

Water-Data Report 2010

06452000 WHITE RIVER NEAR OACOMA, SD

White Basin
Lower White Subbasin

LOCATION.--Lat 43°44'54", long 99°33'22" referenced to North American Datum of 1927, in SE ¼ SW ¼ sec.3, T.103 N., R.73 W., Lyman County, SD, Hydrologic Unit 10140204, on left bank at downstream side of bridge on State Highway 47, 1.5 mi downstream from Wagner Draw, 1.8 mi upstream from high-water line of Lake Francis Case, and 8.8 mi southwest of Oacoma.

DRAINAGE AREA.--9,920 mi² of which 61 mi² probably is noncontributing, (revised).

SURFACE-WATER RECORDS

PERIOD OF RECORD.--August 1928 to current year.

REVISED RECORDS.--WSP 786: Drainage area. WSP 1309: 1929-30(M).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,377.29 ft above NGVD of 1929. See WSP 1709, 1729, or 1917 for history of changes prior to Feb. 27, 1960.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Satellite data-collection platform at station. Water temperature and specific conductance measured with each discharge measurement. Suspended sediment samples collected with each discharge measurement.

06452000 WHITE RIVER NEAR OACOMA, SD—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	66	1,470	193	e100	e135	e175	1,700	1,670	1,110	705	297	86
2	72	1,910	e190	e95	e130	e180	1,570	1,450	1,280	579	286	78
3	78	1,480	e185	e95	e130	e185	1,470	1,270	973	530	321	69
4	81	1,060	e185	e95	e140	e190	1,390	1,130	834	498	470	68
5	117	846	e180	e95	e150	e200	1,290	1,090	954	509	545	65
6	148	787	e175	e95	e160	e300	1,210	967	1,080	643	423	66
7	151	599	e170	e90	e170	e1,000	1,340	795	1,130	542	1,430	64
8	147	451	e160	e90	e160	e3,000	1,250	746	847	442	1,510	63
9	534	405	e150	e90	e160	e15,000	1,250	663	655	381	1,160	60
10	1,110	311	e140	e95	e160	e28,000	1,070	655	599	330	988	66
11	801	307	e130	e95	e160	e31,000	948	671	1,310	326	666	68
12	596	307	e120	e100	e160	e25,000	906	661	5,020	301	491	80
13	464	280	e110	e110	e160	e16,000	865	700	5,010	282	408	82
14	374	269	e100	e120	e160	e10,000	992	1,220	5,450	263	337	77
15	314	255	e90	e130	e160	8,070	893	4,560	7,340	326	307	85
16	278	271	e80	e140	e160	7,410	922	3,440	6,360	307	242	80
17	233	261	e90	e150	e160	6,380	984	2,520	7,870	341	339	79
18	200	241	e100	e150	e160	6,550	901	1,590	7,040	262	332	85
19	197	251	e100	e150	e165	e5,800	828	1,280	2,750	230	240	88
20	194	227	e110	e150	e170	4,980	832	969	1,920	201	207	83
21	221	202	e110	e150	e170	4,630	806	800	1,400	229	175	84
22	219	212	e110	e150	e170	4,990	821	699	1,330	423	154	86
23	188	217	e110	e150	e170	4,350	808	682	1,670	356	140	103
24	203	213	e105	e145	e170	3,810	851	608	3,900	328	146	121
25	906	208	e105	e145	e170	4,090	1,050	607	3,260	695	200	115
26	1,150	215	e105	e140	e170	3,780	6,120	837	1,930	488	174	105
27	782	206	e110	e140	e170	2,980	5,280	2,470	1,740	358	137	98
28	567	188	e110	e135	e170	2,490	2,600	1,280	2,370	646	103	93
29	452	189	e110	e135	---	2,270	2,220	969	1,200	544	85	79
30	437	189	e105	e135	---	2,040	1,950	1,300	907	396	89	76
31	398	---	e105	e135	---	1,850	---	1,020	---	335	118	---
Total	11,678	14,027	3,943	3,795	4,470	206,700	45,117	39,319	79,239	12,796	12,520	2,452
Mean	377	468	127	122	160	6,668	1,504	1,268	2,641	413	404	81.7
Max	1,150	1,910	193	150	170	31,000	6,120	4,560	7,870	705	1,510	121
Min	66	188	80	90	130	175	806	607	599	201	85	60
Ac-ft	23,160	27,820	7,820	7,530	8,870	410,000	89,490	77,990	157,200	25,380	24,830	4,860

