

Water-Data Report 2007

**06088300 MUDDY CREEK NEAR VAUGHN, MT**

Upper Missouri Basin  
Sun Subbasin

LOCATION.--Lat 47°37'30", long 111°38'05" referenced to North American Datum of 1927, in NE ¼ NE ¼ NW ¼ sec.32, T.22 N., R.1 E., Cascade County, MT, Hydrologic Unit 10030104, on left bank 200 ft downstream from bridge on county road 6.2 mi northwest of Vaughn and at river mile 14.6.

DRAINAGE AREA.--282 mi<sup>2</sup>.

**SURFACE-WATER RECORDS**

PERIOD OF RECORD.--July 1968 to September 1987, March 1996 to October 2004, April 2005 to October 2007 (seasonal records only), discontinued.

GAGE.--Water-stage recorder. Elevation of gage is 3,441.79 ft, referenced to the National Geodetic Vertical Datum of 1929 (levels by U.S. Army Corps of Engineers).

REMARKS.--Seasonal records are good. Natural flow is increased by return flow from Greenfield Irrigation Project. Diversions for irrigation of about 400 acres occur upstream from station and pumped diversions from Muddy Creek upstream from station in SW¼ sec. 2, T. 22 N., R.1 W, to supplement water supply for Benton Lake Wildlife Refuge. U.S. Geological Survey satellite telemeter is located at the station.

## 06088300 MUDDY CREEK NEAR VAUGHN, 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				23	26	139	212	257	55	53		
2				23	26	117	284	237	55	53		
3				22	32	114	203	221	50	52		
4				22	32	132	192	199	53	51		
5				24	26	119	183	154	51	62		
6				24	24	201	168	165	48	64		
7				24	25	242	163	142	49	54		
8				23	152	205	172	166	56	51		
9				22	96	197	172	173	52	49		
10				22	99	132	174	146	48	49		
11				22	156	162	174	137	49	48		
12				22	118	135	162	152	49	46		
13				21	118	124	164	136	55	46		
14				20	174	144	182	127	52	45		
15				20	151	133	169	112	49	45		
16				22	130	160	210	96	46	45		
17				19	154	200	209	88	45	48		
18				43	158	245	219	84	44	45		
19				53	190	207	240	82	44	44		
20				51	202	204	254	82	45	44		
21				38	270	195	279	71	43	43		
22				34	213	219	282	68	41	41		
23				32	227	261	287	68	59	40		
24				31	184	246	257	66	58	39		
25				29	218	302	238	61	43	39		
26				28	246	280	271	60	39	39		
27				27	180	257	229	57	45	38		
28				27	165	239	213	54	55	39		
29				26	146	203	229	51	58	40		
30				27	161	200	295	54	55	51		
31				---	141	---	261	53	---	52		
<b>Total</b>				821	4,240	5,714	6,747	3,619	1,491	1,455		
<b>Mean</b>				27.4	137	190	218	117	49.7	46.9		
<b>Max</b>				53	270	302	295	257	59	64		
<b>Min</b>				19	24	114	162	51	39	38		
<b>Ac-ft</b>				1,630	8,410	11,330	13,380	7,180	2,960	2,890		

**STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 – 2004 AND SEASONS 2005 – 2007\***

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>Mean</b>	33.0	35.3	57.7	39.4	111	205	253	233	125	72.9	53.8	41.1
<b>Max</b>	59.8	65.1	238	162	264	455	367	402	218	145	71.4	58.5
<b>(WY)</b>	(1997)	(1986)	(1978)	(1975)	(1975)	(1969)	(1970)	(1975)	(1972)	(1976)	(1986)	(1986)
<b>Min</b>	19.3	17.5	23.4	21.3	56.3	101	137	117	42.1	40.8	34.9	21.7
<b>(WY)</b>	(1973)	(1985)	(2002)	(2000)	(2001)	(1985)	(1980)	(2007)	(2003)	(2002)	(2002)	(1973)

\* During periods of operation (water years July 1968 to September 1987, March 1996 to October 2004; seasonal records April 2005 to October 2007).

