08313000 RIO GRANDE AT OTOWI BRIDGE, NEAR SAN ILDEFONSO, NM

Upper Rio Grande Basin
Upper Rio Grande Subbasin

LOCATION.--Lat 35°52'28.2", long 106°08'32.8" referenced to North American Datum of 1983, Santa Fe County, NM, Hydrologic Unit 13020101, on San Ildefonso Pueblo Grant, near right bank on downstream end of pier of former railway bridge, 400 ft downstream from bridge on State Highway 502, 1.8 mi southwest of San Ildefonso Pueblo, 2.5 mi downstream from Pojoaque River, 6.8 mi west of Pojoaque, and at mile 1,614.2.

DRAINAGE AREA.--14,300 mi² of which 2,940 mi² probably is noncontributing, from the closed basin in San Luis Valley, Colorado.

SURFACE-WATER RECORDS

PERIOD OF RECORD.--February 1895 to December 1905, June 1909 to current year. Monthly discharge only for some periods, published in WSP 1312. In early reports this record was published as "at Water Tank," as "at Rio Grande," and as "near Buckman."

REVISED RECORDS.--WSP 828: drainage area. WSP 1512: 1895-99, 1904-06, 1911-12, 1914, 1931(M), 1935. WSP 1712: 1904(M). WDR-NM-90: 1989.

GAGE.--Water-stage recorder with satellite telemetry. Datum of gage is 5,488.48 ft above NGVD of 1929. See WSP 1312, 1732, or 1923 for history of changes prior to June 1, 1910.

REMARKS.--Records good except for estimated daily discharges, which are poor. Considerable regulation by Heron Reservoir (station 08284510), El Vado Reservoir (station 08285000), and Abiquiu Reservoir (station 08286900) on Rio Chama, which can contribute a major portion of the total flow. Flow affected by release of transmountain water from Heron Reservoir since May 1971. Diversions upstream from station for irrigation of about 620,000 acres in Colorado and 75,000 acres in New Mexico. Estimated daily discharges along with the diurnal signal displaying the effects of stream water storage as the snow pack melts, and refreezes up stream are determined by hydrographic comparison with 08279500 Rio Grande at Embudo, NM, and 08289000 Rio Chama near Chamita, NM.

EXTREMES OUTSIDE PERIOD OF RECORD.--The 1920 flood is greatest since at least 1884 and probably since 1741; information from file of W.H. Yeo on floods.

Suggested citation: U.S. Geological Survey, 2014, Water-resources data for the United States, Water Year 2013: U.S. Geological Survey Water-Data Report WDR-US-2013, site 08313000, accessed at http://wdr.water.usgs.gov/wy2013/pdfs/08313000.2013.pdf

08313000 RIO GRANDE AT OTOWI BRIDGE, NEAR SAN ILDEFONSO, NM—Continued

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013
DAILY MEAN VALUES

[e, estimated]