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 2010, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	194	172	94.7	84.8	354	1,356	1,050	1,306	1,301	484	309	199
Max	1,217	1,445	449	592	3,146	6,668	4,726	13,630	5,985	3,553	1,702	1,074
(WY)	(1999)	(1999)	(1999)	(1997)	(1997)	(2010)	(1952)	(1942)	(1967)	(1962)	(1997)	(1999)
Min	28.0	16.7	6.63	3.34	11.3	177	111	93.8	39.5	1.05	0.75	15.1
(WY)	(1938)	(1977)	(1976)	(1991)	(1950)	(1934)	(1981)	(1934)	(1989)	(1936)	(1936)	(1937)

06452000 WHITE RIVER NEAR OACOMA, SD—Continued

SUMMARY STATISTICS

	Calendar Year 2009		Water Year 2010		Water Years 1929 - 2010	
Annual total	312,218		436,056			
Annual mean	855		1,195		^a 576	
Highest annual mean					1,729	1942
Lowest annual mean					151	1934
Highest daily mean	12,000	Feb 12	31,000	Mar 11	44,000	Mar 30, 1952
Lowest daily mean	40	Jan 3	60	Sep 9	^b 0.00	Aug 14, 1971
Annual seven-day minimum	40	Jan 3	65	Sep 4	0.00	Aug 14, 1971
Maximum peak flow			^c 33,000	Mar 11	^d 51,900	Mar 30, 1952
Maximum peak stage			^f 24.50	Mar 9	^f 24.70	Mar 4, 1994
Annual runoff (ac-ft)	619,300		864,900		417,200	
10 percent exceeds	2,160		2,500		1,220	
50 percent exceeds	314		300		170	
90 percent exceeds	62		92		33	

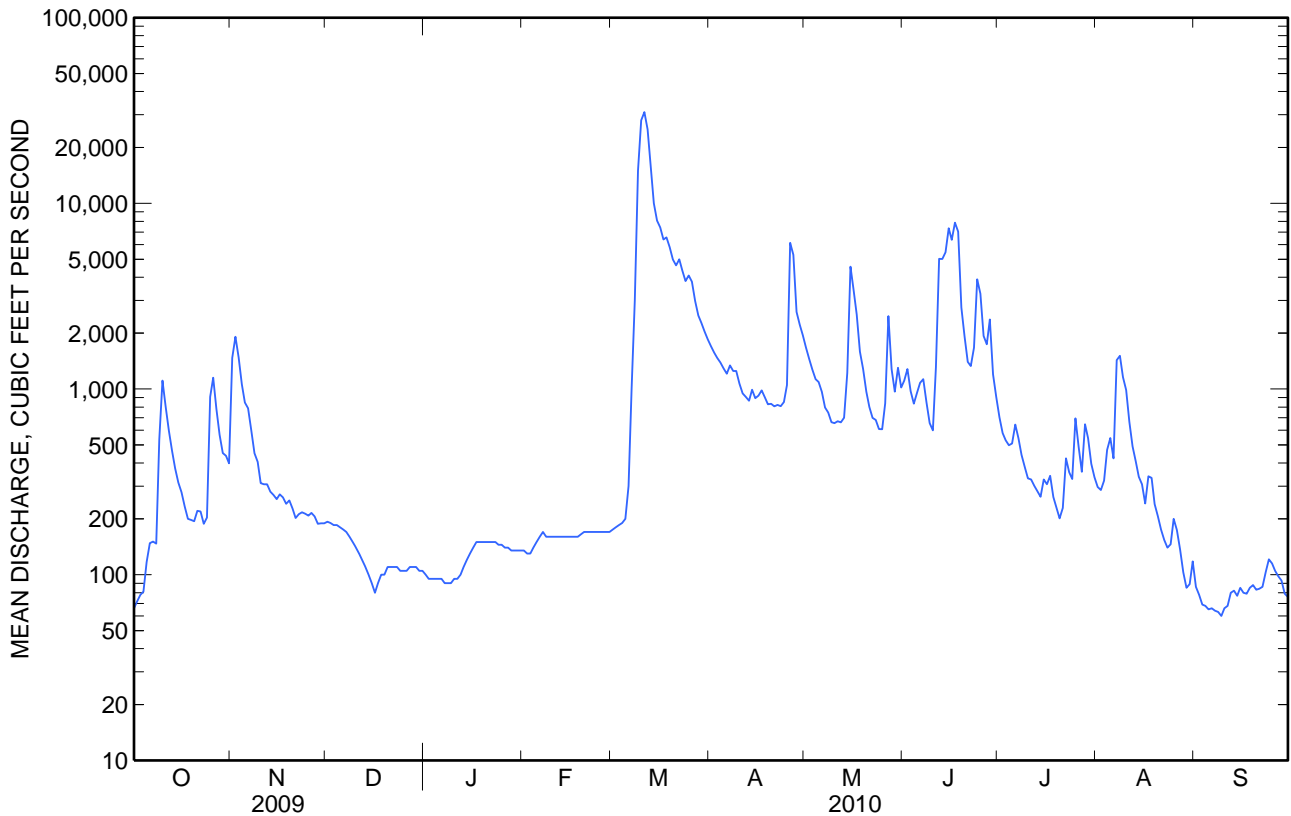
^a Median of annual mean discharges, 500 ft³/s.

