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WATER BULLETIN NUMBER 38

Flow of the Rio Grande and Related Data

From Elephant Butte Dam, New Mexico to the Gulf of Mexico

1968

STORAGE IN MAJOR RESERVOIRS
SOURCES OF RIVER FLOW
DIVERSIONS
SUSPENDED SILT
CHEMICAL ANALYSES
SANITARY ASPECTS OF WATER QUALITY
METEOROLOGIC DATA
DRAINAGE BASIN AND IRRIGATED AREAS

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FOREWORD

This bulletin presents the thirty-eighth compilation of the stream discharges and related data concerning the international portion of the Rio Grande, prepared jointly by the United States and Mexican Sections of the International Boundary and Water Commission. The stream flow data and kindred subjects pertain to the Rio Grande and its important tributaries near their confluence with the main stream from Elephant Butte, New Mexico to the Gulf of Mexico. The first publication in the series was Water Bulletin No. 1 for the year 1931. The present volume contains the information for the year 1968.

International stream gaging on the Rio Grande was initiated in 1889, when the station at El Paso, Texas was established. Several stations on the Rio Grande and its tributaries downstream from El Paso were established in 1900 and operated until 1914. Between 1914 and 1923, except for a few months in 1919 and 1920, all stream-gaging work on the international reach of the river was suspended. In 1923, the work was resumed and carried on independently by the two countries until 1931 when the present joint program of stream measurements was adopted.

During 1968, the United States Section of the Commission operated the stream-gaging stations on the Rio Grande at El Paso, American Dam, Island, County Line, Fort Quitman, Above Río Conchos, Below Río Conchos, Johnson Ranch, Foster Ranch, Langtry, Below Amistad Dam, Del Rio, San Antonio Crossing, Fort Ringgold, San Benito, and Brownsville. The Mexican Section operated the stream-gaging stations on the Rio Grande at Below Maverick Dam near Quemado, Eagle Pass, Palafox, Laredo, Below Anzaldúas Dam, and Progreso. The station at Falcon Dam was operated jointly by the two Sections. Each Section operated the gaging stations on tributary streams, floodway, and diversions within its own country.

The total drainage area within the outer rim of the Rio Grande Basin is 335,500 square miles. However, about half of this area yields no runoff to the river, the estimated productive area of the watershed being 176,333 square miles. Reservoirs in the basin have a total storage capacity of approximately 10,641,400 acre-feet, in addition to the international Amistad and Falcon Reservoirs, which have a combined conservation capacity of 6,272,800 acre-feet. In the Rio Grande Basin, a rounded total of 2,102,000 acres is irrigated below Elephant Butte Dam on the Rio Grande and below Girvin on the Pecos River. The flow of the Rio Grande to the Gulf of Mexico below Brownsville prior to construction of Falcon Dam averaged 2,600,000 acre-feet per year for the period 1934-1952. For the period 1954-1968, this flow has averaged 560,900 acre-feet per year.

Acknowledgments

Other agencies which have contributed to some part of the data published herein include: The Agricultural Research Service and the Soil Conservation Service of the U. S. Department of Agriculture; the Bureau of Reclamation and the Geological Survey of the U. S. Department of the Interior; the Weather Bureau of the U. S. Department of Commerce; the Texas Board of Health; the Texas Water Development Board; the Sanchez Ditch and Reservoir Company; the Middle Rio Grande Conservancy District; the Red Bluff Water Power Control District; the New Mexico State Engineer Office; the Rio Grande Compact Commission; the Willacy County Water Control and Improvement District No. 1; the El Paso Department of Water and Sewerage; the Maverick County Water Control and Improvement District No. 1; the Del Rio City Water Department; the Eagle Pass City Water Department; the Laredo City Water Department; the Del Mar Conservation District; Central Power and Light Company; the Special Water Master of the 93rd District Court of Texas; the Ministry of Hydraulic Resources of Mexico; the Ministry of Agriculture and Livestock of Mexico; the Meteorological Service of Mexico; Meteorological Service of the State of Chihuahua, Mexico; Industrial Electric S. A. of Mexico; Potable Water Board of Piedras Negras, Coahuila; the Federal Board of Public Improvement Works of Nuevo Laredo, Tamaulipas; and the Water and Drainage Board of Matamoros, Tamaulipas.

Additional contributions have been made by individuals and corporations and specific notation is made for such, as well as for those of the above-named agencies, where the data appear. The courtesy and cooperation of those who made these contributions are acknowledged with our appreciation.

Period Averages

In Water Bulletins Nos. 1 through 29, normal or average discharge volumes shown for the various gaging stations were based on a period beginning in 1924, or thereafter when records became available.

Beginning with Water Bulletin No. 30, the periods have been revised to include only the years following completion of major projects below which the flow of the Rio Grande or a major tributary was modified, or later when records became available. The revised periods are based on the completion of Caballo Dam in 1938; the completion in 1947 of irrigation projects on the Río Conchos and its tributaries; and the construction of International Falcon Dam which was completed in 1953.

For purposes of comparison with the average flows in the Rio Grande below Caballo Dam, records of average discharge in the Rio Grande below Elephant Butte Dam have also been revised to include the same period.

The period of record used to determine the average diversions from the Rio Grande to the United States below Falcon Dam published herein was restricted to 1957, the first complete year of record after United States' waters in Falcon Reservoir were placed under the jurisdiction of the 93rd District Court of Texas.

FOREWORD

Units of Measure

Data collected by the Mexican Section are computed and published in a Spanish version of the water bulletin in metric units. The Mexican data are converted and reported in this bulletin in English units. Conversion factors conform generally to those in the National Bureau of Standards Miscellaneous Publication 286 "Units of Weight and Measure (United States Customary and Metric) - Definitions and Tables of Equivalents". However, for convenience some of the factors have been shortened and modified to facilitate conversion, reconversion to the original units when necessary, and checking of data. Conversion of the mean daily discharges, the monthly average discharge and the monthly volumes from metric to English units is direct. For this reason the monthly average discharge in cubic feet per second and monthly volumes in acre-feet shown for gaging stations operated by the Mexican Section cannot necessarily be obtained in the usual manner from the total monthly flow in second-foot days. The following factors have been used for data in this bulletin:

METRIC UNITS		ENGLISH UNITS
	LENGTHS	
1 Centimeter		0.393701 Inches
1 Meter		3.28084 Feet
1 Kilometer		0.621371 Miles
	AREAS	
1 Square Meter		10.76391 Square Feet
1 Hectare		2.471054 Acres
1 Square Kilometer		0.386102 Square Miles
	VOLUME	
1 Cubic Meter		61023.74 Cubic Inches
1 Cubic Meter		35.31467 Cubic Feet
1 Cubic Meter		1.30795 Cubic Yards
1000 Cubic Meters		0.81071 Acre-Foot
1 Liter		0.264172 U. S. Gallon
	WEIGHTS	
1 Kilogram		2.204623 Pounds
1 Metric Ton		2204.623 Pounds
1 Metric Ton		1.102311 Short Tons (2000 lbs.)

GENERAL HYDROLOGIC CONDITIONS FOR 1968

Along and Adjacent to the International Portion of the Rio Grande

During the year 1968, temperatures averaged 98% of normal on the watershed of the Rio Grande below El Paso, Texas. Evaporation averaged 86% of normal. Precipitation was 105% of normal from El Paso to Falcon Dam, 111% of normal from Falcon Dam to Rio Grande City, and 96% of normal in the Lower Rio Grande Valley on the United States side.

The yearly volume of flow of the Rio Grande was below normal from El Paso to the confluence of the Río Conchos with the Rio Grande, above normal from the confluence of the Río Conchos to Langtry, below normal from Amistad Dam to Anzaldúas Dam, and above normal from Progreso to the Gulf of Mexico. In the reach between El Paso and the confluence of the Río Conchos the flow averages 54% of normal, ranging from 147% of normal at Below American Dam Station to 12% of normal at County Line Station; in the reach between the confluence of the Río Conchos and Amistad Reservoir the flow averaged 156% of normal; and in the reach between Amistad Dam and Falcon Reservoir, where Rio Grande flows were partly regulated by releases from Amistad Reservoir during the last half of the year, the flow averaged 54% of normal. Flows passing Rio Grande stations below Falcon Dam were partly regulated by releases from Falcon Reservoir. Such releases in 1968 amounted to 1,331,910 acre-feet, or 61% of the average for the fifteen years of operation, 1954 through 1968. The volume of flow wasted to the Gulf of Mexico was 1,004,680 acre-feet or 179% of the average for this fifteen year period.

The total annual flow of all measured tributaries below Fort Quitman excluding Goodenough Spring was 107% of normal. The total flow of these tributaries in the United States was 310,360 acre-feet or 46% of normal. For Mexico, the measured tributary flow excluding the Río Alamo and Río San Juan was 1,384,950 acre-feet or 130% of normal. The flow of the Río Alamo and Río San Juan was 68% and 165% of their respective normals.

Return flow to the Rio Grande at Maverick Power Plant near Eagle Pass was 641,390 acre-feet or 110% of the twenty year average. Return flow to the Rio Grande through various drains in the Maverick County Irrigation District excluding storm inflow amounted to 213,320 acre-feet, or 97% of the ten year average. There was no return flow through Poniente Drain in 1968.

The only flood of consequence during the year occurred in September in the Presidio-Ojinaga area as a result of heavy precipitation in July and August on the Río Conchos watershed, the runoff of which practically filled La Boquilla and Madero Reservoirs and partially filled the still-under-construction Luis L. León Reservoir. These rains were followed by persistent and, at times, heavy precipitation on the Río Conchos and Alamito Creek watersheds. Runoff from these rains, which continued into September as an almost daily occurrence during the first half of the month and intermittently thereafter through September 25, required flood releases from Mexican reservoirs and caused the Rio Grande to overflow its banks for several days resulting in damage to farm levees and flooding of farm lands in the Presidio Valley. The flood, augmented by a flash flood in Alamito Creek, reached a peak of 23,200 second-feet on September 23 at the Below Río Conchos Gaging Station. The flood volume past this station was 335% of the 1948-1968 period average.

