak stage			7.38	Jun 8	[a]7.65	Feb 25, 1986
Annual runoff (ac-ft)	43,790		143,100		106,000	
10 percent exceeds	85		593		303	
50 percent exceeds	60		72		82	
90 percent exceeds	7.5		37		36	

[a] From floodmarks, backwater from ice.



06305700 GOOSE CREEK NEAR ACME, WY—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1983-89, 2004 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 2004 to current year.

INSTRUMENTATION.--Specific conductance probe installed late April 2004.

REMARKS.--Specific conductance records are published through the end of the irrigation season (October 2007). The seasonal specific conductance records are rated good to excellent except those for June 13-17, which are rated fair and those for June 18-27, which are rated poor. The water-quality sample collected on Sept. 11 was made in conjunction with aquatic ecology samples collected for an interagency task group studying the effects of coal-bed natural gas development. Additional information is available at http://wy.water.usgs.gov/projects/atg/index.htm. Water quality samples and records are provided by the Montana Water Science Center.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE (seasonal records): Maximum recorded, 996 microsiemens per centimeter at 25°C (µS/cm), May 11, 2004; minimum recorded, 132 µS/cm, June 21, 2005.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE (seasonal records): Maximum recorded, 902 µS/cm, Aug. 17; minimum recorded, 148 µS/cm, May 19.

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 1 of 6

[Remark codes: E, estimated.]

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 µS/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													
02...	1830	42	666	10.3	115	8.5	662	16.0	14.0	330	62.5	41.4	3.34
Dec													
13...	0900	E76	666	12.4	97	8.0	619	0.0	0.0	300	58.5	36.7	2.33
Feb													
16...	0830	E66	666	11.8	93	8.0	695	5.0	0.0	310	61.7	38.9	2.75
Mar													
06...	0815	E130	674	12.8	99	8.2	646	0.5	0.0	270	51.9	33.9	3.69
Apr													
11...	1800	183	668	12.5	118	8.7	812	3.5	7.0	390	70.4	52.5	4.12
25...	0845	253	672	9.3	89	8.2	500	8.0	8.0	240	47.8	28.1	2.12
May													
10...	0900	732	672	9.0	93	8.0	263	13.0	11.0	120	25.4	13.2	1.49
17...	1000	879	668	14.4	144	8.0	173	22.5	9.5	70	16.0	7.19	1.04
Jun													
06...	0830	720	653	8.7	99	8.0	176	17.5	14.0	76	17.0	8.04	1.00
27...	0930	293	674	8.6	100	8.1	357	22.0	16.5	170	34.4	19.7	1.71
Jul													
10...	0915	100	675	8.1	101	8.2	562	22.0	20.0	260	53.1	31.5	2.99
Aug													
07...	0930	42	664	7.3	96	8.4	747	25.0	21.5	340	62.8	44.5	3.86
Sep													
11...	0845	76	675	8.3	87	8.2	653	--	12.0	--	--	--	--

06305700 GOOSE CREEK NEAR ACME, WY—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 2 of 6
[Remark codes: E, estimated.]

Date	Sodium adsorption ratio (00931)	Sodium, water, fltrd, mg/L (00930)	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)	Dissolved solids, sum of constituents mg/L (70301)	Dissolved solids, tons/ acre-ft (70303)	Dissolved solids, tons/d (70302)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspended sediment concentration mg/L (80154)	Suspended sediment discharge, tons/d (80155)
Oct													
02...	.6	25.6	242	6.85	.27	1.25	127	414	.56	47.0	87	4	.45
Dec													
13...	.6	21.9	234	5.90	.28	9.10	105	380	.52	E85.0	88	2	E.41
Feb													
16...	.8	31.4	236	18.2	.28	11.3	117	429	.58	E67.7	83	4	E.71
Mar													
06...	.7	24.7	207	15.8	.25	8.85	122	386	.52	E135	97	23	E8.1
Apr													
11...	.7	34.0	246	8.79	.31	6.70	210	536	.73	265	82	40	20
25...	.5	16.9	176	4.36	.23	7.66	91.7	304	.41	208	--	--	--
May													
10...	.3	8.15	97	1.98	.12	10.2	36.3	155	.21	307	--	--	--
17...	.3	4.97	60	1.12	E.07	10.3	19.9	97	.13	230	81	37	88
Jun													
06...	.3	5.38	67	1.17	E.09	8.53	21.1	102	.14	199	--	--	--
27...	.4	12.1	131	3.00	.19	10.7	52.4	213	.29	168	--	--	--
Jul													
10...	.6	20.9	187	5.99	.28	8.54	104	340	.46	91.7	--	--	--
Aug													
07...	.7	30.8	260	9.95	.32	3.87	141	454	.62	51.5	81	5	.57
Sep													
11...	--	--	--	--	--	--	--	--	--	--	--	--	--

06305700 GOOSE CREEK NEAR ACME, WY—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 3 of 6
[Remark codes: <, less than; E, estimated.]

Date	Time	Ammonia water, fltrd, mg/L as N (00608)	Nitrate + nitrite water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Total nitro-gen, water, unfltrd, mg/L (62855)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Total phos-phorus, water, unfltrd mg/L (00665)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Arsenic water, fltrd, µg/L (01000)	Arsenic water, unfltrd µg/L (01002)	Barium, water, fltrd, µg/L (01005)	Barium, water, unfltrd recover-able, µg/L (01007)
Oct													
02...	1830	E.012	E.009	<.002	.32	.086	.105	4.3	39	.53	.69	52	51.9
Feb													
16...	0830	.110	1.04	.017	1.44	.144	.191	<1.6	21	.27	.52	48	47.5
Apr													
11...	1800	E.012	.162	.004	.82	.032	.112	<1.6	266	.51	.72	52	60.2
May													
17...	1000	<.020	.073	E.002	.42	.016	.071	14.4	410	.36	.60	18	25.1
Aug													
07...	0930	<.020	<.016	<.002	.44	.154	.204	2.8	62	.90	1.0	58	60.6

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 4 of 6
[Remark codes: <, less than; E, estimated.]

Date	Beryll-ium, water, fltrd, µg/L (01010)	Beryll-ium, water, unfltrd recover-able, µg/L (01012)	Boron, water, fltrd, µg/L (01020)	Cadmium water, fltrd, µg/L (01025)	Cadmium water, unfltrd µg/L (01027)	Chrom-ium, water, fltrd, µg/L (01030)	Chrom-ium, water, unfltrd recover-able, µg/L (01034)	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recover-able, µg/L (01042)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover-able, µg/L (01045)	Lead, water, fltrd, µg/L (01049)	Lead, water, unfltrd recover-able, µg/L (01051)
Oct													
02...	<.06	<.06	95	<.04	E.01	--	E.84	.92	E1.2	56	182	.12	.15
Feb													
16...	<.06	<.06	67	<.04	E.01	--	E.80	.69	1.9	33	137	E.06	.08
Apr													
11...	<.06	<.06	--	--	--	--	--	--	--	15	568	--	--
May													
17...	<.06	E.03	--	<.04	.03	.15	.75	1.1	1.6	36	759	.18	.69
Aug													
07...	<.06	<.06	--	--	--	--	--	--	--	15	150	--	--

06305700 GOOSE CREEK NEAR ACME, WY—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 5 of 6

Date	Lithium water, fltrd, µg/L (01130)	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recoverable, µg/L (01055)	Mercury water, unfltrd ng/L (50286)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recoverable, µg/L (01067)	Selenium, water, fltrd, µg/L (01145)	Selenium, water, unfltrd µg/L (01147)	Strontium, water, fltrd, µg/L (01080)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recoverable, µg/L (01092)
Oct											
02...	18.0	10.5	15.7	--	.94	1.68	.25	.30	456	2.7	3
Feb											
16...	15.2	29.6	35.9	--	.74	2.12	.40	.41	424	4.8	5
Apr											
11...	--	46.4	84.5	--	--	--	.88	.86	--	--	--
May											
17...	--	12.4	43.9	--	.52	1.1	.20	.19	--	3.9	4.0
Aug											
07...	--	10.9	28.9	1.01	--	--	.39	.36	--	--	--

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 6 of 6

Date	Time	Turbdty white light, det ang 90+/-30 corrctd NTRU (63676)	Biomass periphyton, ashfree drymass g/m2 (49954)	Periphyton biomass ash weight, g/m2 (00572)	Periphyton biomass dry weight, g/m2 (00573)	Biomass chlorophyll ratio, periphyton, number (70950)	Chlorophyll a periphyton, chromofluoro, mg/m2 (70957)	Pheophytin a, periphyton, mg/m2 (62359)
Sep								
11...	0845	12	21.6	500	523	490	44.1	15.9

06305700 GOOSE CREEK NEAR ACME, WY—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
APRIL 2007 TO OCTOBER 2007

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		April			May			June			July	
1				327	310	319	264	234	253	472	438	457
2				319	290	304	264	254	260	497	468	483
3				323	311	316	257	231	246	526	494	513
4				364	321	346	232	206	217	560	525	544
5				458	311	333	209	183	196	585	560	572
6				489	446	472	194	161	180	585	569	575
7				474	368	403	359	174	258	579	557	573
8				368	314	326	336	240	263	670	368	567
9				319	269	291	240	202	215	667	585	635
10				284	235	255	202	191	195	606	570	585
11				235	192	205	193	181	186	671	606	639
12	801	771	784	192	173	179	185	179	183	716	671	694
13	788	772	780	177	168	172	192	184	186	786	716	744
14	782	749	768	170	160	165	196	188	192	821	786	804
15	779	741	764	169	158	163	196	190	194	849	812	824
16	747	705	727	177	161	168	196	187	192	856	820	841
17	713	670	688	178	168	171	193	188	191	865	835	850
18	671	651	664	180	162	169	206	193	199	883	851	870
19	651	575	620	162	148	154	219	205	211	879	817	837
20	614	561	583	157	149	152	246	218	237	863	840	850
21	567	548	557	161	151	154	257	245	252	868	848	856
22	550	531	539	183	161	174	266	257	261	888	850	863
23	539	523	533	191	181	186	---	---	#267	889	867	880
24	524	499	510	200	190	194	289	270	281	879	840	860
25	501	464	484	204	196	200	309	285	294	890	874	882
26	472	448	459	221	199	208	---	---	#309	897	884	890
27	464	447	454	224	213	219	366	332	350	892	716	800
28	462	439	455	220	202	212	362	345	352	716	610	646
29	440	372	410	204	176	191	416	362	389	670	609	637
30	373	326	349	207	177	191	441	412	426	708	670	691
31	---	---	---	234	207	220	---	---	---	751	704	726
Month	---	---	---	489	148	233	*441	*161	*248	897	368	716

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

* Monthly mean computed from available daily means. A specific conductance greater than or less than the reported maximum or minimum may have occurred during the period of missing record.

06305700 GOOSE CREEK NEAR ACME, WY—Continued

**SPECIFIC CONDUCTANCE, WATER, UNFILTERED,
MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
APRIL 2007 TO OCTOBER 2007**

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		August			September			October	
1	---	---	#771	754	733	744	622	580	609
2	800	784	790	753	742	749	595	582	591
3	807	792	799	759	746	754	623	591	609
4	811	798	803	762	753	759	626	593	611
5	800	782	791	775	762	769	612	574	597
6	784	720	758	781	763	771	596	579	589
7	769	712	738	780	753	767	584	531	562
8	762	742	752	764	752	758	580	540	559
9	771	757	764	771	689	746	593	564	580
10	792	770	786	689	629	658	583	565	573
11	814	784	801	665	641	653	588	571	581
12	846	799	821	651	633	643	610	587	603
13	868	833	846	665	638	648	622	556	609
14	872	849	859	673	654	665	610	509	565
15	881	851	867	683	666	678	624	607	618
16	872	854	863	---	---	#659	629	618	624
17	902	863	874	666	643	655	650	629	641
18	882	815	853	660	644	650	651	526	591
19	818	782	801	659	629	645	672	651	664
20	798	771	789	629	610	621	668	538	623
21	804	774	791	613	594	606	640	546	626
22	787	758	777	620	598	610	647	638	642
23	774	735	762	615	595	605	655	641	648
24	764	662	726	614	595	605	657	640	648
25	743	720	734	606	567	588	644	629	637
26	720	703	712	581	561	572	637	625	631
27	727	712	719	602	580	589	628	601	615
28	747	722	734	633	602	626	623	608	617
29	750	725	739	650	630	639	636	615	627
30	740	719	730	649	585	617	649	636	644
31	755	740	747	---	---	---	660	632	638
Month	*902	*662	*784	*781	*561	*668	672	509	612

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

* Monthly mean computed from available daily means. A specific conductance greater than or less than the reported maximum or minimum may have occurred during the period of missing record.

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450137106595101 YOUNGS CREEK NEAR RESERVATION BOUNDARY, NEAR DECKER, MT

Tongue Basin
Upper Tongue Subbasin

LOCATION.--Lat 45°01′37″, long 106°59′51″ referenced to North American Datum of 1927, in SE ¼ NW ¼ SE ¼ sec.25, T.9 S., R.83 E., Big Horn County, MT, Hydrologic Unit 10090101, at dirt road crossing about 7 mi upstream from Wyoming Highway 338, 1.5 mi northeast of Pearl School, and 6.5 mi west of Decker.

DRAINAGE AREA.--21.5 mi².

GAGE.--None. Elevation at sampling site is 3,780 ft, referenced to the National Geodetic Vertical Datum of 1929.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 2002 to current year.

REMARKS.--The water-quality sample collected at this site was made in conjunction with aquatic ecology samples collected for an interagency task group studying the effects of coal-bed natural gas development. Additional information is available at: http://wy.water.usgs.gov/projects/atg/index.htm.

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 1 of 3

Date	Time	Instantaneous discharge, cfs (00061)	Turbdty white light, det ang 90+/-30 corrctd NTRU (63676)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specific conductance, wat unf µS/cm 25 degC (00095)	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)	Sodium adsorption ratio (00931)	Sodium, water, fltrd, mg/L (00930)
Jun 21...	1250	8.5	42	8.0	8.2	615	18.0	320	65.6	36.8	3.96	.3	10.5

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 2 of 3

Date	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)	Dissolved solids, sum of constituents mg/L (70301)	Dissolved solids, tons/ acre-ft (70303)	Dissolved solids, tons/d (70302)
Jun 21...	312	1.66	.49	17.7	38.2	362	.49	8.31

450137106595101 YOUNGS CREEK NEAR RESERVATION BOUNDARY, NEAR DECKER, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 3 of 3

Date	Time	Biomass peri-phyton, ashfree drymass g/m2 (49954)	Peri-phyton biomass ash weight, g/m2 (00572)	Peri-phyton biomass dry weight, g/m2 (00573)	Biomass chloro-phyll ratio, peri-phyton, number (70950)	Chloro-phyll a peri-phyton, chromo-fluoro, mg/m2 (70957)	Pheo-phytin a, peri-phyton, mg/m2 (62359)
Jun							
21...	1040	12.7	520	530	713	17.8	6.4

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445957106524701 TONGUE RIVER BELOW YOUNGS CREEK, NEAR DECKER, MT

Tongue Basin
Upper Tongue Subbasin

LOCATION.--Lat 44°59'57", long 106°52'47" referenced to North American Datum of 1927, in NE ¼ NE ¼ SW ¼ sec.31, T.9 S., R.40 E., Big Horn County, MT, Hydrologic Unit 10090101, 0.20 mi downstream of Montana-Wyoming state line, about 3 mi below the mouth of Youngs Creek, and about 2 mi south of Decker.

DRAINAGE AREA.--Not determined.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--August 2005 to current year.

GAGE.--None. Elevation of site is 3,470 ft, referenced to the National Geodectic Vertical Datum of 1929.

REMARKS.--The water-quality sample collected at this site was made in conjunction with aquatic ecology samples collected for an interagency task group studying the effects of coal-bed natural gas development. Additional information is available at: http://wy.water.usgs.gov/projects/atg/index.htm.

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 1 of 3

Date	Time	Instantaneous discharge, cfs (00061)	Turbdty white light, det ang 90+/-30 corrctd NTRU (63676)	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 µS/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)
Aug 29...	1045	52	7.0	677	11.4	139	8.4	569	24.0	19.0	280	56.5	33.2

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 2 of 3

Date	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)	Sodium, water, fltrd, mg/L (00930)	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)	Dissolved, solids, sum of constituents mg/L (70301)	Dissolved, solids, tons/ acre-ft (70303)	Dissolved, solids, tons/d (70302)
Aug 29...	2.81	.5	20.6	219	3.88	.24	5.75	90.7	345	.47	48.4

445957106524701 TONGUE RIVER BELOW YOUNGS CREEK, NEAR DECKER, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 3 of 3

Date	Time	Biomass periphyton, ashfree drymass g/m2 (49954)	Periphyton biomass ash weight, g/m2 (00572)	Periphyton biomass dry weight, g/m2 (00573)	Biomass chlorophyll ratio, periphyton, number (70950)	Chlorophyll a periphyton, chromofluoro, mg/m2 (70957)	Pheophytin a, periphyton, mg/m2 (62359)
Aug 29...	0835	22.2	710	730	909	24.4	18.6

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06306100 SQUIRREL CREEK NEAR DECKER, MT

Tongue Basin
Upper Tongue Subbasin

LOCATION.--Lat 45°03′05″, long 106°55′36″ referenced to North American Datum of 1927, in NE ¼ NW ¼ NW ¼ sec.14, T.9 S., R.39 E., Big Horn County, MT, Hydrologic Unit 10090101, on left bank 0.4 mi upstream from Powers Cormack ditch, 0.5 mi northwest of CX Ranch, 4 mi northwest of Decker.

DRAINAGE AREA.--33.6 mi².

GAGE.--None. Elevation at site is 3,660 ft, referenced to the National Geodetic Vertical Datum of 1929.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1975 to June 1985, June 2005, June 2006, and July 2007.

REMARKS.--The water-quality sample collected at this site was made in conjunction with aquatic ecology samples collected for an interagency task group studying the effects of coal-bed natural gas development. Additional information is available at http://wy.water.usgs.gov/projects/atg/index.htm.

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 1 of 2

Date	Time	Instantaneous discharge, cfs (00061)	Turbdty white light, det ang 90+/-30 corrctd NTRU (63676)	pH, water, unfltrd field, std units (00400)	Specific conductance, wat unf µS/cm 25 degC (00095)	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)	Sodium adsorption ratio (00931)	Sodium, water, fltrd, mg/L (00930)	Alkalinity, wat flt fxd end lab, mg/L as CaCO3 (29801)
Jul 11...	1700	1.0	7.4	8.5	1,400	22.0	710	85.2	121	9.15	1.0	62.7	418

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 2 of 2

Date	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate water, fltrd, mg/L (00945)	Dissolved solids, sum of constituents mg/L (70301)	Dissolved solids, tons/acre-ft (70303)	Dissolved solids, tons/d (70302)
Jul 11...	3.45	.48	11.2	404	947	1.29	2.61

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450047106514201 SQUIRREL CREEK ABOVE MOUTH, AT DECKER, MT

Tongue Basin
Upper Tongue Subbasin

LOCATION.--Lat 45°00′47″, long 106°51′42″ referenced to North American Datum of 1927, in NW ¼ SE ¼ SW ¼ sec.29, T.9 S., R.40 E., Big Horn County, MT, Hydrologic Unit 10090101, at Montana Highway 314, 2 mi north of Montana-Wyoming state line, 0.7 mi upstream from mouth, and at Decker.

DRAINAGE AREA.--Undetermined.

GAGE.--None. Elevation at sampling site is 3,510 ft, referenced to the National Geodetic Vertical Datum of 1929.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 2002 to June 2005 and July 2007.

REMARKS. --The water-quality sample collected at this site was made in conjunction with aquatic ecology samples colected for an interagency task group studying the effects of cal-bed natural gas development. Additional information is available at: http://wy.water.usgs.gov/projects/atg/index.htm.

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 1 of 3

Date	Time	Instantaneous discharge, cfs (00061)	Turbdty white light, det ang 90+/-30 corrctd NTRU (63676)	pH, water, unfltrd field, std units (00400)	Specific conductance, wat unf µS/cm 25 degC (00095)	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)	Sodium adsorption ratio (00931)	Sodium, water, fltrd, mg/L (00930)
Jul 12...	1200	.39	1.2	8.1	2,310	20.0	970	86.4	184	12.1	2.8	199

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 2 of 3

Date	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)	Dissolved solids, sum of constituents mg/L (70301)	Dissolved solids, tons/ acre-ft (70303)	Dissolved solids, tons/d (70302)
Jul 12...	530	4.75	.57	4.21	880	1,690	2.30	1.76

450047106514201 SQUIRREL CREEK ABOVE MOUTH, AT DECKER, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 3 of 3

Date	Time	Biomass periphyton, ashfree drymass g/m2 (49954)	Periphyton biomass ash weight, g/m2 (00572)	Periphyton biomass dry weight, g/m2 (00573)	Biomass chlorophyll ratio, periphyton, number (70950)	Chlorophyll a periphyton, chromofluoro, mg/m2 (70957)	Pheophytin a, periphyton, mg/m2 (62359)
Jul							
12...	1000	3.7	170	178	2,530	1.5	.5

06306250 PRAIRIE DOG CREEK NEAR ACME, WY

Tongue Basin
Upper Tongue Subbasin

LOCATION.--Lat 44°59'02", long 106°50'21" referenced to North American Datum of 1927, in NE ¼ SW ¼ SW ¼ sec.23, T.58 N., R.83 W., Sheridan County, WY, Hydrologic Unit 10090101, on right bank 600 ft upstream from county bridge, 0.9 mi upstream from mouth, 2.8 mi downstream from Coutant Creek, and 7.6 mi northeast of Acme.

DRAINAGE AREA.--358 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--October 1970 to September 1979, June 2000 to current year. Records for May 1965 to September 1970 in files of Wyoming State Engineer's Office.

GAGE.--Water-stage recorder. Elevation of gage is 3,450 ft above NGVD of 1929, from topographic map. U.S. Geological Survey data collection platform with satellite telemetry at station.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Diversions for irrigation of about 13,600 acres upstream from station, of which about 60 acres are downstream from station. Flow supplemented by 3 transbasin diversions from North Piney Creek and South Piney Creek via Prairie Dog Creek ditch, Piney and Cruse ditch, and Mead-Coffeen ditch.

06306250 PRAIRIE DOG CREEK NEAR ACME, WY—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	42	e17	e20	e9.0	e7.8	e14	20	35	51	21	19	33
2	41	e19	e17	e10	e7.2	e13	29	41	70	20	18	33
3	41	e20	e19	e11	e7.8	e12	47	51	67	19	15	30
4	41	e20	e20	e10	e8.6	e15	49	60	60	16	16	30
5	39	18	20	e10	e9.4	e25	51	66	53	17	20	29
6	38	18	19	e10	e8.6	e60	53	104	48	17	22	27
7	36	17	19	e11	e8.4	e100	49	292	64	15	20	24
8	35	17	20	e11	e8.4	e130	48	219	142	15	21	24
9	31	16	21	e11	e7.8	e150	46	140	285	15	22	27
10	30	17	18	e12	e8.4	e130	51	105	170	13	19	33
11	30	e17	18	e9.2	e8.8	e110	67	87	133	12	20	37
12	29	e20	18	e7.0	e8.4	e90	75	71	112	9.8	19	36
13	28	e19	19	e7.4	e7.8	e76	64	61	97	9.4	19	33
14	28	e19	18	e8.2	e7.6	e70	57	52	92	9.9	19	30
15	28	e20	18	e8.2	e7.4	e64	57	48	88	10	16	26
16	26	e20	18	e8.6	e9.0	e56	65	42	85	7.4	14	23
17	26	e20	13	e8.6	e8.6	51	81	35	78	8.0	14	24
18	24	e20	7.2	e8.0	e9.8	45	79	25	72	8.2	16	22
19	24	e19	7.4	e9.0	e9.2	45	82	26	66	5.9	21	24
20	25	e18	e9.6	e8.0	e11	46	109	31	60	4.6	22	27
21	25	e17	e10	e8.2	e10	43	99	37	57	6.5	19	26
22	24	e16	e11	e8.6	e9.6	38	69	44	50	9.3	18	25
23	23	14	e12	e9.0	e11	35	59	49	45	13	19	24
24	22	13	e13	e9.6	e11	31	54	53	43	14	22	28
25	21	9.3	e12	e8.8	e11	28	55	48	40	13	25	28
26	21	e16	e11	e8.6	e15	27	54	46	33	21	25	28
27	21	e16	e11	e8.2	e19	25	48	46	26	24	23	29
28	22	e15	e12	e9.0	e15	28	44	41	22	24	24	26
29	20	13	e10	e8.2	---	34	41	40	23	24	30	25
30	19	e16	e8.4	e8.0	---	17	37	43	23	23	31	25
31	e16	---	e9.0	e8.0	---	23	---	50	---	19	31	---
Total	876	516.3	458.6	281.4	271.6	1,631	1,739	2,088	2,255	444.0	639	836
Mean	28.3	17.2	14.8	9.08	9.70	52.6	58.0	67.4	75.2	14.3	20.6	27.9
Max	42	20	21	12	19	150	109	292	285	24	31	37
Min	16	9.3	7.2	7.0	7.2	12	20	25	22	4.6	14	22
Ac-ft	1,740	1,020	910	558	539	3,240	3,450	4,140	4,470	881	1,270	1,660

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1971 - 2007, BY WATER YEAR (WY)

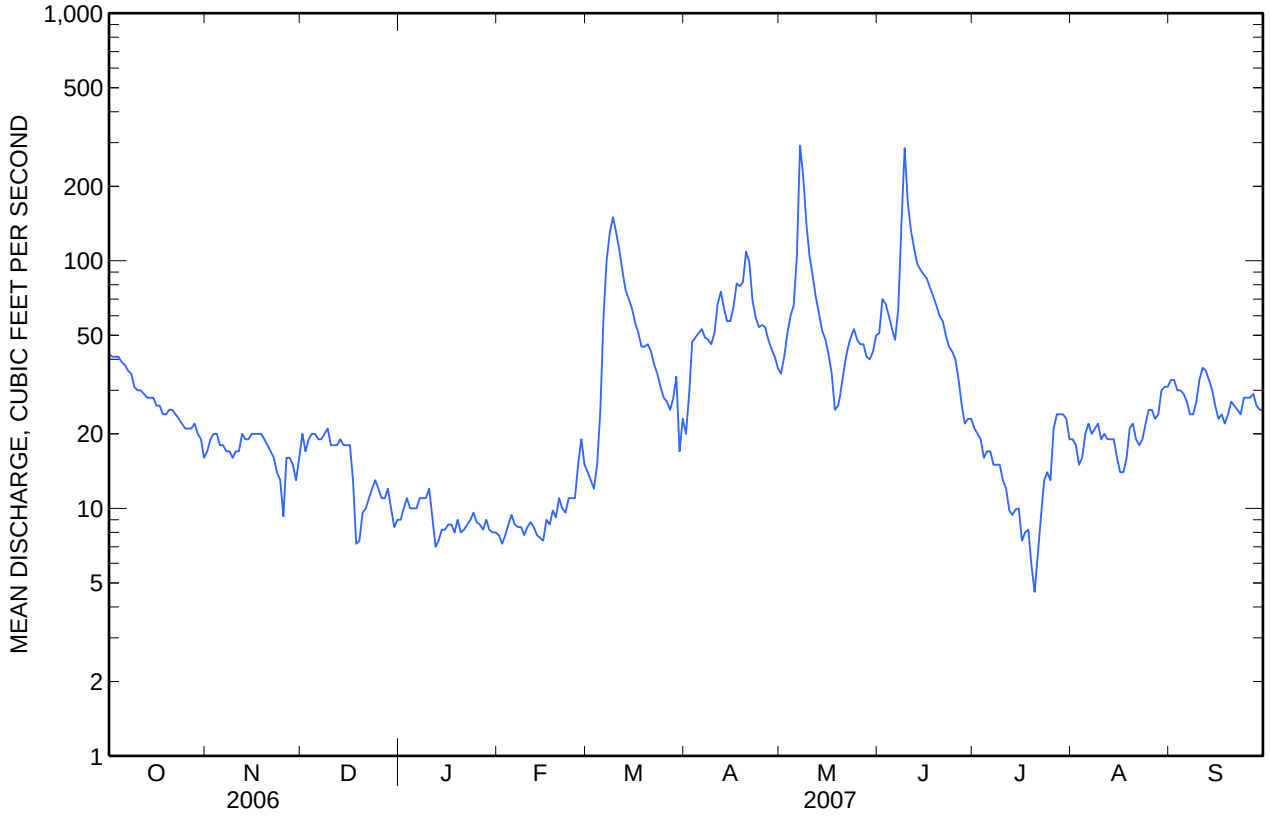
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	34.8	26.1	20.8	16.7	28.0	64.0	50.3	71.2	34.9	17.4	24.0	35.7
Max	59.5	43.6	32.3	26.7	82.7	167	101	384	86.2	45.0	45.7	79.0
(WY)	(1974)	(1974)	(1976)	(1974)	(1974)	(1972)	(1971)	(1978)	(1978)	(1975)	(1978)	(1973)
Min	15.5	12.3	10.9	8.55	9.49	14.1	11.6	5.75	3.09	1.04	0.92	13.4
(WY)	(2002)	(2002)	(2002)	(2002)	(2003)	(2005)	(2006)	(2004)	(2002)	(2006)	(2006)	(2001)

06306250 PRAIRIE DOG CREEK NEAR ACME, WY—Continued

SUMMARY STATISTICS

	Calendar Year 2006		Water Year 2007		Water Years 1971 - 2007	
Annual total	4,912.77		12,035.9			
Annual mean	13.5		33.0		35.4	
Highest annual mean					72.8	1978
Lowest annual mean					14.2	2006
Highest daily mean	61	Sep 25	292	May 7	3,090	May 19, 1978
Lowest daily mean	0.11	Aug 30	4.6	Jul 20	0.11	Aug 30, 2006
Annual seven-day minimum	0.40	Jul 24	7.1	Jul 16	0.40	Jul 24, 2006
Maximum peak flow			360	May 7	[a]3,940	May 18, 1978
Maximum peak stage			5.64	May 7	[b]12.60	May 18, 1978
Annual runoff (ac-ft)	9,740		23,870		25,670	
10 percent exceeds	26		66		61	
50 percent exceeds	13		22		25	
90 percent exceeds	0.86		8.6		9.0	

[a] From rating curve extended above 760 ft³/s on basis of slope-area determination of peak flow.
[b] From floodmarks.



06306250 PRAIRIE DOG CREEK NEAR ACME, WY—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1976-1992, April 2000 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: April 2004 to current year (seasonal).

INSTRUMENTATION.--Specific conductance probe installed Apr. 20, 2004.

REMARKS.--Daily specific conductance records rated good to good to fair except for several short periods throught the season, which are rated poor due to fouling of the probe from heavy siltation. The water-quality sample collected on Sept. 11 was made in conjunction with aquatic ecology samples collected for an interagency task group studying the effects of coal-bed natural gas development. Additional information is available at http://wy.water.usgs.gov/projects/atg/index.htm. Water quality samples and record provided by the Montana Water Science Center.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE (seasonal records): Maximum recorded, 2,740 microsiemens per centimeter at 25°C (µS/cm), July 31, 2006; minimum recorded, 701 µS/cm, June 9, 2007.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE (seasonal records): Maximum recorded, 2,420 µS/cm, July 21; minimum recorded, 701 µS/cm, June 9.

06306250 PRAIRIE DOG CREEK NEAR ACME, WY—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 1 of 5
[Remark codes: <, less than; E, estimated.]

Date	Time	Instantaneous discharge, cfs (00061)	Turbdty white light, det ang 90+/-30 corrctd NTRU (63676)	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 µS/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)
Oct													
02...	1600	40	--	670	8.4	92	8.2	800	10.0	13.5	410	85.6	47.1
Dec													
20...	1410	E96	--	671	12.8	100	7.9	1,960	5.0	0.0	980	186	126
Jan													
23...	1050	E9.0	--	672	10.9	85	7.8	1,560	8.0	0.0	770	152	94.9
Feb													
15...	1615	E7.4	--	671	11.8	92	7.6	1,500	2.0	0.0	740	142	91.8
Mar													
05...	1630	E25	--	674	12.0	93	8.1	1,200	12.5	0.0	510	101	63.9
Apr													
11...	1630	75	--	671	10.2	97	8.4	1,720	4.0	7.5	810	141	112
25...	0945	52	--	675	9.4	96	8.4	1,460	11.0	10.5	680	129	88.2
May													
09...	1745	127	--	668	8.3	99	8.3	1,290	26.0	17.0	600	109	78.5
23...	0815	47	--	673	8.0	82	8.3	1,150	7.0	10.5	530	101	68.2
Jun													
07...	0900	55	--	666	8.0	87	8.3	1,270	7.0	13.0	580	106	75.3
27...	0745	28	--	679	7.8	91	8.3	1,250	19.0	17.0	580	110	74.1
Jul													
10...	1330	13	--	678	8.0	102	8.4	1,630	25.0	21.5	740	143	93.2
Aug													
06...	1700	22	--	667	7.7	105	8.3	1,030	33.5	24.0	480	98.2	56.8
Sep													
11...	1302	41	30	--	9.3	--	8.5	926	--	13.5	--	--	--
20...	0730	28	--	668	8.6	93	8.2	1,220	10.0	12.5	610	126	72.2

06306250 PRAIRIE DOG CREEK NEAR ACME, WY—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 2 of 5
[Remark codes: <, less than; E, estimated.]

Date	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)	Sodium, water, fltrd, mg/L (00930)	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 on evap. at 180degC wat flt mg/L (70300)	Dissolved solids, sum of constituents mg/L (70301)	Dissolved solids, tons/ acre-ft (70303)	Dissolved solids, tons/d (70302)	Ammonia water, fltrd, mg/L as N (00608)
Oct													
02...	4.99	.6	29.7	237	2.44	.22	12.9	213	561	540	.76	60.5	E.013
Dec													
20...	9.09	1.5	109	443	5.57	.30	16.0	730	1,540	1,450	2.09	E140	--
Jan													
23...	7.29	1.2	78.5	406	4.42	.36	14.6	531	1,210	1,130	1.65	E27.9	--
Feb													
15...	7.37	1.2	74.2	390	4.71	.33	13.9	507	1,150	1,080	1.56	E22.5	.106
Mar													
05...	17.8	1.1	55.8	298	6.71	.23	11.2	375	905	810	1.23	E54.7	--
Apr													
11...	9.95	1.7	109	332	7.63	.34	8.56	720	--	1,310	1.78	265	<.020
25...	8.19	1.4	81.4	343	5.90	.35	8.88	525	--	1,050	1.43	148	--
May													
09...	10.3	1.3	71.3	297	5.83	.32	10.7	446	--	910	1.24	312	--
23...	6.18	1.3	71.3	263	3.72	.26	11.4	388	853	809	1.16	108	E.016
Jun													
07...	5.88	1.5	82.4	267	3.74	.27	11.7	466	--	912	1.24	135	--
27...	6.56	1.3	72.7	297	4.28	.32	15.1	433	973	895	1.32	73.5	--
Jul													
10...	7.94	1.8	115	317	5.37	.33	14.1	615	1,290	1,180	1.76	45.3	--
Aug													
06...	5.84	1.1	53.1	253	3.13	.24	13.2	320	756	704	1.03	44.9	<.020
Sep													
11...	--	--	--	--	--	--	--	--	--	--	--	--	--
20...	6.30	1.0	55.9	285	3.64	.26	11.4	383	899	830	1.22	68.0	--

06306250 PRAIRIE DOG CREEK NEAR ACME, WY—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 3 of 5
[Remark codes: <, less than; E, estimated.]

Date	Nitrate + nitrite water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Total nitro-gen, water, unfltrd, mg/L (62855)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Total phos-phorus, water, unfltrd mg/L (00665)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Arsenic water, fltrd, µg/L (01000)	Arsenic water, unfltrd µg/L (01002)	Barium, water, fltrd, µg/L (01005)	Barium, water, unfltrd recover-able, µg/L (01007)	Beryll-ium, water, fltrd, µg/L (01010)	Beryll-ium, water, unfltrd recover-able, µg/L (01012)
Oct													
02...	.087	<.002	.66	.015	.17	E1.5	1,630	.70	2.0	27	52.3	<.06	.15
Dec													
20...	--	--	--	--	--	--	71	.50	--	--	54.3	--	<.06
Jan													
23...	--	--	--	--	--	--	158	.36	1.1	--	45.4	--	<.06
Feb													
15...	.729	.005	1.11	.014	.050	<1.6	254	.42	1.2	41	45.0	<.06	E.04
Mar													
05...	--	--	--	--	--	--	596	1.0	1.5	--	49.7	--	E.05
Apr													
11...	.455	.003	1.73	.028	.34	E.8	2,860	.90	3.2	49	102	<.06	.23
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
May													
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
23...	.240	E.001	.87	.026	.242	E1.2	1,690	.81	2.3	38	63.7	<.06	.13
Jun													
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	1,030	.99	1.9	--	63.1	--	.08
Jul													
10...	--	--	--	--	--	--	295	.96	1.3	--	63.4	--	<.06
Aug													
06...	.321	.002	.83	.026	.155	E2.9	1,150	.97	1.7	35	54.8	<.06	.10
Sep													
11...	--	--	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	366	.64	1.1	--	48.1	--	<.06

06306250 PRAIRIE DOG CREEK NEAR ACME, WY—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 4 of 5
[Remark codes: <, less than; E, estimated.]

Date	Boron, water, fltrd, µg/L (01020)	Cadmium water, fltrd, µg/L (01025)	Cadmium water, unfltrd µg/L (01027)	Chrom-ium, water, fltrd, µg/L (01030)	Chrom-ium, water, unfltrd recover-able, µg/L (01034)	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recover-able, µg/L (01042)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover-able, µg/L (01045)	Lead, water, fltrd, µg/L (01049)	Lead, water, unfltrd recover-able, µg/L (01051)	Lithium water, fltrd, µg/L (01130)	Mangan-ese, water, fltrd, µg/L (01056)
Oct													
02...	78	<.04	.08	--	3	.57	5.1	<6	3,600	<.12	2.62	17.8	22.3
Dec													
20...	--	--	--	--	--	--	--	15	--	--	--	--	103
Jan													
23...	--	--	--	--	--	--	--	12	--	--	--	--	76.3
Feb													
15...	100	<.04	.02	--	2	.88	4.0	11	718	E.06	.39	30.6	69.9
Mar													
05...	--	--	--	--	--	--	--	100	--	--	--	--	83.6
Apr													
11...	--	--	--	--	--	--	--	11	6,940	--	--	--	39.5
25...	--	--	--	--	--	--	--	--	--	--	--	--	--
May													
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
23...	--	<.04	.06	.22	2.7	.90	4.3	7	3,850	<.12	2.72	--	33.4
Jun													
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	8	--	--	--	--	19.4
Jul													
10...	--	--	--	--	--	--	--	E3	--	--	--	--	38.8
Aug													
06...	--	--	--	--	--	--	--	6	2,420	--	--	--	28.9
Sep													
11...	--	--	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	--	--	17	--	--	--	--	21.6

06306250 PRAIRIE DOG CREEK NEAR ACME, WY—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 5 of 5
[Remark codes: <, less than; E, estimated.]

Date	Manganese, water, unfltrd recoverable, µg/L (01055)	Mercury water, unfltrd ng/L (50286)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recoverable, µg/L (01067)	Selenium, water, fltrd, µg/L (01145)	Selenium, water, unfltrd µg/L (01147)	Strontium, water, fltrd, µg/L (01080)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recoverable, µg/L (01092)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspended sediment concentration mg/L (80154)	Suspended sediment discharge, tons/d (80155)
Oct												
02...	440	--	1.0	4.80	.48	.53	983	.83	12	96	180	19
Dec												
20...	--	--	--	--	--	1.2	--	--	--	43	82	E21
Jan												
23...	--	--	--	--	--	1.1	--	--	--	--	--	--
Feb												
15...	133	--	1.4	4.87	.76	.93	1,870	2.5	4	64	88	E1.8
Mar												
05...	--	--	--	--	--	.71	--	--	--	90	72	E4.9
Apr												
11...	517	--	--	--	1.1	1.2	--	--	--	86	378	77
25...	--	--	--	--	--	--	--	--	--	--	--	--
May												
09...	--	--	--	--	--	--	--	--	--	--	--	--
23...	283	--	1.2	4.7	.62	.60	--	E.51	10.1	92	189	24
Jun												
07...	--	--	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	.59	--	--	--	82	172	13
Jul												
10...	--	--	--	--	--	.92	--	--	--	91	155	5.4
Aug												
06...	227	3.95	--	--	.64	.70	--	--	--	96	118	7.0
Sep												
11...	--	--	--	--	--	--	--	--	--	--	--	--
20...	--	--	--	--	--	.66	--	--	--	--	--	--

06306250 PRAIRIE DOG CREEK NEAR ACME, WY—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
APRIL 2007 TO OCTOBER 2007

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		April			May			June			July	
1				1,360	1,290	1,320	1,130	1,110	1,120	1,330	1,240	1,270
2				1,340	1,150	1,280	1,120	999	1,050	1,280	1,270	1,280
3				1,150	948	1,030	1,120	1,010	1,070	1,350	1,270	1,300
4				948	843	908	1,210	1,120	1,170	1,450	1,350	1,410
5				931	811	866	1,280	1,210	1,240	1,490	1,400	1,460
6				1,100	867	993	1,240	1,220	1,230	1,400	1,370	1,370
7				1,050	797	982	1,530	927	1,160	1,440	1,370	1,400
8				1,260	1,050	1,190	1,040	845	964	1,490	1,440	1,470
9				1,290	1,020	1,230	868	701	787	1,560	1,470	1,500
10				1,020	918	946	851	802	821	1,610	1,560	1,580
11				927	912	919	905	848	881	1,590	1,550	1,580
12	1,520	1,380	1,430	981	923	958	909	872	890	1,690	1,580	1,650
13	1,450	1,400	1,420	1,040	981	1,020	872	800	835	1,750	1,680	1,710
14	1,460	1,430	1,450	1,070	1,040	1,060	813	785	799	1,790	1,740	1,770
15	1,450	1,390	1,430	1,130	1,070	1,100	802	784	793	1,770	1,710	1,730
16	1,400	1,360	1,380	1,190	1,130	1,160	811	791	797	1,890	1,710	1,810
17	1,380	1,320	1,360	1,260	1,190	1,220	832	811	823	1,960	1,890	1,920
18	1,340	1,320	1,330	1,340	1,260	1,290	836	808	820	1,960	1,880	1,910
19	1,330	1,280	1,310	1,400	1,330	1,360	849	813	827	1,980	1,760	1,850
20	1,310	1,180	1,270	1,400	1,240	1,350	905	849	876	2,260	1,980	2,190
21	1,220	1,160	1,190	1,240	1,100	1,150	975	904	934	2,420	2,260	2,360
22	1,310	1,220	1,260	1,130	1,080	1,100	1,040	975	1,000	2,260	1,740	1,980
23	1,390	1,310	1,350	1,150	999	1,080	1,070	1,040	1,050	1,740	1,380	1,540
24	1,460	1,390	1,430	1,050	994	1,010	1,090	1,070	1,080	1,380	1,290	1,320
25	1,470	1,240	1,390	1,140	1,050	1,100	1,170	1,080	1,110	1,340	1,270	1,300
26	1,240	1,210	1,230	1,140	1,120	1,130	1,250	1,170	1,200	1,270	1,080	1,170
27	1,260	1,220	1,250	1,120	1,090	1,100	1,280	1,220	1,250	1,080	1,020	1,050
28	1,300	1,260	1,280	1,140	1,100	1,130	1,330	1,250	1,280	1,020	1,000	1,010
29	1,300	1,280	1,290	1,180	1,140	1,170	1,330	1,300	1,320	1,050	1,020	1,030
30	1,300	1,290	1,300	1,150	1,070	1,110	1,380	1,250	1,290	1,040	1,010	1,020
31	---	---	---	1,110	1,070	1,090	---	---	---	1,070	1,020	1,040
Month	---	---	---	1,400	797	1,110	1,530	701	1,020	2,420	1,000	1,520

06306250 PRAIRIE DOG CREEK NEAR ACME, WY—Continued

**SPECIFIC CONDUCTANCE, WATER, UNFILTERED,
MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
APRIL 2007 TO OCTOBER 2007**

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		August			September			October	
1	1,070	1,050	1,060	935	915	929	1,080	1,070	1,080
2	1,070	1,050	1,060	948	905	919	1,080	1,070	1,080
3	1,160	1,070	1,110	985	948	970	1,110	1,080	1,090
4	1,190	1,140	1,170	988	976	985	1,140	1,100	1,120
5	1,140	1,030	1,070	976	968	971	1,160	1,140	1,140
6	1,060	1,020	1,030	1,020	973	994	1,200	1,160	1,180
7	1,060	1,020	1,040	1,060	1,020	1,040	1,200	1,150	1,170
8	1,050	984	1,010	1,070	1,060	1,060	1,160	1,140	1,150
9	997	965	980	1,060	1,010	1,040	1,140	1,090	1,110
10	1,060	997	1,030	1,010	934	971	1,130	1,090	1,100
11	1,100	1,060	1,080	934	918	928	1,180	1,130	1,160
12	1,120	1,070	1,090	920	907	913	1,180	1,170	1,180
13	1,120	1,100	1,100	937	920	931	1,210	1,180	1,180
14	1,110	1,080	1,100	974	930	948	1,240	1,210	1,230
15	1,160	1,090	1,120	1,050	974	1,000	1,250	1,230	1,240
16	1,200	1,160	1,190	1,150	1,050	1,100	1,250	1,200	1,220
17	1,240	1,200	1,230	1,180	1,150	1,170	1,220	1,120	1,210
18	1,250	1,180	1,220	1,230	1,180	1,210	1,380	1,170	1,250
19	1,180	1,110	1,150	1,230	1,210	1,230	1,230	1,070	1,180
20	1,130	1,080	1,100	1,210	1,130	1,170	1,130	1,020	1,050
21	1,170	1,130	1,140	1,150	1,130	1,130	1,170	1,130	1,140
22	1,150	1,100	1,130	1,170	1,150	1,150	1,170	1,060	1,120
23	1,120	1,100	1,110	1,320	1,150	1,200	1,130	1,060	1,090
24	1,120	1,060	1,080	1,170	1,050	1,110	1,180	1,130	1,160
25	1,060	981	1,010	1,050	1,030	1,040	1,180	1,140	1,160
26	998	984	992	1,060	1,030	1,040	1,150	1,140	1,140
27	1,030	995	1,010	1,070	1,030	1,050	1,220	1,150	1,180
28	1,030	997	1,020	1,120	1,050	1,090	1,250	1,220	1,240
29	997	937	957	1,130	1,100	1,120	1,240	1,220	1,230
30	937	920	931	1,130	1,080	1,100	1,230	1,220	1,230
31	935	915	924	---	---	---	1,230	1,220	1,230
Month	1,250	915	1,070	1,320	905	1,050	1,380	1,020	1,160

06306300 TONGUE RIVER AT STATE LINE, NEAR DECKER, MT

Tongue Basin
Upper Tongue Subbasin

LOCATION.--Lat 45°00′32″, long 106°50′08″ referenced to North American Datum of 1927, in NW ¼ NW ¼ NE ¼ sec.33, T.9 S., R.40 E., Big Horn County, MT, Hydrologic Unit 10090101, on left bank 1 mi north of Wyoming-Montana State line, 1.4 mi southeast of Decker, 1.6 mi upstream from Badger Creek, and at river mile 200.9.

DRAINAGE AREA.--1,453 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--August 1960 to current year. Records published as "near Decker" May 1928 to September 1938, not equivalent owing to intervening drainage area.

REVISED RECORDS.-- Water Data Report MT-04-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 3,429.14 ft, referenced to the National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.--Records are good except those for estimated daily discharges, which are poor. Flow is regulated by many small reservoirs in Wyoming with a combined capacity of about 15,000 acre-ft. Diversions for irrigation of about 64,300 acres occur upstream from the station. A U.S. Geological Survey satellite telemeter is located at the station.

