Water-Data Report 2013

08332010 RIO GRANDE FLOODWAY NEAR BERNARDO, NM

Rio Grande-Elephant Butte Basin
Rio Grande-Albuquerque Subbasin

LOCATION.--Lat 34°25′01″, long 106°48′00″ referenced to North American Datum of 1927, Socorro County, NM, Hydrologic Unit 13020203, in Belen or Sevilleta Grant, on downstream side of bridge on U.S. Highway 60, 2.0 mi east of Bernardo, 5.0 mi downstream from heading of conveyance channel, and at mile 1,487.2.

DRAINAGE AREA.--19230.00 mi^2, approximately, including 2,940 mi^2 in closed basin in San Luis Valley, CO.

SURFACE-WATER RECORDS

PERIOD OF RECORD.--June 1936 to January 1939, October 1941 to September 2004, October 2011 to current year. Monthly discharge only, October 1942 to June 1943, published in WSP 1312, and October 1960 to September 1964, published in WSP 1923 (daily records available in District files). Published as "Rio Grande near Bernardo" prior to October 1964. Prior to October 1952, flow of Bernardo interior drain was included only when it carried river overflow; the entire flow has been included from October 1952 to September 1964. Flow in the conveyance channel, formerly "San Francisco Riverside drain," has been included in records prior to October 1964.

GAGE.--Water-stage recorder with satellite telemetry. Gage datum not determined for the 2012 water year. Prior to September 30, 2003, gage datum was 4,722.55 ft above NGVD of 1929. Prior to May 7, 1996, gage at datum 3.00 ft higher.

REMARKS.--Discharge records good except for estimated daily discharges, which are poor. Since Nov. 1973, flow regulated by Cochiti Dam (station 08317300) 100 mi upstream. Floodway is 1 of 4 channels (stations 08331990 (discontinued), 08332030 (discontinued), 08332050 (discontinued)) carrying flow in valley cross section. Diversions for irrigation of about 740,000 acres upstream from station.

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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	1.3	2.3	817	443	433	329	105	117	85	3.5	429	e2.8
2	1.3	28	813	317	435	265	109	112	91	6.3	358	e4.4
3	1.3	66	818	265	432	219	99	120	114	6.6	209	e3.1
4	1.2	94	814	249	443	246	95	140	111	5.0	194	e2.0
5	1.1	116	811	237	444	258	99	143	102	2.8	342	e1.7
6	1.3	139	811	225	440	270	98	192	97	1.5	81	1.6
7	1.3	146	811	233	470	222	95	172	96	1.3	98	1.5
8	1.3	165	815	224	554	194	90	134	106	3.1	43	1.5
9	1.4	174	826	218	450	188	94	123	77	4.1	30	1.4
10	1.3	199	842	225	416	203	103	120	72	85	41	2.9
11	1.3	187	842	304	437	252	100	118	66	162	62	12
12	1.3	195	849	311	434	257	101	116	49	29	81	7.7
13	1.3	203	849	305	404	310	120	116	40	14	72	97
14	1.5	220	782	304	405	253	134	129	31	15	46	464
15	1.6	222	700	295	415	150	132	113	25	22	38	2,640
16	1.7	239	735	313	416	148	129	161	25	17	19	3,280
17	1.6	266	734	328	417	136	129	185	17	14	16	1,600
18	1.7	323	724	324	423	170	266	119	14	13	15	1,600
19	1.7	380	765	329	417	198	239	112	9.5	11	15	684
20	1.7	395	868	324	417	166	213	108	5.9	6.3	12	662
21	1.7	407	876	360	424	156	186	103	3.6	32	15	941
22	1.7	537	860	323	420	136	189	104	2.1	64	e7.1	665
23	1.8	586	748	327	422	151	171	115	1.8	39	e4.4	747
24	1.6	650	658	336	423	134	94	117	1.8	20	e4.0	941
25	1.8	656	655	347	419	134	89	101	1.7	48	e3.5	775
26	1.7	652	645	367	408	137	93	110	1.4	72	e3.8	558
27	1.9	666	627	370	400	120	118	93	1.3	405	e3.2	571
28	2.0	705	617	445	367	119	118	92	1.3	1,400	e4.3	599
29	2.1	792	533	456	---	117	120	92	1.6	1,450	e3.3	459
30	2.2	810	446	434	---	115	121	90	2.7	728	e3.1	385
31	1.8	---	451	439	---	104	---	88	---	548	e3.0	---
Total	48.5	10,220.3	23,142	9,977	11,985	5,857	3,849	3,755	1,252.7	5,228.5	2,255.7	17,710.6
Mean	1.56	341	747	322	428	189	128	121	41.8	169	72.8	590
Max	2.2	810	876	456	554	329	266	192	114	1,450	429	3,280
Min	1.1	2.3	446	218	367	104	89	88	1.3	1.3	3.0	1.4
Ac-ft	96	20,270	45,900	19,790	23,770	11,620	7,630	7,450	2,480	10,370	4,470	35,130