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SUMMARY STATISTICS

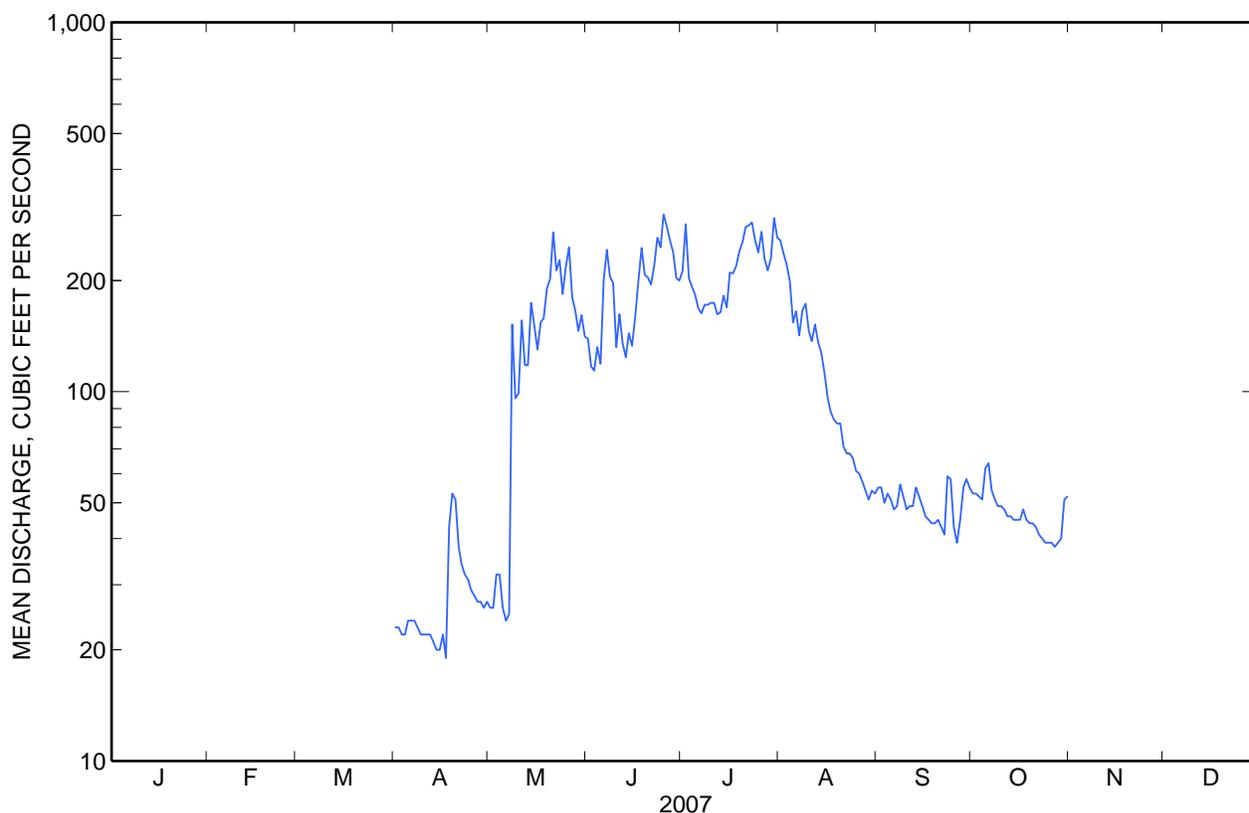
	2007 Season		Water Years 1968 - 2007*		Seasons 2005 - 2007*	
<b>Annual mean</b>			107			
<b>Highest annual mean</b>			160	1969		
<b>Lowest annual mean</b>			77.2	1985		
<b>Highest daily mean</b>	302	Jun 25	2,250	May 7, 1975	1,300	Jun 11, 2006
<b>Lowest daily mean</b>	19	Apr 17	8.0	Dec 8, 1972	19	May 14, 2006
<b>Annual seven-day minimum</b>			13	Dec 8, 1972		
<b>Maximum peak flow</b>	336	Jun 25	3,560	May 22, 1981	1,600	Jun 11, 2006
<b>Maximum peak stage</b>	4.35	Jun 25	<sup>b</sup> 14.72	May 22, 1981	<sup>b</sup> 10.30	Jun 11, 2006
<b>Instantaneous low flow</b>	<sup>a</sup> 13	Apr 17	<sup>c</sup> 4.8	Mar 7, 2004	<sup>a</sup> 13	Apr 17, 2007
<b>Annual runoff (ac-ft)</b>			77,860			
<b>10 percent exceeds</b>			254			
<b>50 percent exceeds</b>			59			
<b>90 percent exceeds</b>			27			

\* During periods of operation (water years July 1968 to September 1987, March 1996 to October 2004; seasonal records April 2005 to October 2007).

<sup>a</sup> Gage height, 2.00 ft.

<sup>b</sup> From floodmark.

<sup>c</sup> May have been lower during a period of ice effect.



## 06088300 MUDDY CREEK NEAR VAUGHN, MT—Continued

## WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: July 1968 to September 1982.

SUSPENDED-SEDIMENT DISCHARGE: July 1968 to September 1982.

REMARKS.--Several unpublished observations of specific conductance and water temperature were made during the year.

EXTREMES FOR PERIOD OF DAILY RECORD.--

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

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

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

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

Date	Time	Instan- taneous dis- charge, cfs (00061)	Specif- ic conduc- tance, wat unf $\mu\text{S}/\text{cm}$ 25 degC (00095)	Temper- ature, air, deg C (00020)	Temper- ature, water, deg C (00010)	Suspd. 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)
<b>Oct</b> 18...	1600	63	975	11.0	5.5	80	33	5.6
<b>Apr</b> 11...	1045	22	1,210	-0.5	3.0	76	43	2.6
<b>May</b> 17...	1300	182	513	26.0	15.5	86	356	175
<b>Jun</b> 21...	0915	197	603	15.0	16.0	73	168	89
<b>Jul</b> 25...	1545	234	605	31.0	22.0	79	142	90
<b>Aug</b> 28...	1815	48	856	22.0	18.5	94	16	2.1