

Water-Data Report 2009

08353000 RIO PUERCO NEAR BERNARDO, NM

Rio Grande-Elephant Butte Basin
Rio Puerco Subbasin

LOCATION.--Lat 34°24'37", long 106°51'16" referenced to North American Datum of 1983, Socorro County, NM, Hydrologic Unit 13020204, on left bank 300 ft upstream from bridge on former U.S. Highway 85, 0.2 mi upstream from Interstate Highway 25, 1.2 mi southwest of Bernardo, 3.0 mi upstream from mouth, and 18.0 mi south of Belen.

DRAINAGE AREA.--7,350 mi² of which 1,130 mi² probably is noncontributing.

SURFACE-WATER RECORDS

PERIOD OF RECORD.--November 1939 to current year. Fragmentary gage-height record and footnotes concerning no flow for the period September 1910 to August 1914, published in WSP 358 and 388, are in error and should not be used.

REVISED RECORDS.--WSP 1512: 1941-42, 1944-45, 1946(P), 1947-49. WSP 1632: 1957. WSP 1732: drainage area. See also PERIOD OF RECORD.

GAGE.--Water-stage recorder with satellite telemetry. Datum of gage is 4,722.34 ft above NGVD of 1929. Prior to Jan. 24, 1969, at datum 3.10 ft higher.

REMARKS.--Water-discharge records good except for those estimated, which are poor. Diversions for irrigation of about 11,500 acres upstream from station (includes 3,700 acres irrigated wholly or partly from wells). No flow part of the year.

EXTREMES OUTSIDE PERIOD OF RECORD.--The greatest flood since about 1880 occurred Sept. 23, 1929, from information by local residents (discharge, about 35,000 ft³/s, estimated on basis of peak at Rio Puerco). Another flood occurred Aug. 12, 1929 (discharge, 30,600 ft³/s, by slope-area measurement, from reports of New Mexico State Engineer).

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DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2008 TO SEPTEMBER 2009
DAILY MEAN VALUES

