

Water-Data Report 2009

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.--10,200 mi² of which 260 mi² probably is noncontributing.

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 2008 TO SEPTEMBER 2009
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	92	78	e130	e45	e100	e2,000	e1,250	899	208	388	151	101
2	93	72	e110	e45	e95	e1,500	1,020	1,540	222	347	136	91
3	96	67	e105	e40	e90	e1,300	1,320	1,040	218	887	124	85
4	87	67	e95	e40	e90	e1,500	1,570	850	206	2,110	131	81
5	81	67	e85	e40	e100	e2,000	e1,200	720	198	684	173	75
6	76	e60	e90	e40	e100	e5,000	1,240	647	216	461	170	67
7	78	e55	e95	e40	e200	e4,000	1,640	605	218	480	282	69
8	78	e50	e85	e40	e190	e3,000	1,780	570	248	794	455	65
9	70	e1,600	e70	e40	e250	e3,000	1,650	536	275	825	794	64
10	57	e750	e90	e40	e1,500	e2,500	1,410	505	310	578	699	64
11	52	e700	e95	e40	e3,000	e2,000	5,440	490	323	515	543	76
12	76	e720	e95	e40	e12,000	e1,700	5,530	477	299	457	394	65
13	128	777	e90	e40	e10,000	e1,400	6,610	476	298	481	376	98
14	109	756	e80	e45	e8,000	e2,500	5,460	467	432	495	503	62
15	94	629	e70	e40	e6,000	e3,000	5,610	443	429	2,640	705	57
16	576	786	e60	e40	e5,000	e3,500	3,970	434	372	2,230	530	57
17	899	1,420	e50	e45	e4,500	e3,000	3,590	404	355	1,840	468	63
18	549	1,020	e45	e45	e4,000	e2,000	2,680	365	365	1,230	817	61
19	387	841	e45	e45	e3,000	e1,500	2,640	348	961	951	2,120	59
20	285	608	e45	e50	e2,000	e1,000	3,260	326	1,150	780	1,020	54
21	229	e490	e40	e55	e2,000	870	5,090	304	713	607	821	46
22	225	e435	e40	e60	e1,000	719	2,700	275	611	512	856	66
23	204	e380	e40	e65	e1,200	629	1,950	300	600	417	588	85
24	154	e310	e40	e60	e2,000	588	1,550	283	570	353	455	64
25	130	e285	e40	e55	e3,000	546	1,290	272	468	310	350	80
26	e110	e230	e40	e50	e5,000	540	1,150	268	460	276	275	79
27	e100	e235	e40	e50	e4,000	506	1,040	261	2,000	234	239	72
28	e85	e210	e40	e50	e3,000	541	986	253	622	200	200	73
29	73	e190	e45	e55	---	553	931	237	445	205	162	64
30	84	e160	e40	e60	---	774	887	224	427	181	135	56
31	77	---	e40	e80	---	800	---	213	---	158	117	---
Total	5,434	14,048	2,075	1,480	81,415	54,466	76,444	15,032	14,219	22,626	14,789	2,099
Mean	175	468	66.9	47.7	2,908	1,757	2,548	485	474	730	477	70.0
Max	899	1,600	130	80	12,000	5,000	6,610	1,540	2,000	2,640	2,120	101
Min	52	50	40	40	90	506	887	213	198	158	117	46
Ac-ft	10,780	27,860	4,120	2,940	161,500	108,000	151,600	29,820	28,200	44,880	29,330	4,160

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 2009, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	192	169	94.3	84.3	356	1,290	1,044	1,307	1,284	485	308	200
Max	1,217	1,445	449	592	3,146	5,856	4,726	13,630	5,985	3,553	1,702	1,074
(WY)	(1999)	(1999)	(1999)	(1997)	(1997)	(1978)	(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 2008		Water Year 2009		Water Years 1929 - 2009	
Annual total	206,336		304,127			
Annual mean	564		833		^a 568	
Highest annual mean					1,729	1942
Lowest annual mean					151	1934
Highest daily mean	15,200	Jun 7	12,000	Feb 12	44,000	Mar 30, 1952
Lowest daily mean	40	Dec 21	40	Dec 21	^b 0.00	Aug 14, 1971
Annual seven-day minimum	40	Dec 21	40	Dec 21	0.00	Aug 14, 1971
Maximum peak flow			^c 25,000	Feb 11	^d 51,900	Mar 30, 1952
Maximum peak stage			^f 20.03	Feb 11	^g 24.70	Mar 4, 1994
Annual runoff (ac-ft)	409,300		603,200		411,700	
10 percent exceeds	1,140		2,160		1,210	
50 percent exceeds	192		304		168	
90 percent exceeds	50		50		33	

^a Median of annual mean discharges, 480 ft³/s.