For all reservoirs in the Rio Grande basin having a capacity greater than 15,000 acre-feet, excepting Amistad and Falcon international reservoirs, the average amount of water in storage in 1968 was 4,388,200 acre-feet or 111% of the normal 3,955,100 acre-feet. In the United States, stored water in these reservoirs averaged 49% of normal while in Mexico the average was 139% of normal. In International Amistad Reservoir, which started impounding water on May 31, 1968, the storage at the end of the year was 687,200 acre-feet. The maximum storage was 725,000 acre-feet on December 2. In International Falcon Reservoir, there was a net decrease in storage during the year of 250,100 acre-feet. The storage varied from a high of 2,975,800 acre-feet on February 13 to a low of 2,484,200 acre-feet on August 31 and averaged 2,764,500 acre-feet during the year or 152% of the average for the fifteen years of operation, 1954 through 1968.

Diversions from the Rio Grande in the United States were, on the average, 82% of normal. Diversions into the American Canal were 39% of normal; into Maverick Canal 106% of normal; and in the United States below Falcon Dam 71% of the average for the twelve years, 1957 through 1968. In Mexico, diversions averaged 72% of normal. Diversions into the Acequia Madre were 84% of normal while diversions through the Anzaldúas Canal for irrigation in Mexico were 71% of the fifteen year average.

In 1968, the total reported irrigated acreage from the Rio Grande and its tributaries below El Paso, Texas showed a decrease of 7% from the previous year. On the United States side, there was an increase of 5% above and no appreciable change below Falcon Dam for an unappreciable overall average change. On the Mexican side, there were increases of 3% above and 22% decrease below Falcon Dam for an overall average decrease of 12%.

The 1968 investigation of the quality of Rio Grande water extended from El Paso to Brownsville. The annual tonnage of salts carried by the river above Falcon Dam was 53% of the 1935-1968 normal. The volume of suspended silt transported by the Rio Grande in 1968 was 34% of average for sampling stations above Falcon Dam and 25% of average for sampling stations below Falcon Dam, ranging from 5% of average at Below Amistad Dam Gaging Station to 84% of average at Below Falcon Dam Station.

RIO GRANDE BELOW ELEPHANT BUTTE DAM, NEW MEXICO

DESCRIPTION: Cableway, bubbler gage, and water-stage recorders (graphic and digital) located on the left bank 100 feet upstream from the cableway at latitude 33° 08' 45", longitude 107° 12' 20", and river mile 1,383.2; 0.7 river mile downstream from Elephant Butte Dam, 1.5 river miles upstream from Cuchillo Negro River, and 135.1 river miles upstream from the American Dam at El Paso, Texas. The zero of the gage is 4,242.09 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 19 discharge measurements during the year and a continuous record of gage heights. Records were furnished by the United States Geological Survey. Records available: 1915 through 1968.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station. Beginning December 1940, hydroelectric power generation facilities for 27,000 kva were placed in operation at Elephant Butte Dam.

EXTREME FLOWS FROM RECORDS:

Average Flow in Second-Feet

Daily:	Max.	8,220	May 22, 1942		Min.	0	Occasionally
Monthly:	Max.	7,600	May 1942		Min.	2.6	Nov. 1961 & Nov. 1964
Yearly:	Max.	2,510	1942		Min.	253	1964

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	14.0	11.0	1,680	1,770	1,770	1,770	↟ 1,800	611	13.0	7.5	5.5	7.0
2	14.0	11.0	1,800	1,770	1,780	1,780	1,800	612	13.0	8.0	6.0	7.0
3	14.0	11.0	1,800	1,760	1,790	1,790	1,790	610	12.0	8.5	6.0	6.5
4	14.0	11.0	1,810	1,760	1,790	1,790	1,790	627	11.0	8.5	6.2	6.5
5	14.0	11.0	1,800	1,770	1,780	1,790	1,770	607	11.0	8.0	6.5	↟ 6.5
6	13.0	11.0	1,800	1,770	1,780	1,790	1,510	606	50.0	10.0	6.0	7.0
7	14.0	11.0	1,810	1,760	1,780	1,780	1,500	607	10.0	8.0	5.1	6.5
8	15.0	11.0	1,800	1,770	1,150	1,780	1,490	608	9.8	7.5	5.1	6.5
9	16.0	11.0	1,800	1,750	1,750	1,780	1,490	606	9.6	7.5	5.5	7.0
10	15.0	12.0	1,800	1,770	1,740	1,780	1,490	611	8.9	10.0	5.5	7.0
11	15.0	12.0	1,800	1,770	1,730	1,780	1,500	617	8.8	13.0	5.5	7.0
12	15.0	12.0	↟ 1,770	1,770	1,730	1,780	495	626	7.9	13.0	5.5	7.0
13	15.0	12.0	1,770	1,770	1,720	1,770	1,030	626	7.1	12.0	5.5	7.0
14	12.0	12.0	1,780	1,770	1,720	1,760	1,030	632	7.2	10.0	5.2	6.5
15	9.5	12.0	1,780	↟ 1,760	↟ 1,700	1,770	1,030	↟ 631	7.2	9.0	5.5	6.5
16	9.0	12.0	1,790	1,750	1,710	1,760	↟ 1,030	630	↟ 7.5	5.5	5.5	6.5
17	8.5	12.0	1,790	1,740	1,700	1,760	1,040	630	7.3	5.5	6.7	6.5
18	12.0	12.0	1,790	1,740	1,700	↟ 1,760	1,050	627	7.2	6.0	8.0	6.5
19	12.0	17.0	1,790	1,730	1,700	1,770	1,050	631	7.5	6.0	7.5	6.5
20	12.0	17.0	1,790	1,720	1,710	1,780	1,050	606	8.9	6.2	7.5	7.0
21	12.0	17.0	1,780	1,720	1,710	1,780	1,040	637	8.7	6.5	7.5	7.0
22	12.0	16.0	1,780	1,720	1,730	1,780	1,030	638	7.9	6.0	7.5	5.5
23	12.0	17.0	1,780	1,710	1,740	1,790	1,020	637	7.0	6.0	7.5	5.5
24	12.0	17.0	1,780	1,720	1,760	1,800	1,020	636	6.2	5.5	7.5	5.5
25	13.0	17.0	1,780	1,720	1,760	1,800	1,020	641	6.0	5.5	8.0	5.5
26	14.0	17.0	1,780	1,730	1,760	1,810	1,020	647	5.6	5.5	6.0	6.5
27	12.0	18.0	1,770	1,730	1,760	1,800	1,010	638	6.6	5.1	6.0	5.5
28	11.0	↟ 17.0	1,780	1,740	1,760	1,800	1,000	41.0	7.4	5.1	6.5	5.1
29	↟ 11.0	18.0	↟ 1,770	↟ 1,740	1,760	1,800	1,010	15.0	9.2	5.1	6.5	5.1
30	11.0		1,770	1,760	1,770	1,800	1,010	↟ 14.0	↟ 9.0	5.1	7.0	5.1
31	11.0		1,770		↟ 1,770		↟ 1,010	14.0		↟ 5.1		5.1
Sum	394.0	395.0	55,290	52,460	53,510	53,480	37,925	16,919.0	298.5	230.2	189.8	195.9

Current Year 1968 — Period 1938-1968

Month	Extreme Gage Feet		ø Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
			High		Low						
	High	Low	Day		Day				Average	Maximum	Minimum
Jan.			9	16.0	17	8.5	12.7	781	30,401	86,500	200
Feb.			†27	18.0	† 1	11.0	13.6	783	42,176	88,861	188
Mar.			† 4	1,810	1	1,680	1,780	109,668	68,143	119,000	1,520
Apr.			† 1	1,770	23	1,710	1,750	104,054	77,839	162,000	24,000
May			† 3	1,790	8	1,150	1,730	106,137	78,347	467,000	512
June			26	1,810	†14	1,760	1,780	106,078	88,548	363,000	16,913
July			† 1	1,800	12	495	1,220	75,224	90,808	211,000	41,352
Aug.			26	647	†30	14.0	546	33,559	75,341	134,000	9,530
Sept.			6	50.0	26	5.6	10.0	592	35,635	129,000	163
Oct.			†11	13.0	†27	5.1	7.4	457	21,823	72,100	166
Nov.			†18	8.0	† 7	5.1	6.3	376	21,566	158,000	152
Dec.			† 1	7.0	†28	5.1	6.3	389	22,425	87,300	179
Yearly				1,810		5.1	741	538,098	653,052	1,818,800	183,415

↟ Discharge measurement made on this day ø Mean daily † And other days

RIO GRANDE BELOW CABALLO DAM, NEW MEXICO

DESCRIPTION: Cableway, gravity well, and water-stage recorder located on the left bank at latitude 32° 53' 05", longitude 107° 17' 30", and river mile 1,355.0; 0.8 river mile downstream from Caballo Dam, about 3 miles northeast of Arrey, New Mexico, 5 miles south of Caballo, New Mexico, and 106.8 river miles upstream from the American Dam at El Paso, Texas. The zero of the gage is 4,140.90 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 44 discharge measurements during the year and a continuous record of gage heights. Records were furnished by the El Paso office of the United States Bureau of Reclamation. Records available: 1938 through 1968.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station. In addition to the outflow from Caballo Dam listed below, 634 acre-feet of water were diverted in 1968 into Bonita Lateral, a small irrigation canal just below Caballo Dam. Prior to 1938, discharge records were kept at Percha Dam, a low diversion dam about 1.5 miles downstream from this station. Small accretions to the river take place between the station and Percha Dam.

