

Water-Data Report 2007

06426500 BELLE FOURCHE RIVER BELOW MOORCROFT, WY

Belle Fourche Basin
Upper Belle Fourche Subbasin

LOCATION.--Lat 44°19'19", long 104°56'24" referenced to North American Datum of 1927, in NW ¼ NW ¼ NW ¼ sec.17, T.50 N., R.67 W., Crook County, WY, Hydrologic Unit 10120201, on right bank 3.1 mi upstream from bridge on Highway 14, and 4.0 mi northeast of Moorcroft.

DRAINAGE AREA.--1,690 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--May 1943 to September 1970, October 1975 to September 1983, October 1985 to September 1987, October 1990 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 4,110 ft above NGVD of 1929, from topographic map. Prior to March 28, 1947, nonrecording gage, and March 28, 1947, to January 16, 1951, water-stage recorder at site 4 mi downstream from station at different datum. January 17, 1951, to September 1970, water-stage recorder at site 7.9 mi upstream from station at different datum. September 1970 to October 22, 1993, water-stage recorder at site 8.0 mi upstream from station at different datum. U.S. Geological Survey data collection platform with satellite telemetry at station.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Numerous small stockwater and soil conservation reservoirs upstream from station. Diversions for irrigation upstream from station.

06426500 BELLE FOURCHE RIVER BELOW MOORCROFT, 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	3.2	e4.5	e2.8	e2.5	e1.0	e20	55	11	67	5.5	3.6	4.0
2	3.2	e5.0	e2.7	e2.8	e0.90	e19	49	9.6	119	5.3	3.7	3.7
3	3.1	e5.8	e2.7	e3.0	e0.76	e16	176	9.6	126	5.3	3.6	2.9
4	2.9	6.4	e2.8	e3.4	e0.72	e15	240	11	78	5.1	3.3	1.7
5	2.5	6.2	e2.8	e3.4	e0.76	e14	126	11	41	4.7	3.4	1.4
6	2.3	6.5	e3.1	e3.3	e0.80	e13	63	304	37	4.2	3.0	1.6
7	2.2	5.0	e2.8	e3.2	e0.85	e12	43	1,350	30	3.6	2.1	1.7
8	1.9	4.7	e3.2	e3.4	e0.80	e27	33	765	136	3.5	1.5	1.8
9	1.7	5.1	e3.3	e3.4	e0.76	e68	26	253	366	3.1	1.2	1.9
10	1.9	e5.0	e3.3	e3.5	e0.78	e125	27	146	252	3.1	0.98	2.0
11	2.0	e4.7	e3.4	e3.8	e0.82	e110	26	89	131	6.8	0.87	2.2
12	2.6	e4.7	e3.2	e1.6	e0.78	84	29	65	73	4.3	0.79	2.1
13	2.5	e4.9	e3.2	e0.80	e0.76	e76	36	54	46	2.7	0.79	2.8
14	2.8	e5.0	e3.3	e0.86	e0.74	e66	27	43	34	3.2	0.89	2.9
15	4.1	e5.2	e3.4	e0.92	e0.70	e58	22	38	24	3.9	0.79	2.9
16	4.2	e5.2	e3.9	e1.0	e0.90	51	19	35	26	3.7	0.77	3.1
17	4.3	e5.4	e3.3	e1.1	e1.0	40	18	33	26	3.6	0.79	2.9
18	4.1	e5.2	e3.4	e1.0	e0.96	39	17	30	31	3.6	0.79	3.0
19	4.3	e5.2	e3.4	e1.1	e1.0	17	16	27	32	3.1	0.73	3.6
20	4.8	e5.0	e3.6	e1.2	e1.1	15	18	26	17	2.5	0.68	3.6
21	5.1	e6.0	e3.3	e1.1	e1.2	14	15	23	14	4.3	0.68	3.8
22	4.9	e7.0	e3.7	e1.0	e1.3	14	20	19	12	4.5	0.85	3.9
23	4.6	6.4	e3.3	e1.1	e16	13	20	20	9.8	3.8	2.8	4.6
24	4.5	6.1	e3.3	e1.3	e50	12	19	23	8.8	2.2	6.8	4.4
25	5.0	e5.2	e3.3	e1.4	e64	12	61	33	8.2	1.5	9.0	8.1
26	5.2	e4.5	e3.5	e1.5	e54	12	27	34	7.7	1.8	5.7	5.9
27	5.4	e4.0	e3.7	e1.2	e41	11	18	24	7.1	1.7	5.5	3.9
28	5.9	e4.0	e3.3	e1.0	e30	16	14	18	6.7	2.9	6.0	3.5
29	6.5	e3.0	e3.2	e1.1	---	61	14	21	6.2	3.5	6.2	3.5
30	6.5	e2.5	e2.8	e1.0	---	64	12	27	5.8	7.8	5.3	3.5
31	e5.4	---	e2.6	e1.1	---	38	---	47	---	4.2	4.5	---
Total	119.6	153.4	99.6	58.08	274.39	1,152	1,286	3,599.2	1,778.3	119.0	87.60	96.9
Mean	3.86	5.11	3.21	1.87	9.80	37.2	42.9	116	59.3	3.84	2.83	3.23
Max	6.5	7.0	3.9	3.8	64	125	240	1,350	366	7.8	9.0	8.1
Min	1.7	2.5	2.6	0.80	0.70	11	12	9.6	5.8	1.5	0.68	1.4
Ac-ft	237	304	198	115	544	2,280	2,550	7,140	3,530	236	174	192

