

Figure 70. Location of surface-water stations in the Cowlitz River Basin, including the Toulte River Basin.

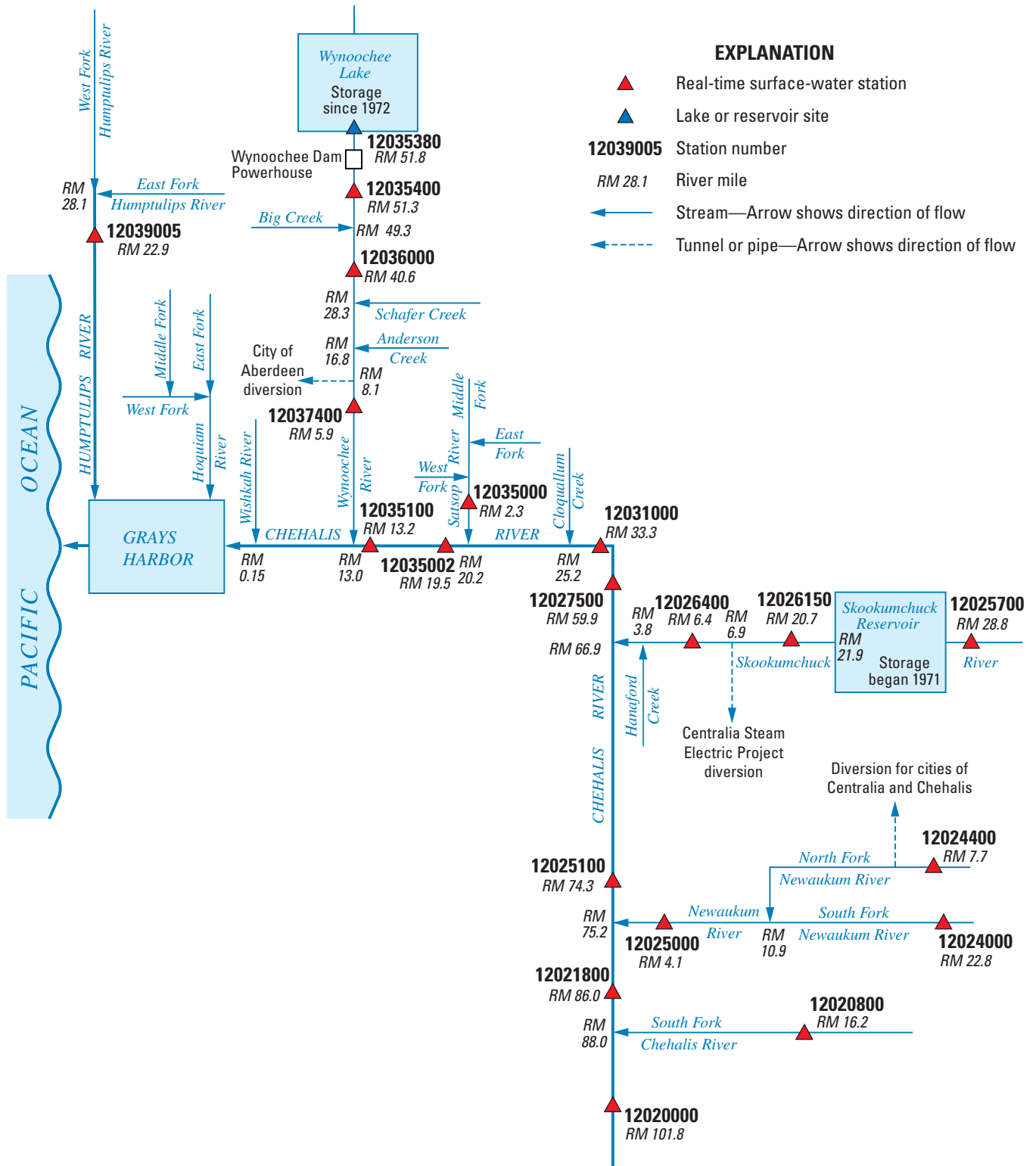


Figure 71. Schematic diagram showing surface-water stations in the Cowlitz River Basin, including the Toutle River Basin.

14226500 COWLITZ RIVER AT PACKWOOD, WA

LOCATION.--Lat 46°36'47", long 121°40'41", in SE¼SE¼ sec.16, T.13 N., R.9 E., Lewis County, Hydrologic Unit 17080004, on right bank on upstream side of Forest Service bridge, 0.6 mi northwest of Packwood, 0.8 mi upstream from Skate Creek, and at mile 126.5.

DRAINAGE AREA.--287 mi².

PERIOD OF RECORD.--July 1911 to December 1919, September 1929 to current year. Published as "at Lewis" 1911-19.

REVISED RECORDS.--WSP 884: 1938. WSP 1348: 1916-18(M), 1934. WSP 1638: 1947(P).

GAGE.--Water-stage recorder. Datum of gage is 1,048.0 ft above NGVD of 1929 (Bureau of Public Roads benchmark). July 1, 1911, to Dec. 31, 1919, nonrecording gages at site about 1 mi upstream at different datums. Sept. 30, 1929, to Jan. 1, 1930, nonrecording gage at present site and datum.

REMARKS.--No estimated daily discharges. Records fair. Minor regulation by Packwood Lake beginning June 1964. Small diversions for domestic use. Water temperatures November 1970 to April 1971. U.S. Geological Survey satellite telemeter at station. Water is diverted from Packwood Lake for power generation and is discharged into Cowlitz River about 1 mi downstream from station. Monthly mean diversion in cubic feet per second for the current water year, as furnished by Energy Northwest is as follows:

October	9.0	January	89.8	April	64.7	July	55.3
November	83.6	February	43.7	May	131	August	31.6
December	97.9	March	41.4	June	92.5	September	76.3

AVERAGE DISCHARGE.--76 years (water years 1930-2005), 1,587 ft³/s, 1,150,000 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 36,600 ft³/s, Dec. 21, 1933, gage height, 13.0 ft; maximum gage height, 13.73 ft, Dec. 2, 1977; minimum discharge, 130 ft³/s, Nov. 29, 1952.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 7,500 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Dec 11	0445	12,800	8.49	Jan 18	0900	*16,700	*10.23

Minimum discharge, 171 ft³/s, Sept. 23-25, gage height, 0.70 ft.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	496	995	941	676	1,190	426	1,540	1,820	1,630	764	470	424
2	461	4,530	777	657	1,090	412	1,530	1,780	1,380	674	408	442
3	482	3,520	676	643	1,020	397	1,430	1,750	1,280	590	416	381
4	454	2,870	614	639	1,050	377	1,340	1,840	1,190	620	432	317
5	435	2,410	573	648	1,010	370	1,190	1,910	1,140	647	462	277
6	770	1,930	529	639	940	362	1,150	1,870	1,050	874	505	283
7	554	1,500	512	631	875	378	1,350	1,780	979	745	508	336
8	578	1,200	809	636	816	412	1,420	1,570	932	786	499	401
9	919	989	1,280	634	777	446	1,300	1,680	888	1,120	506	391
10	795	840	6,700	625	730	491	1,170	2,590	874	744	487	323
11	599	721	9,650	622	699	538	1,210	2,210	964	691	451	294
12	529	646	4,550	616	686	584	1,110	2,010	1,020	658	459	248
13	551	589	3,030	604	668	546	1,010	1,850	939	590	463	248
14	568	536	2,820	602	619	496	927	2,010	908	553	466	266
15	496	540	2,580	601	558	463	908	2,330	844	592	477	250
16	639	559	2,170	615	535	467	1,780	2,330	831	594	464	249
17	2,100	482	1,920	2,400	525	447	2,110	1,860	1,070	541	464	245
18	1,960	558	1,810	13,800	511	418	1,710	1,760	945	589	422	246
19	1,660	507	2,040	8,820	498	433	1,510	2,420	896	608	411	262
20	1,410	428	1,950	5,480	472	611	1,450	2,140	885	574	416	253
21	1,490	395	1,680	4,500	449	590	1,550	1,890	929	569	489	244
22	1,600	384	1,490	3,510	433	497	1,810	1,960	960	692	570	250
23	1,660	398	1,240	3,420	415	457	2,220	1,750	849	642	477	217
24	1,350	1,930	1,060	2,780	408	422	3,040	1,590	796	581	435	221
25	1,110	4,530	987	2,360	401	400	3,250	1,510	770	526	436	228
26	969	2,940	927	2,100	394	661	3,160	1,530	765	525	466	251
27	848	2,310	823	1,940	388	2,720	3,140	1,600	768	537	482	261
28	777	1,820	773	1,710	407	2,790	2,780	1,760	847	553	510	260
29	712	1,440	764	1,520	---	2,100	2,100	1,870	819	543	477	1,190
30	876	1,180	735	1,390	---	1,740	1,920	1,720	825	517	354	3,580
31	825	---	693	1,300	---	1,460	---	1,600	---	515	364	---
TOTAL	28,673	43,677	57,103	67,118	18,564	22,911	52,115	58,290	28,973	19,754	14,246	12,838
MEAN	925	1,456	1,842	2,165	663	739	1,737	1,880	966	637	460	428
MAX	2,100	4,530	9,650	13,800	1,190	2,790	3,250	2,590	1,630	1,120	570	3,580
MIN	435	384	512	601	388	362	908	1,510	765	515	354	217
AC-FT	56,870	86,630	113,300	133,100	36,820	45,440	103,400	115,600	57,470	39,180	28,260	25,460

14226500 COWLITZ RIVER AT PACKWOOD, WA—Continued

DISCHARGE, CUBIC FEET PER SECOND—CONTINUED
WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 2005, BY WATER YEAR (WY)													
MEAN	812	1,597	1,751	1,548	1,403	1,230	1,719	2,802	3,025	1,758	819	581	
MAX	2,683	5,023	6,025	4,104	4,690	3,478	2,833	5,209	6,085	4,265	1,824	1,527	
(WY)	(1956)	(1996)	(1934)	(1974)	(1996)	(1972)	(1991)	(1949)	(1974)	(1933)	(1999)	(1959)	
MIN	237	196	319	364	396	495	668	1,548	842	527	445	344	
(WY)	(1988)	(1953)	(1953)	(1937)	(1933)	(1955)	(1975)	(1977)	(1992)	(1992)	(1987)	(1987)	
SUMMARY STATISTICS													
	FOR 2004 CALENDAR YEAR					FOR 2005 WATER YEAR			WATER YEARS 1930 - 2005				
ANNUAL TOTAL	649,648					424,262							
ANNUAL MEAN	1,775					1,162			1,587				
HIGHEST ANNUAL MEAN									2,411				
LOWEST ANNUAL MEAN									923				
HIGHEST DAILY MEAN	9,650					Dec 11		13,800		Jan 18		27,700	
LOWEST DAILY MEAN	384					Nov 22		217		Sep 23		144	
ANNUAL SEVEN-DAY MINIMUM	450					Nov 17		238		Sep 20		156	
ANNUAL RUNOFF (AC-FT)	1,289,000					841,500			1,150,000				
10 PERCENT EXCEEDS	3,150					2,190			3,350				
50 PERCENT EXCEEDS	1,500					764			1,090				
90 PERCENT EXCEEDS	606					398			449				

14231000 COWLITZ RIVER AT RANDLE, WA

LOCATION.--Lat 46°31'57", long 121°57'20". in NW¼NE¼ sec.17, T.12 N., R.7 E., Lewis County, Hydrologic Unit 17080004, on left bank on upstream side of Cispus Road bridge in the town of Randle, and at mile 102.9.

DRAINAGE AREA.--541 mi².

PERIOD OF RECORD.--October 1910 to December 1911, October 1993 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 900 ft above NGVD of 1929 from topographic map. October 1910 to December 1911, nonrecording gage at same site at different datum.

REMARKS.--Records good except estimated daily discharges, which are fair. Small diversions for domestic use and irrigation upstream from station. Minor regulation by Packwood Lake for power production. U.S. Geological Survey satellite telemeter at station. Due to bank overflow, discharges above 19.00 ft gage height cannot be determined by direct methods.

AVERAGE DISCHARGE.--12 years (water years 1994-2005), 2,773 ft³/s, 69.65 in/yr, 2,009,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 24.90 ft, Feb. 9, 1996, from outside high-water mark; minimum daily discharge, 278 ft³/s, Nov. 3, 4, 2002.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 19,900 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan 18	1945	*unknown	*20.11	No other peak greater than base discharge.			

Minimum discharge, 343 ft³/s, Sept. 26, gage height, 3.49 ft.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,030	1,640	2,120	1,570	2,460	912	3,230	3,320	2,840	1,340	771	491
2	924	4,440	1,930	1,490	2,240	888	3,270	3,170	2,570	1,200	728	513
3	870	5,890	1,780	1,410	2,080	868	3,080	3,070	2,370	1,100	721	496
4	847	4,450	1,660	1,340	2,030	843	2,930	3,000	2,260	1,080	724	446
5	820	3,560	1,590	1,270	2,040	826	2,690	3,080	2,150	1,080	728	402
6	946	2,910	1,510	1,270	1,860	817	2,550	2,970	2,060	1,180	726	396
7	931	2,490	1,450	1,230	1,760	811	2,730	2,880	1,980	1,340	718	452
8	845	2,210	1,770	1,170	1,650	828	3,010	2,660	1,900	1,290	711	489
9	1,140	1,990	2,330	1,120	1,570	838	2,850	2,660	1,820	1,670	736	550
10	1,140	1,820	6,520	1,130	1,480	870	2,620	3,710	1,750	1,370	743	504
11	994	1,710	15,700	1,110	1,420	897	2,610	3,590	1,780	1,220	716	438
12	907	1,590	10,300	1,090	1,360	929	2,490	3,330	1,870	1,180	699	388
13	889	1,460	6,850	1,060	1,360	919	2,310	3,150	1,800	1,090	687	362
14	891	1,360	5,950	1,010	1,290	868	2,160	3,050	1,750	1,030	666	410
15	862	1,320	5,640	994	1,200	829	2,050	3,310	1,680	1,000	672	395
16	862	1,340	5,020	993	1,160	815	2,640	3,680	1,630	1,020	701	477
17	1,710	1,260	4,420	1,670	1,140	834	3,730	3,380	1,870	976	707	552
18	2,580	1,340	3,930	e18,800	1,100	793	3,370	3,180	1,770	985	694	565
19	2,360	1,340	3,810	e22,500	1,060	775	3,050	3,930	1,670	994	653	573
20	2,180	1,220	3,710	11,400	1,030	947	2,890	4,120	1,630	979	637	579
21	2,070	1,150	3,390	8,410	992	1,040	2,870	3,830	1,660	956	628	531
22	2,060	1,130	3,020	6,860	964	940	3,100	3,790	1,700	981	676	429
23	2,220	1,130	2,720	6,300	935	879	3,530	3,660	1,680	1,030	650	475
24	2,060	1,960	2,500	5,630	909	831	4,720	3,360	1,540	949	588	414
25	1,860	5,220	2,340	4,950	895	799	5,110	3,080	1,450	892	585	370
26	1,700	4,960	2,240	4,380	885	975	5,130	2,940	1,380	878	585	391
27	1,550	3,720	2,060	3,980	868	3,920	5,060	2,880	1,380	875	605	422
28	1,430	2,990	1,910	3,560	879	5,490	4,860	2,910	1,460	869	598	415
29	1,380	2,550	1,860	3,180	---	4,500	3,970	2,990	1,420	861	646	459
30	1,580	2,310	1,770	2,890	---	3,910	3,580	2,930	1,430	812	548	3,320
31	1,690	---	1,660	2,710	---	3,350	---	2,690	---	776	501	---
TOTAL	43,328	72,460	113,460	126,477	38,617	43,741	98,190	100,300	54,250	33,003	20,748	16,704
MEAN	1,398	2,415	3,660	4,080	1,379	1,411	3,273	3,235	1,808	1,065	669	557
MAX	2,580	5,890	15,700	22,500	2,460	5,490	5,130	4,120	2,840	1,670	771	3,320
MIN	820	1,130	1,450	993	868	775	2,050	2,660	1,380	776	501	362
AC-FT	85,940	143,700	225,000	250,900	76,600	86,760	194,800	198,900	107,600	65,460	41,150	33,130
CFSM	2.58	4.46	6.77	7.54	2.55	2.61	6.05	5.98	3.34	1.97	1.24	1.03
IN.	2.98	4.98	7.80	8.70	2.66	3.01	6.75	6.90	3.73	2.27	1.43	1.15

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1994 - 2005, BY WATER YEAR (WY)

MEAN	1,348	3,096	3,608	3,723	3,337	2,862	3,239	4,178	3,893	2,113	1,078	854
MAX	3,690	9,466	6,632	5,981	8,136	4,912	4,737	6,748	6,662	4,822	2,382	1,781
(WY)	(1998)	(1996)	(1996)	(1997)	(1996)	(1997)	(2002)	(1997)	(1999)	(1999)	(1999)	(2004)
MIN	410	365	930	1,391	1,323	1,411	2,132	3,168	1,808	1,065	669	557
(WY)	(2003)	(1994)	(2001)	(2001)	(1994)	(2005)	(1998)	(2003)	(2005)	(2005)	(2005)	(2005)

14231000 COWLITZ RIVER AT RANDLE, WA—Continued

SUMMARY STATISTICS	FOR 2004 CALENDAR YEAR		FOR 2005 WATER YEAR		WATER YEARS 1994 - 2005	
ANNUAL TOTAL	982,638		761,278			
ANNUAL MEAN	2,685		2,086		2,773	
HIGHEST ANNUAL MEAN					3,982	
LOWEST ANNUAL MEAN					1,573	
HIGHEST DAILY MEAN	15,700	Dec 11	22,500	Jan 19	35,000	Feb 9, 1996
LOWEST DAILY MEAN	820	Oct 5	362	Sep 13	278	Nov 3, 2002
ANNUAL SEVEN-DAY MINIMUM	883	Oct 2	417	Sep 22	281	Oct 31, 2002
ANNUAL RUNOFF (AC-FT)	1,949,000		1,510,000		2,009,000	
ANNUAL RUNOFF (CFSM)	4.96		3.86		5.13	
ANNUAL RUNOFF (INCHES)	67.57		52.35		69.65	
10 PERCENT EXCEEDS	4,720		3,860		5,250	
50 PERCENT EXCEEDS	2,320		1,460		2,190	
90 PERCENT EXCEEDS	1,030		619		681	

e Estimated

14231900 CISPUS RIVER ABOVE YELLOWJACKET CREEK, NEAR RANDLE, WA

LOCATION.--Lat 46°26'38", long 121°50'28", in NE¼ sec.18, T.11 N., R.8 E., (unsurveyed), Lewis County, Hydrologic Unit 17080004, Gifford Pinchot National Forest, on right bank 600 ft downstream from Forest Service Road 28 bridge, 2.5 mi downstream from North Fork, 8.5 mi southeast of Randle, and at mile 17.4.

