14142500 SANDY RIVER BELOW BULL RUN RIVER, NEAR BULL RUN, OR

Lower Columbia Basin
Lower Columbia-Sandy Subbasin

LOCATION.--Lat 45°26′57″, long 122°14′38″ referenced to North American Datum of 1927, in SW ¼ sec.30, T.1 S., R.5 E., Clackamas County, OR, Hydrologic Unit 17080001, on left bank, 0.1 mi downstream from Bull Run River, 0.2 mi downstream from Dodge Park, 400 ft downstream from city of Portland water conduit crossing Sandy River and at mile 18.4.

DRAINAGE AREA.--436 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--April 1910 to September 1914, October 1929 to September 1966, May 1984 to current year. Monthly discharge only for some periods during the 1911-12 and water years, published in WSP 1318.

REVISED RECORDS.--WDR OR-96-1: 1986 (P).

GAGE.--Water-stage recorder. Elevation of gage is 240 ft above NGVD of 1929, from topographic map. April 1910 to September 1914, staff gage at present site at different datum. October 1929 to September 1966, water-stage recorder at site 0.8 mi downstream at different datum.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since 1915 by Bull Run Lake (station 14138560), since 1929 by Bull Run Reservoir Number One (station 14139000) and since 1961 by Bull Run Reservoir Number Two (station 14139900). Some fluctuation caused by Bull Run powerplant of Portland General Electric Company. Portland Water Bureau diverted 143,500 acre-ft from Bull Run River, of which 40,410 acre-ft were used for power generation by Portland General Electric Company and returned to Bull Run River.

AVERAGE DISCHARGE FOR PERIOD OF RECORD.--4 years (water years 1911-14) 2,321 ft³/s, 1,681,000 acre-ft/yr. 60 years (water years 1930-66, 1985-2007), 2,257 ft³/s, 1,635,000 acre-ft/yr, regulated period.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 84,400 ft³/s Dec. 22, 1964, gage height, 22.3 ft, site and datum then in use; minimum discharge, 45 ft³/s Sept. 26, 1962, minimum daily discharge, 63 ft³/s Oct. 12, Nov. 9, 1952.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 41,200 ft³/s Nov. 7, gage height, 19.47 ft; minimum discharge, 231 ft³/s Sept. 20, 21, 23-26.

14142500 SANDY RIVER BELOW BULL RUN RIVER, NEAR BULL RUN, OR—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007
DAILY MEAN VALUES

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	319	469	3,800	2,360	1,260	2,230	3,040	1,580	909	550	443	377