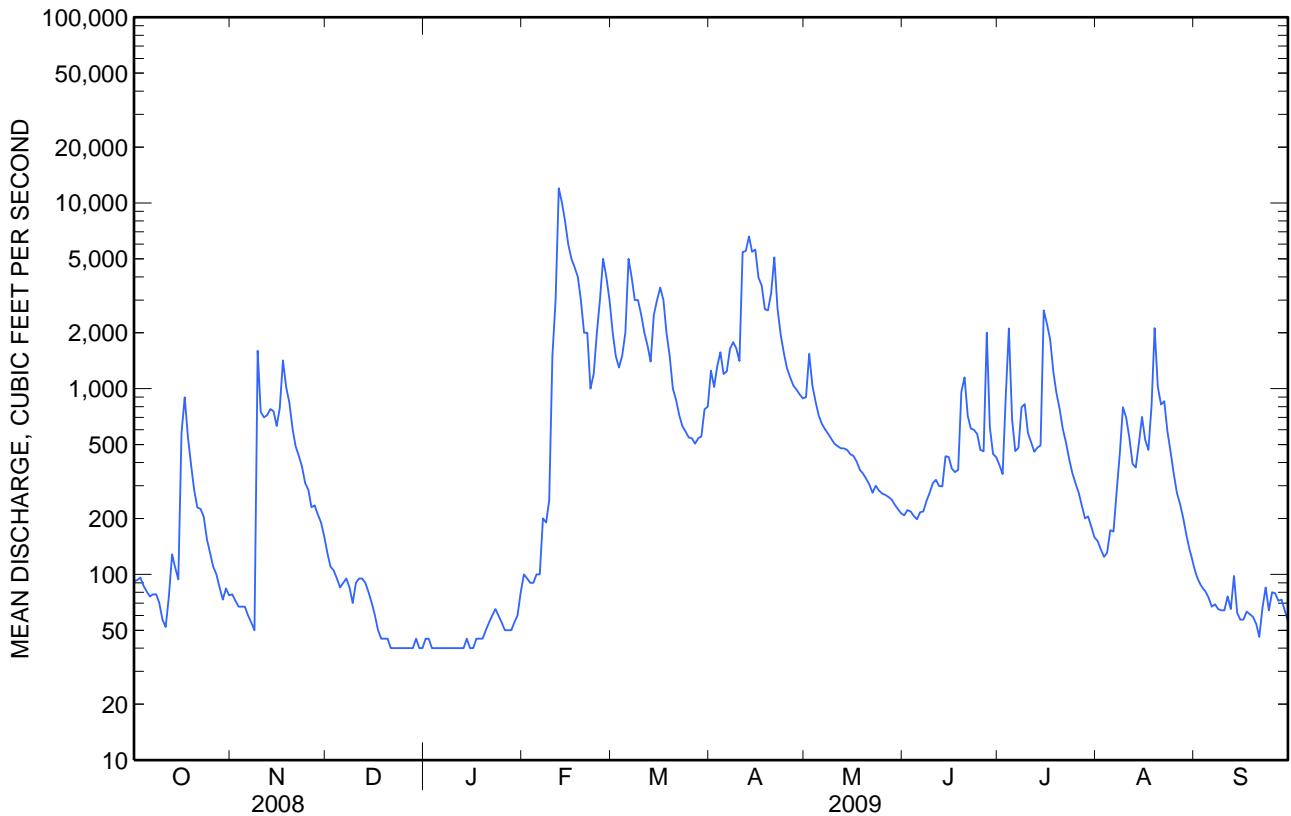
^b No flow for some days in 1971, 1974, 1976, 1980, 1989 and 2006.

^c Estimated.

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

^f Backwater from ice.