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1944 - 2007, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	5.56	2.70	2.59	3.61	17.0	56.0	26.6	64.8	58.4	18.0	9.82	5.09
Max	68.0	23.1	22.3	53.5	260	374	190	1,057	509	72.5	57.3	63.5
(WY)	(1995)	(1999)	(1956)	(1997)	(1962)	(1978)	(1944)	(1978)	(1964)	(1948)	(1993)	(1951)
Min	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.05	0.10	0.00	0.00	0.00
(WY)	(1944)	(1944)	(1944)	(1944)	(1944)	(1951)	(1961)	(1958)	(1966)	(1954)	(1944)	(1944)

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SUMMARY STATISTICS

	Calendar Year 2006		Water Year 2007		Water Years 1944 - 2007	
Annual total	2,020.72		8,824.07			
Annual mean	5.54		24.2		22.6	
Highest annual mean					136	1978
Lowest annual mean					1.14	1961
Highest daily mean	154	May 25	1,350	May 7	10,300	May 19, 1978
Lowest daily mean	0.00	Jul 6 ^a	0.68	Aug 20 ^b	0.00	Oct 1, 1943 ^c
Annual seven-day minimum	0.00	Jul 18	0.75	Aug 15	0.00	Oct 1, 1943 ^d
Maximum peak flow			1,450	May 7	^e 15,300	May 19, 1978
Maximum peak stage			12.75	May 7	^f 14.60	May 19, 1978
Annual runoff (ac-ft)	4,010		17,500		16,340	
10 percent exceeds	9.0		49		33	
50 percent exceeds	4.9		4.5		2.1	
90 percent exceeds	0.36		1.0		0.00	

^a Many days.