DRAINAGE AREA.--250 mi².

PERIOD OF RECORD.--August 1996 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,260 ft above NGVD of 1929.

REMARKS.--Records poor. No regulation or diversion upstream from station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--10 years (water years 1996-2005), 1,001 ft³/s, 54.39 in/yr, 725,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,800 ft³/s, Jan. 31, 2003, gage height, 9.50 ft, from floodmarks, result of slope-area measurement; minimum daily discharge, 165 ft³/s, Oct. 31, Nov. 1, 2, 2003.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Feb. 8, 1996, reached stage of 12.50 ft, discharge from floodmarks 24,600 ft³/s, by slope-area measurement made about 7 mi downstream near Forest Service Road 25 bridge, adjusted for flow from intervening area.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan. 19	0430	*3,620	*4.96				

Minimum discharge, 176 ft³/s, Sept. 23.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e359	e662	869	702	944	e391	1,200	1,180	1,020	546	e373	e298
2	e328	1,090	821	e660	901	e378	1,150	1,130	934	522	e344	e328
3	e328	1,350	788	e620	863	e359	1,090	1,100	890	502	e349	e272
4	e312	1,210	744	e600	864	e333	1,050	1,080	865	492	e368	e218
5	e298	1,110	719	e565	847	e327	980	1,090	833	492	e392	e199
6	e468	1,020	691	e560	800	e314	955	1,050	807	531	e437	e214
7	e352	938	685	e555	763	e333	1,020	1,020	812	517	e445	e257
8	e377	860	871	e550	723	e365	1,060	963	770	506	e437	e288
9	e562	804	881	e543	699	e404	1,010	1,050	733	588	e444	e273
10	e506	758	1,440	e533	669	e436	961	1,330	710	e507	e426	e223
11	e398	722	2,800	e528	651	e474	997	1,200	714	e491	e400	e209
12	e353	e686	2,110	e524	638	e544	948	1,150	753	e467	e403	e189
13	e389	e660	1,620	e520	629	e487	899	1,100	715	e446	e406	e199
14	e397	e638	1,550	e518	605	e455	861	1,100	698	e425	e410	e213
15	e331	e620	1,460	e510	565	e423	828	1,210	678	e461	e410	e199
16	e419	e630	1,330	e522	e538	e416	1,270	1,280	658	e468	e380	e199
17	e593	e560	1,230	e1,170	e528	e406	1,540	1,160	810	e444	e377	e194
18	e668	e570	1,170	2,960	e500	e382	1,330	1,180	731	e485	e342	e199
19	e704	e500	1,170	3,270	e487	e392	1,210	1,460	700	e503	e320	e213
20	e696	e420	1,160	2,430	e447	e566	1,160	1,460	670	e471	e324	e213
21	e724	e390	1,110	2,110	e428	e556	1,130	1,390	689	e458	e335	e206
22	e710	e360	1,060	1,790	e404	e455	1,150	1,400	703	e541	e420	e200
23	e715	e400	992	1,620	e386	e416	1,280	1,330	650	e512	e332	e176
24	e712	808	940	1,480	e368	e382	1,610	1,230	617	e479	e312	e184
25	e719	1,270	920	1,360	e368	e358	1,690	1,150	595	e426	e312	e188
26	e687	1,290	926	1,290	e355	e594	1,660	1,090	578	e416	e332	e208
27	e656	1,160	860	1,240	e350	2,370	1,610	1,060	590	e421	e346	e220
28	e625	1,040	808	1,160	e372	2,190	1,550	1,050	613	e435	e366	e212
29	e631	960	800	1,100	---	1,660	1,370	1,040	576	e431	e340	e303
30	e672	923	767	1,050	---	1,370	1,270	1,010	563	e421	e276	e600
31	e685	---	731	999	---	1,210	---	983	---	e402	e288	---
TOTAL	16,374	24,409	34,023	34,039	16,692	19,746	35,839	36,026	21,675	14,806	11,446	7,094
MEAN	528	814	1,098	1,098	596	637	1,195	1,162	722	478	369	236
MAX	724	1,350	2,800	3,270	944	2,370	1,690	1,460	1,020	588	445	600
MIN	298	360	685	510	350	314	828	963	563	402	276	176
AC-FT	32,480	48,420	67,480	67,520	33,110	39,170	71,090	71,460	42,990	29,370	22,700	14,070
CFSM	2.11	3.25	4.39	4.39	2.38	2.55	4.78	4.65	2.89	1.91	1.48	0.95
IN.	2.44	3.63	5.06	5.07	2.48	2.94	5.33	5.36	3.23	2.20	1.70	1.06

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 2005, BY WATER YEAR (WY)

MEAN	484	882	1,049	1,262	935	1,025	1,259	1,744	1,616	873	500	389
MAX	1,172	1,720	1,763	2,322	1,548	1,675	1,756	2,865	2,814	1,869	836	583
(WY)	(1998)	(2000)	(1999)	(1997)	(2003)	(2003)	(1997)	(1997)	(1999)	(1999)	(1999)	(1997)
MIN	247	340	369	426	414	574	785	1,162	722	478	347	236
(WY)	(2003)	(2003)	(2001)	(2001)	(2001)	(2001)	(2001)	(2005)	(2005)	(2005)	(2003)	(2005)

14231900 CISPUS RIVER ABOVE YELLOWJACKET CREEK, NEAR RANDLE, WA—Continued

SUMMARY STATISTICS	FOR 2004 CALENDAR YEAR		FOR 2005 WATER YEAR		WATER YEARS 1996 - 2005	
ANNUAL TOTAL	342,897		272,169			
ANNUAL MEAN	937		746		1,001	
HIGHEST ANNUAL MEAN					1,381	
LOWEST ANNUAL MEAN					580	
HIGHEST DAILY MEAN	3,060	Jan 30	3,270	Jan 19	9,800	Jan 31, 2003
LOWEST DAILY MEAN	298	Oct 5	176	Sep 23	165	Oct 31, 2002
ANNUAL SEVEN-DAY MINIMUM	341	Sep 29	196	Sep 20	177	Oct 28, 2002
ANNUAL RUNOFF (AC-FT)	680,100		539,800		725,000	
ANNUAL RUNOFF (CFSM)	3.75		2.98		4.00	
ANNUAL RUNOFF (INCHES)	51.02		40.50		54.39	
10 PERCENT EXCEEDS	1,530		1,280		1,840	
50 PERCENT EXCEEDS	825		631		821	
90 PERCENT EXCEEDS	425		322		340	

e Estimated

COWLITZ RIVER BASIN

14233500 COWLITZ RIVER NEAR KOSMOS, WA

LOCATION.--Lat 46°27'59", long 122°06'28", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.6, T.11 N., R.6 E., Lewis County, Hydrologic Unit 17080005, at Cowlitz Falls Dam, 1.1 mi downstream from Cispus River, 8 mi southwest of Randle, 4.5 mi southeast of Kosmos.

DRAINAGE AREA.--1,040 mi².

PERIOD OF RECORD.--October 1947 to current year. October 1967 to March 1994, published as "14233400 Cowlitz River near Randle."

GAGE.--Discharge determined from flow through turbines and outlet structures of Cowlitz Falls Dam. Prior to December 1948, nonrecording gage at site 0.8 mi downstream. December 1948 to September 1967, water-stage recorder at site 0.3 mi downstream, at datum 760.96 ft above sea level. October 1967 to March 1994, water-stage recorder, at site 0.6 mi upstream, at datum 799.42 ft above NGVD of 1929.

REMARKS.--Flow regulated by Cowlitz Falls Dam since Mar. 8, 1994. Water temperatures November 1952 to August 1968, April 1969 to September 1982. Chemical analyses July 1959 to September 1970, December 1973 to September 1985.

COOPERATION.--Records provided by Lewis County Public Utility District since Mar. 8, 1994.

AVERAGE DISCHARGE.--58 years (water years 1948-2005), 4,772 ft³/s, 3,457,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 103,000 ft³/s, Feb. 9, 1996; no flow part or all of many days 1994-2005 water years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 38,600 ft³/s, Jan. 19; minimum discharge, no flow on many days.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1,580	2,630	3,180	2,630	3,540	1,690	5,420	5,100	4,380	2,250	1,290	918
2	1,540	5,630	2,990	2,450	3,280	1,500	5,400	4,860	3,950	2,040	1,310	836
3	1,420	7,760	2,800	2,340	3,110	1,700	4,810	4,710	3,540	1,960	1,250	897
4	1,400	5,940	2,660	2,210	3,120	1,700	4,670	4,550	3,490	1,960	1,290	876
5	1,290	4,920	2,570	2,080	3,170	1,490	4,370	4,650	3,340	1,520	1,270	757
6	1,690	4,130	2,450	2,100	2,920	1,490	4,150	4,440	3,200	1,930	1,320	703
7	1,340	3,660	2,370	2,120	2,730	1,480	4,370	4,320	3,090	2,090	1,200	700
8	1,380	3,510	3,090	2,020	2,620	1,460	4,740	4,000	2,960	2,130	1,210	946
9	2,000	3,100	3,900	1,900	2,510	1,470	4,540	4,060	2,820	2,520	1,340	978
10	1,680	2,850	8,300	1,890	2,450	1,450	4,210	5,640	2,720	2,190	1,270	1,260
11	1,630	2,660	20,200	1,870	2,360	1,450	4,250	5,380	2,780	2,010	1,260	687
12	1,530	2,360	13,200	1,750	2,280	1,700	4,080	4,970	2,930	1,770	1,190	796
13	1,430	2,400	9,880	1,890	2,320	1,550	3,770	4,630	2,860	1,860	1,150	766
14	1,490	2,250	8,360	1,750	2,220	1,690	3,560	4,530	2,680	1,820	1,160	800
15	1,360	2,170	7,740	1,700	2,040	1,450	3,360	4,860	2,590	1,660	1,100	772
16	1,430	2,180	6,670	1,700	2,080	1,690	4,690	5,530	2,550	1,750	1,120	796
17	2,330	2,090	5,980	2,220	1,890	1,440	6,780	5,080	3,050	1,670	1,180	789
18	3,940	2,230	5,330	21,900	1,900	1,440	5,930	4,860	2,840	1,650	1,250	879
19	3,490	2,280	5,210	24,700	1,910	1,470	5,330	6,300	2,720	1,640	1,120	874
20	3,010	1,990	5,180	15,200	1,860	2,010	4,970	6,750	2,570	1,640	1,040	906
21	3,270	1,940	4,860	12,500	1,750	2,310	4,790	6,430	2,610	1,560	1,080	858
22	3,180	1,900	4,330	9,960	1,700	2,000	5,000	6,380	2,630	1,790	1,110	837
23	3,330	1,910	4,030	8,720	1,710	1,930	5,600	6,120	2,620	1,600	1,070	741
24	3,190	2,710	3,660	7,220	1,640	1,770	7,230	5,600	2,480	1,580	1,070	927
25	2,980	6,420	3,500	6,370	1,690	1,690	7,740	5,100	2,290	1,550	945	721
26	2,790	6,320	3,460	5,570	1,700	2,020	7,870	4,740	2,270	1,480	965	718
27	2,580	4,980	3,220	5,290	1,520	8,280	7,480	4,530	2,250	1,460	1,020	830
28	2,420	4,190	3,020	4,750	1,700	10,200	7,320	4,480	2,390	1,480	1,030	757
29	2,270	3,680	2,950	4,380	---	8,080	6,190	4,490	2,240	1,470	1,070	910
30	2,540	3,470	2,870	4,030	---	6,780	5,570	4,350	2,220	1,500	990	3,540
31	2,750	---	2,690	3,800	---	5,570	---	4,120	---	1,380	916	---
TOTAL	68,260	104,260	160,650	169,010	63,720	81,950	158,190	155,560	85,060	54,910	35,586	27,775
MEAN	2,202	3,475	5,182	5,452	2,276	2,644	5,273	5,018	2,835	1,771	1,148	926
MAX	3,940	7,760	20,200	24,700	3,540	10,200	7,870	6,750	4,380	2,520	1,340	3,540
MIN	1,290	1,900	2,370	1,700	1,520	1,440	3,360	4,000	2,220	1,380	916	687
AC-FT	135,400	206,800	318,600	335,200	126,400	162,500	313,800	308,600	168,700	108,900	70,580	55,090

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1948 - 2005, BY WATER YEAR (WY)

MEAN	2,115	4,906	6,164	5,819	5,686	4,703	5,711	7,838	7,179	3,844	1,910	1,469
MAX	6,302	14,650	16,520	13,820	15,610	14,510	9,738	13,760	16,130	8,580	3,705	2,881
(WY)	(1960)	(1996)	(1978)	(1974)	(1996)	(1972)	(1990)	(1949)	(1974)	(1974)	(1974)	(1959)
MIN	589	648	1,100	1,640	1,815	2,270	2,656	4,017	2,176	1,336	1,042	926
(WY)	(2003)	(1953)	(1953)	(1979)	(1977)	(1955)	(1975)	(1992)	(1992)	(1992)	(1992)	(2005)

14233500 COWLITZ RIVER NEAR KOSMOS, WA—Continued

SUMMARY STATISTICS	FOR 2004 CALENDAR YEAR		FOR 2005 WATER YEAR		WATER YEARS 1948 - 2005	
ANNUAL TOTAL	1,474,420		1,164,931			
ANNUAL MEAN	4,028		3,192		4,772	
HIGHEST ANNUAL MEAN					7,236	
LOWEST ANNUAL MEAN					2,509	
HIGHEST DAILY MEAN	20,200	Jan 30	24,700	Jan 19	84,300	Feb 9, 1996
LOWEST DAILY MEAN	1,250	Aug 21	687	Sep 11	0.00	Sep 9, 1995
ANNUAL SEVEN-DAY MINIMUM	1,360	Aug 15	772	Sep 11	340	Sep 17, 2003
ANNUAL RUNOFF (AC-FT)	2,925,000		2,311,000		3,457,000	
10 PERCENT EXCEEDS	6,540		5,930		9,320	
50 PERCENT EXCEEDS	3,610		2,360		3,730	
90 PERCENT EXCEEDS	1,560		1,070		1,270	

COWLITZ RIVER BASIN

14234800 RIFFE LAKE NEAR MOSSYROCK, WA

LOCATION.--Lat 46°32'07", long 122°25'25", in SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.10, T.12 N., R.3 E., Lewis County, Hydrologic Unit 17080005, in emergency generator room on top of Mossyrock Dam on Cowlitz River, 2.8 mi east of Mossyrock, and at mile 65.5.

DRAINAGE AREA.--1,154 mi².

PERIOD OF RECORD.--April 1968 to current year.

REVISED RECORDS.--WDR WA-74-1: 1973.

GAGE.--Water-stage recorder; nonrecording gage prior to July 25, 1968. Datum of gage is NGVD of 1929 (levels by City of Tacoma).

REMARKS.--Reservoir is formed by concrete arch dam, completed in April 1968; storage began Apr. 3, 1968. Useable capacity, 1,297,400 acre-ft between elevations 600 ft, minimum operating level, and 770 ft, normal operating pool. Unused storage below elevation 600 ft, 288,900 acre-ft. Crest of spillway is at elevation 728.5 ft and top of taintor gates are at elevation 778.5 ft. Water used by City of Tacoma for power generation. Figures given herein represent total contents. Capacity table furnished by City of Tacoma. Chemical analyses December 1973 to September 1983 (samples were taken near the dam).

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,686,300 acre-ft, July 31, 1972, elevation, 778.63 ft; minimum contents since normal low operating level was attained, 517,233 acre-ft, Mar. 9, 2001, elevation, 644.93 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,665,089 acre-ft, May 27, 31, elevation, 776.83 ft; minimum contents, 1,165,498 acre-ft, Mar. 24, 25, elevation 728.80 ft.

MONTH-END ELEVATION AND CONTENTS AT 2400
WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
September 30	761.81	1,495,775	--
October 31	750.07	1,372,673	-123,102
November 30	741.07	1,282,926	-89,747
December 31	739.60	1,268,372	-14,554
Calendar Year 2004	--	--	+32,870
January 31	744.06	1,312,216	+43,844
February 28	736.80	1,241,269	-70,947
March 31	738.52	1,257,880	+16,611
April 30	763.50	1,514,124	+256,244
May 31	776.54	1,661,689	+147,565
June 30	774.96	1,643,246	-18,443
July 31	772.64	1,616,421	-26,825
August 31	763.99	1,519,475	-96,946
September 30	751.19	1,384,114	-135,361
Water Year 2005	--	--	+111,661

14236200 TILTON RIVER ABOVE BEAR CANYON CREEK, NEAR CINEBAR, WA

LOCATION.--Lat 46°35'44", long 122°27'30", in NE¼SW¼ sec.20, T.13 N., R.3 E., Lewis County, Hydrologic Unit 17080005, on right bank 0.9 mi upstream from Bear Canyon Creek, 3.5 mi southeast of Cinebar, and at mile 7.1.

DRAINAGE AREA.--141 mi².

PERIOD OF RECORD.--October 1956 to current year.

