12323760 WARM SPRINGS CREEK NEAR ANACONDA, MT

Pend Oreille Basin
Upper Clark Fork Subbasin

LOCATION.--Lat 46°08′01″, long 112°54′48″ referenced to North American Datum of 1927, in SW ¼ NW ¼ NE ¼ sec.1, T.4 N., R.11 W., Deer Lodge County, MT, Hydrologic Unit 17010201, on left bank 0.3 mi downstream from Arbiter Bridge on private road, 1.0 mi upstream from Dutchman Creek, 1.2 mi northeast of Anaconda, and at river mile 9.5.

DRAINAGE AREA.--157 mi^2.

SURFACE-WATER RECORDS

PERIOD OF RECORD.--October 1997 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 5,150 ft, referenced to the National Geodetic Vertical Datum of 1929.

REMARKS.--Records are good except for estimated daily discharges, which are poor. Flow is somewhat regulated by Storm King Lake. Minor diversions occur upstream from station for irrigation and municipal use. U.S. Geological Survey satellite telemeter is located at the station. Several observations of water temperature and specific conductance were made during the year.

Suggested citation: U.S. Geological Survey, 2012, Water-resources data for the United States, Water Year 2011: U.S. Geological Survey Water-Data Report WDR-US-2011, site 12323760, accessed at http://wdr.water.usgs.gov/wy2011/pdfs/12323760.2011.pdf

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DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2010 TO SEPTEMBER 2011
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	90	87	66	e40	e45	58	76	67	216	755	275	159
2	89	85	69	e50	e40	59	79	68	246	673	261	153
3	87	85	72	58	e50	61	75	70	229	679	251	150
4	91	85	67	59	e60	60	73	69	201	732	245	149
5	99	84	e65	61	69	62	73	72	215	681	237	144
6	95	84	68	64	66	63	70	77	285	651	233	140
7	93	84	72	68	67	65	70	80	468	647	230	138
8	92	86	75	72	e60	64	70	87	665	606	220	137
9	92	84	78	71	e55	65	70	97	657	592	213	138
10	91	79	77	e63	65	69	70	95	541	527	214	137
11	98	81	76	e60	66	67	67	96	478	501	211	136
12	95	81	78	67	67	66	65	100	479	508	201	134
13	93	80	80	70	67	67	68	109	484	519	196	132
14	90	81	79	75	65	68	68	133	487	545	192	131
15	88	84	77	78	66	67	67	140	505	520	187	131
16	88	85	72	94	66	71	69	158	457	483	184	140
17	87	82	e64	91	66	67	72	147	432	453	181	138
18	86	82	e60	80	66	67	72	140	408	432	174	134
19	87	79	70	78	64	68	71	135	432	419	172	134
20	86	78	69	72	64	67	68	145	484	406	171	132
21	86	e70	63	77	65	68	70	147	548	375	167	129
22	85	e65	58	75	64	69	69	160	647	352	162	127
23	85	e55	61	73	63	67	66	189	743	334	156	125
24	87	e50	57	71	e50	68	68	296	899	315	155	123
25	89	e45	55	72	e40	68	69	369	782	305	152	122
26	87	e50	58	71	e45	67	68	355	670	299	155	122
27	86	55	58	71	e45	68	67	308	617	292	152	121
28	86	61	59	70	56	68	68	271	612	280	153	120
29	86	62	63	69	---	66	68	242	785	271	159	120
30	86	61	e55	68	---	69	68	239	833	264	157	120
31	87	---	e45	e60	---	74	---	226	---	262	158	---
Total	2,767	2,230	2,066	2,148	1,662	2,053	2,094	4,887	15,505	14,678	5,974	4,016
Mean	89.3	74.3	66.6	69.3	59.4	66.2	69.8	158	517	473	193	134
Max	99	87	80	94	69	74	79	369	899	755	275	159
Min	85	45	45	40	40	58	65	67	201	262	152	120
Ac-ft	5,490	4,420	4,100	4,260	3,300	4,070	4,150	9,690	30,750	29,110	11,850	7,970