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1974 - 2013, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	334	884	931	850	968	995	1,461	2,556	2,196	1,024	481	379
Max	1,844	2,134	2,090	2,266	3,707	2,761	5,160	5,746	6,178	5,261	2,919	1,409
(WY)	(1998)	(1987)	(1987)	(1986)	(1986)	(1986)	(1985)	(1980)	(1979)	(1979)	(1986)	(1986)
Min	0.00	3.65	117	36.5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
(WY)	(1974)	(1974)	(1974)	(1974)	(1974)	(1974)	(1974)	(1974)	(1974)	(1974)	(1974)	(1974)

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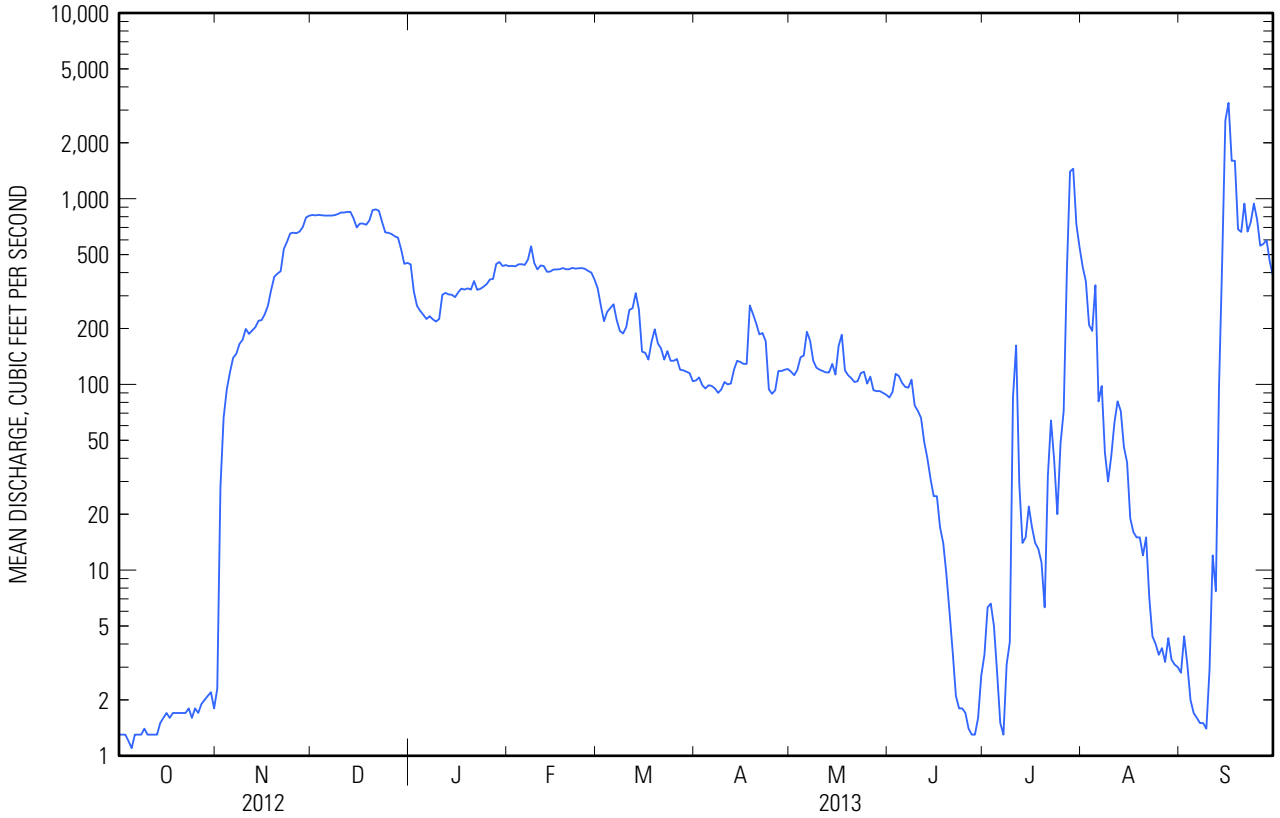
SUMMARY STATISTICS