06306300 TONGUE RIVER AT STATE LINE, NEAR DECKER, MT—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	186	135	e120	e110	e80	e100	281	1,230	2,110	646	151	134
2	176	130	e110	e120	e70	e100	352	1,380	2,400	594	141	132
3	174	140	e120	e110	e80	e90	472	1,610	2,040	530	130	124
4	176	163	e140	e110	e80	e100	424	2,000	1,930	477	125	119
5	182	179	e140	e110	e100	e130	383	1,950	1,910	438	135	117
6	179	176	e140	e110	e100	e150	376	2,830	2,080	409	145	115
7	174	171	e130	e120	e100	e300	332	2,220	2,860	380	144	123
8	165	176	e130	e120	e100	e600	306	1,830	5,530	474	146	145
9	174	195	e130	e120	e100	e700	306	1,720	4,250	476	134	155
10	187	203	e130	e130	e100	e700	387	1,830	3,590	426	121	183
11	180	198	e140	e110	e100	e700	523	2,280	3,280	347	113	203
12	179	182	e130	e90	e100	675	479	2,810	3,180	293	108	190
13	176	183	e140	e95	e100	642	379	3,220	3,050	261	104	172
14	173	169	e150	e100	e90	605	352	3,480	2,750	235	101	157
15	170	177	e140	e100	e70	586	374	3,290	2,630	227	101	161
16	170	169	e120	e100	e90	410	454	2,660	2,560	224	96	159
17	183	172	e110	e100	e100	316	516	2,430	2,540	207	94	153
18	183	178	e100	e100	e100	295	517	2,430	2,410	202	96	152
19	178	168	e100	e100	e100	312	612	2,540	2,110	183	105	164
20	175	162	e100	e100	e100	314	870	2,580	1,770	166	110	185
21	220	169	e120	e100	e100	302	696	2,600	1,560	155	117	187
22	213	175	e110	e90	e100	296	582	2,560	1,450	147	120	180
23	195	170	e110	e120	e100	263	503	2,350	1,360	143	128	183
24	176	166	e110	e110	e110	244	496	1,930	1,270	135	158	179
25	180	154	e120	e100	e120	230	539	1,750	1,170	134	173	193
26	195	134	e120	e100	e120	224	560	1,640	1,030	151	165	199
27	193	e120	e120	e100	e110	230	581	1,500	905	177	149	191
28	179	e110	e120	e100	e100	272	547	1,460	873	222	136	184
29	178	e100	e120	e90	---	381	677	1,750	794	200	142	181
30	171	e110	e110	e90	---	259	1,010	1,940	706	176	147	193
31	166	---	e100	e80	---	253	---	1,650	---	162	142	---
Total	5,606	4,834	3,780	3,235	2,720	10,779	14,886	67,450	66,098	8,997	3,977	4,913
Mean	181	161	122	104	97.1	348	496	2,176	2,203	290	128	164
Max	220	203	150	130	120	700	1,010	3,480	5,530	646	173	203
Min	165	100	100	80	70	90	281	1,230	706	134	94	115
Ac-ft	11,120	9,590	7,500	6,420	5,400	21,380	29,530	133,800	131,100	17,850	7,890	9,740

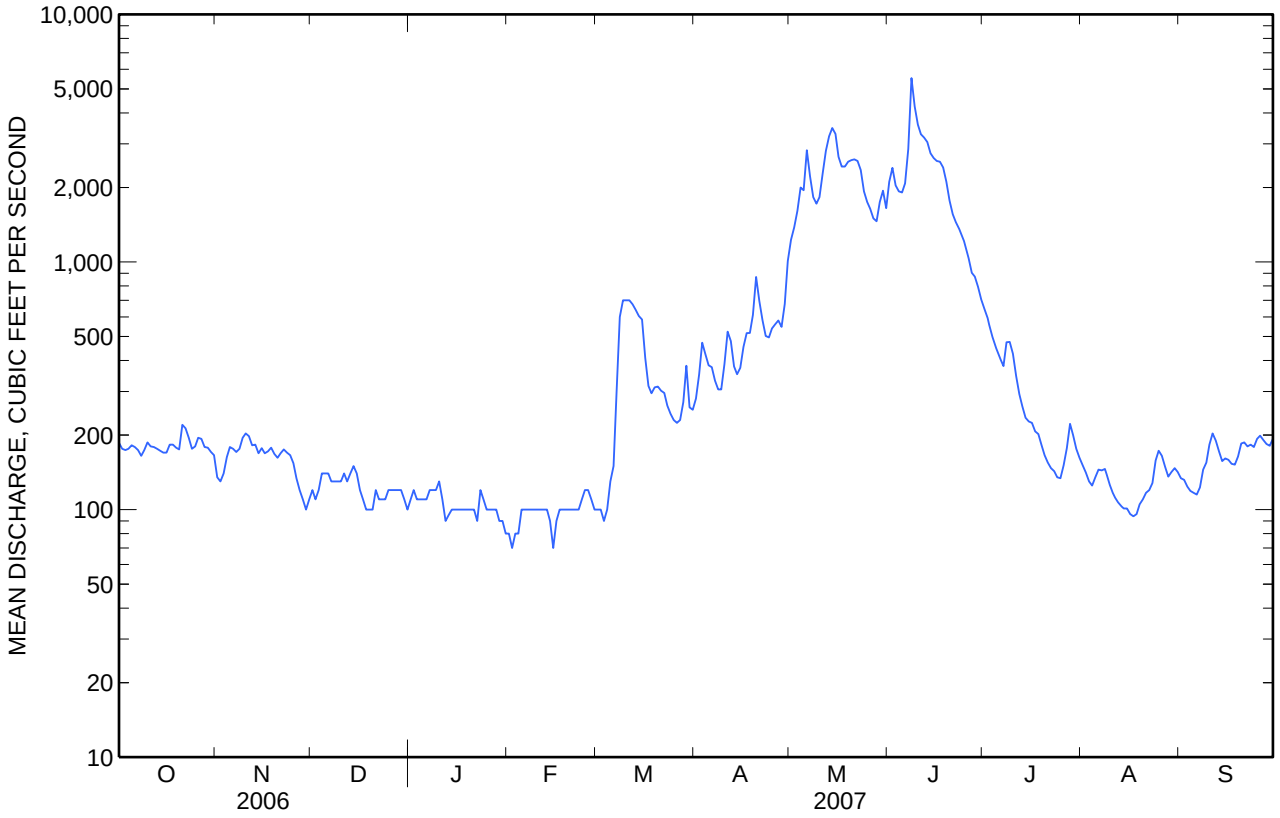
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 2007, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	245	217	174	171	218	297	346	1,133	1,581	436	167	209
Max	403	324	271	330	672	855	676	3,283	3,570	1,674	475	615
(WY)	(1969)	(1974)	(1976)	(1974)	(1971)	(1972)	(1977)	(1978)	(1978)	(1975)	(1968)	(1968)
Min	116	126	102	78.7	79.8	88.5	124	192	176	40.6	13.1	73.3
(WY)	(1961)	(2002)	(1985)	(2002)	(2002)	(2002)	(1961)	(2004)	(2001)	(2006)	(2001)	(2001)

06306300 TONGUE RIVER AT STATE LINE, NEAR DECKER, MT—Continued

SUMMARY STATISTICS

	Calendar Year 2006		Water Year 2007		Water Years 1961 - 2007	
Annual total	63,899		197,275			
Annual mean	175		540		433	
Highest annual mean					862	1978
Lowest annual mean					138	2002
Highest daily mean	1,390	May 24	5,530	Jun 8	15,400	May 19, 1978
Lowest daily mean	10	Aug 16	70	Feb 2	5.4	Aug 24, 1961
Annual seven-day minimum	12	Jul 21	81	Jan 29	7.2	Aug 22, 1961
Maximum peak flow			6,450	Jun 8	17,500	May 12, 1978
Maximum peak stage			9.74	Jun 8	14.25	May 12, 1978
Instantaneous low flow					3.0	Aug 23, 1961
Annual runoff (ac-ft)	126,700		391,300		313,500	
10 percent exceeds	278		1,930		1,010	
50 percent exceeds	149		176		226	
90 percent exceeds	22		100		110	



06306300 TONGUE RIVER AT STATE LINE, NEAR DECKER, MT—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1966 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1965 to September 1976, November 1980 to December 1986 (observer daily samples); August 2000 to current year (electronic records).
WATER TEMPERATURE: October 1965 to September 1976.

INSTRUMENTATION.--Specific conductance probe installed Aug. 21, 2000.

REMARKS.--Specific conductance record is rated good to excellent. Specific conductance record is reported for October 2007 (water year 2008) to provide data for the complete irrigation season.Several unpublished observations of water temperature and specific conductance were made during the year. The Aug. 28 water-quality sample was collected in conjunction with aquatic ecology samples for an interagency task group studying the effects of coal-bed natural gas development. Additional information is available at: http://wy.water.usgs.gov/projects/atg/index.htm.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,490 microsiemens per centimeter (µS/cm) at 25.0°C, Aug. 12, 1966, Jan. 11, 1972; minimum, 161 µS/cm at 25.0°C, May 30 and June 1, 2003 and May 24 and 25, 2006.
WATER TEMPERATURE: Maximum, 30.5°C, July 16, 1966; minimum, 0.0°C on many days during winter.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum, 944 µS/cm at 25.0°C, Nov. 30; minimum, 203 µS/cm at 25.0°C, May 19. 25.

06306300 TONGUE RIVER AT STATE LINE, NEAR DECKER, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 1 of 7
[Remark codes: E, estimated.]

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 µS/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													
02...	1445	176	670	9.0	102	8.6	573	20.5	15.0	280	57.6	32.4	2.87
Nov													
15...	0830	176	676	12.2	95	8.3	681	5.0	0.0	330	68.5	38.1	2.79
Dec													
13...	1300	164	667	15.4	121	8.2	640	5.0	0.0	290	62.4	33.1	2.25
Feb													
15...	1430	E70	672	10.2	80	7.8	710	0.0	0.5	310	66.7	35.6	2.98
Mar													
06...	0930	E150	679	12.9	101	8.4	691	8.5	.5	300	64.6	34.2	4.24
Apr													
11...	0900	490	672	9.3	86	8.4	824	0.0	6.5	370	69.8	48.2	4.82
25...	1100	531	669	10.4	108	8.6	631	16.5	11.0	290	59.1	34.2	3.04
May													
09...	1630	1,840	669	9.3	103	8.3	420	27.0	14.0	190	39.4	21.1	2.60
17...	1145	2,330	672	11.5	120	8.2	253	24.0	11.5	110	24.9	10.6	1.31
Jun													
06...	1100	1,960	657	8.6	99	8.1	273	19.0	15.0	130	29.7	13.2	1.31
26...	1700	982	678	7.8	100	8.3	351	30.0	21.5	170	38.0	17.9	1.66
Jul													
10...	1045	427	679	7.9	102	8.4	468	25.0	22.0	220	49.7	23.9	2.38
20...	0930	170	669	7.8	106	8.3	556	32.0	24.0	240	52.0	27.3	2.42
Aug													
06...	1500	147	669	10.8	154	8.6	632	31.5	26.5	280	59.1	33.0	3.02
28...	1445	136	--	10.3	--	8.4	705	--	21.0	--	--	--	--
Sep													
19...	1545	167	670	11.6	137	8.6	680	21.5	17.0	300	61.7	36.4	3.09

06306300 TONGUE RIVER AT STATE LINE, NEAR DECKER, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 2 of 7
[Remark codes: E, estimated.]

Date	Sodium adsorption ratio (00931)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (90410)	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)	Dissolved solids, sum of constituents mg/L (70301)	Dissolved solids, tons/ acre-ft (70303)	Dissolved solids, tons/d (70302)	Residue on evap. at 180degC wat flt mg/L (70300)
Oct												
02...	.6	21.8	204	201	3.35	.24	5.25	114	358	.50	174	367
Nov												
15...	.7	29.4	235	235	4.63	.28	6.54	139	430	.59	206	434
Dec												
13...	.7	26.5	232	238	4.30	.29	6.31	120	398	.56	182	411
Feb												
15...	.8	33.8	241	243	6.98	.34	9.11	143	447	.63	--	466
Mar												
06...	.7	27.4	223	226	7.93	.26	6.86	147	428	.63	--	462
Apr												
11...	1.1	47.1	--	216	6.51	.28	4.95	237	548	.75	725	--
25...	.7	26.6	204	203	4.35	.25	5.44	139	394	.64	671	468
May												
09...	.5	16.0	--	137	2.51	.15	9.72	80.8	254	.35	1,260	--
17...	.3	6.98	172	91	1.25	E.08	9.28	31.9	141	.22	1,020	162
Jun												
06...	.3	8.44	--	103	1.22	.14	8.37	35.8	160	.22	847	--
26...	.4	11.9	134	135	1.84	.17	9.13	47.9	209	.30	593	224
Jul												
10...	.5	18.1	--	164	3.40	.23	7.91	80.6	285	.39	328	--
20...	.6	22.3	197	197	4.07	.31	5.77	97.2	329	.46	157	341
Aug												
06...	.7	27.7	210	203	4.16	.30	7.39	126	382	.57	165	417
28...	--	--	--	--	--	--	--	--	--	--	--	--
Sep												
19...	.8	30.8	218	218	4.45	.31	5.12	143	415	.59	195	431

06306300 TONGUE RIVER AT STATE LINE, NEAR DECKER, MT—Continued

**WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007**

Part 3 of 7
[Remark codes: E, estimated.]

Date	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			
02...	93	26	12
Nov			
15...	58	28	13
Dec			
13...	33	15	6.6
Feb			
15...	76	14	--
Mar			
06...	68	17	--
Apr			
11...	99	381	504
25...	--	--	--
May			
09...	--	--	--
17...	91	59	371
Jun			
06...	--	--	--
26...	--	--	--
Jul			
10...	--	--	--
20...	--	--	--
Aug			
06...	93	29	12
28...	--	--	--
Sep			
19...	--	--	--

06306300 TONGUE RIVER AT STATE LINE, NEAR DECKER, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 4 of 7
[Remark codes: <, less than; E, estimated.]

Date	Time	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, water, fltrd, mg/L (62855)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Total phos-phorus, water, unfltrd mg/L (00665)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Arsenic water, fltrd, µg/L (01000)	Arsenic water, unfltrd µg/L (01002)	Barium, water, fltrd, µg/L (01005)	Barium, water, unfltrd recover-able, µg/L (01007)
Oct													
02...	1445	<.020	.019	<.002	.28	<.006	.030	4.1	217	.52	.75	37	40.1
Feb													
15...	1430	.083	.434	.007	.80	.031	.054	E.9	67	.30	.58	50	50.4
Apr													
11...	0900	<.020	.072	.003	1.17	.008	.331	E1.6	3,050	.57	2.2	56	136
May													
17...	1145	E.012	.065	E.002	.43	.013	.085	7.7	532	.41	.91	25	37.9
Aug													
06...	1500	<.020	E.009	<.002	.29	E.006	.038	3.5	219	.81	.82	54	60.0

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 5 of 7
[Remark codes: <, less than; E, estimated.]

Date	Beryll-ium, water, fltrd, µg/L (01010)	Beryll-ium, water, unfltrd recover-able, µg/L (01012)	Boron, water, fltrd, µg/L (01020)	Cadmium water, fltrd, µg/L (01025)	Cadmium water, unfltrd µg/L (01027)	Chrom-ium, water, fltrd, µg/L (01030)	Chrom-ium, water, unfltrd recover-able, µg/L (01034)	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recover-able, µg/L (01042)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover-able, µg/L (01045)	Lead, water, fltrd, µg/L (01049)	Lead, water, unfltrd recover-able, µg/L (01051)
Oct													
02...	<.06	<.06	62	<.04	E.01	--	.94	1.0	1.4	18	414	E.09	.40
Feb													
15...	<.06	<.06	53	<.04	<.02	--	E.69	.51	1.9	15	137	<.12	.12
Apr													
11...	<.06	.34	--	<.04	.10	E.07	3.4	1.2	7.1	12	3,070	<.12	5.39
May													
17...	<.06	E.05	--	<.04	.02	E.10	.94	.86	1.8	28	1,040	E.07	.97
Aug													
06...	<.06	<.06	--	<.04	.02	E.06	E.47	.99	1.3	<6	371	<.12	.33

06306300 TONGUE RIVER AT STATE LINE, NEAR DECKER, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 6 of 7

[Remark codes: <, less than; E, estimated.]

Date	Lithium water, fltrd, µg/L (01130)	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recoverable, µg/L (01055)	Mercury water, unfltrd ng/L (50286)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recoverable, µg/L (01067)	Selenium, water, fltrd, µg/L (01145)	Selenium, water, unfltrd µg/L (01147)	Strontium, water, fltrd, µg/L (01080)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recoverable, µg/L (01092)
Oct											
02...	15.1	8.2	50.9	--	.83	1.69	.27	.31	443	1.4	2
Feb											
15...	18.4	18.9	28.6	--	.70	2.12	.36	.39	508	1.7	2
Apr											
11...	--	21.5	168	--	1.8	5.9	.86	.93	--	1.4	21.6
May											
17...	--	8.9	51.2	--	.57	1.5	.18	.24	--	2.6	4.8
Aug											
06...	--	5.9	36.5	1.74	.93	1.2	.30	.29	--	1.2	2.4

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 7 of 7

Date	Time	Turbdty white light, det ang 90+/-30 corrctd NTRU (63676)	Biomass periphyton, ashfree drymass g/m2 (49954)	Periphyton biomass ash weight, g/m2 (00572)	Periphyton biomass dry weight, g/m2 (00573)	Biomass chlorophyll ratio, periphyton, number (70950)	Chlorophyll a periphyton, chromofluoro, mg/m2 (70957)	Pheophytin a, periphyton, mg/m2 (62359)
Aug								
28...	1445	8.6	17.2	620	639.6	887	19.4	9.7

06306300 TONGUE RIVER AT STATE LINE, NEAR DECKER, MT—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
WATER YEAR OCTOBER 2006 TO OCTOBERER 2007

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
	October 2006			November			December			January 2007		
1	591	582	587	750	683	711	920	843	890	705	673	692
2	593	580	587	810	742	759	867	824	848	702	668	686
3	593	581	586	804	773	784	862	830	849	696	662	682
4	606	593	600	806	762	778	832	760	794	675	634	655
5	614	605	611	769	745	754	762	711	737	651	617	635
6	619	612	615	745	704	727	712	670	694	673	626	656
7	627	619	624	704	688	695	674	643	658	755	670	719
8	651	626	636	692	672	681	659	643	650	716	682	704
9	672	628	643	674	643	660	651	637	645	701	658	684
10	632	623	628	645	619	630	655	637	645	683	645	671
11	635	626	629	641	618	628	651	633	644	658	635	647
12	641	630	636	664	639	648	652	633	644	742	641	692
13	654	641	648	673	658	665	653	636	645	794	739	757
14	661	652	656	691	671	682	659	636	645	848	768	814
15	674	661	666	696	639	681	647	623	636	798	764	778
16	684	667	677	704	683	694	643	619	630	797	767	780
17	670	661	667	707	688	699	665	631	649	767	693	726
18	684	666	676	697	682	689	724	649	694	693	661	680
19	684	671	677	694	661	684	749	694	731	680	659	669
20	690	682	687	694	679	685	774	743	761	671	652	665
21	689	639	658	695	668	679	776	746	763	668	649	659
22	653	623	632	680	663	670	762	737	750	668	646	661
23	660	625	640	680	666	673	740	707	730	654	633	644
24	691	660	671	684	641	669	720	681	702	647	631	638
25	699	683	689	715	619	667	707	677	691	656	631	642
26	695	681	686	746	656	687	698	661	684	671	629	651
27	688	674	679	748	706	730	682	659	668	673	638	656
28	689	675	682	797	724	761	673	645	660	688	652	673
29	698	679	686	933	737	834	661	643	652	727	671	695
30	702	684	692	944	896	924	662	643	654	732	713	724
31	706	658	689	---	---	---	693	653	674	738	711	720
Month	706	580	650	944	618	708	920	619	701	848	617	689

06306300 TONGUE RIVER AT STATE LINE, NEAR DECKER, MT—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
WATER YEAR OCTOBER 2006 TO OCTOBERER 2007

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		February			March			April			May	
1	738	718	730	689	683	686	672	646	661	344	318	329
2	755	717	738	720	684	699	690	672	684	327	307	320
3	918	709	735	728	708	718	697	679	684	314	282	301
4	752	726	738	742	719	734	694	680	686	295	268	276
5	739	701	720	735	676	722	746	694	723	308	295	303
6	737	676	700	682	664	675	769	746	757	414	308	356
7	678	653	664	675	515	608	784	766	775	478	414	455
8	656	597	631	546	454	496	809	784	799	485	446	474
9	606	585	596	481	432	452	828	809	821	446	391	422
10	614	592	606	477	453	468	842	828	835	391	332	369
11	619	604	611	496	475	489	840	780	815	333	262	301
12	646	617	628	517	491	509	834	780	814	265	243	255
13	670	637	654	538	514	526	874	834	857	253	242	247
14	698	663	679	568	538	558	880	867	873	246	236	240
15	720	695	709	581	552	571	871	840	857	242	232	235
16	717	681	698	631	581	606	840	774	813	248	236	242
17	721	701	712	693	631	661	796	773	786	255	226	243
18	710	654	682	736	693	716	805	769	787	234	211	225
19	776	653	679	763	736	750	769	625	716	219	203	212
20	687	658	674	768	760	764	626	592	600	222	205	214
21	663	639	654	766	756	763	638	600	621	233	214	227
22	652	633	642	756	742	749	653	638	647	256	229	244
23	646	625	634	745	740	742	663	652	658	278	256	268
24	637	615	626	750	737	742	662	646	656	295	278	290
25	646	618	634	759	749	754	646	608	630	305	294	299
26	664	643	652	759	754	757	608	556	588	312	294	301
27	675	663	669	764	752	758	556	523	539	320	309	315
28	694	675	687	758	713	733	523	506	517	321	305	313
29	---	---	---	714	635	671	506	460	488	319	275	299
30	---	---	---	638	621	628	460	344	416	291	254	263
31	---	---	---	647	623	636	---	---	---	298	265	284
Month	918	585	671	768	432	656	880	344	703	485	203	294

06306300 TONGUE RIVER AT STATE LINE, NEAR DECKER, MT—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
WATER YEAR OCTOBER 2006 TO OCTOBERER 2007

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		June			July			August			September	
1	328	298	309	445	434	439	572	568	570	685	679	683
2	339	328	333	450	436	442	575	567	571	688	679	683
3	344	317	336	460	447	452	584	573	579	694	682	689
4	317	302	310	489	459	470	591	579	585	730	694	706
5	302	278	297	506	489	495	609	591	599	732	704	718
6	278	248	268	520	505	511	621	607	613	721	710	716
7	333	246	279	521	518	520	630	612	622	719	701	711
8	373	333	357	522	516	520	640	621	633	701	658	678
9	376	331	360	526	509	520	643	625	635	660	647	655
10	337	304	324	509	500	504	655	636	646	648	642	644
11	317	293	309	517	503	509	667	652	661	644	634	639
12	298	275	290	522	506	512	686	664	673	637	628	632
13	282	273	277	529	512	519	690	675	685	629	626	628
14	283	266	276	542	524	532	717	687	698	633	623	627
15	274	262	268	554	538	545	719	689	705	635	626	630
16	267	256	263	551	543	547	717	703	710	647	625	636
17	264	253	259	555	543	549	735	717	730	664	644	653
18	263	252	259	572	555	563	750	712	735	666	661	663
19	282	260	271	568	557	563	743	716	729	677	663	668
20	306	282	294	558	547	552	770	743	758	682	654	667
21	317	305	312	579	548	554	779	750	767	667	650	659
22	322	315	317	588	579	583	758	710	734	669	656	663
23	322	315	319	592	582	586	711	690	702	680	656	663
24	335	319	326	594	583	587	698	655	675	680	655	668
25	339	329	333	590	587	588	668	651	660	658	624	639
26	370	339	349	591	584	587	669	659	663	637	621	629
27	391	370	382	585	570	578	687	661	673	643	630	638
28	406	390	399	595	564	573	696	687	693	648	631	642
29	422	404	411	599	593	597	696	686	691	661	646	653
30	437	420	428	593	576	585	689	675	681	659	629	647
31	---	---	---	576	570	573	684	671	678	---	---	---
Month	437	246	317	599	434	537	779	567	669	732	621	661

06306300 TONGUE RIVER AT STATE LINE, NEAR DECKER, MT—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS OCTOBER 2006 TO OCTOBER 2007

Day	Max	Min	Mean
	October 2007		
1	636	618	626
2	639	619	628
3	642	615	630
4	638	607	620
5	639	620	628
6	644	616	628
7	630	600	617
8	606	560	585
9	592	562	582
10	595	579	586
11	601	583	593
12	603	590	596
13	604	596	599
14	615	594	604
15	622	598	610
16	621	610	615
17	637	610	624
18	634	593	612
19	631	608	617
20	642	621	630
21	645	608	623
22	635	605	619
23	655	635	644
24	653	634	645
25	657	633	647
26	645	627	636
27	634	624	630
28	644	632	636
29	650	635	642
30	658	647	653
31	664	657	659
Month	664	560	621

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06307000 TONGUE RIVER RESERVOIR NEAR DECKER, MT

Tongue Basin
Upper Tongue Subbasin

LOCATION.--Lat 45°07′48″, long 106°46′13″ referenced to North American Datum of 1927, in SE ¼ SE ¼ NE ¼ sec.13, T.8 W., R.40 E., Big Horn County, MT, Hydrologic Unit 10090101, at dam on Tongue River, 4 mi upstream from Post Creek, 7 mi northeast of Decker, and at river mile 189.1.

DRAINAGE AREA.--1,770 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--December 1938 to current year. Record prior to September 1939, published only in Water Supply Paper (WSP) 1309 and those for January, February 1956, published only in WSP 1729.

REVISED RECORDS.--WSP 1309: 1947-50. WSP 1729: 1951, drainage area.

GAGE.--Elevation of gage is 3,374.40 ft referenced to National Geodetic Vertical Datum of 1929 (levels by Bureau of Reclamation). New capacity table effective September 1, 1996.

COOPERATION.--Records furnished by Montana Department of Natural Resources and Conservation.

REMARKS.--Reservoir is formed by earthfill dam with concrete spillway completed in May 1939. Total capacity is 79,070 acre-ft between elevation 3,374.4 ft, bottom of outlet, and 3,428.4 ft, spillway crest. Prior to October 1947, usable contents was 73,950 acre-ft at same elevations, due to sedimentation study. Dead storage is 711 acre-ft below elevation, 3,374.4 ft. Figures given herein represent usable contents. Water is used for irrigation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 85,740 acre-ft (flood-surcharge storage), June 28, 2007, elevation, 3,430.30 ft; no storage October 1939 to February 1940.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 85,740 acre-ft, June 28, elevation, 3,430.30 ft; minimum contents, 42,980 acre-ft, Oct. 1, elevation, 3,417.00 ft.

MONTHEND ELEVATION AND CONTENTS
SEPTEMBER 2006 TO SEPTEMBER 2007

Date	Elevation (feet)	Contents (acre-feet)	Change in Contents (acre-feet)
September 30	3,416.90	42,720	--
October 31	3,418.40	46,630	+3,910
November 30	3,418.80	47,670	+1,040
December 31	3,418.60	47,150	-520
Calendar Year 2006	--	--	+6,430
January 31	3,419.00	48,190	+1,040
February 28	3,420.00	50,790	+2,600
March 31	3,423.50	61,440	+10,650
April 30	3,422.70	59,000	-2,440
May 31	3,428.70	79,500	+20,500
June 30	3,428.40	78,360	-1,140
July 31*	3,426.00	69,880	-8,480
August 31	3,421.20	54,440	-15,440
September 30	3,418.50	46,890	-7,550
Water Year 2007	--	--	+4,170

* Within 1-2 days of the end of the month.

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06307500 TONGUE RIVER AT TONGUE RIVER DAM, NEAR DECKER, MT

Tongue Basin
Upper Tongue Subbasin

LOCATION.--Lat 45°08′29″, long 106°46′15″ referenced to North American Datum of 1927, in SW ¼ SE ¼ SE ¼ sec.12, T.8 S., R.40 E., Big Horn County, MT, Hydrologic Unit 10090101, on left bank 0.5 mi downstream from Tongue River Dam, 4 mi upstream from Post Creek, 8 mi northeast of Decker, 16 mi southeast of Kirby, and at river mile 188.4.

DRAINAGE AREA.--1,770 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--May 1939 to current year.

REVISED RECORDS.-- Water Supply Paper 1729: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 3,344.40 ft, referenced to the National Geodetic Vertical Datum of 1929 (levels by Bureau of Reclamation). Prior to Aug. 5, 1975, at elevation 10.00 ft lower.

REMARKS.--Records are good except for the period July 11 to September 30, which are fair. Flow is regulated by Tongue River Reservoir (station number 06307000) and many small reservoirs with a combined capacity of about 15,000 acre-ft. Diversion for irrigation of about 64,800 acres occurs upstream from station. A U.S. Geological Survey satellite telemeter is located at the station.

06307500 TONGUE RIVER AT TONGUE RIVER DAM, NEAR DECKER, MT—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
DAILY MEAN VALUES

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	58	123	150	107	93	81	481	558	1,760	685	403	397
2	65	125	145	107	92	81	481	563	2,110	575	403	397
3	69	128	144	106	94	81	481	607	2,110	519	399	395
4	69	140	144	107	94	81	481	670	1,980	504	400	393
5	70	138	145	107	93	82	482	789	1,910	471	402	400
6	79	137	147	106	92	83	481	901	1,930	445	404	405
7	87	136	151	106	94	82	493	1,210	2,330	415	407	397
8	87	137	151	106	94	82	524	1,260	3,760	407	403	395
9	85	136	151	106	94	88	523	1,260	4,370	417	407	398
10	85	135	151	107	93	101	523	1,260	3,630	408	411	373
11	97	134	151	107	94	102	523	1,470	3,240	385	412	356
12	112	135	151	106	94	103	523	1,700	3,070	354	414	358
13	111	144	151	105	94	119	523	1,940	2,980	332	416	359
14	111	145	151	105	94	162	524	2,700	2,770	324	421	360
15	111	149	143	105	94	183	525	3,010	2,620	320	416	358
16	110	149	122	104	94	208	525	2,720	2,560	330	413	358
17	108	148	122	94	94	227	528	2,470	2,510	359	410	336
18	109	148	122	94	94	252	528	2,370	2,440	379	407	322
19	110	154	122	94	94	271	529	2,430	2,280	390	405	315
20	113	159	122	94	94	271	533	2,480	1,840	404	403	284
21	116	159	122	94	94	271	534	2,530	1,600	406	401	284
22	117	159	122	94	94	271	538	2,540	1,450	406	401	256
23	118	159	122	94	89	271	539	2,450	1,360	407	401	220
24	118	159	122	94	81	271	543	2,160	1,290	404	401	225
25	117	159	122	94	81	271	544	1,900	1,270	403	398	228
26	116	159	122	94	81	271	548	1,780	1,070	403	397	230
27	113	159	122	94	81	271	548	1,700	937	404	395	232
28	108	157	122	94	81	289	548	1,660	921	404	394	235
29	108	156	116	94	---	319	552	1,660	878	402	396	236
30	108	155	107	94	---	356	555	1,710	770	403	397	237
31	115	---	107	94	---	419	---	1,720	---	403	397	---
Total	3,100	4,381	4,142	3,107	2,555	6,020	15,660	54,178	63,746	12,868	12,534	9,739
Mean	100	146	134	100	91.2	194	522	1,748	2,125	415	404	325
Max	118	159	151	107	94	419	555	3,010	4,370	685	421	405
Min	58	123	107	94	81	81	481	558	770	320	394	220
Ac-ft	6,150	8,690	8,220	6,160	5,070	11,940	31,060	107,500	126,400	25,520	24,860	19,320

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 2007, BY WATER YEAR (WY)

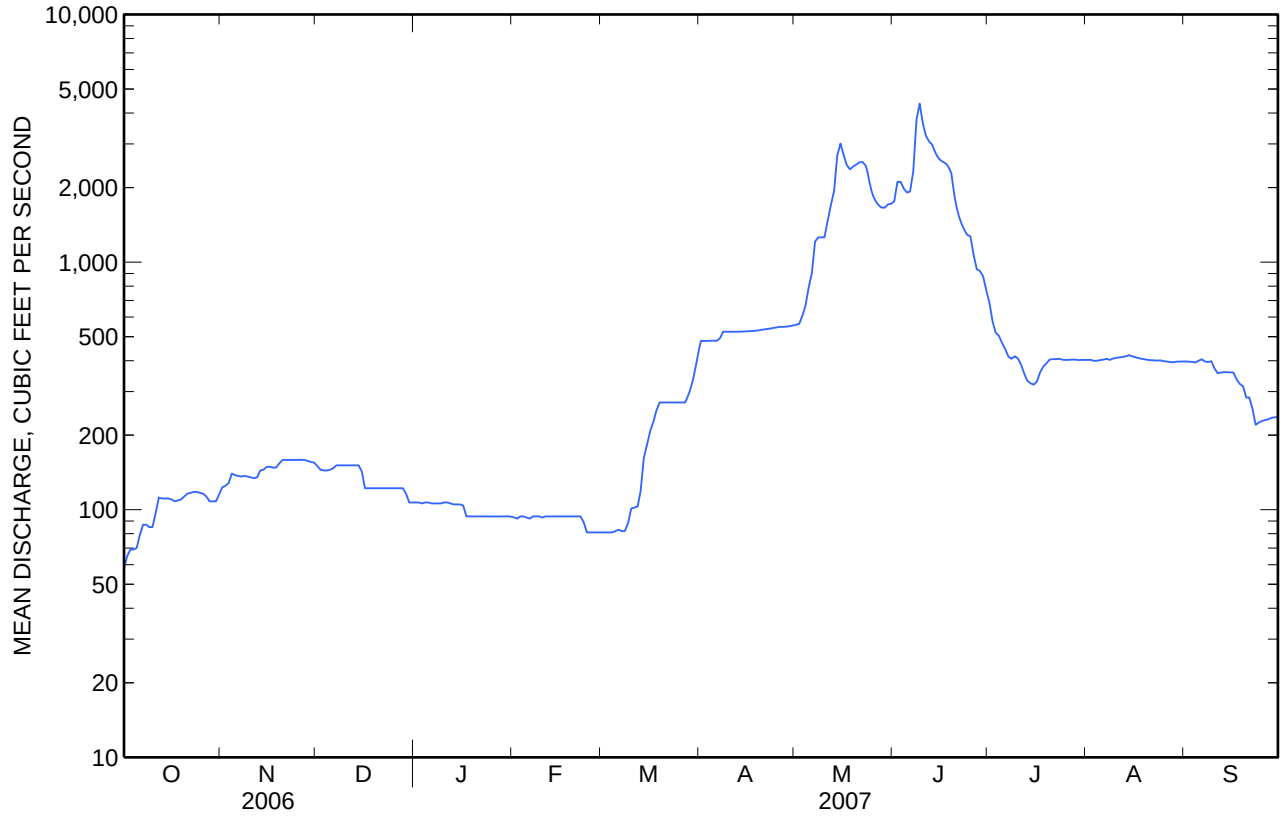
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	263	245	184	168	173	216	350	893	1,402	559	359	301
Max	665	554	369	287	592	676	958	2,714	3,824	2,083	767	775
(WY)	(1946)	(1942)	(1979)	(1983)	(1971)	(1971)	(1965)	(1978)	(1944)	(1975)	(1975)	(1998)
Min	71.1	40.6	61.7	73.0	56.9	22.7	14.9	142	183	169	103	88.9
(WY)	(1989)	(1976)	(1989)	(2005)	(1961)	(1961)	(1940)	(2006)	(2001)	(1956)	(1943)	(2006)

06307500 TONGUE RIVER AT TONGUE RIVER DAM, NEAR DECKER, MT—Continued

SUMMARY STATISTICS

	Calendar Year 2006		Water Year 2007		Water Years 1939 - 2007	
Annual total	57,026		192,030			
Annual mean	156		526		428	
Highest annual mean					853	1978
Lowest annual mean					133	2002
Highest daily mean	373	Jul 23	4,370	Jun 9	9,580	May 20, 1978
Lowest daily mean	56	Sep 26	58	Oct 1	0.50	Apr 17, 1940
Annual seven-day minimum	59	Sep 25	71	Oct 1	0.50	Apr 17, 1940
Maximum peak flow			4,810	Jun 8	10,800	May 20, 1978
Maximum peak stage			16.63	Jun 8	[a]20.00	May 20, 1978
Instantaneous low flow					[b]0.00	Nov 12, 1969
Annual runoff (ac-ft)	113,100		380,900		309,700	
10 percent exceeds	299		1,700		889	
50 percent exceeds	132		271		247	
90 percent exceeds	86		94		106	

[a] From floodmark in well.
[b] Result of dam closure.



06307500 TONGUE RIVER AT TONGUE RIVER DAM, NEAR DECKER, MT—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1951, 1976 to 1995, January 2004 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: November 1980 to December 1986, May 2004 to current year.

INSTRUMENTATION.--Specific conductance probe was installed in May 2004.

REMARKS.--Daily specific conductance records are published through the end of the irrigation season (October 2007); records are rated good to excellent except for the periods Apr. 5-13, 20-25 and June 6, which are rated fair to poor. Several unpublished observations of specific conductance and water temperature were made during the year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 932 microsiemens per centimeter (µS/cm) at 25.0°C, Mar. 12, 14, 1981; minimum daily, 209 µS/cm at 25.0°C, June 9, 2007.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 775 µS/cm at 25.0°C, Mar. 1 and 9; minimum daily, 209 µS/cm at 25.0°C, June 9.

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 1 of 5

Date	Time	Instantaneous discharge, cfs (00061)	Barometric pressure, mm Hg (00025)	Dissolved oxygen, mg/L (00300)	Dissolved oxygen, percent of saturation (00301)	pH, water, unfiltrd field, std units (00400)	Specific conductance, wat unf µS/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													
03...	0845	68	678	7.6	82	8.3	610	12.0	13.5	240	47.7	30.3	3.68
Nov													
15...	1015	148	678	14.3	129	8.6	636	5.0	6.0	260	51.3	32.9	3.51
Dec													
13...	1415	151	668	14.0	119	8.3	720	2.0	3.0	300	61.4	36.3	3.40
Feb													
15...	1300	94	677	12.8	110	8.1	760	-6.0	4.0	320	64.2	38.1	3.37
Mar													
06...	1045	80	680	14.1	124	8.4	765	11.0	5.0	300	61.4	36.5	3.25
Apr													
11...	1500	523	674	11.9	108	8.4	657	3.5	6.0	270	54.1	32.1	4.12
25...	1215	548	676	12.0	117	8.4	670	19.0	9.0	270	55.6	32.6	4.44
May													
09...	1400	1,260	672	11.7	124	8.4	700	27.0	12.0	300	60.2	37.0	4.73
17...	1300	2,440	673	11.0	121	8.4	593	29.0	14.0	230	46.6	27.6	3.73
Jun													
06...	1730	2,000	657	9.5	105	8.1	321	14.5	13.0	130	29.9	14.3	1.89
26...	1430	938	680	10.0	119	8.2	321	28.0	18.0	140	32.3	15.5	2.16
Jul													
11...	0830	391	679	8.9	103	8.1	332	18.0	16.5	150	33.9	15.0	2.14
20...	1030	407	671	9.8	116	7.9	335	36.0	17.0	140	31.9	14.8	1.96
Aug													
06...	1330	403	671	9.1	120	8.1	384	29.5	22.5	170	38.2	17.3	2.25
Sep													
19...	1430	333	673	11.8	143	8.5	549	22.5	18.5	230	50.0	25.2	3.03

06307500 TONGUE RIVER AT TONGUE RIVER DAM, NEAR DECKER, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 2 of 5

Date	Sodium adsorption ratio (00931)	Sodium, water, fltrd, mg/L (00930)	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, dissolved, tons/d (70302)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspended sediment concentration mg/L (80154)	Suspended sediment discharge, tons/d (80155)
Oct													
03...	1.1	41.1	200	3.83	.33	5.51	130	383	.52	70.3	85	5	.92
Nov													
15...	1.1	42.9	205	4.00	.33	3.86	136	397	.54	159	89	6	2.4
Dec													
13...	1.2	46.6	247	4.51	.39	4.83	150	456	.62	186	56	12	4.9
Feb													
15...	1.3	51.6	266	5.60	.41	7.89	155	488	.66	124	75	20	5.1
Mar													
06...	1.2	46.2	257	5.64	.37	7.84	159	474	.64	102	50	38	8.2
Apr													
11...	1.1	42.8	222	5.20	.32	5.71	141	418	.57	591	70	6	8.5
25...	1.1	40.1	212	5.33	.31	5.19	145	416	.57	616	--	--	--
May													
09...	1.1	42.6	214	5.42	.29	4.71	161	444	.60	1,510	--	--	--
17...	.8	28.4	171	3.84	.22	6.69	123	343	.47	2,260	85	11	72
Jun													
06...	.5	12.1	114	1.74	.16	6.61	52.4	187	.25	1,010	--	--	--
26...	.4	11.8	116	1.57	.16	7.34	47.5	188	.26	476	--	--	--
Jul													
11...	.4	11.7	120	1.56	.18	8.08	49.9	194	.26	205	--	--	--
20...	.4	11.4	122	1.59	.18	8.75	49.8	194	.26	213	--	--	--
Aug													
06...	.5	14.9	139	1.76	.17	8.96	54.0	222	.30	241	90	8	8.7
Sep													
19...	.8	27.9	185	3.11	.25	5.18	108	333	.45	299	--	--	--

06307500 TONGUE RIVER AT TONGUE RIVER DAM, NEAR DECKER, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 3 of 5
[Remark codes: <, less than; E, estimated.]

Date	Time	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 unf by anal ysis, mg/L (62855)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Phos-phorus, water, unfltrd mg/L (00665)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover -able, µg/L (01105)	Arsenic water, fltrd, µg/L (01000)	Arsenic water, unfltrd µg/L (01002)	Barium, water, fltrd, µg/L (01005)	Barium, water, unfltrd recover -able, µg/L (01007)
Oct													
03...	0845	.059	.040	.002	.46	E.004	.028	6.5	42	1.8	1.8	66	64.2
Feb													
15...	1300	.203	.138	.007	.64	.024	.043	<1.6	18	.95	1.2	61	58.8
Apr													
11...	1500	<.020	E.010	E.001	.63	E.003	.049	<1.6	27	.98	1.1	52	56.9
May													
17...	1300	.056	.069	.004	.57	.013	.051	1.8	137	.83	1.0	47	50.2
Aug													
06...	1330	.218	.033	.010	.51	.070	.129	E1.2	91	2.3	2.1	45	47.0

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 4 of 5
[Remark codes: <, less than; E, estimated.]

Date	Beryll-ium, water, fltrd, µg/L (01010)	Beryll-ium, water, unfltrd recover -able, µg/L (01012)	Boron, water, fltrd, µg/L (01020)	Cadmium water, fltrd, µg/L (01025)	Cadmium water, unfltrd µg/L (01027)	Chrom-ium, water, fltrd, µg/L (01030)	Chrom-ium, water, unfltrd recover -able, µg/L (01034)	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recover -able, µg/L (01042)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover -able, µg/L (01045)	Lead, water, fltrd, µg/L (01049)	Lead, water, unfltrd recover -able, µg/L (01051)
Oct													
03...	<.06	<.06	67	<.04	<.02	--	E.68	.82	1.5	E4	75	<.12	.10
Feb													
15...	<.06	<.06	62	<.04	E.01	--	E.70	.49	1.7	7	43	<.12	E.04
Apr													
11...	<.06	<.06	--	--	--	--	--	--	--	7	49	--	--
May													
17...	<.06	<.06	--	<.04	E.01	<.12	<.60	3.0	2.1	9	183	E.07	.28
Aug													
06...	<.06	<.06	--	--	--	--	--	--	--	27	355	--	--

06307500 TONGUE RIVER AT TONGUE RIVER DAM, NEAR DECKER, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 5 of 5
[Remark codes: E, estimated.]

Date	Lithium water, fltrd, µg/L (01130)	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recoverable, µg/L (01055)	Mercury water, unfltrd ng/L (50286)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recoverable, µg/L (01067)	Selenium, water, fltrd, µg/L (01145)	Selenium, water, unfltrd µg/L (01147)	Strontium, water, fltrd, µg/L (01080)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recoverable, µg/L (01092)
Oct											
03...	24.1	16.4	49.0	--	1.1	1.72	.48	.46	496	.97	E1
Feb											
15...	25.9	85.6	114	--	1.1	2.32	.39	.33	582	1.1	E2
Apr											
11...	--	3.5	38.6	--	--	--	.36	.35	--	--	--
May											
17...	--	15.9	35.8	--	1.2	1.5	.40	.43	--	2.9	E1.2
Aug											
06...	--	268	257	1.40	--	--	.28	.22	--	--	--

06307500 TONGUE RIVER AT TONGUE RIVER DAM, NEAR DECKER, MT—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
NOVEMBER 2006 TO OCTOBER 2007

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
	November 2006			December			January			February		
1	604	594	600	642	634	638	734	727	731	753	745	749
2	605	592	600	647	638	642	731	722	727	754	746	751
3	603	594	600	651	641	646	731	724	728	753	748	750
4	603	594	600	655	649	652	735	727	731	752	744	748
5	608	598	604	658	649	653	734	726	731	771	751	759
6	611	601	606	659	652	655	733	724	729	770	743	753
7	615	603	611	659	647	653	731	724	728	749	743	746
8	618	611	615	669	655	663	733	724	729	752	745	749
9	624	615	621	683	666	673	733	725	730	752	745	749
10	624	609	615	688	680	685	734	728	731	751	743	748
11	618	609	613	696	685	690	735	729	732	752	746	750
12	619	610	615	713	693	702	733	726	730	753	747	750
13	613	607	610	724	710	716	732	727	730	755	750	752
14	621	607	613	726	711	720	733	729	731	764	752	756
15	635	610	624	734	717	725	732	727	730	768	752	760
16	635	618	627	739	698	718	735	727	730	770	762	767
17	633	615	626	723	704	711	738	734	736	769	763	766
18	631	620	626	729	717	724	740	735	737	771	761	766
19	631	618	626	732	722	727	744	738	741	769	763	767
20	628	617	622	732	719	727	744	740	742	773	767	770
21	634	608	623	732	721	727	745	738	743	771	763	766
22	636	625	630	728	720	725	748	738	743	773	761	769
23	640	631	635	727	718	724	743	737	740	770	751	759
24	639	631	634	729	720	725	742	736	740	772	759	766
25	640	632	636	729	718	725	745	737	742	773	761	768
26	641	632	637	725	715	722	747	741	744	762	754	757
27	643	631	636	725	717	722	751	743	747	764	750	758
28	643	631	635	726	718	722	752	745	748	757	750	753
29	637	631	635	728	715	723	751	742	747	---	---	---
30	638	632	635	731	722	728	750	743	746	---	---	---
31	---	---	---	732	724	729	752	745	748	---	---	---
Month	643	592	620	739	634	700	752	722	736	773	743	757

06307500 TONGUE RIVER AT TONGUE RIVER DAM, NEAR DECKER, MT—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
NOVEMBER 2006 TO OCTOBER 2007

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		March 2007			April			May			June	
1	775	745	754	689	660	675	669	664	666	351	336	344
2	772	764	768	690	673	686	671	664	666	349	336	344
3	773	761	768	689	666	677	671	666	668	339	327	335
4	770	760	764	679	672	674	683	669	677	329	321	325
5	767	755	762	678	667	674	696	677	684	325	314	322
6	770	755	763	667	659	661	701	690	694	325	313	320
7	771	759	767	663	652	659	691	685	688	317	305	312
8	774	766	770	657	642	650	686	682	684	310	211	268
9	775	763	770	645	639	642	687	659	683	221	209	217
10	767	759	764	655	637	646	659	591	621	223	217	220
11	768	760	765	655	644	650	591	515	549	231	220	226
12	770	764	767	645	632	639	522	466	500	232	227	230
13	771	757	764	636	619	627	467	420	441	233	228	230
14	758	747	753	625	613	619	509	414	454	307	231	272
15	748	738	743	617	608	613	517	471	498	311	305	308
16	742	729	736	620	610	614	529	484	500	317	310	314
17	733	730	732	623	614	619	596	524	564	319	311	315
18	733	727	730	629	615	622	583	495	548	323	314	317
19	734	728	730	632	618	624	542	484	516	322	315	318
20	736	731	734	639	629	634	512	472	489	322	318	320
21	738	732	735	641	629	637	484	432	462	327	316	321
22	738	737	737	649	636	645	464	381	424	326	317	321
23	742	736	739	656	645	652	465	421	444	323	317	320
24	743	738	741	663	647	658	452	421	437	319	309	313
25	747	738	742	667	658	663	438	396	419	320	311	315
26	757	733	750	663	655	660	416	396	408	326	310	317
27	754	665	701	666	657	661	398	370	382	327	319	324
28	735	700	724	663	659	661	397	334	349	323	315	319
29	735	725	731	663	658	661	347	325	334	325	318	322
30	725	714	718	664	661	662	358	326	340	322	316	318
31	726	689	712	---	---	---	351	328	340	---	---	---
Month	775	665	746	690	608	649	701	325	520	351	209	302

06307500 TONGUE RIVER AT TONGUE RIVER DAM, NEAR DECKER, MT—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
NOVEMBER 2006 TO OCTOBER 2007

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		July 2007			August			September			October 2007	
1	323	317	319	369	363	366	541	511	522	561	551	555
2	333	320	325	368	362	365	530	517	523	561	545	550
3	328	321	325	379	365	371	535	517	526	557	547	552
4	328	321	324	377	370	374	531	503	522	557	551	553
5	328	322	325	382	375	379	543	518	528	554	548	551
6	330	322	327	389	380	384	530	499	512	554	548	552
7	329	323	326	395	388	390	525	504	511	555	546	552
8	329	320	325	400	388	395	517	498	506	555	549	552
9	327	321	324	403	394	398	509	498	504	555	550	553
10	329	320	324	417	402	410	502	496	499	554	547	552
11	327	323	325	422	408	415	505	495	500	562	553	558
12	327	323	325	420	410	414	537	494	510	569	556	562
13	326	323	325	430	413	424	548	527	536	571	558	565
14	330	323	326	442	424	433	558	533	542	576	562	568
15	331	321	325	448	439	443	548	533	540	577	566	572
16	335	326	328	449	434	442	549	535	540	573	568	570
17	333	327	330	451	431	441	550	535	543	582	571	576
18	332	325	329	457	440	446	556	545	551	582	576	579
19	333	326	329	474	434	453	555	538	547	582	576	580
20	338	324	333	464	436	452	566	544	553	580	574	578
21	341	335	338	460	445	449	575	540	551	580	577	578
22	342	336	339	464	444	453	558	532	548	580	576	578
23	343	340	342	449	442	445	557	542	549	581	576	578
24	347	339	344	460	448	453	554	543	549	580	578	579
25	355	341	346	463	451	457	552	541	547	583	579	581
26	354	346	349	479	453	461	551	538	545	588	582	584
27	360	348	354	496	471	482	547	533	541	599	588	594
28	360	352	355	508	486	500	550	539	545	602	591	596
29	357	351	354	509	493	501	562	546	555	607	597	602
30	360	354	358	508	481	498	558	538	550	616	603	608
31	365	358	361	516	489	505	---	---	---	603	597	600
Month	365	317	334	516	362	432	575	494	533	616	545	571

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06307570 HANGING WOMAN CREEK BELOW HORSE CREEK, NEAR BIRNEY, MT

Tongue Basin
Upper Tongue Subbasin

LOCATION.--Lat 45°08′02″, long 106°29′00″ referenced to North American Datum of 1927, in sec.17, T.8 S., R.43 E., Big Horn County, MT, Hydrologic Unit 10090101, at county road bridge, 0.6 mi downstream from Horse Creek, 0.8 mi upstream from Circle Bar Draw, and 13.2 mi southeast of Birney.

DRAINAGE AREA.--321 mi².

GAGE.--None. Elevation at site is 3,400 ft, referenced to the National Geodetic Vertical Datum of 1929.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1978-83, 1986-87, June 2005, June 2006, and July 2007.

REMARKS.--A water-quality sample was collected at this site in conjunction with aquatic ecology samples collected for an interagency task group studying the effects of coal-bed natural gas development. Additional information is available at http://wy.water.usgs.gov/projects/atg/index.htm.

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 1 of 3

Date	Time	Instantaneous discharge, cfs (00061)	Turbdty white light, det ang 90+/-30 corrctd NTRU (63676)	pH, water, unfltrd field, std units (00400)	Specific conductance, wat unf µS/cm 25 degC (00095)	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)	Sodium adsorption ratio (00931)	Sodium, water, fltrd, mg/L (00930)
Jul 11...	1240	.12	14	8.5	4,010	24.5	1,100	90.1	210	17.9	9.2	695

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 2 of3

Date	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)	Dissolved solids, sum of constituents mg/L (70301)	Dissolved solids, tons/ acre-ft (70303)	Dissolved solids, tons/d (70302)
Jul 11...	366	15.8	.74	1.22	2,050	3,300	4.49	1.07

06307570 HANGING WOMAN CREEK BELOW HORSE CREEK, NEAR BIRNEY, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 3 of 3

Date	Time	Biomass peri-phyton, ashfree drymass g/m2 (49954)	Peri-phyton biomass ash weight, g/m2 (00572)	Peri-phyton biomass dry weight, g/m2 (00573)	Biomass chloro-phyll ratio, peri-phyton, number (70950)	Chloro-phyll a peri-phyton, chromo-fluoro, mg/m2 (70957)	Pheo-phytin a, peri-phyton, mg/m2 (62359)
Jul							
11...	1100	12.3	500	512	1,120	11.0	9.9

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451340106295501 HANGING WOMAN CREEK BELOW HAY GULCH, NEAR BIRNEY, MT

Tongue Basin
Upper Tongue Subbasin

LOCATION.--Lat 45°13′40″, long 106°29′55″ referenced to North American Datum of 1927, in NW ¼ NW ¼ SW ¼ sec.17, T.7 S., R.43 E., Rosebud County, MT, Hydrologic Unit 10090101, at road crossing, 0.5 mi below Hay Gulch, and 8 mi south of Birney.

DRAINAGE AREA.--Not determined.

GAGE.--None. Elevation of site is 3,270 ft, referenced to the National Geodetic Vertical Datum of 1929.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--June 2005 to current year.

REMARKS.-- The water-quality sample collected at this site was made in conjunction with aquatic ecology samples collected for an interagency task group studying the effects of coal-bed natural gas development. Additional information is available at: http://wy.water.usgs.gov/projects/atg/index.htm.