^b No flow for some days in 1971, 1974, 1976, 1980, 1989, and 2006.

^c Discharge estimated, gage height, 20.81 ft.

^d Gage height, 15.40 ft, site and datum then in use.

^f Ice jam.



06452000 WHITE RIVER NEAR OACOMA, SD—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--October 1945 to September 1953, October 1968 to September 1969, October 1971 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1974 to September 1976, October 1977 to September 30, 1981.

WATER TEMPERATURE: October 1974 to September 1976, October 1978 to September 1988.

SUSPENDED-SEDIMENT DISCHARGE: October 1971 to September 1976, October 1981 to current year.

REMARKS.--Sediment discharge records good except those for estimated daily concentrations and/or discharges, which are poor. Observer collects samples on a daily basis during open water periods. Sediment-discharge records prior to Oct. 1, 1971, on file in the District office, U.S. Army Corps of Engineers, Omaha, NE.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily, 1,950 microsiemens, Aug. 8, 1980; minimum daily, 370 microsiemens, Mar. 17, 1975.

WATER TEMPERATURE: Maximum daily, 33.5°C, Jul. 18, 1986; minimum daily, -1.0°C on many days during winter periods.

SEDIMENT CONCENTRATION: Maximum daily mean, 72,300 mg/L, Apr. 15, 1974; minimum daily mean, 11 mg/L, Aug. 5, 2002.

SEDIMENT LOAD: Maximum daily, 1,640,000 tons, May 17, 1982; minimum daily, 0 ton, Jul. 17-23, 1974, Aug. 29 to Sept. 9, 13, 1976, Aug. 11-23, 26 to Sept. 5, 1989, and Aug. 5-13, 2006.

EXTREMES FOR CURRENT YEAR.--

SEDIMENT CONCENTRATION: Maximum daily mean, 34,200 mg/L, Oct. 26; minimum daily mean, 50 mg/L estimated, Feb. 2.

SEDIMENT LOAD: Maximum daily, 527,000 tons, Mar. 11; minimum daily, 17 tons, Jan. 7 - 11.