	Calendar Year 2012		Water Year 2013		Water Years 1974 - 2013	
Annual total	123,814.48		95,281.3			
Annual mean	338		261		1,076	
Highest annual mean					2,356	1987
Lowest annual mean					13.4	1974
Highest daily mean	2,080	Apr 4	3,280	Sep 16	8,950	May 4, 1985
Lowest daily mean	0.12	Sep 6	1.1	Oct 5	0.00	Oct 1, 1973
Annual seven-day minimum	0.20	Aug 31	1.3	Oct 1	0.00	Oct 1, 1973
Maximum peak flow			4,010	Sep 16	21,000	Apr 25, 1942
Maximum peak stage			17.72	Sep 16	17.72	Sep 16, 2013
Instantaneous low flow			0.59	Jul 7	0.00	Oct 1, 1973
Annual runoff (ac-ft)	245,600		189,000		779,600	
10 percent exceeds	746		702		2,980	
50 percent exceeds	204		134		641	
90 percent exceeds	0.87		1.8		1.5	



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WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
SUSPENDED-SEDIMENT DISCHARGE: October 1964 to September 2004, October 2011 to current year.

INSTRUMENTATION.--Automatic pumping sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATION: Maximum daily mean, 27,500 mg/L, Sept. 16, 2013; minimum daily mean, no flow on many days most years.
SEDIMENT LOAD: Maximum daily, 356,000 tons, Aug. 11, 1967; minimum daily, 0 tons on many days most years.

EXTREMES FOR CURRENT YEAR.--
SEDIMENT CONCENTRATION: Maximum daily mean, 27,500 mg/L, Sept. 16; minimum daily mean, 28 mg/L, Aug. 27.
SEDIMENT LOAD: Maximum daily 246,000 tons, Sept. 16; minimum daily, 0.12 ton, Sept. 7.

SUSPENDED-SEDIMENT
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013
[e, estimated]

Day	Mean concen-tration (mg/L)	Sediment discharge (tons/day)	Mean concen-tration (mg/L)	Sediment discharge (tons/day)	Mean concen-tration (mg/L)	Sediment discharge (tons/day)	Mean concen-tration (mg/L)	Sediment discharge (tons/day)	Mean concen-tration (mg/L)	Sediment discharge (tons/day)	Mean concen-tration (mg/L)	Sediment discharge (tons/day)
	October		November		December		January		February		March	
1	e200	e0.71	e200	e1.2	833	1,840	387	465	980	1,150	1,060	934
2	e200	e0.71	280	24	828	1,820	269	231	1,060	1,240	663	479
3	e200	e0.71	550	100	823	1,820	245	175	1,020	1,190	713	420
4	e200	e0.63	616	158	818	1,800	252	169	1,090	1,300	317	211
5	e200	e0.61	604	189	813	1,780	233	149	1,070	1,280	552	382
6	e200	e0.69	559	209	808	1,770	213	130	1,670	1,980	340	251
7	e200	e0.68	390	153	803	1,760	255	160	1,620	2,030	225	135
8	e200	e0.69	494	222	797	1,760	245	148	668	1,020	225	118
9	e200	e0.73	574	270	789	1,760	258	152	539	654	206	104
10	e200	e0.72	627	337	775	1,760	230	139	740	829	203	111
11	e200	e0.72	615	311	760	1,730	247	202	951	1,120	253	173
12	e200	e0.72	478	251	743	1,700	220	185	1,160	1,360	236	164
13	e200	e0.69	418	229	701	1,610	212	175	1,370	1,500	234	196
14	e200	e0.80	450	267	653	1,380	249	204	1,480	1,620	208	144
15	e200	e0.85	455	273	608	1,150	274	218	881	988	189	76
16	e200	e0.91	491	317	573	1,140	270	229	1,170	1,320	176	70
17	e200	e0.86	784	566	539	1,070	354	314	887	999	190	70
18	e200	e0.93	874	760	506	988	379	332	632	724	426	199
19	e200	e0.93	790	810	516	1,070	428	381	1,240	1,390	261	143
20	e200	e0.94	765	816	577	1,350	530	465	1,520	1,710	251	112
21	e200	e0.94	774	851	549	1,300	621	603	1,300	1,490	276	116
22	e200	e0.94	783	1,140	521	1,210	497	434	991	1,120	274	100
23	e200	e0.98	792	1,250	478	967	418	369	682	776	276	113
24	e200	e0.88	801	1,400	436	775	418	379	408	467	264	96
25	e200	e0.95	809	1,430	426	754	390	364	405	459	208	75
26	e200	e0.94	818	1,440	417	727	412	410	277	306	216	80
27	e200	e1.0	827	1,490	408	690	779	782	300	322	175	57
28	e200	e1.1	836	1,590	354	589	981	1,180	785	776	137	44
29	e200	e1.1	842	1,800	352	496	884	1,090	---	---	111	35
30	e200	e1.2	838	1,830	654	787	891	1,040	---	---	136	42
31	e200	e0.99	---	---	743	905	1,050	1,250	---	---	173	48
Total	---	26.25	---	20,484.2	---	40,258	---	12,524	---	31,120	---	5,298