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 1 of 3

Date	Time	Instantaneous discharge, cfs (00061)	Turbdty white light, det ang 90+/-30 corrctd NTRU (63676)	pH, water, unfltrd field, std units (00400)	Specific conductance, wat unf µS/cm 25 degC (00095)	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)	Sodium adsorption ratio (00931)	Sodium, water, fltrd, mg/L (00930)
Jul 10...	1800	.49	1.4	8.5	3,650	27.5	930	98.5	166	16.5	7.9	554

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 2 of 3

Date	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)	Dissolved solids, sum of constituents mg/L (70301)	Dissolved solids, tons/ acre-ft (70303)	Dissolved solids, tons/d (70302)
Jul 10...	415	17.9	.84	2.54	1,710	2,810	3.82	3.72

451340106295501 HANGING WOMAN CREEK BELOW HAY GULCH, NEAR BIRNEY, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 3 of 3

Date	Time	Biomass peri-phyton, ashfree drymass g/m2 (49954)	Peri-phyton biomass ash weight, g/m2 (00572)	Peri-phyton biomass dry weight, g/m2 (00573)	Biomass chloro-phyll ratio, peri-phyton, number (70950)	Chloro-phyll a peri-phyton, chromo-fluoro, mg/m2 (70957)	Pheo-phytin a, peri-phyton, mg/m2 (62359)
Jul							
10...	1515	23.4	770	792	1,450	16.1	17.6

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06307600 HANGING WOMAN CREEK NEAR BIRNEY, MT

Tongue Basin
Upper Tongue Subbasin

LOCATION.--Lat 45°17′44″, long 106°30′12″ referenced to North American Datum of 1927, in NW ¼ SE ¼ SE ¼ sec.19, T.6 S., R.43 E., Rosebud County, MT, Hydrologic Unit 10090101, on right bank immediately downstream from bridge on Birney-Otter Road, 1.9 mi south of Birney, 0.7 mi downstream from East Fork, and at river mile 3.8.

DRAINAGE AREA.--470 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--September 1973 to September 1984, October 1985 to September 1995, October 2003 to current year.

REVISED RECORDS.-- Water Data Report MT-82-1: 1980, maximum discharge.

GAGE.--Water-stage recorder. Elevation of gage is 3,180 ft (referenced to the National Geodetic Vertical Datum of 1929), from topographic map.

REMARKS.--Records are fair except those for estimated daily discharges, which are poor. Diversion for irrigation of about 1,240 acres occurs upstream from station. U.S. Geological Survey satellite telemeter is located at the station.

06307600 HANGING WOMAN CREEK NEAR BIRNEY, MT—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	0.00	0.00	e0.00	e0.00	e0.00	e0.00	2.0	1.2	2.1	1.8	0.68	0.12
2	0.00	0.00	e0.00	e0.00	e0.00	e0.00	2.1	1.2	2.1	1.7	0.62	0.10
3	0.00	0.00	e0.00	e0.00	e0.00	e0.50	1.9	1.3	2.0	1.5	0.60	0.11
4	0.00	0.00	e0.02	e0.00	e0.00	2.0	1.8	2.4	2.0	1.5	0.63	0.10
5	0.00	0.01	e0.02	e0.00	e0.00	4.4	1.9	1.9	2.0	1.4	0.58	0.09
6	0.00	0.02	e0.02	e0.00	e0.00	38	1.8	5.5	2.1	1.4	0.57	0.10
7	0.00	0.02	e0.02	e0.00	e0.00	248	1.8	160	14	1.3	0.57	0.11
8	0.00	0.02	e0.02	e0.00	e0.00	91	1.8	34	142	1.2	0.71	0.13
9	0.00	0.02	e0.02	e0.00	e0.00	12	1.8	12	90	1.2	0.59	0.22
10	0.00	0.02	e0.02	e0.00	e0.00	5.8	1.8	6.5	26	1.1	0.44	0.22
11	0.00	0.02	e0.02	e0.00	e0.00	4.1	1.8	4.8	14	1.1	0.39	0.14
12	0.00	0.02	e0.02	e0.00	e0.00	3.5	1.8	4.1	9.6	1.0	0.36	0.14
13	0.00	0.01	e0.02	e0.00	e0.00	2.6	1.7	3.6	7.5	1.0	0.34	0.12
14	0.00	0.02	e0.02	e0.00	e0.00	2.3	1.6	3.2	6.2	1.00	0.33	0.12
15	0.00	0.02	e0.01	e0.00	e0.00	2.1	1.7	2.9	5.7	0.98	0.33	0.12
16	0.00	0.02	e0.00	e0.00	e0.00	2.1	1.6	2.7	5.2	0.95	0.27	0.12
17	0.00	0.02	e0.00	e0.00	e0.00	1.7	1.5	2.6	4.8	0.92	0.28	0.12
18	0.00	0.02	e0.00	e0.00	e0.00	1.5	1.5	2.4	4.5	0.86	0.31	0.18
19	0.00	0.02	e0.00	e0.00	e0.00	1.4	1.7	2.3	4.2	0.78	0.28	0.18
20	0.00	0.02	e0.00	0.00	e0.00	1.3	1.6	2.2	3.9	0.75	0.26	0.20
21	0.00	0.03	e0.00	0.00	e0.00	1.3	1.5	2.2	3.7	0.71	0.21	0.17
22	0.00	0.03	e0.00	e0.00	e0.00	1.5	1.5	2.4	3.3	0.65	0.20	0.15
23	0.00	0.02	e0.00	e0.00	e0.00	1.5	1.5	2.4	3.0	0.62	0.23	0.16
24	0.00	0.02	e0.00	e0.00	e0.00	1.5	1.4	2.4	2.8	0.58	0.36	0.33
25	0.00	0.03	e0.00	e0.00	e0.00	1.5	1.4	2.1	2.6	0.76	0.33	0.25
26	0.00	e0.02	e0.00	e0.00	e0.00	1.4	1.4	2.0	2.4	1.1	0.25	0.19
27	0.00	e0.01	e0.00	e0.00	e0.00	1.3	1.4	2.0	2.3	1.2	0.21	0.17
28	0.00	e0.00	e0.00	e0.00	e0.00	1.6	1.3	2.0	2.3	0.99	0.19	0.16
29	0.00	e0.00	e0.00	e0.00	---	2.0	1.3	2.2	2.1	0.86	0.17	0.17
30	0.00	e0.00	e0.00	e0.00	---	2.0	1.2	2.0	1.9	0.79	0.16	0.20
31	0.00	---	e0.00	e0.00	---	1.8	---	2.1	---	0.72	0.13	---
Total	0.00	0.46	0.23	0.00	0.00	441.70	49.1	280.6	376.3	32.42	11.58	4.69
Mean	0.00	0.02	0.01	0.00	0.00	14.2	1.64	9.05	12.5	1.05	0.37	0.16
Max	0.00	0.03	0.02	0.00	0.00	248	2.1	160	142	1.8	0.71	0.33
Min	0.00	0.00	0.00	0.00	0.00	0.00	1.2	1.2	1.9	0.58	0.13	0.09
Ac-ft	0.00	0.9	0.5	0.00	0.00	876	97	557	746	64	23	9.3

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1974 - 2007, BY WATER YEAR (WY) *

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	0.58	0.75	0.81	2.18	8.62	8.80	2.55	5.94	3.59	2.44	0.91	0.38
Max	3.02	3.05	3.11	21.1	71.3	93.2	17.4	98.5	12.9	18.7	7.18	2.33
(WY)	(1976)	(1976)	(1976)	(1974)	(1995)	(1975)	(1975)	(1978)	(1978)	(1992)	(1991)	(1975)
Min	0.00	0.00	0.01	0.00	0.00	0.16	0.19	0.06	0.02	0.00	0.00	0.00
(WY)	(1989)	(1990)	(2007)	(2007)	(2007)	(2006)	(2006)	(2006)	(2006)	(2006)	(1983)	(1983)

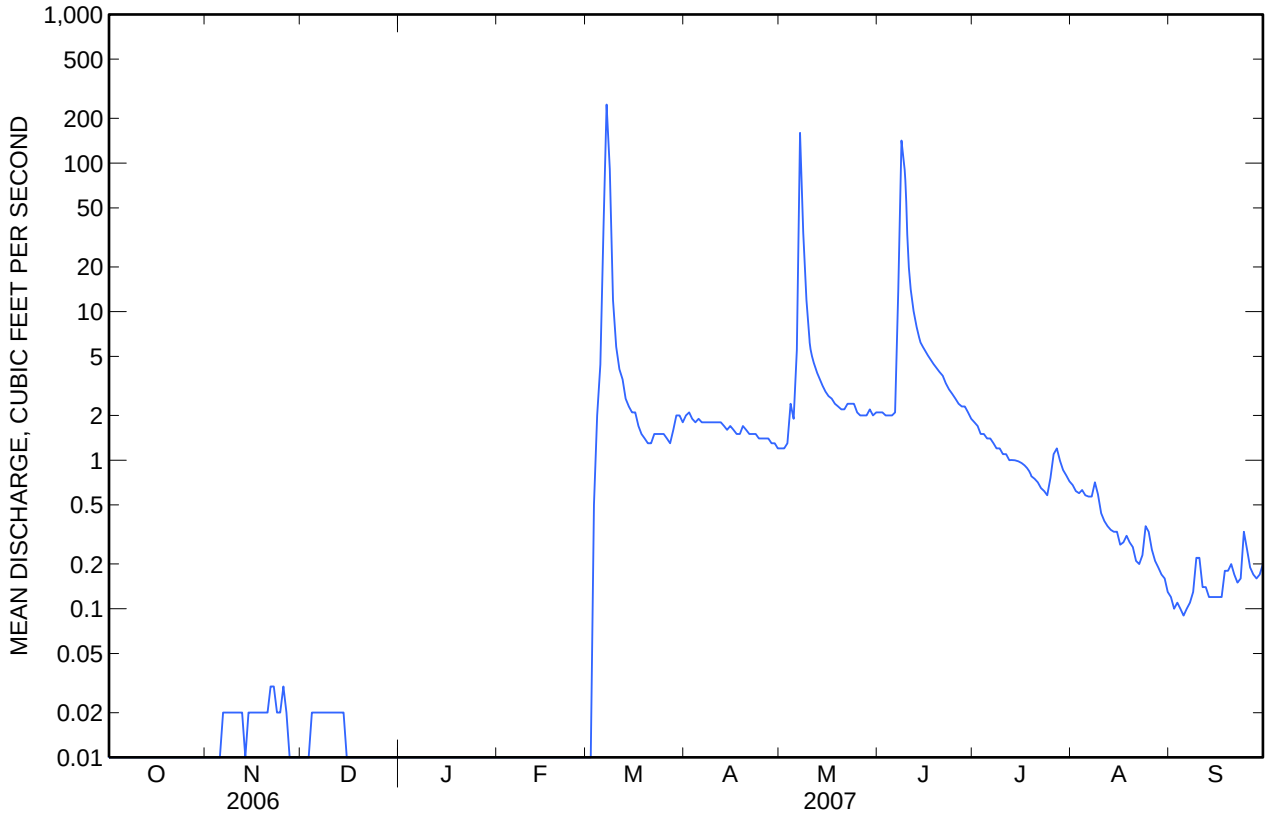
* During periods of operation (September 1973 to September 1984, October 1985 to September 1995, October 2003 to current year).

06307600 HANGING WOMAN CREEK NEAR BIRNEY, MT—Continued

SUMMARY STATISTICS

	Calendar Year 2006		Water Year 2007		Water Years 1974 - 2007*	
Annual total	21.83		1,197.08			
Annual mean	0.06		3.28		[c]3.10	
Highest annual mean					13.6	1975
Lowest annual mean					0.07	2006
Highest daily mean	0.36	Apr 7	248	Mar 7	1,730	May 19, 1978
Lowest daily mean	0.00	Jun 20	0.00	Oct 1	0.00	Aug 13, 1981 [d]
Annual seven-day minimum	0.00	Jun 20	0.00	Oct 1	0.00	Aug 13, 1981
Maximum peak flow			[a]800	Mar 7	[e]2,060	May 19, 1978
Maximum peak stage			[b]5.91	Mar 7	11.56	May 19, 1978
Annual runoff (ac-ft)	43		2,370		2,250	
10 percent exceeds	0.15		2.7		3.6	
50 percent exceeds	0.02		0.20		0.68	
90 percent exceeds	0.00		0.00		0.00	

* During periods of operation (September 1973 to September 1984, October 1985 to September 1995, October 2003 to current year).
[a] From slope-area measurement of flow.
[b] From floodmark.
[c] Median of yearly mean discharge, 2.17 ft³/s, 1,570 acre-ft/year.
[d] Many days most years.
[e] From rating curve extended above 360 ft³/s on basis of slope-area measurement of flow, site and datum then in use.



06307600 HANGING WOMAN CREEK NEAR BIRNEY, MT—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1975-95, July 2003 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: November 1980 to July 1983, October 1985 to September 1987 (observer daily samples); May 2004 to current year (seasonal records).

INSTRUMENTATION.--A specific conductance probe was installed May 19, 2004.

REMARKS.--Daily specific conductance records are published through the end of the irrigation season (October 2007). Records are rated good to excellent, except for 23 days which are rated poor due to siltation on the probe. Missing daily specific conductance values on Apr. 29, July 16-25 and July 28-Aug. 5 are due to erratic values which were deleted. The water-quality sample collected on July 10 was made in conjunction with aquatic ecology samples collected for an interagency task group studying the effects of coal-bed natural gas development. Additional information is available at http://wy.water.usgs.gov/projects/atg/index.htm. Several unpublished observations of specific conductance and water temperature were made during the year.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 3,830 microsiemens per centimeter (µS/cm) at 25.0°C, Sept. 6, 2007; minimum, 263 µS/cm at 25.0°C, Feb. 27, 1986.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: During period of seasonal operation, maximum, 3,830 µS/cm at 25.0°C, Sept. 6; minimum, 744 µS/cm at 25.0°C, June 7.

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 1 of 6

[Remark codes: E, estimated.]

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 µS/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)
Dec													
06...	1000	E.02	687	7.9	61	7.6	2,580	-0.5	0.0	1,000	195	131	18.7
Mar													
06...	1245	43	683	10.5	82	8.1	921	13.5	0.5	240	39.9	34.0	12.9
Apr													
11...	1300	1.8	679	9.8	92	8.2	3,440	1.0	7.0	1,000	134	170	17.2
25...	1330	1.4	679	7.6	87	8.1	3,490	22.0	15.5	1,000	128	165	17.3
May													
09...	1100	12	677	6.5	75	8.0	2,000	26.0	16.0	550	81.1	84.8	11.9
23...	1045	2.5	681	6.9	72	8.2	3,200	5.0	11.5	980	129	159	16.7
Jun													
06...	1600	2.1	661	5.1	66	8.0	3,440	18.5	20.5	980	124	163	15.5
26...	1245	2.4	686	8.2	103	8.2	3,360	23.0	20.5	970	124	160	19.3
Jul													
10...	1100	1.1	--	--	--	8.0	3,540	--	20.0	--	--	--	--
11...	1115	1.1	683	8.3	102	8.1	3,510	22.0	19.0	1,000	116	176	20.4
Aug													
06...	1145	.62	676	9.5	126	8.1	3,360	29.0	22.5	950	103	169	21.6

06307600 HANGING WOMAN CREEK NEAR BIRNEY, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 2 of 6
[Remark codes: E, estimated.]

Date	Sodium adsorption ratio (00931)	Sodium, water, fltrd, mg/L (00930)	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)	Dissolved solids, sum of constituents mg/L (70301)	Dissolved solids, tons/ acre-ft (70303)	Dissolved solids, tons/d (70302)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspended sediment concentration mg/L (80154)	Suspended sediment discharge, tons/d (80155)
Dec													
06...	3.2	236	726	13.3	1.89	16.8	857	1,900	2.59	E.10	8	150	.01
Mar													
06...	2.5	87.2	146	4.84	.28	7.42	317	591	.80	68.6	98	145	17
Apr													
11...	6.6	485	546	18.4	1.02	6.61	1,550	2,710	3.69	13.2	61	42	.20
25...	6.3	459	578	18.5	1.15	7.06	1,470	2,620	3.56	9.89	--	--	--
May													
09...	4.8	256	202	6.62	.32	7.79	884	1,450	1.98	47.1	--	--	--
23...	6.2	448	527	14.7	.94	9.85	1,380	2,480	3.37	16.7	50	100	.68
Jun													
06...	6.3	455	558	15.7	1.04	7.84	1,480	2,600	3.53	14.7	--	--	--
26...	6.8	483	528	16.4	1.04	7.65	1,460	2,580	3.51	16.7	--	--	--
Jul													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
11...	7.2	530	551	17.5	1.10	7.38	1,530	2,730	3.71	8.10	--	--	--
Aug													
06...	7.0	498	572	18.6	1.21	8.65	1,390	2,550	3.47	4.27	79	64	.11

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 3 of 6
[Remark codes: <, less than; E, estimated.]

Date	Time	Ammonia water, fltrd, mg/L as N (00608)	Nitrate + nitrite water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Total nitrogen, water, unfltrd, mg/L (62855)	Orthophosphate, water, fltrd, mg/L as P (00671)	Total phosphorus, water, unfltrd mg/L (00665)	Aluminum, water, fltrd, µg/L (01106)	Aluminum, water, unfltrd recoverable, µg/L (01105)	Arsenic water, fltrd, µg/L (01000)	Arsenic water, unfltrd µg/L (01002)	Barium, water, fltrd, µg/L (01005)	Barium, water, unfltrd recoverable, µg/L (01007)
Dec													
06...	1000	E.015	.141	.003	.56	.014	.034	--	--	--	--	--	--
Apr													
11...	1300	E.015	<.016	E.001	.52	E.005	.020	E2.6	19	.78	.76	44	44.4
May													
23...	1045	.035	<.016	.003	.62	.010	.033	<3.2	42	.97	1.6	61	59.4
Aug													
06...	1145	E.013	<.016	<.002	.63	.013	.057	E1.8	34	1.9	2.6	48	48.7

06307600 HANGING WOMAN CREEK NEAR BIRNEY, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 4 of 6
[Remark codes: <, less than; E, estimated.]

Date	Beryll-ium, water, fltrd, µg/L (01010)	Beryll-ium, water, unfltrd recover-able, µg/L (01012)	Cadmium water, fltrd, µg/L (01025)	Cadmium water, unfltrd µg/L (01027)	Chrom-ium, water, fltrd, µg/L (01030)	Chrom-ium, water, unfltrd recover-able, µg/L (01034)	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recover-able, µg/L (01042)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover-able, µg/L (01045)	Lead, water, fltrd, µg/L (01049)	Lead, water, unfltrd recover-able, µg/L (01051)
Dec 06...	--	--	--	--	--	--	--	--	--	--	--	--
Apr 11...	<.12	<.12	--	--	--	--	--	--	31	319	--	--
May 23...	<.12	<.06	<.08	.06	.42	<.60	E.73	E.64	33	541	<.24	.14
Aug 06...	<.12	<.12	--	--	--	--	--	--	E18	772	--	--

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 5 of 6

Date	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recover-able, µg/L (01055)	Mercury water, unfltrd ng/L (50286)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recover-able, µg/L (01067)	Selen-ium, water, fltrd, µg/L (01145)	Selen-ium, water, unfltrd µg/L (01147)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recover-able, µg/L (01092)
Dec 06...	--	--	--	--	--	--	--	--	--
Apr 11...	104	115	--	--	--	.66	.72	--	--
May 23...	101	107	--	2.3	2.7	.43	.39	2.2	3.2
Aug 06...	117	114	.73	--	--	.30	.33	--	--

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 6 of 6

Date	Time	Turbdty white light, det ang 90+/-30 corrctd NTRU (63676)	Biomass peri-phyton, ashfree drymass g/m2 (49954)	Peri-phyton biomass ash weight, g/m2 (00572)	Peri-phyton biomass dry weight, g/m2 (00573)	Biomass chloro-phyll ratio, peri-phyton, number (70950)	Chloro-phyll a peri-phyton, chromo-fluoro, mg/m2 (70957)	Pheo-phytin a, peri-phyton, mg/m2 (62359)
Jul 10...	1100	9.5	25.0	820	848	627	39.7	26.0

06307600 HANGING WOMAN CREEK NEAR BIRNEY, MT—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
SEASON MARCH 2007 TO OCTOBER 2007

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		March			April			May			June	
1	---	---	---	3,180	3,170	3,180	3,500	3,460	3,480	3,280	3,210	3,250
2	---	---	---	3,190	3,150	3,170	3,510	3,480	3,490	3,300	3,170	3,280
3	---	---	---	3,230	3,160	3,190	3,520	3,220	3,450	3,300	3,270	3,280
4	---	---	---	3,270	3,230	3,250	3,250	2,450	2,940	3,280	3,270	3,270
5	---	---	---	3,290	3,250	3,270	3,140	3,000	3,080	3,290	3,250	3,280
6	---	---	---	3,350	3,290	3,320	3,000	1,280	2,230	3,370	3,090	3,280
7	---	---	---	3,380	3,330	3,360	3,220	1,090	2,000	3,090	744	1,710
8	---	---	---	3,390	3,360	3,370	1,760	1,080	1,340	3,480	752	1,750
9	---	---	---	3,410	3,380	3,390	2,070	1,760	1,970	1,260	752	1,060
10	---	---	---	3,440	3,400	3,420	2,120	2,040	2,060	1,640	1,260	1,380
11	---	---	---	3,470	3,430	3,450	2,280	2,110	2,190	2,100	1,640	1,950
12	---	---	---	3,490	3,440	3,470	2,450	2,280	2,360	2,280	2,100	2,190
13	---	---	---	3,480	3,290	3,330	2,620	2,450	2,530	2,430	2,280	2,350
14	---	---	---	3,380	3,340	3,350	2,740	2,620	2,670	2,570	2,430	2,510
15	2,460	2,150	2,310	3,380	3,320	3,350	2,860	2,740	2,800	2,690	2,560	2,620
16	2,780	2,460	2,650	3,380	3,340	3,360	2,970	2,860	2,910	2,790	2,680	2,740
17	2,960	2,780	2,880	3,400	3,360	3,380	3,070	2,970	3,000	2,880	2,790	2,830
18	3,040	2,960	3,000	3,430	3,380	3,410	3,140	3,060	3,090	2,960	2,820	2,910
19	3,130	3,040	3,100	3,430	3,300	3,390	3,210	3,140	3,160	3,040	2,930	2,990
20	3,140	3,000	3,070	3,430	3,350	3,410	3,260	3,150	3,200	3,130	3,030	3,080
21	3,000	2,970	2,980	3,440	3,410	3,430	3,250	3,160	3,200	3,190	3,130	3,150
22	3,140	2,990	3,070	3,440	3,400	3,420	3,230	3,070	3,140	3,220	3,170	3,200
23	3,300	3,140	3,230	3,440	3,420	3,430	3,220	3,140	3,170	3,260	3,220	3,240
24	3,430	3,300	3,370	3,480	3,430	3,460	3,200	3,160	3,180	3,290	3,260	3,270
25	3,510	3,430	3,480	3,510	3,470	3,490	3,230	3,200	3,220	3,320	3,280	3,300
26	3,510	3,400	3,460	3,510	3,450	3,480	3,250	3,220	3,230	3,350	3,320	3,330
27	3,400	3,340	3,370	3,530	3,460	3,480	3,280	3,250	3,260	3,410	3,350	3,370
28	3,350	3,070	3,240	---	---	3,470	3,290	3,180	3,260	3,480	3,410	3,440
29	3,200	3,070	3,160	---	---	---	3,270	3,180	3,210	3,510	3,350	3,450
30	3,160	3,090	3,130	---	---	3,480	3,280	3,250	3,260	3,410	3,350	3,390
31	3,180	3,110	3,150	---	---	---	3,270	3,210	3,230	---	---	---
Month	---	---	---	---	---	---	3,520	1,080	2,880	3,510	744	2,830

06307600 HANGING WOMAN CREEK NEAR BIRNEY, MT—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
SEASON MARCH 2007 TO OCTOBER 2007

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		July			August			September			October	
1	3,430	3,380	3,400	---	---	---	3,030	2,880	2,940	2,960	2,870	2,920
2	3,440	3,390	3,420	---	---	---	3,070	2,860	2,960	3,050	2,930	2,960
3	3,480	3,380	3,450	---	---	---	3,040	2,830	2,960	3,070	2,920	2,980
4	3,550	3,460	3,490	---	---	---	3,200	2,860	2,990	3,010	2,930	2,960
5	3,500	3,400	3,470	---	---	---	3,050	2,750	2,860	2,960	2,860	2,900
6	3,490	3,430	3,470	---	---	3,060	3,830	2,840	3,010	2,950	2,870	2,900
7	3,490	3,290	3,410	3,230	2,970	3,130	3,790	2,780	2,970	2,980	2,930	2,950
8	3,510	3,310	3,440	3,170	3,040	3,110	3,760	3,130	3,480	3,240	2,960	3,030
9	3,480	3,400	3,450	3,260	3,120	3,200	3,640	3,090	3,450	3,180	2,990	3,080
10	3,510	3,440	3,490	3,250	3,010	3,150	3,270	2,270	2,730	3,170	3,010	3,070
11	3,530	3,410	3,480	3,200	3,100	3,150	2,890	2,770	2,860	3,060	2,990	3,020
12	3,560	3,400	3,460	3,240	3,130	3,170	2,910	2,830	2,860	3,020	2,990	3,000
13	3,560	3,230	3,430	3,220	3,000	3,110	2,910	2,850	2,870	3,000	2,970	2,990
14	---	---	3,320	3,150	2,760	3,050	2,910	2,840	2,870	3,030	2,870	2,940
15	---	---	3,390	3,130	2,910	3,050	2,940	2,860	2,910	3,020	2,910	2,980
16	---	---	---	3,170	2,840	3,060	2,950	2,860	2,910	3,210	2,930	3,050
17	---	---	---	3,110	2,970	3,060	2,960	2,880	2,930	3,090	2,960	3,010
18	---	---	---	3,160	2,750	3,050	---	---	2,910	3,010	2,940	2,970
19	---	---	---	3,140	2,760	3,020	2,950	2,780	2,850	3,140	2,950	3,000
20	---	---	---	---	---	3,090	2,950	2,800	2,880	3,040	3,000	3,010
21	---	---	---	3,210	2,970	3,120	3,090	2,930	3,020	3,080	3,000	3,020
22	---	---	---	3,140	3,030	3,090	3,160	2,990	3,080	3,120	3,060	3,100
23	---	---	---	3,100	2,960	3,040	3,150	2,780	3,040	3,140	3,050	3,080
24	---	---	---	3,020	2,910	2,950	2,870	2,770	2,810	3,080	3,040	3,060
25	---	---	---	2,980	2,820	2,930	3,090	2,840	2,960	3,100	3,050	3,070
26	---	---	3,360	3,050	2,870	2,980	3,100	3,030	3,050	3,060	3,050	3,060
27	---	---	3,590	3,100	2,910	3,000	3,050	2,980	3,020	3,080	3,030	3,060
28	---	---	---	3,050	2,870	2,980	3,060	2,960	2,990	3,090	3,020	3,060
29	---	---	---	3,050	2,880	2,980	3,010	2,900	2,970	3,080	3,030	3,040
30	---	---	---	3,020	2,830	2,940	2,950	2,880	2,910	3,060	3,020	3,030
31	---	---	---	3,010	2,910	2,950	---	---	---	3,080	3,030	3,050
Month	---	---	---	---	---	---	---	---	2,970	3,240	2,860	3,010

USGS
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Water-Data Report 2007

06307616 TONGUE RIVER AT BIRNEY DAY SCHOOL BRIDGE, NEAR BIRNEY, MT

Tongue Basin
Lower Tongue Subbasin

LOCATION.--Lat 45°24′42″, long 106°27′26″ referenced to North American Datum of 1927, in SE ¼ SW ¼ SW ¼ sec.8, T.5 S., R.43 E., Rosebud County, MT, Hydrologic Unit 10090102, on right bank, downstream from Bureau of Indian Affairs bridge, 0.2 mi east of Birney Day School, 5.5 mi downstream from Cook Creek, 6.5 mi northeast of Birney, and at river mile 144.3.

DRAINAGE AREA.--2,621 mi².

SURFACE-WATER RECORDS

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

GAGE.--Water-stage recorder. Elevation of gage is 3,060 ft, referenced to the National Geodetic Vertical Datum of 1929.

REMARKS.--Records are good except those for estimated daily discharges, which are fair. Flow is regulated by Tongue River Reservoir (station number 06307000) and many small reservoirs in Wyoming (combined capacity of about 15,000 acre-ft). Numerous diversions for irrigation occur upstream from station. U.S. Geological Survey satellite telemeter is located at the station.

06307616 TONGUE RIVER AT BIRNEY DAY SCHOOL BRIDGE, NEAR BIRNEY, MT—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	59	e100	e150	e100	e90	e80	452	536	1,610	681	380	356
2	60	e110	e150	e100	e90	e80	495	538	1,810	633	366	346
3	61	e120	e140	e100	e90	e80	495	548	2,070	516	364	343
4	72	139	e140	e100	e90	e80	496	637	1,980	487	372	343
5	71	150	e140	e100	e90	e80	503	655	1,880	467	374	342
6	72	151	e140	e100	e90	e150	501	759	1,870	427	367	349
7	74	152	e140	e100	e90	e300	499	981	2,120	406	372	350
8	88	152	e150	e100	e90	e300	517	1,120	2,700	377	377	340
9	89	152	e150	e100	e90	e200	536	1,090	4,670	363	371	354
10	94	159	e150	e100	e90	e200	541	1,080	4,650	369	364	358
11	93	152	e150	e100	e90	e180	538	1,100	3,830	378	364	318
12	97	152	e150	e100	e90	159	539	1,420	3,370	363	363	305
13	116	151	e150	e100	e90	146	539	1,540	3,210	337	373	301
14	116	152	e150	e100	e90	158	540	2,070	3,040	316	373	303
15	117	151	e150	e100	e90	187	540	2,750	2,770	302	369	301
16	120	152	e140	e100	e90	204	540	2,910	2,620	295	367	302
17	124	152	e120	e100	e90	230	539	2,540	2,540	329	360	304
18	117	151	e120	e90	e90	246	537	2,330	2,460	358	356	287
19	118	151	e120	e90	e90	269	554	2,290	2,380	367	342	271
20	121	156	e120	e90	e90	285	540	2,350	2,140	383	342	262
21	124	162	e120	e90	e90	285	542	2,410	1,670	393	349	235
22	128	162	e120	e90	e90	285	543	2,520	1,420	399	349	226
23	126	162	e120	e90	e90	287	543	2,480	1,340	395	341	205
24	125	162	e120	e90	e90	286	542	2,260	1,180	403	359	179
25	127	e160	e120	e90	e80	288	538	1,970	1,170	412	366	171
26	130	e160	e120	e90	e80	288	539	1,780	1,120	405	359	170
27	126	e160	e120	e90	e80	288	537	1,670	910	397	351	169
28	124	e160	e120	e90	e80	315	537	1,600	858	396	346	170
29	117	e130	e120	e90	---	338	537	1,610	838	386	346	178
30	117	e150	e110	e90	---	359	537	1,590	786	386	343	185
31	114	---	e100	e90	---	387	---	1,650	---	381	355	---
Total	3,237	4,473	4,110	2,960	2,480	7,020	15,836	50,784	65,012	12,507	11,180	8,323
Mean	104	149	133	95.5	88.6	226	528	1,638	2,167	403	361	277
Max	130	162	150	100	90	387	554	2,910	4,670	681	380	358
Min	59	100	100	90	80	80	452	536	786	295	341	169
Ac-ft	6,420	8,870	8,150	5,870	4,920	13,920	31,410	100,700	129,000	24,810	22,180	16,510

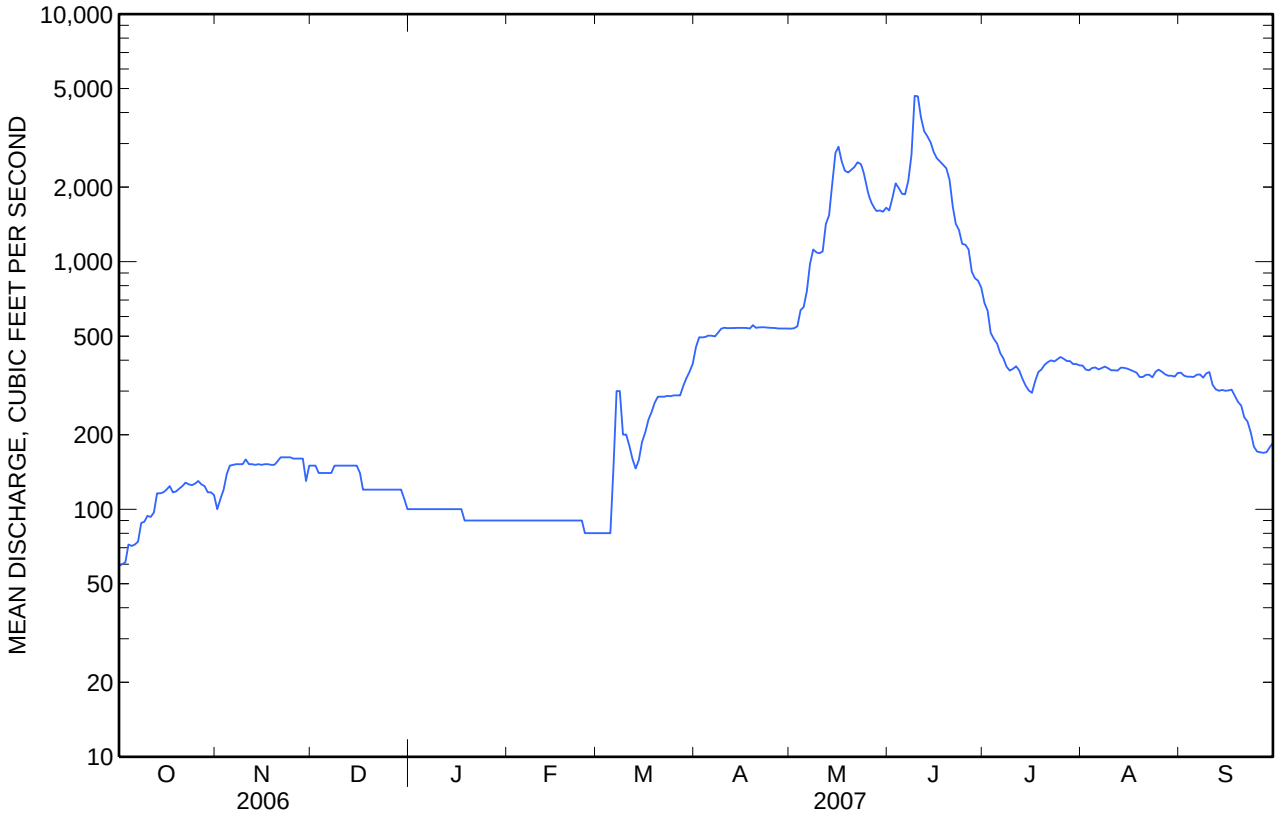
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 2007, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	224	202	169	166	178	215	262	666	1,106	530	381	296
Max	381	347	260	287	350	434	583	1,769	2,921	1,269	676	694
(WY)	(1996)	(1987)	(1987)	(1983)	(1983)	(1996)	(1996)	(1984)	(1984)	(1995)	(1997)	(1998)
Min	84.7	65.6	63.5	70.0	70.0	76.9	65.9	127	203	234	159	68.9
(WY)	(1989)	(1989)	(1989)	(2005)	(2005)	(2005)	(1992)	(2006)	(2006)	(2001)	(2002)	(2006)

06307616 TONGUE RIVER AT BIRNEY DAY SCHOOL BRIDGE, NEAR BIRNEY, MT—Continued

SUMMARY STATISTICS

	Calendar Year 2006		Water Year 2007		Water Years 1980 - 2007	
Annual total	53,174		187,922			
Annual mean	146		515		367	
Highest annual mean					644	1984
Lowest annual mean					133	2002
Highest daily mean	361	Jul 3	4,670	Jun 9	4,670	Jun 9, 2007
Lowest daily mean	54	Sep 28	59	Oct 1	28	Apr 6, 1987
Annual seven-day minimum	57	Sep 25	67	Oct 1	28	Apr 5, 1987
Maximum peak flow			5,340	Jun 9	5,340	Jun 9, 2007
Maximum peak stage			7.06	Jun 9	7.06	Jun 9, 2007
Annual runoff (ac-ft)	105,500		372,700		265,700	
10 percent exceeds	249		1,610		655	
50 percent exceeds	128		285		234	
90 percent exceeds	85		90		96	



06307616 TONGUE RIVER AT BIRNEY DAY SCHOOL BRIDGE, NEAR BIRNEY, MT—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1980 to 1993, October 2003 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: May 2004 to current year (seasonal records).

INSTRUMENTATION.--Specific conductance probe installed May 1, 2004.

REMARKS.--Daily specific conductance records are published through the end of the irrigation season (October 2007); records are rated excellent. Missing daily specific conductance data for May 17-24 are due to erroneous data caused by excessive siltation of the probe. The water-quality sample collected on Aug. 27 was made in conjunction with aquatic ecology samples collected for an interagency task group studying the effects of coal-bed natural gas development. Additional information is available at http://wy.water.usgs.gov/projects/atg/index.htm. Several unpublished observations of specific conductance and water temperature were made during the year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE (seasonal records): Maximum, 779 microsiemens per centimeter (µS/cm) at 25.0°C, Mar. 22, 2006; minimum, 528 µS/cm at 25.0°C, Aug. 18, 2006.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: During period of seasonal operation, maximum, 937 µS/cm at 25.0°C, May 7; minimum, 320 µS/cm at 25.0°C, May 30.

06307616 TONGUE RIVER AT BIRNEY DAY SCHOOL BRIDGE, NEAR BIRNEY, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 1 of 6
[Remark codes: E, estimated.]

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 µS/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													
03...	1030	65	686	8.2	87	8.3	630	14.0	13.0	230	37.1	33.8	4.35
Nov													
15...	1215	152	684	12.4	100	8.2	670	9.5	2.0	270	52.5	33.2	3.52
Dec													
12...	1000	E150	681	13.3	102	8.2	706	9.0	0.0	290	56.1	35.3	3.56
Feb													
15...	0945	E90	684	8.5	65	7.9	789	-9.0	0.0	320	63.5	39.4	3.53
Mar													
06...	1415	E150	686	14.5	112	8.6	690	11.0	0.5	260	50.5	32.2	3.14
Apr													
11...	1130	540	682	10.9	102	8.6	665	1.0	7.5	280	55.6	33.4	4.30
25...	1430	540	681	10.8	118	8.6	675	22.0	14.0	280	55.4	33.6	4.57
May													
09...	0945	1,090	680	7.8	87	8.6	715	18.5	15.0	290	57.6	36.5	4.67
23...	1200	2,490	684	8.3	86	8.3	390	5.0	12.0	170	35.0	18.9	2.67
Jun													
06...	1400	1,840	664	8.7	99	8.2	337	19.0	15.0	140	31.3	14.9	1.91
26...	1130	1,100	688	7.8	94	8.5	350	25.0	19.5	150	33.6	16.9	2.41
Jul													
11...	1245	381	686	7.7	98	8.5	396	25.0	22.0	150	33.9	16.0	2.26
20...	1215	393	677	7.7	106	8.4	382	32.0	25.5	160	35.9	17.1	2.40
Aug													
06...	1015	370	679	7.1	92	8.4	405	27.0	22.5	170	39.1	18.3	2.34
27...	1335	359	--	8.5	--	8.5	472	--	22.5	--	--	--	--
Sep													
19...	1245	271	681	9.2	105	8.5	556	21.0	16.0	230	48.3	26.8	3.20

06307616 TONGUE RIVER AT BIRNEY DAY SCHOOL BRIDGE, NEAR BIRNEY, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 2 of 6
[Remark codes: E, estimated.]

Date	Sodium adsorption ratio (00931)	Sodium, water, fltrd, mg/L (00930)	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)	Dissolved solids, sum of constituents mg/L (70301)	Dissolved solids, tons/acre-ft (70303)	Dissolved solids, tons/d (70302)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspended sediment concentration mg/L (80154)	Suspended sediment discharge, tons/d (80155)
Oct													
03...	1.4	48.7	186	4.15	.34	1.76	149	391	.53	68.7	82	2	.35
Nov													
15...	1.2	44.1	221	4.04	.34	2.34	143	415	.56	170	72	23	9.4
Dec													
12...	1.2	46.1	238	4.47	.37	2.98	150	441	.60	E179	38	34	E14
Feb													
15...	1.3	54.5	271	5.45	.43	6.87	165	503	.68	E122	81	14	E3.4
Mar													
06...	1.2	42.8	223	4.96	.36	2.77	148	419	.57	E170	73	51	E21
Apr													
11...	1.2	45.8	223	5.25	.33	4.24	146	428	.58	624	73	42	61
25...	1.1	42.5	214	5.34	.33	3.17	148	421	.57	614	--	--	--
May													
09...	1.2	45.5	209	5.35	.30	3.64	175	454	.62	1,340	--	--	--
23...	.6	18.0	129	2.19	.19	7.82	72.5	235	.32	1,580	75	72	484
Jun													
06...	.5	13.2	118	1.79	.17	6.23	54.8	195	.27	968	--	--	--
26...	.5	14.9	124	1.75	.19	6.27	56.6	207	.28	614	--	--	--
Jul													
11...	.6	15.8	135	1.92	.20	4.32	66.1	221	.30	228	--	--	--
20...	.5	15.5	134	1.74	.20	6.22	61.3	221	.30	234	--	--	--
Aug													
06...	.6	17.2	144	1.85	.19	5.91	61.1	233	.32	233	90	14	14
27...	--	--	--	--	--	--	--	--	--	--	--	--	--
Sep													
19...	.9	31.2	186	3.19	.25	1.25	113	339	.46	248	--	--	--

06307616 TONGUE RIVER AT BIRNEY DAY SCHOOL BRIDGE, NEAR BIRNEY, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 3 of 6
[Remark codes: <, less than; E, estimated.]

Date	Time	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, water, fltrd, mg/L (62855)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Total phos-phorus, water, unfltrd mg/L (00665)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Arsenic water, fltrd, µg/L (01000)	Arsenic water, unfltrd µg/L (01002)	Barium, water, fltrd, µg/L (01005)	Barium, water, unfltrd recover-able, µg/L (01007)
Oct													
03...	1030	E.014	E.008	<.002	.28	<.006	E.007	2.7	19	.90	1.0	45	44.5
Feb													
15...	0945	.095	.160	.007	.50	E.004	.009	E.8	8	.79	1.2	61	58.6
Apr													
11...	1130	<.020	<.016	<.002	.94	E.003	.087	3.1	171	1.1	1.5	55	65.6
May													
23...	1200	.027	.090	.004	.58	.010	.081	2.2	583	.68	1.4	38	50.7
Aug													
06...	1015	<.020	<.016	<.002	.32	.013	.044	2.5	126	1.6	1.7	43	46.3

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 4 of 6
[Remark codes: <, less than; E, estimated.]

Date	Beryll-ium, water, fltrd, µg/L (01010)	Beryll-ium, water, unfltrd recover-able, µg/L (01012)	Boron, water, fltrd, µg/L (01020)	Cadmium water, fltrd, µg/L (01025)	Cadmium water, unfltrd µg/L (01027)	Chrom-ium, water, fltrd, µg/L (01030)	Chrom-ium, water, unfltrd recover-able, µg/L (01034)	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recover-able, µg/L (01042)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover-able, µg/L (01045)	Lead, water, fltrd, µg/L (01049)	Lead, water, unfltrd recover-able, µg/L (01051)
Oct													
03...	<.06	<.06	75	<.04	<.02	--	E.63	.76	2.7	16	71	E.09	E.05
Feb													
15...	<.06	<.06	67	<.04	<.02	--	E.69	.63	1.7	12	39	E.06	E.06
Apr													
11...	<.06	E.03	--	--	--	--	--	--	--	15	448	--	--
May													
23...	<.06	E.04	--	<.04	.04	.13	.86	1.2	2.0	19	1,140	E.07	.99
Aug													
06...	<.06	<.06	--	--	--	--	--	--	--	9	287	--	--

06307616 TONGUE RIVER AT BIRNEY DAY SCHOOL BRIDGE, NEAR BIRNEY, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 5 of 6
[Remark codes: <, less than; E, estimated;

Date	Lithium water, fltrd, µg/L (01130)	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recoverable, µg/L (01055)	Mercury water, unfltrd ng/L (50286)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recoverable, µg/L (01067)	Selenium, water, fltrd, µg/L (01145)	Selenium, water, unfltrd µg/L (01147)	Strontium, water, fltrd, µg/L (01080)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recoverable, µg/L (01092)
Oct											
03...	25.8	6.0	9.8	--	.91	1.47	.23	.25	446	3.8	<2
Feb											
15...	27.0	8.5	11.3	--	.96	2.48	.34	.26	598	.85	E1
Apr											
11...	--	8.0	105	--	--	--	.36	.37	--	--	--
May											
23...	--	6.1	73.8	--	1.0	2.1	.37	.35	--	1.0	4.4
Aug											
06...	--	3.3	34.3	1.25	--	--	.28	.23	--	--	--

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 6 of 6
[Remark codes: <, less than.]

Date	Time	Turbdty white light, det ang 90+/-30 corrctd NTRU (63676)	Biomass periphyton, ashfree drymass g/m2 (49954)	Periphyton biomass ash weight, g/m2 (00572)	Periphyton biomass dry weight, g/m2 (00573)	Biomass chlorophyll ratio, periphyton, number (70950)	Chlorophyll a periphyton, chromofluoro, mg/m2 (70957)	Pheophytin a, periphyton, mg/m2 (62359)
Aug								
27...	1335	7.0	<5.7	250	258.0	2,230	1.8	1.1

06307616 TONGUE RIVER AT BIRNEY DAY SCHOOL BRIDGE, NEAR BIRNEY, MT—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
SEASON MARCH 2007 THROUGH OCTOBER 2007

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		March			April			May			June	
1				692	675	682	671	663	667	343	329	337
2				680	658	668	679	667	672	344	338	340
3				683	657	671	678	650	669	345	336	342
4				690	670	683	656	596	642	340	329	335
5				683	662	672	678	655	669	334	329	331
6				695	676	683	708	646	666	342	325	331
7				696	681	689	937	696	#733	383	331	351
8				686	674	682	744	684	698	415	334	349
9				676	669	673	726	692	712	415	355	363
10				672	661	666	722	685	714	355	348	351
11				680	664	673	685	635	664	349	346	348
12				680	675	677	635	545	592	355	349	352
13				676	670	673	546	517	534	353	346	350
14	---	---	#720	673	664	669	522	497	511	353	344	350
15	757	726	741	668	662	665	500	357	453	355	350	353
16	760	749	755	665	662	664	374	---	#364	354	350	352
17	760	749	755	666	655	661	---	---	---	352	346	350
18	750	742	746	671	660	665	---	---	---	351	346	349
19	742	729	737	662	647	657	---	---	---	349	346	348
20	737	728	732	663	644	655	---	---	---	369	346	352
21	737	728	733	674	655	666	---	---	---	368	356	360
22	736	728	732	672	658	663	---	---	---	367	354	360
23	739	731	735	669	661	665	---	---	*390	358	349	354
24	737	728	733	674	660	666	---	---	---	364	351	358
25	738	727	733	675	655	665	430	412	423	353	345	348
26	736	725	732	680	671	675	415	389	402	356	341	349
27	737	722	729	680	672	677	401	372	393	362	350	357
28	734	662	705	676	671	673	373	342	362	366	358	361
29	662	635	644	678	669	673	343	327	336	361	351	356
30	680	647	670	675	667	671	333	320	327	366	359	362
31	686	670	679	---	---	---	345	324	333	---	---	---
Month	---	---	---	696	644	671	**744	**320	**539	415	325	350

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

* Instantaneous value from water-quality sample.

** Monthly mean computed from available daily means. A specific conductance greater than or less than the reported maximum or minimum may have occurred during the period of missing record.

06307616 TONGUE RIVER AT BIRNEY DAY SCHOOL BRIDGE, NEAR BIRNEY, MT—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
SEASON MARCH 2007 THROUGH OCTOBER 2007

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		July			August			September			October	
1	370	360	366	399	386	392	523	506	513	595	582	588
2	374	364	368	402	388	395	528	512	520	600	580	591
3	402	373	388	401	390	396	540	515	527	601	582	594
4	398	383	391	402	390	395	540	520	529	606	586	596
5	389	381	386	403	394	399	543	522	532	596	582	589
6	397	384	392	406	397	401	548	520	531	596	584	592
7	398	387	392	410	400	405	547	511	530	596	582	591
8	403	385	397	414	403	408	538	506	524	596	587	593
9	405	387	399	419	405	413	533	501	517	596	589	592
10	395	383	391	424	410	419	531	503	519	597	589	594
11	395	382	388	429	415	424	534	499	520	595	590	593
12	400	382	392	438	418	429	529	495	515	596	589	593
13	407	392	400	442	419	430	525	494	510	599	592	595
14	412	399	406	441	423	433	541	493	524	603	597	600
15	409	405	407	449	433	442	569	522	545	608	602	605
16	411	403	407	457	438	450	568	528	546	607	600	603
17	407	397	402	468	448	458	551	514	532	615	606	610
18	401	384	393	471	453	462	554	508	537	615	606	610
19	390	380	386	471	455	463	563	537	552	613	609	611
20	389	375	381	477	457	470	577	561	571	610	603	607
21	383	373	378	476	455	464	569	554	562	611	606	608
22	379	371	376	482	460	471	579	550	561	620	611	616
23	382	370	376	479	463	472	579	552	566	619	616	617
24	380	369	375	483	455	468	577	568	573	619	613	617
25	382	369	375	473	459	467	591	577	587	618	614	617
26	384	368	376	477	456	468	590	582	587	620	615	618
27	387	376	382	484	462	472	591	575	583	623	616	620
28	392	382	386	489	465	482	592	576	584	628	622	625
29	396	383	390	518	488	505	590	574	581	634	627	631
30	398	381	390	526	504	517	586	572	580	636	629	633
31	395	382	389	528	500	515	---	---	---	643	626	635
Month	412	360	388	528	386	445	592	493	545	643	580	606

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451607106372801 TONGUE RIVER AT PRAIRIE DOG CREEK, NEAR BIRNEY, MT

Tongue Basin
Lower Tongue Subbasin

LOCATION.--Lat 45°16'07", long 106°37'28" referenced to North American Datum of 1927, in SE ¼ NE ¼ SE ¼ sec.31, T.6 S., R.42 E., Rosebud County, MT, Hydrologic Unit 10090102, at mouth of Prairie Dog Creek, 7 mi southwest of Birney, and at river mile 176.1.

DRAINAGE AREA.--Not determined.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--November 1977, November 1978, August 2005 to current year.

GAGE.--None. Elevation of site is 3,200 ft, referenced to the National Geodetic Vertical Datum of 1929.

REMARKS.-- The water-quality sample collected at this site was made in conjunction with aquatic ecology samples collected for an interagency task group studying the effects of coal-bed natural gas development. Additional information is available at: http://wy.water.usgs.gov/projects/atg/index.htm.

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 1 of 3
[Remark codes: <, less than.]

Date	Time	Instantaneous discharge, cfs (00061)	Turbdty white light, det ang 90+/-30 corrctd NTRU (63676)	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 µS/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)
Aug 28...	1000	164	3.4	683	6.7	81	8.2	495	12.5	19.0	220	48.6	24.2

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 2 of 3
[Remark codes: <, less than.]

Date	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)	Sodium, water, fltrd, mg/L (00930)	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)	Dissolved solids, sum of constituents mg/L (70301)	Dissolved solids, tons/ acre-ft (70303)	Dissolved solids, tons/d (70302)
Aug 28...	2.91	.7	23.9	174	2.70	.24	3.14	87.6	298	.40	132

451607106372801 TONGUE RIVER AT PRAIRIE DOG CREEK, NEAR BIRNEY, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 3 of 3
[Remark codes: <, less than.]