REVISED RECORDS.--WDR WA-72-1: 1957(M), 1959(P), 1960(P), 1961(M), 1963(P), 1964(M), 1965, 1967(P), 1971(P).

GAGE.--Water-stage recorder. Elevation of gage is 600 ft above NGVD of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good. Several small diversions for municipal and domestic use upstream from station. No regulation. U.S. Geological Survey satellite telemeter at station. Water temperatures May 1965 to September 1982.

AVERAGE DISCHARGE.--49 years (water years 1957-2005), 819 ft³/s, 78.88 in/yr, 593,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,100 ft³/s, Feb. 8, 1996, gage height, 17.90 ft, from rating curve extended above 10,500 ft³/s on basis of slope-area measurement at gage height of 14.79 ft; minimum discharge, 47 ft³/s, Sept. 4-7, 2003.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 6,200 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Jan 18	0415	*14,400	*12.71	No other peak greater than base discharge.			

Minimum discharge, 113 ft³/s, Sept. 26-29, gage height, 2.46 ft.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	294	702	734	385	487	353	1,900	535	562	241	136	136
2	275	1,540	652	363	457	328	1,880	530	512	231	136	131
3	261	1,620	600	344	433	315	1,670	497	454	225	131	130
4	248	1,190	566	329	502	296	1,610	475	419	213	127	127
5	235	953	602	314	577	283	1,350	451	401	204	131	126
6	302	800	579	310	564	272	1,210	425	388	272	146	123
7	263	689	646	312	559	266	1,340	399	375	240	148	120
8	400	607	1,590	302	508	258	1,490	382	359	297	147	117
9	842	544	1,810	287	478	249	1,190	412	333	644	145	118
10	729	495	3,250	275	456	240	991	651	315	474	144	130
11	571	457	4,440	265	444	233	1,410	613	330	401	146	145
12	472	425	2,390	292	469	223	1,370	545	339	350	148	137
13	412	399	1,630	319	522	216	1,160	492	330	314	142	128
14	371	377	1,550	285	498	210	1,050	517	316	288	136	125
15	341	395	1,490	271	463	206	1,020	553	298	264	130	126
16	492	394	1,210	360	438	212	2,570	853	288	249	129	130
17	1,580	381	1,010	2,660	415	256	2,400	885	427	235	144	129
18	1,690	532	859	10,900	397	230	1,830	950	365	219	151	128
19	1,530	576	768	4,050	380	237	1,460	1,090	406	207	139	124
20	1,170	509	680	2,400	361	302	1,240	1,090	352	199	134	121
21	953	464	629	1,890	344	343	1,090	1,040	324	191	131	120
22	877	435	591	1,490	330	326	983	1,050	333	208	130	118
23	853	426	528	1,200	317	306	929	951	322	203	131	118
24	820	715	492	1,000	308	301	1,010	827	292	185	130	116
25	756	2,340	475	861	299	289	946	714	276	178	125	116
26	690	1,610	495	757	292	848	840	623	266	167	120	116
27	615	1,150	449	686	284	4,350	748	548	280	158	117	115
28	559	912	422	615	294	3,120	670	493	291	152	117	115
29	517	770	425	592	---	2,790	622	453	268	148	128	120
30	681	743	422	564	---	2,340	593	429	253	144	163	595
31	690	---	401	522	---	1,750	---	420	---	141	147	---
TOTAL	20,489	23,150	32,385	35,200	11,876	21,948	38,572	19,893	10,474	7,642	4,229	4,200
MEAN	661	772	1,045	1,135	424	708	1,286	642	349	247	136	140
MAX	1,690	2,340	4,440	10,900	577	4,350	2,570	1,090	562	644	163	595
MIN	235	377	401	265	284	206	593	382	253	141	117	115
AC-FT	40,640	45,920	64,240	69,820	23,560	43,530	76,510	39,460	20,780	15,160	8,390	8,330
CFSM	4.69	5.47	7.41	8.05	3.01	5.02	9.12	4.55	2.48	1.75	0.97	0.99
IN.	5.41	6.11	8.54	9.29	3.13	5.79	10.18	5.25	2.76	2.02	1.12	1.11

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1957 - 2005, BY WATER YEAR (WY)

	401	1,228	1,554	1,553	1,372	1,126	1,031	694	412	192	122	172
MEAN	401	1,228	1,554	1,553	1,372	1,126	1,031	694	412	192	122	172
MAX	1,240	3,014	3,418	2,869	3,039	2,940	1,724	1,283	1,082	620	332	668
(WY)	(1960)	(1996)	(1976)	(1971)	(1982)	(1972)	(2002)	(1974)	(1981)	(1983)	(2004)	(2004)
MIN	52.0	185	401	415	377	374	433	304	134	93.4	62.2	60.5
(WY)	(1988)	(1994)	(1977)	(1977)	(1977)	(1992)	(2004)	(1980)	(1992)	(1970)	(2003)	(1967)

COWLITZ RIVER BASIN

14236200 TILTON RIVER ABOVE BEAR CANYON CREEK, NEAR CINEBAR, WA—Continued

SUMMARY STATISTICS	FOR 2004 CALENDAR YEAR		FOR 2005 WATER YEAR		WATER YEARS 1957 - 2005	
ANNUAL TOTAL	272,558		230,058			
ANNUAL MEAN	745		630		819	
HIGHEST ANNUAL MEAN					1,228	1972
LOWEST ANNUAL MEAN					464	2001
HIGHEST DAILY MEAN	8,710	Jan 29	10,900	Jan 18	21,000	Feb 8, 1996
LOWEST DAILY MEAN	72	Aug 20	115	Sep 27	47	Sep 5, 2003
ANNUAL SEVEN-DAY MINIMUM	76	Aug 15	116	Sep 22	49	Aug 31, 2003
ANNUAL RUNOFF (AC-FT)	540,600		456,300		593,000	
ANNUAL RUNOFF (CFSM)	5.28		4.47		5.81	
ANNUAL RUNOFF (INCHES)	71.91		60.70		78.88	
10 PERCENT EXCEEDS	1,580		1,390		1,760	
50 PERCENT EXCEEDS	542		401		530	
90 PERCENT EXCEEDS	132		131		94	

14237800 MAYFIELD RESERVOIR NEAR SILVER CREEK, WA

LOCATION.--Lat 46°30'13", long 122°35'11", in SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.20, T.12 N., R.2 E., Lewis County, Hydrologic Unit 17080005, on right bank at Mayfield Dam on Cowlitz River, 0.3 mi downstream from Silver Creek, 4 mi south of town of Silver Creek, and at mile 52.0.

DRAINAGE AREA.--1,392 mi².

PERIOD OF RECORD.--April 1962 to current year.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929. Prior to Mar. 5, 1963, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by concrete arch dam, completed April 1962; storage began Apr. 14, 1962. Usable capacity, 21,380 acre-ft between elevation 415 ft, lower limit of operation, and 425 ft, top of taintor gates. Dead storage below elevation 415 ft, 112,340 acre-ft. Crest of spillway is at elevation 385 ft. Water is used by City of Tacoma for power generation. Figures given herein represent total contents. Capacity table furnished by City of Tacoma. Chemical analyses December 1973 to September 1983 (samples were taken near the dam).

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 134,850 acre-ft, Dec. 9, 1971, elevation, 425.50 ft; minimum contents since normal operating level was attained, 112,830 acre-ft, June 4, 1969, elevation, 415.24 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 133,188 acre-ft, Aug. 19, elevation, 424.76 ft; minimum contents, 120,928 acre-ft, Dec. 10, elevation, 419.14 ft.

MONTH-END ELEVATION AND CONTENTS AT 2400
WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
September 30	423.49	130,348	--
October 31	421.59	126,179	-4,169
November 30	423.43	130,216	+4,037
December 31	423.13	129,549	-667
Calendar Year 2004	--	--	+457
January 31	422.69	128,587	-962
February 28	422.50	128,170	-417
March 31	422.47	128,104	-66
April 30	421.04	124,988	-3,116
May 31	422.96	129,176	+4,188
June 30	423.27	129,864	+688
July 31	423.41	130,172	+308
August 31	423.06	129,392	-780
September 30	424.22	131,974	+2,582
Water Year 2005	--	--	+1,626

14238000 COWLITZ RIVER BELOW MAYFIELD DAM, WA

LOCATION.--Lat 46°30'38", long 122°36'54", in SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.24, T.12 N., R.1 E., Lewis County, Hydrologic Unit 17080005, on right bank 1.1 mi upstream from fish barrier dam, 1.4 mi downstream from Mayfield Dam, 1.5 mi upstream from Mill Creek, 2.1 mi downstream from Winston Creek, and at mile 50.6.

DRAINAGE AREA.--1,400 mi².

PERIOD OF RECORD.--August to October 1910, December 1910 to September 1911, October to November 1911 (monthly discharge only), April 1934 to current year. Published as "at Mayfield" water years 1910-11 and "near Mayfield" water years 1934-61.

REVISED RECORDS.--WSP 1318: 1949(M). WSP 1348: Drainage area. WSP 1718: 1943, 1947.

GAGE.--Water-stage recorder. Datum of gage is 226.6 ft above NGVD of 1929. August 1910 to November 1911 nonrecording gage at site 2.5 mi upstream at different datum. Apr. 27 to July 2, 1934, nonrecording gage at present site and datum.

REMARKS.--Records good. Flow regulated by Riffe Lake (station 14234800) at mile 65.5 and Mayfield Reservoir (station 14237800) at mile 52.0. Minor diversions for domestic and farm use upstream from station. U.S. Geological Survey satellite telemeter at station. Sediment records October 1978 to September 1980. Water temperatures October 1950 to September 1980.

AVERAGE DISCHARGE.--71 years (water years 1935-2005), 6,214 ft³/s, 60.28 in/yr, 4,502,000 acre-ft/yr, adjusted for storage in Mayfield Reservoir since April 1962, and Riffe Lake since April 1968.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 68,400 ft³/s, Nov. 28, 1995; gage height, 26.19 ft; minimum discharge, 37 ft³/s, Apr. 16, 1962, gage height, 6.42 ft; minimum daily discharge, 451 ft³/s, Apr. 16, 1962.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in December 1933 is known to have exceeded that of Nov. 28, 1995.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 13,900 ft³/s, Jan. 18, gage height, 15.15 ft; minimum discharge, 2,430 ft³/s, July 23, 24, gage height, 9.90 ft.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4,620	7,630	7,510	5,040	5,080	4,120	4,050	3,450	5,360	2,960	2,750	3,490
2	4,590	7,680	7,510	5,060	5,060	4,130	3,520	3,460	5,050	2,750	3,400	3,500
3	4,660	7,600	6,990	5,510	5,050	4,110	3,450	3,900	5,050	2,760	3,450	3,490
4	4,660	7,610	5,960	5,890	5,030	4,050	3,920	3,530	4,550	2,750	3,090	3,480
5	4,660	7,580	5,980	5,890	5,040	4,030	3,510	3,490	4,510	2,760	3,060	3,500
6	4,670	7,550	7,510	5,900	5,050	4,060	3,440	3,490	4,590	2,740	2,590	3,510
7	4,660	7,550	9,550	5,700	5,050	4,070	3,430	3,490	5,050	2,740	2,560	3,510
8	4,670	7,630	10,200	5,110	5,050	4,070	3,430	3,470	4,860	2,740	2,850	3,510
9	4,680	7,630	11,000	5,090	5,010	4,060	3,430	3,470	4,510	2,580	3,080	3,510
10	4,660	7,460	10,900	5,100	5,000	4,030	3,430	3,920	4,490	2,560	3,080	3,510
11	4,680	7,170	10,100	5,100	5,000	4,050	3,430	3,540	4,130	2,570	2,760	3,510
12	4,660	7,000	10,200	5,090	5,000	4,100	3,870	3,490	4,110	2,570	2,690	3,510
13	4,660	6,560	9,180	5,070	5,030	4,120	3,540	3,490	4,120	2,570	2,700	3,510
14	4,670	6,300	8,500	5,060	5,060	4,080	3,480	3,480	4,670	2,570	2,720	3,510
15	4,670	6,380	7,570	5,030	e4,890	4,070	3,460	3,460	4,490	2,570	2,970	3,530
16	4,680	6,220	7,520	5,030	e4,190	3,510	3,480	3,480	3,740	2,560	3,110	3,530
17	5,380	5,960	7,500	6,720	4,060	3,460	3,480	3,910	3,490	2,580	2,610	3,520
18	6,010	5,790	7,500	12,500	4,130	3,460	3,490	3,530	3,460	3,270	2,570	3,510
19	6,010	5,580	7,500	10,900	4,090	3,450	3,880	3,490	3,460	4,640	2,560	3,480
20	6,020	5,560	7,510	12,400	4,100	3,590	3,520	3,500	3,720	4,360	2,560	3,510
21	6,040	5,570	7,500	12,100	4,130	3,640	3,460	3,500	4,070	4,250	2,570	3,510
22	6,020	5,480	7,500	11,600	4,070	4,040	3,470	3,480	3,540	3,310	3,230	3,520
23	6,010	5,280	6,920	10,300	4,060	3,540	3,480	3,870	3,470	2,470	4,880	3,510
24	6,040	5,290	5,950	9,040	4,050	3,460	3,460	4,190	3,430	2,450	4,600	3,520
25	6,790	5,290	5,930	8,160	4,100	3,450	3,460	5,300	3,440	2,540	3,300	3,510
26	7,560	5,310	5,940	7,470	4,090	3,450	3,880	6,190	3,440	2,570	2,840	3,510
27	7,600	5,300	5,950	6,970	4,120	3,690	3,510	7,040	3,520	2,560	2,830	3,500
28	7,600	5,300	5,940	5,900	4,120	4,100	3,480	6,090	4,050	2,550	2,950	3,520
29	7,570	6,490	5,570	5,860	---	4,080	3,480	5,340	3,700	2,560	3,250	3,480
30	7,560	7,520	5,050	5,880	---	4,060	3,460	5,050	3,470	2,560	3,450	3,510
31	7,640	---	5,030	5,710	---	4,030	---	5,620	---	2,570	3,570	---
TOTAL	174,400	195,270	233,470	216,180	128,710	120,160	106,380	126,710	123,540	87,990	94,630	105,220
MEAN	5,626	6,509	7,531	6,974	4,597	3,876	3,546	4,087	4,118	2,838	3,053	3,507
MAX	7,640	7,680	11,000	12,500	5,080	4,130	4,050	7,040	5,360	4,640	4,880	3,530
MIN	4,590	5,280	5,030	5,030	4,050	3,450	3,430	3,450	3,430	2,450	2,560	3,480
AC-FT	345,900	387,300	463,100	428,800	255,300	238,300	211,000	251,300	245,000	174,500	187,700	208,700
MEAN†	3,554	5,070	7,283	7,670	3,312	4,143	7,802	6,554	3,819	2,406	1,463	1,276
CFSM†	2.54	3.62	5.20	5.48	2.37	2.96	5.57	4.68	2.73	1.72	1.04	0.91
IN.†	2.93	4.04	6.00	6.32	2.46	3.41	6.21	5.40	3.04	1.98	1.20	1.02
AC-FT†	218,600	301,600	447,900	471,700	183,900	254,800	464,100	403,100	227,200	148,000	89,970	75,920

CAL YR 2004 TOTAL 2,031,770 MEAN 5,551 MAX 13,700 MIN 2,760 AC-FT 4,030,000 MEAN† 5,599 CFSM† 4.00 IN.† 54.42 AC-FT† 4,063,000

WTR YR 2005 TOTAL 1,712,660 MEAN 4,692 MAX 12,500 MIN 2,450 AC-FT 3,397,000 MEAN† 4,539 CFSM† 3.24 IN.† 44.02 AC-FT† 3,287,000

† Adjusted for change in contents in Riffe Lake and Mayfield Reservoir.

e Estimated

14240304 SPIRIT LAKE AT TUNNEL, AT SPIRIT LAKE, WA

LOCATION.--Lat 46°16'35", long 122°09'41", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.10, T.9 N., R.5 E., Skamania County, Hydrologic Unit 17080005, Mount St. Helens National Volcanic Monument, at entrance of Spirit Lake Outlet Tunnel, 5.6 mi north-northeast of the Mount St. Helens volcanic edifice.

DRAINAGE AREA.--18.0 mi², at entrance to Spirit Lake Outlet Tunnel. Prior to the volcanic eruption on May 18, 1980, 14.9 mi².

PERIOD OF RECORD.--October 1987 to current year. Records of contents published in WDR-WA-94-1 are unreliable and should not be used.

GAGE.--Water-stage recorder. Datum of gage is 3,400 ft above NGVD of 1929.

REMARKS.--As a result of the May 18, 1980, eruption, a gravitational landslide ensued, transporting an estimated 0.6 mi³ of debris into the upper North Toutle River drainage basin. A massive debris avalanche completely filled the lake, blocking the natural outlet to the North Fork Toutle River with a deposit several hundred feet thick. This filling caused the lake to rise 200 ft to elevation 3,400 ft. Refer to report by Schuster, R.L., ed., 1986, Landslide Dams: Processes, Risk and Mitigation: Geotechnical Special Publication no. 3, American Society of Civil Engineers, 164 p., for history of Spirit Lake as it was impacted by the eruption and actions taken to reduce the resulting flood threat. U.S. Geological Survey satellite telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum recorded elevation, 3,460.13 ft, Feb. 5, 1997; minimum recorded elevation, 3,437.00 ft, Oct. 28, 1987.

EXTREMES FOR CURRENT YEAR.--Maximum recorded elevation, 3,442.57 ft, Jan. 24, 27, 29, May 22, 23; minimum recorded elevation, 3,438.49 ft, Sept. 28, 29.