EXTREME FLOWS FROM RECORDS:

Average Flow in Second-Feet

Daily:	Max.	7,650	May 20, 1942	Min.	0.1	Oct. 31 - Nov. 14, 1954, & Nov. 7 - Dec. 31, 1955
Monthly:	Max.	6,710	May 1942	Min.	0.1	Nov. & Dec. 1955
Yearly:	Max.	2,480	1942	Min.	284	1964

Mean Daily Discharge in Second-Feet 1968. — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1.2	1.2	1,100	2,200	↟ 732	1,100	2,180	919	287	3.3	1.4	1.8
2	1.2	1.2	1,080	1,650	739	1,210	2,030	1,460	280	3.3	1.4	1.8
3	1.2	1.2	1,100	1,220	734	↟ 1,200	↟ 1,770	1,370	791	3.3	1.3	1.8
4	1.2	1.2	↟ 1,120	↟ 1,210	748	1,250	1,100	1,290	↟ 1,250	3.3	1.3	1.8
5	1.2	1.2	↟ 1,120	1,090	753	↟ 1,300	684	1,280	1,250	3.3	1.2	1.8
6	1.2	1.2	1,180	1,020	747	1,300	290	↟ 1,350	1,200	3.3	1.2	1.8
7	1.2	1.2	↟ 1,230	1,000	742	1,300	160	1,270	1,130	3.3	1.1	1.8
8	1.2	1.2	1,260	1,010	↟ 756	1,300	37.0	1,150	1,140	3.3	1.1	1.8
9	1.2	1.2	↟ 1,320	927	840	1,300	↟ 251	1,130	1,140	3.3	1.0	1.8
10	1.2	1.2	1,310	↟ 865	892	1,300	357	1,140	1,490	3.3	1.0	1.8
11	1.2	1.2	↟ 1,210	786	893	1,300	572	1,140	↟ 2,000	3.2	.9	1.8
12	1.2	1.2	1,080	↟ 603	903	1,300	596	↟ 1,140	1,990	3.2	.9	1.8
13	1.2	1.2	1,100	522	908	1,300	540	1,310	1,710	3.2	.8	1.8
14	1.2	1.2	1,110	464	906	1,380	554	1,500	1,320	3.2	.9	1.7
15	1.2	1.2	1,330	400	↟ 889	1,490	587	1,480	1,350	3.2	.9	1.7
16	1.2	1.2	↟ 1,750	457	898	1,490	↟ 936	1,600	↟ 1,150	↟ 3.2	1.0	1.7
17	1.2	1.2	1,750	↟ 556	827	↟ 1,500	1,420	1,720	855	3.2	1.0	1.6
18	1.2	1.2	1,740	570	690	1,650	1,470	1,710	588	3.2	1.1	1.5
19	1.2	1.2	1,730	552	625	↟ 1,920	1,630	1,800	582	3.2	1.2	1.4
20	1.2	1.2	1,700	550	639	1,920	2,040	2,120	450	3.2	1.3	1.3
21	1.2	1.2	1,690	555	646	2,020	2,040	↟ 2,460	7.5	3.3	1.4	1.2
22	1.2	1.2	↟ 1,870	545	↟ 653	2,130	↟ 2,040	2,220	6.1	3.3	1.4	1.2
23	1.2	1.2	2,160	556	669	2,140	↟ 2,470	1,690	4.8	3.3	1.5	1.1
24	1.2	1.2	2,090	↟ 597	777	↟ 2,140	↟ 2,440	1,540	↟ 3.4	3.3	1.6	1.0
25	1.2	1.2	1,870	609	815	2,140	2,190	1,380	3.4	↟ 3.3	1.7	.9
26	1.2	↟ 1.2	1,900	614	809	2,140	2,100	1,240	3.4	3.0	1.8	.8
27	1.2	446 ↟	↟ 1,920	625	809	2,130	2,100	978	3.4	2.7	1.8	.9
28	1.2	1,130	1,890	629	↟ 855	2,130	2,100	↟ 881	3.4	2.4	1.8	1.0
29	1.2	1,140 ↟	1,980	638	941	2,130	2,060	747	3.4	2.1	1.8	1.1
30	1.2		2,200	685	993	2,130	1,860	492	3.3	1.8	1.8	1.3
31	1.2		2,190		1,010		↟ 1,840	370		↟ 1.5		1.4
Sum	37.2	2,747.2	48,080	23,705	24,838	49,040	42,444	41,877	21,995.1	95.0	38.6	46.2

Month	Current Year 1968							Period 1938-1968		
	Extreme Gage Feet		ß Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet		
	High	Low	High Day	High	Low Day	Low			Average	Maximum	Minimum
Jan.			† 1	1.2	† 1	1.2	1.2	73.8	550	4,850	19.2
Feb.			29	1,140	† 1	1.2	94.7	5,449	8,264	64,300	13.0
Mar.			30	2,200	† 2	1,080	1,550	95,367	81,762	135,000	24,900
Apr.			1	2,200	15	400	790	47,019	84,553	212,000	25,470
May			31	1,010	19	625	801	49,266	77,108	412,000	75.2
June			†23	2,140	1	1,100	1,630	97,271	106,850	354,000	36,268
July			23	2,470	8	37.0	1,370	84,188	113,822	234,000	28,200
Aug.			21	2,468	31	370	1,350	83,063	107,707	179,000	20,500
Sept.			11	2,000	30	3.3	733	43,627	50,627	181,000	7,730
Oct.			† 1	3.3	31	1.5	3.1	188	5,389	35,400	15.5
Nov.			†26	1.8	13	.8	1.3	76.6	2,882	14,400	7.0
Dec.			† 1	1.8	26	.8	1.5	91.6	2,988	19,100	6.0
Yearly				2,470		0.8	697	505,680.0	642,502	1,795,670	206,084.6

↟ Discharge measurement made on this day ß Mean daily † And other days

RIO GRANDE AT EL PASO, TEXAS

DESCRIPTION: Gravity well and water-stage recorder located on the downstream side of the first pier from the left abutment of the Courchesne Bridge at latitude 31° 48' 10", longitude 106° 32' 25", and river mile 1,249.9; 5.6 river miles upstream from the Santa Fe Street-Juárez Avenue Bridge between El Paso, Texas and Cd. Juárez, Chihuahua and 1.7 miles upstream from the American Dam at El Paso, Texas. The zero of the gage is 3,722.30 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Mean daily discharges in 1968 were computed by adding the flows in the American Canal and the flows at the river station below the American Dam. Because the mean daily discharges are rounded, the monthly sum for this station may not equal the sum of the monthly sums of the other two stations. Extreme discharges are those passing the El Paso station, where measurements are made only during high flows. Records available: 1889 through 1968.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 24,000 second-feet on June 12, 1905. Min. occasionally no flow. Since Elephant Butte Dam was closed in 1915, the largest peak flow to pass this station was 13,500 second-feet on September 3, 1925.

Average Flow in Second-Feet

Daily:	Max.	23,680	June 12, 1905	Min.	0	Occasionally
Monthly:	Max.	14,300	June 1905	Min.	0	Occasionally
Yearly:	Max.	2,780	1905	Min.	70.1	1902

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	45.4	35.3	211	1,020	349	406	837	1,150	438	190	87.5	91.9
2	46.0	34.4	461	1,100	326	406	871	1,290	435	182	87.0	97.1
3	47.6	33.3	579	1,220	330	408	902	858	374	167	83.3	88.4
4	45.9	33.9	530	571	356	614	1,140	1,070	246	154	88.7	83.7
5	45.8	33.3	484	421	374	683	1,380	889	216	142	86.7	82.3
6	47.5	34.8	451	401	385	707	1,440	730	418	133	80.8	82.5
7	47.4	32.0	460	459	402	677	846	798	636	125	76.8	84.8
8	52.6	30.9	546	448	374	677	602	636	633	116	79.8	83.0
9	52.5	30.5	726	527	358	703	540	544	549	111	77.8	88.2
10	50.8	33.1	621	568	356	750	314	343	562	106	76.8	82.1
11	47.2	35.1	783	519	393	678	218	326	602	105	76.9	82.3
12	45.7	38.6	814	477	518	744	367	413	553	104	76.9	83.7
13	44.0	34.3	696	513	488	715	253	421	778	102	77.6	80.4
14	42.5	36.0	557	441	503	590	262	487	727	106	108	84.5
15	47.8	31.8	554	400	500	563	292	368	659	107	98.9	86.7
16	48.0	33.6	541	365	458	639	218	445	507	84.8	81.5	90.8
17	47.9	39.0	714	313	436	743	176	446	468	77.8	79.2	94.3
18	46.1	37.7	1,010	278	487	692	141	450	438	80.9	81.8	87.8
19	42.5	34.3	880	269	526	719	211	535	346	78.1	79.5	85.4
20	44.2	34.4	756	271	476	719	465	510	263	89.2	77.6	87.0
21	44.1	26.8	678	277	401	709	530	648	226	93.4	81.8	86.7
22	45.8	32.9	651	303	347	708	976	899	250	98.5	82.9	81.4
23	47.4	30.1	537	316	279	774	969	1,050	379	91.6	82.1	79.1
24	47.6	30.1	953	309	252	975	1,150	815	217	84.7	84.2	80.8
25	44.3	30.1	996	300	230	987	1,630	760	216	83.8	88.4	78.3
26	40.9	26.9	834	325	229	857	1,000	767	189	87.0	97.5	84.6
27	42.9	28.0	646	315	294	778	925	726	182	86.1	99.8	98.4
28	40.0	30.2	640	324	312	716	1,090	661	196	87.2	82.0	82.6
29	36.9	30.2	508	324	361	744	1,240	618	174	88.3	80.3	80.1
30	36.4		511	375	385	795	1,370	443	170	89.8	83.6	79.4
31	36.9		613		345		1,130	484		91.2		76.9
Sum	1,400.6	946.6	19,941	13,749	11,830	20,876	23,485	20,530	12,047	3,342.4	2,520.7	2,695.2

Current Year 1968 — Period 1938-1968

Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
	High	Low	High Day	High	Low Day	Low			Average	Maximum	Minimum
Jan.	2.39	2.25	8	59.6	†30	36.4	45.2	2,778	6,513	15,100	220
Feb.	2.28	2.15	17	40.2	27	25.8	32.6	1,878	8,075	52,200	136
Mar.	4.91	2.15	18	1,080	1	20.5	643	39,553	33,333	62,500	1,790
Apr.	5.28	3.39	3	1,600	19	252	458	27,271	44,345	139,000	6,820
May	4.18	3.30	12	566	25	212	382	23,465	47,901	357,000	522
June	5.22	3.78	25	1,090	2	360	696	41,408	55,405	304,000	6,020
July	6.50	3.05	25	4,230	18	123	758	46,582	60,637	198,000	9,652
Aug.	6.03	3.55	2	1,700	15	303	662	40,721	58,764	158,000	4,870
Sept.	4.75	3.05	14	829	30	165	402	23,895	41,556	171,000	2,430
Oct.	3.07	2.68	1	196	17	ø 77.8	108	6,630	14,869	57,900	151
Nov.	3.12	2.63	14	128	13	68.6	84.0	5,000	8,891	21,300	229
Dec.	2.93	2.70	26	113	23	59.8	85.0	5,227	8,626	25,600	206
Yearly	6.50	2.15		4,230		20.5	364	264,408	388,915	1,559,200	57,481

† And other days ø Mean daily

DIVERSIONS FROM THE RIO GRANDE
AMERICAN CANAL AT EL PASO, TEXAS

DESCRIPTION: Concrete control consisting of two triangular-shaped wingwalls extending toward the center of the canal about one-fourth of the canal width and downstream at a 30° angle with the canal side walls, bubbler gage, water-stage recorders (graphic and digital), and binary decimal transmitter located on the right bank of the concrete-lined canal at El Paso, Texas, latitude 31° 46' 40", longitude 106° 31' 25", and about 2,400 feet downstream from the headgates of the American Dam which are located at river mile 1,248.2. The zero of the gage is 3,712.09 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 53 discharge measurements during the year, a stable rating curve at medium and high flows, and a continuous record of gage heights. Records available: June 2, 1938 through 1968.