Date	Time	Biomass peri-phyton, ashfree drymass g/m2 (49954)	Peri-phyton biomass ash weight, g/m2 (00572)	Peri-phyton biomass dry weight, g/m2 (00573)	Biomass chloro-phyll ratio, peri-phyton, number (70950)	Chloro-phyll a peri-phyton, chromo-fluoro, mg/m2 (70957)	Pheo-phytin a, peri-phyton, mg/m2 (62359)
Aug							
28...	1135	<14.5	660	670	1,060	12.7	9.4

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451732106085001 OTTER CREEK BELOW TAYLOR CREEK, NEAR OTTER, MT

Tongue Basin
Lower Tongue Subbasin

LOCATION.--Lat 45°17′32″, long 106°08′50″ referenced to North American Datum of 1927, in NE ¼ NE ¼ NW ¼ sec.30, T.6 S., R.46 E., Powder River County, MT, Hydrologic Unit 10090102, at county road crossing, 0.5 mi downstream from Taylor Creek, and 6.0 mi north of Otter.

DRAINAGE AREA.--310 mi².

GAGE.--None. Elevation of site is 3,250 ft, referenced to the National Geodetic Vertical Datum of 1929.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1976 to October 1978, July 2005 to current year.

REMARKS.-- The water-quality sample collected at this site was made in conjunction with aquatic ecology samples collected for an interagency task group studying the effects of coal-bed natural gas development. Additional information is available at: http://wy.water.usgs.gov/projects/atg/index.htm.

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 1 of 2

Date	Time	Instantaneous discharge, cfs (00061)	Turbdty white light, det ang 90+/-30 corrctd NTRU (63676)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specific conductance, wat unf µS/cm 25 degC (00095)	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)	Sodium adsorption ratio (00931)	Sodium, water, fltrd, mg/L (00930)
Jun 20...	1640	1.4	2.4	18.4	8.1	4,000	23.0	1,500	159	257	18.3	5.9	516

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 2 of 2

Date	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)	Dissolved solids, sum of constituents mg/L (70301)	Dissolved solids, tons/acre-ft (70303)	Dissolved solids, tons/d (70302)
Jun 20...	583	12.0	.75	14.3	1,950	3,270	4.45	12.4

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452642106091201 OTTER CREEK BELOW TENMILE CREEK, NEAR ASHLAND, MT

Tongue Basin
Lower Tongue Subbasin

LOCATION.--Lat 45°26′42″, long 106°09′12″ referenced to North American Datum of 1927, in NW ¼ NW ¼ SW ¼ sec.35, T.4 S., R.45 E., Powder River County, MT, Hydrologic Unit 10090102, 0.5 mi downstream from Tenmile Creek, 0.5 mi upstream from Gene Creek, and 8 mi southeast of Ashland.

DRAINAGE AREA.--514 mi².

GAGE.--None. Elevation at sampling site is 3,100 ft, referenced to National Geodetic Vertical Datum of 1929.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--June 2005 and June 2007.

REMARKS.-- The water-quality sample collected at this site was made in conjunction with aquatic ecology samples collected for an interagency task group studying the effects of coal-bed natural gas development. Additional information is available at: http://wy.water.usgs.gov/projects/atg/index.htm.

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 1 of 3

Date	Time	Instantaneous discharge, cfs (00061)	Turbdty white light, det ang 90+/-30 corrctd NTRU (63676)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specific conductance, wat unf µS/cm 25 degC (00095)	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)	Sodium adsorption ratio (00931)	Sodium, water, fltrd, mg/L (00930)
Jun 20...	1250	3.8	2.5	7.5	8.0	3,200	19.5	1,100	129	196	19.4	5.1	391

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 2 of 3

Date	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)	Dissolved solids, sum of constituents mg/L (70301)	Dissolved solids, tons/ acre-ft (70303)	Dissolved solids, tons/d (70302)
Jun 20...	502	10.7	.66	7.43	1,440	2,490	3.39	25.6

452642106091201 OTTER CREEK BELOW TENMILE CREEK, NEAR ASHLAND, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 3 of 3

Date	Time	Biomass peri-phyton, ashfree drymass g/m2 (49954)	Peri-phyton biomass ash weight, g/m2 (00572)	Peri-phyton biomass dry weight, g/m2 (00573)	Biomass chloro-phyll ratio, peri-phyton, number (70950)	Chloro-phyll a peri-phyton, chromo-fluoro, mg/m2 (70957)	Pheo-phytin a, peri-phyton, mg/m2 (62359)
Jun 20...	1050	17.8	460	473	1,760	10.1	3.1

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06307740 OTTER CREEK AT ASHLAND, MT

Tongue Basin
Lower Tongue Subbasin

LOCATION.--Lat 45°35′02″, long 106°15′17″ referenced to North American Datum of 1927, in NE ¼ NE ¼ SE ¼ sec.11, T.3 S., R.44 E., Rosebud County, MT, Hydrologic Unit 10090102, on left bank 200 ft downstream from bridge on U.S. Highway 212, 0.3 mi southeast of Ashland, and at river mile 2.7.

DRAINAGE AREA.--707 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--October 1972 to November 1985, October 1987 to September 1995, October 2003 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 2,916.57 ft, referenced to the National Geodetic Vertical Datum of 1929.

REMARKS.--Records are fair except those for estimated daily discharges, which are poor. Flow is regulated by Tongue River Reservoir (station number 06307000) and many small reservoirs in Wyoming (combined capacity, about 15,000 acre-ft). Numerous diversions for irrigation occur upstream from station. U.S. Geological Survey satellite telemeter is located at the station.

06307740 OTTER CREEK AT ASHLAND, MT—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	0.73	1.00	0.43	e0.45	e0.50	e2.0	3.1	2.6	6.9	6.5	1.5	1.1
2	0.73	1.1	0.46	e0.50	e0.30	e2.5	4.1	2.5	8.0	6.2	1.4	0.94
3	0.77	0.84	0.51	e0.50	e0.15	e2.0	4.8	2.8	8.1	5.9	1.3	0.89
4	0.90	0.90	0.48	e0.50	e0.15	2.7	4.9	4.3	7.2	5.6	1.3	0.91
5	0.74	0.93	0.52	e0.50	e0.20	2.4	4.8	5.6	5.5	5.3	1.2	0.84
6	0.80	0.94	0.52	e0.45	e0.30	2.9	4.7	15	5.9	5.1	1.3	1.0
7	0.80	0.98	0.53	e0.50	e0.30	3.6	4.4	32	95	4.9	1.2	0.88
8	0.92	1.1	0.52	e0.50	e0.30	4.0	4.0	17	212	4.4	1.3	0.83
9	0.90	1.1	0.50	e0.50	e0.30	4.3	3.9	12	106	4.1	1.2	0.97
10	0.84	1.1	0.50	e0.50	e0.30	4.3	4.3	11	63	3.7	1.1	1.1
11	1.1	1.1	0.50	e0.50	e0.30	4.1	4.8	14	45	3.5	1.0	1.1
12	1.3	1.1	0.48	e0.40	e0.30	3.5	4.7	14	34	3.1	1.0	1.00
13	1.0	1.1	0.51	e0.35	e0.20	3.2	4.2	12	29	2.8	0.97	0.99
14	0.96	1.0	0.54	e0.40	e0.20	3.1	3.8	10	34	2.7	1.0	1.0
15	0.97	0.89	0.51	e0.40	e0.15	2.5	3.4	9.9	30	2.6	1.0	0.96
16	1.0	0.93	0.57	e0.50	e0.30	2.7	3.4	8.4	26	2.5	1.1	0.86
17	1.6	0.98	0.49	e0.55	e0.50	2.5	3.4	7.3	22	2.4	1.0	0.91
18	1.4	0.96	0.40	e0.55	e0.70	2.2	3.4	6.3	19	2.2	1.0	1.0
19	1.3	0.92	0.33	e0.55	e1.0	2.4	3.6	5.7	16	2.1	0.96	0.94
20	1.5	0.98	0.33	e0.55	e2.0	2.4	3.9	5.2	14	2.0	0.96	0.86
21	1.8	0.99	0.27	e0.55	e2.0	2.7	3.7	4.8	12	1.9	0.99	0.85
22	1.5	0.96	0.26	e0.50	e2.0	3.1	3.4	5.4	11	1.8	1.0	0.83
23	1.3	0.99	0.27	e0.70	e2.0	3.0	3.3	6.1	10	1.6	1.1	0.78
24	1.3	0.93	0.32	e0.60	e2.0	2.7	3.3	6.7	9.3	1.6	1.1	0.92
25	1.1	0.92	0.38	e0.60	e2.0	2.6	3.3	6.7	8.8	1.7	1.2	1.0
26	1.1	0.93	0.41	e0.60	e2.0	2.3	3.2	5.9	8.3	1.8	1.1	0.96
27	1.1	0.88	0.41	e0.60	e2.0	2.3	3.1	6.0	7.9	1.7	1.1	0.96
28	1.0	0.77	0.45	e0.60	e2.0	e3.0	3.0	5.6	7.6	1.7	1.2	0.96
29	0.99	e0.70	0.45	e0.50	---	3.8	2.8	5.7	7.3	1.5	1.2	0.92
30	0.97	e0.40	e0.40	e0.50	---	4.1	2.7	5.5	6.8	1.5	1.2	1.0
31	1.00	---	e0.40	e0.50	---	3.5	---	6.3	---	1.5	1.2	---
Total	33.42	28.42	13.65	15.90	24.45	92.4	113.4	262.3	875.6	95.9	35.18	28.26
Mean	1.08	0.95	0.44	0.51	0.87	2.98	3.78	8.46	29.2	3.09	1.13	0.94
Max	1.8	1.1	0.57	0.70	2.0	4.3	4.9	32	212	6.5	1.5	1.1
Min	0.73	0.40	0.26	0.35	0.15	2.0	2.7	2.5	5.5	1.5	0.96	0.78
Ac-ft	66	56	27	32	48	183	225	520	1,740	190	70	56

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1973 - 2007, BY WATER YEAR (WY) *

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	1.34	2.33	2.29	4.33	6.13	13.5	5.95	6.74	5.06	2.15	1.26	0.86
Max	4.43	6.12	7.03	30.2	34.9	107	28.1	53.1	29.2	8.93	5.53	4.08
(WY)	(1973)	(1980)	(1976)	(1975)	(1974)	(1975)	(1975)	(1978)	(2007)	(1978)	(1982)	(1978)
Min	0.18	0.71	0.44	0.10	0.36	1.26	0.99	0.71	0.36	0.28	0.00	0.00
(WY)	(1993)	(1992)	(2007)	(1991)	(1993)	(1992)	(1992)	(1992)	(1993)	(1977)	(1992)	(1992)

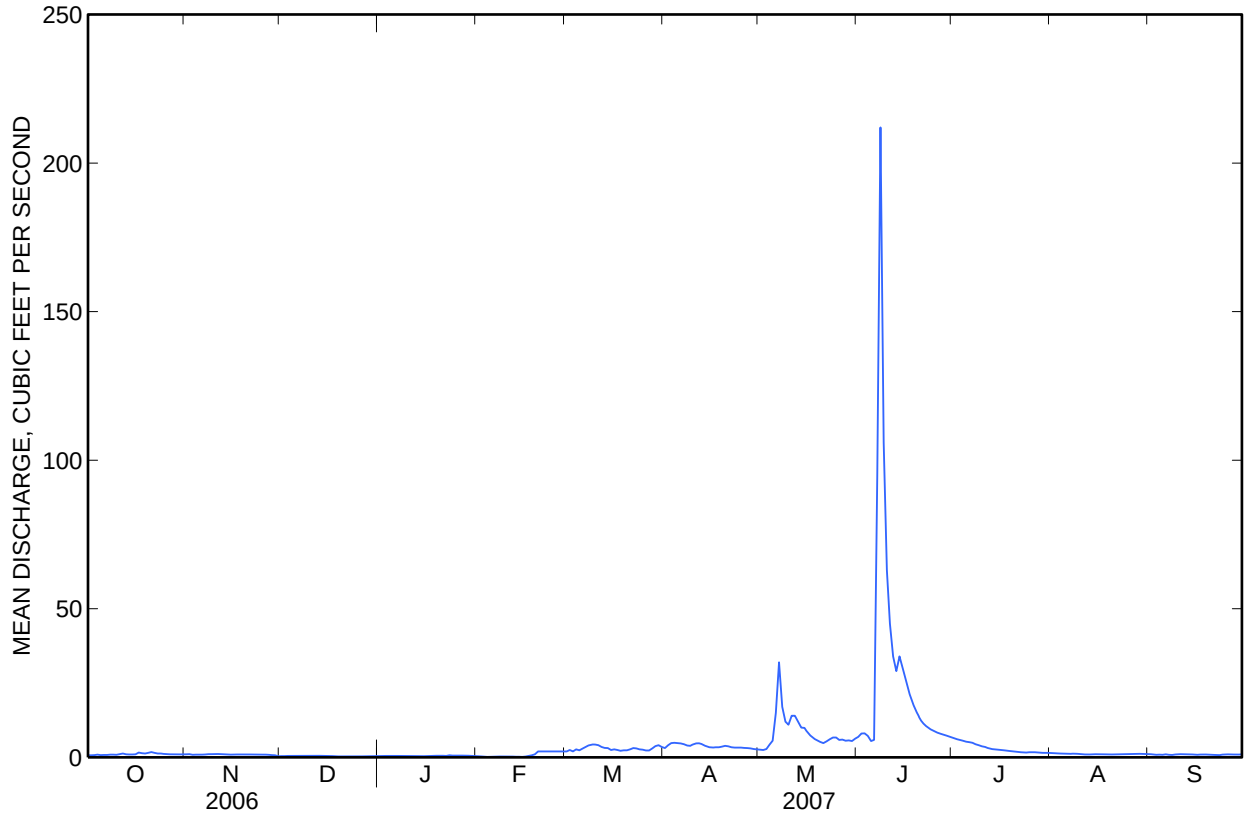
* During periods of operation (1973-85, 1988-95, October 2003 to current year).

06307740 OTTER CREEK AT ASHLAND, MT—Continued

SUMMARY STATISTICS

	Calendar Year 2006		Water Year 2007		Water Years 1973 - 2007*	
Annual total	447.22		1,618.88			
Annual mean	1.23		4.44		[a]4.33	
Highest annual mean					19.0	1975
Lowest annual mean					0.60	1992
Highest daily mean	4.7	Apr 8	212	Jun 8	350	Mar 6, 1994
Lowest daily mean	0.10	Aug 12	0.15	Feb 3	0.00	Oct 14, 1976
Annual seven-day minimum	0.15	Aug 7	0.24	Feb 2	0.00	Jun 24, 1977
Maximum peak flow			300	Jun 8	[b]425	Mar 21, 1978
Maximum peak stage			5.01	Jun 8	[c]9.08	Mar 6, 1994
Instantaneous low flow					0.00	Oct 1, 1990[d]
Annual runoff (ac-ft)	887		3,210		3,130	
10 percent exceeds	2.1		7.3		7.7	
50 percent exceeds	1.1		1.2		1.8	
90 percent exceeds	0.34		0.45		0.30	

* During periods of operation (1973-85, 1988-95, October 2003 to current year).
[a] Median of yearly mean discharge, 3.29 ft³/s, 2,380 ac-ft/yr.
[b] Gage height, 8.65 ft; backwater from ice and beaver dam, previous site and datum.
[c] Backwater from ice and beaver dam, previous site and datum.
[d] No flow at times most years.



06307740 OTTER CREEK AT ASHLAND, MT—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1975-85, July 2003 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: November 1980 to August 1985 (observer daily samples), April 2004 to current year. (seasonal electronic records).

INSTRUMENTATION.--Specific conductance probe was installed in May 2004.

REMARKS.--Specific conductance records are published through the end of the irrigation season (October 2007); records are rated good to excellent. Missing daily specific conductance values for Mar. 21, 22; Apr. 1-10; July 1, 8, 15-17; and Aug. 9-21 are due to equipment problems. The June 19 water-quality sample was collected in conjunction with aquatic ecology samples for an interagency task group studying the effects of coal-bed natural gas development. Additional information is available at http://wy.water.usgs.gov/projects/atg/index.htm. Several unpublished observations of specific conductance and water temperature were made during the year.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily mean, 3,850 microsiemens per centimeter (µS/cm) at 25.0°C, Dec. 3, 1983; minimum daily mean, 942 µS/cm at 25.0°C, Feb. 19, 1982.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE (seasonal records April 2007 through October 2007): Maximum daily, 3,740 µS/cm at 25.0°C, June 23; minimum daily, 978 µS/cm at 25.0°C, Mar. 18.

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 1 of 6

[Remark codes: E, estimated.]

Date	Time	Instantaneous discharge, cfs (00061)	Turbdty white light, det ang 90+/-30 corrctd NTRU (63676)	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 µS/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)
Oct													
03...	1220	.70	--	691	6.2	64	8.4	2,160	11.0	12.0	620	52.9	118
Dec													
06...	1200	.45	--	694	15.2	117	7.9	3,700	1.0	0.5	1,100	117	204
Feb													
14...	1045	E.20	--	696	9.5	72	7.9	2,360	-9.0	0.0	660	75.0	113
Mar													
06...	1515	3.1	--	689	22.2	171	8.9	1,730	15.0	0.5	480	53.6	84.0
Apr													
10...	1400	4.1	--	677	9.8	97	8.5	3,050	9.0	9.0	850	87.5	153
24...	1545	3.2	--	687	9.1	107	8.4	3,320	20.5	17.5	990	102	179
May													
07...	1030	33	--	688	9.5	94	8.0	2,510	16.0	10.0	650	68.9	116
23...	1330	6.2	--	687	9.1	95	8.4	3,110	5.0	12.0	1,000	104	179
Jun													
04...	1430	6.8	--	686	8.0	107	8.3	2,970	24.5	24.5	920	96.2	165
19...	1220	16	64	--	7.6	--	8.2	3,520	--	21.0	1,100	122	196
26...	0945	8.2	--	693	5.5	68	8.3	3,390	17.5	20.5	1,100	115	197
Jul													
09...	0930	4.3	--	663	7.2	102	--	3,340	27.0	25.0	1,100	106	191
Aug													
07...	1215	1.3	--	679	7.7	106	8.4	2,960	35.0	25.0	850	71.1	163

06307740 OTTER CREEK AT ASHLAND, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 2 of 6
[Remark codes: E, estimated.]

Date	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)	Sodium, water, fltrd, mg/L (00930)	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)	Dissolved solids, sum of constituents mg/L (70301)	Dissolved solids, tons/acre-ft (70303)	Dissolved solids, tons/d (70302)
Oct											
03...	18.0	5.0	289	492	10.5	.83	6.35	755	1,550	2.10	2.92
Dec											
06...	25.8	6.5	502	807	15.8	1.20	22.3	1,480	2,850	3.88	3.46
Feb											
14...	15.3	5.3	310	550	9.68	.93	18.1	817	1,690	2.30	E.91
Mar											
06...	11.7	4.6	233	350	7.12	.58	8.49	624	1,230	1.68	10.3
Apr											
10...	17.7	6.0	400	499	13.7	.83	7.29	1,290	2,270	3.09	25.2
24...	20.9	6.3	453	550	14.3	.92	6.94	1,390	2,490	3.39	21.5
May											
07...	17.4	5.5	324	396	10.1	.67	7.99	1,040	1,820	2.48	162
23...	19.4	5.7	413	536	12.1	.79	8.02	1,340	2,400	3.26	40.1
Jun											
04...	18.5	5.9	411	543	9.79	.88	7.97	1,260	2,300	3.12	42.2
19...	20.4	6.2	475	522	13.0	.70	10.9	1,460	2,610	3.55	113
26...	23.9	6.1	464	603	13.2	.88	8.51	1,450	2,640	3.58	58.4
Jul											
09...	23.4	6.5	481	606	13.1	.90	11.4	1,380	2,570	3.49	29.8
Aug											
07...	22.0	6.6	443	584	12.9	.96	13.6	1,130	2,210	3.01	7.76

06307740 OTTER CREEK AT ASHLAND, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 3 of 6
[Remark codes: E, estimated.]

Date	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			
03...	96	90	.17
Dec			
06...	59	40	.05
Feb			
14...	84	41	E.02
Mar			
06...	82	38	.32
Apr			
10...	75	137	1.5
24...	--	--	--
May			
07...	--	--	--
23...	77	127	2.1
Jun			
04...	81	186	3.4
19...	--	--	--
26...	--	--	--
Jul			
09...	--	--	--
Aug			
07...	96	137	.48

06307740 OTTER CREEK AT ASHLAND, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 4 of 6
[Remark codes: <, less than; E, estimated.]

Date	Time	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, water unfltrd, mg/L (62855)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Total phos-phorus, water, unfltrd mg/L (00665)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Arsenic water, fltrd, µg/L (01000)	Arsenic water, unfltrd µg/L (01002)	Barium, water, fltrd, µg/L (01005)	Barium, water, unfltrd recover-able, µg/L (01007)
Oct													
03...	1220	.035	E.013	<.002	.50	<.006	.051	2.3	390	1.3	1.7	24	33.7
Dec													
06...	1200	.045	.320	.011	.76	.010	.017	--	--	--	--	--	--
Feb													
14...	1045	.123	.423	.010	.79	.012	.102	1.9	37	.69	.88	25	24.7
Apr													
10...	1400	<.020	<.016	<.002	.82	E.004	.050	<3.2	134	1.3	1.5	27	32.1
May													
23...	1330	.127	.050	.008	1.06	E.006	.065	<3.2	405	1.4	2.0	59	64.7
Aug													
07...	1215	<.020	<.016	<.002	.94	.007	.101	4.9	727	6.6	7.1	61	76.8

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 5 of 6
[Remark codes: <, less than; E, estimated.]

Date	Beryll-ium, water, fltrd, µg/L (01010)	Beryll-ium, water, unfltrd recover-able, µg/L (01012)	Boron, water, fltrd, µg/L (01020)	Cadmium water, fltrd, µg/L (01025)	Cadmium water, unfltrd µg/L (01027)	Chrom-ium, water, fltrd, µg/L (01030)	Chrom-ium, water, unfltrd recover-able, µg/L (01034)	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recover-able, µg/L (01042)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover-able, µg/L (01045)	Lead, water, fltrd, µg/L (01049)	Lead, water, unfltrd recover-able, µg/L (01051)
Oct													
03...	<.06	E.04	497	E.02	.04	--	E2	1.5	3.9	<18	832	<.12	.79
Dec													
06...	--	--	--	--	--	--	--	--	--	--	--	--	--
Feb													
14...	<.06	<.06	377	<.08	.02	--	E2	1.1	4.4	21	226	E.10	E.05
Apr													
10...	<.12	<.06	--	--	--	--	--	--	--	32	808	--	--
May													
23...	<.12	E.04	--	<.08	.06	.45	.87	E.51	1.5	E15	1,080	<.24	1.02
Aug													
07...	<.12	E.06	--	--	--	--	--	--	--	<18	1,290	--	--

06307740 OTTER CREEK AT ASHLAND, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 6 of 6

Date	Lithium water, fltrd, µg/L (01130)	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recoverable, µg/L (01055)	Mercury water, unfltrd ng/L (50286)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recoverable, µg/L (01067)	Selenium, water, fltrd, µg/L (01145)	Selenium, water, unfltrd µg/L (01147)	Strontium, water, fltrd, µg/L (01080)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recoverable, µg/L (01092)
Oct											
03...	109	6.8	72.9	--	1.8	3.75	.94	1.1	1,120	1.6	7
Dec											
06...	--	--	--	--	--	--	--	--	--	--	--
Feb											
14...	106	82.7	89.7	--	1.4	3.77	1.4	1.5	1,930	2.1	3
Apr											
10...	--	68.5	127	--	--	--	1.1	.90	--	--	--
May											
23...	--	96.0	158	--	3.4	4.3	.71	.81	--	2.2	3.8
Aug											
07...	--	42.4	141	2.14	--	--	.70	.69	--	--	--

06307740 OTTER CREEK AT ASHLAND, MT—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
CALENDAR YEAR JANUARY TO DECEMBER 2007

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		March			April			May			June	
1				---	---	---	3,180	3,140	3,150	3,000	2,960	2,980
2				---	---	---	3,180	3,140	3,160	2,990	2,940	2,970
3				---	---	---	3,150	2,860	3,090	3,040	2,920	2,970
4				---	---	---	2,910	2,740	2,820	3,120	3,030	3,080
5				---	---	---	2,920	2,580	2,810	3,080	3,040	3,060
6				---	---	---	2,590	2,300	2,390	3,240	2,610	3,130
7				---	---	---	2,590	1,470	2,100	2,640	1,240	2,220
8				---	---	---	2,420	1,730	2,230	1,240	1,000	1,050
9				---	---	---	1,960	1,770	1,820	1,750	1,100	1,370
10				---	---	---	2,200	1,860	2,030	2,040	1,750	1,950
11				3,060	3,020	3,030	2,880	2,200	2,460	2,330	2,000	2,080
12				3,080	3,000	3,060	3,410	2,880	3,190	2,460	2,330	2,420
13				3,130	2,920	3,060	3,630	3,410	3,580	2,560	2,330	2,390
14	2,000	1,810	1,930	3,110	2,900	3,010	3,620	3,590	3,600	3,120	2,560	2,770
15	1,860	1,520	1,750	3,080	2,910	3,020	3,600	3,570	3,590	3,200	2,990	3,130
16	1,650	1,480	1,580	3,080	3,020	3,060	3,580	3,480	3,530	2,990	2,770	2,890
17	1,690	1,140	1,490	3,150	2,980	3,100	3,480	3,300	3,400	2,910	2,770	2,850
18	1,200	978	1,090	3,210	3,150	3,190	3,300	3,160	3,220	3,180	2,880	3,040
19	1,360	1,060	1,210	3,200	3,110	3,140	3,160	3,120	3,140	3,370	3,180	3,280
20	---	---	#1,180	3,200	3,140	3,180	3,180	3,120	3,150	3,640	3,360	3,500
21	---	---	---	3,180	3,150	3,160	3,240	3,160	3,210	3,720	3,540	3,650
22	---	---	---	3,180	3,150	3,160	3,240	3,070	3,160	3,710	3,410	3,620
23	1,700	1,590	1,650	3,260	3,170	3,210	3,250	3,100	3,170	3,740	3,230	3,580
24	1,790	1,690	1,740	3,340	3,260	3,290	3,170	3,070	3,150	3,610	3,280	3,520
25	1,820	1,680	1,750	3,290	3,180	3,250	3,300	3,160	3,230	3,600	3,430	3,540
26	2,240	1,750	2,080	3,210	3,180	3,200	3,480	3,300	3,400	3,460	3,370	3,430
27	2,210	2,000	2,110	3,190	3,140	3,170	3,470	3,400	3,440	3,400	3,330	3,360
28	2,450	1,990	2,250	3,150	3,110	3,130	3,400	3,250	3,340	3,340	3,260	3,290
29	2,570	2,410	2,510	3,150	3,110	3,130	3,310	3,200	3,260	3,280	3,240	3,250
30	2,520	2,210	2,390	3,160	3,130	3,140	3,300	3,130	3,200	3,270	3,210	3,240
31	---	---	#2,190	---	---	---	3,150	2,970	3,050	---	---	---
Month	---	---	---	---	---	---	3,630	1,470	3,030	3,740	1,000	2,920

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

06307740 OTTER CREEK AT ASHLAND, MT—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
CALENDAR YEAR JANUARY TO DECEMBER 2007

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		July			August			September			October	
1	---	---	---	2,990	2,970	2,980	2,600	2,580	2,590	2,430	2,320	2,370
2	---	---	#3,260	2,990	2,960	2,970	2,610	2,580	2,600	2,500	2,340	2,400
3	3,290	3,230	3,260	2,980	2,950	2,970	2,610	2,580	2,600	2,540	2,380	2,420
4	3,320	3,250	3,280	2,980	2,950	2,970	2,610	2,530	2,590	2,480	2,400	2,440
5	3,340	3,280	3,310	2,990	2,940	2,960	2,620	2,520	2,570	2,430	2,290	2,360
6	3,370	3,300	3,330	2,970	2,930	2,950	2,620	2,520	2,570	2,420	2,310	2,340
7	---	---	#3,340	2,960	2,890	2,930	2,580	2,520	2,550	2,500	2,360	2,430
8	---	---	---	2,900	2,880	2,890	2,580	2,550	2,560	2,620	2,390	2,470
9	---	---	#3,360	2,900	2,850	2,880	2,570	2,490	2,550	2,540	2,410	2,480
10	3,310	3,250	3,280	2,900	2,870	2,880	2,520	2,470	2,500	2,530	2,440	2,480
11	3,260	3,170	3,230	2,890	2,850	2,860	2,520	2,460	2,500	2,560	2,460	2,490
12	3,230	3,180	3,200	2,860	2,830	2,850	2,530	2,470	2,510	2,570	2,470	2,510
13	3,200	3,140	3,170	2,860	2,820	2,840	2,540	2,490	2,510	2,660	2,480	2,530
14	---	---	#3,170	2,830	2,800	2,820	2,520	2,490	2,510	2,640	2,490	2,510
15	---	---	---	2,820	2,790	2,810	2,560	2,490	2,510	2,560	2,480	2,510
16	---	---	---	2,840	2,790	2,820	2,570	2,490	2,530	2,530	2,420	2,500
17	---	---	---	2,840	2,820	2,830	2,550	2,440	2,530	2,600	2,440	2,530
18	---	---	#3,050	---	---	#2,820	2,530	2,360	2,430	2,570	2,500	2,540
19	3,090	3,020	3,060	---	---	---	2,430	2,340	2,390	2,640	2,490	2,560
20	3,090	3,040	3,070	---	---	---	2,460	2,310	2,380	2,600	2,540	2,580
21	3,080	3,040	3,060	---	---	---	2,480	2,340	2,410	2,630	2,560	2,600
22	3,080	3,020	3,060	2,790	2,720	2,750	2,530	2,290	2,400	2,640	2,620	2,630
23	3,060	3,010	3,040	2,720	2,670	2,700	2,500	2,350	2,430	2,640	2,600	2,630
24	---	---	#3,030	2,670	2,620	2,630	2,410	2,300	2,340	2,640	2,580	2,630
25	---	---	#2,980	2,620	2,590	2,610	2,430	2,310	2,350	2,650	2,630	2,640
26	2,990	2,960	2,970	2,610	2,570	2,590	2,380	2,300	2,330	2,660	2,640	2,650
27	3,030	2,980	3,000	2,590	2,560	2,570	2,450	2,320	2,360	2,670	2,650	2,660
28	3,040	3,000	3,020	2,570	2,540	2,550	2,410	2,330	2,370	2,690	2,660	2,680
29	3,040	3,000	3,020	2,560	2,530	2,550	2,400	2,310	2,360	2,740	2,690	2,720
30	3,030	2,990	3,010	2,590	2,540	2,560	2,380	2,260	2,320	2,770	2,740	2,760
31	3,010	2,980	2,990	2,590	2,560	2,580	---	---	---	2,820	2,760	2,800
Month	---	---	---	---	---	---	2,620	2,260	2,470	2,820	2,290	2,540

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

USGS
science for a changing world

Water-Data Report 2007

06307830 TONGUE RIVER BELOW BRANDENBERG BRIDGE, NEAR ASHLAND MT

Tongue Basin
Lower Tongue Subbasin

LOCATION.--Lat 45°50′23″, long 106°13′09″ referenced to North American Datum of 1927, in SE ¼ SW ¼ NE ¼ sec.14, T.1 N., R.44 E., Rosebud County, MT, Hydrologic Unit 10090102, on right bank downstream from county bridge, 22 mi north of Ashland, and at river mile 81.3.

DRAINAGE AREA.--3,948 mi². Area at site used prior to July 2000, 4,062 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--October 1973 to September 1984, July 2000 to September 2007, discontinued.

GAGE.--Water stage recorder. Elevation of gage is 2,760 ft, referenced to the National Geodetic Vertical Datum of 1929, from topographic map. October 1973 to September 1984, water-stage recorder at site 6.5 mi downstream at different elevation.

REMARKS.--Records are good except those for estimated daily discharges, which are poor. Flow is regulated by Tongue River Reservoir (station number 06307000) and many small reservoirs in Wyoming with a combined capacity of about 15,000 acre-ft. Diversions for irrigation for about 73,000 acres occur above station. U.S. Geological Survey satellite telemeter is located at the station.

06307830 TONGUE RIVER BELOW BRANDENBERG BRIDGE, NEAR ASHLAND MT—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	58	e100	e120	e90	e80	e80	376	548	1,760	860	363	347
2	61	e90	e90	e100	e80	e80	446	549	1,710	762	364	352
3	63	119	e90	e100	e80	e70	501	567	1,880	704	360	346
4	65	134	e100	e100	e90	e80	499	644	2,040	602	357	341
5	65	134	e100	e100	e110	e80	504	676	1,980	558	360	338
6	70	132	e90	e100	e100	e200	505	943	2,010	529	366	346
7	74	136	e90	e100	e100	e200	503	955	2,820	485	365	350
8	74	139	e100	e100	e100	e200	503	1,080	2,710	459	372	354
9	75	139	e110	e100	e100	e200	522	1,190	2,570	428	361	351
10	82	140	e100	e100	e100	e200	541	1,180	3,080	402	365	365
11	90	142	e100	e100	e100	195	543	1,180	3,460	395	367	366
12	92	142	e110	e90	e100	193	542	1,200	3,240	376	368	341
13	91	139	e120	e90	e100	193	543	1,520	3,010	360	362	316
14	94	138	e110	e90	e90	173	543	1,630	2,910	336	363	308
15	106	138	e120	e90	e90	170	542	2,050	2,820	314	366	308
16	111	138	e110	e90	e90	181	545	2,450	2,660	301	358	308
17	116	138	e100	e90	e100	204	544	2,560	2,540	283	357	308
18	117	138	e90	e90	e100	213	544	2,350	2,470	298	358	320
19	118	138	e100	e90	e100	238	564	2,200	2,390	312	362	316
20	121	139	e100	e100	e100	250	567	2,180	2,300	323	342	296
21	121	139	e100	e100	e100	273	551	2,230	2,070	333	332	289
22	120	144	e100	e100	e100	277	552	2,340	1,760	343	336	268
23	121	146	e100	e110	e100	279	554	2,390	1,540	346	343	260
24	123	146	e100	e100	e100	282	555	2,360	1,470	342	349	253
25	121	e140	e100	e100	e90	282	553	2,200	1,310	353	342	233
26	124	e130	e100	e100	e80	281	552	1,970	1,280	369	359	225
27	125	e120	e110	e90	e80	281	552	1,820	1,210	361	351	218
28	126	e110	e100	e90	e80	304	552	1,730	1,020	353	342	215
29	124	e100	e90	e90	---	335	551	1,700	964	363	334	213
30	122	e110	e90	e80	---	354	549	1,680	919	369	334	218
31	e90	---	e80	e90	---	363	---	1,710	---	368	333	---
Total	3,060	3,938	3,120	2,960	2,640	6,711	15,898	49,782	63,903	12,987	10,991	9,069
Mean	98.7	131	101	95.5	94.3	216	530	1,606	2,130	419	355	302
Max	126	146	120	110	110	363	567	2,560	3,460	860	372	366
Min	58	90	80	80	80	70	376	548	919	283	332	213
Ac-ft	6,070	7,810	6,190	5,870	5,240	13,310	31,530	98,740	126,800	25,760	21,800	17,990

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1974 - 2007, BY WATER YEAR (WY)*

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	239	194	176	191	198	263	291	780	1,305	594	387	281
Max	511	388	389	334	406	705	594	2,502	3,452	2,261	915	436
(WY)	(1974)	(1974)	(1979)	(1975)	(1983)	(1975)	(1975)	(1978)	(1978)	(1975)	(1975)	(1979)
Min	98.7	84.3	95.5	75.8	90.4	81.3	94.9	111	184	183	125	72.1
(WY)	(2007)	(1976)	(2002)	(2005)	(2002)	(2002)	(2005)	(2002)	(2006)	(2002)	(2001)	(2006)

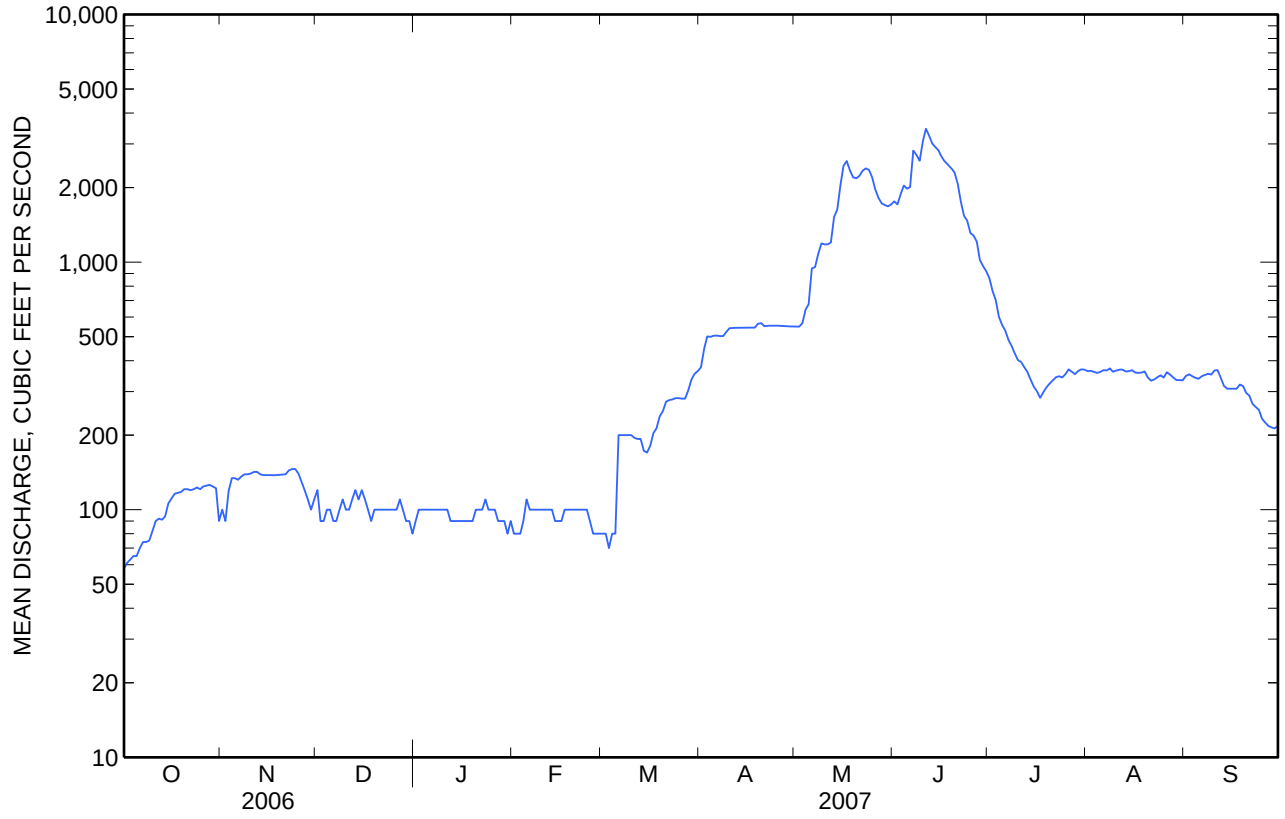
* During periods of operation (October 1973 to September 1984, July 2000 to September 2007).

06307830 TONGUE RIVER BELOW BRANDENBERG BRIDGE, NEAR ASHLAND MT—Continued

SUMMARY STATISTICS

	Calendar Year 2006		Water Year 2007		Water Years 1974 - 2007*	
Annual total	50,728		185,059			
Annual mean	139		507		410	
Highest annual mean					885	1975
Lowest annual mean					120	2002
Highest daily mean	333	Jun 8	3,460	Jun 11	7,600	May 22, 1978
Lowest daily mean	58	Sep 30	58	Oct 1	40	Jan 14, 2005
Annual seven-day minimum	60	Sep 27	65	Oct 1	53	Nov 25, 1975
Maximum peak flow			3,510	Jun 11	[a]8,280	May 22, 1978
Maximum peak stage			10.97	Jun 11	[b]11.49	Mar 15, 2003
Annual runoff (ac-ft)	100,600		367,100		296,900	
10 percent exceeds	215		1,710		858	
50 percent exceeds	125		279		243	
90 percent exceeds	79		90		100	

* During periods of operation (October 1973 to September 1984, July 2000 to September 2007).
[a] Gage height, 9.96 ft, site and datum then in use.
[b] Backwater from ice.



06307830 TONGUE RIVER BELOW BRANDENBERG BRIDGE, NEAR ASHLAND MT—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1974-81, June 2000 to October 2007, discontinued.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: August 2000 to October 2007, (seasonal operation dependent on ice conditions).
SUSPENDED-SEDIMENT DISCHARGE: October 1974 to September 1981.

INSTRUMENTATION.--Specific conductance probe installed Aug. 23, 2000.

REMARKS. --Seasonal specific conductance collected this year for the period March to October 2007. Data are included for October 2007 (water yar 2008) to provide information for the complete irrigation season. Specific conductance records are rated good to excellent, except those for Apr. 27 to May 7, which are rated poor due to fouling of the sensor. Missing specific conductance data for May 11 and July 2-11 are due to equipment problems. The Aug. 27 water-quality sample was collected in conjunction with aquatic ecology samples for an interagency task group studying the effects of coal-bed natural gas development. Additional information is available at http://wy.water.usgs.gov/projects/atg/index.htm. Several unpublished observations of specific conductance and water temperature were made during the year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum, 1,140 microsiemens per centimeter (µS/cm), Jan. 2, 3, 2002; minimum, 158 µS/cm, June 8, 2006.
SEDIMENT CONCENTRATION: Maximum daily mean, 6,400 mg/L July 26, 1979; minimum daily mean, 1 mg/L Oct. 18, 24, 1976.
SEDIMENT LOAD: Maximum daily, 27,200 tons May 19, 1978; minimum daily, 0.47 ton Nov. 15-17, 1975.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: During period of seasonal operation, maximum, 1,130 microsiemens per centimeter (µS/cm), May 8 and 9; minimum, 337 µS/cm, June 6.

06307830 TONGUE RIVER BELOW BRANDENBERG BRIDGE, NEAR ASHLAND MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 1 of 6
[Remark codes: E, estimated.]

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 µS/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													
03...	1330	62	696	7.4	76	8.5	823	9.0	12.5	310	51.9	44.1	5.41
Nov													
15...	1345	142	689	16.5	132	8.3	730	10.0	2.0	290	55.5	36.5	3.94
Dec													
06...	1315	E90	698	12.9	97	8.1	860	0.5	0.0	330	62.0	43.3	4.67
Feb													
23...	1230	E100	678	11.8	91	8.1	692	5.0	0.0	250	46.8	32.5	7.31
Mar													
06...	1700	E200	693	14.5	109	8.5	751	17.0	0.0	270	50.6	34.8	3.65
28...	1030	293	689	9.1	90	8.5	770	0.5	10.5	310	59.4	38.8	4.14
Apr													
10...	1230	541	681	10.7	101	8.5	731	9.0	8.0	290	57.0	36.2	4.37
24...	1445	555	692	9.9	106	8.5	707	18.0	14.0	280	55.7	34.3	4.63
May													
07...	1300	920	690	10.2	101	8.3	733	22.0	10.5	280	53.4	34.6	5.53
22...	1600	2,360	686	8.9	98	8.3	491	10.0	15.0	210	41.8	24.8	3.52
Jun													
04...	1700	2,050	689	9.2	112	8.3	380	27.0	20.0	160	34.6	17.6	2.40
26...	0830	1,280	697	7.5	91	8.3	432	15.0	20.0	180	38.5	21.2	3.06
Jul													
11...	1500	401	693	7.7	101	8.5	580	28.0	24.5	230	49.6	26.8	3.56
19...	1645	311	685	7.8	114	8.5	596	35.5	29.0	220	45.9	26.3	3.56
Aug													
07...	1430	363	681	8.3	114	8.2	501	30.0	25.5	190	42.1	21.8	2.94
27...	0905	357	--	8.0	--	8.5	528	--	20.0	--	--	--	--
Sep													
18...	1130	317	691	8.7	100	8.4	612	16.5	17.0	240	49.6	28.9	3.46

06307830 TONGUE RIVER BELOW BRANDENBERG BRIDGE, NEAR ASHLAND MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 2 of 6
[Remark codes: E, estimated.]

Date	Sodium adsorption ratio (00931)	Sodium, water, fltrd, mg/L (00930)	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)	Dissolved solids, sum of constituents mg/L (70301)	Dissolved solids, tons/acre-ft (70303)	Dissolved solids, tons/d (70302)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspended sediment concentration mg/L (80154)	Suspended sediment discharge, tons/d (80155)
Oct													
03...	1.7	70.0	240	5.44	.39	5.66	210	537	.73	89.9	77	27	4.5
Nov													
15...	1.4	53.1	234	4.68	.35	3.92	167	465	.63	178	84	29	11
Dec													
06...	1.5	61.2	272	5.47	.45	4.69	200	545	.74	E132	57	41	E10
Feb													
23...	1.5	54.0	200	4.98	.32	6.61	162	437	.59	E118	96	29	E7.8
Mar													
06...	1.4	53.0	224	5.02	.34	2.88	179	464	.63	E250	75	160	E86
28...	1.4	55.2	247	5.35	.37	1.41	176	488	.66	386	78	96	76
Apr													
10...	1.4	53.2	232	5.34	.34	3.33	165	464	.63	678	73	106	155
24...	1.2	46.9	222	5.41	.34	3.12	157	441	.60	661	--	--	--
May													
07...	1.5	57.9	191	4.73	.28	4.04	194	469	.64	1,160	--	--	--
22...	.8	25.8	152	2.96	.20	7.15	106	304	.41	1,930	75	211	1,340
Jun													
04...	.6	17.3	126	2.11	.17	5.01	67.1	222	.30	1,230	--	--	--
26...	.8	23.6	141	2.31	.24	7.26	83.6	264	.36	912	--	--	--
Jul													
11...	1.1	37.7	171	3.43	.25	7.25	131	362	.49	392	--	--	--
19...	1.1	37.8	175	3.38	.26	7.15	132	361	.49	303	--	--	--
Aug													
07...	.8	25.7	165	2.53	.24	5.70	95.6	296	.40	290	93	19	19
27...	--	--	--	--	--	--	--	--	--	--	--	--	--
Sep													
18...	1.1	38.2	193	3.70	.28	1.97	135	377	.51	322	--	--	--

06307830 TONGUE RIVER BELOW BRANDENBERG BRIDGE, NEAR ASHLAND MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 3 of 6
[Remark codes: <, less than; E, estimated.]

Date	Time	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, water unfltrd, mg/L (62855)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Total phos-phorus, water, unfltrd mg/L (00665)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Arsenic water, fltrd, µg/L (01000)	Arsenic water, unfltrd µg/L (01002)	Barium, water, fltrd, µg/L (01005)	Barium, water, unfltrd recover-able, µg/L (01007)
Oct													
03...	1330	E.011	E.008	<.002	.22	<.006	E.008	2.6	44	.70	.90	53	56.0
Dec													
06...	1315	<.020	<.016	<.002	.35	<.006	.014	--	--	--	--	--	--
Feb													
23...	1230	<.020	.270	.013	1.10	E.004	.072	2.0	450	.69	1.1	48	54.2
Apr													
10...	1230	<.020	<.016	<.002	.62	<.006	.083	2.0	482	.90	1.5	57	72.9
May													
22...	1600	.028	.106	.003	.68	.007	.159	5.3	1,550	.87	2.4	46	81.1
Aug													
07...	1430	<.020	<.016	E.001	.33	E.005	.026	4.3	190	1.3	1.3	50	54.5

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 4 of 6
[Remark codes: <, less than; E, estimated.]

Date	Beryll-ium, water, fltrd, µg/L (01010)	Beryll-ium, water, unfltrd recover-able, µg/L (01012)	Boron, water, fltrd, µg/L (01020)	Cadmium water, fltrd, µg/L (01025)	Cadmium water, unfltrd µg/L (01027)	Chrom-ium, water, fltrd, µg/L (01030)	Chrom-ium, water, unfltrd recover-able, µg/L (01034)	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recover-able, µg/L (01042)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover-able, µg/L (01045)	Lead, water, fltrd, µg/L (01049)	Lead, water, unfltrd recover-able, µg/L (01051)
Oct													
03...	<.06	<.06	117	<.04	<.02	--	.80	.61	1.5	17	120	.16	.19
Dec													
06...	--	--	--	--	--	--	--	--	--	--	--	--	--
Feb													
23...	<.06	E.04	70	<.04	.03	--	1	1.8	3.7	64	702	<.12	.67
Apr													
10...	<.06	E.05	--	--	--	--	--	--	--	11	940	--	--
May													
22...	<.06	.15	--	<.04	.06	.14	2.2	1.8	4.6	21	3,180	.20	2.65
Aug													
07...	<.06	<.06	--	--	--	--	--	--	--	E4	367	--	--

06307830 TONGUE RIVER BELOW BRANDENBERG BRIDGE, NEAR ASHLAND MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 5 of 6
[Remark codes: E, estimated.]

Date	Lithium water, fltrd, µg/L (01130)	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recoverable, µg/L (01055)	Mercury water, unfltrd ng/L (50286)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recoverable, µg/L (01067)	Selenium, water, fltrd, µg/L (01145)	Selenium, water, unfltrd µg/L (01147)	Strontium, water, fltrd, µg/L (01080)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recoverable, µg/L (01092)
Oct											
03...	26.9	7.5	12.3	--	.89	1.60	.16	.22	618	E.39	E1
Dec											
06...	--	--	--	--	--	--	--	--	--	--	--
Feb											
23...	21.6	20.5	42.6	--	1.2	2.17	.29	.28	515	1.9	6
Apr											
10...	--	4.6	96.7	--	--	--	.38	.35	--	--	--
May											
22...	--	3.1	134	--	1.4	4.3	.61	.47	--	9.4	9.1
Aug											
07...	--	3.5	31.4	1.24	--	--	.29	.29	--	--	--

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 6 of 6

Date	Time	Turbdty white light, det ang 90+/-30 corrctd NTRU (63676)	Biomass periphyton, ashfree drymass g/m2 (49954)	Periphyton biomass ash weight, g/m2 (00572)	Periphyton biomass dry weight, g/m2 (00573)	Biomass chlorophyll ratio, periphyton, number (70950)	Chlorophyll a periphyton, chromofluoro, mg/m2 (70957)	Pheophytin a, periphyton, mg/m2 (62359)
Aug								
27...	0905	11	6.2	270	280.2	1,100	5.5	1.7

06307830 TONGUE RIVER BELOW BRANDENBERG BRIDGE, NEAR ASHLAND MT—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
MARCH 2007 TO OCTOBER 2007

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		March			April			May			June	
1				728	680	707	708	668	683	388	370	378
2				727	709	720	718	704	710	390	374	382
3				722	710	716	723	706	714	379	372	376
4				716	702	709	722	712	717	379	372	375
5				719	698	708	718	694	707	376	369	373
6				726	713	723	715	690	696	369	337	362
7				722	713	718	796	715	739	424	340	378
8				728	717	723	1,130	757	826	476	416	436
9				724	705	719	1,130	734	836	586	424	462
10				728	703	714	---	---	---	568	414	443
11				714	709	712	---	---	#758	416	404	409
12				715	703	707	763	706	737	405	400	402
13				717	707	712	712	670	690	409	402	407
14				714	706	711	705	689	701	406	401	404
15				718	705	710	689	655	669	415	401	408
16				788	705	743	657	626	641	420	415	418
17				806	772	782	648	637	645	418	409	414
18				807	752	772	637	603	622	410	401	405
19				752	725	737	615	596	607	401	397	399
20				729	720	723	603	530	568	401	398	400
21				729	720	724	554	517	539	424	401	408
22				720	711	715	517	492	503	434	420	429
23				727	719	721	492	463	475	447	428	438
24				719	694	708	467	420	444	444	426	432
25				699	687	694	468	446	457	449	427	439
26				699	676	691	469	450	459	441	420	429
27				694	580	657	464	434	450	430	420	424
28	---	---	#747	594	573	583	440	433	435	466	430	453
29	752	735	745	619	588	602	434	399	414	468	460	463
30	738	722	730	668	619	641	399	375	384	463	451	460
31	733	674	700	---	---	---	375	364	369	---	---	---
Month	---	---	---	807	573	707	*1,130	*364	*606	586	337	414

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

* Monthly mean computed from available daily means. A specific conductance greater than or less than the reported maximum or minimum may have occurred during the period of missing record.