^g 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 October 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, August 8, 1980; minimum daily, 370 microsiemens, March 17, 1975.

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

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

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

EXTREMES FOR CURRENT YEAR.--

SEDIMENT CONCENTRATION: Maximum daily mean, 40,300 mg/L, Oct. 17; minimum daily mean, 35 mg/L, Feb. 3.

SEDIMENT LOAD: Maximum daily, 472,000 tons, Feb. 12; minimum daily, 4.7 tons, Jan. 15, 16.

06452000 WHITE RIVER NEAR OACOMA, SD—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)
WATER YEAR OCTOBER 2008 TO SEPTEMBER 2009

[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	92	791	192	78	3,230	682	e130	e362	127
2	93	3,390	852	72	2,560	499	e110	330	98
3	96	10,700	2,770	67	1,930	351	e105	e339	96
4	87	10,600	2,510	67	1,840	333	e95	e325	83
5	81	9,360	2,050	67	1,840	330	e85	e311	71
6	76	8,050	1,660	e60	1,820	295	e90	e297	72
7	78	6,510	1,370	e55	e1,810	269	e95	e283	73
8	78	4,240	894	e50	e1,800	244	e85	e269	62
9	70	3,020	571	e1,600	e29,800	128,000	e70	e255	48
10	57	2,440	383	e750	e34,400	70,600	e90	e241	58
11	52	980	136	e700	e28,900	54,600	e95	e227	58
12	76	e1,210	251	e720	23,500	45,700	e95	e213	55
13	128	e1,780	617	777	19,000	39,800	e90	e199	48
14	109	e1,250	375	756	15,100	30,900	e80	e184	40
15	94	504	128	629	12,200	20,800	e70	e170	32
16	576	10,500	28,100	786	11,700	26,400	e60	e156	25
17	899	40,300	97,500	1,420	18,400	70,700	e50	e142	19
18	549	39,800	59,200	1,020	13,800	38,100	e45	e128	16
19	387	35,200	37,000	841	8,660	19,900	e45	e114	14
20	285	30,100	23,300	608	e4,050	6,790	e45	e101	12
21	229	23,600	14,600	e490	e2,750	3,640	e40	e95	10
22	225	17,100	10,300	e435	e2,040	2,400	e40	e91	9.8
23	204	12,200	6,770	e380	e1,570	1,610	e40	e86	9.3
24	154	10,500	4,380	e310	e1,130	951	e40	e82	8.8
25	130	8,990	3,160	e285	e747	576	e40	e77	8.3
26	e110	7,910	2,350	e230	e644	401	e40	e73	7.9
27	e100	6,890	1,860	e235	e587	373	e40	e68	7.4
28	e85	5,860	1,350	e210	e531	301	e40	e64	6.9
29	73	4,880	967	e190	e475	244	e45	e59	7.2
30	84	4,110	931	e160	e418	181	e40	e55	5.9
31	77	3,210	670	---	---	---	e40	e51	5.5
Total	5,434	---	307,197	14,048	---	565,970	2,075	---	1,194.0

06452000 WHITE RIVER NEAR OACOMA, SD—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)
WATER YEAR OCTOBER 2008 TO SEPTEMBER 2009