ELEVATION ABOVE NGVD 1929, FEET
WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3,439.97	3,440.89	3,440.79	3,441.51	3,442.43	3,441.20	3,441.43	3,442.28	3,442.35	3,441.29	3,440.02	3,439.04
2	3,440.01	3,441.07	3,440.76	3,441.46	3,442.38	3,441.15	3,441.42	3,442.29	3,442.32	3,441.24	3,439.98	3,439.01
3	3,440.04	3,441.10	3,440.73	3,441.41	3,442.34	3,441.10	3,441.48	3,442.27	3,442.28	3,441.20	3,439.94	3,438.98
4	3,440.07	3,441.11	3,440.71	3,441.37	3,442.39	3,441.05	3,441.47	3,442.28	3,442.22	3,441.14	3,439.90	3,438.95
5	3,440.10	3,441.11	3,440.68	3,441.31	3,442.35	3,441.00	3,441.48	3,442.27	3,442.18	3,441.09	3,439.86	3,438.93
6	3,440.20	3,441.09	3,440.72	3,441.29	3,442.39	3,440.95	3,441.46	3,442.25	3,442.16	3,441.08	3,439.82	3,438.91
7	3,440.19	3,441.06	3,440.83	3,441.35	3,442.34	3,440.92	3,441.52	3,442.22	3,442.14	3,441.02	3,439.79	3,438.88
8	3,440.30	3,441.04	3,440.91	3,441.35	3,442.29	3,440.87	3,441.50	3,442.23	3,442.10	3,441.04	3,439.75	3,438.86
9	3,440.30	3,441.01	3,440.98	3,441.33	3,442.23	3,440.83	3,441.49	3,442.25	3,442.04	3,441.01	3,439.71	3,438.85
10	3,440.27	3,440.97	3,441.25	3,441.29	3,442.17	3,440.78	3,441.52	3,442.24	3,442.00	3,440.97	3,439.67	3,438.85
11	3,440.23	3,440.94	3,441.47	3,441.23	3,442.10	3,440.76	3,441.55	3,442.21	3,442.02	3,440.90	3,439.64	3,438.83
12	3,440.20	3,440.90	3,441.49	3,441.23	3,442.07	3,440.73	3,441.56	3,442.17	3,441.99	3,440.87	3,439.59	3,438.80
13	3,440.16	3,440.86	3,441.59	3,441.19	3,442.05	3,440.70	3,441.56	3,442.14	3,441.94	3,440.82	3,439.56	3,438.78
14	3,440.12	3,440.81	3,441.62	3,441.13	3,441.99	3,440.67	3,441.54	3,442.13	3,441.92	3,440.78	3,439.53	3,438.76
15	3,440.09	3,440.82	3,441.61	3,441.09	3,441.92	3,440.62	3,441.55	3,442.12	3,441.87	3,440.74	3,439.49	3,438.75
16	3,440.12	3,440.80	3,441.62	3,441.08	3,441.87	3,440.65	3,441.75	3,442.19	3,441.90	3,440.69	3,439.46	3,438.73
17	3,440.27	3,440.75	3,441.60	3,441.36	3,441.80	3,440.62	3,441.78	3,442.20	3,441.88	3,440.65	3,439.46	3,438.71
18	3,440.38	3,440.81	3,441.59	3,441.95	3,441.76	3,440.58	3,441.78	3,442.36	3,441.87	3,440.60	3,439.43	3,438.69
19	3,440.58	3,440.77	3,441.60	3,442.21	3,441.70	3,440.68	3,441.78	3,442.43	3,441.83	3,440.55	3,439.41	3,438.66
20	3,440.60	3,440.73	3,441.58	3,442.38	3,441.63	3,440.85	3,441.78	3,442.50	3,441.79	3,440.50	3,439.38	3,438.64
21	3,440.66	3,440.70	3,441.62	3,442.47	3,441.58	3,440.83	3,441.78	3,442.55	3,441.75	3,440.46	3,439.35	3,438.62
22	3,440.72	3,440.67	3,441.59	3,442.52	3,441.53	3,440.80	3,441.81	3,442.56	3,441.72	3,440.45	3,439.31	3,438.60
23	3,440.75	3,440.68	3,441.55	3,442.55	3,441.47	3,440.80	3,441.93	3,442.55	3,441.67	3,440.41	3,439.27	3,438.58
24	3,440.78	3,440.73	3,441.55	3,442.54	3,441.42	3,440.77	3,441.99	3,442.53	3,441.62	3,440.36	3,439.24	3,438.55
25	3,440.82	3,440.83	3,441.60	3,442.54	3,441.37	3,440.74	3,442.06	3,442.50	3,441.57	3,440.32	3,439.21	3,438.54
26	3,440.84	3,440.83	3,441.57	3,442.56	3,441.31	3,440.89	3,442.09	3,442.47	3,441.52	3,440.29	3,439.18	3,438.52
27	3,440.83	3,440.82	3,441.54	3,442.53	3,441.28	3,441.15	3,442.25	3,442.44	3,441.50	3,440.25	3,439.16	3,438.50
28	3,440.82	3,440.81	3,441.51	3,442.56	3,441.25	3,441.23	3,442.26	3,442.40	3,441.46	3,440.20	3,439.13	3,438.51
29	3,440.81	3,440.79	3,441.50	3,442.55	---	3,441.34	3,442.29	3,442.36	3,441.40	3,440.16	3,439.12	3,438.55
30	3,440.85	3,440.82	3,441.48	3,442.51	---	3,441.38	3,442.28	3,442.32	3,441.36	3,440.11	3,439.09	3,438.70
31	3,440.84	---	3,441.50	3,442.47	---	3,441.39	---	3,442.34	---	3,440.07	3,439.07	---
MEAN	3,440.42	3,440.88	3,441.33	3,441.82	3,441.91	3,440.90	3,441.74	3,442.32	3,441.88	3,440.69	3,439.50	3,438.74
MAX	3,440.85	3,441.11	3,441.62	3,442.56	3,442.43	3,441.39	3,442.29	3,442.56	3,442.35	3,441.29	3,440.02	3,439.04
MIN	3,439.97	3,440.67	3,440.68	3,441.08	3,441.25	3,440.58	3,441.42	3,442.12	3,441.36	3,440.07	3,439.07	3,438.50
CAL YR	2004	MEAN	3,441.62	MAX	3,444.01	MIN	3,439.64					
WTR YR	2005	MEAN	3,441.01	MAX	3,442.56	MIN	3,438.50					

14240446 CASTLE LAKE NEAR MOUNT ST. HELENS, WA

LOCATION.--Lat 46°15'31", long 122°16'27", in SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.14, T.9 N., R.4 E., Skamania County, Hydrologic Unit 17080005, Mount St. Helens National Volcanic Monument, on right bank at outflow of Castle Lake, 5.0 mi north by northwest of the northwest edifice of Mount St. Helens (at Toutle Glacier).

DRAINAGE AREA.--1.3 mi², at spillway entrance. Prior to the volcanic eruption drainage area is unknown.

PERIOD OF RECORD.--October 1993 to current year (records of contents for water year 1994 published in WDR-WA-94-1 are unreliable and should not be used).

REVISED RECORDS.--WDR WA-04-1: 2003.

GAGE.--Water-stage recorder with radio telemetry. Datum of gage is 2,498.95 ft above NGVD of 1929, (U.S. Army Corps of Engineers benchmarks).

REMARKS.--As a result of the collapse of the north face of Mount St. Helens on May 18, 1980, a debris avalanche blocked the flow of South Fork Castle Creek forming Castle Lake. Castle Lake would have overtopped the blockage in late 1981 or early 1982. Overtopping most probably would have resulted in a quick release of lake waters as a result of rapid erosion of the blockage. Serious flooding probably would have resulted from the breakout of Castle Lake. As a result, the level of Castle Lake was stabilized with the construction of a spillway in 1981. Refer to report by Schuster, R.L., ed., 1986, Landslide Dams: Processes, Risk and Mitigation: Geotechnical Special Publication no. 3, American Society of Civil Engineers, 164 p., for history of Castle Lake as it was formed and impacted by the eruption and actions taken to reduce the resulting flood threat.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 2,582.76 ft, Feb. 8, 1996; minimum elevation, 2,578.14 ft, Sept. 5-7, 2003.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 2,580.12 ft, Dec. 12; minimum elevation, 2,578.21, Sept. 29.

ELEVATION ABOVE NGVD 1929, FEET
WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2,578.70	2,578.95	2,578.86	2,578.80	2,578.84	2,578.67	2,579.46	2,578.97	2,578.90	2,578.63	2,578.43	2,578.32
2	2,578.69	2,579.17	2,578.84	2,578.76	2,578.82	2,578.69	2,579.37	2,578.97	2,578.87	2,578.61	2,578.42	2,578.31
3	2,578.68	2,579.21	2,578.81	2,578.73	2,578.79	2,578.69	2,579.33	2,578.93	2,578.83	2,578.60	2,578.42	2,578.30
4	2,578.63	2,579.18	2,578.80	2,578.71	2,578.84	2,578.67	2,579.25	2,578.92	2,578.81	2,578.57	2,578.41	2,578.30
5	2,578.62	2,579.13	2,578.81	2,578.71	2,578.83	2,578.67	2,579.18	2,578.89	2,578.84	2,578.57	2,578.40	2,578.30
6	2,578.67	2,579.08	2,578.79	2,578.68	2,578.82	2,578.67	2,579.13	2,578.88	2,578.83	2,578.61	2,578.40	2,578.28
7	2,578.70	2,579.03	2,578.83	2,578.68	2,578.77	2,578.67	2,579.19	2,578.86	2,578.82	2,578.58	2,578.40	2,578.26
8	2,578.83	2,578.97	2,579.13	2,578.71	2,578.76	2,578.68	2,579.18	2,578.88	2,578.79	2,578.71	2,578.39	2,578.27
9	2,578.87	2,578.91	2,579.23	2,578.73	2,578.73	2,578.65	2,579.13	2,578.91	2,578.78	2,578.70	2,578.38	2,578.29
10	2,578.85	2,578.87	2,579.80	2,578.70	2,578.73	2,578.65	2,579.16	2,578.92	2,578.77	2,578.71	2,578.37	2,578.27
11	2,578.81	2,578.83	2,580.03	2,578.69	2,578.70	2,578.64	2,579.19	2,578.90	2,578.83	2,578.65	2,578.36	2,578.27
12	2,578.79	2,578.80	2,579.80	2,578.75	2,578.74	2,578.64	2,579.17	2,578.88	2,578.83	2,578.61	2,578.36	2,578.25
13	2,578.77	2,578.76	2,579.59	2,578.73	2,578.74	2,578.63	2,579.11	2,578.87	2,578.80	2,578.58	2,578.36	2,578.26
14	2,578.75	2,578.67	2,579.53	2,578.71	2,578.73	2,578.62	2,579.05	2,578.94	2,578.80	2,578.57	2,578.35	2,578.30
15	2,578.73	2,578.78	2,579.40	2,578.73	2,578.73	2,578.58	2,579.07	2,578.87	2,578.77	2,578.56	2,578.34	2,578.30
16	2,578.80	2,578.76	2,579.28	2,578.74	2,578.69	2,578.64	2,579.50	2,579.06	2,578.85	2,578.54	2,578.35	2,578.29
17	2,579.09	2,578.73	2,579.19	2,579.22	2,578.66	2,578.60	2,579.58	2,579.05	2,578.85	2,578.54	2,578.36	2,578.27
18	2,579.27	2,578.79	2,579.12	2,579.90	2,578.65	2,578.61	2,579.51	2,579.25	2,578.85	2,578.51	2,578.36	2,578.28
19	2,579.43	2,578.79	2,579.05	2,579.88	2,578.65	2,578.60	2,579.39	2,579.38	2,578.83	2,578.51	2,578.35	2,578.26
20	2,579.37	2,578.74	2,578.98	2,579.78	2,578.64	2,578.94	2,579.27	2,579.45	2,578.81	2,578.50	2,578.35	2,578.26
21	2,579.34	2,578.74	2,578.97	2,579.61	2,578.65	2,578.91	2,579.19	2,579.43	2,578.79	2,578.49	2,578.35	2,578.27
22	2,579.28	2,578.72	2,578.93	2,579.46	2,578.63	2,578.91	2,579.19	2,579.40	2,578.79	2,578.51	2,578.35	2,578.24
23	2,579.20	2,578.72	2,578.88	2,579.33	2,578.58	2,578.88	2,579.17	2,579.34	2,578.76	2,578.50	2,578.35	2,578.27
24	2,579.15	2,578.81	2,578.85	2,579.20	2,578.59	2,578.90	2,579.14	2,579.26	2,578.76	2,578.49	2,578.34	2,578.24
25	2,579.06	2,578.88	2,578.93	2,579.11	2,578.58	2,578.85	2,579.18	2,579.25	2,578.71	2,578.47	2,578.33	2,578.22
26	2,579.05	2,578.90	2,578.95	2,579.05	2,578.56	2,579.21	2,579.12	2,579.10	2,578.69	2,578.46	2,578.35	2,578.24
27	2,578.99	2,578.90	2,578.89	2,579.03	2,578.57	2,579.99	2,579.12	2,579.07	2,578.70	2,578.44	2,578.34	2,578.23
28	2,578.97	2,578.87	2,578.85	2,579.02	2,578.66	2,580.05	2,579.07	2,579.00	2,578.67	2,578.43	2,578.32	2,578.22
29	2,578.87	2,578.86	2,578.85	2,578.95	---	2,579.92	2,579.03	2,578.93	2,578.66	2,578.44	2,578.34	2,578.27
30	2,578.96	2,578.89	2,578.85	2,578.91	---	2,579.65	2,578.99	2,578.89	2,578.65	2,578.44	2,578.33	2,578.38
31	2,578.99	---	2,578.78	2,578.87	---	2,579.47	---	2,578.90	---	2,578.44	2,578.33	---
MEAN	2,578.93	2,578.88	2,579.08	2,579.00	2,578.70	2,578.90	2,579.21	2,579.04	2,578.79	2,578.55	2,578.36	2,578.27
MAX	2,579.43	2,579.21	2,580.03	2,579.90	2,578.84	2,580.05	2,579.58	2,579.45	2,578.90	2,578.71	2,578.43	2,578.38
MIN	2,578.62	2,578.67	2,578.78	2,578.68	2,578.56	2,578.58	2,578.99	2,578.86	2,578.65	2,578.43	2,578.32	2,578.22
CAL YR	2004	MEAN	2,578.89	MAX	2,580.20	MIN	2,578.33					
WTR YR	2005	MEAN	2,578.81	MAX	2,580.05	MIN	2,578.22					

14241500 SOUTH FORK TOUTLE RIVER AT TOUTLE, WA

LOCATION.--Lat 46°19'20", long 122°41'45", in SE¼NW¼ sec.29, T.10 N., R.1 E., Cowlitz County, Hydrologic Unit 17080005, on right bank at upstream side of bridge on South Toutle Road, 3.1 mi downstream from Johnson Creek, 0.8 mi upstream from Studebaker Creek, 1.3 mi southeast of Toutle, and approximately 1.0 mi upstream from mouth.

DRAINAGE AREA.--120 mi².

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1939 to December 1957, February 1996 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 460 ft above NGVD of 1929, from topographic map. Prior to Feb. 9, 1996, water-stage recorder at site 0.6 mi upstream, at datum at NGVD of 1929 (river-profile survey).

REMARKS.--Records good. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--27 years (water years 1940-57, 1997-2005), 623 ft³/s, 70.53 in/yr, 451,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, not determined Feb. 8, 1996, gage height, 28.81 ft, from high-water mark; maximum daily discharge, 17,400 ft³/s, Feb. 8, 1996; minimum discharge, 61 ft³/s, Sept. 3-6, 2003.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Jan. 9, 1990, produced discharge of 19,200 ft³/s as recorded at station 14241490, 2.2 mi upstream. A flood believed to be in excess of 100,000 ft³/s (from Ph.d. thesis by Fairchild, U. Wash., 1985) occurred at about 1000 hours on May 18, 1980, from a mudflow caused by the eruption of Mount St. Helens.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,200 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Dec 11	0545	4,950	25.54	Mar 27	0830	*5,660	*25.90
Jan 18	0500	5,240	25.69				

Minimum discharge, 75 ft³/s, Sept. 27, 29, gage height, 20.83 ft.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	200	633	517	430	378	284	1,110	457	402	231	121	89
2	190	1,210	459	389	352	242	967	542	435	225	121	87
3	182	1,210	423	359	332	235	933	479	426	218	117	87
4	177	932	400	339	344	221	883	449	379	207	114	86
5	171	782	416	318	342	211	780	423	375	199	111	87
6	230	677	409	314	355	204	736	407	424	235	110	86
7	189	582	494	332	347	200	795	372	393	211	110	85
8	366	506	1,540	325	316	196	828	357	404	244	109	84
9	562	452	1,250	302	300	192	711	418	355	415	107	83
10	452	412	2,130	290	288	189	629	631	331	280	106	98
11	362	384	3,660	280	283	185	996	557	345	252	106	101
12	311	359	1,930	278	288	181	985	490	369	232	106	90
13	280	338	1,310	277	295	177	854	438	336	219	104	86
14	256	321	1,230	263	277	172	738	463	315	208	100	85
15	241	351	1,030	264	262	168	696	510	298	194	97	86
16	247	343	853	315	253	173	2,170	845	287	188	97	86
17	911	313	726	996	246	195	1,930	818	444	181	108	86
18	1,110	461	638	4,300	241	177	1,430	1,040	342	172	109	84
19	1,340	430	589	2,440	235	195	1,120	1,410	344	164	100	82
20	1,020	373	537	1,650	228	518	926	1,270	303	159	96	81
21	807	340	518	1,300	220	588	795	1,140	287	155	95	81
22	675	335	501	1,010	215	425	712	1,060	303	172	95	79
23	620	326	448	834	209	360	700	908	300	164	95	79
24	599	405	417	705	204	319	671	754	e260	151	95	79
25	554	755	444	610	201	284	800	640	253	143	91	78
26	592	694	654	545	198	850	688	545	244	138	89	77
27	541	579	533	512	195	4,570	611	477	e250	133	88	77
28	516	498	477	467	210	2,700	601	429	290	130	88	77
29	511	449	458	506	---	2,230	532	394	263	128	101	76
30	630	473	435	443	---	1,580	497	377	244	125	99	133
31	663	---	411	409	---	1,150	---	356	---	122	92	---
TOTAL	15,505	15,923	25,837	21,802	7,614	19,371	26,824	19,456	10,001	5,995	3,177	2,575
MEAN	500	531	833	703	272	625	894	628	333	193	102	85.8
MAX	1,340	1,210	3,660	4,300	378	4,570	2,170	1,410	444	415	121	133
MIN	171	313	400	263	195	168	497	356	244	122	88	76
AC-FT	30,750	31,580	51,250	43,240	15,100	38,420	53,210	38,590	19,840	11,890	6,300	5,110
CFSM	4.17	4.42	6.95	5.86	2.27	5.21	7.45	5.23	2.78	1.61	0.85	0.72
IN.	4.81	4.94	8.01	6.76	2.36	6.01	8.32	6.03	3.10	1.86	0.98	0.80