2	355	537	2,870	2,670	1,220	2,290	2,660	1,620	926	562	444	366
3	352	1,010	2,360	14,700	1,200	3,170	2,290	1,580	962	629	440	361
4	355	1,530	2,170	10,100	1,220	4,160	2,040	1,540	981	586	428	414
5	349	3,200	2,110	6,510	1,320	3,850	1,840	1,490	1,000	605	421	364
6	330	4,850	1,740	5,810	1,430	3,650	1,750	1,390	1,020	666	419	355
7	343	27,500	1,850	5,560	1,450	3,930	1,900	1,380	1,030	565	415	346
8	356	14,800	1,920	7,890	1,470	3,950	2,150	1,390	896	540	416	345
9	362	8,440	2,090	6,350	1,600	3,350	2,630	1,380	865	607	412	334
10	325	5,710	2,390	5,410	1,560	3,180	2,810	1,290	1,100	555	385	330
11	335	6,140	3,060	4,140	1,590	3,850	2,630	1,200	1,040	556	382	335
12	329	5,160	5,170	3,430	1,590	6,760	2,520	1,160	890	547	370	336
13	322	8,290	9,840	2,990	1,500	6,950	2,320	1,160	834	601	367	334
14	327	8,820	13,200	2,560	1,510	4,610	2,340	1,100	796	534	386	331
15	353	5,760	12,000	2,090	7,090	3,520	2,460	1,070	778	523	389	323
16	750	6,600	6,340	1,900	13,900	2,880	2,190	1,090	840	525	384	318
17	652	4,810	4,660	1,800	8,780	2,560	2,410	1,060	815	530	363	377
18	434	3,610	3,730	1,710	6,180	2,640	2,750	1,020	759	534	347	345
19	687	3,350	3,250	1,640	5,180	2,840	2,780	1,020	724	636	402	316
20	799	3,930	2,820	1,910	6,730	3,790	2,490	1,010	724	518	507	294
21	453	3,430	3,050	1,830	6,030	3,170	2,350	1,360	714	520	627	295
22	461	3,930	3,120	1,740	4,310	2,620	2,680	1,310	684	531	436	328
23	393	4,900	3,590	1,690	3,580	2,270	2,430	1,130	651	539	406	315
24	432	7,480	4,060	1,630	3,470	2,420	2,090	1,070	637	524	392	310
25	577	5,780	5,630	1,590	3,470	5,940	1,990	1,030	681	484	375	294
26	540	4,470	6,840	1,530	3,360	5,060	1,890	1,000	614	483	365	319
27	483	4,070	6,910	1,510	2,960	3,990	1,810	1,010	601	497	351	316
28	464	3,110	5,000	1,430	2,550	3,450	1,750	971	621	478	356	427
29	487	2,650	3,920	1,370	---	2,900	1,680	951	667	463	366	468
30	492	2,970	3,120	1,320	---	2,440	1,630	931	631	453	389	538
31	431	---	2,730	1,290	---	2,450	---	925	---	441	396	---
Total	13,647	167,306	135,340	108,460	97,510	110,870	68,300	37,218	24,390	16,782	12,579	10,511
Mean	440	5,577	4,366	3,499	3,482	3,576	2,277	1,201	813	541	406	350
Max	799	27,500	13,200	14,700	13,900	6,950	3,040	1,620	1,100	666	627	538
Min	319	469	1,740	1,290	1,200	2,230	1,630	925	601	441	347	294
Ac-ft	27,070	331,900	268,400	215,100	193,400	219,900	135,500	73,820	48,380	33,290	24,950	20,850