[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	e45	e50	6.0	e100	e36	9.8	e2,000	e2,800	15,200
2	e45	e49	6.0	e95	e36	9.2	e1,500	e2,400	9,760
3	e40	e49	5.3	e90	e35	8.6	e1,300	e2,090	7,350
4	e40	e48	5.2	e90	36	8.7	e1,500	e2,330	9,440
5	e40	e48	5.2	e100	e38	10	e2,000	e2,670	14,400
6	e40	e47	5.1	e100	e56	15	e5,000	e2,940	39,500
7	e40	e47	5.1	e200	e171	92	e4,000	e2,860	30,900
8	e40	e47	5.0	e190	e303	155	e3,000	e2,710	22,100
9	e40	e46	5.0	e250	e434	293	e3,000	e2,570	20,800
10	e40	e46	4.9	e1,500	e3,550	14,300	e2,500	e2,430	16,400
11	e40	e45	4.9	e3,000	e9,640	77,800	e2,000	e2,290	12,400
12	e40	e45	4.8	e12,000	14,700	472,000	e1,700	e2,140	9,850
13	e40	e44	4.8	e10,000	e13,100	354,000	e1,400	e2,060	7,800
14	e45	e44	5.3	e8,000	e10,500	228,000	e2,500	e2,330	15,700
15	e40	e44	4.7	e6,000	e8,110	132,000	e3,000	e2,670	21,600
16	e40	e43	4.7	e5,000	e6,330	85,700	e3,500	e2,950	27,800
17	e45	e43	5.2	e4,500	e4,670	56,800	e3,000	e2,910	23,600
18	e45	e42	5.1	e4,000	e3,180	34,400	e2,000	e2,830	15,400
19	e45	e42	5.1	e3,000	e2,800	22,800	e1,500	e2,740	11,100
20	e50	e41	5.6	e2,000	e2,600	14,100	e1,000	e2,660	7,210
21	e55	e41	6.1	e2,000	e2,400	13,000	870	e2,570	6,020
22	e60	e41	6.6	e1,000	e2,200	6,000	719	e2,480	4,830
23	e65	e40	7.0	e1,200	e2,110	6,820	629	e2,400	4,070
24	e60	e40	6.4	e2,000	e2,670	14,300	588	2,190	3,490
25	e55	e39	5.8	e3,000	e3,330	26,900	546	1,640	2,420
26	e50	e39	5.3	e5,000	e3,870	52,000	540	1,680	2,450
27	e50	e38	5.2	e4,000	e3,600	39,000	506	1,300	1,780
28	e50	e38	5.1	e3,000	e3,200	26,000	541	1,270	1,920
29	e55	e38	5.6	---	---	---	553	2,860	4,220
30	e60	e37	6.0	---	---	---	774	4,650	9,800
31	e80	e37	7.9	---	---	---	800	6,220	13,400
Total	1,480	---	170.0	81,415	---	1,676,521. 3	54,466	---	392,710

06452000 WHITE RIVER NEAR OACOMA, SD—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)
WATER YEAR OCTOBER 2008 TO SEPTEMBER 2009

[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	e1,250	7,750	26,100	899	1,850	4,580	208	253	142
2	1,020	9,290	25,600	1,540	4,130	16,900	222	275	165
3	1,320	10,600	37,900	1,040	6,110	17,100	218	260	153
4	1,570	10,600	44,800	850	7,480	17,200	206	246	137
5	e1,200	10,300	33,500	720	6,510	12,700	198	240	128
6	1,240	9,900	33,200	647	5,250	9,190	216	259	151
7	1,640	9,170	40,500	605	3,880	6,350	218	e263	155
8	1,780	10,900	52,400	570	2,380	3,660	248	378	253
9	1,650	9,190	41,200	536	1,580	2,290	275	382	284
10	1,410	9,860	37,400	505	1,260	1,720	310	508	425
11	5,440	21,500	322,000	490	1,020	1,340	323	478	417
12	5,530	e21,500	322,000	477	882	1,130	299	507	409
13	6,610	19,600	350,000	476	840	1,080	298	872	703
14	5,460	16,000	236,000	467	833	1,050	432	2,790	3,350
15	5,610	13,900	211,000	443	844	1,010	429	5,340	6,100
16	3,970	11,400	122,000	434	852	998	372	8,850	8,880
17	3,590	9,070	88,500	404	897	978	355	9,060	8,680
18	2,680	7,080	51,200	365	930	916	365	5,810	5,710
19	2,640	5,780	41,400	348	939	884	961	6,040	18,100
20	3,260	5,760	53,800	326	1,100	969	1,150	14,800	44,700
21	5,090	10,200	139,000	304	1,190	976	713	17,400	33,400
22	2,700	12,200	89,100	275	1,020	762	611	18,100	29,900
23	1,950	11,200	59,400	300	600	486	600	15,500	25,000
24	1,550	8,900	37,400	283	e730	560	570	13,200	20,400
25	1,290	6,620	23,200	272	e579	424	468	10,200	12,900
26	1,150	4,920	15,300	268	434	315	460	4,360	5,450
27	1,040	3,400	9,530	261	333	235	2,000	12,700	68,100
28	986	2,440	6,500	253	316	216	622	8,260	14,500
29	931	1,830	4,610	237	297	190	445	2,400	2,930
30	887	1,560	3,750	224	269	163	427	1,810	2,090
31	---	---	---	213	256	148	---	---	---
Total	76,444	---	2,558,290	15,032	---	106,520	14,219	---	313,712