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	0.00	0.00	0.00	0.05	0.13	0.09	0.15	0.00	0.00	30	1.6	0.00
2	0.00	0.00	0.00	0.05	0.11	0.12	0.14	0.02	0.00	51	0.00	0.00
3	0.00	0.00	0.00	0.05	0.13	0.12	0.12	0.10	0.00	13	0.00	0.00
4	0.00	0.00	0.00	0.05	0.12	0.11	0.11	0.07	0.00	2.8	0.00	0.00
5	0.23	0.00	0.00	0.05	0.13	0.07	0.07	0.00	0.00	0.39	0.00	0.00
6	0.02	0.00	0.03	0.06	0.13	0.06	0.14	0.00	0.00	0.00	0.00	0.02
7	0.00	0.00	0.04	0.04	0.12	0.10	0.16	0.00	0.00	1.0	0.00	26
8	0.00	0.00	0.09	0.07	0.13	0.03	0.16	0.00	0.00	1.7	0.00	87
9	0.00	0.00	0.12	0.07	0.13	0.16	0.13	0.00	0.00	0.04	0.00	30
10	0.00	0.00	0.07	0.03	0.16	0.18	0.07	0.00	0.00	0.24	0.00	9.5
11	19	0.00	0.08	0.04	0.10	0.13	0.16	0.00	0.00	0.00	0.00	3.0
12	28	0.00	0.10	0.05	0.14	0.18	0.17	0.01	0.00	0.00	0.00	35
13	59	0.00	0.10	0.05	0.13	0.26	0.17	11	0.00	0.00	0.00	177
14	16	0.00	0.09	0.07	0.15	0.22	0.15	12	0.00	0.00	0.00	100
15	7.4	0.00	0.06	0.07	0.14	0.17	0.09	11	0.00	0.00	0.02	63
16	2.7	0.00	0.13	0.08	0.14	0.14	0.11	8.0	0.00	0.00	0.00	44
17	1.3	0.00	0.13	0.09	0.15	0.15	0.17	5.8	0.00	0.00	0.00	82
18	0.54	0.00	0.15	0.09	0.13	0.14	0.20	3.9	0.00	0.00	0.00	206
19	0.03	0.00	0.11	0.10	0.12	0.16	0.21	0.57	0.00	0.00	0.00	346
20	0.00	0.00	0.13	0.10	0.14	0.16	0.21	0.17	0.00	0.00	0.00	359
21	0.00	0.00	0.11	0.11	0.14	0.15	0.21	0.05	0.00	0.00	0.00	85
22	0.00	0.00	0.12	0.12	0.12	0.11	0.21	0.13	0.00	0.00	0.00	131
23	0.00	0.00	0.16	0.13	0.13	0.09	0.19	0.71	0.00	0.00	0.00	23
24	0.00	0.00	0.10	0.16	0.14	0.01	0.15	0.92	0.00	0.00	0.00	11
25	0.00	0.00	0.14	0.12	0.09	0.09	0.10	0.10	0.00	0.00	0.00	5.5
26	0.00	0.00	0.14	0.09	0.11	0.12	0.01	6.3	0.00	0.00	0.00	4.7
27	0.00	0.06	0.01	0.08	0.08	0.16	0.00	5.7	0.00	0.00	0.00	2.2
28	0.00	0.06	0.01	0.05	0.06	0.16	0.00	1.3	294	0.00	9.3	0.57
29	0.00	0.02	0.14	0.10	---	0.15	0.00	0.14	139	16	2.4	0.08
30	0.00	0.03	0.06	0.11	---	0.14	0.02	0.01	30	8.8	1.8	0.00
31	0.00	---	0.06	0.13	---	0.13	---	0.01	---	6.9	0.28	---
Total	134.22	0.17	2.48	2.46	3.50	4.06	3.78	68.01	463.00	131.87	15.40	1,830.57
Mean	4.33	0.01	0.08	0.08	0.12	0.13	0.13	2.19	15.4	4.25	0.50	61.0
Max	59	0.06	0.16	0.16	0.16	0.26	0.21	12	294	51	9.3	359
Min	0.00	0.00	0.00	0.03	0.06	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Ac-ft	266	0.3	4.9	4.9	6.9	8.1	7.5	135	918	262	31	3,630

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 2009, BY WATER YEAR (WY)

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Mean	44.9	6.35	1.15	2.22	13.9	16.3	15.2	37.5	17.5	60.3	178	80.2
Max	586	100	26.6	70.0	142	208	179	885	203	362	1,044	584
(WY)	(1942)	(1987)	(1985)	(1993)	(1979)	(1960)	(1973)	(1941)	(1941)	(1955)	(2006)	(1972)
Min	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
(WY)	(1952)	(1940)	(1940)	(1940)	(1942)	(1942)	(1944)	(1950)	(1945)	(1942)	(2000)	(1956)