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 2007, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	1,081	3,039	3,774	3,486	3,353	2,978	3,229	2,713	1,749	783	491	511
Max	4,086	7,882	10,700	8,955	8,793	6,426	5,176	5,357	4,887	1,756	731	1,947
(WY)	(1960)	(1996)	(1965)	(1953)	(1996)	(1932)	(1937)	(1949)	(1933)	(1955)	(1964)	(1959)
Min	242	294	992	791	1,127	997	980	998	479	390	308	310
(WY)	(1988)	(1953)	(1953)	(1937)	(2005)	(1941)	(1941)	(1992)	(1992)	(1992)	(1992)	(1994)

SUMMARY STATISTICS

	Calendar Year 2006		Water Year 2007		Water Years 1930 - 2007	
Annual total	875,895		802,913			
Annual mean	2,400		2,200		2,257	
Highest annual mean					3,456	1996
Lowest annual mean					1,334	2001
Highest daily mean	27,500	Nov 7	27,500	Nov 7	57,800	Dec 22, 1964
Lowest daily mean	285	Sep 13	294	Sep 20	63	Oct 12, 1952
Annual seven-day minimum	315	Sep 25	307	Sep 19	228	Oct 19, 1942
Annual runoff (ac-ft)	1,737,000		1,593,000		1,635,000	
10 percent exceeds	5,610		5,170		4,660	
50 percent exceeds	1,670		1,320		1,580	
90 percent exceeds	357		356		400	
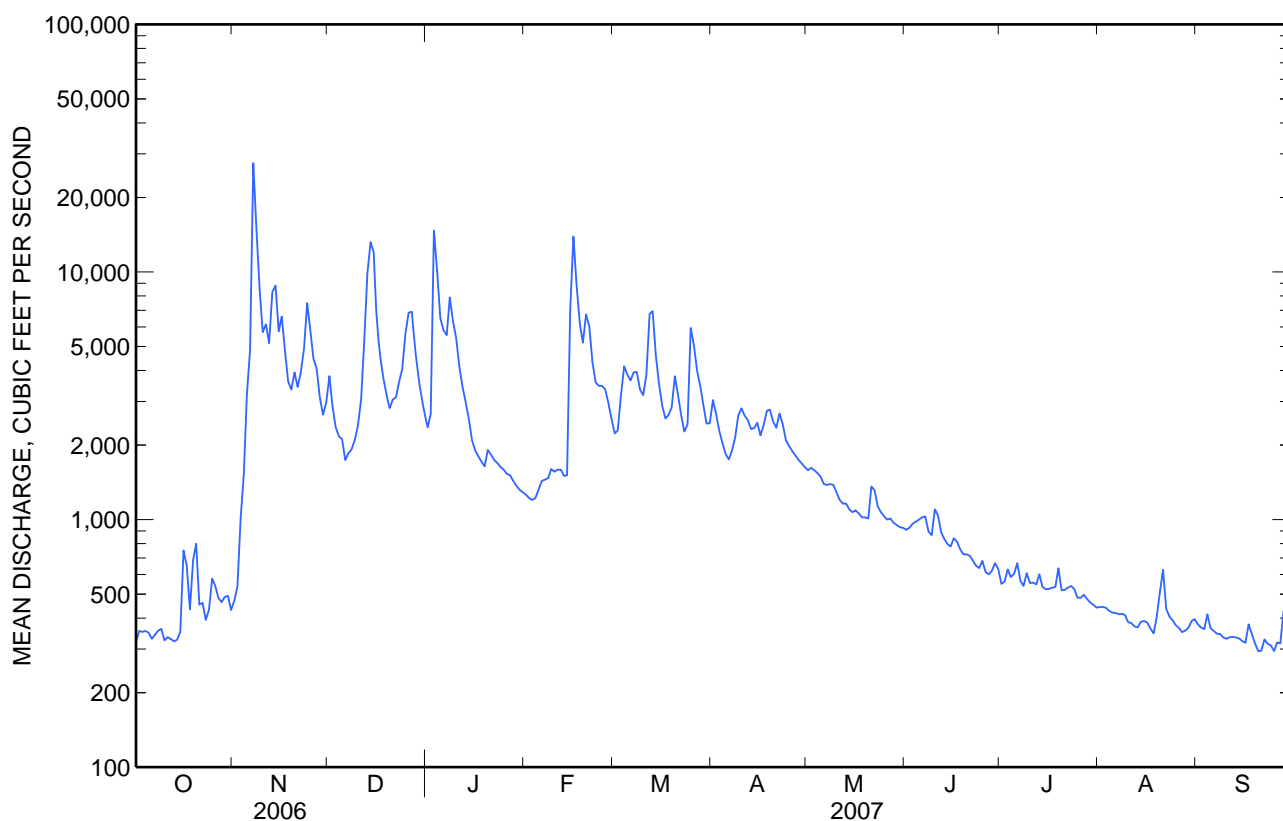
14142500 SANDY RIVER BELOW BULL RUN RIVER, NEAR BULL RUN, OR—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--
    TURBIDITY: March 2006 to current year.

INSTRUMENTATION.--Water-quality monitor. Any use of trade, product, or firm names in this publication is for descriptive purposes only and does not imply endorsement by the U.S. Government.

REMARKS.--
    TURBIDITY: Records good except those for June 1, 2007 to Sept. 30, 2007, which are fair. Data collected using an Analite 395 turbidity sensor. Manufacturer's stated precision is +/- 1 percent of reading at 25°C. Formazin Nephelometric Unit values below 10 are reported to nearest 0.1 FNU. Negative recorded values are reported as 0.0 FNU.

EXTREMES FOR PERIOD OF RECORD.--
    TURBIDITY: Maximum recorded , 264 FNU July 6, 2007, but may have been higher during periods of missing record; minimum recorded, 0.0 FNU on several days each year.

EXTREMES FOR CURRENT YEAR.--
    TURBIDITY: Maximum recorded, 264 FNU July 6, but may have been h;igher during periods of missing record; minimum recorded, 0.0 FNU on several days during year.