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1998 - 2011, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	73.4	62.4	49.3	49.5	48.1	48.7	54.8	130	252	153	94.3	83.6
Max	113	99.5	78.6	71.0	68.0	67.3	69.8	210	517	473	193	134
(WY)	(1998)	(1998)	(1998)	(1998)	(1998)	(1998)	(2011)	(2009)	(2011)	(2011)	(2011)	(2011)
Min	42.1	30.8	27.9	28.9	29.9	27.8	30.9	70.0	93.0	65.2	63.2	60.5
(WY)	(2005)	(2005)	(2005)	(2005)	(2005)	(2005)	(2005)	(2002)	(2000)	(2000)	(2000)	(2006)

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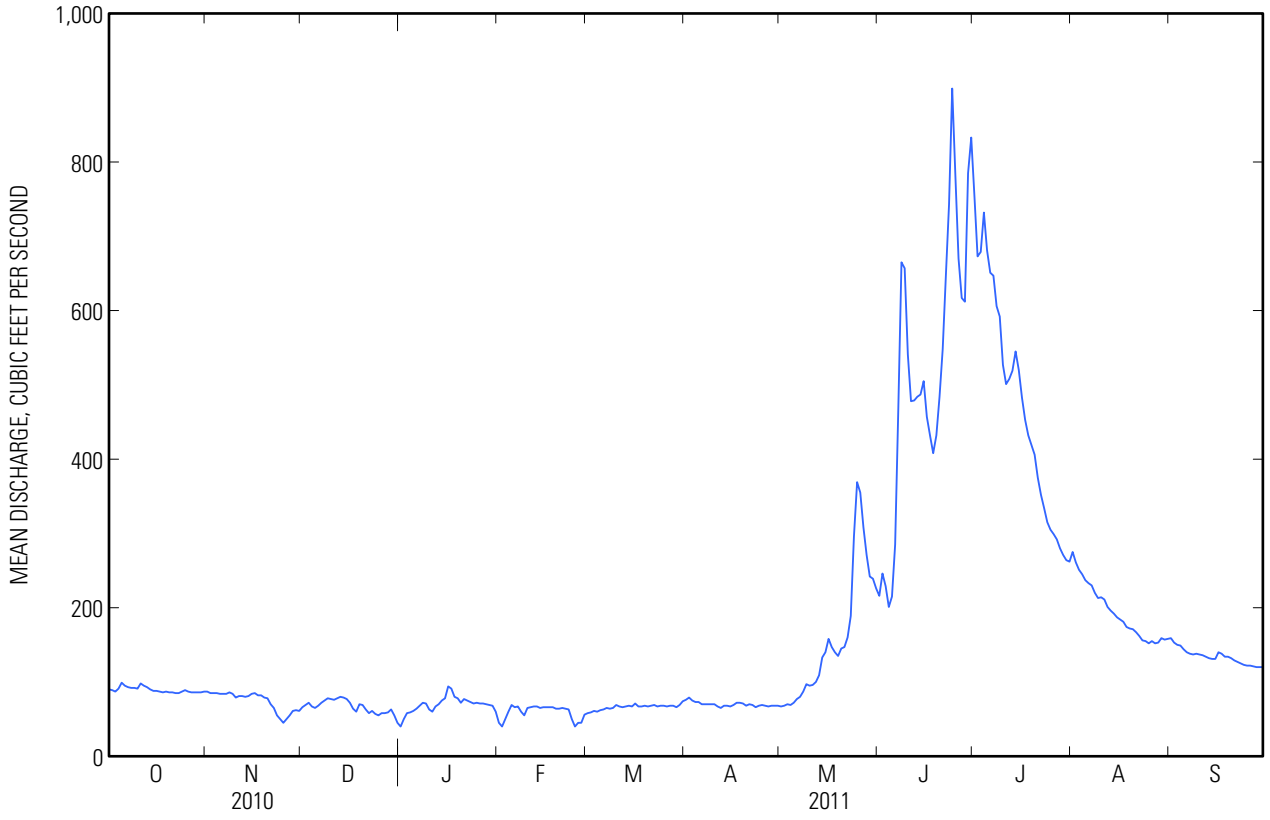
SUMMARY STATISTICS