06307830 TONGUE RIVER BELOW BRANDENBERG BRIDGE, NEAR ASHLAND MT—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
MARCH 2007 TO OCTOBER 2007

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		July			August			September			October	
1	467	450	458	502	492	497	588	567	579	703	696	699
2	---	---	---	503	490	496	583	564	574	697	692	695
3	---	---	---	504	492	498	579	563	572	700	694	697
4	---	---	---	504	495	499	588	569	577	703	697	700
5	---	---	---	501	494	497	599	579	586	707	701	703
6	---	---	---	497	490	493	596	580	586	701	697	699
7	---	---	---	500	487	493	586	575	581	705	697	701
8	---	---	---	498	487	494	587	570	579	702	695	697
9	---	---	---	501	489	496	594	579	587	702	693	698
10	---	---	---	505	495	499	587	570	575	705	696	700
11	---	---	---	508	497	502	581	562	572	711	696	704
12	582	572	575	513	500	506	590	569	578	715	706	710
13	574	569	571	517	506	512	599	586	591	707	688	697
14	586	573	578	521	511	516	600	590	595	705	690	698
15	603	585	596	520	506	513	599	582	591	709	696	701
16	617	602	613	521	506	514	598	587	592	715	703	711
17	635	617	626	532	515	524	616	598	610	718	711	714
18	628	603	619	543	524	531	633	603	616	722	711	715
19	603	576	591	546	529	537	627	604	614	723	714	720
20	576	551	562	551	537	543	627	613	622	719	693	713
21	551	528	539	557	547	551	640	625	633	722	695	711
22	528	514	520	553	544	548	659	631	647	718	686	711
23	514	504	508	559	539	552	675	659	669	721	715	717
24	506	499	502	557	532	542	669	658	663	728	691	718
25	500	488	495	556	548	552	685	663	670	727	696	712
26	490	473	484	554	538	547	698	685	690	732	698	725
27	492	473	484	549	536	542	709	689	703	738	709	723
28	499	483	492	552	541	547	722	706	713	736	711	725
29	495	488	492	558	543	550	722	705	718	733	706	727
30	501	492	496	558	545	551	713	703	709	734	729	730
31	504	492	497	575	556	565	---	---	---	---	---	---
Month	*635	*450	*538	575	487	523	722	562	620	738	686	710

* Monthly mean computed from available daily means. A specific conductance greater than or less than the reported maximum or minimum may have occurred during the period of missing record.

USGS
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Water-Data Report 2007

06307990 TONGUE RIVER ABOVE T&Y DIVERSION DAM, NEAR MILES CITY, MT

Tongue Basin
Lower Tongue Subbasin

LOCATION.--Lat 46°11′15″, long 105°46′46″ referenced to North American Datum of 1927, in NE ¼ NE ¼ SE ¼ sec.13, T.5 N., R.48 E., Custer County, MT, Hydrologic Unit 10090102, on right bank at private bridge, 4.7 mi south of Twelve Mile Diversion Dam 16 mi south of Miles City, and at river mile 28.4.

DRAINAGE AREA.--4,508 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--October 2004 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 2,480 ft, referenced to the National Geodetic Vertical Datum of 1929.

REMARKS.--Records are good except those for estimated daily discharges, which are poor. Flow is regulated by Tongue River Reservoir (station number 06307000) and many small reservoirs in Wyoming (combined capacity about 15,000 acre-ft). U.S. Geological Survey satellite telemeter is located at the station.

06307990 TONGUE RIVER ABOVE T&Y DIVERSION DAM, NEAR MILES CITY, MT—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	56	e100	e70	e80	e70	e90	467	544	1,950	977	280	302
2	55	e100	e80	e90	e70	e90	552	541	e1,900	918	277	312
3	59	136	e70	e90	e70	e90	645	e550	e2,000	822	265	330
4	61	134	e70	e90	e100	e70	562	e550	e2,100	757	267	315
5	61	135	e70	e90	e120	e70	538	e580	e2,000	662	266	313
6	60	144	e60	e90	e110	e80	526	e650	2,030	618	266	319
7	60	138	e60	e90	e110	e200	516	e900	5,460	586	278	344
8	64	145	e80	e90	e110	e200	511	e900	3,600	535	273	381
9	67	149	e90	e90	e110	e200	516	1,080	2,920	481	268	368
10	67	152	e80	e90	e110	e250	556	1,120	2,890	442	266	363
11	74	151	e80	e50	e110	e350	566	1,120	3,560	401	290	375
12	81	151	e90	e45	e110	292	565	1,120	3,930	379	285	374
13	88	152	e100	e40	e110	236	557	1,190	3,500	331	293	340
14	90	150	e100	e40	e110	238	554	1,470	3,160	310	280	314
15	91	147	e100	e45	e100	214	554	1,560	3,010	286	268	301
16	102	149	e90	e45	e100	203	552	1,990	2,850	251	263	302
17	125	147	e80	e45	e100	206	547	2,390	2,680	227	291	299
18	127	148	e70	e60	e110	224	544	2,490	2,570	209	318	307
19	127	148	e80	e80	e110	231	565	2,300	2,500	205	338	328
20	136	148	e80	e110	e110	256	575	2,200	2,430	207	320	320
21	151	151	e80	e110	e110	263	572	2,220	2,330	234	298	295
22	159	149	e80	e100	e110	284	558	2,300	2,050	250	274	290
23	139	152	e80	e110	e110	286	558	2,440	1,800	257	284	266
24	133	156	e80	e120	e110	289	561	2,490	1,620	250	299	260
25	134	154	e80	e110	e110	292	559	2,410	1,540	241	308	251
26	131	113	e90	e110	e90	294	559	2,220	1,400	251	293	229
27	131	e80	e90	e100	e90	289	554	1,990	1,360	266	318	218
28	133	e60	e90	e90	e90	316	555	1,870	1,250	276	331	208
29	134	e45	e80	e90	---	372	551	1,820	1,100	272	323	202
30	135	e50	e80	e90	---	389	549	1,770	1,030	274	317	202
31	e110	---	e70	e80	---	408	---	1,880	---	286	313	---
Total	3,141	3,934	2,500	2,560	2,870	7,272	16,544	48,655	72,520	12,461	9,010	9,028
Mean	101	131	80.6	82.6	102	235	551	1,570	2,417	402	291	301
Max	159	156	100	120	120	408	645	2,490	5,460	977	338	381
Min	55	45	60	40	70	70	467	541	1,030	205	263	202
Ac-ft	6,230	7,800	4,960	5,080	5,690	14,420	32,820	96,510	143,800	24,720	17,870	17,910

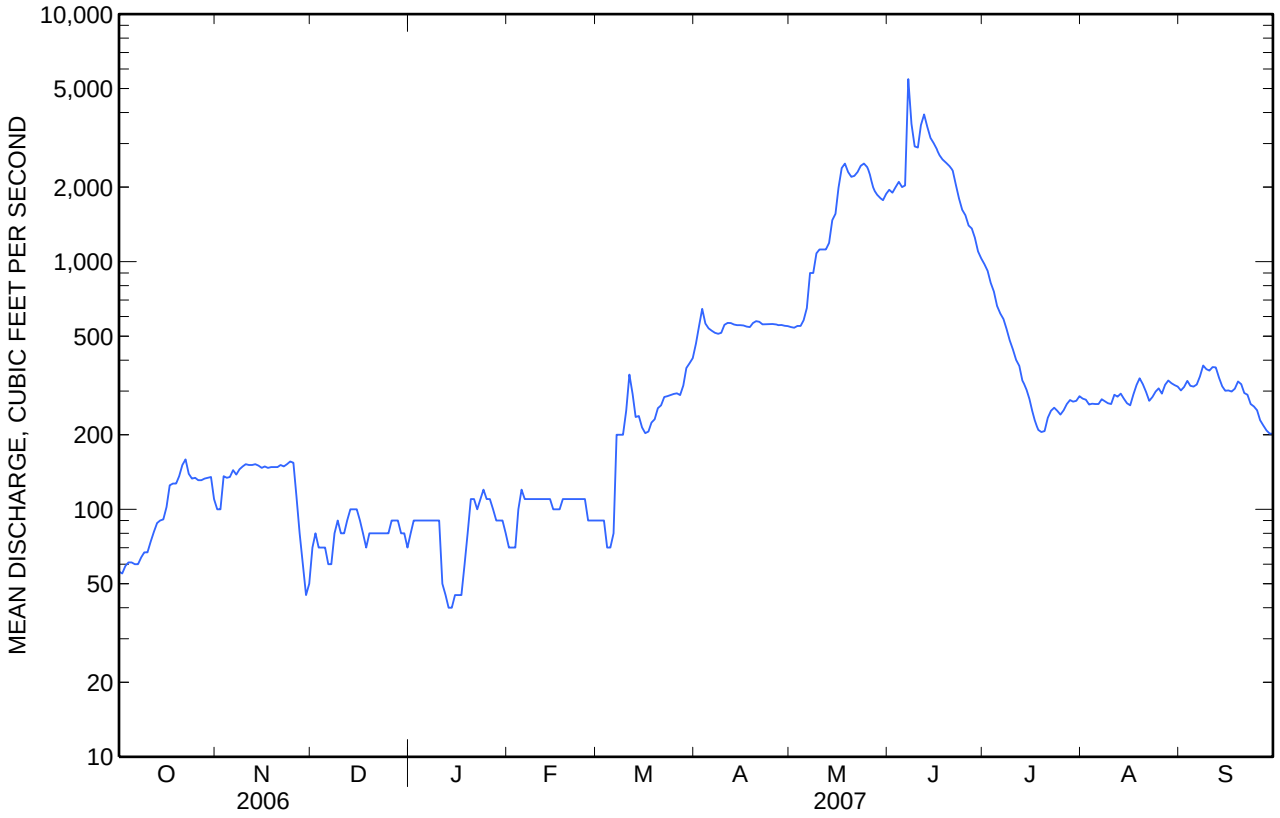
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2005 - 2007, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	156	151	126	123	113	151	268	869	1,363	375	234	211
Max	266	224	206	216	140	235	551	1,570	2,417	556	301	301
(WY)	(2006)	(2006)	(2006)	(2006)	(2006)	(2007)	(2007)	(2007)	(2007)	(2005)	(2005)	(2007)
Min	101	98.7	80.6	70.3	95.8	89.1	93.2	115	181	167	109	69.3
(WY)	(2007)	(2005)	(2007)	(2005)	(2005)	(2005)	(2005)	(2006)	(2006)	(2006)	(2006)	(2006)

06307990 TONGUE RIVER ABOVE T&Y DIVERSION DAM, NEAR MILES CITY, MT—Continued

SUMMARY STATISTICS

	Calendar Year 2006		Water Year 2007		Water Years 2005 - 2007	
Annual total	48,600		190,495			
Annual mean	133		522		345	
Highest annual mean					522	2007
Lowest annual mean					165	2006
Highest daily mean	1,220	Jun 9	5,460	Jun 7	5,460	Jun 7, 2007
Lowest daily mean	45	Nov 29	40	Jan 13	40	Jan 14, 2005
Annual seven-day minimum	58	Sep 2	44	Jan 11	44	Jan 11, 2007
Maximum peak flow			7,510	Jun 7	7,510	Jun 7, 2007
Maximum peak stage			10.40	Jun 7	10.40	Jun 7, 2007
Annual runoff (ac-ft)	96,400		377,800		250,100	
10 percent exceeds	210		1,840		914	
50 percent exceeds	126		251		150	
90 percent exceeds	69		80		80	



06307990 TONGUE RIVER ABOVE T&Y DIVERSION DAM, NEAR MILES CITY, MT—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--November 2004 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: March 2005 to current year (seasonal records).

INSTRUMENTATION.--Specific conductance probe installed March 2005.

REMARKS.--Specific conductance records are published through the end of the irrigation season (October 2007). Missing daily specific conductance values are due to equipment problems. Available records are rated good to excellent, except for the periods Apr. 17-24 and Apr. 29-May 1, which are rated fair to poor due to fouling of the sensor. Several unpublished observations of specific conductance and water temperature were made during the year.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 1,010 microsiemens per centimeter (µS/cm) at 25.0°C, Apr. 30 and May 5, 2006; minimum, 319 µS/cm at 25.0°C, June 26, 2005.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE (seasonal records): Maximum recorded, 842 µS/cm at 25.0°C, Mar. 27; minimum recorded, 418 µS/cm at 25.0°C, June 20. Higher or lower extremes may have occurred during missing days of record.

06307990 TONGUE RIVER ABOVE T&Y DIVERSION DAM, NEAR MILES CITY, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 1 of 5
[Remark codes: E, estimated.]

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 µS/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													
03...	1500	63	705	8.6	87	8.5	886	10.0	12.0	310	49.1	45.4	5.54
Nov													
15...	1530	167	694	12.1	98	8.3	770	4.0	2.5	300	57.3	38.7	4.32
Dec													
06...	1445	E60	709	13.2	97	8.0	998	-10.0	0.0	390	71.0	51.7	5.36
Feb													
23...	1000	E110	684	12.4	95	8.0	523	0.5	0.0	170	33.1	20.3	6.26
Mar													
07...	0915	E200	699	13.3	99	8.2	685	5.0	0.0	220	43.3	27.2	4.37
28...	0830	295	694	9.4	93	8.5	812	5.5	10.5	320	61.3	41.2	4.55
Apr													
10...	1000	560	687	11.0	101	8.5	750	8.0	7.0	280	54.6	34.2	4.08
24...	1315	564	700	10.0	107	8.5	727	22.0	14.5	280	56.2	35.1	4.63
May													
07...	1450	E900	698	10.0	106	8.2	600	21.5	14.0	190	38.4	22.3	4.71
22...	1330	2,310	692	7.8	87	8.3	529	11.0	16.0	230	45.5	27.5	3.88
Jun													
05...	1500	E2,000	686	8.2	103	8.3	390	27.0	21.5	170	37.1	19.0	2.68
25...	1500	1,540	692	8.1	110	8.4	460	28.0	25.5	190	39.2	21.8	3.25
Jul													
12...	0815	396	700	8.2	102	8.4	678	25.0	22.0	260	55.0	30.1	3.82
19...	1430	208	694	7.5	108	8.5	757	--	29.0	270	54.9	32.4	4.46
Aug													
07...	1600	284	688	7.8	110	8.5	581	36.5	27.5	230	47.6	26.2	3.60
Sep													
18...	1245	303	698	9.2	107	8.5	641	22.0	18.0	250	49.8	29.5	3.68

06307990 TONGUE RIVER ABOVE T&Y DIVERSION DAM, NEAR MILES CITY, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 2 of 5
[Remark codes: E, estimated.]

Date	Sodium adsorption ratio (00931)	Sodium, water, fltrd, mg/L (00930)	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)	Dissolved solids, sum of constituents mg/L (70301)	Dissolved solids, tons/ acre-ft (70303)	Dissolved solids, tons/d (70302)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspended sediment concentration mg/L (80154)	Suspended sediment discharge, tons/d (80155)
Oct													
03...	2.1	83.9	241	5.64	.33	5.17	240	580	.79	98.7	96	73	12
Nov													
15...	1.6	62.3	240	4.95	.35	4.09	182	498	.68	224	92	49	22
Dec													
06...	1.8	80.8	313	6.30	.48	5.95	244	653	.89	E106	90	47	E7.6
Feb													
23...	1.4	40.5	158	3.74	.27	6.39	110	316	.43	E93.9	99	112	E33
Mar													
07...	1.6	53.4	203	4.38	.31	4.29	161	420	.57	E227	98	261	E141
28...	1.5	63.5	255	5.64	.39	1.95	192	524	.71	417	95	122	97
Apr													
10...	1.5	58.2	235	5.25	.35	3.81	171	473	.64	715	96	417	631
24...	1.3	50.5	225	5.50	.35	3.46	164	454	.62	692	--	--	--
May													
07...	1.8	55.2	170	3.90	.30	4.31	139	370	.50	E899	--	--	--
22...	.8	29.1	164	3.32	.21	7.23	115	331	.45	2,060	64	307	1,910
Jun													
05...	.7	19.7	129	2.08	.18	4.85	69.2	232	.32	E1,250	--	--	--
25...	.8	25.7	145	2.46	.23	7.07	90.9	278	.38	1,150	--	--	--
Jul													
12...	1.3	49.1	190	4.24	.27	8.51	164	429	.58	459	--	--	--
19...	1.5	57.2	204	4.70	.29	8.85	190	475	.65	267	--	--	--
Aug													
07...	1.1	36.9	180	3.09	.26	6.66	123	356	.48	273	94	21	16
Sep													
18...	1.2	42.3	200	3.85	.28	2.61	143	395	.54	324	--	--	--

06307990 TONGUE RIVER ABOVE T&Y DIVERSION DAM, NEAR MILES CITY, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 3 of 5
[Remark codes: <, less than; E, estimated.]

Date	Time	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, water, unfltrd, mg/L (62855)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Total phos-phorus, water, unfltrd mg/L (00665)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Arsenic water, fltrd, µg/L (01000)	Arsenic water, unfltrd µg/L (01002)	Barium, water, fltrd, µg/L (01005)	Barium, water, unfltrd recover-able, µg/L (01007)
Oct													
03...	1500	E.017	.018	<.002	.23	<.006	.015	2.1	327	.59	.76	60	61.8
Feb													
23...	1000	E.013	.238	.010	1.35	.025	.181	6.0	2,410	.72	1.5	41	70.8
Apr													
10...	1000	<.020	E.013	<.002	.67	E.003	.239	E1.6	4,550	.80	2.5	59	122
May													
22...	1330	<.020	.111	E.002	.70	E.005	.185	3.7	2,050	.79	2.6	52	101
Aug													
07...	1600	<.020	<.016	E.001	.30	E.005	.028	8.4	232	.97	1.2	56	60.9

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 4 of 5
[Remark codes: <, less than; E, estimated.]

Date	Beryll-ium, water, fltrd, µg/L (01010)	Beryll-ium, water, unfltrd recover-able, µg/L (01012)	Boron, water, fltrd, µg/L (01020)	Cadmium water, fltrd, µg/L (01025)	Cadmium water, unfltrd µg/L (01027)	Chrom-ium, water, fltrd, µg/L (01030)	Chrom-ium, water, unfltrd recover-able, µg/L (01034)	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recover-able, µg/L (01042)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover-able, µg/L (01045)	Lead, water, fltrd, µg/L (01049)	Lead, water, unfltrd recover-able, µg/L (01051)
Oct													
03...	<.06	E.04	124	<.04	E.01	--	1.0	.74	2.0	<6	291	<.12	.37
Feb													
23...	<.06	.13	56	.04	.06	--	3.0	4.1	7.0	52	2,220	.38	2.96
Apr													
10...	<.06	.31	--	--	--	--	--	--	--	E4	4,490	--	--
May													
22...	<.06	.18	--	<.04	.10	E.10	2.9	.87	5.3	E5	4,410	<.12	3.59
Aug													
07...	<.06	<.06	--	--	--	--	--	--	--	<6	416	--	--

06307990 TONGUE RIVER ABOVE T&Y DIVERSION DAM, NEAR MILES CITY, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 5 of 5
[Remark codes: E, estimated.]

Date	Lithium water, fltrd, µg/L (01130)	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recoverable, µg/L (01055)	Mercury water, unfltrd ng/L (50286)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recoverable, µg/L (01067)	Selenium, water, fltrd, µg/L (01145)	Selenium, water, unfltrd µg/L (01147)	Strontium, water, fltrd, µg/L (01080)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recoverable, µg/L (01092)
Oct											
03...	24.4	5.6	15.7	--	.79	1.92	.20	.19	680	.67	3
Feb											
23...	12.8	5.4	54.9	--	2.8	4.66	.23	.26	364	9.6	13
Apr											
10...	--	1.5	158	--	--	--	.41	.46	--	--	--
May											
22...	--	1.0	184	--	1.3	5.7	.43	.44	--	E.44	11.6
Aug											
07...	--	2.0	32.2	1.36	--	--	.31	.27	--	--	--

06307990 TONGUE RIVER ABOVE T&Y DIVERSION DAM, NEAR MILES CITY, MT—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
MARCH 2007 TO DECEMBER 2007

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		March			April			May			June	
1				800	777	790	753	744	749	---	---	---
2				808	800	804	754	746	751	---	---	---
3				808	747	777	---	---	---	---	---	---
4				753	742	747	---	---	---	---	---	---
5				759	739	751	---	---	---	---	---	*390
6				774	759	768	---	---	---	---	---	---
7				787	772	781	---	---	*600	---	---	---
8				798	785	792	---	---	---	---	---	---
9				799	783	792	---	---	---	---	---	---
10				783	762	772	---	---	---	---	---	---
11				770	765	768	---	---	---	---	---	---
12				768	762	766	---	---	---	---	---	#427
13				768	753	762	---	---	---	428	423	425
14				774	753	761	---	---	---	432	425	430
15				767	747	754	---	---	---	429	424	426
16				769	749	757	704	668	683	445	426	434
17				776	757	766	668	636	652	449	444	446
18				783	766	773	656	648	653	446	433	440
19				773	766	770	648	613	632	437	425	432
20				771	760	766	623	605	615	431	418	427
21				765	751	759	610	542	579	430	422	424
22				753	738	748	---	---	#551	459	427	436
23	---	---	#826	738	721	731	---	---	---	474	459	468
24	824	811	816	721	685	709	---	---	---	480	470	476
25	820	809	813	693	680	689	---	---	---	475	460	467
26	838	818	828	726	692	704	---	---	---	488	470	480
27	842	810	822	732	713	721	---	---	---	487	466	475
28	835	774	808	747	714	733	---	---	---	478	466	470
29	789	777	785	726	704	718	---	---	---	522	478	501
30	794	772	787	752	724	737	---	---	---	523	516	520
31	779	768	773	---	---	---	---	---	---	---	---	---
Month	---	---	---	808	680	756	---	---	---	**523	**418	**450

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

* Instantaneous value from water-quality sample.

**Monthly mean computed from available daily means. A specific conductance greater than or less than the reported maximum or minimum may have occurred during the period of missing record.

06307990 TONGUE RIVER ABOVE T&Y DIVERSION DAM, NEAR MILES CITY, MT—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
MARCH 2007 TO DECEMBER 2007

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		July			August			September			October	
1	520	515	517	590	570	585	612	604	607	789	781	786
2	519	510	514	589	580	585	627	609	618	790	785	787
3	546	519	532	590	584	587	635	622	628	785	774	780
4	569	546	560	589	581	584	636	625	630	776	768	772
5	597	568	581	585	578	582	636	624	631	770	763	766
6	630	595	613	589	581	585	639	629	634	765	761	763
7	637	630	634	593	581	586	640	630	635	769	763	766
8	639	634	637	589	584	587	638	616	624	775	769	770
9	653	639	648	584	576	580	629	618	622	770	760	765
10	664	649	657	582	573	577	640	624	631	774	764	769
11	678	662	670	579	572	576	646	632	639	774	767	771
12	688	673	680	577	570	573	643	628	633	775	771	773
13	689	677	686	576	570	573	633	623	629	778	773	776
14	690	681	686	579	569	573	644	629	634	784	775	780
15	---	---	#683	581	574	577	657	644	650	787	780	782
16	---	---	---	588	578	582	665	655	660	805	780	782
17	---	---	---	587	575	579	662	652	657	786	780	782
18	---	---	---	579	558	569	658	641	650	783	779	780
19	774	765	770	586	573	580	662	639	652	781	777	779
20	775	761	770	617	585	594	666	655	662	778	775	776
21	761	714	737	608	595	601	677	657	668	783	775	779
22	714	678	694	615	604	608	683	663	675	782	779	780
23	678	651	663	618	614	616	697	679	687	786	780	783
24	651	632	638	616	603	608	707	690	695	784	781	782
25	632	618	624	607	599	602	731	707	718	783	779	781
26	619	610	614	609	593	600	736	730	734	787	780	783
27	610	592	600	611	609	610	748	736	743	790	786	788
28	592	578	587	609	594	599	769	745	754	791	788	789
29	592	577	583	601	586	593	774	768	770	793	790	791
30	595	586	590	608	598	603	785	773	781	791	788	789
31	592	558	576	612	603	607	---	---	---	790	785	788
Month	**775	**510	**634	618	558	589	785	604	665	805	760	779

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

** Monthly mean computed from available daily means. A specific conductance greater than or less than the reported maximum or minimum may have occurred during the period of missing record.

USGS
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Water-Data Report 2007

06308400 PUMPKIN CREEK NEAR MILES CITY, MT

Tongue Basin
Lower Tongue Subbasin

LOCATION.--Lat 46°13′42″, long 105°41′24″ referenced to North American Datum of 1927, in SW ¼ NE ¼ SW ¼ sec.35, T.6 S., R.48 E., Custer County, MT, Hydrologic Unit 10090102, on right bank 12 ft upstream from bridge on U.S.Highway 312, 7.5 mi upstream from mouth, and 16 mi southeast of Miles City.

DRAINAGE AREA.--697 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--October 1972 to November 1985, May 2004 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 2,475.86 ft, referenced to the National Geodetic Vertical Datum of 1929. Prior to May 2004, recording gage at same site at different datum.

REMARKS.--Records are fair except those for estimated daily discharges, which are poor. Diversion for irrigation of about 3,600 acres occurs above station. U.S. Geological Survey satellite telemeter is located at the station.

06308400 PUMPKIN CREEK NEAR MILES CITY, MT—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	0.17	0.12	e0.00	e0.00	e0.00	10	e120	0.68	191	1.5	0.00	0.00
2	0.12	0.09	e0.00	e0.00	e0.00	9.4	e110	0.55	94	1.3	0.00	0.00
3	0.20	0.09	e0.00	e0.00	e0.00	7.4	e100	0.52	42	1.1	0.00	0.00
4	28	0.08	e0.00	e0.00	e0.00	7.2	75	5.1	30	0.92	0.00	0.00
5	9.7	0.08	e0.00	e0.00	e0.00	173	42	26	18	0.83	0.00	0.00
6	2.2	0.09	e0.00	e0.00	e0.00	255	25	499	16	0.64	0.00	0.00
7	0.99	0.08	e0.00	e0.00	e0.00	144	16	705	563	0.55	0.00	0.00
8	0.67	0.08	e0.00	e0.00	e0.00	83	11	326	507	0.45	0.00	0.00
9	0.35	0.08	e0.00	e0.00	e0.00	47	8.5	150	156	0.38	0.00	0.00
10	0.24	0.09	e0.00	e0.00	e0.00	19	8.5	77	119	0.29	0.00	0.00
11	0.20	0.08	e0.00	e0.00	e0.00	8.8	20	42	96	0.25	0.00	0.00
12	0.13	0.07	e0.00	e0.00	e0.00	7.0	13	24	60	0.22	0.00	0.00
13	0.10	0.08	e0.00	e0.00	e0.00	6.6	8.7	26	39	0.17	0.00	0.00
14	0.09	0.08	e0.00	e0.00	e0.00	5.2	7.1	54	25	0.11	0.00	0.00
15	0.09	0.08	e0.00	e0.00	e0.00	3.9	7.8	48	19	0.09	0.00	0.00
16	0.10	0.08	e0.00	e0.00	e0.10	2.6	6.8	17	16	0.06	0.00	0.00
17	0.25	0.08	e0.00	e0.00	e1.0	2.0	5.3	8.3	15	0.01	0.00	0.00
18	1.1	0.08	e0.00	e0.00	e10	1.6	4.1	6.0	13	0.00	0.00	0.00
19	1.7	0.07	e0.00	e0.00	152	1.3	3.7	4.8	11	0.00	0.00	0.00
20	1.6	0.07	e0.00	e0.00	174	1.1	6.7	4.2	8.9	0.00	0.00	0.00
21	6.4	0.07	e0.00	e0.00	426	0.92	5.7	3.2	7.6	0.00	0.00	0.00
22	15	0.07	e0.00	e0.00	215	0.78	2.7	2.5	6.7	0.00	0.00	0.00
23	9.2	0.06	e0.00	e0.00	132	0.68	1.9	3.8	5.8	0.00	0.00	0.00
24	5.9	0.06	e0.00	e0.00	106	0.60	1.5	46	5.1	0.00	0.00	0.00
25	3.0	0.06	e0.00	e0.00	60	0.53	1.3	32	4.7	0.00	0.00	0.00
26	1.3	0.06	e0.00	e0.00	35	0.47	1.2	11	3.9	0.00	0.00	0.00
27	0.72	0.05	e0.00	e0.00	21	0.40	1.1	7.5	3.2	0.00	0.00	0.00
28	0.39	e0.02	e0.00	e0.00	14	0.72	0.94	4.6	2.8	0.00	0.00	0.00
29	0.28	e0.00	e0.00	e0.00	---	e1.0	0.86	4.6	2.3	0.00	0.00	0.00
30	0.23	e0.00	e0.00	e0.00	---	e10	0.78	15	1.8	0.00	0.00	0.00
31	0.18	---	e0.00	e0.00	---	e150	---	29	---	0.00	0.00	---
Total	90.60	2.10	0.00	0.00	1,346.10	961.20	617.18	2,183.35	2,082.8	8.87	0.00	0.00
Mean	2.92	0.07	0.00	0.00	48.1	31.0	20.6	70.4	69.4	0.29	0.00	0.00
Max	28	0.12	0.00	0.00	426	255	120	705	563	1.5	0.00	0.00
Min	0.09	0.00	0.00	0.00	0.00	0.40	0.78	0.52	1.8	0.00	0.00	0.00
Ac-ft	180	4.2	0.00	0.00	2,670	1,910	1,220	4,330	4,130	18	0.00	0.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1973 - 2007, BY WATER YEAR (WY) *

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	2.77	0.30	0.24	3.84	27.4	45.7	20.4	39.1	21.9	3.42	1.56	5.49
Max	23.0	2.65	1.59	29.4	134	299	85.2	205	77.7	18.1	16.2	59.8
(WY)	(2006)	(1975)	(2006)	(1983)	(1983)	(1978)	(2006)	(1978)	(2005)	(1978)	(1985)	(1973)
Min	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
(WY)	(1977)	(1977)	(1975)	(1977)	(1978)	(2005)	(1981)	(1980)	(1977)	(1977)	(1974)	(1974)

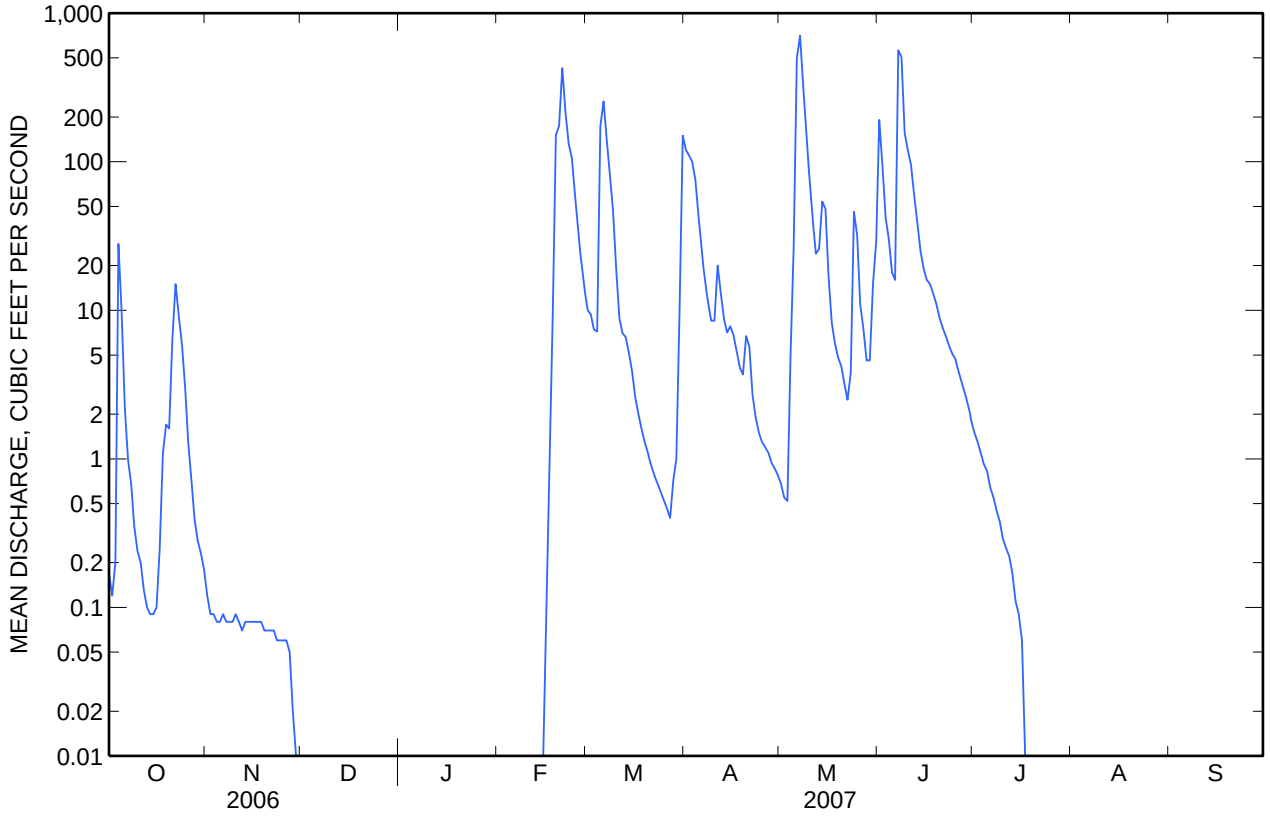
* During periods of operation (1972-1985, May 2004 to current year).

06308400 PUMPKIN CREEK NEAR MILES CITY, MT—Continued

SUMMARY STATISTICS

	Calendar Year 2006		Water Year 2007		Water Years 1973 - 2007*	
Annual total	4,991.58		7,292.20			
Annual mean	13.7		20.0		14.6	
Highest annual mean					49.5	1978
Lowest annual mean					0.22	1980
Highest daily mean	1,480	May 24	705	May 7	1,980	May 19, 1978
Lowest daily mean	0.00	Jul 9	0.00	Nov 29	0.00	Dec 10, 1972[a]
Annual seven-day minimum	0.00	Jul 9	0.00	Nov 29	0.00	Dec 10, 1972
Maximum peak flow			1,220	May 6	2,890	May 6, 1975
Maximum peak stage			8.76	May 6	12.27	May 6, 1975
Annual runoff (ac-ft)	9,900		14,460		10,570	
10 percent exceeds	9.8		40		17	
50 percent exceeds	0.13		0.09		0.07	
90 percent exceeds	0.00		0.00		0.00	

* During periods of operation (1972-1985, May 2004 to current year).
[a] No flow at times most years.



06308400 PUMPKIN CREEK NEAR MILES CITY, MT—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1976 to 1985, March 2004 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE (seasonal records): May 2004 to July 2004, April 2005 to current year.

INSTRUMENTATION.--Specific conductance probe installed May 20, 2004.

REMARKS.--A water-quality sample could be collected in August due to no flow. The water-quality sample collected on June 18 was made in conjunction with aquatic ecology samples collected for an interagency task group studying the effects of coal-bed natural gas development. Additional information is available at http://wy.water.usgs.gov/projects/atg/index.htm. Several unpublished observations of specific conductance and water temperature were made during the year.

Specific conductance records are published through the end of the irrigation season (October 2007). No data are available for Mar. 30-Apr. 3 due to a malfunctioning data logger and for Jul 18-Oct. 31 due to no flow. Available specific conductance records are rated good to excellent except those for the periods May 13, 14, and 26, which are rated fair and May 15-22 and May 27-June 4, which are rated poor.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE (seasonal records): Maximum daily, 4,650 microsiemens per centimeter (µS/cm) at 25.0°C, July 17, 2007; minimum daily, 100 µS/cm at 25.0°C, June 10, 2004.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE (seasonal records): Maximum daily, 4,650 µS/cm at 25.0°C, July 17; minimum daily, 394 µS/cm at 25.0°C, May 8.

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 1 of 6

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 µS/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													
03...	1615	.46	705	9.2	93	8.5	1,250	11.0	12.0	90	22.1	8.24	6.50
Feb													
23...	0830	149	684	11.4	87	8.0	263	0.0	0.0	37	8.76	3.62	8.31
Mar													
07...	0800	189	699	12.2	94	8.0	318	0.0	1.0	42	10.4	4.03	5.65
Apr													
10...	0830	7.0	685	11.2	99	8.2	1,140	8.0	5.5	170	33.4	22.1	8.17
24...	1130	1.6	700	7.5	77	8.6	1,440	16.5	12.0	190	37.3	24.5	7.98
May													
08...	1045	316	698	8.0	87	8.1	395	25.5	15.0	44	10.6	4.29	5.44
22...	1215	2.5	691	8.0	91	8.5	2,790	10.0	16.5	600	100	85.7	13.6
Jun													
04...	1900	25	--	7.7	--	8.3	2,160	22.0	24.0	430	64.2	65.8	10.4
18...	1630	12	--	8.7	--	8.3	2,630	--	21.0	--	--	--	--
25...	1615	4.7	692	7.9	117	8.5	3,590	30.0	30.0	920	132	143	20.4
Jul													
12...	0915	.26	700	8.0	97	8.6	4,430	23.0	20.0	970	112	167	22.4

06308400 PUMPKIN CREEK NEAR MILES CITY, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 2 of 6

Date	Sodium adsorption ratio (00931)	Sodium, water, fltrd, mg/L (00930)	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)	Dissolved solids, sum of constituents mg/L (70301)	Dissolved solids, tons/acre-ft (70303)	Dissolved solids, tons/d (70302)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspended sediment concentration mg/L (80154)	Suspended sediment discharge, tons/d (80155)
Oct													
03...	10	219	185	3.00	.39	6.61	366	746	1.01	.93	99	1,850	2.3
Feb													
23...	2.6	35.9	80	3.25	.17	6.75	40.2	157	.21	63.3	99	760	306
Mar													
07...	3.0	45.6	93	1.78	.20	6.83	61.2	191	.26	97.6	99	2,300	1,170
Apr													
10...	6.0	181	177	4.34	.28	7.72	385	750	1.02	14.2	99	137	2.6
24...	7.5	241	243	4.48	.41	6.93	497	965	1.31	4.17	--	--	--
May													
08...	4.3	65.9	94	1.23	.22	7.61	79.7	232	.31	198	--	--	--
22...	7.7	434	346	8.96	.38	11.1	1,220	2,080	2.83	14.0	96	84	.57
Jun													
04...	7.0	334	281	6.58	.34	8.10	853	1,510	2.06	102	99	260	18
18...	--	--	--	--	--	--	--	--	--	--	--	--	--
25...	8.0	558	424	11.6	.40	12.9	1,650	2,780	3.78	35.2	--	--	--
Jul													
12...	10	745	435	14.5	.46	4.10	2,090	3,420	4.65	2.40	--	--	--

06308400 PUMPKIN CREEK NEAR MILES CITY, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 3 of 6
[Remark codes: <, less than; E, estimated.]

Date	Time	Ammonia water, fltrd, mg/L as N (00608)	Nitrate + nitrite water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Total nitro-gen, water, unfltrd, mg/L (62855)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Total phos-phorus, water, unfltrd mg/L (00665)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Arsenic water, fltrd, µg/L (01000)	Arsenic water, unfltrd µg/L (01002)	Barium, water, fltrd, µg/L (01005)	Barium, water, unfltrd recover-able, µg/L (01007)
Oct													
03...	1615	E.017	.391	.022	2.27	<.006	.32	13.3	18,400	1.2	6.6	69	300
Feb													
23...	0830	E.012	.369	.017	3.26	.171	.64	18.9	13,000	1.3	3.2	23	150
Apr													
10...	0830	<.020	.144	.005	1.13	.012	.154	1.9	2,280	.97	1.7	66	95.5
May													
22...	1215	E.010	<.016	<.002	1.10	E.005	.070	E1.7	622	1.6	2.3	247	246

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 4 of 6
[Remark codes: <, less than; E, estimated.]

Date	Beryll-ium, water, fltrd, µg/L (01010)	Beryll-ium, water, unfltrd recover-able, µg/L (01012)	Boron, water, fltrd, µg/L (01020)	Cadmium water, fltrd, µg/L (01025)	Cadmium water, unfltrd µg/L (01027)	Chrom-ium, water, fltrd, µg/L (01030)	Chrom-ium, water, unfltrd recover-able, µg/L (01034)	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recover-able, µg/L (01042)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover-able, µg/L (01045)	Lead, water, fltrd, µg/L (01049)	Lead, water, unfltrd recover-able, µg/L (01051)
Oct													
03...	<.06	2.23	165	.06	.55	--	23	14.7	48.2	28	19,800	.34	37.1
Feb													
23...	<.06	.85	47	E.03	.26	--	11	5.2	29.9	147	9,270	.34	15.6
Apr													
10...	<.06	.17	--	--	--	--	--	--	--	26	1,860	--	--
May													
22...	<.12	E.05	--	<.08	<.04	.50	1.2	2.9	4.4	E10	872	<.24	1.32

06308400 PUMPKIN CREEK NEAR MILES CITY, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 5 of 6
[Remark codes: E, estimated.]

Date	Lithium water, fltrd, µg/L (01130)	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recoverable, µg/L (01055)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recoverable, µg/L (01067)	Selenium, water, fltrd, µg/L (01145)	Selenium, water, unfltrd µg/L (01147)	Strontium, water, fltrd, µg/L (01080)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recoverable, µg/L (01092)
Oct										
03...	14.5	5.0	263	7.5	48.7	3.5	3.6	490	20.4	130
Feb										
23...	4.2	15.9	154	4.1	18.9	.41	.53	141	11.1	65
Apr										
10...	--	15.1	46.6	--	--	1.1	.97	--	--	--
May										
22...	--	7.1	74.1	5.2	7.0	.91	1.1	--	E1.2	3.9

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 6 of 6

Date	Time	Turbdty white light, det ang 90+/-30 corrctd NTRU (63676)	Biomass periphyton, ashfree drymass g/m2 (49954)	Periphyton biomass ash weight, g/m2 (00572)	Periphyton biomass dry weight, g/m2 (00573)	Biomass chlorophyll ratio, periphyton, number (70950)	Chlorophyll a periphyton, chromofluoro, mg/m2 (70957)	Pheophytin a, periphyton, mg/m2 (62359)
Jun								
18...	1630	69	3.8	160	166	6,670	.6	.2

06308400 PUMPKIN CREEK NEAR MILES CITY, MT—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
MARCH 2007 TO OCTOBER 2007

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		March			April			May			June	
1				---	---	---	1,890	1,850	1,870	1,830	869	1,280
2				---	---	---	1,890	1,850	1,870	988	869	930
3				---	---	#489	1,890	1,780	1,860	1,280	951	1,140
4				521	484	500	1,890	1,270	1,440	2,190	1,250	1,690
5				634	521	576	2,190	1,800	1,950	2,300	1,510	1,870
6				805	631	705	1,800	399	1,080	1,510	567	1,310
7				1,060	805	948	480	399	446	810	455	549
8				1,120	1,060	1,090	430	394	407	487	450	466
9				1,150	1,120	1,140	490	430	464	780	487	596
10				1,170	1,140	1,140	572	490	529	780	556	641
11				1,180	967	1,090	708	572	638	645	576	626
12				993	933	963	881	708	795	693	645	661
13				953	933	942	1,020	478	906	909	693	787
14				938	869	905	1,090	489	896	1,100	909	1,020
15				869	795	828	1,100	935	991	1,210	1,100	1,160
16				815	790	798	1,160	989	1,050	1,380	1,210	1,280
17				924	815	869	1,230	1,160	1,220	1,930	1,380	1,600
18				1,050	924	985	1,370	1,230	1,300	2,990	1,930	2,450
19				1,140	1,050	1,090	1,650	1,370	1,500	3,390	2,990	3,270
20				1,370	1,140	1,240	2,120	1,650	1,870	3,350	3,260	3,300
21				1,480	1,370	1,440	2,580	2,120	2,360	3,280	3,240	3,260
22				1,450	1,410	1,430	2,830	2,580	2,730	3,350	3,260	3,300
23	---	---	#1,150	1,460	1,440	1,450	2,840	2,110	2,550	3,440	3,340	3,390
24	1,210	1,150	1,180	1,440	1,310	1,400	3,660	1,980	2,700	3,540	3,310	3,470
25	1,260	1,190	1,220	1,340	1,260	1,290	2,190	1,980	2,120	3,530	3,440	3,480
26	1,300	1,250	1,270	1,480	1,300	1,390	2,160	1,710	1,970	3,580	3,500	3,540
27	1,350	1,300	1,320	1,620	1,480	1,560	1,710	1,440	1,570	3,660	3,560	3,600
28	1,350	1,260	1,310	1,720	1,620	1,680	1,440	1,390	1,400	3,740	3,640	3,680
29	---	---	# 1,090	1,800	1,720	1,750	2,140	1,390	1,560	3,800	3,710	3,750
30	---	---	---	1,860	1,800	1,830	2,200	1,400	1,730	3,850	3,760	3,810
31	---	---	---	---	---	---	1,690	1,130	1,530	---	---	---
Month	---	---	---	*1,860	*484	*1,130	3,660	394	1,460	3,850	450	2,060

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

* Monthly mean computed from available daily means. A specific conductance greater than or less than the reported maximum or minimum may have occurred during the period of missing record.

06308400 PUMPKIN CREEK NEAR MILES CITY, MT—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
MARCH 2007 TO OCTOBER 2007

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		July			August			September			October	
1	3,910	3,820	3,860	---	---	---	---	---	---	---	---	---
2	3,970	3,860	3,910	---	---	---	---	---	---	---	---	---
3	4,020	3,900	3,960	---	---	---	---	---	---	---	---	---
4	4,070	3,950	4,010	---	---	---	---	---	---	---	---	---
5	4,140	4,010	4,070	---	---	---	---	---	---	---	---	---
6	4,190	4,050	4,110	---	---	---	---	---	---	---	---	---
7	4,250	4,100	4,190	---	---	---	---	---	---	---	---	---
8	4,300	4,180	4,230	---	---	---	---	---	---	---	---	---
9	4,340	4,140	4,270	---	---	---	---	---	---	---	---	---
10	4,420	4,270	4,340	---	---	---	---	---	---	---	---	---
11	4,460	4,320	4,370	---	---	---	---	---	---	---	---	---
12	4,580	4,300	4,410	---	---	---	---	---	---	---	---	---
13	4,540	4,380	4,440	---	---	---	---	---	---	---	---	---
14	4,580	4,420	4,490	---	---	---	---	---	---	---	---	---
15	4,580	4,460	4,520	---	---	---	---	---	---	---	---	---
16	4,640	4,520	4,570	---	---	---	---	---	---	---	---	---
17	4,650	4,550	#4,610	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
Month	*4,650	*3,820	*4,260	---	---	---	---	---	---	---	---	---

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

* Monthly mean computed from available daily means. A specific conductance greater than or less than the reported maximum or minimum may have occurred during the period of missing record.

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Water-Data Report 2007

06308500 TONGUE RIVER AT MILES CITY, MT

Tongue Basin
Lower Tongue Subbasin

LOCATION.--Lat 46°23′05″, long 105°50′41″ referenced to North American Datum of 1927, in SE ¼ SE ¼ SE ¼ sec.4, T.7 N., R.47 E., Custer County, MT, Hydrologic Unit 10090102, on right bank 1.5 mi south of Miles City and at river mile 2.3.

DRAINAGE AREA.--5,397 mi². Area at site used prior to Oct. 4, 1995, 5,379 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--April 1938 to April 1942, April 1946 to current year. Published as "near Miles City" April 1938 to April 1942. Not equivalent to records published as "near Miles City" May 1929 to October 1932. April 1946 to Oct. 4, 1995, at site 2.5 mi upstream from present site. Flows at present site are equivalent with flows at site operated from 1946. Monthly discharge only for some periods, published in Water Supply Paper (WSP) 1309.

REVISED RECORDS.-- WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 2,360 ft, referenced to the National Geodetic Vertical Datum of 1929. April 1938 to April 1942, nonrecording gage located at site 8 mi upstream from present site at different elevation. April 1946 to Sept. 30, 1963, located at elevation 1.00 ft higher than present site. Oct. 4, 1995, gage was moved 2.5 miles downstream.

REMARKS.--Records are good except those for estimated daily discharges, which are poor. Flow is regulated by Tongue River Reservoir (station 0630700) with capacity of 79,100 acre-feet, and many small reservoirs in Wyoming with combined capacity about 15,000 acre-ft. Diversions for irrigation include about 100,800 acres upstream from station. U.S. Army Corps of Engineers satellite telemeter is located at the station.

