Water-Data Report 2012

06438000 BELLE FOURCHE RIVER NEAR ELM SPRINGS, SD

Belle Fourche Basin
Lower Belle Fourche Subbasin

LOCATION.--Lat 44°22'12.01", long 102°33'57.89" referenced to North American Datum of 1927, in NE ¼ NE ¼ sec.29, T.5 N., R.13 E., Meade County, SD, Hydrologic Unit 10120202, on right bank 50 ft downstream from highway bridge, 4.3 mi northwest of Elm Springs, and 4.7 mi downstream from Hay Creek.

DRAINAGE AREA.--7,029 mi^2 of which 7 mi^2 probably is noncontributing.

SURFACE-WATER RECORDS

PERIOD OF RECORD.--August 1928 to June 1932, March 1934 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 926: 1929, 1931(M), 1935, 1937. WDR SD-10-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 2,171.60 ft above NGVD of 1929. Prior to Jul. 27, 1939, nonrecording gage at same site and datum.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Flow regulated by Keyhole Dam, usable capacity, 191,600 acre-ft, 304 mi upstream since Oct. 25, 1952. At a point 133 mi above station, water is diverted to Belle Fourche Reservoir (see station 06435000), through Inlet Canal near Belle Fourche (see station 06434505), with other smaller diversions from the main stem and tributaries for irrigation. Total diversion for irrigation of about 60,000 acres upstream from station. Maximum discharge prior to Sept. 30, 1953, 35,700 ft^3/s, Jun. 10, 1941, gage height, 14.30 ft; no flow for many days in 1936-37, 1939-40. Satellite data-collection platform at station. Water temperature and specific conductance measured with each discharge measurement.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 1927 reached a stage of 21.8 ft. Flood in spring of 1933 reached a stage of about 20 ft, from floodmarks.

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DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012
DAILY MEAN VALUES
[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	286	62	e350	e400	e400	e120	373	254	314	158	232	194
2	277	60	e400	e400	e350	e120	368	241	295	161	204	188
3	264	59	e375	e400	e350	e130	360	215	258	160	194	224
4	230	178	e350	e450	e375	e140	350	185	222	160	185	217
5	192	421	e350	e400	e375	e130	229	211	203	173	199	228
6	192	433	e350	e350	e350	168	176	288	219	163	196	218
7	212	432	e400	e350	e350	152	147	247	209	146	187	204
8	138	439	e400	e350	e350	173	109	222	200	201	182	187
9	132	441	e325	e400	e350	169	78	217	181	238	170	176
10	109	441	e350	e425	e325	139	58	191	211	213	157	170
11	90	444	e325	e400	e300	126	46	205	215	197	171	162
12	87	448	e325	e350	e325	106	38	175	196	199	184	163
13	79	458	e325	e350	e325	90	32	148	263	190	202	165
14	70	455	e325	e350	e350	87	31	155	251	192	246	177
15	64	455	e325	e350	e400	85	62	180	227	174	244	177
16	63	459	e350	e300	e375	80	68	189	382	165	264	162
17	64	e400	e375	e350	e350	179	49	162	227	176	282	161
18	66	e350	e375	e350	e350	207	50	134	189	175	270	184
19	64	e300	e350	e350	e375	414	74	183	162	176	263	182
20	61	e300	e325	e325	e350	448	67	216	203	165	240	178
21	62	e325	e325	e325	e350	431	53	230	160	201	220	178
22	64	e325	e300	e350	e300	421	49	237	127	185	213	185
23	67	e325	e325	e350	e301	411	42	246	127	189	177	177
24	66	e350	e325	e350	e200	398	61	250	146	186	158	169
25	66	e350	e375	e375	e150	384	57	229	155	238	187	170
26	64	e350	e375	e400	e100	378	48	226	157	332	187	170
27	62	e400	e325	e350	e90	384	95	258	186	477	204	173
28	60	e375	e325	e350	e100	383	235	296	185	378	199	160
29	62	e350	e350	e350	e100	385	244	277	159	341	209	158
30	63	e350	e350	e400	---	380	263	270	160	318	204	150
31	61	---	e350	e350	---	376	---	272	---	278	218	---
Total	3,437	10,535	10,775	11,350	8,766	7,594	3,912	6,809	6,189	6,705	6,448	5,407
Mean	111	351	348	366	302	245	130	220	206	216	208	180
Max	286	459	400	450	400	448	373	296	382	477	282	228
Min	60	59	300	300	90	80	31	134	127	146	157	150
Ac-ft	6,820	20,900	21,370	22,510	17,390	15,060	7,760	13,510	12,280	13,300	12,790	10,720

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 2012, BY WATER YEAR (WY) *

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	138	91.9	61.6	55.9	196	512	597	1,101	890	354	281	236
Max	1,361	1,081	479	440	2,283	2,457	7,549	6,457	6,337	1,791	681	768
(WY)	(1999)	(1999)	(1999)	(1999)	(1997)	(1978)	(2009)	(2011)	(2008)	(1993)	(2009)	(1986)
Min	13.9	14.8	2.45	0.02	0.45	24.5	13.4	13.6	76.1	34.0	0.77	2.65
(WY)	(1962)	(1960)	(1962)	(1991)	(1991)	(2005)	(1981)	(1961)	(1961)	(1960)	(1961)	(1961)