REMARKS: This canal diverts water from the Rio Grande at the American Dam at El Paso, Texas, 2.1 river miles upstream from the International Dam at Juárez, Chihuahua. Water from this canal discharges into the Franklin Canal from which water is frequently returned to the Rio Grande at spillways 2.2, 2.7, and 3.6 river miles downstream from the American Dam. The transmitter relays gage height data upon interrogation by telephone via commercial circuits.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 1,840 second-feet on March 27, 1944. Min. frequently no flow.

Average Flow in Second-Feet

Daily:	Max.	1,510	Aug. 13, 1945	Min.	0	Frequently
Monthly:	Max.	1,210	Aug. 1943	Min.	0	Frequently since 1952
Yearly:	Max.	748	1943	Min.	65.6	1956

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	26.7	200	248	161	229	241	220	233	↟ 45.5	85.5	91.4
2	↟ 0	26.3	455	↟ 246	135	220	↟ 241	201	233	41.7	85.0	96.6
3	0	26.1	562	240	132	221	244	217	↟ 200	38.6	81.4	↟ 87.9
4	0	26.8	↟ 521	239	146	↟ 224	245	220	135	35.5	↟ 86.9	83.1
5	0	27.1	468	233	158	231	240	215	116	30.5	85.0	81.3
6	0	↟ 29.0	306	223	168	223	202	↟ 214	209	29.7	79.2	80.5
7	0	27.1	231	233	↟ 186	213	211	219	243	28.2	75.3	81.8
8	0	26.9	234	233	159	224	229	217	246	↟ 24.0	78.4	80.0
9	↟ 0	26.7	245	↟ 238	150	232	↟ 220	217	247	22.9	76.5	70.2
10	0	29.5	236	242	154	233	202	205	↟ 247	24.7	75.6	↟ 46.3
11	0	32.0	245	243	198	↟ 236	205	203	243	25.6	75.8	67.3
12	0	31.1	↟ 241	243	220	240	209	228	249	25.4	↟ 75.9	75.3
13	0	↟ 30.9	235	243	231	240	216	↟ 229	252	24.3	76.6	73.2
14	0	32.4	236	238	↟ 224	243	221	227	251	24.0	107	79.1
15	0	28.5	236	218	220	243	217	214	251	↟ 23.7	92.9	83.0
16	↟ 0	30.1	227	↟ 186	216	243	↟ 218	223	250	55.0	80.5	89.0
17	0	35.6	236	143	227	231	176	235	↟ 250	75.6	78.2	↟ 92.9
18	0	34.3	239	101	234	↟ 234	141	239	250	78.7	80.8	86.6
19	0	30.6	↟ 233	85.1	238	240	173	236	250	75.9	↟ 78.5	84.4
20	0	↟ 30.8	222	90.9	240	238	219	↟ 294	244	87.0	76.7	86.1
21	0	15.4	221	107	↟ 198	232	215	227	220	91.2	80.9	85.8
22	0	0	237	131	203	232	210	229	238	↟ 96.3	82.1	80.5
23	↟ 0	0	239	↟ 132	245	218	↟ 216	254	246	89.4	81.4	78.3
24	0	0	235	122	248	233	223	248	↟ 211	82.5	83.6	↟ 80.0
25	0	0	235	111	226	↟ 236	186	248	220	81.6	87.8	77.5
26	10.7	0	↟ 247	128	224	223	222	250	199	84.8	↟ 97.0	83.9
27	27.3	↟ 0	245	121	235	233	218	↟ 247	199	83.9	99.3	97.4
28	27.3	0	247	122	↟ 223	240	222	243	219	85.0	81.5	81.9
29	25.6	0	242	113	230	237	243	239	202	↟ 86.1	79.8	79.4
30	↟ 26.2		244	↟ 159	230	239	260	237	118	87.6	83.1	78.8
31	28.2		244		227		↟ 273	240		89.0		↟ 76.3
Sum	145.3	603.9	8,444	5,412.0	6,286	6,961	6,758	7,135	6,671	1,773.9	2,488.2	2,515.8

Month	Current Year 1968 Extreme Gage Feet High	Extreme Gage Feet Low	Extreme Second-Feet High Day	High	Extreme Second-Feet Low Day	Low	Average Second-Feet	Total Acre-Feet	Period 1939-1968 Acre-Feet Average	Maximum	Minimum
Jan.	2.86		30	31.4	†1	0	4.7	288	1,246	8,110	0
Feb.	2.95		†17	36.4	†21	0	20.8	1,198	4,981	19,500	0
Mar.	7.95		3	760	1	0	272	16,749	29,382	50,100	1,700
Apr.	6.07	3.43	13	380	19	68.7	180	10,735	33,679	70,900	4,560
May	5.72	3.92	21	340	4	99.0	203	12,468	27,959	69,000	392
June	6.17	4.83	18	406	23	208	232	13,807	37,083	65,700	5,990
July	5.93	3.33	22	358	25	55.3	218	13,404	44,058	70,700	8,673
Aug.	7.66	4.36	20	695	2	142	230	14,152	43,690	74,600	4,840
Sept.	6.33	3.50	13	429	30	36.4	222	13,232	29,192	63,100	2,230
Oct.	4.41	3.42	20	117	15	22.3	57.2	3,519	12,258	39,000	0
Nov.	4.43	3.86	14	127	13	67.6	82.9	4,935	7,322	21,000	0
Dec.	4.39	3.26	27	112	10	19.5	81.2	4,990	7,291	25,500	0
Yearly	7.95			760		0	151	109,477	278,141	541,610	47,397.4

↟ Discharge measurement made on this day † And other days

RIO GRANDE BELOW AMERICAN DAM AT EL PASO, TEXAS

DESCRIPTION: Cableway, gravity well, and water-stage recorder located on the retaining wall of the Smelter Pump on the left bank of the river at latitude 31° 46' 35", longitude 106° 31' 20", and river mile 1,247.6; 1.5 river miles upstream from the International Dam, 3.3 river miles upstream from the Santa Fe Street-Juárez Avenue Bridge between El Paso, Texas, and Cd. Juárez, Chihuahua, and 0.6 river mile downstream from the American Dam. The zero of the gage is 3,712.30 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 77 discharge measurements during the year and a continuous record of gage heights. Computations by shifting control methods. Records available: June 1938 through 1968.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station. The operation of the American Dam began June 2, 1938. At this dam, part of the flow passing the El Paso Gaging Station is diverted into the American Canal and the remainder, including excess flood flows, passes this station.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 11,300 second-feet on September 14, 1958 with a gage height of 14.50 feet. Min. no flow on March 23, 1955 and for several days in 1956, 1959, 1964, and 1968.

Average Flow in Second-Feet

Daily:	Max.	6,040	May 20, 1942	Min.	0	Frequently
Monthly:	Max.	4,880	May 1942	Min.	0.2	Nov. 1958, Dec. 1959, & Nov. 1961
Yearly:	Max.	1,510	1942	Min.	13.8	1956

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	45.4	8.6	11.1	↟ 767	188	177	↟ 596	928	205	↟ 144	2.0	0.5
2	↟ 46.0	8.1	6.0	855	↟ 191	186	630	↟ 1,090	202	140	2.0	.5
3	47.6	7.2	17.0	982	198	187	658	641	↟ 174	128	1.9	↟ .5
4	45.9	7.1	8.5	332	210	↟ 390	893	850	111	118	↟ 1.8	.6
5	45.8	6.2	↟ 15.9	↟ 188	216	452	↟1,140	↟ 674	100	112	1.7	1.0
6	47.5	↟ 5.8	145	178	↟ 217	484	1,240	516	209	103	1.6	2.0
7	47.4	4.9	↟229	226	216	↟ 464	635	579	393	96.5	1.5	3.0
8	52.6	4.0	312	215	215	453	373	↟ 419	387	↟ 92.2	1.4	3.0
9	52.5	3.8	481	↟ 289	↟ 208	471	↟ 320	327	302	87.7	1.3	18.0
10	50.8	3.6	385	326	202	↟ 517	112	138	↟ 315	81.5	1.2	↟35.8
11	↟ 47.2	3.1	538	↟ 276	195	442	13.2	123	359	79.1	1.1	15.0
12	45.7	2.5	↟573	234	298	504	158	↟ 185	304	78.4	↟ 1.0	8.4
13	44.0	↟ 3.4	461	270	↟ 257	↟ 475	37.4	192	526	77.6	1.0	7.2
14	42.5	3.6	321	203	↟ 279	347	41.1	210	476	82.0	1.0	5.4
15	47.8	3.3	318	↟ 182	280	320	↟ 75.0	↟ 154	408	↟ 82.9	1.0	3.7
16	↟ 48.0	3.5	314	179	↟ 242	396	0	222	257	29.8	1.0	1.8
17	47.9	3.4	478	170	209	↟ 512	0	211	↟ 218	2.2	1.0	↟ 1.4
18	46.1	3.4	↟770	↟ 177	253	458	0	211	188	2.2	1.0	1.2
19	42.5	3.7	647	184	288	479	38.0	299	96.1	2.2	↟ 1.0	1.0
20	44.2	↟ 3.6	534	180	↟ 236	↟ 481	↟ 246	↟ 216	19.0	2.2	.9	.9
21	44.1	11.4	457	170	203	477	315	421	5.7	2.2	.9	.9
22	45.8	32.9	414	↟ 172	144	476	↟ 766	↟ 670	12.3	↟ 2.2	.8	.9
23	↟ 47.4	30.1	298	184	↟ 34.1	556	753	792	133	2.2	.7	.8
24	47.6	30.1	718	187	4.3	↟ 742	927	567	↟ 6.1	2.2	.6	↟ .8
25	44.3	30.1	↟761	↟ 189	4.0	751	↟1,440	512	1.5	2.2	.6	.8
26	30.2	26.9	587	197	4.9	634	778	↟ 517	.6	2.2	↟ .5	.7
27	15.6	↟ 28.0	401	194	59.4	545	707	479	.5	2.2	.5	1.0
28	12.7	30.2	↟393	202	↟ 88.6	↟ 476	870	418	.4	2.2	.5	.7
29	11.3	30.2	266	↟ 211	131	507	↟1,000	↟ 379	.4	↟ 2.2	.5	.7
30	↟ 10.2		↟267	216	155	556	1,110	206	66.5	2.2	.5	.6
31	8.7		369		118		859	244		2.2		↟ .6
Sum	1,255.3	342.7	11,495.5	8,335	5,544.3	13,915	16,730.7	13,390	5,476.1	1,565.7	32.5	119.4