14241500 SOUTH FORK TOUTLE RIVER AT TOUTLE, WA—Continued

DISCHARGE, CUBIC FEET PER SECOND—CONTINUED
WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 2005, BY WATER YEAR (WY)												
MEAN	368	861	1,163	1,034	1,054	836	751	639	406	191	120	139
MAX	1,222	1,655	2,031	2,488	2,451	1,647	1,142	1,097	772	414	231	409
(WY)	(1998)	(1956)	(1997)	(1953)	(1996)	(1950)	(1996)	(1948)	(1955)	(1955)	(2004)	(1941)
MIN	75.3	106	389	318	272	297	257	211	132	97.2	77.5	75.3
(WY)	(1953)	(1953)	(1945)	(2001)	(2005)	(1941)	(1941)	(1947)	(1940)	(1940)	(2003)	(2003)

SUMMARY STATISTICS	FOR 2004 CALENDAR YEAR		FOR 2005 WATER YEAR		WATER YEARS 1940 - 2005	
ANNUAL TOTAL	202,210		174,080			
ANNUAL MEAN	552		477		623	
HIGHEST ANNUAL MEAN					928	
LOWEST ANNUAL MEAN					317	
HIGHEST DAILY MEAN	4,760	Jan 30	4,570	Mar 27	17,400	Feb 8, 1996
LOWEST DAILY MEAN	89	Aug 20	76	Sep 29	62	Sep 4, 2003
ANNUAL SEVEN-DAY MINIMUM	92	Aug 14	78	Sep 23	64	Aug 31, 2003
ANNUAL RUNOFF (AC-FT)	401,100		345,300		451,300	
ANNUAL RUNOFF (CFSM)	4.60		3.97		5.19	
ANNUAL RUNOFF (INCHES)	62.69		53.96		70.53	
10 PERCENT EXCEEDS	1,040		974		1,320	
50 PERCENT EXCEEDS	448		342		422	
90 PERCENT EXCEEDS	130		96		98	

e Estimated

14241500 SOUTH FORK TOUTLE RIVER AT TOUTLE, WA—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--February 1996 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED SEDIMENT DISCHARGE: February 1996 to March 1999, October 1999 to September 2005 (discontinued). Water year 1999, daily sediment discharge values for period October to March, monthly sediment discharge values only for the period April to September.

INSTRUMENTATION.--Samples obtained by observer, February 1996 to September 1999. Automatic pumping sampler October 1999 to September 2005 (discontinued).

REMARKS.--Station was placed in operation after the station at South Fork Toutle River at Camp 12, near Toutle, WA (14241490) was destroyed by flood of February 1996. Current site is 2.2 mi downstream from destroyed station.

EXTREMES FOR PERIOD OF DAILY RECORDS.--

SEDIMENT CONCENTRATION: Maximum daily, 18,000 mg/L (estimated), Oct. 4, 1997; minimum, 1 mg/L, on many days 1996, 1998-2005.

SEDIMENT DISCHARGE: Maximum daily, 356,000 tons, Jan. 1, 1997; minimum, 0.23 tons, Sept. 25-29.

EXTREMES FOR CURRENT YEAR.--

SEDIMENT CONCENTRATION: Maximum daily, 5,310 mg/L, Oct. 17; minimum, 1 mg/L, on many days.

SEDIMENT DISCHARGE: Maximum daily, 41,800 tons, Mar. 27; minimum, 0.23 tons, Sept. 25-29.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)
WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	OCTOBER			NOVEMBER			DECEMBER		
				Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
1	200	36	19	633	230	393	517	18	26			
2	190	30	15	1,210	1,350	5,420	459	15	18			
3	182	37	18	1,210	837	2,820	423	13	14			
4	177	34	16	932	329	835	400	11	12			
5	171	30	14	782	184	392	416	27	31			
6	230	1,480	938	677	107	197	409	24	27			
7	189	500	260	582	59	93	494	39	61			
8	366	2,180	4,120	506	37	51	1,540	838	3,800			
9	562	2,960	5,160	452	53	64	1,250	569	1,930			
10	452	1,060	1,310	412	50	56	2,130	1,100	6,650			
11	362	579	573	384	42	43	3,660	1,730	18,400			
12	311	379	318	359	37	36	1,930	393	2,160			
13	280	327	248	338	42	38	1,310	138	492			
14	256	249	172	321	37	32	1,230	95	316			
15	241	184	120	351	74	69	1,030	56	158			
16	247	225	154	343	25	23	853	37	86			
17	911	5,310	14,900	313	19	16	726	24	48			
18	1,110	2,660	8,040	461	139	192	638	20	34			
19	1,340	3,880	14,400	430	83	97	589	18	28			
20	1,020	1,800	5,020	373	69	69	537	17	25			
21	807	967	2,130	340	60	55	518	28	40			
22	675	535	979	335	51	47	501	28	38			
23	620	422	709	326	47	41	448	21	26			
24	599	310	501	405	43	47	417	18	20			
25	554	289	432	755	311	710	444	27	38			
26	592	268	429	694	90	171	654	191	345			
27	541	253	370	579	42	66	533	85	123			
28	516	241	336	498	26	36	477	45	58			
29	511	230	317	449	16	20	458	33	40			
30	630	321	551	473	15	19	435	23	27			
31	663	315	563	---	---	---	411	14	15			
TOTAL	15,505	---	63,132	15,923	---	12,148	25,837	---	35,086			

COWLITZ RIVER BASIN

14241500 SOUTH FORK TOUTLE RIVER AT TOUTLE, WA—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)—CONTINUED
WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	JANUARY			FEBRUARY			MARCH		
				Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
1	430	5	6.2	378	4	4.4	284	9	6.9			
2	389	5	4.9	352	6	5.8	242	3	1.7			
3	359	5	5.2	332	3	2.7	235	4	2.3			
4	339	6	5.4	344	5	4.8	221	3	1.9			
5	318	6	5.3	342	4	4.1	211	2	1.3			
6	314	6	5.3	355	4	3.9	204	2	0.98			
7	332	6	5.7	347	3	3.2	200	1	0.70			
8	325	7	5.7	316	2	1.7	196	4	2.0			
9	302	7	5.4	300	2	1.3	192	8	4.2			
10	290	7	5.3	288	1	1.1	189	8	4.2			
11	280	7	5.2	283	2	1.3	185	8	3.9			
12	278	6	4.9	288	2	1.3	181	7	3.5			
13	277	4	3.3	295	2	1.4	177	7	3.2			
14	263	5	3.3	277	1	0.75	172	5	2.6			
15	264	12	8.5	262	1	0.70	168	2	1.0			
16	315	11	9.0	253	1	0.68	173	3	1.2			
17	996	448	2,630	246	1	0.66	195	5	2.8			
18	4,300	2,100	25,200	241	1	0.64	177	2	0.76			
19	2,440	690	4,740	235	1	0.62	195	5	3.4			
20	1,650	251	1,140	228	1	0.60	518	102	157			
21	1,300	172	612	220	1	0.58	588	45	80			
22	1,010	87	240	215	1	0.56	425	8	9.3			
23	834	52	119	209	1	0.63	360	3	3.0			
24	705	28	54	204	6	3.0	319	1	1.2			
25	610	13	21	201	2	1.1	284	6	4.4			
26	545	10	14	198	3	1.6	850	239	1,040			
27	512	8	11	195	3	1.4	4,570	3,180	41,800			
28	467	8	10	210	4	2.1	2,700	1,210	9,570			
29	506	11	15	---	---	---	2,230	352	2,150			
30	443	6	6.9	---	---	---	1,580	149	647			
31	409	5	5.5	---	---	---	1,150	95	296			
TOTAL	21,802	---	34,907.0	7,614	---	52.62	19,371	---	55,806.44			
		APRIL			MAY			JUNE				
1	1,110	85	258	457	7	8.5	402	21	23			
2	967	57	151	542	10	15	435	9	10			
3	933	41	104	479	7	8.6	426	11	12			
4	883	24	58	449	5	6.4	379	5	4.9			
5	780	11	24	423	4	4.2	375	3	3.1			
6	736	13	26	407	5	5.7	424	3	3.8			
7	795	16	36	372	4	4.2	393	3	3.3			
8	828	17	39	357	3	3.0	404	3	3.4			
9	711	7	13	418	13	15	355	2	2.3			
10	629	4	6.4	631	51	92	331	2	1.9			
11	996	58	162	557	23	35	345	3	2.9			
12	985	49	130	490	13	18	369	4	4.3			
13	854	32	75	438	6	7.2	336	4	4.0			
14	738	17	35	463	20	26	315	5	4.1			
15	696	29	55	510	87	139	298	4	3.2			
16	2,170	812	5,870	845	273	628	287	4	2.9			
17	1,930	492	2,610	818	233	516	444	11	14			
18	1,430	296	1,160	1,040	409	1,190	342	7	6.3			
19	1,120	168	515	1,410	585	2,240	344	12	11			
20	926	98	246	1,270	219	760	303	10	8.1			
21	795	61	131	1,140	126	389	287	8	5.9			
22	712	27	52	1,060	76	223	303	11	9.0			
23	700	22	41	908	39	97	300	7	5.9			
24	671	16	30	754	29	58	e260	e4	e2.8			
25	800	21	47	640	23	41	253	5	3.2			
26	688	13	24	545	18	27	244	5	3.5			
27	611	8	13	477	15	19	e250	e7	e4.7			
28	601	20	33	429	14	16	290	7	5.3			
29	532	8	11	394	13	13	263	5	3.8			
30	497	6	7.9	377	11	12	244	5	3.1			
31	---	---	---	356	12	12	---	---	---			
TOTAL	26,824	---	11,963.3	19,456	---	6,628.8	10,001	---	175.7			

14241500 SOUTH FORK TOUTLE RIVER AT TOUTLE, WA—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)—CONTINUED
WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
1	231	4	2.5	121	3	1.1	89	6	1.5
2	225	4	2.1	121	3	0.96	87	6	1.4
3	218	3	2.0	117	3	0.81	87	6	1.3
4	207	3	1.8	114	2	0.69	86	5	1.1
5	199	3	1.8	111	2	0.67	87	4	0.88
6	235	10	6.1	110	2	0.66	86	3	0.65
7	211	7	4.0	110	2	0.66	85	2	0.48
8	244	16	15	109	2	0.65	84	2	0.39
9	415	35	43	107	2	0.64	83	1	0.30
10	280	16	12	106	2	0.63	98	2	0.59
11	252	12	8.0	106	2	0.63	101	4	1.0
12	232	8	5.2	106	2	0.63	90	2	0.52
13	219	8	4.7	104	2	0.62	86	2	0.41
14	208	7	4.2	100	2	0.59	85	1	0.34
15	194	6	3.4	97	2	0.58	86	1	0.27
16	188	6	2.8	97	2	0.58	86	1	0.26
17	181	5	2.5	108	4	1.3	86	1	0.26
18	172	5	2.2	109	5	1.6	84	1	0.25
19	164	5	2.0	100	3	0.86	82	1	0.25
20	159	5	2.1	96	2	0.60	81	1	0.24
21	155	5	2.2	95	2	0.58	81	1	0.24
22	172	5	2.5	95	2	0.58	79	1	0.24
23	164	5	2.2	95	2	0.57	79	1	0.24
24	151	5	2.0	95	2	0.57	79	1	0.24
25	143	5	2.0	91	2	0.54	78	1	0.23
26	138	5	2.0	89	2	0.52	77	1	0.23
27	133	5	1.8	88	2	0.51	77	1	0.23
28	130	5	1.7	88	2	0.50	77	1	0.23
29	128	4	1.5	101	5	1.4	76	1	0.23
30	125	4	1.4	99	7	1.9	133	9	4.2
31	122	4	1.2	92	7	1.6	---	---	---
TOTAL	5,995	---	147.9	3,177	---	24.73	2,575	---	18.70
YEAR	174,080	220,091.19							

e Estimated

14242580 TOUTLE RIVER AT TOWER ROAD, NEAR SILVER LAKE, WA

LOCATION.--Lat 46°20'02", long 122°50'20", in NW $\frac{1}{4}$ SW $\frac{1}{4}$ sec.20, T.10 N., R.1 W., Cowlitz County, Hydrologic Unit 17080005, on right bank 10.7 mi downstream from confluence of North and South Forks, 2.9 mi northwest of Silver Lake, and at mile 6.5.

DRAINAGE AREA.--496 mi². A large debris avalanche generated by the eruption of Mount St. Helens on May 18, 1980 blocked tributaries in the upper North Fork Toutle River valley. As a result, from May 19, 1980 to July 7, 1981, approximately 40 mi² was noncontributing. From July 7, 1981 to October 1981, the Coldwater Lake release, approximately 21 mi², was noncontributing. From October 1981 to November 1982, the Castle Lake release, approximately 19.7 mi², was noncontributing. Since November 1982, all areas, including the Spirit Lake release, are effectively contributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1981 to current year.

REVISED RECORDS.--WDR WA-86-1: 1982 (M)(P), 1983 (M)(P), 1984 (M)(P), 1985 (M).

GAGE.--Water-stage recorder. Elevation of gage is 160 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good. No regulation or diversion upstream from station. Some water-quality data available from USGS Washington Water Science Center for this station.

AVERAGE DISCHARGE.--24 years (water years 1982-2005), 2,056 ft³/s, 56.33 in/yr, 1,490,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 61,800 ft³/s, Feb. 8, 1996, gage height, 24.91 ft; maximum gage height, 28.03 ft Dec. 3, 1982; minimum daily, 243 ft³/s, Oct. 14, 1987.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods occurred on May 18, 1980, from mudflows caused by the eruption of Mount St. Helens. A flood about 1200 hours was due to mudflow from South Fork Toutle River and a larger flood about 2100 hours was due to mudflow from North Fork Toutle River.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 10,000 ft³/s and maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)	Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Dec 11	0900	11,100	9.87	Mar 27	1115	12,100	10.23
Jan 18	0745	*12,200	*10.27				

Minimum discharge, 338 ft³/s, Sept. 29, gage height, 3.27 ft.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	753	1,830	1,820	1,450	1,370	971	4,060	1,910	1,620	932	525	412
2	705	3,380	1,640	1,340	1,290	863	3,640	2,260	1,820	901	528	408
3	672	3,970	1,540	1,230	1,220	839	3,330	2,070	1,690	883	515	406
4	648	3,130	1,480	1,170	1,270	798	3,140	1,900	1,500	828	506	402
5	630	2,650	1,510	e1,100	1,380	774	2,740	1,810	1,450	794	495	402
6	768	2,270	1,470	e1,100	1,370	755	2,540	1,700	1,520	882	489	400
7	725	2,000	1,560	1,150	1,400	744	2,680	1,560	1,390	845	487	394
8	1,000	1,780	3,650	1,150	1,240	737	2,940	1,460	1,410	831	485	389
9	2,190	1,610	3,520	1,090	1,180	725	2,520	1,670	1,270	1,510	478	387
10	1,700	1,480	5,120	1,050	1,130	717	2,240	2,260	1,180	1,090	475	413
11	1,360	1,360	9,080	1,010	1,100	710	3,040	2,060	1,310	990	476	434
12	1,170	1,270	5,980	1,010	1,100	699	3,270	1,860	1,450	914	475	411
13	1,060	1,190	4,480	1,040	1,150	689	2,930	1,690	1,310	866	469	396
14	991	1,130	3,950	964	1,100	678	2,570	1,820	1,230	828	458	389
15	937	1,180	3,410	950	1,030	666	2,390	1,880	1,190	784	447	390
16	942	1,300	2,890	1,130	990	675	5,180	3,030	1,130	761	443	396
17	2,540	1,150	2,530	1,980	952	766	5,470	3,030	1,790	739	465	391
18	3,320	1,530	2,260	10,200	935	710	4,590	3,170	1,450	707	495	388
19	3,600	1,560	2,090	7,310	925	722	3,740	3,980	1,520	676	461	383
20	3,180	1,360	1,960	5,260	894	1,260	3,200	3,920	1,340	655	435	379
21	2,770	1,250	1,850	4,290	863	1,600	2,800	3,920	1,240	642	438	374
22	2,460	1,220	1,890	3,480	840	1,220	2,550	3,690	1,280	689	436	372
23	2,330	1,190	1,680	2,950	818	1,090	2,570	3,300	1,290	704	436	371
24	2,160	1,380	1,560	2,540	798	1,020	2,720	2,780	1,130	634	434	368
25	2,000	2,330	1,540	2,220	787	941	3,040	2,410	1,070	614	425	367
26	1,950	2,380	1,990	2,000	779	1,710	2,790	2,110	1,030	596	414	366
27	1,790	2,080	1,670	1,860	768	10,100	2,510	1,880	1,100	579	410	365
28	1,660	1,840	1,540	1,720	795	7,790	2,510	1,700	1,200	565	409	365
29	1,620	1,660	1,500	1,740	---	7,100	2,220	1,560	1,080	553	434	348
30	1,780	1,700	1,500	1,590	---	5,810	2,080	1,500	998	544	442	471
31	1,930	---	1,420	1,470	---	4,380	---	1,420	---	533	421	---
TOTAL	51,341	54,160	80,080	68,544	29,474	58,259	92,000	71,310	39,988	24,069	14,306	11,737
MEAN	1,656	1,805	2,583	2,211	1,053	1,879	3,067	2,300	1,333	776	461	391
MAX	3,600	3,970	9,080	10,200	1,400	10,100	5,470	3,980	1,820	1,510	528	471
MIN	630	1,130	1,420	950	768	666	2,080	1,420	998	533	409	348
AC-FT	101,800	107,400	158,800	136,000	58,460	115,600	182,500	141,400	79,320	47,740	28,380	23,280
CFSM	3.34	3.64	5.21	4.46	2.12	3.79	6.18	4.64	2.69	1.57	0.93	0.79
IN.	3.85	4.06	6.01	5.14	2.21	4.37	6.90	5.35	3.00	1.81	1.07	0.88