14142500 SANDY RIVER BELOW BULL RUN RIVER, NEAR BULL RUN, OR—Continued

TURBIDITY, WATER, UNFILT, NEAR IR LED LIGHT, 780-900 NM, DETECT ANG. 90 DEG, FORMAZIN NEPHELOMETRIC UNITS
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Day	Max	Min	Median	Max	Min	Median	Max	Min	Median	Max	Min	Median
		October			November			December			January	
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	2.1	0.7	1.0
17	---	---	---	---	---	---	---	---	---	2.4	0.7	1.0
18	---	---	---	---	---	---	---	---	---	1.1	0.7	0.9
19	---	---	---	---	---	---	---	---	---	1.3	0.7	0.9
20	---	---	---	---	---	---	---	---	---	7.0	0.8	1.3
21	---	---	---	---	---	---	---	---	---	1.0	0.5	0.7
22	---	---	---	---	---	---	---	---	---	0.7	0.4	0.6
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	---	---	---
26	---	---	---	---	---	---	---	---	---	0.5	0.3	0.4
27	---	---	---	---	---	---	---	---	---	0.6	0.2	0.3
28	---	---	---	---	---	---	---	---	---	0.8	0.2	0.3
29	---	---	---	---	---	---	---	---	---	0.6	0.3	0.3
30	---	---	---	---	---	---	---	---	---	0.5	0.2	0.3
31	---	---	---	---	---	---	---	---	---	0.4	0.1	0.3
Max	---	---	---	---	---	---	---	---	---	---	---	---
Min	---	---	---	---	---	---	---	---	---	---	---	---

14142500 SANDY RIVER BELOW BULL RUN RIVER, NEAR BULL RUN, OR—Continued

TURBIDITY, WATER, UNFILT, NEAR IR LED LIGHT, 780-900 NM, DETECT ANG. 90 DEG, FORMAZIN NEPHELOMETRIC UNITS
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Day	Max	Min	Median	Max	Min	Median	Max	Min	Median	Max	Min	Median
		February			March			April			May	
1	0.8	0.1	0.3	7.1	1.1	1.2	0.8	0.2	0.4	0.4	0.1	0.1
2	1.3	0.1	0.3	2.1	1.1	1.4	0.6	0.1	0.2	9.4	0.1	0.6
3	0.4	0.1	0.2	5.7	1.6	2.0	0.2	0.1	0.1	0.2	0.0	0.1
4	0.7	0.1	0.3	2.5	1.6	1.7	0.2	0.1	0.2	0.3	0.0	0.1
5	0.7	0.2	0.4	4.0	1.6	1.9	0.2	0.1	0.2	0.3	0.0	0.1
6	0.7	0.3	0.6	2.4	1.7	2.1	0.2	0.1	0.2	0.3	0.0	0.1
7	0.8	0.2	0.4	3.0	1.3	2.2	11	0.2	0.3	3.3	0.0	0.1
8	0.6	0.3	0.4	1.6	1.2	1.3	3.7	0.4	0.6	12	0.1	0.1
9	5.0	0.3	0.9	1.4	1.2	1.3	4.1	0.4	0.6	6.5	0.1	0.2
10	1.7	0.4	0.7	1.4	1.0	1.1	0.6	0.2	0.4	0.3	0.1	0.2
11	0.9	0.4	0.6	6.0	1.0	1.5	0.9	0.1	0.2	0.4	0.1	0.2
12	2.4	0.6	1.0	20	3.3	9.6	0.6	0.2	0.3	37	0.1	0.1
13	2.0	0.6	1.1	12	4.2	6.2	0.9	0.4	0.5	0.3	0.0	0.1
14	2.3	0.2	0.5	4.5	2.4	3.7	5.8	0.2	0.8	0.3	0.0	0.1
15	---	---	---	3.2	2.0	2.8	0.3	0.1	0.2	0.7	0.1	0.2
16	248	33	64	4.5	2.8	3.2	0.2	0.1	0.1	18	0.1	0.1
17	36	10	19	---	---	---	8.8	0.1	0.1	0.2	0.1	0.1
18	26	4.8	7.1	---	---	---	0.3	0.1	0.1	26	0.1	0.1
19	6.1	2.8	3.8	---	---	---	0.4	0.1	0.2	60	0.1	0.1
20	16	3.7	5.3	---	---	---	0.4	0.1	0.2	0.2	0.0	0.1
21	7.5	1.8	2.6	---	---	---	0.4	0.1	0.2	13	0.1	0.1
22	4.0	1.5	1.8	1.9	0.5	0.6	0.8	0.2	0.3	0.1	0.0	0.1
23	1.7	1.3	1.5	0.8	0.3	0.4	3.1	0.2	0.3	0.2	0.0	0.1
24	2.5	1.3	1.6	1.1	0.2	0.4	9.2	0.3	0.5	0.1	0.0	0.1
25	1.7	1.3	1.5	12	0.8	3.7	0.6	0.3	0.4	39	0.0	0.1
26	1.4	1.1	1.2	6.9	0.6	1.0	9.7	0.5	1.6	11	0.1	0.1
27	1.6	1.1	1.2	3.3	0.3	0.6	2.6	0.0	0.1	36	0.1	7.5
28	2.3	1.1	1.2	2.3	0.2	0.3	0.2	0.0	0.1	85	2.6	11
29	---	---	---	0.3	0.2	0.3	0.1	0.0	0.1	---	---	---
30	---	---	---	0.5	0.2	0.2	0.1	0.0	0.1	---	---	---
31	---	---	---	2.8	0.2	0.3	---	---	---	2.4	0.0	0.0
Max	---	---	---	---	---	---	11	0.5	1.6	---	---	---
Min	---	---	---	---	---	---	0.1	0.0	0.1	---	---	---