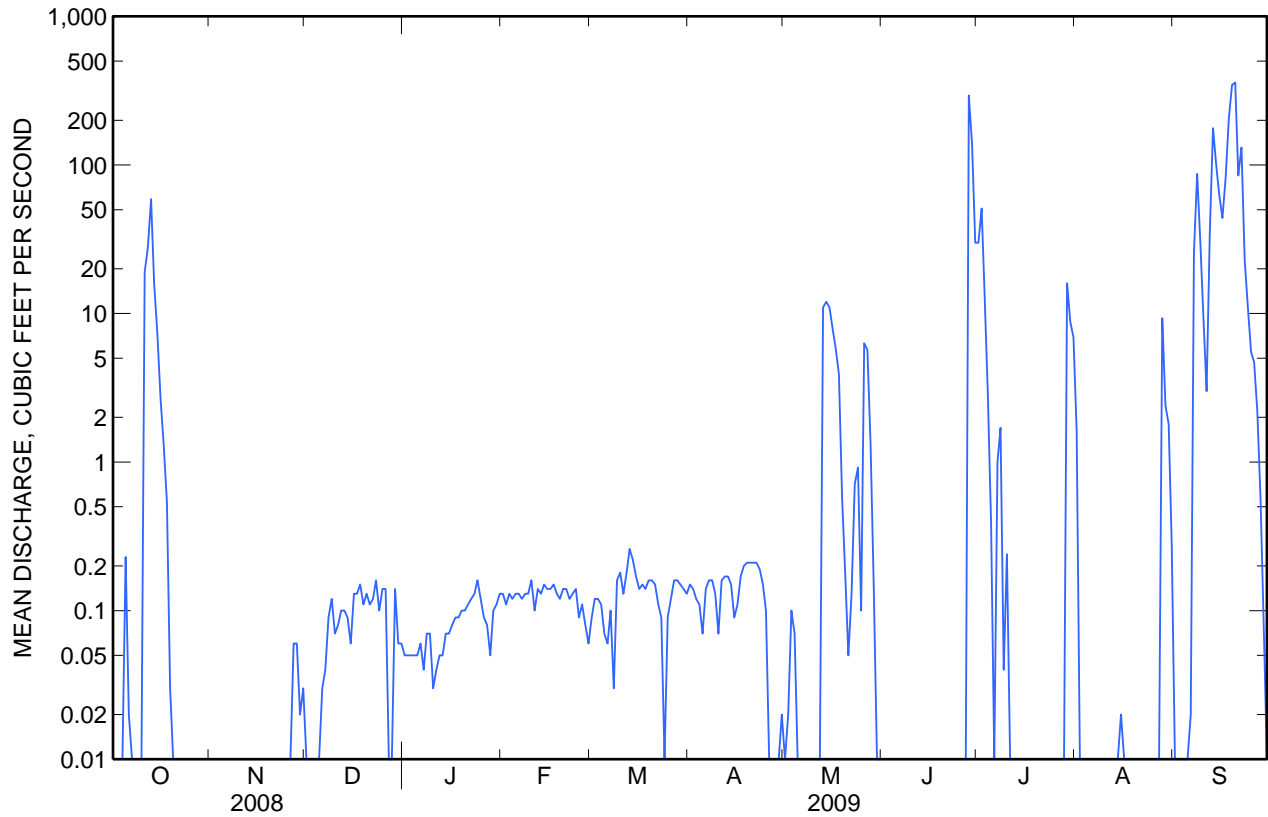
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SUMMARY STATISTICS

	Calendar Year 2008		Water Year 2009		Water Years 1940 - 2009	
Annual total	4,806.24		2,659.52			
Annual mean	13.1		7.29		39.5	
Highest annual mean					171	1941
Lowest annual mean					4.80	2000
Highest daily mean	351	Jul 25	359	Sep 20	5,980	May 5, 1941
Lowest daily mean	0.00	Mar 17	0.00	Oct 1	0.00	Nov 1, 1939
Annual seven-day minimum	0.00	Mar 17	0.00	Oct 20	0.00	Nov 1, 1939
Maximum peak flow			406	Sep 20	^a 18,800	Sep 23, 1941
Maximum peak stage			7.08	Sep 20	^b 19.52	Aug 10, 2006
Instantaneous low flow			0.00	Oct 1	0.00	Nov 1, 1939
Annual runoff (ac-ft)	9,530		5,280		28,650	
10 percent exceeds	37		6.5		58	
50 percent exceeds	0.06		0.07		0.00	
90 percent exceeds	0.00		0.00		0.00	

^a From rating curve extended above 7,800 ft³/s.

^b Maximum gage height, 19.52 ft, present datum, Aug. 10, 2007.



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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 sediment sampler.

REMARKS.--Daily suspended-sediment samples are collected when flow is sensed on this ephemeral stream.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 417,000 mg/L, July 25, 2008; minimum daily mean, no flow on many days.

SEDIMENT LOAD: Maximum daily, 2,240,000 tons, August 7, 1957; minimum daily, 0 ton on many days.