14242580 TOUTLE RIVER AT TOWER ROAD, NEAR SILVER LAKE, WA—Continued

DISCHARGE, CUBIC FEET PER SECOND—CONTINUED
WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1981 - 2005, BY WATER YEAR (WY)													
MEAN	945	2,755	3,393	3,398	3,324	2,901	2,651	2,083	1,546	799	493	473	
MAX	2,931	5,290	6,954	5,939	7,754	5,500	4,697	3,192	2,643	1,653	891	1,159	
(WY)	(1998)	(1996)	(1997)	(1997)	(1996)	(1997)	(1991)	(1999)	(1990)	(1983)	(2004)	(2004)	
MIN	310	418	1,350	1,167	1,053	1,315	1,521	1,226	539	412	306	277	
(WY)	(1988)	(1994)	(2001)	(2001)	(2005)	(1992)	(2004)	(1992)	(1992)	(1992)	(1992)	(1989)	
SUMMARY STATISTICS													
	FOR 2004 CALENDAR YEAR					FOR 2005 WATER YEAR			WATER YEARS 1981 - 2005				
ANNUAL TOTAL	677,215					595,268							
ANNUAL MEAN	1,850					1,631			2,056				
HIGHEST ANNUAL MEAN									3,118				
LOWEST ANNUAL MEAN									1,168				
HIGHEST DAILY MEAN	13,900					Jan 30		10,200		Jan 18		48,300	
LOWEST DAILY MEAN	449					Aug 20		348		Sep 29		243	
ANNUAL SEVEN-DAY MINIMUM	468					Aug 15		364		Sep 23		248	
ANNUAL RUNOFF (AC-FT)	1,343,000					1,181,000			1,490,000				
ANNUAL RUNOFF (CFSM)	3.73					3.29			4.15				
ANNUAL RUNOFF (INCHES)	50.79					44.65			56.33				
10 PERCENT EXCEEDS	3,140					3,190			4,070				
50 PERCENT EXCEEDS	1,560					1,260			1,590				
90 PERCENT EXCEEDS	649					435			399				

e Estimated

14242580 TOUTLE RIVER AT TOWER ROAD, NEAR SILVER LAKE, WA—Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: May to October 1990, May to September 1991.

WATER TEMPERATURE: May to October 1990, May to September 1991.

SUSPENDED SEDIMENT DISCHARGE: February 1981 to current year. Records prior to October 1985 are published in U.S. Geological Survey Open-File Report 85-632; records for 1984-87 are published in U.S. Geological Survey Open-File Report 91-219.

INSTRUMENTATION.--Water-quality monitor May 1990 to September 1991. Automatic pumping sediment sampler since February 1981.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily, 232,000 mg/L, Mar. 20, 1982; minimum, 1 mg/L, Oct. 3, 1989.

SEDIMENT DISCHARGE: Maximum daily, 5,930,000 tons, Feb. 20, 1982; minimum, 0.71 tons, Oct. 3, 1989.

EXTREMES FOR CURRENT YEAR.--

SEDIMENT CONCENTRATION: Maximum daily, 5,590 mg/L, Jan. 18; minimum, 4 mg/L, on several days.

SEDIMENT DISCHARGE: Maximum daily, 159,000 tons, Jan. 18; minimum, 3.9 tons, Sept. 29.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)
WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)		
							Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
OCTOBER			NOVEMBER			DECEMBER			
1	753	42	83	1,830	342	1,700	1,820	417	2,050
2	705	27	52	3,380	2,300	25,900	1,640	282	1,250
3	672	26	47	3,970	1,650	18,300	1,540	217	900
4	648	33	57	3,130	795	6,770	1,480	190	759
5	630	17	28	2,650	558	4,000	1,510	260	1,070
6	768	31	68	2,270	400	2,470	1,470	181	720
7	725	1,920	3,840	2,000	285	1,540	1,560	264	1,150
8	1,000	866	3,170	1,780	238	1,150	3,650	2,180	23,300
9	2,190	e3,900	e25,000	1,610	193	838	3,520	872	8,450
10	1,700	816	3,790	1,480	165	658	5,120	1,950	28,100
11	1,360	462	1,710	1,360	137	505	9,080	4,940	126,000
12	1,170	298	943	1,270	110	379	5,980	1,800	29,800
13	1,060	253	725	1,190	93	299	4,480	834	10,200
14	991	214	572	1,130	84	258	3,950	590	6,320
15	937	217	549	1,180	132	436	3,410	376	3,490
16	942	208	532	1,300	149	534	2,890	282	2,210
17	2,540	4,040	33,500	1,150	87	270	2,530	219	1,500
18	3,320	3,660	32,800	1,530	321	1,450	2,260	206	1,260
19	3,600	2,920	29,200	1,560	173	735	2,090	153	864
20	3,180	2,040	17,700	1,360	107	394	1,960	131	693
21	2,770	1,170	8,790	1,250	90	306	1,850	133	666
22	2,460	850	5,660	1,220	83	274	1,890	151	771
23	2,330	639	4,040	1,190	78	251	1,680	123	558
24	2,160	534	3,110	1,380	142	543	1,560	99	419
25	2,000	555	2,990	2,330	1,270	8,890	1,540	103	432
26	1,950	557	2,930	2,380	730	4,730	1,990	e230	e1,300
27	1,790	538	2,600	2,080	554	3,120	1,670	95	432
28	1,660	438	1,960	1,840	493	2,450	1,540	68	284
29	1,620	310	1,360	1,660	311	1,400	1,500	69	279
30	1,780	473	2,320	1,700	307	1,410	1,500	72	292
31	1,930	421	2,190	---	---	---	1,420	57	217
TOTAL	51,341	---	192,316	54,160	---	91,960	80,080	---	255,736

14242580 TOUTLE RIVER AT TOWER ROAD, NEAR SILVER LAKE, WA—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)—CONTINUED
WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
1	1,450	56	218	1,370	162	600	971	e36	e97
2	1,340	46	166	1,290	127	443	863	19	44
3	1,230	41	135	1,220	120	395	839	13	29
4	1,170	38	122	1,270	e150	e520	798	16	34
5	e1,100	e44	e130	1,380	e200	e740	774	17	35
6	e1,100	e41	e120	1,370	e150	e560	755	11	22
7	1,150	37	114	1,400	153	584	744	9	18
8	1,150	37	116	1,240	97	325	737	10	21
9	1,090	44	130	1,180	74	237	725	8	16
10	1,050	48	137	1,130	69	210	717	6	11
11	1,010	38	103	1,100	59	176	710	6	12
12	1,010	31	85	1,100	60	180	699	7	14
13	1,040	28	79	1,150	70	216	689	8	15
14	964	28	72	1,100	54	161	678	8	15
15	950	26	67	1,030	42	118	666	10	17
16	1,130	26	80	990	39	104	675	11	19
17	1,980	513	5,370	952	37	95	766	e17	e36
18	10,200	5,590	159,000	935	35	88	710	10	19
19	7,310	3,040	61,000	925	33	83	722	10	21
20	5,260	1,780	25,500	894	31	74	1,260	185	697
21	4,290	1,110	12,900	863	28	65	1,600	e380	e1,700
22	3,480	791	7,480	840	25	56	1,220	92	306
23	2,950	619	4,940	818	22	49	1,090	45	134
24	2,540	526	3,610	798	19	42	1,020	33	91
25	2,220	422	2,540	787	19	40	941	24	61
26	2,000	358	1,940	779	19	39	1,710	742	7,000
27	1,860	320	1,610	768	17	34	10,100	5,160	141,000
28	1,720	261	1,210	795	16	35	7,790	2,700	58,400
29	1,740	261	1,230	---	---	---	7,100	1,530	29,400
30	1,590	233	1,000	---	---	---	5,810	1,000	15,900
31	1,470	192	760	---	---	---	4,380	655	7,790
TOTAL	68,544	---	291,964	29,474	---	6,269	58,259	---	262,974
		APRIL		MAY				JUNE	
1	4,060	632	6,980	1,910	129	671	1,620	105	464
2	3,640	537	5,330	2,260	e170	e1,000	1,820	e140	e680
3	3,330	305	2,740	2,070	e110	e610	1,690	75	345
4	3,140	229	1,940	1,900	90	461	1,500	55	225
5	2,740	191	1,420	1,810	79	388	1,450	39	152
6	2,540	174	1,190	1,700	77	353	1,520	40	162
7	2,680	e260	e2,000	1,560	68	286	1,390	28	105
8	2,940	e360	e2,900	1,460	57	227	1,410	31	119
9	2,520	221	1,500	1,670	87	399	1,270	27	92
10	2,240	170	1,030	2,260	e300	e1,900	1,180	23	72
11	3,040	e540	e4,700	2,060	143	801	1,310	41	145
12	3,270	481	4,290	1,860	84	422	1,450	60	235
13	2,930	297	2,350	1,690	56	255	1,310	50	175
14	2,570	241	1,680	1,820	90	445	1,230	38	127
15	2,390	208	1,350	1,880	72	375	1,190	25	80
16	5,180	e2,400	e42,000	3,030	519	4,410	1,130	23	71
17	5,470	1,430	21,500	3,030	342	2,840	1,790	e320	e1,700
18	4,590	838	10,500	3,170	380	3,340	1,450	81	321
19	3,740	502	5,100	3,980	1,020	11,000	1,520	94	391
20	3,200	358	3,110	3,920	648	6,900	1,340	64	233
21	2,800	268	2,030	3,920	587	6,280	1,240	37	124
22	2,550	226	1,560	3,690	442	4,420	1,280	47	165
23	2,570	247	1,730	3,300	312	2,790	1,290	52	182
24	2,720	300	2,220	2,780	218	1,650	1,130	35	107
25	3,040	446	3,780	2,410	142	929	1,070	24	70
26	2,790	279	2,120	2,110	114	648	1,030	24	67
27	2,510	199	1,350	1,880	92	469	1,100	37	109
28	2,510	436	3,000	1,700	72	333	1,200	48	156
29	2,220	208	1,250	1,560	63	265	1,080	35	102
30	2,080	148	831	1,500	56	225	998	27	73
31	---	---	---	1,420	53	204	---	---	---
TOTAL	92,000	---	143,481	71,310	---	55,296	39,988	---	7,049

14242580 TOUTLE RIVER AT TOWER ROAD, NEAR SILVER LAKE, WA—Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY)—CONTINUED
WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005

Day	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)	Mean discharge (cfs)	Mean concentration (mg/l)	Load (tons/day)
1	932	23	57	525	11	16	412	4	4.7
2	901	22	53	528	12	17	408	4	4.5
3	883	21	50	515	13	18	406	4	4.7
4	828	20	45	506	14	20	402	4	4.9
5	794	20	42	495	14	19	402	5	5.2
6	882	23	55	489	12	16	400	5	5.3
7	845	19	44	487	11	14	394	5	5.0
8	831	18	42	485	10	13	389	4	4.6
9	1,510	e94	e400	478	12	16	387	4	4.5
10	1,090	56	164	475	16	20	413	7	7.3
11	990	39	105	476	19	25	434	6	6.8
12	914	32	79	475	22	28	411	6	7.0
13	866	29	68	469	20	25	396	8	8.1
14	828	27	59	458	17	21	389	9	9.1
15	784	24	50	447	14	17	390	8	8.5
16	761	22	44	443	11	13	396	7	7.6
17	739	21	41	465	8	9.6	391	7	6.9
18	707	20	38	495	7	9.1	388	6	6.3
19	676	19	34	461	7	8.2	383	6	5.7
20	655	18	31	435	6	7.6	379	5	5.2
21	642	17	29	438	6	7.4	374	5	4.7
22	689	24	46	436	6	7.1	372	4	4.4
23	704	22	43	436	6	6.9	371	4	4.1
24	634	17	30	434	6	6.7	368	4	4.4
25	614	14	23	425	6	6.3	367	5	4.7
26	596	13	21	414	5	5.9	366	5	4.8
27	579	14	22	410	5	5.7	365	5	4.6
28	565	15	24	409	5	5.4	365	4	4.3
29	553	15	23	434	5	5.6	348	4	3.9
30	544	14	20	442	5	5.4	471	e25	e36
31	533	12	18	421	4	5.0	---	---	---
TOTAL	24,069	---	1,800	14,306	---	399.9	11,737	---	197.8
YEAR	595,268	1,309,442.7							

e Estimated

14243000 COWLITZ RIVER AT CASTLE ROCK, WA

LOCATION.--Lat 46°16'30", long 122°54'48", in SW $\frac{1}{4}$ SE $\frac{1}{4}$ sec.10, T.9 N., R.2 W., Cowlitz County, Hydrologic Unit 17080005, on left bank 40 ft downstream from Arkansas Valley Road bridge in Castle Rock, 2.7 mi downstream from Toutle River, and at mile 17.3.

DRAINAGE AREA.--2,238 mi². A large debris avalanche generated by the eruption of Mount St. Helens on May 18, 1980 blocked tributaries in the upper North Fork Toutle River valley. As a result, from May 19, 1980 to July 7, 1981, approximately 40 mi² was noncontributing. From July 7, 1981 to October 1981, the Coldwater Lake release, approximately 21 mi², was noncontributing. From October 1981 to November 1982, the Castle Lake release, approximately 19.7 mi², was noncontributing. Since November 1982, all areas, including the Spirit Lake release, are effectively contributing.

PERIOD OF RECORD.--December 1926 to current year; October 1985 to April 2000 (seasonal records).

REVISED RECORDS.--WSP 1218: Drainage area. WSP 1638: 1947(P), 1951.

GAGE.--Water-stage recorder. Datum of gage is NAVD of 1988. Prior to Dec. 18, 1933, nonrecording gage at site 2 mi upstream at datum 38.58 ft higher. Dec. 18, 1933, to June 13, 1934, nonrecording gage, and June 14 to Sept. 30, 1934, water-stage recorder, at present site at datum 28.65 ft higher. Oct. 1, 1934, to May 21, 1980, water-stage recorder, on right bank at datum 23.65 ft higher. May 23, 1980, to July 29, 1997, water-stage recorder at present site at datum 23.65 ft higher.