Current Year 1968									Period 1939-1968		
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
	High	Low	High Day	High	Low Day	Low			Average	Maximum	Minimum
Jan.	4.20	3.75	8	59.6	31	8.2	40.5	2,490	5,127	12,000	209
Feb.	4.09	3.59	21	42.6	12	2.5	11.8	680	2,795	32,800	31.3
Mar.	6.28	3.70	9	2,240	1	4.0	371	22,801	3,596	22,801	81.9
Apr.	5.98	4.10	3	1,340	8	150	278	16,532	9,939	74,500	2,230
May	4.66	3.25	18	372	25	3.5	179	10,997	19,162	300,000	25.2
June	5.60	4.00	25	861	2	141	464	27,600	17,549	250,000	35.5
July	8.30		25	4,090	†15	0	540	33,185	15,982	155,000	967
Aug.	6.15	3.24	2	1,490	20	15.3	432	26,559	14,724	114,000	37.5
Sept.	5.52	2.74	13	641	29	.4	183	10,862	11,742	124,000	53.8
Oct.	3.95	2.60	1	150	17	ø 2.2	50.5	3,106	2,197	19,000	18.0
Nov.			† 1	ø 2.0	†26	ø .5	1.1	64.5	1,308	8,700	11.9
Dec.	3.56	2.56	9	105	† 1	.5	3.9	237	1,105	7,760	13.1
Yearly	8.30			4,090		0	214	155,113.5	105,226	1,093,553	10,001.1

↟ Discharge measurement made on this day † And other days ø Mean daily

DIVERSIONS FROM THE RIO GRANDE

ACEQUIA MADRE AT JUAREZ, CHIHUAHUA

DESCRIPTION: Bridge for making discharge measurements, gravity well, and water-stage recorder located on the right bank of the canal at Juárez, Chihuahua, latitude 31° 45' 40", longitude 106° 30' 30", about 260 feet downstream from the canal intake at the International Dam at Juárez, Chihuahua, which is located at river mile 1,246.1 and 2.1 river miles downstream from the American Dam at El Paso, Texas.

RECORDS: Based on 108 discharge measurements during the year, 59 by the Mexican Section and 49 by the United States Section of this Commission, and a continuous record of gage heights. Computations by shifting control methods. Records available: 1938 through 1968. These records, showing the water actually diverted by Mexico, do not necessarily reflect the quantities of water made available to Mexico in the bed of the river by the United States under terms of the Convention of 1906. Such quantities of water are included in the record of "Rio Grande below American Dam at El Paso, Texas." See page 11 in this Water Bulletin.

REMARKS: In 1968 all of the 39,677 acre-feet tabulated below were distributed to land irrigated in the first unit under the canal.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 480 second-feet on July 21, 1944 with a gage height of 6.00 feet. Min. no flow during several months throughout the year.

Average Flow in Second-Feet

Daily:	Max.	339	May 10, 1942	Min.	0	Several months each year
Monthly:	Max.	283	May 1938	Min.	0	Several months each year
Yearly:	Max.	116	1942	Min.	9.2	1964

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	0	* 178	170	0	* 163	* 124	104	0	0	0
2	0	0	0	* 154	* 171	0	165	* 123	* 104	0	0	0
3	0	0	0	* 142	* 176	0	* 160	118	* 105	0	0	0
4	0	0	0	* 151	173	0	159	121	* 105	0	0	0
5	0	0	0	* 166	172	0	* 159	* 119	78.9	0	0	0
6	0	0	0	171	* 174	0	159	119	0	0	0	0
7	0	0	0	164	168	* 107	159	* 123	0	0	0	0
8	0	0	0	* 164	* 172	* 150	159	* 122	0	0	0	0
9	0	0	0	174	* 177	* 158	50.1	* 123	0	0	0	0
10	0	0	0	* 182	* 177	* 160	0	127	0	0	0	0
11	0	0	0	* 184	173	* 159	0	127	0	0	0	0
12	0	0	0	181	167	* 160	0	* 127	0	0	0	0
13	0	0	0	177	* 169	* 156	0	127	0	0	0	0
14	0	0	0	174	172	* 158	0	* 127	0	0	0	0
15	0	0	0	* 170	* 165	154	0	* 127	0	0	0	0
16	0	0	0	174	* 170	155	0	42.4	0	0	0	0
17	0	0	0	* 175	* 162	* 160	0	0	0	0	0	0
18	0	0	0	* 178	176	156	0	0	0	0	0	0
19	0	0	0	* 166	161	* 155	10.2	0	0	0	0	0
20	0	0	0	177	* 159	* 155	* 145	0	0	0	0	0
21	0	0	0	173	170	* 160	* 141	0	0	0	0	0
22	0	0	0	* 171	* 161	162	* 135	59.0	0	0	0	0
23	0	0	0	171	43.8	166	142	* 108	0	0	0	0
24	0	0	0	* 176	0	* 149	* 145	* 103	0	0	0	0
25	0	0	* 96.1	* 181	0	144	134	103	0	0	0	0
26	0	0	* 148	* 172	0	* 137	* 127	* 105	0	0	0	0
27	0	0	* 150	174	0	* 150	127	105	0	0	0	0
28	0	0	* 158	181	0	* 156	127	* 106	0	0	0	0
29	0	0	* 155	* 174	0	* 159	* 125	* 106	0	0	0	0
30	0		* 168	176	0	165	125	105	0	0	0	0
31	0		* 167		0		* 121	* 106		0		0
Sum	0	0	1,042.1	5,151	3,778.8	3,691	2,937.3	2,902.4	496.9	0	0	0

Month	Average Rainfall Inches **		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
			High		Low				Average	Maximum	Minimum
	1938-1968	1968	Day		Day						
Jan.	0.40	0.69		0		0	0	0	0	0	0
Feb.	.34	1.14		0		0	0	0	0	0	0
Mar.	.30	1.01	27	212	† 1	0	33.5	2,066	1,142	6,482	0
Apr.	.20	.13	† 8	205	3	125	172	10,231	7,065	12,383	2,020
May	.34	.08	18	226	† 23	0	121	7,493	9,605	17,380	0
June	.73	.03	21	203	† 1	0	123	7,326	8,223	15,700	0
July	1.59	5.49	† 1	189	† 9	0	94.6	5,823	8,245	15,170	0
Aug.	1.32	1.88	22	190	† 16	0	93.6	5,755	8,009	12,620	0
Sept.	1.03	.08	3	114	† 5	0	16.6	983	4,877	12,380	0
Oct.	.73	.07		0		0	0	0	50.2	328	0
Nov.	.33	1.76		0		0	0	0	0	0	0
Dec.	.47	.32		0		0	0	0	0	0	0
Yearly	7.78	12.68		226		0	54.7	39,677	47,216.2	83,930	6,653

Current Year 1968 — Period 1938-1968

† And other days * Discharge measurement made on this day

** Average for valley floor from El Paso to Island Station

RIO GRANDE – ISLAND STATION NEAR CLINT, TEXAS

DESCRIPTION: Cableway, gravity well, and water-stage recorder located on the left bank of the rectified channel of the Rio Grande at latitude 31° 32' 00", longitude 106° 14' 35", and river mile 1,221.1; 0.6 river mile downstream from the Riverside Canal Wasteway No. 2, about 4 miles south-southwest of Clint, Texas, and 27.1 river miles downstream from the American Dam at El Paso, Texas. The zero of the gage is 3,608.99 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 58 discharge measurements during the year and a continuous record of gage heights. Computations by shifting control methods. Records available: August 17, 1938 through 1968.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 7,050 second-feet on September 14, 1958 with a gage height of 15.80 feet. Min. frequently no flow.