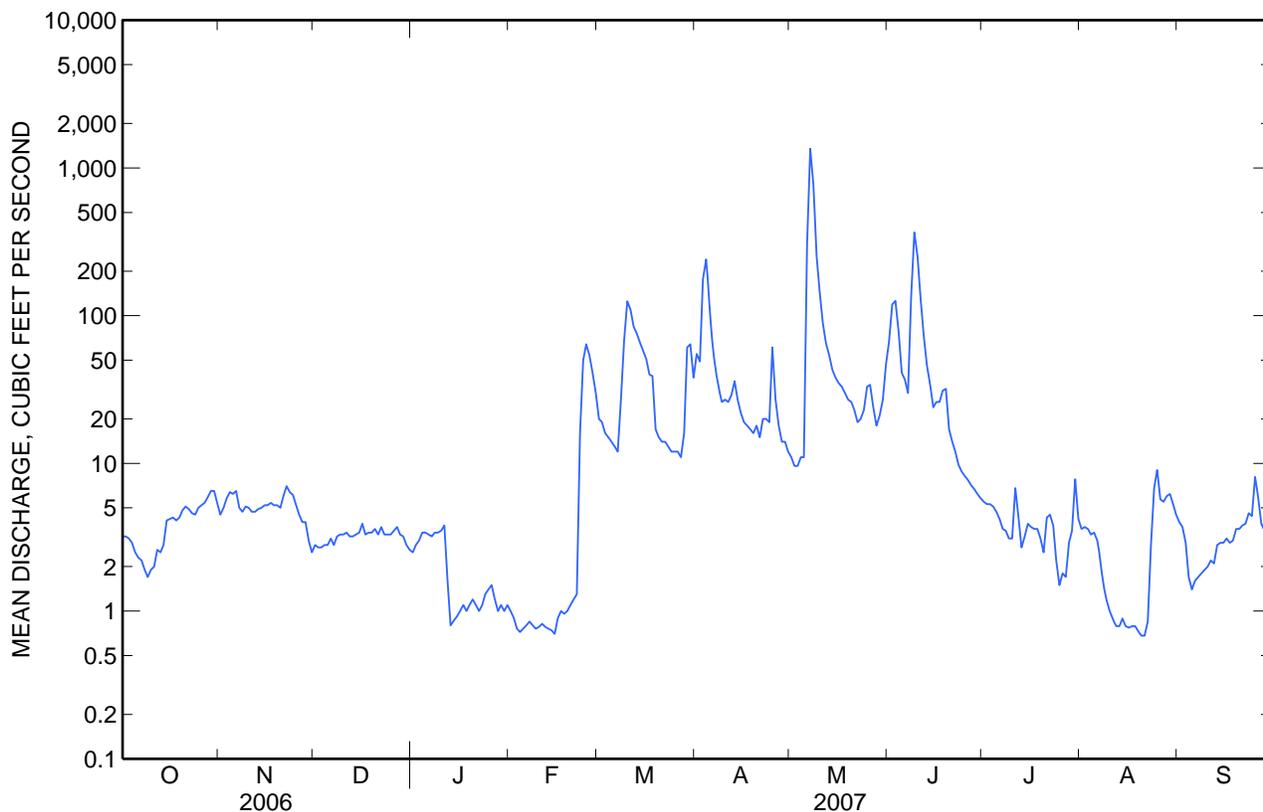
^b Also, August 21.

^c Many days, most years.

^d Most years.

^e From rating curve extended above 11,000 ft³/s, site and datum then in use.

^f From floodmarks in shelter, site and datum then in use.



06426500 BELLE FOURCHE RIVER BELOW MOORCROFT, WY—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1947-57, 1975-93, October 1994 to current year.

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 1 of 4

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

Date	Time	Instan- taneous dis- charge, cfs (00061)	Baro- metric pres- sure, mm Hg (00025)	Dis- solved oxygen, mg/L (00300)	Dis- solved oxygen, percent of sat- uration (00301)	pH, water, unfltrd field, std units (00400)	Specif- ic conduc- tance, wat unfltrd µS/cm 25 degC (00095)	Temper- ature, air, deg C (00020)	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)
Oct 10...	1830	1.9	654	10.8	110	8.8	2,030	3.0	9.0	570	97.5	79.2	11.6
Nov 07...	0810	3.7	650	13.6	113	8.8	2,470	2.0	1.0	710	128	95.4	12.2
Dec 12...	0740	3.2	654	16.3	132	8.0	3,440	-8.0	.0	1,100	193	148	19.5
Jan 09...	0830	3.7	663	5.2	41	7.7	2,800	-3.0	.0	860	158	113	17.2
Feb 07...	0750	.85	657	--		7.6	3,790	-1.0	.0	1,100	197	139	21.1
Mar 07...	0730	9.1	661	8.7	69	7.8	1,720	6.0	.0	480	89.6	62.0	12.3
Apr 11...	0730	27	648	9.6	89	8.4	2,210	-1.0	5.0	700	127	92.4	10.6
May 10...	0945	142	657	6.4	77	7.8	1,220	18.0	16.5	410	77.6	51.9	10.2
Jun 06...	0755	38	640	5.9	77	7.9	1,700	17.0	19.5	610	107	83.5	10.7
Jul 10...	1715	3.0	660	9.5	137	8.3	3,090	24.5	26.0	850	130	127	13.9
Aug 07...	1910	1.9	652	8.8	129	8.6	2,850	28.0	26.0	900	114	148	15.2
Sep 11...	0935	2.2	660	8.4	89	8.4	2,550	19.0	11.0	700	92.4	113	12.4