	Calendar Year 2010		Water Year 2011		Water Years 1998 - 2011	
Annual total	42,157		60,080			
Annual mean	115		165		91.7	
Highest annual mean					165	2011
Lowest annual mean					61.5	2004
Highest daily mean	514	Jun 16	899	Jun 24	899	Jun 24, 2011
Lowest daily mean	45	Nov 25	40	Jan 1	13	Feb 18, 2006
Annual seven-day minimum	50	Apr 4	50	Feb 24	18	Jan 3, 2004
Maximum peak flow			930	Jun 24	[a]930	Jun 24, 2011
Maximum peak stage			4.85	Jun 24	[b]6.46	Dec 14, 2009
Instantaneous low flow					[c]10	Jan 6, 2004
Annual runoff (ac-ft)	83,620		119,200		66,410	
10 percent exceeds	257		461		175	
50 percent exceeds	82		85		66	
90 percent exceeds	54		61		40	

[a]Gage height, 4.85 ft.
[b]Backwater from ice.
[c]Gage height, 1.79 ft, result of freezeup.



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WATER-QUALITY RECORDS

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

PERIOD OF DAILY RECORD.--
TURBIDITY: May 2006 to current year (seasonal records).

INSTRUMENTATION.--Turbidity monitor was installed in May 2006.

REMARKS.--Daily turbidity records record were rated good to excellent except for 12 days that were rated fair-poor. Turbidity data for five days (May 23-26, and Aug 18) were deleted due to erroneous values. Several unpublished observations of specific conductance and water temperature were made during the year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
TURBIDITY (seasonal records): Maximum, 81 formazin nephelometric units (FNU), Aug 29, 2011; minimum, <0.5 FNU, many days in August and September 2008.

EXTREMES FOR CURRENT YEAR.--
TURBIDITY: During period of seasonal operation, maximum, 81 formazin nephelometric units (FNU), Aug 29; minimum, 2.0 FNU many days in Aug. and Sept.

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TURBIDITY, WATER, UNFILT, NEAR IR LED LIGHT, 780-900 NM, DETECT ANG. 90 DEG, FORMAZIN NEPHELOMETRIC UNITS
SEASON APRIL 2011 TO SEPTEMBER 2011

Day	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean	Max	Min	Mean
		April			May			June			July	
1	---	---	---	5.0	2.5	3.0	5.0	3.5	4.5	12	7.0	9.5
2	---	---	---	3.5	3.0	3.0	26	4.0	6.0	12	6.5	7.5
3	---	---	---	4.0	2.5	3.0	5.0	3.5	4.0	10	5.5	7.5
4	---	---	---	4.0	2.5	3.0	4.5	3.0	4.0	13	6.5	9.0
5	---	---	---	6.5	2.5	3.5	5.0	3.5	4.0	16	5.5	8.5
6	---	---	---	5.0	3.0	3.5	8.0	4.5	5.5	24	5.0	8.0
7	---	---	---	5.5	3.0	4.0	54	8.0	29	8.0	5.0	6.0
8	---	---	---	10	3.5	5.0	54	18	30	7.0	4.5	5.5
9	---	---	---	20	5.5	8.5	20	11	15	8.5	5.0	6.0
10	---	---	---	14	4.0	5.5	16	9.0	11	11	4.5	5.5
11	4.0	2.5	3.0	7.5	4.0	5.0	16	8.0	9.5	9.5	3.5	4.5
12	3.5	2.5	3.0	6.5	4.0	5.0	9.5	6.0	7.0	6.0	3.5	4.5
13	32	3.0	4.0	16	5.0	7.0	7.5	5.0	6.0	7.0	4.0	4.5
14	5.0	3.0	3.0	18	7.0	11	6.5	5.0	6.0	6.5	4.0	5.0
15	3.5	2.5	3.0	18	6.5	10	9.0	5.5	6.5	5.0	3.5	4.0
16	4.5	2.5	3.0	21	5.5	12	6.5	4.5	5.5	4.5	3.0	3.5
17	4.5	3.0	3.0	11	5.5	7.0	5.5	4.5	5.0	5.0	3.0	3.5
18	3.5	3.0	3.0	6.0	4.5	5.0	6.0	4.0	4.5	4.0	3.0	3.5
19	4.0	2.5	3.0	6.0	4.0	5.0	5.5	4.0	4.5	5.0	3.0	3.5
20	8.0	2.5	3.5	6.5	4.5	5.5	6.5	4.0	5.0	4.5	3.0	3.0
21	6.0	3.0	3.5	7.0	4.5	5.5	8.5	5.0	6.0	4.0	3.0	3.0
22	4.0	2.5	3.0	10	5.5	6.5	15	8.0	10	4.0	2.5	3.0
23	5.0	2.5	3.0	---	---	---	30	11	17	4.0	2.5	3.0
24	4.0	2.5	3.0	---	---	---	39	16	28	4.5	2.5	3.0
25	4.0	2.5	3.0	---	---	---	19	9.5	14	3.5	2.5	3.0
26	5.0	2.5	3.0	---	---	---	12	6.5	8.5	3.5	2.5	3.0
27	5.5	2.5	3.0	10	6.5	7.5	9.5	5.5	6.5	4.0	2.5	2.5
28	3.5	3.0	3.0	8.0	5.0	6.0	16	5.5	7.0	3.5	2.5	2.5
29	3.5	3.0	3.0	9.0	4.5	5.0	18	9.5	13	3.5	2.5	3.0
30	3.5	2.5	3.0	26	4.5	6.0	14	9.5	12	3.5	2.5	2.5
31	---	---	---	5.5	4.0	4.5	---	---	---	5.0	2.5	2.5
Month	---	---	---	---	---	---	54	3.0	9.8	24	2.5	4.6