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	468	340	895	510	500	524	771	1,050	1,180	1,080	362	509
2	463	332	914	475	520	538	784	1,060	1,180	830	398	e450
3	464	320	920	439	537	547	854	1,060	1,190	651	393	463
4	475	325	927	428	536	556	956	1,180	1,190	589	404	417
5	455	320	938	441	530	572	960	1,160	1,230	571	419	372
6	423	338	950	483	530	574	950	1,180	1,180	524	669	350
7	428	346	954	521	539	577	950	1,160	1,170	516	531	380
8	438	351	959	487	542	617	959	1,170	1,180	524	521	390
9	429	360	944	485	542	682	1,040	1,200	1,130	438	686	401
10	397	377	922	487	539	663	1,100	1,190	1,060	307	698	375
11	418	370	854	498	538	648	1,050	1,140	1,030	276	e700	653
12	1,060	371	806	440	537	647	994	1,120	936	232	697	479
13	531	365	803	432	529	664	895	1,080	981	268	498	3,430
14	406	358	863	457	527	657	842	1,050	1,040	313	439	1,820
15	e366	379	887	473	525	661	835	1,030	1,090	326	398	e2,180
16	e352	433	910	468	536	663	856	1,050	1,110	354	403	e1,210
17	e343	493	910	504	532	693	898	1,030	1,110	314	408	e1,120
18	e387	523	913	491	535	737	902	1,060	1,060	320	398	e1,450
19	e421	572	947	475	533	763	897	1,120	1,020	290	403	e1,060
20	e413	594	933	473	549	752	860	1,120	1,010	839	407	e844
21	e415	683	817	475	558	726	844	1,130	1,060	e760	386	e857
22	e413	779	819	482	542	717	853	1,150	1,130	e418	438	e1,070
23	e396	817	774	482	537	687	861	1,130	1,150	e288	414	e1,580
24	e377	828	763	482	550	684	860	1,110	1,190	256	511	e1,120
25	362	822	721	493	540	658	896	1,100	1,150	255	534	e1,080
26	346	823	647	501	530	648	915	1,080	1,150	685	524	e1,070
27	351	852	605	529	501	627	974	1,090	1,170	391	458	e1,060
28	351	871	559	550	536	731	1,010	1,110	1,060	485	473	944
29	363	877	500	547	---	751	1,020	1,130	1,100	324	408	943
30	371	891	498	483	---	753	1,070	1,190	1,090	308	470	977
31	358	---	514	479	---	754	---	1,200	---	319	436	---
Total	13,240	16,110	25,366	14,970	14,950	20,471	27,656	34,630	33,327	14,051	14,884	29,054
Mean	427	537	818	483	534	660	922	1,117	1,111	453	480	968
Max	1,060	891	959	550	558	763	1,100	1,200	1,230	1,080	700	3,430
Min	343	320	498	428	500	524	771	1,030	936	232	362	350
Ac-ft	26,260	31,950	50,310	29,690	29,650	40,600	54,860	68,690	66,100	27,870	29,520	57,630

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1971 - 2013, BY WATER YEAR (WY)