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SUSPENDED-SEDIMENT
WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013
[e, estimated]

Day	Mean concen-tration (mg/L)	Sediment discharge (tons/day)	Mean concen-tration (mg/L)	Sediment discharge (tons/day)	Mean concen-tration (mg/L)	Sediment discharge (tons/day)	Mean concen-tration (mg/L)	Sediment discharge (tons/day)	Mean concen-tration (mg/L)	Sediment discharge (tons/day)	Mean concen-tration (mg/L)	Sediment discharge (tons/day)
	April		May		June		July		August		September	
1	205	58	166	53	115	26	79	0.75	e1,590	e1,850	e30	e0.22
2	187	55	167	50	137	34	78	1.3	e1,290	e1,260	e30	e0.35
3	155	41	201	65	161	50	78	1.4	e986	e561	e30	e0.25
4	142	37	205	78	172	51	77	1.0	e736	e382	e30	e0.16
5	140	37	231	89	158	44	76	0.57	e1,820	e1,950	e31	e0.14
6	137	36	350	184	172	45	76	0.30	1,390	307	e31	e0.13
7	134	35	290	136	274	71	75	0.26	3,340	858	e31	e0.12
8	132	32	210	76	292	84	75	0.62	5,010	588	e32	e0.13
9	129	33	186	62	366	76	74	0.83	4,680	381	e32	e0.12
10	126	35	196	64	256	50	e1,330	e611	4,350	477	e71	e0.67
11	124	33	310	99	168	30	e4,300	e3,150	4,030	671	e634	e26
12	121	33	225	71	118	16	e3,450	e305	11,800	2,630	e801	e30
13	119	39	194	61	110	12	e1,060	e42	e11,200	e2,310	8,620	2,290
14	129	47	191	66	110	9.1	e508	e19	e6,700	e846	13,200	17,300
15	141	50	202	62	108	7.3	e382	e23	e4,200	e435	23,700	170,000
16	133	46	423	191	106	7.2	e315	e14	e2,300	e122	27,500	246,000
17	130	46	322	167	99	4.6	e235	e8.7	e1,530	e65	22,700	99,800
18	240	172	294	94	91	3.4	e186	e6.7	e993	e41	17,200	81,900
19	224	145	227	69	83	2.1	e183	e5.4	e860	e34	7,910	14,600
20	187	108	215	63	75	1.2	e181	e3.1	e742	e24	5,940	10,500
21	164	83	186	52	72	0.68	e499	e88	e625	e25	4,980	12,900
22	149	76	188	53	100	0.57	e1,130	e203	e507	e9.9	3,490	6,250
23	137	63	182	57	132	0.65	e745	e80	e389	e4.6	2,760	5,550
24	120	31	156	50	114	0.55	e403	e22	e272	e2.9	1,610	4,060
25	130	31	152	41	83	0.37	e982	e139	e154	e1.5	1,690	3,500
26	129	33	165	49	82	0.31	e1,130	e231	e47	e0.48	4,620	6,820
27	158	50	161	41	82	0.29	e1,380	e1,530	e28	e0.24	4,760	7,200
28	156	50	192	47	81	0.29	e3,460	e16,300	e29	e0.33	2,300	3,770
29	156	50	149	37	80	0.35	e3,640	e15,100	e29	e0.26	2,620	3,210
30	162	53	135	33	80	0.58	e2,200	e4,350	e29	e0.24	2,130	2,260
31	---	---	125	30	---	---	e1,900	e2,820	e29	e0.24	---	---
Total	---	1,638	---	2,290	---	628.54	---	45,057.93	---	15,837.69	---	697,968.29

	Total suspended sediment discharge (tons)
Year	873,130.90