14142500 SANDY RIVER BELOW BULL RUN RIVER, NEAR BULL RUN, OR—Continued

TURBIDITY, WATER, UNFILT, NEAR IR LED LIGHT, 780-900 NM, DETECT ANG. 90 DEG, FORMAZIN NEPHELOMETRIC UNITS
WATER YEAR OCTOBER 2006 TO SEPTEMBER 2007

Day	Max	Min	Median	Max	Min	Median	Max	Min	Median	Max	Min	Median
		June			July			August			September	
1	4.6	0.0	2.1	45	3.2	6.6	11	5.8	7.5	118	30	47
2	8.3	2.3	3.1	19	2.8	6.2	14	6.7	8.6	53	17	34
3	36	4.6	7.2	19	3.4	6.0	25	8.0	13	36	13	20
4	32	17	25	31	5.7	13	21	9.7	13	33	12	17
5	35	18	25	119	10	23	15	5.9	10	30	15	20
6	32	9.0	14	264	30	65	19	4.9	6.8	26	8.9	16
7	11	5.7	8.0	214	40	65	12	4.1	6.4	30	8.3	12
8	6.2	3.1	4.3	64	20	34	20	5.3	9.0	23	7.2	10
9	4.6	2.5	3.5	43	13	24	19	7.4	11	13	6.0	8.2
10	7.1	2.8	4.1	53	7.9	18	16	5.7	8.2	13	6.1	7.5
11	8.3	4.1	6.0	30	9.5	14	15	5.1	6.9	12	5.6	7.4
12	5.1	2.5	3.5	22	11	15	9.1	4.2	5.7	46	6.4	13
13	3.5	2.1	2.8	32	16	25	14	4.0	6.4	31	8.5	12
14	4.3	2.2	2.9	51	18	27	6.4	3.0	4.2	26	7.4	11
15	5.6	1.8	2.8	32	13	18	16	2.9	7.4	14	6.5	8.9
16	12	2.3	3.5	32	12	18	26	6.7	11	32	7.3	12
17	15	3.0	5.3	33	14	20	49	11	18	19	7.2	11
18	10	2.1	2.9	50	13	20	30	7.2	12	13	3.8	7.1
19	9.7	1.8	2.5	44	15	23	10	5.0	7.2	12	3.9	5.1
20	2.9	1.8	2.2	48	9.9	18	18	4.0	6.8	7.0	3.1	4.5
21	3.8	2.4	3.1	13	7.4	9.3	34	7.6	15	6.7	2.3	3.7
22	5.2	3.3	4.3	15	7.6	9.0	28	8.1	18	5.2	1.7	3.2
23	5.0	2.5	3.8	31	12	17	13	4.5	8.3	12	1.9	4.6
24	3.9	2.1	2.6	66	28	35	14	3.5	6.8	6.3	1.9	4.2
25	6.5	1.7	2.3	49	12	24	44	3.4	5.8	3.7	1.9	2.8
26	6.7	1.4	2.0	18	8.7	13	18	4.2	6.3	4.6	2.0	2.8
27	2.2	1.3	1.8	17	8.9	13	11	4.5	6.4	6.9	1.9	3.7
28	2.3	1.4	1.8	31	9.1	15	7.2	3.4	4.8	20	2.6	7.7
29	3.9	1.9	2.8	21	9.6	13	7.3	3.6	4.8	15	4.8	7.3
30	5.0	2.9	3.9	20	8.5	12	15	3.7	6.6	13	3.2	6.1
31	---	---	---	17	6.9	9.9	40	6.0	26	---	---	---
Max	36	18	25	264	40	65	49	11	26	118	30	47
Min	2.2	0.0	1.8	13	2.8	6.0	6.4	2.9	4.2	3.7	1.7	2.8