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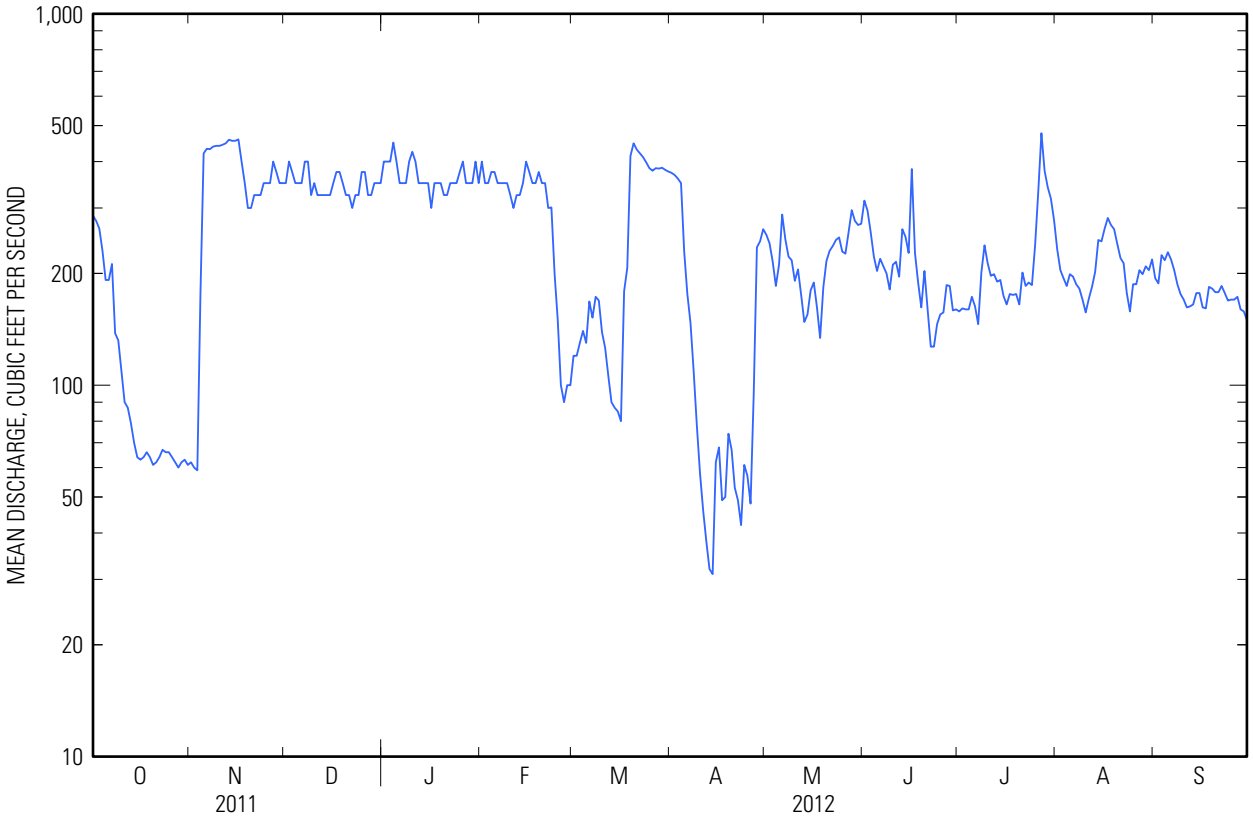
SUMMARY STATISTICS

	Calendar Year 2011		Water Year 2012		Water Years 1954 - 2012*	
Annual total	462,050		87,927			
Annual mean	1,266		240		[a]376	
Highest annual mean					1,230	2009
Lowest annual mean					28.4	1961
Highest daily mean	32,800	May 25	477	Jul 27	40,800	Jun 6, 2008
Lowest daily mean	26	Jan 12	31	Apr 14	[b]0.00	Jun 5, 1961
Annual seven-day minimum	33	Jan 9	47	Apr 11	0.00	Aug 9, 1961
Maximum peak flow			[c]650	Jun 16	47,500	Jun 6, 2008
Maximum peak stage			[d]3.25	Jan 25	19.73	Jun 6, 2008
Annual runoff (ac-ft)	916,500		174,400		272,700	
10 percent exceeds	2,040		389		704	
50 percent exceeds	459		218		116	
90 percent exceeds	63		69		20	

* Regulated period only (1954-2012). See REMARKS.
[a] Median of annual mean discharges, 344 ft³/s.
[b] No flow for many days in 1961-62, 1981, and 1991.
[c] Gage height, 1.91 ft.
[d] Backwater from ice, observed.



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WATER-QUALITY RECORDS

WATER-QUALITY DATA
WATER YEAR OCTOBER 2011 TO SEPTEMBER 2012

[ft^3/s, cubic feet per second; °C, degrees Celsius; µS/cm, microsiemens per centimeter]

Date	Sample start time	Discharge, instantaneous, ft^3/s (00061)	Specific conductance, water, unfiltered, µS/cm at 25°C (00095)	Temperature, air, °C (00020)	Temperature, water, °C (00010)
10-07-2011	**0950**	199	1,960	22.0	13.3
10-12-2011	**1025**	89	2,130	22.0	13.0
01-25-2012	**1207**	367	1,720	12.5	0.0
02-17-2012	**1055**	332	1,520	8.5	0.0
03-22-2012	**1239**	416	1,140	18.1	11.4
04-16-2012	**1126**	75	2,070	10.0	9.3
05-21-2012	**1129**	230	2,070	30.0	20.9
06-22-2012	**0933**	122	1,980	27.0	22.4
08-14-2012	**0842**	251	1,940	22.4	24.0