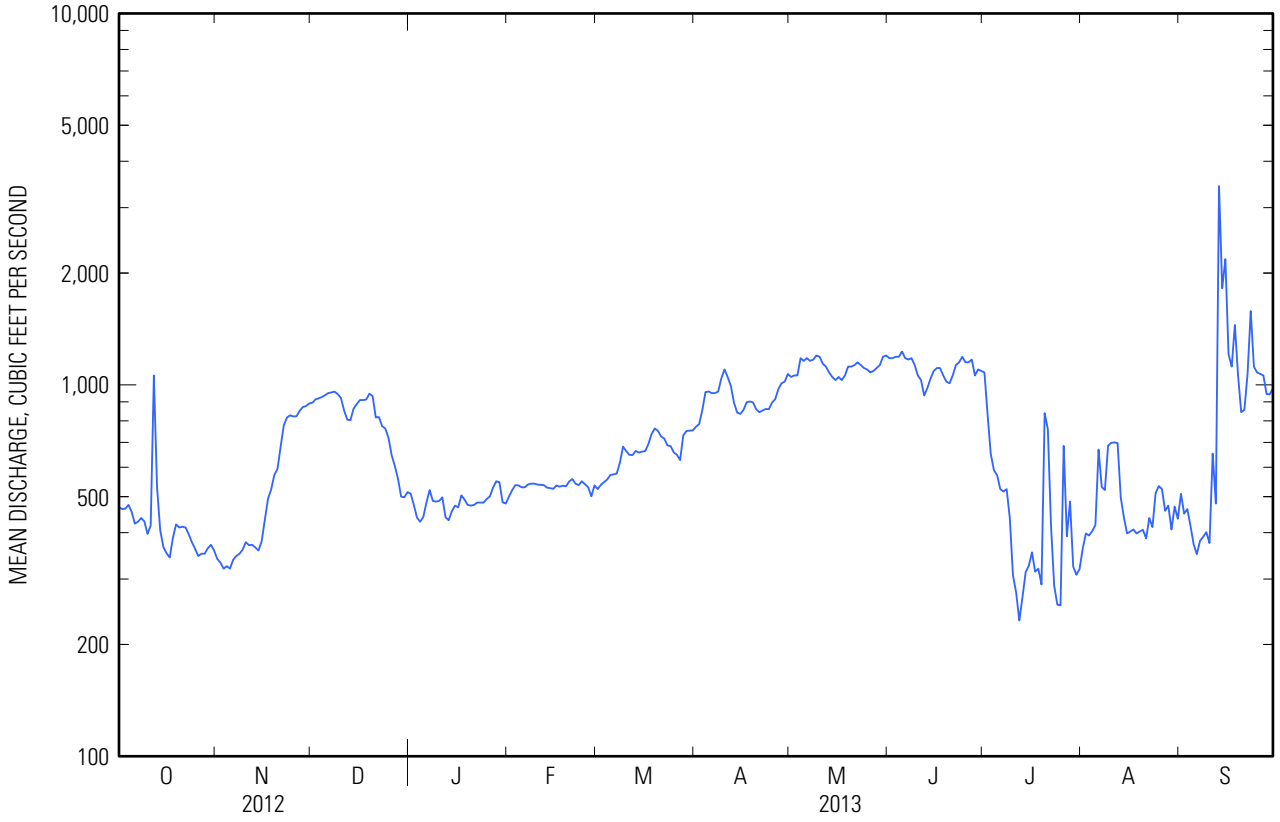
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	760	889	875	761	862	1,288	2,098	3,358	2,878	1,422	972	866
Max	2,225	2,034	1,959	1,757	2,641	3,127	6,412	8,390	7,914	4,548	2,132	1,553
(WY)	(1998)	(1987)	(1976)	(1986)	(1987)	(1987)	(1985)	(1985)	(1979)	(1995)	(1999)	(1999)
Min	361	368	426	436	498	610	489	433	470	394	391	263
(WY)	(1975)	(2003)	(2003)	(1977)	(2003)	(2003)	(1977)	(1972)	(1972)	(1972)	(1972)	(1974)

08313000 RIO GRANDE AT OTOWI BRIDGE, NEAR SAN ILDEFONSO, NM—Continued

SUMMARY STATISTICS

	Calendar Year 2012		Water Year 2013		Water Years 1971 - 2013	
Annual total	324,234		258,709			
Annual mean	886		709		[a]1,420	
Highest annual mean					2,764	1987
Lowest annual mean					602	1977
Highest daily mean	2,240	Mar 31	3,430	Sep 13	12,000	May 11, 1985
Lowest daily mean	320	Nov 3	232	Jul 12	195	Aug 4, 1977
Annual seven-day minimum	332	Nov 1	297	Jul 10	229	Sep 11, 1971
Maximum peak flow			8,080	Sep 13	24,400	May 23, 1920
Maximum peak stage			8.09	Sep 13	[b]14.50	Sep 29, 1904
Instantaneous low flow			214	Jul 26	195	Aug 4, 1977
Annual runoff (ac-ft)	643,100		513,100		1,029,000	
10 percent exceeds	1,430		1,120		3,230	
50 percent exceeds	817		605		951	
90 percent exceeds	414		364		490	

[a] Average discharge for 71 years (water years 1895-1914, 1916, 1920-1970), 1530 ft³/s; 1,108,000 acre-ft/yr.
[b] Present site and datum.



08313000 RIO GRANDE AT OTOWI BRIDGE, NEAR SAN ILDEFONSO, NM—Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1947 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October 1947 to current year

INSTRUMENTATION.--Automatic pumping samplers for daily suspended-sediment samples from October 1993 to current.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 65,000 mg/L, July 5, 2006; minimum daily mean, 11 mg/L, July 27, 1963 and Feb. 7, 1974.
SEDIMENT LOAD: Maximum daily, 659,000 tons, Sept. 13, 2013; minimum daily, 3 tons, July 27, 1963.