EXTREMES FOR CURRENT YEAR.--

SEDIMENT CONCENTRATION: Maximum daily mean, 152,000 mg/L, Aug. 29; minimum daily mean, no flow many days. SEDIMENT LOAD: Maximum daily 113,000 tons, Sept. 19; minimum daily, 0 ton many days.

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SUSPENDED-SEDIMENT
WATER YEAR OCTOBER 2008 TO SEPTEMBER 2009

Day	Mean	Sediment	Mean	Sediment	Mean	Sediment	Mean	Sediment	Mean	Sediment	Mean	Sediment
	concentration (mg/L)	discharge (tons/day)	concentration (mg/L)	discharge (tons/day)	concentration (mg/L)	discharge (tons/day)	concentration (mg/L)	discharge (tons/day)	concentration (mg/L)	discharge (tons/day)	concentration (mg/L)	discharge (tons/day)
	October		November		December		January		February		March	
1	0.0	0.00	0.0	0.00	6	0.00	289	0.04	397	0.14	51	0.01
2	0.0	0.00	0.0	0.00	0.0	0.00	211	0.03	313	0.09	53	0.02
3	0.0	0.00	0.0	0.00	0.0	0.00	221	0.03	280	0.09	54	0.02
4	0.0	0.00	0.0	0.00	0.0	0.00	120	0.02	237	0.08	62	0.02
5	7	0.01	0.0	0.00	216	0.01	155	0.02	232	0.08	56	0.01
6	8	0.00	0.0	0.00	658	0.04	156	0.02	211	0.07	50	0.01
7	7	0.00	0.0	0.00	502	0.05	123	0.01	210	0.07	54	0.02
8	5	0.00	0.0	0.00	258	0.06	110	0.02	236	0.08	58	0.01
9	3	0.00	0.0	0.00	98	0.03	138	0.03	240	0.08	62	0.03
10	2	0.00	0.0	0.00	291	0.06	100	0.01	159	0.07	66	0.03
11	7,060	1,390	0.0	0.00	461	0.10	66	0.01	88	0.02	70	0.03
12	11,600	2,550	0.0	0.00	447	0.13	73	0.01	63	0.02	74	0.04
13	23,700	4,960	0.0	0.00	353	0.10	209	0.03	57	0.02	78	0.06
14	14,100	631	0.0	0.00	195	0.05	151	0.03	78	0.03	82	0.05
15	9,330	193	0.0	0.00	30	0.01	63	0.01	75	0.03	86	0.04
16	5,920	45	0.0	0.00	128	0.04	39	0.01	58	0.02	90	0.03
17	3,630	13	0.0	0.00	107	0.04	25	0.01	54	0.02	94	0.04
18	3,040	4.5	0.0	0.00	70	0.03	16	0.00	44	0.02	83	0.03
19	2,110	0.20	0.0	0.00	139	0.04	13	0.00	63	0.02	73	0.03
20	253	0.00	0.0	0.00	148	0.05	11	0.00	76	0.03	76	0.03
21	0.0	0.00	0.0	0.00	208	0.07	8	0.00	98	0.04	68	0.03
22	0.0	0.00	0.0	0.00	225	0.08	173	0.06	94	0.03	66	0.02
23	0.0	0.00	0.0	0.00	121	0.05	427	0.15	68	0.02	75	0.02
24	0.0	0.00	0.0	0.00	67	0.02	250	0.11	61	0.02	71	0.00
25	0.0	0.00	0.0	0.00	94	0.04	159	0.05	62	0.02	65	0.02
26	0.0	0.00	0.0	0.00	85	0.03	176	0.04	55	0.02	56	0.02
27	0.0	0.00	240	0.11	390	0.01	306	0.07	57	0.01	63	0.03
28	0.0	0.00	582	0.10	894	0.03	373	0.04	57	0.01	77	0.03
29	0.0	0.00	558	0.03	1,790	0.65	450	0.12	---	---	82	0.03
30	0.0	0.00	567	0.06	1,840	0.29	526	0.15	---	---	69	0.03
31	0.0	0.00	---	---	824	0.13	536	0.19	---	---	55	0.02
Total	---	9,786.71	---	0.30	---	2.24	---	1.32	---	1.25	---	0.81