06426500 BELLE FOURCHE RIVER BELOW MOORCROFT, WY—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 2 of 4

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

Date	Sodium adsorp- tion ratio (00931)	Sodium frac- tion of cations percent (00932)	Sodium, water, fltred, mg/L (00930)	Alka- linity, wat flt end lab, mg/L as CaCO3 (29801)	Chlor- ide, water, fltred, mg/L (00940)	Fluor- ide, water, fltred, mg/L (00950)	Silica, water, fltred, mg/L (00955)	Sulfate water, fltred, mg/L (00945)	Residue water, fltred, sum of consti- tuents mg/L (70301)	Residue water, fltred, tons/ acre-ft (70303)	Residue water, dis- solved, tons/d (70302)	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia water, fltred, mg/L as N (00608)
Oct													
10...	3.8	44	207	240	138	1.09	.19	640	1,320	2.00	7.55	1,470	.021
Nov													
07...	4.4	45	270	291	187	1.05	2.57	778	1,670	2.52	18.5	1,850	1.49
Dec													
12...	5.3	44	399	413	272	1.51	2.37	1,160	2,520	3.75	23.8	2,760	.068
Jan													
09...	4.7	44	316	452	223	1.27	11.1	835	1,980	2.82	20.7	2,080	14.3
Feb													
07...	5.2	44	389	549	414	1.49	15.0	939	2,490	3.55	5.99	2,610	23.4
Mar													
07...	3.7	45	186	219	184	.68	8.30	437	1,130	1.62	29.2	1,190	5.60
Apr													
11...	3.9	42	235	235	97.4	.73	5.06	880	1,600	2.42	130	1,780	.390
May													
10...	2.3	35	105	131	35.4	.44	7.14	463	832	1.21	342	893	.094
Jun													
06...	2.4	32	137	197	46.7	.59	7.27	662	1,180	1.78	134	1,310	.248
Jul													
10...	6.0	50	402	294	138	.87	.65	1,230	2,220	3.28	19.5	2,410	E.019
Aug													
07...	4.4	42	304	187	135	1.09	.55	1,200	2,040	3.12	11.8	2,300	E.016
Sep													
11...	5.2	49	318	206	141	.95	.37	1,010	1,810	2.69	11.8	1,980	E.011

06426500 BELLE FOURCHE RIVER BELOW MOORCROFT, WY—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Part 3 of 4

[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 nitrogen, wat unf by analysis, mg/L (62855)	Ortho-phosphate, water, fltrd, mg/L as P (00671)	E coli, modif. m-TEC, water, col/ 100 mL (90902)	Fecal coli-form, M-FC 0.7u MF col/ 100 mL (31625)	Aluminum, 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)	Beryllium, water, unfltrd recover-able, µg/L (01012)	Iron, water, fltrd, µg/L (01046)	Manganese, water, fltrd, µg/L (01056)
Oct													
10...	E.06	<.002	1.56	E.004	--	--	382	1.4	2.1	47.8	E.04	10	39.4
Nov													
07...	3.73	.064	6.48	.254	390	--	673	1.7	2.3	41.9	E.06	E11	52.7
Dec													
12...	15.4	.159	17.4	.800	--	--	88	2.7	3.5	38.5	<.12	E14	91.3
Jan													
09...	1.85	.013	18.7	1.44	--	--	222	2.6	2.9	32.7	<.12	42	194
Feb													
07...	2.29	.027	29.1	1.63	40	42	395	3.7	4.0	46.6	<.12	35	719
Mar													
07...	1.09	.023	8.41	.653	--	--	252	1.6	1.7	42.9	<.06	31	160
Apr													
11...	1.15	.065	2.71	.085	--	--	1,110	1.2	2.0	83.3	.11	<18	48.4
May													
10...	.44	.028	2.01	.046	260	240	4,700	1.2	3.7	154	.44	15	39.0
Jun													
06...	.97	.090	2.98	.026	--	--	3,820	1.4	3.8	136	.34	8	70.7
Jul													
10...	<.06	<.002	1.41	<.006	--	--	1,070	1.6	4.7	201	E.06	29	182
Aug													
07...	<.06	E.001	2.48	E.004	--	--	961	2.8	3.2	93.3	E.10	63	125
Sep													
11...	<.06	.003	2.25	E.003	E40	E42	654	1.3	2.2	52.0	<.12	19	127

06426500 BELLE FOURCHE RIVER BELOW MOORCROFT, WY—Continued

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

Part 4 of 4

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

Date	Selen- ium, water, unfltrd µg/L (01147)
Oct	
10...	.73
Nov	
07...	1.0
Dec	
12...	1.7
Jan	
09...	1.4
Feb	
07...	1.6
Mar	
07...	.79
Apr	
11...	1.3
May	
10...	2.2
Jun	
06...	1.4
Jul	
10...	1.5
Aug	
07...	.98
Sep	
11...	.84