Average Flow in Second-Feet

Daily:	Max.	6,140	May 19, 1942	Min.	0	Frequently
Monthly:	Max.	4,880	May 1942	Min.	0	Frequently
Yearly:	Max.	1,490	1942	Min.	0.3	1956

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2.9	0	0	3.8	✟ 1.3	2.1	2.5	39.4	12.4	8.6	5.8	89.6
2	2.6	0	32.0	14.5	1.2	2.3	2.5 ✟	565	11.3	✟ 8.4	5.4	92.6
3	✟ 2.4	0	7.1	✟ 155	1.1	2.7	✟ 4.2	36.0	10.7	7.8	5.3	94.0
4	2.4	0	3.1	27.8	1.1	2.8	417	227	✟ 9.6	7.9	5.6	✟ 89.1
5	2.5	0	2.2	4.6	1.1	✟ 3.8	1,050	219	7.8	9.1	✟ 5.2	93.2
6	.8	0	✟ 2.5	2.3	.8	2.9	✟1,510	33.0	7.2	8.6	5.2	90.9
7	.5	✟ 0	2.1	2.6	.8	2.6	817	✟ 18.8	7.2	10.0	5.3	92.0
8	1.0	0	2.6	2.6	✟ .6	2.2	✟ 654	15.1	7.9	9.7	5.9	92.9
9	1.6	0	30.4	2.3	.8	2.0	519	13.8	7.9	✟ 7.5	5.9	86.4
10	✟ .7	0	50.9	✟ 2.3	.7	1.8	✟ 175	13.5	8.2	7.6	5.6	28.8
11	.5	0	✟ 41.1	2.5	.8	1.5	17.2	12.7	✟ 8.6	7.7	5.3	✟ 22.6
12	.4	0	11.4	2.2	1.0	✟ .9	34.0	12.4	8.9	7.4	5.7	19.0
13	0	0	✟ 9.7	2.1	.9	1.1	28.1	9.6	9.2	6.0	✟ 6.0	20.5
14	0	✟ 0	4.7	1.8	.6	1.3	14.2	✟ 6.2	10.4	6.5	6.7	14.6
15	0	0	4.0	1.7	✟ .5	2.2	14.1	5.2	10.7	6.9	5.7	14.0
16	2.5	0	4.5	1.3	.8	2.4	14.7	7.3	10.5	✟ 5.6	5.7	13.8
17	✟ .5	0	5.1	✟ 1.0	.6	2.8	✟ 11.2	8.0	10.8	6.1	5.5	13.6
18	.2	0	20.5	1.0	.9	2.7	9.4	7.5	✟ 10.7	5.8	5.5	✟ 13.1
19	0	0	5.8	1.1	.8	✟ 3.1	9.8	8.3	9.0	6.3	5.5	13.7
20	0	0	✟ 5.7	1.0	.8	3.2	9.6	9.0	8.2	7.1	✟ 5.3	14.0
21	0	✟ 0	4.9	1.2	.6	3.1	11.4	✟ 8.9	8.4	6.5	5.8	14.1
22	0	0	5.0	1.2	✟ .5	3.4	15.1	118	9.0	5.9	5.8	13.6
23	0	0	4.5	1.0	.6	4.0	16.8	166	9.6	✟ 5.4	5.8	✟ 13.9
24	✟ 0	0	36.0	✟ 1.3	1.0	4.0	✟ 13.4	220	9.5	5.4	5.8	13.8
25	0	0	37.4	1.3	1.2	3.3	✟ 693	155	✟ 9.0	6.1	6.1	14.0
26	0	0	5.2	1.3	1.2	3.0	✟ 26.9	247	9.1	6.1	7.2	14.4
27	0	0	✟ 4.4	1.3	1.7	3.7	12.0	28.6	9.2	6.1	21.7	14.9
28	0	✟ 0	4.1	1.3	1.8	✟ 2.0	8.4	✟ 15.3	9.0	6.4	85.0	14.5
29	0	0	4.1	1.3	✟ 2.0	1.8	36.7	14.7	8.4	6.9	✟65.9	14.0
30	0		3.8	1.3	1.8	2.5	25.1	13.6	8.5	✟ 6.2	70.5	13.1
31	✟ 0		3.6		2.0		✟ 14.6	13.0		6.1		12.7
Sum	21.5	0	358.4	246.0	31.6	77.2	6,186.9	2,266.9	276.9	217.7	391.7	1,161.4

Month	Current Year 1968								Period 1939-1968		
	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
	High	Low	High Day	High	Low Day	Low			Average	Maximum	Minimum
Jan.	7.52		16	8.4	†13	0	0.7	42.6	4,956	11,900	0
Feb.				0		0	0	0	3,253	37,000	0
Mar.	8.96		10	291	† 1	0	11.6	711	2,401	21,000	0
Apr.	9.08	6.82	3	321	23	.9	8.2	488	3,955	70,500	0
May	7.04	6.66	9	7.2	†15	.4	1.0	62.7	11,386	299,800	0
June	7.09	6.67	5	11.9	†12	.7	2.6	153	9,850	241,000	0
July	13.62	6.57	6	1,950	1	1.5	200	12,272	8,802	118,500	0
Aug.	10.30	6.70	2	820	14	4.9	73.1	4,496	8,149	99,400	0
Sept.	6.85	6.65	1	12.4	5	5.6	9.2	549	9,037	119,200	0
Oct.	6.75	6.54	7	10.9	†23	4.3	7.0	432	4,243	42,800	0
Nov.	7.92	6.57	28	122	6	5.0	13.1	777	1,235	7,270	0
Dec.	8.04	6.79	6	154	22	11.6	37.5	2,304	2,270	12,900	0
Yearly	13.62			1,950		0	30.7	22,287.3	69,537	1,079,340	238.1

✟ Discharge measurement made on this day † And other days

RIO GRANDE – COUNTY LINE STATION NEAR ACALA, TEXAS

DESCRIPTION: Cableway, gravity well, and water-stage recorder located on the left bank of the rectified channel of the Rio Grande at latitude 31° 22' 50", longitude 105° 59' 10", and river mile 1,200.9; 0.8 river mile downstream from the El Paso-Hudspeth County Line, 5.5 miles northwest of Acala, Texas, about 8 miles southeast of Tornillo, Texas, and 47.3 river miles downstream from the American Dam at El Paso, Texas. The zero of the gage is 3,547.59 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 56 discharge measurements during the year and a continuous record of gage heights. Computations by shifting control methods. Records available: 1938 through 1968.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 6,340 second-feet on May 19, 1942 with a gage height of 8.66 feet. Min. frequently no flow.

Average Flow in Second-Feet

Daily:	Max.	6,180	May 18, 1942	Min.	0	Frequently
Monthly:	Max.	4,920	May 1942	Min.	0	Frequently
Yearly:	Max.	1,720	1942	Min.	0	1956 & 1964

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	0	0	✟ 0	0	0	77.4	10.7	0	0	30.8
2	3.4	0	0	0	0	0	0	✟ 332	6.1	✟ 0	0	30.6
3	✟ .8	0	0	✟ 29.6	0	0	✟ 0	81.2	1.0	0	0	38.3
4	0	0	0	32.3	0	0	14.8	23.8	✟ 0	0	0	✟ 40.2
5	0	0	0	0	0	✟ 0	434	110	0	0	✟ 0	34.1
6	0	0	✟ 0	0	0	0	1,330 ✟	12.7	0	0	0	34.0
7	0	✟ 0	0	0	0	0	851	✟ 0	0	0	0	36.8
8	0	0	0	0	✟ 0	0	✟ 462	0	0	0	0	42.6
9	0	0	0	0	0	0	253	.9	0	✟ 0	0	42.4
10	✟ 0	0	.4	✟ 0	0	0	162	0	0	0	0	31.5
11	0	0	0	0	0	0	29.0	0	✟ .8	0	0	✟ 21.1
12	0	0	0	0	0	✟ 0	13.2	0	1.9	0	0	4.2
13	0	0	✟ 0	0	0	0	22.3	0	3.2	0	✟ 0	4.7
14	0	✟ 0	0	0	0	0	0	✟ 0	0	0	0	6.2
15	0	0	0	0	✟ 0	0	0	0	0	0	0	41.1
16	0	0	0	.1	0	0	0	0	0	✟ 0	2.0	52.2
17	✟ 0	0	0	✟ 0	0	0	✟ 0	0	0	0	7.2	50.1
18	0	0	0	0	0	0	0	0	✟ 0	0	7.6	✟ 38.5
19	0	0	0	0	0	✟ 0	0	0	0	0	8.6	39.0
20	0	0	✟ 0	0	0	0	0	0	0	0	✟ 15.3	48.8
21	0	✟ 0	0	0	0	0	0	✟ 0	0	0	13.4	61.9
22	0	0	0	0	✟ 0	0	0	23.7	0	0	13.6	62.6
23	0	0	0	✟ 0	0	0	0	35.0	0	✟ 0	14.4	✟ 56.8
24	✟ 0	0	0	0	0	0	✟ 0	101	0	0	2.0	51.9
25	0	0	6.9	0	0	0	✟ 309	125	✟ 0	0	0	58.3
26	0	0	0	0	0	0	✟ 20.8	193	0	0	0	59.8
27	0	0	✟ 0	0	0	0	0	84.9	0	0	30.3	55.9
28	0	✟ 0	0	0	0	✟ 0	0	✟ 22.4	0	0	✟ 82.4	69.5
29	0	0	0	0	✟ 0	0	0	11.8	0	0	44.8	54.8
30	0		0	0	0	0	0	0	0	✟ 0	23.0	32.6
31	✟ 0		0		0		✟ 3.8	0		0		29.5
Sum	4.2	0	7.3	62.0	0	0	3,904.9	1,234.8	28.7	0	264.6	1,260.8

Month	Current Year 1968							Period 1938-1968		
	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet		
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum
Jan.	2.22		2	20.0	† 1	0	0.1	8.3	6,605	20,000	0
Feb.				0		0	0	0	5,557	47,900	0
Mar.	2.32		25	31.8	† 1	0	.2	14.5	4,850	38,900	0
Apr.	3.03		3	166	† 1	0	2.1	123	7,397	84,200	0
May				0		0	0	0	14,117	303,000	0
June				0		0	0	0	12,630	239,000	0
July	5.20		6	1,890	† 1	0	126	7,745	12,339	140,000	0
Aug.	3.49		1	627	† 6	0	39.8	2,449	11,509	123,000	0
Sept.	1.87		13	22.8	† 4	0	.8	47.0	14,158	140,000	0
Oct.				0		0	0	0	8,958	61,400	0
Nov.	2.59		28	132	† 1	0	8.8	525	5,928	20,400	0
Dec.	2.25	1.20	28	74.0	13	1.8	40.7	2,501	6,646	29,700	0
Yearly	5.20			1,890		0	18.5	13,412.8	110,694	1,247,500	0

✟ Discharge measurement made on this day † And other days

RIO GRANDE AT FORT QUITMAN, TEXAS

DESCRIPTION: Cableway, gravity well, and water-stage recorder located on the left bank of the rectified channel of the Rio Grande at latitude 31° 05' 05", longitude 105° 36' 25", and river mile 1,167.1; 1.5 river miles downstream from Old Fort Quitman, 10 miles northwest of Esperanza, Texas, 17.5 miles southeast of McNary, Texas, and 81.1 river miles downstream from the American Dam at El Paso, Texas. The zero of the gage is 3,450.57 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 54 discharge measurements during the year and a continuous record of gage heights. Computations by shifting control methods. Records available: 1889 through 1968.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station.