06452000 WHITE RIVER NEAR OACOMA, SD—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010

[e, estimated]

Day	Mean discharge (ft ³ /s)	Mean concentration (mg/L)	Sediment discharge (tons/day)	Mean discharge (ft ³ /s)	Mean concentration (mg/L)	Sediment discharge (tons/day)	Mean discharge (ft ³ /s)	Mean concentration (mg/L)	Sediment discharge (tons/day)
	October			November			December		
1	66	2,790	488	1,470	17,400	90,400	193	264	137
2	72	2,650	517	1,910	30,500	157,000	e190	238	122
3	78	2,520	532	1,480	25,200	101,000	e185	e226	113
4	81	2,000	434	1,060	19,500	56,100	e185	e216	108
5	117	1,510	471	846	14,600	33,500	e180	e206	100
6	148	1,450	582	787	11,600	24,800	e175	e197	93
7	151	1,220	495	599	9,310	15,100	e170	e187	86
8	147	1,130	449	451	7,550	9,200	e160	e177	77
9	534	4,700	14,200	405	5,960	6,550	e150	e168	68
10	1,110	32,100	94,500	311	4,880	4,110	e140	e158	60
11	801	e32,900	71,300	307	4,040	3,340	e130	e148	52
12	596	e29,900	48,200	307	3,280	2,730	e120	e139	45
13	464	26,300	33,100	280	2,790	2,120	e110	e129	38
14	374	20,700	21,000	269	2,050	1,490	e100	e119	32
15	314	15,400	13,100	255	1,880	1,300	e90	e110	27
16	278	12,200	9,180	271	1,750	1,280	e80	e101	22
17	233	9,570	6,060	261	1,500	1,060	e90	e98	24
18	200	7,750	4,170	241	921	602	e100	e97	26
19	197	6,160	3,280	251	642	434	e100	e95	26
20	194	5,180	2,730	227	529	325	e110	e94	28
21	221	4,130	2,460	202	435	237	e110	e92	27
22	219	3,570	2,120	212	404	231	e110	e91	27
23	188	3,220	1,630	217	375	220	e110	e89	26
24	203	3,140	1,720	213	331	190	e105	e88	25
25	906	13,700	50,100	208	308	174	e105	e86	24
26	1,150	34,200	106,000	215	e281	163	e105	e84	24
27	782	31,800	67,400	206	257	143	e110	e83	25
28	567	25,500	39,300	188	247	125	e110	e81	24
29	452	18,900	23,200	189	239	122	e110	e80	24
30	437	13,900	16,300	189	240	123	e105	e78	22
31	398	9,640	10,400	---	---	---	e105	e77	22
Total	11,678	---	645,418	14,027	---	514,169	3,943	---	1,554

06452000 WHITE RIVER NEAR OACOMA, SD—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010

[e, estimated]

Day	Mean discharge (ft ³ /s)	Mean concentration (mg/L)	Sediment discharge (tons/day)	Mean discharge (ft ³ /s)	Mean concentration (mg/L)	Sediment discharge (tons/day)	Mean discharge (ft ³ /s)	Mean concentration (mg/L)	Sediment discharge (tons/day)
	January			February			March		
1	e100	e75	20	e135	e51	19	e175	e127	60
2	e95	e74	19	e130	e50	18	e180	e129	62
3	e95	e73	19	e130	e52	18	e185	133	66
4	e95	e73	19	e140	e62	24	e190	e163	84
5	e95	e72	18	e150	e75	30	e200	e349	189
6	e95	e71	18	e160	e87	38	e300	e1,430	1,160
7	e90	e70	17	e170	e99	45	e1,000	e2,660	7,150
8	e90	e69	17	e160	e101	44	e3,000	e3,900	31,400
9	e90	e68	17	e160	e102	44	e15,000	5,130	206,000
10	e95	e68	17	e160	e104	45	e28,000	6,170	464,000
11	e95	e67	17	e160	e105	45	e31,000	6,300	527,000
12	e100	e66	18	e160	e106	46	e25,000	5,800	392,000
13	e110	e65	19	e160	e107	46	e16,000	5,120	222,000
14	e120	e64	21	e160	e109	47	e10,000	e4,740	129,000
15	e130	e64	22	e160	e110	48	8,070	4,550	99,100
16	e140	e63	24	e160	e111	48	7,410	5,050	101,000
17	e150	e62	25	e160	e112	49	6,380	5,670	97,600
18	e150	e61	25	e160	e114	49	6,550	6,530	116,000
19	e150	e60	24	e165	e115	51	e5,800	7,920	124,000
20	e150	e59	24	e170	e116	53	4,980	7,810	105,000
21	e150	e59	24	e170	e117	54	4,630	6,720	83,800
22	e150	e58	23	e170	e119	54	4,990	5,530	74,700
23	e150	e57	23	e170	e120	55	4,350	4,320	51,000
24	e145	e56	22	e170	e121	56	3,810	3,500	35,900
25	e145	e55	22	e170	e122	56	4,090	3,380	37,300
26	e140	e54	21	e170	e124	57	3,780	3,310	33,800
27	e140	e54	20	e170	e125	57	2,980	3,230	26,100
28	e135	e53	19	e170	e126	58	2,490	2,710	18,300
29	e135	52	19	---	---	---	2,270	2,160	13,300
30	e135	e52	19	---	---	---	2,040	1,700	9,410
31	e135	e51	19	---	---	---	1,850	1,420	7,120
Total	3,795	---	631	4,470	---	1,254	206,700	---	3,013,601