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TURBIDITY, WATER, UNFILT, NEAR IR LED LIGHT, 780-900 NM, DETECT ANG. 90 DEG, FORMAZIN NEPHELOMETRIC UNITS SEASON APRIL 2011 TO SEPTEMBER 2011

Day	Max	Min	Mean	Max	Min	Mean
		August			September	
1	3.0	2.5	2.5	4.0	2.5	2.5
2	2.5	2.0	2.5	4.0	2.5	2.5
3	4.0	2.0	2.5	4.5	2.5	2.5
4	3.0	2.0	2.5	3.5	2.5	2.5
5	3.0	2.0	2.5	5.0	2.0	2.5
6	4.0	2.0	2.5	3.0	2.0	2.5
7	3.0	2.0	2.5	3.5	2.0	2.5
8	3.0	2.0	2.5	4.5	2.5	2.5
9	3.0	2.0	2.5	3.0	2.0	2.5
10	3.0	2.0	2.5	4.0	2.5	2.5
11	3.0	2.5	2.5	3.0	2.5	3.0
12	3.0	2.0	2.5	3.5	2.5	2.5
13	3.0	2.0	2.5	3.5	2.0	2.5
14	3.0	2.0	2.5	3.0	2.0	2.5
15	3.0	2.0	2.5	4.5	2.0	2.5
16	3.0	2.0	2.5	3.5	2.5	3.0
17	3.0	2.5	2.5	3.5	2.5	2.5
18	---	---	---	3.0	2.0	2.5
19	3.5	2.5	2.5	3.0	2.5	2.5
20	3.5	2.5	3.0	3.0	2.0	2.5
21	3.0	2.5	2.5	3.0	2.0	2.5
22	3.5	2.5	3.0	3.0	2.0	2.5
23	4.0	2.5	2.5	3.5	2.0	2.5
24	4.0	2.5	2.5	3.0	2.0	2.5
25	4.5	2.5	3.0	3.0	2.0	2.5
26	3.5	2.5	3.0	3.0	2.0	2.5
27	3.5	2.5	3.0	3.0	2.0	2.5
28	3.5	2.5	3.0	3.0	2.0	2.5
29	81	2.5	7.0	3.0	2.0	2.5
30	3.5	2.5	3.0	2.5	2.0	2.5
31	3.5	2.5	3.0	---	---	---
Month	---	---	---	5.0	2.0	2.5