EXTREME FLOWS FROM RECORDS‡: Momentary: Max. 10,600 second-feet on October 5, 1946 with a gage height of 10.00 feet. Min. frequently no flow.

Average Flow in Second-Feet ‡

Daily:	Max.	5,890	May 19, 1942	Min.	0	Frequently
Monthly:	Max.	5,030	May 1942	Min.	0	Several months since 1951
Yearly:	Max.	1,750	1942	Min.	2.3	1965

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1.8	2.6	0	0	* 0.2	0	0	0	123	9.4	23.8	40.1
2	1.9	2.6	0	0	.3	0	0	15.4	92.0	* 10.6	21.8	39.1
3	* 1.8	3.0	.5	0	.1	0	* 0	306	89.6	14.9	9.2	39.6
4	2.0	2.9	0	* 0	0	0	0	61.3	* 50.8	12.9	14.0	* 34.8
5	2.2	0	0	0	.2	* 0	54.9	33.8	42.3	14.6	* 22.4	38.7
6	2.6	0	* 0	0	.8	0	* 500	18.8	41.3	14.0	20.1	40.1
7	3.0	* 1.7	0	1.2	0	0	822	* 56.5	24.1	14.5	18.4	42.9
8	3.5	.8	0	1.7	* .3	0	* 397	74.6	15.9	15.0	21.0	33.2
9	3.9	0	0	.9	.4	0	196	84.7	14.3	* 12.5	25.9	37.8
10	* 4.2	0	1.6	* 0	0	0	132	67.2	14.7	12.9	25.2	36.6
11	4.0	0	2.0	.7	0	0	41.4	51.7	* 15.7	33.2	16.7	* 34.6
12	4.0	0	2.0	.7	.3	* 0	28.9	36.6	20.3	15.2	20.4	40.9
13	4.0	0	* .1	0	.4	0	19.8	22.9	27.4	8.2	* 22.1	33.8
14	3.6	* 0	0	1.0	0	0	14.7	* 13.3	12.3	5.0	38.0	23.2
15	3.8	0	0	1.5	* 0	0	12.9	8.6	8.8	3.6	46.9	22.5
16	3.7	0	0	1.2	0	0	13.2	43.8	10.5	* 2.6	37.1	26.0
17	* 3.8	0	0	* 1.1	0	0	* 8.6	17.7	18.1	6.7	42.2	25.3
18	3.6	0	0	.8	0	0	2.9	46.6	* 13.6	8.4	45.8	* 25.5
19	3.6	0	0	0	0	* 0	0	24.5	9.4	7.8	45.5	27.6
20	3.8	0	* 0	.4	0	0	0	13.3	9.9	23.7	* 16.3	25.8
21	4.3	* 0	0	.2	0	0	0	* 18.8	15.4	26.1	12.9	20.3
22	3.6	0	0	0	* 0	0	0	135	41.3	12.8	19.6	62.1
23	3.2	0	0	.2	0	0	0	246	18.4	* 11.8	23.4	* 61.2
24	* 2.6	0	0	* .2	0	0	* 393	312	9.1	11.6	40.6	65.0
25	2.4	0	0	.1	0	0	150	292	* 8.7	9.2	41.1	62.2
26	2.4	0	0	0	0	0	* 99.0	260	8.7	8.1	49.6	54.4
27	2.4	0	* 0	0	0	0	10.0	208	8.8	7.0	58.7	50.0
28	2.4	* 0	0	.1	0	* 0	10.0	* 143	9.2	12.8	57.9	50.4
29	2.4	0	0	.5	* 0	0	31.0	186	12.4	29.5	* 48.8	54.2
30	2.4		0	.5	0	0	5.0	143	11.7	* 27.2	45.6	53.0
31	* 2.7		0		0		* 0	143		20.1		45.1
Sum	95.6	13.6	6.2	13.0	3.0	0	2,942.3	3,084.1	797.7	421.9	931.0	1,246.0

Month	Current Year 1968								Period 1938-1968		
	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
			High		Low				Average	Maximum	Minimum
	High	Low	Day		Day						
Jan.	3.71	3.41	14	8.2	1	1.4	3.1	190	6,820	20,900	0
Feb.	3.56		3	3.2	† 5	0	.5	27.0	6,105	50,100	0
Mar.	3.50		†10	2.5	† 1	0	.2	12.3	4,740	38,900	0
Apr.	3.62		11	3.9	† 1	0	.4	25.8	5,954	77,000	0
May	3.57		5	2.6	† 1	0	.1	6.0	14,389	309,000	0
June				0		0	0	0	12,941	240,000	0
July	9.84		24	3,390	† 1	0	94.9	5,836	13,541	140,000	3.8
Aug.	5.95		24	782	† 1	0	99.5	6,117	12,801	127,000	16.7
Sept.	5.15	3.51	1	461	16	5.7	26.6	1,582	16,611	147,000	0
Oct.	4.30	3.44	20	108	16	1.7	13.6	837	12,688	66,500	0
Nov.	4.11	3.55	26	61.5	3	8.4	31.0	1,847	7,675	24,500	0
Dec.	4.17	3.67	22	79.0	21	15.2	40.2	2,471	7,835	31,000	0
Yearly	9.84			3,390		0	26.1	18,951.1	122,100	1,270,400	1,662.3

‡ Period 1924-1968 * Discharge measurement made on this day † And other days

RIO GRANDE ABOVE RIO CONCHOS NEAR PRESIDIO, TEXAS

DESCRIPTION: Cableway, gravity well, and water-stage recorder located on the left bank at latitude 29° 37' 15", longitude 104° 28' 50", and river mile 962.5; 6.5 miles northwest of the international highway bridge between Presidio, Texas and Ojinaga, Chihuahua, 7.8 river miles upstream from the Río Conchos, and 285.7 river miles downstream from the American Dam at El Paso, Texas. The zero of the gage is 2,576.66 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 87 discharge measurements during the year and a continuous record of gage heights. Computations by shifting control methods. Records available: 1889 through 1968.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 14,000 second-feet on June 14, 1905. Highest flow recorded since 1924 was 5,160 second-feet, with a gage height of 10.57 feet, on May 26, 1942. Min. frequently no flow.

Average Flow in Second-Feet ‡

Daily:	Max.	13,700	June 13 & 14, 1905	Min.	0	Frequently
Monthly:	Max.	10,150	June 1905	Min.	0	Frequently
Yearly:	Max.	1,970	1907	Min.	1.3	1964

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	* 0	* 0	* 0	* 0	0	* 0	54.9	111	* 4.5	* 0	14.2
2	* 0	0	0	0	0	0	45.7	* 32.9	99.6	0	0	*21.7
3	0	0	0	0	* 0	* 0	* 7.8	29.5	* 88.6	0	0	12.2
4	0	0	0	* 0	0	0	0	44.3	89.5	* 0	* 0	5.8
5	* 0	* 0	0	0	0	0	0	* 49.0	92.6	0	0	2.1
6	0	0	0	0	0	0	113	54.2	95.5	16.0	0	* 1.8
7	0	0	0	0	* 0	0	631	53.1	109	* 47.4	0	3.2
8	* 0	* 0	* 0	* 0	0	0	643	* 52.0	120	54.4	0	4.1
9	0	0	0	0	0	0	557	50.8	* 105	45.6	0	* 4.4
10	0	0	0	0	0	* 0	431	49.5	76.8	* 14.2	0	1.9
11	* 0	* 0	* 0	0	0	0	163	51.8	31.7	5.2	0	1.6
12	0	* 0	0	* 0	0	0	* 55.7	* 27.0	* 12.7	4.7	* 0	2.4
13	0	0	0	0	0	0	48.4	10.4	47.3	3.4	0	3.0
14	0	0	0	0	* 0	* 0	51.9	11.0	62.1	.8	0	1.6
15	* 0	0	* 0	* 0	0	0	52.3	* 8.8	66.5	* 1.6	0	1.0
16	0	0	0	0	* 0	0	* 49.0	9.9	65.7	10.9	0	* .9
17	0	0	0	0	0	* 0	35.7	9.9	41.5	7.6	0	1.2
18	0	0	0	* 0	0	0	* 18.8	6.3	4.1	* 4.4	* 0	1.1
19	* 0	0	* 0	0	0	0	206	* 3.9	0	2.5	0	.9
20	0	* 0	0	0	* 0	0	240	32.6	0	.8	0	* .4
21	0	0	0	0	0	0	54.5	54.0	0	.3	0	.1
22	0	0	0	* 0	0	0	* 30.7	* 61.2	0	* 0	0	.1
23	* 0	* 0	0	0	* 0	0	6.4	57.8	* 140	0	0	* 1.1
24	0	0	0	.2	0	* 0	0	64.4	231	0	0	1.2
25	0	0	* 0	0	0	0	* 166	71.0	134	* 0	* 0	1.0
26	* 0	* 0	0	.3	0	0	280	* 71.2	* 86.4	0	1.3	.6
27	0	0	0	0	* 0	* 0	130	68.1	80.8	0	25.7	.3
28	0	0	0	0	0	0	63.9	61.5	76.5	0	18.9	0
29	* 0	0	0	* 0	0	0	51.2	63.9	40.4	0	3.7	0
30	0		0	0	0	0	50.8	* 80.5	14.5	0	3.7	* 0
31	0		0		* 0		* 55.9	131		0		0
Sum	0	0	0	0.5	0	0	4,238.7	1,426.4	2,122.8	224.3	53.3	89.9