06452000 WHITE RIVER NEAR OACOMA, SD—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)
WATER YEAR OCTOBER 2008 TO SEPTEMBER 2009

[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)
	July			August			September		
1	388	1,250	1,310	151	721	295	101	1,950	532
2	347	671	633	136	655	240	91	1,920	472
3	887	8,240	27,500	124	559	187	85	1,630	372
4	2,110	e14,700	87,900	131	481	172	81	1,290	282
5	684	e7,450	14,400	173	865	407	75	995	201
6	461	1,380	1,800	170	790	368	67	805	147
7	480	2,230	3,460	282	1,580	1,290	69	626	117
8	794	11,800	26,100	455	3,140	3,850	65	464	81
9	825	22,200	49,200	794	e4,470	9,630	64	382	66
10	578	19,500	30,600	699	2,970	5,680	64	405	69
11	515	17,300	24,100	543	2,490	3,650	76	638	131
12	457	14,900	18,400	394	2,570	2,730	65	570	102
13	481	12,300	15,800	376	3,260	3,300	98	e1,100	296
14	495	8,850	11,800	503	4,960	7,720	62	636	110
15	2,640	23,300	214,000	705	12,400	23,400	57	353	54
16	2,230	33,400	205,000	530	13,200	18,900	57	242	37
17	1,840	23,000	116,000	468	12,300	15,500	63	201	34
18	1,230	17,100	57,300	817	10,800	30,100	61	187	31
19	951	14,000	36,000	2,120	30,600	171,000	59	204	32
20	780	10,700	22,600	1,020	28,600	79,100	54	337	49
21	607	6,380	10,600	821	25,700	57,000	46	593	73
22	512	4,010	5,570	856	24,200	56,200	66	1,280	232
23	417	3,080	3,480	588	20,500	32,700	85	1,260	288
24	353	2,390	2,290	455	17,000	21,000	64	814	142
25	310	1,940	1,620	350	15,500	14,700	80	544	117
26	276	2,140	1,590	275	11,400	8,490	79	776	164
27	234	2,180	1,380	239	8,750	5,650	72	2,140	414
28	200	1,440	779	200	6,960	3,770	73	3,500	689
29	205	1,250	688	162	5,030	2,210	64	4,090	710
30	181	1,080	532	135	3,610	1,320	56	3,500	522
31	158	773	331	117	2,400	760	---	---	---
Total	22,626	---	992,763	14,789	---	581,319	2,099	---	6,566

	Total discharge (ft ³ /s)	Total suspended sediment discharge (tons)
Year	304,127	7,502,932.3

06452000 WHITE RIVER NEAR OACOMA, SD—Continued

WATER-QUALITY DATA
WATER YEAR OCTOBER 2008 TO SEPTEMBER 2009

Date	Time	Instantaneous discharge, ft ³ /s (00061)	Specific conductance, μ S/cm @ 25 degC (00095)	Temperature, air, deg C (00020)	Temperature, water, deg C (00010)	Suspnd. sediment sieve diameter <0.0625 mm (70331)	Suspended sediment concentration mg/L (80154)	Suspended sediment discharge, tons/d (80155)
Oct								
16...	0940	230	525	7.5	7.0	98	3,990	2,480
16...	1115	450	552	9.0	8.5	--	--	--
16...	1355	640	537	18.0	10.0	--	--	--
Dec								
02...	1235	88	534	8.0	.0	100	296	70
Feb								
04...	1140	89	613	-2.0	.0	96	35	8.4
12...	1540	8,520	483	4.5	.5	--	--	--
Apr								
08...	1200	1,790	628	8.5	4.5	96	10,800	52,200
08...	1550	1,620	--	12.0	7.0	--	--	--
14...	1540	5,080	616	21.5	11.5	93	15,600	214,000
Jun								
01...	1130	214	703	20.5	20.0	99	233	135
Jul								
17...	1330	1,910	600	20.5	22.5	98	21,200	109,000
Aug								
26...	1105	277	543	19.5	21.0	100	11,000	8,230