EXTREMES FOR CURRENT YEAR.--

SEDIMENT CONCENTRATION: Maximum daily mean, 53,000 mg/L, Sept. 13; minimum daily mean, 39 mg/L, Oct. 01.
SEDIMENT LOAD: Maximum daily 659,000 tons, Sept. 13; minimum daily, 48 tons, Oct. 01.

08313000 RIO GRANDE AT OTOWI BRIDGE, NEAR SAN ILDEFONSO, NM—Continued

SUSPENDED-SEDIMENT
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

[e, estimated]

Day	Mean concentration (mg/L)	Sediment discharge (tons/day)	Mean concentration (mg/L)	Sediment discharge (tons/day)	Mean concentration (mg/L)	Sediment discharge (tons/day)	Mean concentration (mg/L)	Sediment discharge (tons/day)	Mean concentration (mg/L)	Sediment discharge (tons/day)	Mean concentration (mg/L)	Sediment discharge (tons/day)
	October		November		December		January		February		March	
1	39	48	297	272	848	2,050	e159	219	148	200	123	174
2	215	269	234	211	798	1,970	e162	208	161	226	131	191
3	175	218	198	172	851	2,110	e165	195	164	238	162	239
4	190	244	188	164	833	2,080	e168	194	154	223	189	283
5	286	351	213	184	895	2,270	e215	255	144	206	208	321
6	263	301	251	229	825	2,120	e279	363	134	191	202	314
7	207	239	290	271	e802	2,070	e275	387	139	202	199	310
8	244	289	329	311	e792	2,050	e259	341	143	209	223	372
9	318	368	368	358	e781	1,990	e244	320	137	200	292	537
10	337	361	391	398	e771	1,920	e228	300	130	190	244	437
11	348	393	317	317	e722	1,670	e213	286	124	180	218	381
12	11,300	98,800	228	229	e639	1,390	e197	234	118	171	253	443
13	6,240	9,380	279	276	e595	1,290	e181	212	111	159	327	587
14	1,930	2,200	234	226	e681	1,590	e182	224	102	145	352	625
15	368	363	213	219	e775	1,860	e196	250	100	146	343	612
16	392	373	386	459	e824	2,020	e210	266	126	182	377	676
17	511	474	833	1,110	e845	2,080	e224	305	132	190	446	835
18	620	648	1,010	1,430	e866	2,130	e238	316	123	178	546	1,090
19	694	789	1,030	1,590	e881	2,250	e252	324	116	168	549	1,130
20	655	730	899	1,440	e814	2,050	e261	332	139	206	448	909
21	604	676	1,250	2,310	e717	1,580	e229	292	143	215	425	832
22	529	590	1,720	3,620	e621	1,370	e190	246	122	179	343	664
23	415	444	1,570	3,460	e524	1,090	e151	196	123	178	285	529
24	302	307	1,520	3,400	e427	880	115	150	127	189	228	422
25	251	245	1,300	2,890	e330	644	121	161	134	196	213	378
26	237	222	1,080	2,390	e234	409	145	196	171	245	243	425
27	284	269	1,260	2,910	e153	250	215	307	137	186	265	448
28	286	271	1,270	2,980	e146	221	220	327	129	187	584	1,180
29	290	284	1,250	2,970	e149	202	227	335	---	---	625	1,270
30	379	379	916	2,210	e152	205	191	250	---	---	466	947
31	373	361	---	---	e156	216	151	196	---	---	432	880
Total	---	120,886	---	39,006	---	46,027	---	8,187	---	5,385	---	18,441

08313000 RIO GRANDE AT OTOWI BRIDGE, NEAR SAN ILDEFONSO, NM—Continued

SUSPENDED-SEDIMENT
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013

[e, estimated]