REMARKS.--No estimated daily discharges. Records good. Flow regulated by Riffe Lake (station 14234800) at mile 65.5, and Mayfield Reservoir (station 14237800) at mile 52.0. Minor diversions for domestic and farm use upstream from station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--63 years (water years 1928-85, 2001-05), 9,122 ft³/s, 55.35 in/yr, 6,609,000 acre-ft/yr, adjusted for storage in Mayfield Reservoir since April 1962, and Riffe Lake since April 1968.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 139,000 ft³/s Dec. 23, 1933, gage height, 55.25 ft present datum, from rating curve extended above 80,000 ft³/s; maximum gage height, 55.76 ft Feb. 8, 1996; minimum discharge, 998 ft³/s Nov. 7, 8, 1935.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 29,600 ft³/s, Jan. 18, gage height, 39.78 ft; minimum discharge, 2,760 ft³/s, Aug. 20, gage height, 31.03 ft.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5,390	9,880	9,810	7,130	7,010	5,330	9,790	5,760	7,420	4,170	2,990	3,700
2	5,230	12,200	9,630	6,960	6,800	5,290	8,880	6,470	7,240	3,700	3,590	3,710
3	5,290	13,700	9,290	7,010	6,700	5,270	8,080	6,500	6,990	3,660	3,920	3,690
4	5,260	11,800	7,900	7,540	6,710	5,110	8,070	6,220	6,420	3,600	3,460	3,670
5	5,230	10,900	7,860	7,440	6,900	5,060	7,590	5,820	6,140	3,540	3,390	3,680
6	5,380	10,300	8,550	7,420	7,000	5,020	6,920	5,640	6,300	3,610	3,110	3,700
7	5,370	9,960	11,300	7,520	7,260	5,040	7,000	5,450	6,410	3,590	2,920	3,680
8	5,550	9,760	15,000	6,960	6,970	5,020	7,930	5,310	6,640	3,560	3,010	3,680
9	7,360	9,580	16,400	6,730	6,770	4,990	7,040	5,490	6,050	4,160	3,370	3,670
10	6,760	9,370	18,200	6,630	6,660	4,970	6,510	6,630	5,820	3,720	3,370	3,710
11	6,260	8,850	23,400	6,550	6,590	4,960	7,460	6,680	5,700	3,600	3,210	3,740
12	5,970	8,640	19,100	6,530	6,570	4,950	8,500	6,030	5,710	3,500	3,030	3,720
13	5,790	8,210	15,100	6,580	6,670	4,960	8,120	5,730	5,590	3,440	3,020	3,700
14	5,700	7,700	13,900	6,450	6,650	4,940	7,220	5,860	5,780	3,390	3,020	3,700
15	5,630	7,770	11,900	6,390	6,490	4,910	6,840	5,870	5,970	3,330	3,110	3,710
16	5,630	7,940	11,200	6,660	5,610	4,550	9,830	7,370	5,280	3,300	3,360	3,720
17	8,060	7,440	10,700	7,920	5,370	4,450	11,300	7,790	5,440	3,270	3,100	3,710
18	10,300	7,740	10,300	25,300	5,400	4,370	10,100	7,850	5,150	3,290	2,930	3,690
19	10,200	7,730	10,200	21,200	5,360	4,390	8,890	8,600	5,210	5,130	2,890	3,650
20	9,710	7,340	10,000	18,100	5,310	5,100	7,990	8,670	5,010	4,940	2,850	3,670
21	9,030	7,150	9,850	17,300	5,280	5,860	7,120	8,680	5,500	4,890	2,860	3,670
22	8,630	7,090	9,930	15,900	5,210	5,530	6,710	8,350	5,000	4,280	2,880	3,670
23	8,470	6,770	9,510	14,000	5,170	5,290	6,640	7,910	4,890	3,330	4,840	3,670
24	8,280	6,930	8,120	12,600	5,120	4,850	6,970	7,690	4,620	3,070	4,980	3,670
25	8,470	8,480	7,990	11,100	5,150	4,710	7,360	7,760	4,560	3,060	4,020	3,660
26	9,620	8,680	8,430	10,400	5,120	6,140	7,440	8,700	4,520	3,100	3,150	3,660
27	9,560	8,050	8,130	9,910	5,130	21,100	6,950	9,110	4,670	3,070	3,100	3,650
28	9,410	7,640	7,920	8,430	5,170	16,500	6,560	8,620	5,060	3,040	3,100	3,670
29	9,360	7,930	7,720	8,280	---	15,400	6,210	7,430	5,130	3,020	3,470	3,650
30	9,600	9,630	6,940	8,100	---	13,700	6,000	6,890	4,540	3,010	3,590	3,770
31	9,900	---	6,850	7,940	---	10,600	---	7,030	---	3,010	3,810	---
TOTAL	230,400	265,160	341,130	306,980	170,150	208,360	232,020	217,910	168,760	111,380	103,450	110,640
MEAN	7,432	8,839	11,000	9,903	6,077	6,721	7,734	7,029	5,625	3,593	3,337	3,688
MAX	10,300	13,700	23,400	25,300	7,260	21,100	11,300	9,110	7,420	5,130	4,980	3,770
MIN	5,230	6,770	6,850	6,390	5,120	4,370	6,000	5,310	4,520	3,010	2,850	3,650
AC-FT	457,000	525,900	676,600	608,900	337,500	413,300	460,200	432,200	334,700	220,900	205,200	219,500
MEAN†	5,362	7,398	10,760	10,600	4,791	6,990	11,990	9,498	5,326	3,162	1,748	1,457
CFSM†	2.40	3.31	4.81	4.74	2.14	3.12	5.36	4.24	2.38	1.41	0.78	0.65
IN.†	2.76	3.69	5.54	5.46	2.23	3.60	5.98	4.89	2.66	1.63	0.90	0.73
AC-FT†	329,700	440,200	661,400	651,800	266,100	429,800	713,300	584,000	316,900	194,400	107,500	86,680
CAL YR	2004	TOTAL 2,873,580	MEAN 7,851	MAX 34,600	MIN 3,090	AC-FT 5,700,000	MEAN† 7,897	CFSM† 3.53	IN.† 48.04	AC-FT† 5,733,000		
WTR YR	2005	TOTAL 2,466,340	MEAN 6,757	MAX 25,300	MIN 2,850	AC-FT 4,892,000	MEAN† 6,605	CFSM† 2.95	IN.† 40.07	AC-FT† 4,782,000		

† Adjusted for change in contents in Riffe Lake and Mayfield Reservoir.

14246900 COLUMBIA RIVER AT BEAVER ARMY TERMINAL, NEAR QUINCY, OR—Continued

SUMMARY STATISTICS	FOR 2004 CALENDAR YEAR		FOR 2005 WATER YEAR		WATER YEARS 1969 - 2005	
ANNUAL TOTAL	71,950,900		67,191,400			
ANNUAL MEAN	196,600		184,100		230,600	
HIGHEST ANNUAL MEAN					338,200	1997
LOWEST ANNUAL MEAN					140,000	2001
HIGHEST DAILY MEAN	400,000	Jan 31	366,000	May 20	864,000	Feb 10, 1996
LOWEST DAILY MEAN	94,900	Oct 17	85,100	Sep 8	63,600	Sep 9, 2001
ANNUAL SEVEN-DAY MINIMUM	118,000	Oct 12	95,400	Sep 6	78,700	Sep 5, 2001
ANNUAL RUNOFF (AC-FT)	142,700,000		133,300,000		167,000,000	
10 PERCENT EXCEEDS	271,000		256,000		372,000	
50 PERCENT EXCEEDS	187,000		173,000		208,000	
90 PERCENT EXCEEDS	132,000		125,000		123,000	

e Estimated

14246900 COLUMBIA RIVER AT BEAVER ARMY TERMINAL, NEAR QUINCY, OR—Continued
(National stream quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--August 1967 to September 1970, October 1993 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1993 to September 2003.

WATER TEMPERATURE: August 1967 to September 1970. October 1993 to September 2003.

TURBIDITY: February 2001 to current year.

INSTRUMENTATION.--Water-quality monitor.

REMARKS.--Turbidity records excellent except those for the periods Dec. 11-14, Mar. 28, June 24 to Aug. 2, which are good. The probe was checked using a formazin standard. Turbidity data are highly dependent on the instrumentation used for the measurement. See the "Definitions" section for turbidity in the front of this report. Since February, 1994, specific conductance and temperature sensors located near right bank. Prior to that time, sensors were located near left bank. It was determined that daily record collected prior to February 1994 is not representative of the cross section due to a seasonal influence from several upstream sloughs. Additional specific conductance and temperature for the period October 1992 to September 1993 available in the files of the Portland field office. Boron values less than 16 UG/L have been designated as estimated due to a change in the minimum reporting level effective December 22, 1997.

EXTREMES FOR PERIOD OF RECORD.--

SPECIFIC CONDUCTANCE: Maximum recorded, 188 microsiemens Feb. 5, 1994, but may have been higher during periods of missing record; minimum recorded, 73 microsiemens Feb. 9, 1996, but may have been lower during periods of missing record.

WATER TEMPERATURE: Maximum, 24.0°C July 28, 1998; minimum, 0.0°C Jan. 31, Feb. 1, 1969.

TURBIDITY: Maximum, 221 NTU Feb. 1, 2003; minimum, <1 FNU Mar. 2, 2001, Oct. 3, 2003, many days during July and August 2005.

EXTREMES FOR CURRENT YEAR.--

TURBIDITY: Maximum, 108 FNU Dec. 12, Jan 19; minimum, <1 FNU many days in July and August.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005

Date	Time	Dis-charge, cfs (00060)	Turb- idity, IR LED light, det ang 90 deg, FNU (63680)	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. conduc- tance, wat unf uS/cm 25 degC (00095)	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													
18...	1340	125,000	10	751	--	--	7.7	134	16.2	49	13.6	3.64	--
NOV													
22...	1300	160,000	3.7	766	11.2	98	7.9	142	10.0	57	15.3	4.46	1.16
DEC													
15...	1330	E240,000	19	775	12.6	104	7.8	118	8.1	44	11.7	3.58	--
JAN													
19...	1400	234,000	69	766	--	--	8.0	130	4.2	55	15.0	4.19	1.08
FEB													
16...	1200	169,000	3.4	759	13.2	103	8.2	149	4.7	62	16.8	4.91	--
MAR													
16...	1350	122,000	4.0	752	14.0	119	8.7	155	7.8	66	18.1	5.00	1.14
APR													
21...	1100	184,000	8.2	--	--	--	--	--	--	--	--	--	--
21...	1410	184,000	8.2	764	12.3	109	8.2	148	10.3	58	15.8	4.56	--
MAY													
18...	1300	328,000	9.6	748	10.3	101	7.8	137	13.5	52	13.9	4.22	1.15
JUN													
14...	1250	211,000	7.3	760	--	--	7.7	130	15.9	--	--	--	--
JUL													
06...	1240	194,000	3.3	762	9.7	106	7.7	128	19.6	52	14.3	3.94	.94
AUG													
09...	1340	147,000	6.9	763	9.0	102	7.4	138	21.7	58	16.4	4.21	--

14246900 COLUMBIA RIVER AT BEAVER ARMY TERMINAL, NEAR QUINCY, OR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005—CONTINUED

Date	Sodium adsorption ratio (00931)	Sodium, water, fltrd, mg/L (00930)	Sodium, percent (00932)	Alkalinity, wat flt inc tit field, mg/L as CaCO3 (39086)	Bicarbonate, wat flt inc titr., field, mg/L (00453)	Carbonate, wat flt inc titr., field, mg/L (00452)	Chloride, water, fltrd, mg/L (00940)	Fluoride, water, fltrd, mg/L (00950)	Silica, water, fltrd, mg/L (00955)	Sulfate, water, fltrd, mg/L (00945)	Sulfur, suspnd sedimnt total, percent (30308)	Residue water, fltrd, sum of constituents mg/L (70301)	Residue water, fltrd, tons/ acre-ft (70303)
OCT 18...	--	--	--	48	58	.2	--	--	--	--	--	--	--
NOV 22...	.4	6.28	19	54	66	.2	3.35	.1	10.3	9.2	.24	84	.11
DEC 15...	--	--	--	45	55	.1	--	--	--	--	.21	--	--
JAN 19...	.3	5.67	18	51	62	.1	3.61	<.2	10.5	9.3	--	82	.11
FEB 16...	--	--	--	60	73	.1	--	--	--	--	--	--	--
MAR 16...	.3	6.48	17	61	73	.7	4.16	.1	8.61	11.6	--	93	.12
APR 21...	--	--	--	--	--	--	--	--	--	--	--	--	--
APR 21...	--	--	--	54	65	.3	--	--	--	--	--	--	--
MAY 18...	.4	5.84	19	48	59	.1	3.21	.1	11.5	9.4	--	79	.12
JUN 14...	--	--	--	49	60	.1	--	--	--	--	--	--	--
JUL 06...	.3	5.33	18	50	61	.2	2.85	.1	9.57	8.3	--	76	.11
AUG 09...	--	--	--	54	65	.3	--	--	--	--	--	--	--

WATER-QUALITY DATA, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005—CONTINUED

Date	Residue on evap. at 180degC wat flt mg/L (70300)	Ammonia + org-N, water, fltrd, mg/L as N (00623)	Ammonia + org-N, water, unfltrd mg/L as N (00625)	Ammonia water, fltrd, mg/L as N (00608)	Nitrite + nitrate water fltrd, mg/L as N (00631)	Nitrite water, fltrd, mg/L as N (00613)	Orthophosphate, water, fltrd, mg/L as P (00671)	Phosphorus, water, fltrd, mg/L (00666)	Phosphorus, water, unfltrd mg/L (00665)	Phosphorus, suspnd sedimnt total, percent (30292)	Total carbon, suspnd sedimnt total, percent (30244)	Total carbon, suspnd sedimnt total, mg/L (00694)	Inorganic carbon, suspnd sedimnt total, mg/L (00688)
OCT 18...	--	.12	.14	.031	.155	.003	.013	.021	.038	.110	1.4	.3	<.1
NOV 22...	84	E.09	.13	.026	.244	.003	.016	.023	.031	.180	4.0	.2	<.1
DEC 15...	--	.18	.20	.026	.397	.003	.007	.023	.052	.110	2.4	.6	<.1
JAN 19...	--	E.08	.13	.024	.373	.004	.010	.015	.093	.098	.80	.9	<.1
FEB 16...	--	E.09	.17	E.007	.343	.004	.007	.013	.029	--	--	.4	<.1
MAR 16...	87	.18	.20	E.007	.173	.003	<.006	.005	.028	.200	6.2	.7	<.1
APR 21...	--	--	--	--	--	--	--	--	--	--	--	--	--
APR 21...	--	.11	.24	.012	.271	.005	E.003	.007	.035	.200	4.7	.7	<.1
MAY 18...	89	.12	.21	.013	.213	.003	E.004	.013	.040	--	--	.6	<.1
JUN 14...	--	.18	.17	.011	.157	.002	E.004	.014	.034	--	--	.4	<.1
JUL 06...	82	.21	.17	E.006	.099	.003	E.004	.013	.041	--	--	.6	<.1
AUG 09...	--	.17	.15	E.008	.090	.002	.006	.014	.036	--	--	.4	<.1

14246900 COLUMBIA RIVER AT BEAVER ARMY TERMINAL, NEAR QUINCY, OR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005—CONTINUED

Date	Organic carbon, suspnd sedimnt total, mg/L (00689)	Organic carbon, water, fltrd, mg/L (00681)	Organic carbon, suspnd sedimnt percent (50465)	Alum-inum, water, fltrd, ug/L (01106)	Anti-mony, water, fltrd, ug/L (01095)	Arsenic water, fltrd, ug/L (01000)	Barium, water, fltrd, ug/L (01005)	Beryll-ium, water, fltrd, ug/L (01010)	Boron, water, fltrd, ug/L (01020)	Cadmium water, fltrd, ug/L (01025)	Chrom-ium, water, fltrd, ug/L (01030)	Cobalt water, fltrd, ug/L (01035)	Copper, water, fltrd, ug/L (01040)
OCT 18...	.3	1.5	1.3	2	E.13	.8	18	<.06	--	<.04	<.8	.049	1.0
NOV 22...	.2	1.3	4.0	2	E.12	.8	21	<.06	11	<.04	<.8	.051	.8
DEC 15...	.6	1.7	2.4	5	E.11	.7	16	<.06	--	<.04	<.8	.042	1.5
JAN 19...	.9	1.7	.9	10	E.11	.7	16	<.06	E8	<.04	<.8	.081	1.1
FEB 16...	.4	1.4	--	3	E.10	.8	21	<.06	--	<.04	<.8	.061	.7
MAR 16...	.7	1.4	5.6	2	E.13	.4	20	<.06	17	<.04	<.8	.035	.8
APR 21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	.7	1.7	4.0	4	E.11	.8	18	<.06	--	<.04	<.8	.056	.9
MAY 18...	.6	1.8	--	3	E.12	.7	19	<.06	12	<.04	<.8	.071	1.5
JUN 14...	.4	E.2	--	3	E.13	--	18	<.06	--	<.04	<.8	.053	1.2
JUL 06...	.6	1.8	--	3	E.12	.7	20	<.06	10	<.04	<.8	.041	1.0
AUG 09...	.4	1.5	--	2	E.18	.8	20	<.06	--	<.04	<.8	.037	.9

WATER-QUALITY DATA, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005—CONTINUED

Date	Iron, water, fltrd, ug/L (01046)	Lead, water, fltrd, ug/L (01049)	Lithium water, fltrd, ug/L (01130)	Mangan-ese, water, fltrd, ug/L (01056)	Molyb-denum, water, fltrd, ug/L (01060)	Nickel, water, fltrd, ug/L (01065)	Selen-ium, water, fltrd, ug/L (01145)	Silver, water, fltrd, ug/L (01075)	Stront-ium, water, fltrd, ug/L (01080)	Vanad-ium, water, fltrd, ug/L (01085)	Zinc, water, fltrd, ug/L (01090)	Alum-inum, suspnd sedimnt total, percent (30221)	Anti-mony, suspnd sedimnt total, ug/g (29816)
OCT 18...	--	<.08	--	.9	.7	.68	--	<.2	--	--	1.7	8.1	.4
NOV 22...	10	<.08	2.5	1.7	.6	.53	<.4	<.2	80.3	1.7	.8	7.2	1.3
DEC 15...	--	.10	--	1.2	.6	.64	--	<.2	--	--	1.5	8.4	.8
JAN 19...	16	<.08	2.5	11.2	.6	.76	<.4	<.2	74.2	1.4	1.9	8.6	.4
FEB 16...	--	<.08	--	1.1	.8	.80	--	<.2	--	--	.7	--	--
MAR 16...	8	<.08	2.2	.3	.8	.25	<.4	<.2	86.8	1.5	1.0	5.6	.6
APR 21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	--	E.04	--	.7	.7	.69	--	<.2	--	--	1.9	6.0	.6
MAY 18...	13	E.07	2.7	1.0	.7	.46	<.4	<.2	79.8	1.9	1.8	--	--
JUN 14...	--	E.07	--	1.0	.7	.94	--	<.2	--	--	1.7	--	--
JUL 06...	8	E.05	2.0	.6	.7	.82	<.4	<.2	77.1	1.8	1.0	--	--
AUG 09...	--	<.08	--	.6	.8	.69	--	<.2	--	--	.7	--	--

14246900 COLUMBIA RIVER AT BEAVER ARMY TERMINAL, NEAR QUINCY, OR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005—CONTINUED

Date	Arsenic suspnd sedimnt total, ug/g (29818)	Barium, suspnd sedimnt total, ug/g (29820)	Beryll- ium, suspnd sedimnt total, ug/g (29822)	Cadmium suspnd sedimnt total, ug/g (29826)	Chrom- ium, suspnd sedimnt total, ug/g (29829)	Cobalt, suspnd sedimnt total, ug/g (35031)	Copper, suspnd sedimnt total, ug/g (29832)	Iron, suspnd sedimnt total, percent (30269)	Lead, suspnd sedimnt total, ug/g (29836)	Lithium suspnd sedimnt total, ug/g (35050)	Mangan- ese, suspnd sedimnt total, ug/g (29839)	Mercury suspnd sedimnt total, ug/g (29841)	Molyb- denum, suspnd sedimnt total, ug/g (29843)
OCT 18...	3.6	390	1	.3	25	11	52	3.0	18	20	820	.07	2
NOV 22...	12	530	2	.7	80	19	59	4.3	31	24	1,800	.22	5
DEC 15...	8.4	490	2	.5	55	20	48	4.6	24	26	1,200	.07	2
JAN 19...	4.6	400	1	.1	24	13	66	3.3	17	24	750	.04	2
FEB 16...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAR 16...	6.4	390	1	.6	200	13	34	3.0	20	17	1,200	.21	25
APR 21...	--	--	--	--	--	--	--	--	--	--	--	--	--
21...	6.3	380	1	.5	53	13	45	3.4	19	21	1,200	.05	4
MAY 18...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUN 14...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL 06...	--	--	--	--	--	--	--	--	--	--	--	--	--
AUG 09...	--	--	--	--	--	--	--	--	--	--	--	--	--

