

Water-Data Report 2007

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 14 reservoirs 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 Several unpublished observations of water temperature and specific conductance were made during the year.

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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)

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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.

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