06308500 TONGUE RIVER AT MILES CITY, MT—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	49	e70	e90	e70	e90	e120	539	514	2,130	640	105	155
2	48	e70	e100	e80	e80	e100	576	506	1,870	592	110	149
3	53	e100	e90	e100	e80	e100	804	517	1,640	511	96	172
4	56	e100	e100	e90	e100	e80	676	617	1,760	441	87	166
5	74	98	e100	e80	e130	e200	565	661	1,920	360	92	164
6	62	93	e80	e80	e120	e400	529	1,640	1,940	311	99	168
7	57	93	e80	e80	e120	e300	505	2,880	4,620	293	67	186
8	56	92	e100	e80	e120	e250	492	1,570	6,130	276	88	223
9	56	94	e100	e80	e120	e230	495	1,210	3,570	253	110	236
10	e60	94	e90	e70	e120	e250	528	1,230	3,020	236	108	234
11	e60	94	e90	e50	e120	e400	554	1,170	3,630	212	122	212
12	e60	93	e100	e40	e120	e300	560	1,130	4,270	192	158	243
13	63	93	e100	e45	e120	247	546	1,140	3,990	167	190	234
14	65	92	e100	e50	e120	235	533	2,050	3,420	147	129	212
15	57	95	e100	e60	e110	223	530	1,600	3,100	138	119	196
16	55	90	e80	e70	e110	203	526	1,830	2,920	120	133	195
17	64	89	e70	e80	e110	198	522	2,290	2,690	100	e100	198
18	62	89	e60	e90	e120	211	516	2,530	2,520	82	e150	201
19	67	102	e70	e100	e200	225	535	2,380	2,420	68	e200	216
20	65	111	e70	e120	e300	240	570	2,250	2,330	59	e200	227
21	73	111	e70	e120	e400	254	556	2,240	2,200	66	210	214
22	115	111	e80	e110	e400	267	542	2,310	1,950	90	202	208
23	119	110	e70	e120	e300	277	531	2,380	1,640	104	191	201
24	106	112	e80	e130	e200	279	537	2,500	1,440	110	209	190
25	101	120	e80	e120	e180	281	535	2,460	1,330	95	225	186
26	99	91	e90	e120	e160	284	535	2,180	1,130	96	159	177
27	96	e80	e100	e110	e150	279	530	1,940	1,080	104	155	163
28	96	e75	e90	e100	e130	300	527	1,750	949	117	181	156
29	96	e70	e80	e100	---	367	526	1,700	780	126	178	151
30	97	e80	e70	e100	---	406	520	1,610	701	126	169	149
31	e80	---	e60	e100	---	442	---	1,770	---	117	160	---
Total	2,267	2,812	2,640	2,745	4,430	7,948	16,440	52,555	73,090	6,349	4,502	5,782
Mean	73.1	93.7	85.2	88.5	158	256	548	1,695	2,436	205	145	193
Max	119	120	100	130	400	442	804	2,880	6,130	640	225	243
Min	48	70	60	40	80	80	492	506	701	59	67	149
Ac-ft	4,500	5,580	5,240	5,440	8,790	15,760	32,610	104,200	145,000	12,590	8,930	11,470

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1938 - 2007, BY WATER YEAR (WY) *

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	237	246	186	190	268	511	427	689	1,250	445	175	193
Max	694	585	423	529	1,794	1,783	1,693	2,983	3,825	2,207	700	599
(WY)	(1972)	(1942)	(1950)	(1999)	(1971)	(1971)	(1965)	(1978)	(1978)	(1975)	(1975)	(1968)
Min	10.3	60.9	68.0	65.3	74.5	74.5	12.5	29.2	41.9	12.6	6.08	2.40
(WY)	(1961)	(1989)	(1990)	(2005)	(2003)	(2002)	(1961)	(1961)	(2002)	(1960)	(1949)	(1938)

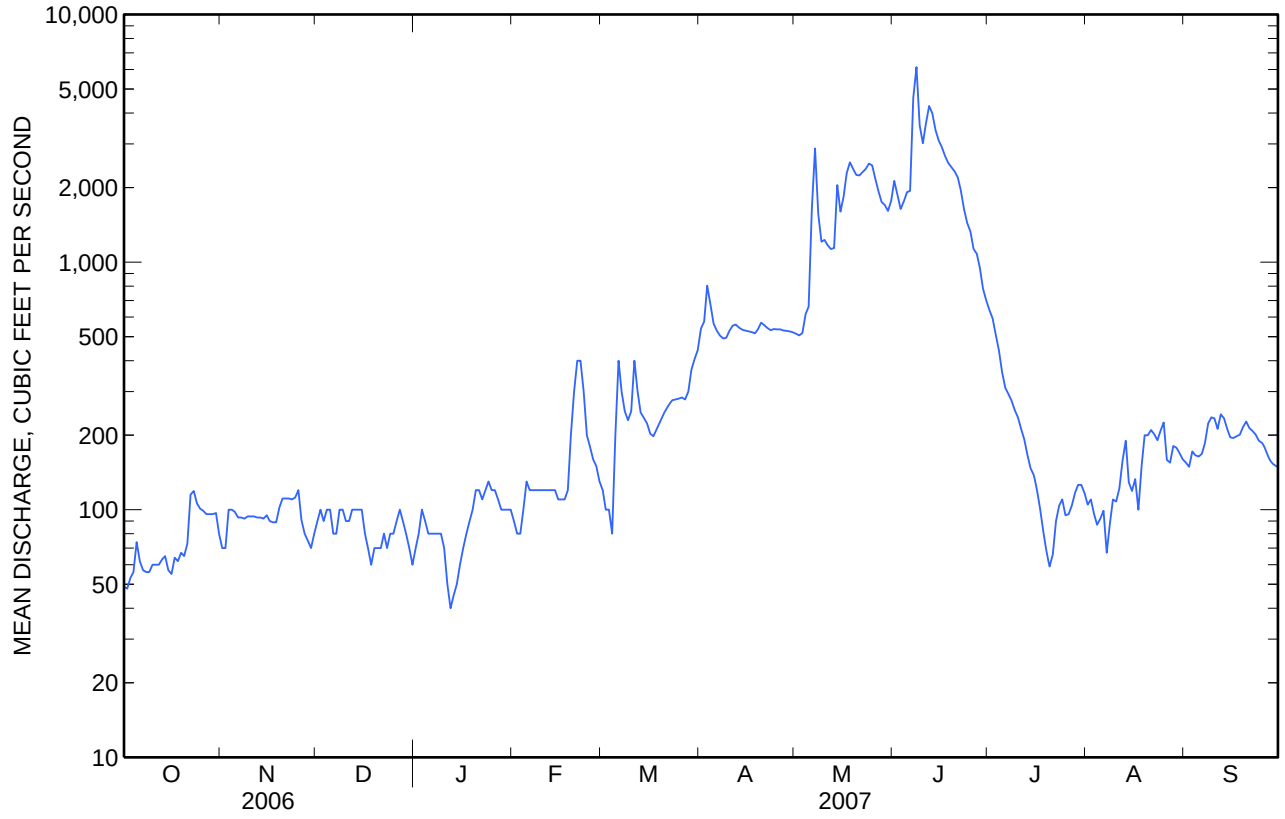
* During periods of operation (April 1938 to April 1942, April 1946 to current year).

06308500 TONGUE RIVER AT MILES CITY, MT—Continued

SUMMARY STATISTICS

	Calendar Year 2006		Water Year 2007		Water Years 1938 - 2007*	
Annual total	39,988.1		181,560			
Annual mean	110		497		398	
Highest annual mean					986	1978
Lowest annual mean					57.2	1961
Highest daily mean	1,360	Apr 20	6,130	Jun 8	9,290	Jun 15, 1962
Lowest daily mean	6.9	Sep 8	40	Jan 12	0.00	Jul 9, 1940
Annual seven-day minimum	7.2	Sep 4	55	Jan 10	0.00	Jul 9, 1940
Maximum peak flow			8,520	Jun 8	[a]13,300	Jun 15, 1962
Maximum peak stage			10.97	Jun 8	[b]13.27	Mar 19, 1960
Annual runoff (ac-ft)	79,320		360,100		288,300	
10 percent exceeds	230		1,750		900	
50 percent exceeds	90		150		216	
90 percent exceeds	12		70		63	

* During periods of operation (April 1938 to April 1942, April 1946 to current year).
[a] Gage height, 11.33 ft, at previous site and datum.
[b] Ice jam, at previous site and datum used from 1963 to 1995.



06308500 TONGUE RIVER AT MILES CITY, MT—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1946 to September 1994, October 1977 to December 1985, May 1999 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1965 to September 1981, April 2004 to current year (seasonal records).
WATER TEMPERATURE: Seasonal records, April 2000 to September 2003.
SUSPENDED-SEDIMENT DISCHARGE: October 1977 to December 1985.

INSTRUMENTATION.--Specific conductance probe installed Apr. 28, 2004.

REMARKS.--Daily specific conductance records are provided to the end of the irrigation season (October 2007). Specific conductance records rated good to excellent except for the periods May 21-22 and July 5-8, which are rated fair and July 9-12, which are rated poor. Nine days of missing specific conductance values are due to equipment problems. Several unpublished observations of specific conductance and water temperature were made during the year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE (seasonal records): Maximum daily, 1,520 microsiemens per centimeter (µS/cm) at 25.0°C, May 24, 1981; minimum daily, 215 µS/cm at 25.0°C, Feb. 16, 1971.
WATER TEMPERATURE (seasonal records): Maximum, 37.0°C, Aug. 22, 2001; minimum 0.0°C, Apr. 5, 2002.
SEDIMENT CONCENTRATION: Maximum daily mean, 14,200 mg/L, Aug. 3, 1985; minimum daily mean, 3 mg/L, Dec. 20, 1983.
SEDIMENT LOAD: Maximum daily, 84,400 tons May 18, 1978; minimum daily, 0.13 tons May 5, 1981.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE (seasonal records): Maximum daily, 1,100 µS/cm at 25.0°C, May 10; minimum daily, 401 µS/cm at 25.0°C, June 5.

06308500 TONGUE RIVER AT MILES CITY, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 1 of 5
[Remark codes: E, estimated.]

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 µS/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													
04...	0945	58	710	8.0	77	8.4	966	10.0	10.5	320	52.8	45.0	5.86
Nov													
16...	1015	89	689	13.0	103	8.3	824	5.0	1.5	320	60.2	40.4	4.52
Dec													
07...	1045	E80	710	14.6	108	8.1	1,140	7.0	0.0	440	79.4	57.9	6.02
Feb													
22...	1045	E400	699	12.3	92	7.8	342	7.5	0.0	80	18.0	8.48	5.83
Mar													
07...	1100	E300	702	13.2	100	8.1	431	10.0	0.5	110	22.5	12.1	4.49
27...	1030	283	692	10.4	103	8.5	838	15.5	10.5	320	60.6	40.5	4.57
Apr													
09...	1100	495	692	11.6	104	8.4	768	8.0	6.5	290	56.1	36.0	4.44
24...	1030	537	704	9.4	97	8.5	725	14.5	13.0	280	54.9	34.5	4.67
May													
08...	0830	1,670	702	8.9	93	8.2	600	19.5	13.5	170	35.0	19.4	5.04
22...	1030	2,300	694	8.9	101	8.3	529	9.0	17.0	220	43.9	26.8	3.88
Jun													
05...	1300	1,930	692	7.2	89	8.3	406	25.0	20.5	160	35.1	17.9	2.60
25...	1800	1,280	696	7.9	108	8.4	485	27.0	26.5	200	41.4	23.3	3.73
Jul													
12...	1115	198	704	7.9	101	8.5	751	25.0	23.5	280	57.9	32.0	4.55
19...	1300	62	697	7.5	105	8.5	894	35.0	27.5	300	60.4	35.1	5.10
Aug													
07...	1715	67	690	9.4	136	8.5	789	35.0	29.0	250	51.3	29.6	4.27
Sep													
18...	1530	206	700	9.2	106	8.5	697	16.5	17.5	260	52.2	31.0	3.91

06308500 TONGUE RIVER AT MILES CITY, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 2 of 5
[Remark codes: E, estimated.]

Date	Sodium adsorption ratio (00931)	Sodium, water, fltrd, mg/L (00930)	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)	Dissolved solids, sum of constituents mg/L (70301)	Dissolved solids, tons/ acre-ft (70303)	Dissolved solids, tons/d (70302)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspended sediment concentration mg/L (80154)	Suspended sediment discharge, tons/d (80155)
Oct													
04...	2.5	101	267	5.88	.34	5.47	259	638	.87	99.8	99	162	25
Nov													
16...	1.8	72.5	254	5.14	.38	4.68	197	537	.73	129	93	80	19
Dec													
07...	2.1	101	355	7.02	.51	6.96	284	756	1.03	E163	93	86	E19
Feb													
22...	1.8	37.9	104	3.04	.25	5.87	62.0	206	.28	E222	99	1,110	E1,200
Mar													
07...	2.2	52.6	127	2.60	.24	5.00	91.3	267	.36	E216	99	1,710	E1,380
27...	1.6	64.8	262	5.72	.39	2.08	199	535	.73	409	94	140	107
Apr													
09...	1.6	60.5	236	5.50	.36	3.76	182	491	.67	656	92	157	210
24...	1.4	52.2	225	5.43	.34	3.43	164	454	.62	659	--	--	--
May													
08...	2.2	64.5	161	3.46	.29	5.13	144	373	.51	1,680	--	--	--
22...	.9	29.6	163	3.28	.23	7.34	116	329	.45	2,040	79	301	1,870
Jun													
05...	.8	22.2	130	2.10	.19	4.81	76.3	239	.33	1,250	--	--	--
25...	.9	30.0	152	2.60	.23	7.05	99.6	299	.41	1,030	--	--	--
Jul													
12...	1.6	59.5	211	4.64	.31	9.55	183	478	.65	255	--	--	--
19...	2.0	80.0	246	5.47	.32	9.30	228	571	.78	95.6	--	--	--
Aug													
07...	1.8	65.9	223	4.28	.29	8.16	187	484	.66	87.6	97	24	4.3
Sep													
18...	1.4	51.9	216	4.16	.29	3.13	160	436	.59	243	--	--	--

06308500 TONGUE RIVER AT MILES CITY, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 3 of 5
[Remark codes: <, less than; E, estimated.]

Date	Time	Ammonia water, fltrd, mg/L as N (00608)	Nitrate + nitrite water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Total nitro-gen, water, unfltrd, mg/L (62855)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Total phos-phorus, water, unfltrd mg/L (00665)	Alum-inum, water, fltrd, µg/L (01106)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Arsenic water, fltrd, µg/L (01000)	Arsenic water, unfltrd µg/L (01002)	Barium, water, fltrd, µg/L (01005)	Barium, water, unfltrd recover-able, µg/L (01007)
Oct													
04...	0945	E.014	.049	<.002	.40	<.006	.065	2.7	1,480	.56	1.1	64	82.5
Dec													
07...	1045	<.020	.039	<.002	.42	E.003	.018	--	--	--	--	--	--
Feb													
22...	1045	<.020	.325	.015	2.53	.102	.54	7.4	14,000	.92	3.4	31	203
Apr													
09...	1100	<.020	<.016	E.001	.68	<.006	.124	E1.2	1,250	.84	1.7	61	90.7
May													
22...	1030	E.016	.125	E.001	.82	E.005	.266	4.2	2,540	.74	3.0	53	119
Aug													
07...	1715	<.020	<.016	<.002	.25	.006	.013	3.5	73	.84	.96	67	67.4

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 4 of 5
[Remark codes: <, less than; E, estimated.]

Date	Beryll-ium, water, fltrd, µg/L (01010)	Beryll-ium, water, unfltrd recover-able, µg/L (01012)	Boron, water, fltrd, µg/L (01020)	Cadmium water, fltrd, µg/L (01025)	Cadmium water, unfltrd µg/L (01027)	Chrom-ium, water, fltrd, µg/L (01030)	Chrom-ium, water, unfltrd recover-able, µg/L (01034)	Copper, water, fltrd, µg/L (01040)	Copper, water, unfltrd recover-able, µg/L (01042)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover-able, µg/L (01045)	Lead, water, fltrd, µg/L (01049)	Lead, water, unfltrd recover-able, µg/L (01051)
Oct													
04...	<.06	.11	144	<.04	.03	--	3	1.8	4.1	<6	1,620	<.12	2.03
Dec													
07...	--	--	--	--	--	--	--	--	--	--	--	--	--
Feb													
22...	<.06	1.01	49	E.03	.32	--	15	3.3	27.9	82	12,900	.16	20.1
Apr													
09...	<.06	.10	--	--	--	--	--	--	--	E3	1,740	--	--
May													
22...	<.06	.26	--	<.04	.16	E.11	3.4	1.1	5.8	7	5,390	<.12	4.50
Aug													
07...	<.06	<.06	--	--	--	--	--	--	--	E3	117	--	--

06308500 TONGUE RIVER AT MILES CITY, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 5 of 5
[Remark codes: <, less than; E, estimated.]

Date	Lithium water, fltrd, µg/L (01130)	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recoverable, µg/L (01055)	Mercury water, unfltrd ng/L (50286)	Nickel, water, fltrd, µg/L (01065)	Nickel, water, unfltrd recoverable, µg/L (01067)	Selenium, water, fltrd, µg/L (01145)	Selenium, water, unfltrd µg/L (01147)	Strontium, water, fltrd, µg/L (01080)	Zinc, water, fltrd, µg/L (01090)	Zinc, water, unfltrd recoverable, µg/L (01092)
Oct											
04...	26.0	3.3	87.2	--	1.2	4.12	.26	.35	749	1.4	9
Dec											
07...	--	--	--	--	--	--	--	--	--	--	--
Feb											
22...	7.3	10.8	266	--	3.0	24.4	.39	.58	240	1.6	80
Apr											
09...	--	2.0	117	--	--	--	.42	.43	--	--	--
May											
22...	--	1.1	237	--	1.4	6.8	.43	.44	--	1.2	15.7
Aug											
07...	--	4.9	16.2	.73	--	--	.37	.34	--	--	--

06308500 TONGUE RIVER AT MILES CITY, MT—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
MARCH 2007 TO OCTOBER 2007

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		March			April			May			June	
1				753	692	721	753	731	745	464	409	428
2				721	653	674	756	748	753	439	407	418
3				659	577	600	757	733	752	425	406	414
4				702	601	644	787	724	732	417	406	412
5				742	702	730	772	712	733	419	401	#409
6				743	736	741	746	541	662	---	---	---
7				756	741	745	560	469	501	---	---	---
8				777	756	772	615	560	600	---	---	---
9				779	768	775	793	615	698	---	---	---
10				784	764	772	1,100	777	882	---	---	---
11				774	763	770	1,010	767	807	---	---	---
12				779	770	774	784	770	776			#429
13				779	767	771	793	759	784	428	426	427
14				767	764	766	762	568	650	437	427	432
15				774	763	769	754	652	715	435	428	431
16				776	770	773	750	703	730	440	430	434
17				774	770	772	713	676	701	452	440	448
18				773	764	771	679	644	666	450	439	446
19				765	729	744	664	609	641	439	433	437
20				739	725	728	609	582	594	435	431	434
21				747	729	736	595	556	582	442	431	435
22				744	733	738	556	524	540	446	434	439
23	858	846	853	744	739	741	539	512	524	476	446	464
24	848	834	840	746	729	739	548	508	521	479	468	472
25	834	826	831	750	742	746	555	447	505	492	478	482
26	829	826	828	746	741	744	488	447	478	498	480	487
27	831	826	829	744	731	736	485	471	479	507	496	502
28	831	772	808	735	728	731	487	457	477	496	480	486
29	827	764	781	733	722	728	457	431	438	512	484	496
30	795	736	756	731	721	726	441	420	433	539	512	530
31	756	735	746	---	---	---	431	404	414	---	---	---
Month	---	---	---	784	577	739	1,100	404	629	*539	*406	*450

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

* Monthly mean computed from available daily means. A specific conductance greater than or less than the reported maximum or minimum may have occurred during the period of missing record.

06308500 TONGUE RIVER AT MILES CITY, MT—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
MARCH 2007 TO OCTOBER 2007

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		July			August			September			October	
1	542	535	539	728	706	715	685	681	684	831	792	808
2	540	528	536	728	711	719	688	681	685	860	831	849
3	550	527	538	746	724	730	686	677	681	864	858	861
4	582	549	564	766	745	752	695	679	685	859	842	853
5	609	582	595	767	752	759	696	685	689	843	817	833
6	642	608	623	761	742	748	689	678	684	820	809	816
7	671	642	657	797	745	769	688	679	684	809	781	791
8	684	670	676	808	770	791	688	661	676	791	783	785
9	697	679	687	770	719	734	667	660	665	799	791	795
10	718	695	706	740	723	733	675	660	666	798	791	795
11	742	712	726	726	707	716	694	674	683	800	793	797
12	757	738	747	707	665	685	692	667	678	801	793	798
13	774	751	762	668	645	653	667	656	660	799	794	797
14	791	774	784	681	647	669	669	661	664	803	794	798
15	794	784	790	692	681	688	678	669	672	811	802	806
16	819	792	807	690	681	685	689	678	685	816	809	811
17	843	812	827	---	---	---	695	688	691	814	806	810
18	879	843	859	---	---	---	692	681	687	808	803	805
19	911	879	893	---	---	---	682	671	678	808	802	804
20	939	911	927	---	---	#645	682	662	673	803	800	801
21	946	921	939	665	645	655	690	678	685	801	797	799
22	921	862	891	672	654	662	700	684	692	802	797	798
23	862	803	831	682	665	676	707	692	698	802	797	799
24	803	773	785	682	669	675	714	703	707	803	798	800
25	777	768	772	676	661	667	726	714	718	802	800	801
26	782	766	774	695	662	677	750	726	737	802	800	801
27	767	738	753	698	681	688	762	750	757	807	802	803
28	738	713	727	683	672	677	772	761	765	809	807	808
29	713	698	703	673	664	668	781	772	774	811	807	809
30	699	691	695	673	661	668	794	781	790	813	811	812
31	715	691	702	684	673	677	---	---	---	817	812	814
Month	946	527	736	*808	*645	*699	794	656	696	864	781	808

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

* Monthly mean computed from available daily means. A specific conductance greater than or less than the reported maximum or minimum may have occurred during the period of missing record.

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Water-Data Report 2007

06309000 YELLOWSTONE RIVER AT MILES CITY, MT

Lower Yellowstone Basin
Lower Yellowstone-Sunday Subbasin

LOCATION.--Lat 46°25′18″, long 105°51′38″ referenced to North American Datum of 1927, in NE ¼ SW ¼ NW ¼ sec.28, T.8 N., R.47 E., Custer County, MT, Hydrologic Unit 10100001, on left bank at upstream side of bridge on State Highway 22 at Miles City, 0.8 mi downstream from Tongue River, and at river mile 184.2.

DRAINAGE AREA.--48,253 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--September 1922 to September 1923, August 1928 to current year. Monthly discharge only for some periods, published in Water Supply Paper (WSP) 1309.

REVISED RECORDS.-- WSP 1729: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 2,333.3 ft, referenced to the National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to May 6,1929, nonrecording gages 1.2 mi downstream at different elevations. May 6, 1929, to Sept. 30, 1931, nonrecording gage, and Oct. 1, 1931, to Nov. 10, 1937, water-stage recorder 300 ft upstream from present site at same elevation. Nov. 11, 1937, to Sept. 30, 1946, water-stage recorder 1.2 mi downstream at different elevation. Oct. 1, 1946, to Mar. 15, 1979, water-stage recorder at site 300 ft upstream at present elevation. Mar. 16, 1979, to Sept. 21, 1979, nonrecording gage at present site and elevation. Sept. 22, 1979, recording gage established at same site and elevation.

REMARKS.--Records are good except those for estimated daily discharges, which are poor. Some regulation occurs by reservoirs on tributary streams. Diversions for irrigation include about 1,100,000 acres upstream from station (does not include flood irrigation). Several unpublished observations of water temperature and specific conductance were obtained during the year. U.S. Army Corps of Engineers satellite telemeter is located at the station.

06309000 YELLOWSTONE RIVER AT MILES CITY, MT—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	5,040	5,830	e5,000	e4,900	e4,800	e5,100	6,790	9,320	19,900	10,100	4,850	3,590
2	4,890	5,760	e4,800	e5,000	e4,700	e5,000	6,670	13,200	20,000	9,540	4,500	3,620
3	4,890	5,590	e4,700	e5,200	e4,700	e5,000	7,590	16,800	20,300	8,990	4,160	3,650
4	4,850	5,380	e4,700	e5,200	e4,900	e5,200	8,160	18,900	19,300	8,490	4,070	3,590
5	4,990	5,360	e4,800	e5,100	e5,200	e5,400	7,830	20,900	19,900	7,850	4,150	3,520
6	5,170	5,610	e4,900	e5,100	e5,200	e5,700	7,160	21,600	21,300	7,280	4,220	3,580
7	5,260	5,820	e5,000	e5,100	e5,100	e6,000	6,770	19,800	28,900	6,880	4,150	3,670
8	5,340	5,820	e5,200	e5,100	e5,000	e6,000	6,550	16,700	31,700	6,590	4,070	3,740
9	5,610	5,720	e5,500	e5,100	e5,000	e6,100	6,360	14,500	37,700	6,820	4,060	3,880
10	5,780	5,730	e5,600	e5,100	e5,000	e6,400	6,310	13,300	32,600	7,050	4,030	4,100
11	6,530	6,340	e5,600	e4,800	e5,000	e6,800	6,390	14,200	28,800	6,530	3,850	4,390
12	7,110	7,480	e5,600	e4,600	e5,000	e7,200	6,700	16,700	27,400	5,980	3,760	4,510
13	6,880	7,330	e5,500	e4,500	e4,900	7,460	7,210	19,200	25,900	5,560	3,820	4,500
14	6,810	6,730	e5,400	e4,500	e4,800	6,390	7,190	22,800	25,400	5,230	3,750	4,410
15	6,620	6,500	e5,400	e4,600	e4,700	6,270	6,740	24,600	24,100	5,010	3,600	4,360
16	6,390	6,310	e5,400	e4,700	e4,600	6,290	6,420	26,600	23,200	4,730	3,530	4,220
17	6,330	6,060	e5,400	e4,700	e4,800	6,450	6,290	25,500	23,400	4,590	3,540	4,240
18	6,500	5,950	e5,300	e4,700	e5,000	6,030	6,410	22,900	23,500	4,430	3,610	4,290
19	7,280	5,780	e5,100	e4,700	e5,300	5,560	6,840	21,800	23,300	4,010	3,680	4,210
20	7,040	5,910	e4,900	e4,800	e5,500	5,310	7,260	21,600	22,300	3,950	3,760	4,300
21	6,750	5,840	e4,900	e4,800	e5,600	5,200	8,500	21,500	19,500	3,880	3,810	4,360
22	6,920	5,720	e4,900	e4,800	e5,600	5,280	9,530	22,000	17,300	3,640	3,850	4,440
23	7,200	5,670	e4,900	e5,000	e5,600	5,370	8,770	24,700	16,500	3,510	3,860	4,470
24	7,080	5,640	e4,900	e5,200	e5,500	5,470	7,880	24,600	16,100	3,420	3,800	4,420
25	6,700	5,580	e4,800	e5,200	e5,500	5,510	7,620	22,100	15,800	3,410	3,890	4,460
26	6,470	5,440	e4,800	e5,200	e5,400	5,320	7,580	19,700	15,000	3,330	3,820	4,740
27	6,290	e5,000	e4,900	e5,000	e5,400	5,230	7,730	18,000	14,100	3,520	3,760	4,540
28	6,210	e5,200	e5,100	e5,000	e5,300	5,270	7,790	16,300	12,900	3,700	3,730	4,510
29	6,160	e5,200	e5,000	e5,000	---	5,610	8,380	15,300	11,800	4,630	3,730	4,730
30	6,010	e5,200	e4,900	e5,000	---	6,310	8,780	16,000	10,900	4,910	3,580	4,610
31	5,840	---	e4,900	e4,900	---	6,710	---	18,600	---	5,120	3,520	---
Total	190,940	175,500	157,800	152,600	143,100	180,940	220,200	599,720	648,800	172,680	120,510	125,650
Mean	6,159	5,850	5,090	4,923	5,111	5,837	7,340	19,350	21,630	5,570	3,887	4,188
Max	7,280	7,480	5,600	5,200	5,600	7,460	9,530	26,600	37,700	10,100	4,850	4,740
Min	4,850	5,000	4,700	4,500	4,600	5,000	6,290	9,320	10,900	3,330	3,520	3,520
Ac-ft	378,700	348,100	313,000	302,700	283,800	358,900	436,800	1,190,000	1,287,000	342,500	239,000	249,200

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1922 - 2007, BY WATER YEAR (WY) *

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	7,604	7,026	5,701	5,266	6,089	8,109	8,133	17,180	34,030	19,590	7,925	7,031
Max	12,970	10,850	9,342	8,897	16,160	18,560	15,210	29,100	61,860	46,310	16,540	13,710
(WY)	(1972)	(1973)	(1983)	(1968)	(1971)	(1929)	(1943)	(1978)	(1997)	(1967)	(1997)	(1941)
Min	3,857	3,976	2,921	2,034	2,344	3,027	2,729	7,334	13,030	3,988	2,615	2,964
(WY)	(2004)	(1932)	(1933)	(1937)	(1932)	(2002)	(1961)	(1961)	(1934)	(1934)	(1961)	(1934)

* During periods of operation (1922-23, 1928 to current year).

06309000 YELLOWSTONE RIVER AT MILES CITY, MT—Continued

SUMMARY STATISTICS

	Calendar Year 2006		Water Year 2007		Water Years 1922 - 2007*	
Annual total	2,977,830		2,888,440			
Annual mean	8,158		7,914		11,150	
Highest annual mean					17,470	1997
Lowest annual mean					6,141	1934
Highest daily mean	34,200	May 24	37,700	Jun 9	92,400	May 30, 1923
Lowest daily mean	2,610	Sep 13	3,330	Jul 26	996	Dec 14, 1932
Annual seven-day minimum	2,660	Sep 8	3,500	Jul 22	1,220	Dec 12, 1932
Maximum peak flow			38,900	Jun 9	[b]102,000	May 22, 1978
Maximum peak stage			9.37	Jun 9	[c]21.70	Mar 20, 1944
Instantaneous low flow			[a]3,290	Jul 25	1,800	Mar 7, 1995
Annual runoff (ac-ft)	5,907,000		5,729,000		8,075,000	
10 percent exceeds	16,200		19,400		24,900	
50 percent exceeds	5,720		5,400		7,390	
90 percent exceeds	3,740		3,880		4,000	

	Water Years 1922 - 1961**		Water Years 1967 - 2007***	
Annual mean	10,710		11,390	
Highest annual mean	16,660	1943	17,470	1997
Lowest annual mean	6,141	1934	6,176	2001
Highest daily mean	92,400	May 30, 1923	82,300	Jun 15, 1997
Lowest daily mean	996	Dec 14, 1932	1,640	Nov 25, 1977
Annual seven-day minimum	1,220	Dec 12, 1932	2,030	Jan 3, 2004
Maximum peak flow	96,300	June 19, 1944	[b]102,000	May 22, 1978
Maximum peak stage	[c]21.70	Mar 20, 1944	[c]20.78	Mar 15, 1979
Annual runoff (ac-ft)	7,756,000		8,252,000	
10 percent exceeds	25,200		24,300	
50 percent exceeds	6,620		7,990	
90 percent exceeds	3,500		4,500	

* During periods of operation (1922-23, 1928 to current year).

** Prior to construction of Yellowtail Dam, during periods of operation (1922-23, 1928-61).

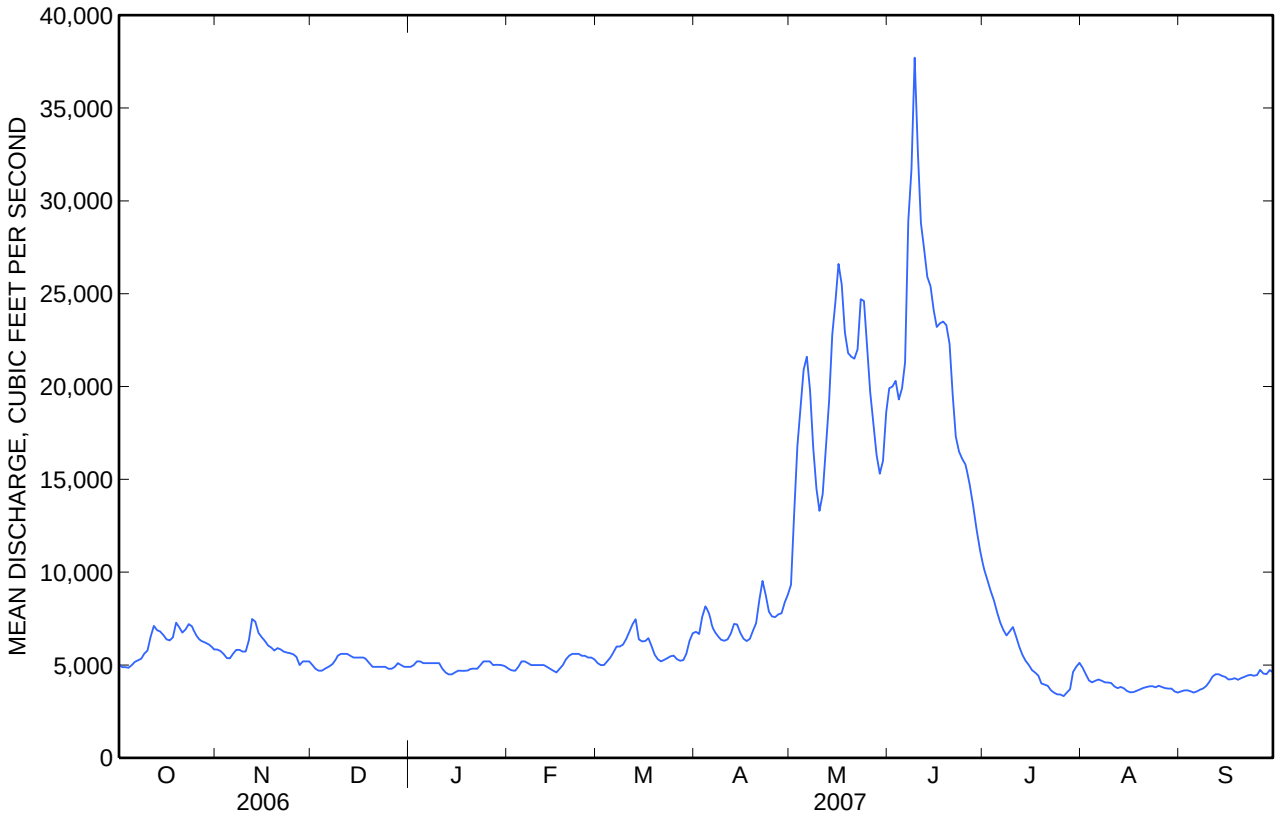
*** After completion of Yellowtail Dam.

[a] Gage height, 2.46 ft.

[b] Gage height, 16.50 ft.

[c] Backwater from ice jam.

06309000 YELLOWSTONE RIVER AT MILES CITY, MT—Continued



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Water-Data Report 2007

06324500 POWDER RIVER AT MOORHEAD, MT

Powder Basin
Middle Powder Subbasin

LOCATION.--Lat 45°03′28″, long 105°52′39″ referenced to North American Datum of 1927, in SE ¼ NE ¼ NE ¼ sec.18, T.9 S., R.48 E., Powder River County, MT, Hydrologic Unit 10090207, on left bank 25 ft downstream from bridge on Powder River, 7.3 mi upstream from Buffalo Creek, and at river mile 183.7.

DRAINAGE AREA.--8,086 mi², Sept. 13, 1956 to Aug. 27, 2001 published as 8,088 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--May 1929 to September 1972, October 1974 to current year. Monthly discharge only for some periods, published in Water Supply Paper (WSP) 1309.

REVISED RECORDS.-- WSP 1309: 1932, maximum discharge. WSP 1729: Drainage area. Water Data Report MT-04-01: 2003, drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 3,350.6 ft, referenced to the National Geodetic Vertical Datum of 1929. Prior to Aug. 28, 1931, nonrecording gage at site 0.8 mi downstream at different elevation. Aug. 28, 1931, to Mar. 21, 1956, water-stage recorder at site 0.1 mi upstream at different elevation. Mar. 22 to July 24, 1956, nonrecording gage at site 1.4 mi downstream at different elevation. July 25 to Sept. 12, 1956, nonrecording gage at different site and elevation. Sept. 13, 1956 to Aug. 27, 2001, water-stage recorder during period of gage operation 1.1 mi downstream at different elevation.

REMARKS.--Records are fair except for those for estimated daily discharges, which are poor. Some regulation occurs by three reservoirs in Wyoming with a combined usable capacity of 36,800 acre-ft. Diversions for irrigation of about 66,300 acres occur upstream from station. U.S. Geological Survey satellite telemeter is located at the station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Sept. 30, 1923, reached a stage of 19 ft, site and elevation used 1931-56, from information by local residents.

06324500 POWDER RIVER AT MOORHEAD, MT—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	129	171	e90	e90	e70	e80	431	345	476	380	630	100
2	115	215	e100	e100	e60	e70	370	453	645	359	428	88
3	101	132	e80	e110	e70	e80	339	609	656	325	327	104
4	85	153	e90	e110	e70	e80	516	1,110	588	295	270	128
5	91	191	e90	e100	e80	e80	773	1,260	700	251	224	116
6	87	193	e90	e100	e80	e80	780	3,560	886	215	206	103
7	101	190	e80	e100	e80	e80	651	3,540	1,270	192	263	102
8	101	180	e80	e110	e80	e80	594	3,140	2,880	174	202	100
9	94	170	e80	e120	e80	e80	497	2,470	3,010	164	186	110
10	106	189	e80	e110	e80	e80	423	1,470	2,410	147	174	122
11	93	224	e80	e70	e80	e80	367	1,220	1,840	142	145	134
12	96	209	e80	e60	e80	e200	367	1,160	1,640	138	136	134
13	103	208	e80	e65	e70	e700	572	1,330	1,570	130	123	120
14	111	195	e80	e70	e60	e600	501	1,490	1,460	124	126	128
15	123	211	e90	e70	e50	497	400	1,500	1,330	115	117	131
16	122	205	e80	e70	e60	440	348	1,280	1,310	98	106	147
17	113	194	e80	e70	e70	437	334	1,090	1,310	84	98	153
18	115	191	e80	e70	e70	428	338	950	1,290	71	98	168
19	117	197	e80	e70	e70	419	345	902	1,230	60	101	162
20	120	204	e80	e70	e70	393	386	835	1,250	59	88	152
21	125	198	e80	e70	e70	351	423	851	1,100	55	77	147
22	129	203	e90	e70	e70	324	360	936	939	47	67	161
23	132	203	e90	e80	e70	332	343	896	855	85	63	165
24	133	193	e90	e90	e70	345	366	774	776	317	61	162
25	131	194	e90	e90	e70	359	336	601	694	243	59	160
26	136	190	e100	e80	e70	378	315	552	616	185	72	157
27	143	e150	e100	e80	e80	334	318	527	546	194	113	167
28	148	e100	e110	e80	e80	307	337	441	506	217	91	175
29	152	e70	e90	e70	---	333	349	404	472	582	113	172
30	141	e80	e80	e70	---	384	338	459	421	2,130	120	170
31	153	---	e90	e70	---	487	---	513	---	1,130	113	---
Total	3,646	5,403	2,680	2,585	2,010	8,918	12,817	36,668	34,676	8,708	4,997	4,138
Mean	118	180	86.5	83.4	71.8	288	427	1,183	1,156	281	161	138
Max	153	224	110	120	80	700	780	3,560	3,010	2,130	630	175
Min	85	70	80	60	50	70	315	345	421	47	59	88
Ac-ft	7,230	10,720	5,320	5,130	3,990	17,690	25,420	72,730	68,780	17,270	9,910	8,210

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 2007, BY WATER YEAR (WY) *

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	220	221	157	152	278	595	498	1,034	1,315	446	169	140
Max	897	660	326	445	1,200	2,290	1,314	5,553	4,131	2,500	1,219	686
(WY)	(1995)	(1999)	(1981)	(1981)	(1930)	(1947)	(1965)	(1978)	(1967)	(1937)	(1941)	(1982)
Min	16.1	80.0	56.2	27.2	20.9	185	117	82.6	31.1	10.0	0.60	1.28
(WY)	(1955)	(1936)	(1933)	(1950)	(1933)	(2002)	(1961)	(1934)	(2004)	(2006)	(1966)	(1960)

* During periods of operation (1930-72, 1975 to current year).

06324500 POWDER RIVER AT MOORHEAD, MT—Continued

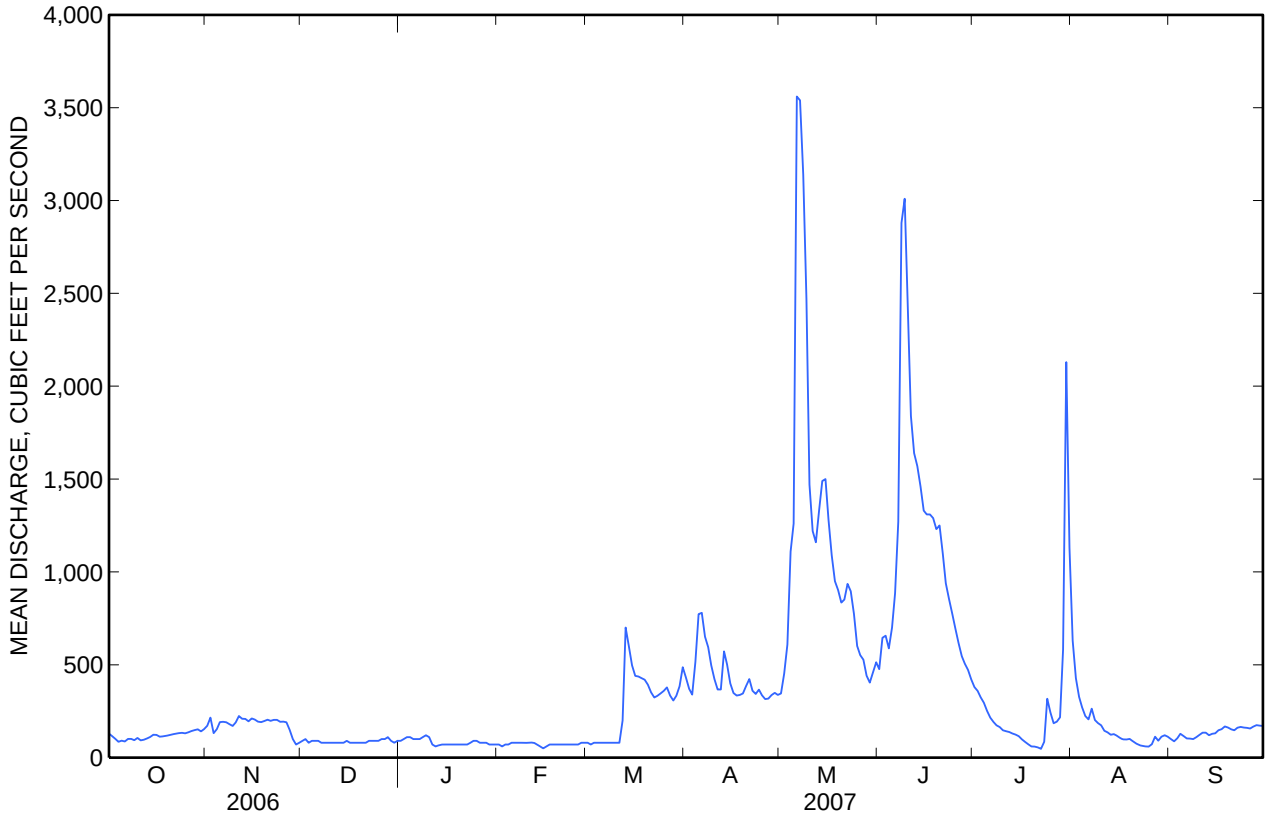
SUMMARY STATISTICS

	Calendar Year 2006		Water Year 2007		Water Years 1930 - 2007*	
Annual total	58,083.56		127,246			
Annual mean	159		349		435	
Highest annual mean					1,091	1978
Lowest annual mean					109	1961
Highest daily mean	1,000	Mar 3	3,560	May 6	27,500	May 20, 1978
Lowest daily mean	0.00	Jul 31	47	Jul 22	0.00	Many days
Annual seven-day minimum	0.01	Aug 7	64	Feb 13	0.00	Sep 4, 1960
Maximum peak flow			5,030	May 6	[a]33,000	May 20, 1978
Maximum peak stage			7.04	May 6	[b]17.70	Mar 21, 1956
Instantaneous low flow			37	Jul 22	0.00	Many days
Annual runoff (ac-ft)	115,200		252,400		315,500	
10 percent exceeds	307		890		1,000	
50 percent exceeds	150		147		210	
90 percent exceeds	2.1		70		45	

* During periods of operation (1930-72, 1975 to current year).

[a] Gage height, 15.24 ft.

[b] Ice jam, site and datum then in use.



06324500 POWDER RIVER AT MOORHEAD, MT—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1951-53, 1956-67, 1969-72, 1975-77, 2001 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: July 1986 to November 1989 (observer samples), May 2001 to current year (seasonal records).
WATER TEMPERATURE: February 1951 to September 1953, October 1955 to September 1957, October 1974 to September 1977, March 1978 to September 1981 (seasonal records only).
SUSPENDED-SEDIMENT DISCHARGE: October 1974 to September 1977, March 1978 to September 1996 (seasonal records only).

INSTRUMENTATION.--Specific conductance probe installed May 20, 2001.

REMARKS.--Daily pecific conductance records are provided for the irrigation season (Mar. 14 through Oct. 31, 2007). Specific conductance values for supplemental observer samples are published for the winter period when the monitor is not operating. The daily specific conductance records are rated good to excellent. The water-quality sample collected on July 26 was made in conjunction with aquatic ecology samples collected for an interagency task group studying the effects of coal-bed natural gas development. Additional information is available at http://wy.water.usgs.gov/projects/atg/index.htm.

EXTREMES FOR PERIOD OF DAILY RECORD.-- SPECIFIC CONDUCTANCE : Maximum, 6,240 microsiemens per centimeter (µS/cm) at 25.0°C, Aug. 17, 2006; minimum, 450 µS/cm at 25.0°C, June 24, 2005.
WATER TEMPERATURE: Maximum daily, 33.0°C, July 14, 1981; minimum daily 0.0°C on many days during winter.
SEDIMENT CONCENTRATION: Maximum daily mean, 53,500 mg/L, May 27, 1980; minimum daily mean, 3 mg/L, Sept. 16-18, 1996.
SEDIMENT LOAD: Maximum daily, 2,230,000 tons, May 20, 1978; minimum daily, 0.17 ton, Aug. 1, 1988 and Sept. 16, 1996.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum recorded, 3,590 µS/cm at 25.0°C, July 24; minimum recorded, 656 µS/cm at 25.0°C, June 18.

06324500 POWDER RIVER AT MOORHEAD, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 1 of 5
[Remark codes: E, estimated.]

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 µS/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													
02...	1145	122	673	8.8	93	8.4	1,660	20.0	12.0	400	94.5	41.0	8.93
25...	0845	130	664	11.6	101	8.5	1,960	1.0	3.5	540	117	59.3	9.66
Nov													
14...	1215	194	669	12.3	102	8.2	1,840	4.5	2.0	500	112	54.8	9.04
30...	0900	E80	673	13.2	104	8.0	2,600	-10.0	0.0	690	151	75.3	12.8
Dec													
12...	1300	E80	673	10.2	80	7.9	2,160	15.0	0.0	610	141	62.9	9.46
19...	1340	E80	671	12.6	99	8.1	2,110	--	0.0	550	129	55.8	10.1
Jan													
18...	0930	E70	683	12.9	99	7.9	2,300	.0	0.0	610	147	59.5	10.2
24...	0900	E90	677	10.2	79	7.9	2,070	2.0	0.0	580	137	56.8	9.31
Feb													
14...	1345	E60	684	11.2	86	7.6	1,620	-9.0	0.0	490	116	47.9	8.34
27...	1645	E80	664	11.4	90	7.8	1,280	2.0	0.0	320	74.0	33.7	9.78
Mar													
05...	1300	E80	679	13.0	100	8.3	1,680	17.0	0.0	440	107	43.1	8.59
21...	0845	352	674	10.3	97	8.3	1,780	2.5	7.0	450	105	45.7	8.22
Apr													
10...	1700	419	666	9.9	102	8.3	2,080	10.0	10.5	550	132	53.8	8.34
26...	0830	306	671	9.1	97	8.5	1,940	10.5	12.0	530	118	55.8	8.01
May													
08...	1415	3,430	676	9.2	100	8.1	1,340	32.5	13.5	370	90.5	35.7	6.54
24...	1610	769	675	8.5	99	8.4	978	16.0	16.5	260	62.8	25.6	3.87
Jun													
05...	1830	778	662	7.1	97	8.4	1,140	24.0	23.5	280	65.3	27.6	4.37
20...	0820	1,310	675	7.4	89	8.2	684	20.0	18.0	180	44.7	16.9	2.97
Jul													
09...	1230	180	672	6.8	99	--	1,740	29.0	27.5	490	113	51.4	7.91
25...	0820	252	673	6.9	94	8.2	2,430	24.5	23.5	490	109	53.1	11.0
26...	0955	183	--	7.2	--	8.2	1,900	--	27.5	--	--	--	--
Aug													
08...	0815	201	672	7.8	99	8.5	1,850	23.0	20.0	470	123	39.8	9.88
22...	0840	65	672	8.3	98	8.4	2,500	16.0	17.0	620	133	70.2	11.4
Sep													
11...	1200	136	678	9.1	102	8.4	1,420	22.0	15.0	460	105	48.8	6.92
19...	0945	163	676	9.1	98	8.4	1,420	14.5	13.0	390	90.9	40.6	6.26

06324500 POWDER RIVER AT MOORHEAD, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 2 of 5
[Remark codes: <, less than; E, estimated.]

Date	Sodium adsorption ratio (00931)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (90410)	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)	Dissolved solids, sum of constituents mg/L (70301)	Dissolved solids, tons/ acre-ft (70303)	Dissolved solids, tons/d (70302)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia water, fltrd, mg/L as N (00608)
Oct													
02...	4.3	200	398	224	67.1	.74	4.53	565	1,120	1.65	399	1,210	.027
25...	4.3	231	327	259	120	.66	6.10	642	1,340	1.94	501	1,430	E.013
Nov													
14...	4.5	231	372	268	103	.62	7.07	567	1,250	1.76	679	1,300	.070
30...	6.1	366	406	410	191	.91	10.2	836	1,890	2.70	E408	1,980	.136
Dec													
12...	4.6	258	391	333	117	.55	10.3	626	1,430	2.09	E308	1,540	.161
19...	4.5	241	378	345	141	.71	10.4	566	1,360	1.91	E294	1,410	.129
Jan													
18...	5.1	288	435	441	151	.81	13.1	623	1,560	2.22	E295	1,630	.105
24...	4.3	235	405	409	123	.72	11.4	572	1,390	1.97	E339	1,450	.100
Feb													
14...	4.2	212	360	365	104	.67	11.2	463	1,190	1.68	E192	1,230	.108
27...	3.4	141	225	213	58.8	.46	7.81	365	822	1.22	E178	895	.221
Mar													
05...	4.4	212	256	242	101	.60	8.45	519	1,150	1.65	E248	1,220	.034
21...	4.2	207	353	247	101	.69	6.58	568	1,190	1.71	1,200	1,260	E.012
Apr													
10...	4.9	267	431	198	70.0	.66	6.24	828	1,490	2.13	1,770	1,570	E.011
26...	4.5	239	278	236	91.1	.61	6.70	679	1,340	1.93	1,170	1,420	<.020
May													
08...	3.2	143	525	142	67.9	.44	6.15	457	894	1.30	8,880	959	.035
24...	3.0	113	152	139	52.9	.32	7.72	273	622	.91	1,390	668	--
Jun													
05...	3.1	118	179	165	54.7	.34	6.51	336	712	1.08	1,660	791	<.020
20...	2.3	70.5	--	109	29.8	.25	7.92	184	423	.62	1,600	453	<.020
Jul													
09...	4.3	221	188	186	104	.48	6.57	576	1,190	1.66	594	1,220	<.020
25...	6.9	352	697	188	185	.70	7.35	793	1,630	2.29	1,150	1,680	.089
26...	--	--	--	--	--	--	--	--	--	--	--	--	--
Aug													
08...	4.5	223	215	163	93.1	.71	7.09	661	1,260	1.78	710	1,310	E.012
22...	5.8	330	175	171	155	.60	5.33	939	1,750	2.51	324	1,850	E.011
Sep													
11...	2.7	133	191	182	47.4	.36	4.28	508	963	1.40	379	1,030	<.020
19...	3.4	157	183	178	77.8	.34	3.09	451	933	1.36	441	1,000	<.020

06324500 POWDER RIVER AT MOORHEAD, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 3 of 5
[Remark codes: <, less than; E, estimated.]