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SUSPENDED-SEDIMENT
WATER YEAR OCTOBER 2008 TO SEPTEMBER 2009

Day	April		May		June		July		August		September	
	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)
1	54	0.02	51	0.00	701	0.01	103,000	8,800	112,000	510	18,100	0.00
2	61	0.02	50	0.00	454	0.00	97,200	0.1E+05	49,700	0.09	3,730	0.00
3	71	0.02	50	0.01	207	0.00	72,500	2,660	5,640	0.00	4,060	0.00
4	88	0.03	50	0.01	14	0.00	58,800	448	562	0.00	3,750	0.00
5	82	0.01	2	0.00	0.0	0.00	49,600	56	511	0.00	3,440	0.00
6	60	0.02	0.0	0.00	0.0	0.00	473	0.01	460	0.00	3,120	0.21
7	65	0.03	0.0	0.00	0.0	0.00	15,600	203	409	0.00	23,500	9,340
8	62	0.03	0.0	0.00	0.0	0.00	66,700	313	358	0.00	119,000	0.3E+05
9	53	0.02	0.0	0.00	0.0	0.00	33,900	5.5	307	0.00	97,500	7,790
10	54	0.01	0.0	0.00	0.0	0.00	30,000	33	256	0.00	93,600	2,420
11	54	0.02	0.0	0.00	0.0	0.00	10,800	0.00	204	0.00	76,000	615
12	54	0.02	219	0.53	0.0	0.00	2,100	0.00	153	0.00	84,900	8,700
13	53	0.02	77,200	2,260	0.0	0.00	1,600	0.00	102	0.00	120,000	0.6E+05
14	53	0.02	64,600	2,140	0.0	0.00	1,110	0.00	51	0.00	106,000	0.3E+05
15	53	0.01	55,900	1,690	0.0	0.00	613	0.00	2,160	0.53	99,400	0.2E+05
16	53	0.02	40,800	887	0.0	0.00	134	0.00	802	0.00	94,400	0.1E+05
17	53	0.02	36,500	571	0.0	0.00	0.0	0.00	733	0.00	101,000	0.2E+05
18	53	0.03	31,900	339	0.0	0.00	0.0	0.00	665	0.00	119,000	0.7E+05
19	52	0.03	27,800	44	0.0	0.00	0.0	0.00	596	0.00	121,000	0.1E+06
20	52	0.03	25,800	12	0.0	0.00	0.0	0.00	528	0.00	86,900	0.8E+05
21	52	0.03	24,100	3.5	0.0	0.00	0.0	0.00	459	0.00	28,600	7,250
22	52	0.03	22,300	7.6	0.0	0.00	0.0	0.00	390	0.00	31,700	0.1E+05
23	52	0.03	38,900	92	0.0	0.00	0.0	0.00	322	0.00	24,700	1,550
24	52	0.02	33,800	96	0.0	0.00	0.0	0.00	253	0.00	20,500	623
25	52	0.01	20,200	5.5	0.0	0.00	0.0	0.00	184	0.00	20,200	298
26	51	0.00	45,300	1,210	0.0	0.00	0.0	0.00	116	0.00	20,000	252
27	51	0.00	89,900	1,390	0.0	0.00	0.0	0.00	47	0.00	19,800	118
28	51	0.00	59,900	230	131,000	0.1E+06	0.0	0.00	135,000	4,190	19,600	30
29	51	0.00	17,700	9.4	112,000	0.4E+05	75,300	6,220	152,000	989	14,500	3.5
30	51	0.00	3,090	0.12	91,300	7,330	114,000	2,760	127,000	611	2,170	0.05
31	---	---	1,510	0.02	---	---	134,000	2,550	71,600	68	---	---
Total	---	0.55	---	0.1E+05	---	0.2E+06	---	0.4E+05	---	6,368.62	---	0.5E+06

Total suspended sediment discharge (tons)	
Year	0.7E+06