Day	Mean concentration (mg/L)	Sediment discharge (tons/day)	Mean concentration (mg/L)	Sediment discharge (tons/day)	Mean concentration (mg/L)	Sediment discharge (tons/day)	Mean concentration (mg/L)	Sediment discharge (tons/day)	Mean concentration (mg/L)	Sediment discharge (tons/day)	Mean concentration (mg/L)	Sediment discharge (tons/day)
	April		May		June		July		August		September	
1	495	1,030	969	2,740	599	1,910	183	533	1,790	1,760	20,000	37,200
2	481	1,020	662	1,890	596	1,900	389	869	2,010	2,170	e39,400	16,400
3	640	1,480	661	1,890	689	2,210	334	593	10,100	12,100	e12,700	16,700
4	1,260	3,270	1,480	4,730	751	2,410	203	324	25,900	29,700	7,500	8,480
5	1,100	2,850	1,240	3,890	684	2,270	167	258	7,490	8,470	2,690	2,700
6	849	2,180	1,050	3,350	496	1,590	712	1,000	15,000	31,000	1,940	1,830
7	923	2,370	976	3,060	601	1,900	531	741	5,380	7,900	1,590	1,630
8	791	2,050	1,090	3,440	694	2,210	373	529	4,110	5,760	1,440	1,510
9	932	2,610	1,180	3,800	691	2,110	7,380	9,560	7,830	15,100	1,330	1,440
10	1,180	3,530	961	3,080	521	1,490	4,810	4,120	5,080	9,560	2,240	2,380
11	959	2,730	773	2,370	395	1,100	2,540	1,910	3,150	5,960	36,100	69,100
12	763	2,050	747	2,270	284	717	1,410	886	2,400	4,530	12,000	15,600
13	686	1,660	689	2,020	250	663	721	542	1,540	2,110	53,000	659,000
14	552	1,250	659	1,870	245	687	e1,110	995	875	1,040	25,200	122,000
15	534	1,200	680	1,900	230	678	e563	507	660	709	e26,300	154,000
16	563	1,300	631	1,780	238	714	e717	686	575	627	e7,960	26,100
17	1,010	2,480	603	1,680	202	607	e467	400	449	494	e5,390	16,300
18	734	1,790	631	1,800	188	536	172	146	417	448	e6,790	26,600
19	594	1,440	558	1,690	210	579	182	140	1,710	2,010	e5,670	16,300
20	534	1,240	514	1,560	190	520	23,000	62,800	3,350	3,730	e3,960	9,050
21	471	1,070	514	1,560	163	468	32,700	67,800	976	1,020	e4,560	10,600
22	470	1,080	531	1,650	224	684	8,080	9,180	6,650	8,330	e7,040	20,300
23	447	1,040	488	1,480	197	612	2,980	2,330	2,630	2,920	e14,600	62,200
24	485	1,130	514	1,550	164	525	1,760	1,220	1,160	1,610	e9,050	27,500
25	463	1,120	461	1,370	162	503	3,140	2,200	1,120	1,610	e3,880	11,300
26	515	1,270	410	1,190	161	499	25,200	61,600	803	1,140	e2,810	8,120
27	704	1,850	411	1,210	169	537	5,080	5,750	529	654	2,410	6,890
28	1,100	3,010	464	1,390	142	409	14,000	37,200	410	523	1,830	4,670
29	1,290	3,570	391	1,190	154	455	3,640	3,190	361	398	1,450	3,710
30	1,290	3,730	555	1,780	163	482	1,990	1,650	6,270	9,200	2,320	6,070
31	---	---	667	2,150	---	---	1,220	1,050	3,690	4,320	---	---
Total	---	58,400	---	67,330	---	31,975	---	280,709	---	176,903	---	1,365,680

	Total suspended sediment discharge (tons)
Year	2,218,929