Date	Nitrate + nitrite water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Total nitro-gen, water, unfltrd, mg/L (62855)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Total phos-phorus, water, unfltrd mg/L (00665)	Alum-inum, water, unfltrd recover-able, µg/L (01105)	Arsenic water, fltrd, µg/L (01000)	Arsenic water, unfltrd µg/L (01002)	Barium, water, unfltrd recover-able, µg/L (01007)	Beryll-ium, water, unfltrd recover-able, µg/L (01012)	Boron, water, unfltrd recover-able, µg/L (01022)	Cadmium water, unfltrd µg/L (01027)	Chrom-ium, water, unfltrd recover-able, µg/L (01034)
Oct													
02...	.519	.005	3.78	E.004	.74	37,800	.63	11.9	826	4.22	261	1.86	45.3
25...	.222	.002	1.02	E.004	.524	10,200	.63	--	166	.69	--	--	--
Nov													
14...	.307	.004	1.20	E.006	.35	10,800	.66	6.3	188	.86	202	.65	14.0
30...	.474	.014	.85	.007	.037	703	.94	--	53.5	E.06	--	--	--
Dec													
12...	.462	.019	.91	.007	.110	1,340	.64	1.6	53.3	.09	192	.07	2.1
19...	.576	.022	1.04	.006	.179	2,590	.59	--	66.8	.18	--	--	--
Jan													
18...	.781	.020	1.19	.008	.102	1,610	1.4	1.9	64.6	.11	229	.08	2.4
24...	.744	.016	1.09	.007	.087	1,490	.51	--	66.2	.10	--	--	--
Feb													
14...	.713	.011	1.08	.008	.097	1,760	.52	1.5	66.1	.14	200	.08	2.2
27...	.643	.017	2.03	.021	.26	3,970	.89	--	80.6	.28	--	--	--
Mar													
05...	.590	.006	1.18	.013	.280	3,450	.80	2.8	81.2	.22	155	.17	4.3
21...	.409	.006	1.87	.006	.74	15,000	.82	--	319	1.49	--	--	--
Apr													
10...	.801	.005	3.66	.007	1.12	40,200	.80	18.0	686	4.32	224	2.37	57.8
26...	.261	<.002	1.13	E.006	.50	9,510	.87	--	258	.65	--	--	--
May													
08...	.530	.009	4.98	E.006	4.00	49,300	.59	17.8	889	5.31	145	3.35	67.9
24...	--	--	.78	--	.31	4,340	.17	--	125	.42	--	--	--
Jun													
05...	.095	E.001	.80	.007	.34	4,610	.85	4.8	124	.47	114	.20	7.5
20...	.029	E.001	.69	.010	.39	3,660	.70	--	116	.40	--	--	--
Jul													
09...	<.016	<.002	.38	E.005	.035	280	.95	1.2	60.0	<.06	167	E.01	E.46
25...	1.21	.036	9.41	.017	1.34	45,000	1.1	--	782	5.92	--	--	--
26...	--	--	--	--	--	--	--	--	--	--	--	--	--
Aug													
08...	.366	.003	1.69	.015	.67	19,700	1.0	9.5	400	1.39	215	.53	22.3
22...	<.016	E.002	.48	E.006	.074	982	.80	--	80.1	E.06	--	--	--
Sep													
11...	<.016	E.001	.37	E.004	.046	500	.61	.89	47.1	E.03	133	E.01	.77
19...	<.016	<.002	.40	E.003	.086	966	.59	--	49.9	.07	--	--	--

06324500 POWDER RIVER AT MOORHEAD, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 4 of 5
[Remark codes: <, less than; E, estimated.]

Date	Copper, water, unfltrd recover-able, µg/L (01042)	Iron, water, fltrd, µg/L (01046)	Iron, water, unfltrd recover-able, µg/L (01045)	Lead, water, unfltrd recover-able, µg/L (01051)	Manganese, water, fltrd, µg/L (01056)	Manganese, water, unfltrd recover-able, µg/L (01055)	Mercury water, unfltrd recover-able, µg/L (71900)	Nickel, water, unfltrd recover-able, µg/L (01067)	Selenium, water, unfltrd µg/L (01147)	Zinc, water, unfltrd recover-able, µg/L (01092)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspended sediment concentration mg/L (80154)	Suspended sediment discharge, tons/d (80155)
Oct													
02...	72.1	<6	71,300	69.0	E.4	1,370	--	95.3	2.6	334	99	5,410	1,780
25...	--	<6	--	--	1.7	--	--	--	2.2	--	99	866	304
Nov													
14...	25.2	<6	17,200	14.9	2.6	290	--	22.5	2.0	86	99	1,100	576
30...	--	<18	--	--	8.0	--	--	--	2.1	--	98	215	E46.4
Dec													
12...	5.4	E3	2,000	1.57	5.4	37.9	--	5.61	1.4	10	74	293	E63.3
19...	--	E4	--	--	5.8	--	--	--	1.7	--	92	380	E82.1
Jan													
18...	6.7	<18	2,170	1.78	6.6	40.6	--	3.71	1.8	12	83	226	E42.7
24...	--	<18	--	--	5.2	--	--	--	1.5	--	80	253	E61.5
Feb													
14...	5.6	E6	2,130	1.80	4.3	40.1	--	5.70	1.1	13	96	251	E40.7
27...	--	44	--	--	30.2	--	--	--	1.4	--	99	281	E60.7
Mar													
05...	10.9	9	4,830	4.10	7.1	89.9	--	8.12	2.1	26	81	441	E95.2
21...	--	E4	--	--	1.2	--	--	--	2.2	--	--	--	--
Apr													
10...	82.6	<18	89,800	81.1	1.4	1,720	--	113	4.7	319	98	6,410	7,250
26...	--	<6	--	--	1.2	--	--	--	2.7	--	--	--	--
May													
08...	102	E5	121,000	134	1.8	3,330	.182	124	3.4	305	86	11,000	102,000
24...	--	9	--	--	3.7	--	--	--	1.2	--	68	622	1,290
Jun													
05...	12.9	9	10,500	9.05	1.8	230	--	11.6	1.2	33.8	61	818	1,720
20...	--	13	--	--	1.2	--	--	--	.76	--	45	748	2,650
Jul													
09...	1.5	<6	428	.44	3.5	26.9	--	1.9	.95	4.2	94	63	31
25...	--	<18	--	--	<.6	--	--	--	.33	--	99	9,760	6,640
26...	--	--	--	--	--	--	--	--	--	--	--	--	--
Aug													
08...	29.3	E4	31,000	31.7	.3	537	--	37.0	2.0	105	99	1,780	966
22...	--	<18	--	--	1.9	--	--	--	1.4	--	99	46	8.1
Sep													
11...	1.2	6	770	.61	2.4	18.8	--	3.4	.69	2.6	99	68	25
19...	--	E4	--	--	1.5	--	--	--	.64	--	99	84	37

06324500 POWDER RIVER AT MOORHEAD, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 5 of 5

Date	Time	Turbdty white light, det ang 90+/-30 corrctd NTRU (63676)	Biomass peri-phyton, ashfree drymass g/m2 (49954)	Peri-phyton biomass ash weight, g/m2 (00572)	Peri-phyton biomass dry weight, g/m2 (00573)	Biomass chloro-phyll ratio, peri-phyton, number (70950)	Chloro-phyll a peri-phyton, chromo-fluoro, mg/m2 (70957)	Pheo-phytin a, peri-phyton, mg/m2 (62359)
Jul 26...	0955	8,730	32.2	1,200	1,256	7,990	4.0	1.3

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
NOVEMBER 2006 TO OCTOBER 2007

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
	November 2006			December			January 2007			February		
1	---	---	---	---	---	*2,460	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	*2,080	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	*2,130
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	*2,210	---	---	---	---	---	---
6	---	---	*1,930	---	---	---	---	---	*1,930	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	*2,120	---	---	*2,030	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	**2,160	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	*2,050	---	---	---
14	---	---	**1,840	---	---	---	---	---	---	---	---	**1,620
15	---	---	---	---	---	---	---	---	---	---	---	*1,770
16	---	---	---	---	---	*2,180	---	---	*2,150	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	*1,850	---	---	---	---	---	**2,300	---	---	---
19	---	---	---	---	---	**2,110	---	---	---	---	---	*1,520
20	---	---	---	---	---	*2,170	---	---	*2,090	---	---	---
21	---	---	*1,860	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	*1,250
24	---	---	---	---	---	*2,100	---	---	**2,070	---	---	---
25	---	---	*1,960	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---	---	---	**1,280
28	---	---	*2,300	---	---	*2,030	---	---	*1,860	---	---	---
29	---	---	---	---	---	---	---	---	---	---	---	---
30	---	---	**2,600	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
Month	---	---	---	---	---	---	---	---	---	---	---	---

* Instantaneous value from observer grab sample.
** Instantaneous value from USGS cross-section sample.

06324500 POWDER RIVER AT MOORHEAD, MT—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
NOVEMBER 2006 TO OCTOBER 2007

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		March 2007			April			May			June	
1	---	---	---	1,670	1,610	1,650	1,840	1,780	1,820	1,370	1,300	1,330
2	---	---	*1,400	1,620	1,530	1,570	1,780	1,510	1,610	1,340	1,100	1,240
3	---	---	---	1,560	1,530	1,540	1,510	1,230	1,380	1,150	1,080	1,110
4	---	---	---	1,600	1,530	1,560	1,320	1,110	1,210	1,260	1,150	1,230
5	---	---	**1,680	1,810	1,570	1,690	1,200	851	1,010	1,290	1,120	1,210
6	---	---	*1,330	1,920	1,770	1,840	1,120	882	998	1,140	976	1,050
7	---	---	---	1,930	1,840	1,900	1,170	1,050	1,100	976	865	910
8	---	---	---	2,040	1,860	1,930	1,680	1,170	1,380	1,270	856	1,040
9	---	---	---	2,060	1,840	1,950	1,700	1,600	1,650	968	843	908
10	---	---	---	2,110	2,020	2,060	1,680	1,600	1,640	1,080	929	970
11	---	---	---	2,120	2,090	2,100	1,720	1,620	1,680	1,080	879	981
12	---	---	---	2,090	2,060	2,080	1,620	1,370	1,520	880	794	835
13	---	---	---	2,220	2,090	2,170	1,370	1,130	1,220	858	794	832
14	1,560	1,380	1,520	2,510	2,210	2,360	1,140	878	965	805	755	789
15	1,600	1,200	1,480	2,480	2,180	2,350	969	884	929	755	718	734
16	1,680	1,260	1,440	2,180	2,080	2,110	941	890	921	723	693	709
17	1,740	1,410	1,590	2,100	2,050	2,070	927	881	899	697	660	687
18	1,670	1,260	1,550	2,100	2,070	2,090	949	874	897	673	656	663
19	1,830	1,620	1,710	2,110	2,040	2,070	933	885	909	721	663	700
20	1,860	1,780	1,830	2,270	2,110	2,210	936	885	912	831	675	759
21	1,820	1,710	1,780	2,280	2,100	2,180	969	873	919	835	792	811
22	1,720	1,670	1,690	2,120	2,060	2,090	874	809	834	881	831	856
23	1,740	1,660	1,700	2,110	2,040	2,070	896	807	851	882	842	867
24	1,840	1,730	1,780	2,050	2,000	2,020	1,040	894	945	955	845	899
25	1,860	1,800	1,830	2,060	1,970	2,010	1,200	1,040	1,110	952	922	939
26	1,810	1,720	1,770	1,970	1,800	1,900	1,350	1,200	1,290	1,020	920	974
27	1,720	1,660	1,690	1,800	1,780	1,780	1,480	1,350	1,400	1,050	956	1,000
28	1,660	1,530	1,600	1,810	1,780	1,800	1,500	1,440	1,460	1,090	981	1,030
29	1,570	1,500	1,540	1,800	1,750	1,780	1,810	1,500	1,730	1,130	986	1,040
30	1,580	1,480	1,520	1,840	1,770	1,810	1,810	1,640	1,740	1,210	1,040	1,120
31	1,670	1,560	1,620	---	---	---	1,640	1,300	1,420	---	---	---
Month	---	---	---	2,510	1,530	1,960	1,840	807	1,240	1,370	656	941

* Instantaneous value from observer grab sample.
** Instantaneous value from USGS cross-section sample.

06324500 POWDER RIVER AT MOORHEAD, MT—Continued

SPECIFIC CONDUCTANCE, WATER, UNFILTERED, MICROSIEMENS PER CENTIMETER AT 25 DEGREES CELSIUS
NOVEMBER 2006 TO OCTOBER 2007

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		July 2007			August			September			October 2007	
1	1,300	1,120	1,210	1,380	1,330	1,370	3,150	2,270	2,820	1,510	1,430	1,470
2	1,330	1,180	1,300	1,360	1,260	1,300	3,200	2,920	3,070	1,450	1,340	1,390
3	1,380	1,310	1,350	1,310	1,240	1,260	2,920	2,790	2,860	1,430	1,320	1,350
4	1,390	1,300	1,370	1,330	1,250	1,270	2,790	2,070	2,380	1,600	1,430	1,530
5	1,480	1,390	1,430	1,510	1,330	1,410	2,070	1,910	1,950	1,800	1,540	1,650
6	1,590	1,480	1,530	1,660	1,510	1,590	1,910	1,650	1,760	1,850	1,760	1,810
7	1,660	1,590	1,620	1,830	1,650	1,750	1,720	1,640	1,680	1,950	1,760	1,840
8	1,700	1,640	1,670	1,950	1,830	1,880	1,670	1,600	1,650	1,900	1,770	1,830
9	1,790	1,700	1,750	1,950	1,800	1,870	1,600	1,480	1,520	1,840	1,710	1,780
10	1,780	1,740	1,760	1,800	1,520	1,640	1,490	1,420	1,450	1,740	1,680	1,720
11	1,780	1,740	1,750	1,670	1,510	1,580	1,440	1,360	1,410	1,720	1,670	1,690
12	1,990	1,780	1,920	2,110	1,670	1,920	1,360	1,340	1,350	1,800	1,710	1,740
13	1,980	1,930	1,960	---	---	#2,190	1,340	1,310	1,320	1,860	1,780	1,830
14	2,000	1,890	1,930	---	---	#2,390	1,330	1,270	1,310	1,780	1,740	1,760
15	2,040	1,880	1,970	2,490	2,430	2,460	1,270	1,220	1,240	1,780	1,710	1,740
16	2,060	1,980	2,010	2,450	2,390	2,430	1,290	1,230	1,250	1,790	1,680	1,730
17	2,230	2,060	2,130	2,470	2,380	2,420	1,290	1,230	1,260	1,680	1,620	1,650
18	2,610	2,230	2,440	2,490	2,430	2,450	1,390	1,280	1,340	1,650	1,620	1,640
19	2,840	2,590	2,680	2,600	2,450	2,510	1,480	1,380	1,430	1,650	1,610	1,620
20	2,960	2,840	2,900	2,570	2,490	2,520	1,510	1,470	1,500	1,660	1,620	1,640
21	3,010	2,920	2,960	2,530	2,450	2,490	1,500	1,440	1,470	1,640	1,620	1,630
22	3,010	2,820	2,960	2,500	2,400	2,460	1,440	1,350	1,420	1,650	1,640	1,640
23	3,100	2,760	2,950	2,400	2,340	2,380	1,480	1,340	1,420	1,670	1,630	1,650
24	3,590	2,000	3,000	2,460	2,080	2,270	1,460	1,300	1,380	1,690	1,670	1,680
25	3,370	1,800	2,440	2,640	2,460	2,570	1,300	1,260	1,280	1,740	1,680	1,700
26	1,960	1,440	1,690	2,650	2,630	2,640	1,370	1,260	1,340	2,020	1,730	1,820
27	1,440	1,330	1,370	3,180	2,640	2,920	1,390	1,300	1,350	2,040	1,850	1,960
28	1,340	1,270	1,310	3,270	3,070	3,160	1,520	1,370	1,460	1,850	1,760	1,800
29	1,740	1,230	1,470	3,270	2,010	2,610	1,540	1,480	1,500	1,760	1,690	1,710
30	1,990	1,330	1,650	2,010	1,850	1,940	1,530	1,460	1,500	1,820	1,710	1,780
31	1,380	1,340	1,360	2,270	1,860	2,010	---	---	---	1,810	1,720	1,760
Month	3,590	1,120	1,930	†3,270	†1,240	†2,120	3,200	1,220	1,620	2,040	1,320	1,690

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

† Monthly mean computed from available daily means. A specific conductance greater than or less than the reported maximum or minimum may have occurred during the period of missing record.

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Water-Data Report 2007

06324710 POWDER RIVER AT BROADUS, MT

Powder Basin
Middle Powder Subbasin

LOCATION.--Lat 45°25′37″, long 105°24′05″ referenced to North American Datum of 1927, in NE ¼ NE ¼ SE ¼ sec.3, T.5 S., R.51 E., Powder River County, MT, Hydrologic Unit 10090207, on right bank, 40 ft downstream from bridge on U.S. highway 212, 0.4 mi downstream from Doyle Creek, 1.0 mi south of Broadus, and 7.0 mi upstream from Little Powder River.

DRAINAGE AREA.--8,748 mi².

GAGE.--None. Elevation at sampling site is 3,016 ft, referenced to the National Geodetic Vertical Datum of 1929.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1976 to September 1992, June 1995, July 2005 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: March 1976 to September 1979.
SUSPENDED-SEDIMENT DISCHARGE: October 1975 to September 1978, March 1979 to September 1992 (seasonal records only).

REMARKS--The water-quality sample collected at this site was made in conjunction with aquatic ecology samples collected for an interagency task group studying the effects of coal-bed natural gas development. Additional information is available at http://wy.water.usgs.gov/projects/atg/index.htm.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: Maximum daily observed 34.0°C, July 12, 1976; minimum daily, 0.0°C, many days during winter.
SEDIMENT CONCENTRATION: Maximum daily mean, 44,100 mg/L, July 29, 1977; minimum daily mean, 16 mg/L, Sept. 27, 1981.
SEDIMENT LOAD: Maximum daily, 1,570,000 tons, May 31, 1978; minimum daily, 0.64 tons, Aug. 7, 1988.

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 1 of 3

Date	Time	Instan-taneous dis-charge, cfs (00061)	Turbdty white light, det ang 90+/-30 corrctd NTRU (63676)	Dis-solved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specif-ic conduc-tance, wat unf µS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)	Hard-ness, water, mg/L as CaCO3 (00900)	Calcium water, fltrd, mg/L (00915)	Magnes-ium, water, fltrd, mg/L (00925)	Potas-sium, water, fltrd, mg/L (00935)	Sodium adsorp-tion ratio (00931)	Sodium, water, fltrd, mg/L (00930)
Jul													
25...	1200	29	3.0	7.4	8.1	3,090	28.0	900	190	102	13.4	6.2	428

06324710 POWDER RIVER AT BROADUS, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 2 of 3

Date	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)	Dissolved solids, sum of constituents mg/L (70301)	Dissolved solids, tons/ acre-ft (70303)	Dissolved solids d, tons/d (70302)
Jul								
25...	219	179	.50	11.5	1,290	2,340	3.19	182

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 3 of 3
[Remark codes: <, less than.]

Date	Time	Biomass periphyton, ashfree drymass g/m2 (49954)	Periphyton biomass ash weight, g/m2 (00572)	Periphyton biomass dry weight, g/m2 (00573)	Biomass chlorophyll ratio, periphyton, number (70950)	Chlorophyll a periphyton, chromofluoro, mg/m2 (70957)	Pheophytin a, periphyton, mg/m2 (62359)
Jul							
25...	1305	25.1	300	326	46,500	.5	<.1

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Water-Data Report 2007

06325000 LITTLE POWDER RIVER AT BIDDLE, MT

Powder Basin
Little Powder Subbasin

LOCATION.--Lat 45°06'16.86", long 105°19'50.65" referenced to North American Datum of 1927, in SE ¼ sec.27, T.8 S., R.52 E., Powder River County, MT, Hydrologic Unit 10090208, at highway bridge 0.5 mi downstream from Ranch Creek and 0.8 mi northeast of Biddle.

DRAINAGE AREA.--1,541 mi².

GAGE.--None. Elevation at sampling site is 3,250 ft.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--June 2005 and August 2007.

REMARKS.--The water-quality sample collected at this site was made in conjunction with aquatic ecology samples colected for an interagency task group studying the effects of coal-bed natural gas development. Additional information is available at: http://wy.water.usgs.gov/projects/atg/index.htm.

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 1 of 3

Date	Time	Instantaneous discharge, cfs (00061)	Turbdty white light, det ang 90+/-30 corrctd NTRU (63676)	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 µS/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)
Aug 09...	0830	8.1	23	676	6.8	87	8.1	4,090	25.5	21.0	1,100	219	141

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 2 of 3

Date	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)	Sodium, water, fltrd, mg/L (00930)	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)	Dissolved solids, sum of constituents mg/L (70301)	Dissolved solids, tons/ acre-ft (70303)	Dissolved solids, tons/d (70302)
Aug 09...	34.0	8.1	625	324	82.3	1.03	12.7	1,990	3,300	4.49	72.5

06325000 LITTLE POWDER RIVER AT BIDDLE, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 3 of 3

Date	Time	Biomass periphyton, ashfree drymass g/m2 (49954)	Periphyton biomass ash weight, g/m2 (00572)	Periphyton biomass dry weight, g/m2 (00573)	Biomass chlorophyll ratio, periphyton, number (70950)	Chlorophyll a periphyton, chromofluoro, mg/m2 (70957)	Pheophytin a, periphyton, mg/m2 (62359)
Aug 09...	1030	4.1	210	217	926	4.4	1.4

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Water-Data Report 2007

06325500 LITTLE POWDER RIVER NEAR BROADUS, MT

Powder Basin
Little Powder Subbasin

LOCATION.--Lat 45°23′25″, long 105°18′15″ referenced to North American Datum of 1927, in NW ¼ NE ¼ sec.21, T.5 S., R.52 E., Powder River County, MT, Hydrologic Unit 10090208, 1.5 mi downstream from East Fork, 5.5 mi southeast of Broadus, and 8 mi upstream from mouth.

DRAINAGE AREA.--1,974 mi².

GAGE.--None. Elevation of site is 3,020 ft, referenced to the National Geodetic Vertical Datum of 1929.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--March 2002 to current year.

REMARKS.--Data collected from April 2001 to February 2002 at station 06325550, Little Powder River at mouth, near Broadus. Site moved to current location in March 2002.

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 1 of 4

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 µS/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													
24...	1400	11	679	10.3	98	8.5	2,170	9.0	8.0	680	163	65.7	23.7
Nov													
08...	1345	13	675	9.9	93	--	2,530	5.0	7.0	670	151	71.7	21.2
Dec													
12...	1330	8.0	679	12.8	99	8.3	2,750	3.0	0.0	860	194	90.1	26.6
Jan													
17...	1315	3.7	681	14.1	109	7.9	2,900	0.0	0.0	580	139	57.1	19.1
Feb													
20...	1400	12	672	12.1	98	8.2	808	3.0	1.5	180	44.0	17.7	12.1
Mar													
26...	1415	12	685	9.4	102	8.6	2,110	8.0	14.0	410	88.3	45.9	11.8
Apr													
10...	1415	16	673	10.6	102	8.3	1,580	6.0	8.0	340	70.6	40.0	9.31
May													
15...	1415	119	689	8.6	101	8.3	2,270	20.0	18.0	600	122	72.9	16.1
Jun													
26...	1500	13	689	7.4	98	8.1	3,360	25.0	23.5	900	179	110	21.4
Jul													
24...	1315	5.7	678	7.1	102	8.3	3,920	36.0	27.0	890	167	115	24.8
Aug													
07...	1400	3.7	677	7.1	100	8.3	3,820	27.0	26.0	860	160	112	23.9
Sep													
11...	1315	7.7	685	8.8	101	8.4	3,500	17.0	16.0	770	153	94.3	20.8

06325500 LITTLE POWDER RIVER NEAR BROADUS, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 2 of 4
[Remark codes: <, less than; E, estimated.]

Date	Sodium adsorption ratio (00931)	Sodium, water, fltrd, mg/L (00930)	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)	Dissolved solids, sum of constituents mg/L (70301)	Dissolved solids, tons/ acre-ft (70303)	Dissolved solids, tons/d (70302)	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)
Oct													
24...	5.8	347	305	60.0	.94	11.8	943	1,800	2.45	53.9	E.016	E.011	<.002
Nov													
08...	6.6	394	362	57.3	.85	11.8	1,170	2,100	2.85	73.5	.024	E.015	.002
Dec													
12...	7.4	498	450	78.1	1.02	14.7	1,410	2,590	3.52	55.9	.047	.018	E.002
Jan													
17...	8.3	458	468	52.2	.92	16.0	1,090	2,110	2.87	21.2	.079	.057	.003
Feb													
20...	3.2	101	119	17.4	.34	8.1	256	529	.72	17.1	.083	.167	.011
Mar													
26...	7.0	324	360	37.2	.46	9.6	738	1,470	2.00	46.1	E.011	<.016	<.002
Apr													
10...	5.3	224	228	32.6	.34	9.5	543	1,070	1.45	45.5	.025	.024	.002
May													
15...	5.0	284	305	42.3	.48	14.2	894	1,630	2.22	524	<.020	E.012	E.002
Jun													
26...	7.2	499	373	56.8	.65	16.7	1,480	2,580	3.51	90.0	<.020	<.016	<.002
Jul													
24...	9.0	618	314	59.9	.70	14.8	1,750	2,940	4.00	45.3	<.020	<.016	E.001
Aug													
07...	9.5	639	314	60.5	.69	13.3	1,770	2,970	4.04	29.7	<.020	<.016	E.001
Sep													
11...	8.4	536	319	57.8	.64	11.9	1,590	2,660	3.61	55.2	E.011	<.016	E.002

06325500 LITTLE POWDER RIVER NEAR BROADUS, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 3 of 4
[Remark codes: <, less than; E, estimated.]

Date	Total nitro-gen, water, unfltrd, mg/L (62855)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Total phos-phorus, water, unfltrd mg/L (00665)	Arsenic water, unfltrd µg/L (01002)	Barium, water, unfltrd recover-able, µg/L (01007)	Boron, water, unfltrd recover-able, µg/L (01022)	Cadmium water, unfltrd µg/L (01027)	Chrom-ium, water, unfltrd recover-able, µg/L (01034)	Copper, water, unfltrd recover-able, µg/L (01042)	Iron, water, unfltrd recover-able, µg/L (01045)	Lead, water, unfltrd recover-able, µg/L (01051)	Mangan-ese, water, unfltrd recover-able, µg/L (01055)	Nickel, water, unfltrd recover-able, µg/L (01067)
Oct													
24...	.55	E.004	.098	4.5	95.8	133	.10	6.0	12.8	4,620	4.11	177	8.51
Nov													
08...	.46	E.005	.044	1.6	57.9	146	.07	1.6	9.5	1,260	1.25	137	5.16
Dec													
12...	.35	E.005	.053	1.9	51.3	161	.04	1.5	6.5	1,170	.89	214	6.11
Jan													
17...	.41	.011	.049	3.0	48.9	146	.04	1.9	10.6	1,560	1.32	234	4.78
Feb													
20...	2.20	.111	.409	3.2	59.7	44	.13	4.5	9.1	4,760	4.53	197	7.55
Mar													
26...	.76	E.004	.089	2.1	60.7	118	.04	1.3	9.9	1,600	1.47	199	5.74
Apr													
10...	1.05	E.005	.281	3.5	99.9	94	.11	5.1	9.6	4,320	9.23	190	8.5
May													
15...	.99	E.004	.127	3.1	121	168	.05	2.7	5.0	3,040	4.17	332	6.4
Jun													
26...	.78	.007	.056	2.2	103	258	E.02	E.99	2.4	1,370	1.37	236	3.7
Jul													
24...	.61	.006	.033	1.9	62.1	234	E.03	<1.2	<2.4	420	.54	174	2.1
Aug													
07...	.50	.007	.032	1.9	64.4	257	.04	<1.2	E1.4	264	.81	72.9	2.1
Sep													
11...	.38	.008	.047	2.1	57.0	172	E.02	E1.1	<2.4	1,110	1.03	111	2.5

06325500 LITTLE POWDER RIVER NEAR BROADUS, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 4 of 4
[Remark codes: <, less than; E, estimated.]

Date	Selenium, water, unfltrd µg/L (01147)	Zinc, water, unfltrd recover-able, µg/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)
Oct					
24...	.94	21	96	315	9.4
Nov					
08...	.32	10	98	202	7.1
Dec					
12...	.81	8	89	242	5.2
Jan					
17...	.26	11	82	152	1.5
Feb					
20...	.29	22	99	203	6.6
Mar					
26...	.40	11	91	177	5.5
Apr					
10...	.73	27.9	99	477	20
May					
15...	1.3	11.5	90	248	80
Jun					
26...	.55	5.5	67	223	7.8
Jul					
24...	.50	<4.0	89	128	2.0
Aug					
07...	.40	E2.3	89	172	1.7
Sep					
11...	.39	E3.6	94	159	3.3

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Water-Data Report 2007

453209105201201 POWDER RIVER BELOW LITTLE POWDER RIVER, NEAR BROADUS, MT

Powder Basin
Lower Powder Subbasin

LOCATION.--Lat 45°32′09″, long 105°20′12″ referenced to North American Datum of 1927, in SW ¼ NE ¼ NW ¼ sec.32, T.3 S., R.52 E., Powder River County, MT, Hydrologic Unit 10090209, about 5 mi below Little Powder River and 10 mi northeast of Broadus.

DRAINAGE AREA.--Not determined.

GAGE.--None. Elevation at sampling site is 2,980 ft, referenced to the National Geodetic Vertical Datum of 1929.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--July 2005 to current year.

REMARKS.-- The water-quality sample collected at this site was made in conjunction with aquatic ecology samples collected for an interagency task group studying the effects of coal-bed natural gas development. Additional information is available at: http://wy.water.usgs.gov/projects/atg/index.htm.

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 1 of 3

Date	Time	Instantaneous discharge, cfs (00061)	Turbdty white light, det ang 90+/-30 corrctd NTRU (63676)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specific conductance, wat unf µS/cm 25 degC (00095)	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)	Sodium adsorption ratio (00931)	Sodium, water, fltrd, mg/L (00930)
Jul 24...	1630	50	10	11.1	8.2	3,180	32.5	810	164	97.8	16.2	7.1	466

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 2 of 3

Date	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)	Dissolved solids, sum of constituents mg/L (70301)	Dissolved solids, tons/ acre-ft (70303)	Dissolved solids, tons/d (70302)
Jul 24...	236	119	.56	13.3	1,400	2,420	3.29	326

453209105201201 POWDER RIVER BELOW LITTLE POWDER RIVER, NEAR BROADUS, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 3 of 3
[Remark codes: <, less than.]

Date	Time	Biomass peri-phyton, ashfree drymass g/m2 (49954)	Peri-phyton biomass ash weight, g/m2 (00572)	Peri-phyton biomass dry weight, g/m2 (00573)	Biomass chloro-phyll ratio, peri-phyton, number (70950)	Chloro-phyll a peri-phyton, chromo-fluoro, mg/m2 (70957)	Pheo-phytin a, peri-phyton, mg/m2 (62359)
Jul							
25...	0950	326.4	160	487	1,480,000	.2	<.1

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Water-Data Report 2007

06326500 POWDER RIVER NEAR LOCATE, MT

Powder Basin
Lower Powder Subbasin

LOCATION.--Lat 46°25′48″, long 105°18′34″ referenced to North American Datum of 1927, in SW ¼ SW ¼ SE ¼ sec.23, T.8 N., R.51 E., Custer County, MT, Hydrologic Unit 10090209, on left bank at downstream side of bridge on U.S. Highway 12, 0.1 mi west of Locate, and 25 mi east of Miles City, and at river mile 29.4.

DRAINAGE AREA.--13,068 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--March 1938 to current year.

REVISED RECORDS.-- Water Supply Paper (WSP) 926: 1939. WSP 1309: 1938-39, maximum discharge. WSP 1729: Drainage area. Water Data Report MT-04-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 2,384.79 ft, referenced to the National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Prior to July 11, 1947, nonrecording gage located at bridge 1.5 mi upstream, and July 11, 1947 to Sept. 30, 1965, water-stage recorder located at site near upstream bridge at different elevation. Oct. 1, 1965 to Oct. 4, 1966, nonrecording gage, and Oct. 5, 1966 to Mar. 21, 1978, water-stage recorder located at present site and elevation. Mar. 22, 1978 to Apr. 23, 1981, water-stage recorder located 1.5 mi upstream at different elevation, Apr. 24 to Aug. 20, 1981, water-stage recorder located at present site and elevation, and Aug. 21, 1981 to Sept. 30, 1981, water-stage recorder located 1.5 mi upstream at different elevation. Oct. 1, 1981 to Apr. 5, 1995 water-stage recorder located at site 1.5 miles downstream at different elevation. Apr. 7, 1995 to present, water-stage recorders located on each bank and used depending on control conditions.

REMARKS.--Records are fair except those for estimated daily discharges, which are poor. Some regulation occurs by three reservoirs in Wyoming with combined usable capacity of 36,800 acre-ft. Diversions for irrigation include about 101,800 acres upstream from station. U.S. Army Corps of Engineers satellite telemeter is located at the station.

06326500 POWDER RIVER NEAR LOCATE, MT—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	46	e80	e90	e80	e50	e90	558	323	978	743	555	64
2	55	e90	e80	e90	e50	e90	642	311	956	657	1,160	64
3	83	e100	e80	e100	e50	e80	866	307	1,120	613	834	57
4	165	e100	e120	e90	e60	e200	742	368	1,110	578	687	57
5	128	e100	e120	e80	e80	e500	698	337	1,240	527	560	54
6	107	e110	e90	e80	e70	e500	642	1,430	1,200	483	475	52
7	95	e150	e90	e90	e60	e500	913	3,090	3,380	419	401	60
8	94	e130	e110	e90	e60	e400	962	4,840	4,540	393	347	81
9	92	e120	e110	e80	e60	e400	902	4,360	3,590	413	267	90
10	89	e100	e100	e70	e60	e400	815	4,280	4,040	355	229	99
11	e70	e100	e100	e60	e60	e400	703	3,370	4,090	277	247	94
12	e40	e100	e110	e50	e60	e1,200	590	2,170	3,600	232	239	89
13	e50	e100	e120	e60	e60	e1,000	515	1,870	2,700	205	187	85
14	93	e100	e120	e60	e60	e1,000	494	2,240	2,350	181	177	93
15	94	e90	e120	e60	e60	970	442	1,810	2,130	169	169	101
16	97	e100	e100	e60	e60	947	619	1,930	1,940	126	134	104
17	145	e100	e90	e60	e60	824	538	1,880	1,780	112	119	104
18	120	e100	e80	e60	e60	697	489	1,640	1,740	95	122	85
19	97	e100	e90	e60	e60	554	390	1,400	1,650	92	110	85
20	99	e100	e100	e60	e70	531	437	1,280	1,620	88	103	85
21	111	e100	e100	e60	e90	549	421	1,170	1,560	76	103	90
22	128	e100	e100	e60	e100	509	383	1,140	1,560	62	95	97
23	124	e100	e100	e60	e90	488	414	1,170	1,470	53	87	113
24	e110	e100	e100	e60	e90	445	462	1,240	1,350	47	85	117
25	e100	e100	e100	e60	e90	427	467	1,260	1,240	39	93	110
26	e100	e100	e100	e60	e90	430	455	1,230	1,160	37	98	116
27	e100	e100	e110	e60	e90	400	460	1,100	1,050	36	98	149
28	e100	e90	e100	e60	e90	422	436	987	999	35	94	161
29	e100	e70	e100	e60	---	480	369	931	908	56	99	159
30	e90	e80	e80	e60	---	470	337	845	820	147	93	134
31	e80	---	e70	e60	---	509	---	933	---	142	76	---
Total	3,002	3,010	3,080	2,100	1,940	16,412	17,161	51,242	57,871	7,488	8,143	2,849
Mean	96.8	100	99.4	67.7	69.3	529	572	1,653	1,929	242	263	95.0
Max	165	150	120	100	100	1,200	962	4,840	4,540	743	1,160	161
Min	40	70	70	50	50	80	337	307	820	35	76	52
Ac-ft	5,950	5,970	6,110	4,170	3,850	32,550	34,040	101,600	114,800	14,850	16,150	5,650

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1939 - 2007, BY WATER YEAR (WY)

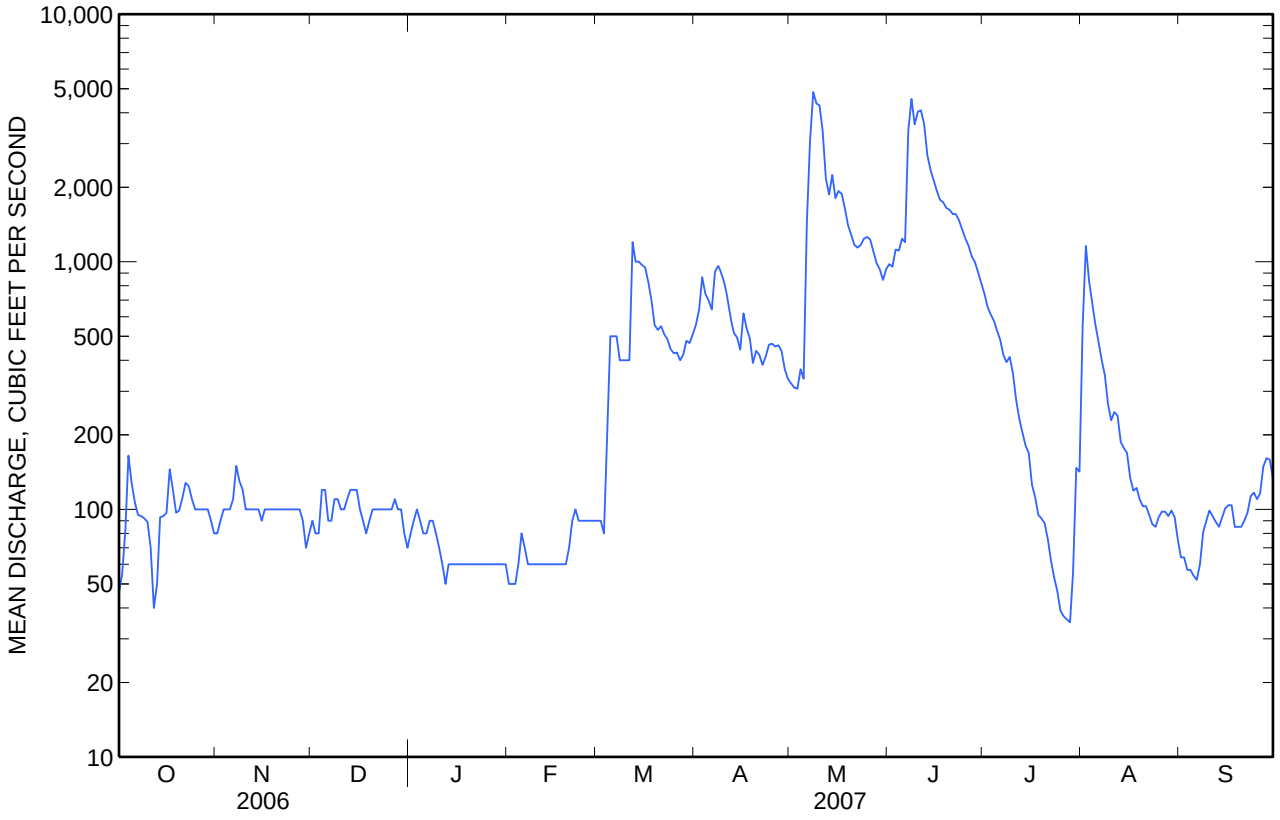
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	243	214	147	142	413	1,181	726	1,130	1,561	542	206	162
Max	921	790	417	476	3,850	4,627	3,062	5,970	8,045	2,015	1,096	898
(WY)	(1941)	(1999)	(1942)	(1981)	(1943)	(1972)	(1965)	(1978)	(1944)	(1993)	(1941)	(1941)
Min	1.77	12.5	12.5	4.53	2.82	80.2	109	51.2	25.9	9.34	1.30	0.19
(WY)	(1961)	(1961)	(1961)	(1950)	(1950)	(1950)	(1961)	(2004)	(2004)	(2004)	(1988)	(1960)

06326500 POWDER RIVER NEAR LOCATE, MT—Continued

SUMMARY STATISTICS

	Calendar Year 2006		Water Year 2007		Water Years 1939 - 2007	
Annual total	87,318.00		174,298			
Annual mean	239		478		555	
Highest annual mean					1,622	1944
Lowest annual mean					79.1	2004
Highest daily mean	3,120	Apr 20	4,840	May 8	26,000	Feb 19, 1943
Lowest daily mean	0.00	Sep 1	35	Jul 28	0.00	Jan 16, 1950
Annual seven-day minimum	0.04	Aug 29	43	Jul 23	0.00	Jan 16, 1950
Maximum peak flow			5,940	Jun 7	[b]31,000	Feb 19, 1943
Maximum peak stage			6.14	Jun 7	[c]12.20	Mar 16, 1978
Instantaneous low flow			[a]31	Jul 28	0.00	Many days[d]
Annual runoff (ac-ft)	173,200		345,700		402,400	
10 percent exceeds	552		1,240		1,300	
50 percent exceeds	120		110		227	
90 percent exceeds	2.4		60		39	

[a] Gage height, 0.74 ft.
[b] Gage height, 11.23 ft, observed.
[c] Backwater from ice.
[d] On many days in 1950, 1960-61, 1998, and 2006.



WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1948-63, 1975 to September 1994, January 1999 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: January 1951 to September 1962, October 1974 to September 1981, July 1988 to January 1990.
WATER TEMPERATURE: March 1951 to July 1963, October 1974 to September 1979.
SUSPENDED-SEDIMENT DISCHARGE: October 1974 to September 1984.

REMARKS.--The July 24 water-quality sample was collected in conjunction with aquatic ecology samples collected for an interagency task group studying the effects of coal-bed natural gas development. Additional information is available at: http://wy.water.usgs.gov/projects/atg/index.htm. Several unpublished observations of specific conductance and water temperature were made during the year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 4,000 microsiemens per centimeter (µS/cm) at 25.0°C, Apr. 1, 1977; minimum daily, 523 µS/cm at 25.0°C, Mar. 11, 12, 1989.
WATER TEMPERATURE: Maximum, 30°C, July 26, 1959; minimum 0.0°C many days during winter periods.
SEDIMENT CONCENTRATION: Maximum daily mean, 60,000 mg/L, Aug. 6, 1953; minimum daily mean, 17 mg/L, Dec. 3, 1974.
SEDIMENT LOAD: Maximum daily, 1,020,000 tons, May 26, 1952; minimum daily, less than 1 ton on several days during September 1950.

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 1 of 5

[Remark codes: <, less than; E, estimated.]

Date	Time	Instantaneous discharge, cfs (00061)	Turbdty white light, det ang 90+/-30 corrctd NTRU (63676)	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 µS/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)
Oct													
04...	0815	164	--	709	10.4	99	8.3	2,290	10.0	9.5	560	119	64.6
Nov													
16...	0815	E100	--	699	13.6	102	8.2	2,000	3.0	.0	490	105	56.4
Dec													
07...	0815	E90	--	--	--	--	7.9	3,580	-10.0	.0	860	184	98.2
Jan													
16...	1115	E60	--	705	10.2	76	7.7	2,730	-1.0	.0	750	177	75.1
Feb													
22...	1300	E100	--	694	12.8	96	7.9	634	2.0	.0	130	31.1	12.8
Mar													
27...	1230	401	--	692	10.3	105	8.5	1,950	15.5	11.5	500	117	50.8
Apr													
09...	1300	891	--	690	12.1	108	8.3	1,690	11.0	6.0	420	95.2	43.4
May													
07...	1730	3,470	--	698	9.6	102	8.2	884	22.0	14.0	150	37.4	14.8
Jun													
05...	0900	1,280	--	693	7.6	92	8.4	1,750	20.0	20.0	420	94.5	43.6
Jul													
19...	1045	97	--	698	7.5	100	8.4	2,440	30.0	25.0	530	115	60.3
24...	0945	48	3.6	--	7.9	--	8.1	2,470	--	22.0	--	--	--
Aug													
22...	0730	95	--	699	8.4	94	8.4	2,530	17.0	16.0	570	126	62.7
Sep													
18...	1415	81	--	699	9.0	107	8.4	2,440	17.0	19.0	580	118	68.7

06326500 POWDER RIVER NEAR LOCATE, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 2 of 5
[Remark codes: <, less than; E, estimated.]

Date	Potassium, water, fltrd, mg/L (00935)	Sodium adsorption ratio (00931)	Sodium, water, fltrd, mg/L (00930)	ANC, wat unf fixed end pt, lab, mg/L as CaCO3 (90410)	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)	Dissolved solids, sum of constituents mg/L (70301)	Dissolved solids, fltrd, tons/acre-ft (70303)	Dissolved solids, tons/d (70302)	Ammonia water, fltrd, mg/L as N (00608)
Oct													
04...	13.6	5.5	301	284	192	68.3	.53	5.3	952	1,640	2.23	726	E.013
Nov													
16...	9.15	5.1	261	381	255	106	.55	7.1	654	1,350	1.84	E365	.070
Dec													
07...	14.2	7.7	520	503	500	185	.73	15.8	1,270	2,590	3.52	E629	.162
Jan													
16...	12.6	5.7	360	480	485	145	.78	16.2	857	1,940	2.64	E314	.064
Feb													
22...	7.47	3.0	78.8	135	124	25.0	.28	7.1	149	388	.53	E105	<.020
Mar													
27...	9.96	4.7	244	344	256	95.1	.64	8.8	656	1,340	1.82	1,450	<.020
Apr													
09...	7.82	4.4	205	529	204	89.8	.53	7.1	571	1,140	1.56	2,750	<.020
May													
07...	5.25	4.4	125	323	120	28.5	.38	6.6	239	532	.72	4,980	<.020
Jun													
05...	7.91	4.6	214	246	213	49.9	.46	9.5	647	1,190	1.62	4,130	<.020
Jul													
19...	10.6	6.3	337	236	226	93.2	.42	14.0	926	1,690	2.30	443	E.010
24...	--	--	--	--	--	--	--	--	--	--	--	--	--
Aug													
22...	12.4	6.7	369	216	204	114	.53	11.8	1,010	1,830	2.49	469	.037
Sep													
18...	11.4	6.2	345	215	202	103	.42	9.1	974	1,750	2.38	383	<.020

06326500 POWDER RIVER NEAR LOCATE, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 3 of 5
[Remark codes: <, less than; E, estimated.]

Date	Nitrate + nitrite water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Total nitro-gen, water, unfltrd mg/L (62855)	Ortho-phos-phate, water, fltrd, mg/L as P (00671)	Total phos-phorus, water, unfltrd mg/L (00665)	Arsenic water, unfltrd µg/L (01002)	Barium, water, unfltrd recover-able, µg/L (01007)	Boron, water, unfltrd recover-able, µg/L (01022)	Cadmium water, unfltrd µg/L (01027)	Chrom-ium, water, unfltrd recover-able, µg/L (01034)	Copper, water, unfltrd recover-able, µg/L (01042)	Iron, water, unfltrd recover-able, µg/L (01045)	Lead, water, unfltrd recover-able, µg/L (01051)
Oct													
04...	.024	.003	2.31	<.006	.52	10.8	353	194	1.07	29.7	59.4	38,000	46.3
Nov													
16...	.264	<.002	1.55	E.005	.43	7.6	243	206	.82	18.4	30.5	23,400	19.8
Dec													
07...	.484	.005	.99	.008	.051	1.7	40.2	285	.03	2.3	4.1	3,530	.54
Jan													
16...	.730	.013	1.18	.009	.118	2.6	64.8	239	.08	3.3	9.2	2,560	2.03
Feb													
22...	.436	.007	2.56	.115	.56	4.1	156	78	.28	11.8	25.9	10,800	15.4
Mar													
27...	.362	<.002	1.58	.009	.48	7.2	250	157	.68	15.9	31.4	20,800	17.3
Apr													
09...	.484	E.002	3.77	.007	1.19	15.7	698	165	2.27	44.7	80.9	68,100	77.0
May													
07...	.588	.004	5.11	.009	1.42	22.3	1,170	121	2.86	98.1	144	145,000	144
Jun													
05...	.194	<.002	1.49	.012	.63	10.2	293	145	.51	23.0	31.3	31,700	27.9
Jul													
19...	<.016	E.001	.34	.007	.033	1.4	83.6	224	.02	.63	1.8	1,700	.45
24...	--	--	--	--	--	--	--	--	--	--	--	--	--
Aug													
22...	<.016	E.001	.45	.008	.135	1.7	88.2	243	<.04	<1.2	<2.4	1,870	1.40
Sep													
18...	<.016	<.002	.41	E.005	.045	1.1	63.8	205	.02	.67	1.8	694	.59

06326500 POWDER RIVER NEAR LOCATE, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 4 of 5
[Remark codes: <, less than; E, estimated.]

Date	Manganese, water, unfltrd recoverable, µg/L (01055)	Mercury water, unfltrd recoverable, µg/L (71900)	Nickel, water, unfltrd recoverable, µg/L (01067)	Selenium, water, unfltrd µg/L (01147)	Zinc, water, unfltrd recoverable, µg/L (01092)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspended sediment concentration mg/L (80154)	Suspended sediment discharge, tons/d (80155)
Oct								
04...	1,170	--	65.0	1.3	165	98	2,860	1,270
Nov								
16...	597	--	29.1	1.8	110	63	2,270	E613
Dec								
07...	96.0	--	2.75	1.7	5	98	304	E74
Jan								
16...	57.1	--	6.36	1.6	17	86	245	E40
Feb								
22...	214	--	19.4	.73	63	89	873	E236
Mar								
27...	574	--	28.8	1.9	103	94	1,400	1,520
Apr								
09...	2,020	--	87.2	2.8	257	78	6,570	15,800
May								
07...	2,560	.289	189	2.9	340	89	10,100	94,800
Jun								
05...	661	--	37.3	1.9	91.5	80	1,940	6,720
Jul								
19...	63.6	--	2.06	.67	E1.6	90	96	25
24...	--	--	--	--	--	--	--	--
Aug								
22...	45.6	--	3.5	1.3	<4.0	98	125	32
Sep								
18...	29.1	--	2.06	.75	3.4	97	60	13

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 5 of 5

Date	Time	Instantaneous discharge, cfs (00061)	Turbdty white light, det ang 90+/-30 corrctd NTRU (63676)	Dissolved oxygen, mg/L (00300)	pH, water, unfltrd field, std units (00400)	Specific conductance, wat unf µS/cm 25 degC (00095)	Temperature, water, deg C (00010)	Biomass periphyton, ashfree drymass g/m2 (49954)	Periphyton biomass ash weight, g/m2 (00572)	Periphyton biomass dry weight, g/m2 (00573)	Biomass chlorophyll ratio, periphyton, number (70950)	Chlorophyll a periphyton, chromofluoro, mg/m2 (70957)	Pheophytin a, periphyton, mg/m2 (62359)
Jul													
24...	0945	48	3.6	7.9	8.1	2,470	22.0	6.3	210	214	1,580	4.0	.6

USGS
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Water-Data Report 2007

06327500 YELLOWSTONE RIVER AT GLENDIVE, MT

Yellowstone Basin
Lower Yellowstone Subbasin

LOCATION.--Lat 47°06'21", long 104°43'07" referenced to North American Datum of 1927, in SE ¼ NW ¼ NE ¼ sec.35, T.16 N., R.55 E., Dawson County, MT, Hydrologic Unit 10100004, on right bank at City of Glendive water treatment plant, 50 feet downstream from Bell Street Bridge, and at river mile 92.4.

DRAINAGE AREA.--66,739 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--October 1897 to December 1910, October 1931 to September 1934, October 2002 to current year.