06452000 WHITE RIVER NEAR OACOMA, SD—Continued

**SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)
 WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010**

[e, estimated]

Day	Mean discharge (ft ³ /s)	Mean concentration (mg/L)	Sediment discharge (tons/ day)	Mean discharge (ft ³ /s)	Mean concentration (mg/L)	Sediment discharge (tons/ day)	Mean discharge (ft ³ /s)	Mean concentration (mg/L)	Sediment discharge (tons/ day)
	April			May			June		
1	1,700	1,250	5,730	1,670	10,800	48,900	1,110	6,910	20,700
2	1,570	1,090	4,600	1,450	7,550	29,700	1,280	7,500	25,900
3	1,470	982	3,890	1,270	4,690	16,100	973	6,460	17,000
4	1,390	851	3,200	1,130	3,170	9,740	834	5,210	11,800
5	1,290	727	2,530	1,090	2,270	6,690	954	e4,400	11,300
6	1,210	650	2,120	967	1,710	4,490	1,080	e3,650	10,600
7	1,340	769	2,790	795	1,300	2,790	1,130	3,010	9,150
8	1,250	1,010	3,430	746	1,230	2,490	847	2,670	6,160
9	1,250	1,770	5,980	663	1,150	2,050	655	2,230	3,910
10	1,070	2,240	6,470	655	1,020	1,800	599	4,710	7,590
11	948	2,020	5,170	671	790	1,430	1,310	6,330	23,900
12	906	1,760	4,300	661	732	1,310	5,020	9,200	125,000
13	865	1,620	3,790	700	860	1,630	5,010	e6,820	94,000
14	992	1,600	4,280	1,220	2,270	12,800	5,450	4,360	63,200
15	893	1,330	3,200	4,560	14,600	178,000	7,340	4,120	81,800
16	922	1,190	2,970	3,440	e16,600	155,000	6,360	3,890	66,800
17	984	1,730	4,600	2,520	16,600	114,000	7,870	6,860	166,000
18	901	1,600	3,910	1,590	14,200	61,600	7,040	19,900	365,000
19	828	1,330	2,980	1,280	9,300	32,400	2,750	22,100	165,000
20	832	1,100	2,480	969	8,160	21,400	1,920	e19,500	101,000
21	806	1,120	2,440	800	5,910	12,800	1,400	16,500	62,300
22	821	964	2,140	699	3,860	7,300	1,330	13,000	46,600
23	808	857	1,870	682	2,650	4,910	1,670	9,720	43,500
24	851	1,110	2,610	608	1,690	2,780	3,900	9,410	99,800
25	1,050	e2,120	6,020	607	1,300	2,130	3,260	13,000	113,000
26	6,120	11,200	242,000	837	1,250	3,590	1,930	13,200	68,500
27	5,280	26,600	377,000	2,470	8,970	57,900	1,740	e13,300	63,100
28	2,600	25,400	179,000	1,280	e14,400	49,100	2,370	16,400	105,000
29	2,220	19,500	117,000	969	16,500	43,200	1,200	14,400	46,700
30	1,950	15,000	79,000	1,300	e13,400	46,200	907	13,000	31,900
31	---	---	---	1,020	e9,680	26,900	---	---	---
Total	45,117	---	1,087,500	39,319	---	961,130	79,239	---	2,056,210