WATER-QUALITY DATA, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005—CONTINUED

Date	Nickel, suspnd sedimnt total, ug/g (29845)	Selen- ium, suspnd sedimnt total, ug/g (29847)	Silver, suspnd sedimnt total, ug/g (29850)	Stront- ium, suspnd sedimnt total, ug/g (35040)	Titan- ium, suspnd sedimnt total, percent (30317)	Vanad- ium, suspnd sedimnt total, ug/g (29853)	Zinc, suspnd sedimnt total, ug/g (29855)	2,6-Di- ethyl- aniline water fltrd 0.7u GF ug/L (82660)	CIAT, water, fltrd, ug/L (04040)	Aceto- chlor, water, fltrd, ug/L (49260)	Ala- chlor, water, fltrd, ug/L (46342)	alpha- HCH, water, fltrd, ug/L (34253)	Atra- zine, water, fltrd, ug/L (39632)
OCT 18...	17	M	<.5	380	.360	68	88	<.006	<.006	<.006	<.005	<.005	<.007
NOV 22...	48	M	<1	300	.470	110	200	<.006	<.006	<.006	<.005	<.005	<.007
DEC 15...	32	M	<.5	330	.530	110	150	<.006	<.006	<.006	<.005	<.005	<.013
JAN 19...	18	M	<.5	350	.380	64	71	<.006	<.006	<.006	<.005	<.005	<.007
FEB 16...	--	--	--	--	--	--	--	<.006	<.006	<.006	<.005	<.005	<.007
MAR 16...	73	1	<.5	300	.370	77	170	<.006	<.006	<.006	<.005	<.005	<.007
APR 21...	--	--	--	--	--	--	--	<.006	<.006	<.006	<.005	<.005	.011
21...	30	1	<.5	310	.340	84	140	--	--	--	--	--	--
MAY 18...	--	--	--	--	--	--	--	<.006	<.006	<.006	<.005	<.005	E.005
JUN 14...	--	--	--	--	--	--	--	<.006	<.006	<.006	<.005	<.005	<.007
JUL 06...	--	--	--	--	--	--	--	<.006	<.006	<.006	<.005	<.005	<.007
AUG 09...	--	--	--	--	--	--	--	<.006	<.006	<.006	<.005	<.005	<.007

14246900 COLUMBIA RIVER AT BEAVER ARMY TERMINAL, NEAR QUINCY, OR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005—CONTINUED

Date	Azin-phos-methyl, water, fltrd 0.7u GF ug/L (82686)	Ben-flur-alin, water, fltrd 0.7u GF ug/L (82673)	Butyl-ate, water, fltrd, ug/L (04028)	Car-baryl, water, fltrd 0.7u GF ug/L (82680)	Carbo-furan, water, fltrd 0.7u GF ug/L (82674)	Chlor-pyrifos water, fltrd, ug/L (38933)	cis-Per-methrin water fltrd 0.7u GF ug/L (82687)	Cyana-zine, water, fltrd, ug/L (04041)	DCPA, water fltrd 0.7u GF ug/L (82682)	Diazi-non, water, fltrd, ug/L (39572)	Diel-drin, water, fltrd, ug/L (39381)	Disul-foton, water, fltrd 0.7u GF ug/L (82677)	EPTC, water, fltrd 0.7u GF ug/L (82668)
OCT 18...	<.050	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.005	<.009	<.02	<.004
NOV 22...	<.050	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.005	<.009	<.02	<.004
DEC 15...	<.050	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.005	<.009	<.02	<.004
JAN 19...	<.050	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.005	<.009	<.02	<.004
FEB 16...	<.050	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.005	<.009	<.02	<.004
MAR 16...	<.050	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.005	<.009	<.02	<.004
APR 21...	<.050	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.005	<.009	<.02	<.004
MAY 18...	<.050	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.005	<.009	<.02	.005
JUN 14...	<.050	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.005	<.009	<.02	<.004
JUL 06...	<.050	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.005	<.009	<.02	<.004
AUG 09...	<.050	<.010	<.004	<.041	<.020	<.005	<.006	<.018	<.003	<.005	<.009	<.02	<.004

WATER-QUALITY DATA, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005—CONTINUED

Date	Ethal-flur-alin, water, fltrd 0.7u GF ug/L (82663)	Etho-prop, water, fltrd 0.7u GF ug/L (82672)	Fonofos water, fltrd, ug/L (04095)	Lindane water, fltrd, ug/L (39341)	Linuron water fltrd 0.7u GF ug/L (82666)	Malathion, water, fltrd, ug/L (39532)	Methyl parathion, water, fltrd 0.7u GF ug/L (82667)	Metola-chlor, water, fltrd, ug/L (39415)	Metri-buzin, water, fltrd, ug/L (82630)	Moli-nate, water, fltrd 0.7u GF ug/L (82671)	Naprop-amide, water, fltrd 0.7u GF ug/L (82684)	p,p'-DDE, water, fltrd, ug/L (34653)	Para-thion, water, fltrd, ug/L (39542)
OCT 18...	<.009	<.005	<.003	<.004	<.035	<.027	<.015	<.010	<.006	<.003	<.007	<.003	<.010
NOV 22...	<.009	<.005	<.003	<.004	<.035	<.027	<.015	<.006	<.006	<.003	<.007	<.003	<.010
DEC 15...	<.009	<.005	<.003	<.004	<.035	<.027	<.015	<.006	<.006	<.003	<.007	<.003	<.010
JAN 19...	<.009	<.005	<.003	<.004	<.035	<.027	<.015	<.006	<.006	<.003	<.007	<.003	<.010
FEB 16...	<.009	<.005	<.003	<.004	<.035	<.027	<.015	<.006	<.006	<.003	<.007	<.003	<.010
MAR 16...	<.009	<.005	<.003	<.004	<.035	<.027	<.015	<.006	<.006	<.003	<.007	<.003	<.010
APR 21...	<.009	<.005	<.003	<.004	<.035	<.027	<.015	<.006	<.006	<.003	<.007	<.003	<.010
MAY 18...	<.009	<.005	<.003	<.004	<.035	<.027	<.015	<.006	<.006	<.003	<.007	<.003	<.010
JUN 14...	<.009	<.005	<.003	<.004	<.035	<.027	<.015	<.006	<.006	<.003	<.007	<.003	<.010
JUL 06...	<.009	<.005	<.003	<.004	<.035	<.027	<.015	<.006	<.006	<.003	<.007	<.003	<.010
AUG 09...	<.009	<.005	<.003	<.004	<.035	<.027	<.015	<.006	<.006	<.003	<.007	<.003	<.010

14246900 COLUMBIA RIVER AT BEAVER ARMY TERMINAL, NEAR QUINCY, OR—Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005—CONTINUED

Date	Peb- ulate, water, fltrd 0.7u GF ug/L (82669)	Pendi- meth- alin, water, fltrd 0.7u GF ug/L (82683)	Phorate water fltrd 0.7u GF ug/L (82664)	Prome- ton, water, fltrd, ug/L (04037)	Propy- zamide, water, fltrd 0.7u GF ug/L (82676)	Propa- chlor, water, fltrd, ug/L (04024)	Pro- panil, water, fltrd 0.7u GF ug/L (82679)	Propar- gite, water, fltrd 0.7u GF ug/L (82685)	Sima- zine, water, fltrd, ug/L (04035)	Tebu- thiuron water fltrd 0.7u GF ug/L (82670)	Terba- cil, water, fltrd 0.7u GF ug/L (82665)	Terbu- fos, water, fltrd 0.7u GF ug/L (82675)	Ter- buthyl- azine, water, fltrd, ug/L (04022)
OCT 18...	<.004	<.022	<.011	<.01	<.004	<.025	<.011	<.02	<.005	<.02	<.034	<.02	--
NOV 22...	<.004	<.022	<.011	<.01	<.004	<.025	<.011	<.02	<.005	<.02	<.034	<.02	<.01
DEC 15...	<.004	<.022	<.011	<.01	<.004	<.025	<.011	<.02	<.006	<.02	<.034	<.02	--
JAN 19...	<.004	<.022	<.011	<.01	<.004	<.025	<.011	<.02	<.005	<.02	<.034	<.02	--
FEB 16...	<.004	<.022	<.011	<.01	<.004	<.025	<.011	<.02	<.005	<.02	<.034	<.02	<.01
MAR 16...	<.004	<.022	<.011	<.01	<.004	<.025	<.011	<.02	<.005	<.02	<.034	<.02	--
APR 21...	<.004	<.022	<.011	<.01	<.004	<.025	<.011	<.02	<.006	<.02	<.034	<.02	<.01
21...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY 18...	<.004	<.022	<.011	<.01	<.004	<.025	<.011	<.02	E.005	<.02	<.034	<.02	--
JUN 14...	<.004	<.022	<.011	<.01	<.004	<.025	<.011	<.02	<.005	<.02	<.034	<.02	--
JUL 06...	<.004	<.022	<.011	<.01	<.004	<.025	<.011	<.02	<.005	<.02	<.034	<.02	--
AUG 09...	<.004	<.022	<.011	<.01	<.004	<.025	<.011	<.02	<.005	<.02	<.034	<.02	--

WATER-QUALITY DATA, WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005—CONTINUED

Date	Thio- bencarb water fltrd 0.7u GF ug/L (82681)	Tri- allate, water, fltrd 0.7u GF ug/L (82678)	Tri- flur- alin, water, fltrd 0.7u GF ug/L (82661)	Uranium natural water, fltrd, ug/L (22703)	Uranium suspnd sedimnt total, ug/g (35046)	Suspnd. sedi- ment, sieve diametr percent <.063mm (70331)	Sus- pended sedi- ment concen- tration mg/L (80154)	Sus- pended sedi- ment dis- charge, tons/d (80155)
OCT 18...	<.010	<.006	<.009	.48	<50	95	17	5,740
NOV 22...	<.010	<.006	<.009	.66	<100	94	4	1,730
DEC 15...	<.010	<.006	<.009	.55	<50	89	22	--
JAN 19...	<.010	<.006	<.009	.60	<50	95	92	58,100
FEB 16...	<.010	<.006	<.009	.81	--	75	4	1,830
MAR 16...	<.010	<.006	<.009	.74	<50	54	8	2,640
APR 21...	<.010	<.006	<.009	--	--	--	--	--
21...	--	--	--	.71	<50	92	9	4,470
MAY 18...	<.010	<.006	<.009	.62	--	90	14	12,400
JUN 14...	<.010	<.006	<.009	.53	--	88	10	5,700
JUL 06...	<.010	<.006	<.009	.51	--	83	14	7,330
AUG 09...	<.010	<.006	<.009	.44	--	85	11	4,370

14246900 COLUMBIA RIVER AT BEAVER ARMY TERMINAL, NEAR QUINCY, OR—Continued

TURBIDITY, WATER, MONOCHROME NEAR INFRA-RED LED LIGHT, 780-900 NM, DETECTION ANGLE 90 +/- 2.5 DEGREES, FNU
WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	8	4	6	9	2	4	13	4	6	11	4	6
2	9	4	6	12	2	4	9	4	6	7	4	5
3	8	4	5	24	4	10	8	4	6	8	4	6
4	8	4	6	24	6	10	8	4	6	10	4	5
5	11	4	6	14	4	6	7	5	6	6	3	5
6	10	3	5	11	3	5	10	4	6	9	3	5
7	11	4	5	8	3	5	13	4	6	10	3	6
8	21	5	10	11	2	5	14	5	7	8	4	5
9	19	4	8	7	2	4	22	7	14	7	3	5
10	40	5	24	7	2	4	25	8	14	8	3	4
11	18	7	11	7	2	4	107	14	26	9	3	4
12	14	5	8	10	2	4	108	36	58	6	3	4
13	10	5	7	10	2	4	53	19	32	6	3	4
14	10	4	6	8	2	4	39	15	25	7	3	4
15	10	4	6	8	2	4	---	---	---	6	2	4
16	8	4	6	13	2	4	---	---	---	6	2	5
17	8	4	6	12	2	4	---	---	---	13	2	6
18	12	4	7	11	2	4	---	---	---	105	6	17
19	81	8	25	14	2	3	---	---	---	108	51	83
20	23	6	13	16	2	4	---	---	---	72	31	55
21	28	5	9	15	2	3	13	6	10	49	20	38
22	16	3	7	7	2	4	14	4	9	37	14	28
23	14	2	6	6	3	5	13	5	8	38	11	26
24	13	2	5	7	3	5	13	4	8	32	13	23
25	11	2	5	11	4	7	12	4	7	25	10	16
26	11	2	5	12	5	7	11	4	7	21	7	13
27	14	2	4	12	6	8	10	5	8	16	7	11
28	11	2	5	10	5	7	10	4	7	13	5	9
29	13	2	4	9	5	6	8	4	6	11	4	8
30	8	2	4	8	4	6	12	4	6	13	5	8
31	7	2	4	---	---	---	9	4	6	10	3	7
MAX	81	8	25	24	6	10	108	36	58	108	51	83
MIN	7	2	4	6	2	3	7	4	6	6	2	4
	FEBRUARY			MARCH			APRIL			MAY		
1	10	5	6	5	2	4	26	13	20	10	4	7
2	10	4	6	7	2	4	24	11	17	10	3	7
3	8	3	5	5	2	3	21	10	15	13	4	8
4	7	2	5	5	2	3	20	9	14	13	4	8
5	8	3	5	8	2	3	17	8	13	13	4	8
6	8	3	5	4	2	3	19	8	12	11	4	8
7	9	3	5	7	2	4	18	6	11	13	5	9
8	12	3	6	11	2	4	15	6	11	14	4	9
9	12	3	5	8	2	4	16	6	12	12	5	9
10	7	2	5	5	2	3	15	6	11	14	4	9
11	6	2	4	5	2	4	14	6	10	13	5	10
12	7	2	4	8	2	3	20	6	11	16	7	10
13	8	2	4	5	2	3	15	6	11	15	7	11
14	6	2	4	6	2	4	14	6	10	18	7	11
15	5	2	4	5	2	3	13	5	10	14	7	10
16	5	2	3	5	1	4	12	5	10	14	8	11
17	5	2	3	6	2	4	50	8	15	14	8	11
18	6	2	3	7	2	4	32	11	21	14	7	11
19	4	2	3	7	2	3	22	10	16	17	9	12
20	4	2	3	6	2	4	18	8	13	19	9	15
21	4	2	3	7	1	4	15	5	11	18	10	14
22	8	1	3	9	2	5	17	5	10	20	10	14
23	4	2	3	9	2	4	13	4	10	21	10	14
24	4	1	3	7	2	4	15	4	9	18	7	13
25	5	2	3	8	2	4	14	4	8	17	7	12
26	4	2	3	12	2	5	16	4	9	16	7	12
27	4	1	2	31	3	8	13	4	9	19	7	12
28	9	2	4	91	23	54	12	4	8	16	8	12
29	---	---	---	60	19	30	13	3	8	14	7	11
30	---	---	---	39	22	29	13	3	7	13	6	11
31	---	---	---	32	19	25	---	---	---	13	6	10
MAX	12	5	6	91	23	54	50	13	21	21	10	15
MIN	4	1	2	4	1	3	12	3	7	10	3	7

14246900 COLUMBIA RIVER AT BEAVER ARMY TERMINAL, NEAR QUINCY, OR—Continued

TURBIDITY, WATER, MONOCHROME NEAR INFRA-RED LED LIGHT, 780-900 NM, DETECTION ANGLE 90 +/- 2.5 DEGREES, FNU—
CONTINUED

DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
1	14	5	9	7	2	4	9	<1	2	14	3	5
2	15	5	8	11	2	4	5	<1	2	9	3	5
3	12	5	9	9	2	4	5	<1	2	14	3	5
4	12	5	8	7	2	4	10	<1	2	11	3	5
5	13	5	8	10	2	4	5	<1	2	10	4	5
6	17	5	8	6	1	3	5	<1	2	8	3	5
7	16	4	8	5	1	3	4	<1	2	7	3	5
8	15	4	7	8	1	3	7	<1	2	6	3	5
9	10	4	7	5	<1	2	8	<1	3	7	3	5
10	10	4	7	5	<1	2	7	3	5	9	3	5
11	10	4	6	6	<1	3	8	3	5	10	3	4
12	10	5	6	6	1	3	10	3	5	7	3	4
13	9	3	6	5	<1	2	8	4	5	6	3	4
14	10	4	6	6	<1	3	9	3	5	8	3	5
15	8	4	6	5	<1	3	9	3	5	6	2	4
16	7	3	5	7	1	3	9	3	5	9	2	4
17	7	3	6	6	1	3	10	2	5	6	2	4
18	13	3	5	7	1	3	13	3	5	8	3	5
19	10	3	5	6	1	3	8	3	5	12	3	4
20	9	2	5	6	<1	3	16	3	6	7	3	4
21	11	3	5	6	<1	2	12	4	6	6	3	4
22	8	3	4	13	<1	2	9	4	6	6	3	4
23	7	2	5	15	<1	3	18	4	6	8	2	4
24	12	2	5	6	<1	2	9	3	5	9	3	4
25	8	3	5	6	<1	2	12	3	5	5	2	4
26	8	2	5	6	<1	2	13	3	4	5	2	4
27	7	2	4	5	<1	3	7	3	5	8	3	4
28	9	3	4	6	<1	2	10	3	5	7	2	4
29	10	2	4	5	1	2	11	3	5	6	3	4
30	7	3	4	4	<1	2	9	3	5	6	2	4
31	---	---	---	6	<1	2	14	3	5	---	---	---
MAX	17	5	9	15	2	4	18	4	6	14	4	5
MIN	7	2	4	4	<1	2	4	<1	2	5	2	4