REVISED RECORDS.--Water Data Report 2006: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 2,040 ft (referenced to the National Geodetic Vertical Datum of 1929) from City of Glendive. October 1897 to December 1910, October 1931 to September 1934 nonrecording gage at different datum.

REMARKS.--Records are good except those for estimated daily discharges, which are poor. Some regulation occurs on tributary streams, notably Bighorn Lake, usable capacity 1,312,000 acre-ft, on the Bighorn River and other tributary streams in Wyoming and Montana. Diversions for irrigation of about 1,200,000 acres occur upstream of station. U.S. Geological Survey satellite telemeter is located at the station. Several unpublished observations of water temperature and specific conductance were obtained during the year.

06327500 YELLOWSTONE RIVER AT GLENDIVE, MT—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	5,180	5,880	e3,100	e5,100	e5,000	e5,500	8,140	9,790	21,900	11,200	4,650	3,810
2	5,160	5,800	e4,600	e5,100	e4,900	e5,300	8,250	10,500	22,400	10,300	4,540	3,840
3	5,080	5,770	e4,400	e5,200	e4,800	e5,200	8,560	15,000	22,700	10,100	5,000	3,900
4	5,070	5,650	e4,600	e5,400	e4,800	e5,200	9,650	18,600	22,500	9,150	4,440	3,900
5	4,990	5,540	e4,900	e5,400	e5,000	e5,500	9,890	21,100	21,600	8,520	4,130	3,890
6	5,100	5,620	e5,000	e5,300	e5,400	e6,000	9,380	24,600	22,800	7,890	4,080	3,820
7	5,240	5,740	e5,100	e5,300	e5,400	e6,300	8,590	26,200	33,400	7,330	4,050	3,920
8	5,240	5,960	e5,200	e5,300	e5,200	e6,600	8,370	23,900	37,900	7,520	3,980	4,120
9	5,340	5,960	e5,400	e5,300	e5,100	e6,500	8,200	22,400	41,400	7,000	3,740	4,160
10	5,550	5,880	e5,700	e5,300	e5,100	e6,600	8,060	19,500	44,800	7,350	3,640	4,310
11	5,750	5,880	e5,800	e5,300	e5,100	e6,900	7,880	18,900	37,700	7,070	3,630	4,520
12	6,290	6,310	e5,800	e4,900	e5,100	e7,400	7,880	18,900	34,500	6,590	3,570	4,780
13	6,900	7,380	e5,800	e4,700	e5,100	e8,600	8,080	20,400	31,900	6,000	3,530	4,850
14	6,720	7,340	e5,700	e4,600	e5,000	e8,600	8,500	23,900	29,600	5,570	3,520	4,850
15	6,670	6,800	e5,600	e4,600	e4,900	e8,200	8,450	26,600	28,300	5,260	3,390	4,820
16	6,550	6,560	e5,600	e4,700	e4,800	e8,000	7,930	28,400	26,700	5,040	3,320	4,840
17	6,470	6,400	e5,600	e4,800	e4,700	7,980	7,630	29,700	25,800	4,700	3,330	4,740
18	6,350	6,230	e5,600	e4,800	e4,900	8,040	7,440	27,400	26,000	4,570	3,290	4,750
19	6,530	6,130	e5,500	e4,800	e5,100	7,460	7,480	24,900	25,700	4,380	3,430	4,770
20	7,260	5,990	e5,300	e4,800	e5,400	6,930	8,100	24,100	25,600	4,060	3,470	4,710
21	7,180	6,050	e5,100	e4,900	e5,600	6,640	8,530	23,700	23,600	3,920	3,480	4,810
22	6,820	6,040	e5,100	e4,900	e5,800	6,460	9,830	23,700	20,500	3,890	3,530	4,860
23	6,970	5,930	e5,100	e4,900	e5,800	6,530	10,800	25,000	18,500	3,680	3,600	4,920
24	7,160	5,860	e5,100	e5,100	e5,800	6,610	9,910	27,500	17,700	3,520	3,760	5,000
25	7,060	5,820	e5,100	e5,300	e5,700	6,670	9,040	26,700	17,100	3,380	3,710	4,950
26	6,670	e5,800	e5,000	e5,300	e5,700	6,690	8,800	23,900	16,500	3,380	3,800	4,940
27	6,430	e5,600	e5,000	e5,300	e5,600	6,430	8,660	21,900	15,500	3,290	3,860	5,240
28	6,270	e5,200	e5,100	e5,100	e5,600	6,500	8,790	19,800	14,400	3,450	3,980	5,090
29	6,200	e4,300	e5,300	e5,100	---	6,850	8,840	18,100	13,200	3,560	3,940	5,140
30	6,200	e3,600	e5,200	e5,100	---	7,060	9,480	17,100	12,100	4,170	3,950	5,230
31	6,050	---	e5,100	e5,100	---	7,700	---	18,900	---	4,530	3,860	---
Total	190,450	177,020	160,500	156,800	146,400	210,950	259,140	681,090	752,300	180,370	118,200	137,480
Mean	6,144	5,901	5,177	5,058	5,229	6,805	8,638	21,970	25,080	5,818	3,813	4,583
Max	7,260	7,380	5,800	5,400	5,800	8,600	10,800	29,700	44,800	11,200	5,000	5,240
Min	4,990	3,600	3,100	4,600	4,700	5,200	7,440	9,790	12,100	3,290	3,290	3,810
Ac-ft	377,800	351,100	318,400	311,000	290,400	418,400	514,000	1,351,000	1,492,000	357,800	234,400	272,700

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1898 - 2007, BY WATER YEAR (WY) *

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	6,467	5,590	4,729	4,621	4,684	8,189	9,129	20,830	42,740	25,860	9,990	7,159
Max	9,503	7,390	6,670	6,600	5,940	18,790	23,500	44,700	74,220	72,000	24,110	12,100
(WY)	(1909)	(1902)	(1898)	(2006)	(1902)	(1910)	(1899)	(1901)	(1909)	(1899)	(1907)	(1909)
Min	4,270	4,200	2,924	3,268	3,361	4,414	4,374	8,749	12,950	4,054	2,785	2,856
(WY)	(2004)	(1900)	(1932)	(1932)	(1933)	(2005)	(1905)	(2004)	(1934)	(1934)	(1934)	(1934)

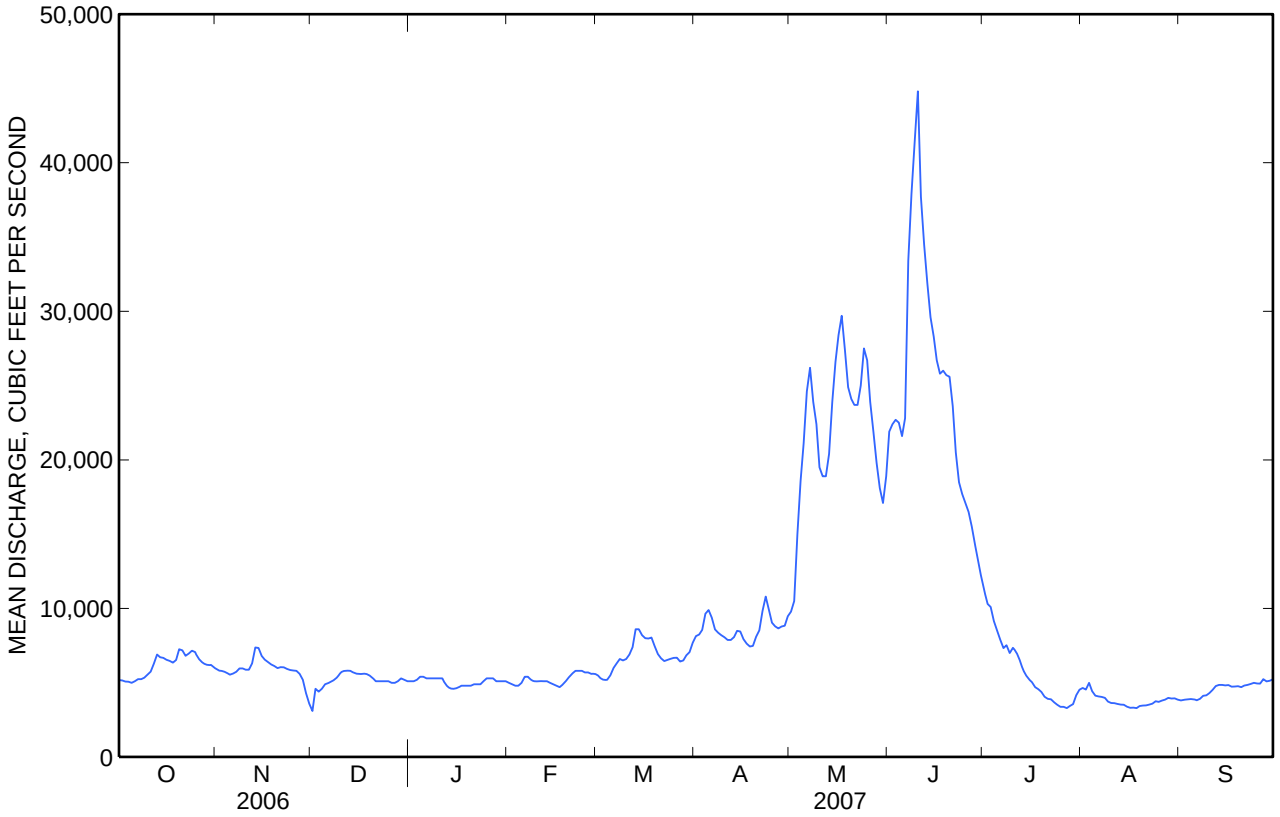
* During periods of operation (October 1897 to December 1910, October 1931 to September 1934, October 2002 to current year).

06327500 YELLOWSTONE RIVER AT GLENDIVE, MT—Continued

SUMMARY STATISTICS

	Calendar Year 2006		Water Year 2007		Water Years 1898 - 2007*	
Annual total	3,076,790		3,170,700			
Annual mean	8,430		8,687		12,540	
Highest annual mean					19,610	1899
Lowest annual mean					6,061	1934
Highest daily mean	37,000	May 25	44,800	Jun 10	107,000	Jun 9, 1909
Lowest daily mean	2,810	Sep 10	3,100	Dec 1	1,060	Dec 14, 1932
Annual seven-day minimum	2,880	Sep 9	3,390	Aug 15	1,380	Dec 12, 1932
Maximum peak flow			47,800	Jun 10	[a]118,000	Jun 8, 1909
Maximum peak stage			49.06	Jun 10	[b]60.16	Mar 16, 2003
Instantaneous low flow					[c]1,060	Dec 14, 1932
Annual runoff (ac-ft)	6,103,000		6,289,000		9,083,000	
10 percent exceeds	16,400		22,100		29,900	
50 percent exceeds	6,100		5,700		6,490	
90 percent exceeds	3,400		3,910		4,100	

* During periods of operation (October 1897 to December 1910, October 1931 to September 1934, October 2002 to current year).
[a] Observed, gage height, 12.70 ft, datum then in use.
[b] Backwater from ice.
[c] Observed.



06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT

Yellowstone Basin
Lower Yellowstone Subbasin

LOCATION.--Lat 47°40′42″, long 104°09′22″ referenced to North American Datum of 1927, in SW ¼ NE ¼ SW ¼ sec.9, T.22 N., R.59 E., Richland County, MT, Hydrologic Unit 10100004, on left bank at Montana-Dakota Utilities Company powerplant, 0.2 mi downstream from bridge on State Highway 23, 2.5 mi south of Sidney, 3.0 mi downstream from Fox Creek, and at river mile 29.2.

DRAINAGE AREA.--69,083 mi² of which 691 mi² probably is noncontributing, Area at site 4.5 mi upstream, 68,812 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--October 1910 to September 1931 (published as "at Intake"), October 1933 to current year. If monthly figures of diversions to Lower Yellowstone Canal at Intake are added to records at this site, records equivalent to those published as Yellowstone River at Glendive (1898-1910, 1931-34) can be obtained. Monthly discharge only for some periods, published in Water Supply Paper (WSP) 1309. Monthly figures of diversions into Lower Yellowstone Canal prior to 1951 published in WSP 1309, 1951-60 published in WSP 1729, 1961-65 published in WSP 1916, 1966-70 published in WSP 2116, and 1971 to current year are published in annual reports.

REVISED RECORDS.--Water Data Report MT-04-1: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 1,881.3 ft, referenced to National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers). Jan. 1, 1911, to Sept. 30, 1931, nonrecording gage at site 32 miles upstream at different elevation. Apr. 9, 1934, water-stage recorder at two sites within 500 ft of highway bridge 0.2 mi upstream and May 17, 1945, to Apr. 3, 1952, nonrecording gage on same bridge at elevation 1.36 ft higher. Apr. 4, 1952, to Nov. 19, 1967, water-stage recorder at site 4.5 mi upstream at different elevation.

REMARKS.--Records are good except those for estimated daily discharges, which are poor. Flow is regulated to some extent by Bighorn Lake, usable capacity, 1,312,000 acre-ft, on the Bighorn River and on other tributary streams in Wyoming and Montana. Diversion for irrigation of about 1,250,000 acres occurs upstream from station. Lower Yellowstone Project Main Canal diverts from left bank in NW¼ sec.36, T.18 N., R.56 E., at Lower Yellowstone diversion dam at Intake about 36.6 mi upstream for irrigation of about 52,000 acres of which about one-third lies upstream from station. U.S. Army Corps of Engineers satellite telemeter is located at the station.

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
DAILY MEAN VALUES

[e, estimated; &, affected value]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	5,370	5,900	e1,700	e5,200	e5,600	e5,700	7,690	9,210	18,900	10,800	3,330	2,840
2	5,410	5,820	e1,100	e5,200	e5,200	e5,600	7,880	9,330	20,300	9,840	3,500	2,800
3	5,380	5,790	e900	e5,200	e5,000	e5,400	8,050	11,200	20,100	9,420	3,460	2,820
4	5,370	5,750	e1,900	e5,200	e4,900	e5,300	8,490	15,500	20,700	8,880	4,020	2,880
5	5,330	5,670	e2,000	e5,300	e4,900	e5,300	9,590	17,800	20,100	7,840	3,390	2,860
6	5,260	5,620	e2,800	e5,500	e4,700	e5,600	9,430	20,400	20,100	7,230	3,080	2,840
7	5,390	5,690	e4,000	e5,400	e4,200	e6,100	8,780	22,500	22,700	6,560	3,000	2,870
8	5,450	5,760	e5,100	e5,400	e4,800	e6,400	8,130	21,900	34,000	6,220	2,920	2,970
9	5,470	5,870	e5,300	e5,400	e5,000	e6,700	8,010	20,400	34,900	7,060	2,870	3,200
10	5,530	5,850	e5,800	e5,400	e5,200	e6,600	7,900	18,800	40,100	6,260	2,630	3,280
11	5,680	5,820	e6,400	e5,400	e5,200	e6,700	7,760	17,400	37,400	6,430	2,510	3,490
12	5,780	5,840	e7,000	e5,400	e5,200	e7,000	7,560	17,200	32,600	6,040	2,540	3,720
13	6,380	6,490	e7,400	e5,000	e5,200	e7,500	7,600	17,800	30,500	5,500	2,490	3,960
14	6,710	7,230	e7,600	e4,800	e5,200	e8,700	7,760	20,500	27,900	4,950	2,440	4,060
15	6,560	6,990	e7,400	e4,300	e5,100	e8,700	8,150	22,700	26,200	4,540	2,440	4,100
16	6,550	6,560	e7,400	e3,200	e5,000	e8,300	7,840	24,000	24,800	4,240	2,280	4,100
17	6,460	6,390	e7,000	e2,900	e4,900	e8,100	7,370	25,900	23,700	3,970	2,180	4,090
18	6,340	6,200	e6,600	e2,700	e4,800	e8,100	7,180	25,600	23,300	3,660	2,210	4,060
19	6,330	6,080	e6,400	e2,600	e5,000	e8,100	7,050	23,100	23,400	3,440	2,220	4,090
20	6,680	5,960	e6,000	e3,100	e5,200	7,290	7,210	21,700	23,000	3,170	2,340	4,070
21	7,250	5,890	e5,600	e3,700	e5,500	6,760	7,780	21,600	22,400	2,880	2,340	4,090
22	6,860	5,930	e5,200	e4,400	e5,700	6,430	8,420	21,300	20,300	2,790	2,340	4,140
23	6,790	5,890	e5,100	e5,000	e5,900	6,280	9,760	21,700	18,100	2,720	2,410	4,180
24	6,880	5,830	e5,000	e5,200	e5,900	6,350	10,200	23,700	17,000	2,470	2,510	4,270
25	7,060	5,790	e4,900	e5,600	e5,900	6,360	9,060	24,900	16,400	2,240	2,750	4,310
26	6,840	5,600	e5,200	e6,000	e5,800	6,420	8,480	22,800	15,700	2,100	2,730	4,280
27	6,500	e5,500	e5,100	e6,200	e5,800	6,360	8,220	20,700	14,900	2,130	2,750	4,460
28	6,280	e4,000	e5,100	e6,300	e5,700	6,130	8,180	19,400	14,000	2,050	2,870	4,790
29	6,150	e2,900	e5,200	e6,300	---	6,660	8,330	17,700	12,900	2,230	3,040	4,820
30	6,110	e2,000	e5,400	e6,300	---	6,760	8,450	16,700	11,800	2,350	2,910	4,900
31	6,050	---	e5,300	e6,000	---	6,920	---	16,700	---	3,040	2,930	---
Total	190,200	170,610	156,900	153,600	146,500	208,620	246,310	610,140	688,200	153,050	85,430	113,340
Mean	6,135	5,687	5,061	4,955	5,232	6,730	8,210	19,680	22,940	4,937	2,756	3,778
Max	7,250	7,230	7,600	6,300	5,900	8,700	10,200	25,900	40,100	10,800	4,020	4,900
Min	5,260	2,000	900	2,600	4,200	5,300	7,050	9,210	11,800	2,050	2,180	2,800
Ac-ft	377,300	338,400	311,200	304,700	290,600	413,800	488,600	1,210,000	1,365,000	303,600	169,500	224,800

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1911 - 2007, BY WATER YEAR (WY) *

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	8,174	7,257	5,909	5,677	6,755	10,710	10,150	18,090	37,960	22,290	8,423	6,975
Max	29,130	12,150	9,594	13,110	17,750	25,980	39,160	38,100	77,280	55,000	20,470	16,000
(WY)	(1924)	(1924)	(1976)	(1925)	(1971)	(1972)	(1924)	(1928)	(1918)	(1917)	(1912)	(1941)
Min	3,726	3,700	3,019	2,087	2,702	3,235	2,821	5,409	11,580	3,311	1,602	2,389
(WY)	(1922)	(1922)	(1961)	(1937)	(1936)	(2002)	(1961)	(1961)	(1919)	(1919)	(1961)	(1934)

* During periods of operation 1911-31, 1934 to current year. Published as "at Intake" 1911-31.

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT—Continued

SUMMARY STATISTICS

	Calendar Year 2006		Water Year 2007		Water Years 1911 - 2007*	
Annual total	2,885,590		2,922,900			
Annual mean	7,906		8,008		12,380	
Highest annual mean					21,250	1924
Lowest annual mean					5,673	2004
Highest daily mean	32,900	May 25	40,100	Jun 10	142,000	Jun 21, 1921
Lowest daily mean	900	Dec 3	900	Dec 3	570	May 17, 1961
Annual seven-day minimum	1,770	Nov 30	1,770	Nov 30	1,010	Aug 8, 1961
Maximum peak flow			41,900	Jun 10	[a]159,000	Jun 21, 1921
Maximum peak stage			12.58	Jun 10	[b]24.03	Mar 6, 1994
Instantaneous low flow					[c]470	May 17, 1961
Annual runoff (ac-ft)	5,724,000		5,798,000		8,966,000	
10 percent exceeds	14,900		20,200		27,600	
50 percent exceeds	6,200		5,820		7,910	
90 percent exceeds	2,290		2,800		4,010	

	Water Years 1911 - 1965**		Water Years 1967 - 2007***	
Annual mean	12,890		11,810	
Highest annual mean	21,250	1924	19,150	1997
Lowest annual mean	5,814	1934	5,673	2004
Highest daily mean	142,000	Jun 21, 1921	104,000	May 23, 1978
Lowest daily mean	570	May 17, 1961	800	Jan 2, 1989
Annual seven-day minimum	1,010	Aug 8, 1961	1,060	Aug 23, 2001
Maximum peak flow	[a]159,000	Jun 21, 1921	[d]111,000	May 23, 1978
Maximum peak stage	[b]21.85	Mar 22, 1947	[b] 24.03	Mar 6, 1994
Instantaneous low flow	[c]470	May 17, 1961		
Annual runoff (ac-ft)	9,341,000		8,557,000	
10 percent exceeds	29,900		25,100	
50 percent exceeds	7,690		8,290	
90 percent exceeds	3,820		4,450	

* During periods of operation 1911-31, 1934 to current year. Published as "at Intake" 1911-31.

** Prior to Bighorn Lake reaching operational level.

*** After Bighorn Lake reached operational level.

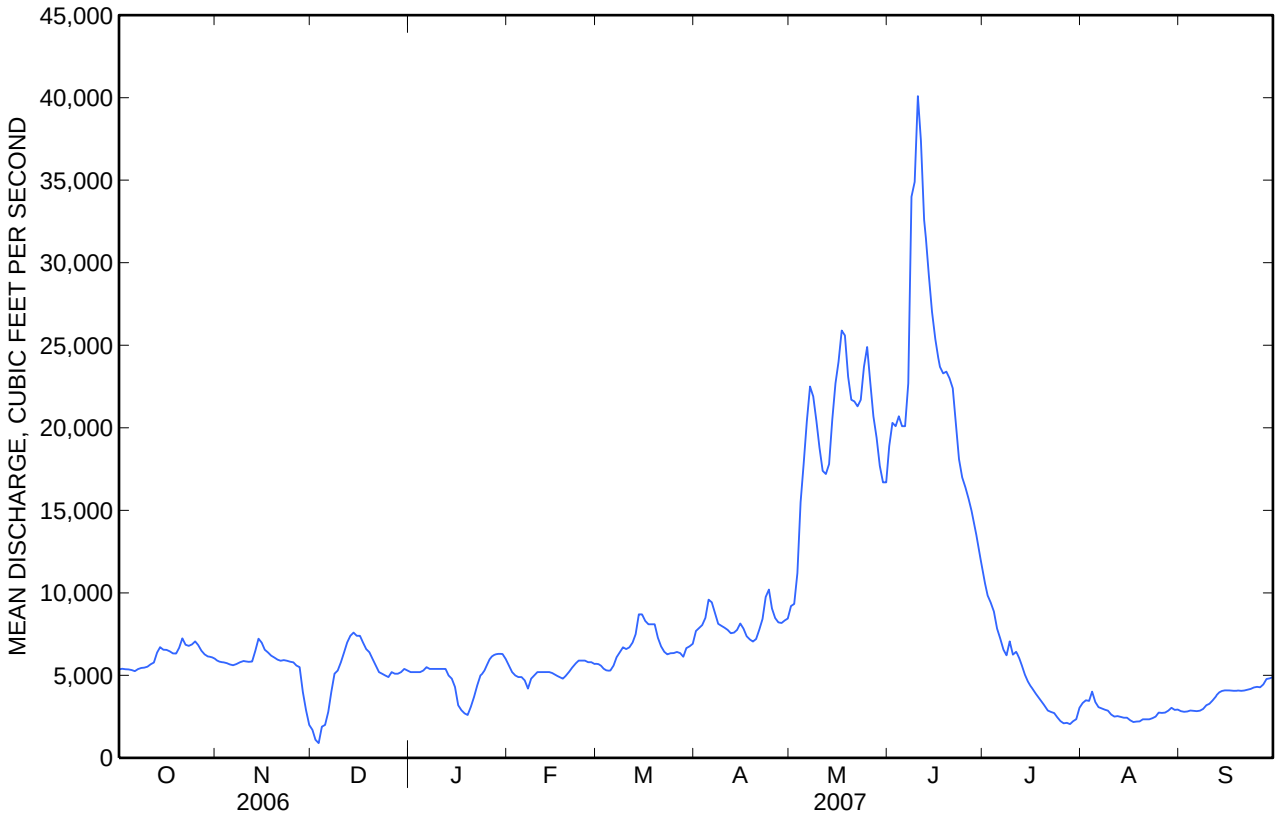
[a] Gage height, 12.60 ft, site and datum then in use.

[b] Backwater from ice.

[c] Gage height, 2.73 ft, site and datum then in use.

[d] Gage height, 20.02 ft.

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT—Continued



06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1948 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1964 to September 1981.
WATER TEMPERATURE: January 1951 to September 1985.
SUSPENDED-SEDIMENT DISCHARGE: October 1971 to September 1981, October 1982 to September 1991, seasonal records (March to November) from October 1991 to current year.

REMARKS.--Water-quality samples were collected this year as part of the National Water-Quality Assessment Program (NAWQA) for the Yellowstone River study unit under the direction of the USGS Wyoming Water Science Center. Several unpublished observations of specific conductance and water temperature were made during the year.

Daily sediment records are rated good except for several periods of storm runoff, which are rated fair to poor. Daily sediment data collected seasonally (October 2006 to November 2006 and March 2007 to September 2007) during open water.

Suspended and bed sediment samples plus the seasonal daily sediment record were obtained as part of the Corps of Engineers program. The September 12 bed sediment sample could not be collected due to equipment malfunction.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,220 microsiemens per centimeter (µS/cm) at 25.0°C, Apr. 6, 1979; minimum daily, 261 µS/cm at 25.0°C, June 4, 1966.
WATER TEMPERATURE: Maximum, 29.0°C July 23, 1960; minimum, 0.0°C on many days during winter.
SEDIMENT CONCENTRATION: Maximum daily mean, 26,800 mg/L May 8, 1975; minimum daily mean, 8 mg/L Jan. 9, 1973.
SEDIMENT LOAD: Maximum daily, 3,030,000 tons May 8, 1975; minimum daily, 63 tons Jan. 2, 1989.

EXTREMES FOR CURRENT YEAR.--
SEDIMENT CONCENTRATION: During period of seasonal operation, maximum daily mean, 5,250 mg/L, June 8; minimum daily mean, 21 mg/L, July 30.
SEDIMENT LOAD: During period of seasonal operation, maximum daily, 482,000 tons, June 8; minimum daily, 130 tons, Nov. 30.

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 1 of 11
[Remark codes: E, estimated.]

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 µS/cm 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicarbonate, wat flt incrm. titr., field, mg/L (00453)	Carbonate, wat flt incrm. titr., field, mg/L (00452)
Oct												
19...	1230	6,350	704	11.6	101	8.4	622	6.5	6.0	155	189	--
Nov												
27...	1300	E5,500	703	14.5	108	8.4	671	-5.0	0.0	169	189	8
Dec												
14...	0945	E7,600	704	13.6	101	8.8	751	5.0	0.0	187	226	--
Jan												
18...	1330	E2,700	711	15.2	112	8.3	798	-2.0	0.0	218	266	--
Feb												
22...	1645	E5,700	710	12.2	90	7.9	685	0.0	0.0	161	196	--
Mar												
27...	1620	6,290	707	10.3	101	8.4	759	15.5	10.7	151	169	7
Apr												
09...	1645	8,030	704	12.2	104	8.1	874	5.0	5.0	151	184	--
May												
22...	1300	21,300	705	8.5	96	8.2	350	14.5	17.5	86	104	--
Jun												
01...	1300	19,000	708	9.0	97	8.4	496	19.0	15.5	109	133	--
Jul												
19...	1300	3,510	714	8.6	115	8.6	687	29.0	26.5	154	172	8
Aug												
14...	1230	2,450	713	8.0	97	8.4	797	26.5	21.5	167	195	4
Sep												
10...	1300	3,260	714	9.4	102	8.4	738	23.0	16.0	176	200	7

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 2 of 11
[Remark codes: <, less than; E, estimated.]

Date	Chloride, water, fltrd, mg/L (00940)	Sulfate water, fltrd, mg/L (00945)	Ammonia water, fltrd, mg/L as N (00608)	Nitrate + nitrite water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Total nitrogen, water, unfltrd, mg/L (62855)	Orthophosphate, water, fltrd, mg/L as P (00671)	Total phosphorus, water, unfltrd mg/L (00665)	Suspnd. sediment, sieve diametr percent <.063mm (70331)	Suspended sediment concentration mg/L (80154)	Suspended sediment discharge, tons/d (80155)
Oct											
19...	8.18	144	<.020	.41	.003	.81	E.003	.104	92	125	2,140
Nov											
27...	11.9	173	<.020	.13	.003	.38	E.004	.039	99	27	E401
Dec											
14...	10.7	189	.020	.61	.005	.84	E.005	.029	99	21	E431
Jan											
18...	15.3	240	<.020	.60	.005	.86	E.005	.020	97	16	E117
Feb											
22...	11.0	173	.093	.46	.006	.95	E.006	.072	98	77	E1,180
Mar											
27...	15.2	210	<.020	<.06	E.001	.45	E.004	.105	89	120	2,040
Apr											
09...	16.6	266	E.017	.37	.011	1.37	E.004	.36	95	727	15,800
May											
22...	4.69	73.4	<.020	.17	.018	.70	E.006	.279	69	382	22,000
Jun											
01...	6.96	118	<.020	.27	.044	1.07	E.004	.37	88	1,240	63,700
Jul											
19...	10.6	174	<.020	<.06	<.002	.36	E.005	.053	99	41	389
Aug											
14...	12.6	223	<.020	.07	E.002	.57	E.005	.13	99	154	1,020
Sep											
10...	12.0	223	<.020	<.06	E.002	.47	E.004	.136	99	91	801

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 3 of 11
[Remark codes: <, less than; E, estimated.]

Date	Time	1-Naphthol, water, fltrd 0.7u GF µg/L (49295)	2,6-Diethylaniline water, fltrd 0.7u GF µg/L (82660)	2Chloro-2',6'-diethyl acetanilide wat flt µg/L (61618)	CIAT, water, fltrd, µg/L (04040)	2-Ethyl-6-methylaniline water, fltrd, µg/L (61620)	3,4-Dichloroaniline water, fltrd, µg/L (61625)	3,5-Dichloroaniline water, fltrd, µg/L (61627)	4-Chloro-2methyl phenol, water, fltrd, µg/L (61633)	Acetochlor, water, fltrd, µg/L (49260)	Alachlor, water, fltrd, µg/L (46342)	alpha-Endosulfan, water, fltrd, µg/L (34362)	alpha-HCH-d6, surrog, Sch2003 wat flt percent recovry (99995)
Nov													
27...	1300	<.09	<.006	<.006	<.014	<.010	<.004	<.012	<.005	<.006	<.005	<.011	91.8
Jan													
18...	1330	<.09	<.006	<.006	E.005	<.010	<.004	<.012	<.005	<.006	<.005	<.011	91.6
Mar													
27...	1620	<.09	<.006	<.006	<.014	<.010	<.004	<.012	<.005	<.006	<.005	<.011	88.8
Apr													
09...	1645	<.09	<.006	<.006	<.014	<.010	<.004	<.012	<.005	<.006	<.005	<.011	83.6
May													
22...	1300	<.09	<.006	<.006	<.014	<.010	<.004	<.012	<.005	<.006	<.005	<.011	93.7
Jun													
01...	1300	<.09	<.006	<.006	<.014	<.010	<.004	<.012	<.005	<.006	<.005	<.011	88.5
Jul													
19...	1300	<.09	<.006	<.006	E.006	<.010	<.004	<.012	<.005	<.006	<.005	<.011	93.4
Aug													
14...	1230	<.09	<.006	<.006	<.014	<.010	<.004	<.012	<.005	<.006	<.005	<.011	98.9
Sep													
10...	1300	<.09	<.006	<.006	E.006	<.010	<.004	<.012	<.005	<.006	<.005	<.011	87.0

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 4 of 11
[Remark codes: <, less than; E, estimated.]

Date	Atrazine, water, fltrd, µg/L (39632)	Azinphos-methyl oxon, water, fltrd, µg/L (61635)	Azinphos-methyl, water, fltrd 0.7u GF µg/L (82686)	Benfluralin, water, fltrd 0.7u GF µg/L (82673)	Carbaryl, water, fltrd 0.7u GF µg/L (82680)	Carbofuran, water, fltrd 0.7u GF µg/L (82674)	Chlorpyrifos oxon, water, fltrd, µg/L (61636)	Chlorpyrifos water, fltrd, µg/L (38933)	cis-Permethrin water fltrd 0.7u GF µg/L (82687)	cis-Propiconazole, water, fltrd, µg/L (79846)	Cyanazine, water, fltrd, µg/L (04041)	Cyfluthrin, water, fltrd, µg/L (61585)	lambda-Cyhalothrin, water, fltrd, µg/L (61595)
Nov													
27...	<.007	<.06	<.080	<.010	<.060	<.020	<.06	<.005	<.010	<.013	<.018	<.053	<.014
Jan													
18...	E.005	<.04	<.080	<.010	<.060	<.020	<.06	<.005	<.010	<.013	<.018	<.053	<.014
Mar													
27...	E.005	<.04	<.080	<.010	<.060	<.020	<.06	<.005	<.010	<.013	<.018	<.053	<.014
Apr													
09...	<.007	<.04	<.080	<.010	<.060	<.020	<.06	<.005	<.010	<.013	<.018	<.053	<.014
May													
22...	<.007	<.04	<.080	<.010	<.060	<.020	<.06	<.005	<.010	<.013	<.018	<.053	<.014
Jun													
01...	<.007	<.04	<.080	<.010	<.060	<.020	<.06	<.005	<.010	<.013	<.018	<.053	<.014
Jul													
19...	.009	<.04	<.080	<.010	<.060	<.020	<.06	<.005	<.010	<.013	<.018	<.053	<.014
Aug													
14...	E.006	<.04	<.080	<.010	<.060	<.020	<.06	<.005	<.010	<.013	<.018	<.053	<.014
Sep													
10...	.009	<.04	<.080	<.010	<.060	<.020	<.06	<.005	<.010	<.013	<.018	<.053	<.014

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 5 of 11
[Remark codes: <, less than.]

Date	Cypermethrin water, fltrd, µg/L (61586)	DCPA, water, fltrd 0.7u GF µg/L (82682)	Desulfinylfipronil, water, fltrd, µg/L (62170)	Diazinon, water, fltrd, µg/L (39572)	Diazinon-d10 surrog, Sch2003 wat flt percent recovry (99994)	Dicrotophos, water, fltrd, µg/L (38454)	Dieldrin, water, fltrd, µg/L (39381)	Dimethoate, water, fltrd 0.7u GF µg/L (82662)	Disulfoton sulfone water, fltrd, µg/L (61640)	Disulfoton, water, fltrd 0.7u GF µg/L (82677)	Endosulfan sulfate water, fltrd, µg/L (61590)	EPTC, water, fltrd 0.7u GF µg/L (82668)	Ethion monoxon water, fltrd, µg/L (61644)
Nov													
27...	<.046	<.003	<.012	<.005	107	<.08	<.009	<.006	<.01	<.02	<.022	<.002	<.02
Jan													
18...	<.046	<.003	<.012	<.005	92.0	<.08	<.009	<.006	<.01	<.02	<.022	<.002	<.02
Mar													
27...	<.046	<.003	<.012	<.005	125	<.08	<.009	<.006	<.01	<.02	<.022	<.002	<.02
Apr													
09...	<.046	<.003	<.012	<.005	116	<.08	<.009	<.006	<.01	<.02	<.022	<.002	<.02
May													
22...	<.046	<.003	<.012	<.005	99.0	<.08	<.009	<.006	<.01	<.02	<.022	<.004	<.02
Jun													
01...	<.046	<.003	<.012	<.005	95.5	<.08	<.009	<.006	<.01	<.02	<.022	<.002	<.02
Jul													
19...	<.046	<.003	<.012	<.005	113	<.08	<.009	<.006	<.01	<.02	<.022	<.002	<.02
Aug													
14...	<.046	<.003	<.012	<.005	106	<.08	<.009	<.006	<.01	<.02	<.022	<.002	<.02
Sep													
10...	<.046	<.003	<.012	<.005	102	<.08	<.009	<.006	<.01	<.02	<.022	<.002	<.02

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 6 of 11
[Remark codes: E, estimated.]

Date	Ethion, water, fltrd, µg/L (82346)	Ethoprop, water, fltrd 0.7u GF µg/L (82672)	Fenamiphos sulfone water, fltrd, µg/L (61645)	Fenamiphos sulfoxide, water, fltrd, µg/L (61646)	Fenamiphos, water, fltrd, µg/L (61591)	Desulfinylfipronil amide, wat flt µg/L (62169)	Fipronil sulfide water, fltrd, µg/L (62167)	Fipronil sulfone water, fltrd, µg/L (62168)	Fipronil, water, fltrd, µg/L (62166)	Fonofos water, fltrd, µg/L (04095)	Hexazinone, water, fltrd, µg/L (04025)	Iprodione, water, fltrd, µg/L (61593)	Isofenphos, water, fltrd, µg/L (61594)
Nov													
27...	<.016	<.012	<.053	<.06	<.03	<.029	<.013	<.024	<.016	<.006	<.026	<.026	<.011
Jan													
18...	<.016	<.012	<.053	<.04	<.03	<.029	<.013	<.024	<.016	<.006	<.026	<.026	<.011
Mar													
27...	<.016	<.012	<.053	<.04	<.03	<.029	<.013	<.024	<.016	<.006	<.026	<.026	<.011
Apr													
09...	<.016	<.012	<.053	<.04	<.03	<.029	<.013	<.024	<.016	<.006	<.026	<.026	<.011
May													
22...	<.016	<.012	<.053	<.04	<.03	<.029	<.013	<.024	<.016	<.006	<.026	<.026	<.011
Jun													
01...	<.016	<.012	<.053	<.04	<.03	<.029	<.013	<.024	<.016	<.006	<.026	<.026	<.011
Jul													
19...	<.016	<.012	<.053	<.04	<.03	<.029	<.013	<.024	<.016	<.006	<.026	<.026	<.011
Aug													
14...	<.016	<.012	<.053	<.04	<.03	<.029	<.013	<.024	<.016	<.006	<.026	<.026	<.011
Sep													
10...	<.016	<.012	<.053	<.06	<.03	<.029	<.013	<.024	<.016	<.006	<.026	<.026	<.011

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 7 of 11
[Remark codes: <, less than; E, estimated.]

Date	Malaoxon, water, fltrd, µg/L (61652)	Malathion, water, fltrd, µg/L (39532)	Metalaxyl, water, fltrd, µg/L (61596)	Methiathion water, fltrd, µg/L (61598)	Methyl paraoxon, water, fltrd, µg/L (61664)	Methyl parathion, water, fltrd 0.7u GF µg/L (82667)	Metolachlor, water, fltrd, µg/L (39415)	Metribuzin, water, fltrd, µg/L (82630)	Molinate, water, fltrd 0.7u GF µg/L (82671)	Myclobutanil water, fltrd, µg/L (61599)	Oxyfluorfen, water, fltrd, µg/L (61600)	Pendimethalin, water, fltrd 0.7u GF µg/L (82683)	Phorate oxon, water, fltrd, µg/L (61666)
Nov 27...	<.039	<.016	<.007	<.009	<.02	<.008	<.010	<.012	<.003	<.033	<.017	<.020	<.03
Jan 18...	<.039	<.016	<.007	<.009	<.02	<.008	<.010	<.012	<.003	<.033	<.017	<.020	<.03
Mar 27...	<.039	<.016	<.007	<.009	<.02	<.008	<.010	<.012	<.003	<.033	<.017	<.020	<.03
Apr 09...	<.039	<.016	<.007	<.009	<.02	<.008	<.010	<.012	<.003	<.033	<.017	<.020	<.03
May 22...	<.039	<.016	<.007	<.009	<.02	<.008	<.010	<.012	<.003	<.033	<.017	<.020	<.03
Jun 01...	<.039	<.016	<.007	<.009	<.02	<.008	<.010	<.012	<.003	<.033	<.017	<.020	<.03
Jul 19...	<.039	<.016	<.007	<.009	<.02	<.008	.014	<.012	<.003	<.033	<.017	<.020	<.03
Aug 14...	<.039	<.016	<.007	<.009	<.02	<.008	E.007	<.012	<.003	<.033	<.017	<.020	<.03
Sep 10...	<.039	<.016	<.007	<.009	<.02	<.008	E.009	<.012	<.003	<.033	<.017	<.020	<.03

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 8 of 11
[Remark codes: <, less than; E, estimated.]

Date	Phorate water, fltrd 0.7u GF µg/L (82664)	Phosmet oxon, water, fltrd, µg/L (61668)	Phosmet water, fltrd, µg/L (61601)	Prometon, water, fltrd, µg/L (04037)	Prometryn, water, fltrd, µg/L (04036)	Propyzamide, water, fltrd 0.7u GF µg/L (82676)	Propanil, water, fltrd 0.7u GF µg/L (82679)	Propargite, water, fltrd 0.7u GF µg/L (82685)	Simazine, water, fltrd, µg/L (04035)	Tebuthiuron water, fltrd 0.7u GF µg/L (82670)	Tefluthrin, water, fltrd, µg/L (61606)	Terbufos oxon sulfone water, fltrd, µg/L (61674)	Terbufos, water, fltrd 0.7u GF µg/L (82675)
Nov													
27...	<.020	<.05	<.008	<.01	<.006	<.004	<.011	<.02	<.006	<.02	<.003	<.04	<.01
Jan													
18...	<.020	<.05	<.008	<.01	<.006	<.004	<.011	<.02	<.006	<.02	<.003	<.04	<.01
Mar													
27...	<.020	<.05	<.008	<.01	<.006	<.004	<.011	<.02	<.006	<.02	<.003	<.04	<.01
Apr													
09...	<.020	<.05	<.008	<.01	<.006	<.004	<.011	<.02	<.006	<.02	<.003	<.04	<.01
May													
22...	<.020	<.05	<.008	<.01	<.006	<.004	<.011	<.02	<.006	<.02	<.003	<.04	<.01
Jun													
01...	<.020	<.05	<.008	<.01	<.006	<.004	<.011	<.02	<.006	<.02	<.003	<.04	<.01
Jul													
19...	<.020	<.05	<.008	<.01	<.006	<.004	<.011	<.02	<.006	<.02	<.003	<.04	<.01
Aug													
14...	<.020	<.05	<.008	E.01	<.006	<.004	<.011	<.02	<.006	<.02	<.003	<.04	<.01
Sep													
10...	<.020	<.05	<.008	<.01	<.006	<.004	<.011	<.02	<.006	<.02	<.003	<.04	<.01

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 9 of 11
[Remark codes: <, less than.]

Date	Ter-buthyl-azine, water, fltrd, µg/L (04022)	Thio-bencarb water, fltrd 0.7u GF µg/L (82681)	trans-Propi-cona-zole, water, fltrd, µg/L (79847)	Tribu-phos, water, fltrd, µg/L (61610)	Tri-flur-alin, water, fltrd 0.7u GF µg/L (82661)	Di-chlor-vos, water, fltrd, µg/L (38775)
Nov						
27...	<.01	<.010	<.03	<.035	<.009	<.01
Jan						
18...	<.01	<.010	<.03	<.035	<.009	<.01
Mar						
27...	<.01	<.010	<.03	<.035	<.009	<.01
Apr						
09...	<.01	<.010	<.03	<.035	<.009	<.01
May						
22...	<.01	<.010	<.03	<.035	<.009	<.01
Jun						
01...	<.01	<.010	<.03	<.035	<.009	<.01
Jul						
19...	<.01	<.010	<.03	<.035	<.009	<.01
Aug						
14...	<.01	<.010	<.03	<.035	<.009	<.01
Sep						
10...	<.01	<.010	<.03	<.035	<.009	<.01

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 10 of 11
[Remark codes: <, less than.]

Date	Time	Instan-taneous dis-charge, cfs (00061)	Specif-ic conduc-tance, wat unf µS/cm 25 degC (00095)	Temper-ature, water, deg C (00010)	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)	Bed sedi-ment, dry svd sve dia percent <.063mm (80164)	Bed sedi-ment, dry svd sve dia percent <.125mm (80165)	Bed sedi-ment, dry svd sve dia percent <.25mm (80166)	Bed sedi-ment, dry svd sve dia percent <.5 mm (80167)	Bed sedi-ment, dry svd sve dia percent <1 mm (80168)	Bed sedi-ment, dry svd sve dia percent <2 mm (80169)
Oct													
04...	1215	5,400	713	12.5	98	213	3,110	<1	5	75	86	86	86
May													
02...	0945	9,230	711	16.0	72	252	6,280	<1	2	90	100	--	--
30...	0930	16,700	465	16.5	76	516	23,300	--	<1	23	96	99	99
Aug													
16...	1200	2,270	810	21.0	91	149	913	<1	2	22	42	42	43
Sep													
12...	1145	3,730	803	17.5	88	110	1,110	--	--	--	--	--	--

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
Part 11 of 11
[Remark codes: <, less than.]

Date	Bed sedi-ment, dry svd sve dia percent <4 mm (80170)	Bed sedi-ment, dry svd sve dia percent <8 mm (80171)	Bed sedi-ment, dry svd sve dia percent <16 mm (80172)	Bed sedi-ment, dry svd sve dia percent <32 mm (80173)	Bed sedi-ment, dry svd sve dia percent <64 mm (80174)
Oct					
04...	86	88	90	100	--
May					
02...	--	--	--	--	--
30...	100	--	--	--	--
Aug					
16...	44	51	59	62	100
Sep					
12...	--	--	--	--	--

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT—Continued

SUSPENDED-SEDIMENT
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Day	Mean concentration (mg/L)	Sediment discharge (tons/day)	Mean concentration (mg/L)	Sediment discharge (tons/day)	Mean concentration (mg/L)	Sediment discharge (tons/day)	Mean concentration (mg/L)	Sediment discharge (tons/day)	Mean concentration (mg/L)	Sediment discharge (tons/day)	Mean concentration (mg/L)	Sediment discharge (tons/day)
	October		November		December		January		February		March	
1	414	6,000	97	1,550	---	---	---	---	---	---	---	---
2	242	3,530	82	1,290	---	---	---	---	---	---	---	---
3	183	2,660	67	1,050	---	---	---	---	---	---	---	---
4	216	3,130	53	823	---	---	---	---	---	---	---	---
5	265	3,810	39	597	---	---	---	---	---	---	---	---
6	230	3,270	30	455	---	---	---	---	---	---	---	---
7	185	2,690	33	507	---	---	---	---	---	---	---	---
8	155	2,280	42	653	---	---	---	---	---	---	---	---
9	134	1,980	54	856	---	---	---	---	---	---	---	---
10	117	1,750	65	1,030	---	---	---	---	---	---	---	---
11	112	1,720	56	880	---	---	---	---	---	---	---	---
12	112	1,750	40	631	---	---	---	---	---	---	---	---
13	137	2,360	48	841	---	---	---	---	---	---	---	---
14	128	2,320	61	1,190	---	---	---	---	---	---	1,430	33,600
15	96	1,700	58	1,090	---	---	---	---	---	---	915	21,500
16	76	1,340	56	992	---	---	---	---	---	---	830	18,600
17	72	1,260	53	914	---	---	---	---	---	---	840	18,400
18	80	1,370	51	854	---	---	---	---	---	---	1,460	31,900
19	140	2,390	49	804	---	---	---	---	---	---	1,470	32,100
20	520	9,380	46	740	---	---	---	---	---	---	500	9,840
21	442	8,650	43	684	---	---	---	---	---	---	310	5,660
22	262	4,850	42	672	---	---	---	---	---	---	262	4,550
23	247	4,530	40	636	---	---	---	---	---	---	218	3,700
24	288	5,350	39	614	---	---	---	---	---	---	183	3,140
25	317	6,040	38	594	---	---	---	---	---	---	161	2,760
26	319	5,890	34	514	---	---	---	---	---	---	152	2,630
27	295	5,180	28	416	---	---	---	---	---	---	129	2,220
28	260	4,410	26	281	---	---	---	---	---	---	122	2,020
29	215	3,570	25	196	---	---	---	---	---	---	2,000	36,000
30	166	2,740	24	130	---	---	---	---	---	---	3,000	54,800
31	120	1,960	---	---	---	---	---	---	---	---	940	17,600
Total	---	109,860	---	22,484	---	---	---	---	---	---	---	---

06329500 YELLOWSTONE RIVER NEAR SIDNEY, MT—Continued

SUSPENDED-SEDIMENT
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Day	Mean concentration (mg/L)	Sediment discharge (tons/day)	Mean concentration (mg/L)	Sediment discharge (tons/day)	Mean concentration (mg/L)	Sediment discharge (tons/day)	Mean concentration (mg/L)	Sediment discharge (tons/day)	Mean concentration (mg/L)	Sediment discharge (tons/day)	Mean concentration (mg/L)	Sediment discharge (tons/day)
	April		May		June		July		August		September	
1	1,150	23,900	287	7,140	1,290	65,800	141	4,110	34	306	85	652
2	750	16,000	284	7,150	1,230	67,400	118	3,140	31	293	70	529
3	590	12,800	650	19,700	950	51,600	131	3,330	49	458	65	495
4	670	15,400	1,850	77,400	875	48,900	151	3,620	615	6,680	60	467
5	1,330	34,400	1,880	90,400	670	36,400	114	2,410	312	2,860	55	425
6	1,200	30,600	2,580	142,000	715	38,800	107	2,090	186	1,550	50	383
7	850	20,200	4,270	259,000	1,020	62,500	100	1,770	200	1,620	45	349
8	639	14,000	4,330	256,000	5,250	482,000	100	1,680	309	2,440	40	321
9	723	15,600	3,290	181,000	3,210	302,000	3,070	58,500	512	3,970	50	432
10	699	14,900	2,240	114,000	4,180	453,000	2,700	45,600	460	3,270	88	779
11	737	15,400	2,020	94,900	2,200	222,000	1,850	32,100	378	2,560	128	1,210
12	716	14,600	1,770	82,200	1,650	145,000	495	8,070	300	2,060	110	1,100
13	740	15,200	2,270	109,000	1,400	115,000	125	1,860	229	1,540	87	930
14	808	16,900	2,380	132,000	1,230	92,700	116	1,550	157	1,030	76	833
15	760	16,700	3,260	200,000	1,010	71,400	104	1,270	126	830	72	797
16	675	14,300	2,430	157,000	840	56,200	85	973	136	837	69	764
17	548	10,900	1,870	131,000	750	48,000	56	600	108	636	65	718
18	545	10,600	1,500	104,000	672	42,300	42	415	87	519	57	625
19	629	12,000	1,010	63,000	512	32,300	42	390	86	515	52	574
20	530	10,300	755	44,200	604	37,500	42	359	86	543	52	571
21	376	7,900	767	44,700	494	29,900	42	327	80	505	58	640
22	397	9,030	465	26,700	410	22,500	42	316	64	404	68	760
23	832	21,900	704	41,200	420	20,500	38	279	55	358	78	880
24	771	21,200	835	53,400	338	15,500	31	207	75	508	70	807
25	500	12,200	788	53,000	345	15,300	30	181	110	817	58	675
26	442	10,100	950	58,500	295	12,500	31	176	144	1,060	52	601
27	565	12,500	725	40,500	227	9,130	31	178	178	1,320	50	602
28	487	10,800	825	43,200	183	6,920	29	161	220	1,700	49	634
29	332	7,470	1,020	48,700	163	5,680	23	138	382	3,140	48	625
30	248	5,660	540	24,300	172	5,480	21	133	380	2,990	46	609
31	---	---	705	31,800	---	---	31	254	185	1,460	---	---
Total	---	453,460	---	2,737,090	---	2,614,210	---	176,187	---	48,779	---	19,787