06452000 WHITE RIVER NEAR OACOMA, SD—Continued

**SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)
 WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010**

[e, estimated]

Day	Mean discharge (ft ³ /s)	Mean concentration (mg/L)	Sediment discharge (tons/day)	Mean discharge (ft ³ /s)	Mean concentration (mg/L)	Sediment discharge (tons/day)	Mean discharge (ft ³ /s)	Mean concentration (mg/L)	Sediment discharge (tons/day)
1	705	10,900	20,900	297	e12,100	9,690	86	3,500	818
2	579	8,940	14,000	286	10,000	7,730	78	2,030	427
3	530	6,950	9,950	321	8,940	7,790	69	2,170	406
4	498	e5,710	7,690	470	10,200	12,900	68	1,660	307
5	509	e4,550	6,250	545	9,780	14,400	65	1,520	267
6	643	3,580	6,180	423	6,800	7,740	66	1,420	255
7	542	3,340	4,900	1,430	13,900	55,800	64	1,320	228
8	442	2,890	3,460	1,510	e21,100	85,600	63	1,190	202
9	381	1,790	1,860	1,160	24,000	74,700	60	919	151
10	330	916	812	988	21,500	57,700	66	537	95
11	326	728	642	666	17,400	31,400	68	399	73
12	301	645	523	491	16,800	22,200	80	467	101
13	282	703	535	408	16,000	17,600	82	524	116
14	263	634	451	337	12,900	11,800	77	428	89
15	326	839	747	307	9,800	8,130	85	460	106
16	307	890	737	242	6,870	4,520	80	441	95
17	341	837	770	339	5,730	5,440	79	478	102
18	262	656	467	332	8,330	7,420	85	457	105
19	230	563	349	240	7,430	4,820	88	385	91
20	201	863	468	207	6,410	3,580	83	345	77
21	229	1,200	759	175	7,200	3,400	84	415	94
22	423	1,930	2,220	154	6,860	2,850	86	349	81
23	356	1,900	1,830	140	6,150	2,330	103	451	127
24	328	1,790	1,590	146	4,930	1,950	121	774	254
25	695	e4,760	9,860	200	5,670	3,050	115	523	162
26	488	11,500	15,000	174	7,790	3,660	105	416	118
27	358	13,000	12,600	137	6,460	2,410	98	344	91
28	646	10,700	18,800	103	4,430	1,240	93	307	78
29	544	13,100	19,100	85	e5,640	1,300	79	301	64
30	396	13,500	14,400	89	6,830	1,630	76	340	67
31	335	13,900	12,600	118	5,980	1,930	---	---	---
Total	12,796	---	190,450	12,520	---	476,710	2,452	---	5,247

	Total discharge (ft ³ /s)	Total suspended sediment discharge (tons)
Year	436,056	8,953,874

06452000 WHITE RIVER NEAR OACOMA, SD—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2009 TO SEPTEMBER 2010

[ft³/s, cubic feet per second; mg/L, milligrams per liter; mm, millimeters; °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)	Suspended sediment, sieve diameter, percent smaller than 0.0625 mm (70331)	Suspended sediment concentration, mg/L (80154)	Suspended sediment discharge, tons per day (80155)
10-05-2009	1125	120	558	7.0	8.5	100	1,420	460
11-16-2009	1125	272	583	2.0	1.0	99	1,720	1,260
01-29-2010	1140	134	932	-4.0	.0	78	52	19
03-03-2010	1335	183	691	4.0	.0	77	130	64
03-16-2010	1630	7,370	628	4.5	1.0	70	5,180	103,000
04-30-2010	1255	1,910	748	12.0	13.5	97	14,600	75,300
06-10-2010	1130	642	705	25.5	20.0	100	5,080	8,810
07-12-2010	1020	306	828	22.5	22.5	99	614	507
09-02-2010	1015	81	740	17.0	17.0	100	1,750	382