Month	Current Year 1968 Extreme Gage Feet High	Extreme Gage Feet Low	Extreme Second-Feet High Day	Extreme Second-Feet High	Extreme Second-Feet Low Day	Extreme Second-Feet Low	Average Second-Feet	Total Acre-Feet	Period 1938-1968 Acre-Feet Average	Maximum	Minimum
Jan.				0		0	0	0	6,351	24,400	0
Feb.				0		0	0	0	5,357	40,800	0
Mar.				0		0	0	0	3,977	39,100	0
Apr.	8.15		24	3.9	† 1	0	0	1.0	2,961	41,600	0
May				0		0	0	0	10,524	240,000	0
June				0		0	0	0	11,058	216,000	0
July	13.39		7	657	† 1	0	137	8,407	14,544	156,000	0
Aug.	10.28	8.44	31	151	19	2.6	46.0	2,829	13,713	133,000	0
Sept.	11.53		23	297	†19	0	70.8	4,211	17,319	151,000	0
Oct.	9.74		† 8	56.5	† 2	0	7.2	445	14,778	105,000	0
Nov.	9.50		27	37.9	† 1	0	1.8	106	6,101	34,500	0
Dec.	9.27		2	25.2	†27	0	2.9	178	6,422	30,900	0
Yearly	13.39			657		0	22.3	16,177.0	113,105 #	1,176,700	951.8

‡ Period June 1900–March 1914; September 1919–March 1920; and 1924–1968 † And other days

* Discharge measurement made on this day

RIO CONCHOS NEAR OJINAGA, CHIHUAHUA

DESCRIPTION: Cableway, gravity well, and water-stage recorder located on the right bank at latitude 29° 34' 00", longitude 104° 27' 10", 1.5 river miles from the confluence with the Rio Grande, 1.9 miles west of Ojinaga, Chihuahua, and 3.7 miles west of Presidio, Texas. This stream enters the Rio Grande at river mile 954.7, 13.8 river miles upstream from the "Rio Grande below Río Conchos" Gaging Station, and 293.5 river miles downstream from the American Dam at El Paso, Texas. The zero of the gage is 2,568.04 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 144 discharge measurements during the year, 142 by the Mexican Section and 2 by the United States Section of this Commission, a continuous record of gage heights, and a rating curve which, above 15,000 second-feet, was defined previously by related gage heights and records of discharge at the "Rio Grande below Río Conchos" Gaging Station. Computations by shifting control methods. Records available: 1896 through 1968. Records of stage and measured discharge at this station began April 4, 1954. Prior to this date, flow records were determined from records of the Rio Grande at stations located upstream and downstream from the Río Conchos confluence.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station. La Boquilla Reservoir with 2,417,500 acre-feet capacity, La Colina Reservoir with 19,500 acre-feet capacity, La Rosetilla Reservoir with 15,400 acre-feet capacity, and Luis L. Leon Reservoir with 689,100 acre-feet capacity are located 250, 242, 186, and 112 river miles, respectively, upstream from this station. Francisco I. Madero Reservoir, with capacity of 344,600 acre-feet, is located on the Río San Pedro, a tributary which enters the Río Conchos 174 river miles upstream from this station. Power generation facilities: La Boquilla 14,647 kw., La Colina 3,620 kw., La Rosetilla 5,150 kw., Francisco I. Madero and Luis L. Leon, none.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 162,000 second-feet on September 11, 1904. Min. no flow several days in May, June, and July 1953 and in July 1955.

Average Flow in Second-Feet ‡

Daily:	Max.	148,900	Sept. 11, 1904	Min.	0	Several days 1953 & 1955
Monthly:	Max.	24,540	Sept. 1904	Min.	4.7	April 1955
Yearly:	Max.	3,710	1906	Min.	155	1953

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	* 565	* 93.9	25.4	* 43.4	208	116	* 62.5	* 2,340	2,380	* 7,240	* 2,180	494
2	692	87.9	25.1	38.8	* 181	124	445	* 1,390	* 2,300	7,240	2,150	* 445
3	629	84.8	23.7	38.1	140	* 130	* 643	1,280	2,770	* 7,240	2,160	374
4	* 473	83.0	* 86.2	* 44.1	124	139	* 2,090	1,500	* 4,840	* 4,630	* 2,170	* 351
5	526	* 83.7	102	69.6	129	132	* 331	* 1,400	* 5,590	* 3,850	2,150	333
6	477	78.0	101	72.0	* 143	* 111	12,300 *	1,430	* 5,650	3,810	* 2,130	* 312
7	590	77.7	* 107	78.0	147	121	* 8,510	* 1,270	* 5,690	* 3,740	2,120	291
8	* 664	* 77.7	105	* 84.4	145	102	* 1,800	1,270	5,790	3,670	* 2,120	270
9	650	75.9	109	87.2	* 132	111	* 1,370	* 1,400	* 5,930	* 3,530	2,130	* 251
10	618	74.5	111	128	130	* 126	* 1,650	1,680	6,070	3,460	2,140	245
11	* 480	73.1	* 117	* 352	120	119	833	1,940	* 6,250	* 3,510	* 2,140	* 229
12	427	* 73.1	135	466	118	113	* 540	* 2,120	6,320	3,600	2,130	224
13	420	72.7	111	685	* 124	* 97.1	484	2,350	* 6,500	3,530	* 2,120	* 211
14	473	73.1	* 111	287	139	103	1,900	* 1,490	* 7,840	3,600	2,120	195
15	* 367	* 70.3	105	* 207	132	125	* 459	* 2,310	* 9,850	* 3,570	* 2,100	174
16	245	62.9	101	190	* 114	99.9	752	* 2,830	10,900	* 2,060	2,090	* 166
17	188	40.6	86.9	154	124	* 92.5	* 473	* 2,630	12,200	855	2,080	159
18	* 155	38.8	* 67.1	* 133	117	104	413	2,190	13,300	* 678	* 2,050	* 152
19	140	* 39.2	50.1	129	148	99.6	* 519	* 2,110	14,500	759	2,050	142
20	127	38.8	40.6	129	* 199	* 89.7	364	2,330	14,800	1,700	* 2,050	* 136
21	122	37.4	* 41.3	124	* 1,360	88.3	424	* 1,940	14,400	* 2,030	2,050	133
22	* 117	* 36.0	38.1	* 125	251	85.5	* 340	1,570	14,400	2,100	* 2,060	127
23	* 109	33.5	31.1	118	* 166	92.8	371	* 1,890	14,500	* 2,120	2,220	* 121
24	105	31.8	41.0	120	159	* 93.6	* 410	2,310	11,700	2,140	2,320	117
25	* 106	32.1	* 41.0	* 129	120	84.0	1,180	1,770	9,920	* 2,140	* 2,370	* 114
26	98.9	* 30.4	35.7	120	107	78.0	* 1,790	* 1,620	* 2,930	2,140	2,850	950
27	95.7	28.3	29.3	110	* 119	* 69.2	* 1,610	1,600	* 1,570	2,150	* 2,950	* 2,070
28	92.2	26.8	* 27.5	117	102	60.7	1,180	* 1,610	3,490	* 2,150	2,430	2,210
29	* 91.1	* 25.8	* 32.8	* 133	108	60.0	* 1,350	1,580	6,820	2,160	* 958	2,220
30	89.3		31.8	144	* 105	60.7	1,370	* 2,980	* 7,100	* 2,150	583	* 2,220
31	88.3		32.1		103		* 1,320	2,290		2,150		2,220
Sum	10,020.5	1,681.8	2,101.8	4,655.6	5,514	3,027.6	47,283.5	58,420	236,300	95,702	63,181	17,658

Current Year 1968									Period 1948-1968		
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
			High		Low				Average	Maximum	Minimum
	High	Low	Day		Day						
Jan.	6.50	5.09	2	865	† 30	88.3	323	19,879	28,214	59,250	11,500
Feb.	5.09	4.66	1	95.3	29	24.7	57.9	3,336	27,646	72,270	3,336
Mar.	5.28	4.66	12	148	27	19.4	67.8	4,171	22,771	51,530	4,171
Apr.	6.99	4.76	12	1,040	3	31.8	155	9,235	9,743	22,650	281
May	11.88	5.12	21	4,940	31	93.6	178	10,932	13,960	31,600	319
June	5.25	4.79	7	148	28	53.3	101	6,008	26,182	64,219	760
July	17.13	4.86	6	19,500	1	53.0	1,530	93,705	55,031	201,000	2,190
Aug.	13.48	7.68	30	5,930	9	1,170	1,890	115,918	77,261	275,140	7,660
Sept.	17.19	8.14	23	15,200	27	1,520	7,880	468,680	139,900	686,400	12,400
Oct.	14.44	6.73	† 1	7,240	19	600	3,090	189,837	97,714	971,300	5,890
Nov.	12.76	6.69	26	5,300	30	530	2,100	125,311	39,520	125,311	9,510
Dec.	9.35	5.71	† 28	2,220	26	109	569	35,053	28,910	62,380	9,940
Yearly	17.19	4.66		19,500		19.4	1,490	1,082,065	566,852	1,892,940	111,885

† And other days * Discharge measurement made on this day

‡ Period June 1900-March 1914; September 1914-March 1920; and 1924-1968

ALAMITO CREEK NEAR PRESIDIO, TEXAS

DESCRIPTION: Gravity well and water-stage recorder located on the left bank 300 feet upstream from the highway bridge on Farm-to-Market Road 170 at latitude 29° 31' 15", longitude 104° 17' 40", about 2,000 feet from the confluence with the Rio Grande, and about 6 miles southeast of Presidio, Texas. This stream enters the Rio Grande near the lower end of the Presidio Valley at river mile 941.3, 9.7 river miles downstream from the international highway bridge between Presidio, Texas and Ojinaga, Chihuahua, and 306.9 river miles downstream from the American Dam at El Paso, Texas. Measurements of high flows are made from the highway bridge. The zero of the gage is 2,541.61 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 95 discharge measurements during the year at low and medium flows, a high flow rating curve determined by slope-area calculations, and a continuous record of gage heights. Computations by shifting control methods. Records available: 1932 through 1968.

REMARKS: A small irrigation reservoir (San Esteban) 10.5 miles south of Marfa, Texas and irrigation diversions below the reservoir modify the flow of this spring-fed creek. Backwater from the Rio Grande begins to affect the station record when the flow at the station on the Rio Grande below Rio Conchos reaches about 35,000 second-feet.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 56,400 second-feet, determined by slope-area calculations, on September 2, 1962, with a gage height of 13.54 feet. Min. ∅ 0.1 second-foot on July 25, 1953 and several days in August 1958.

Average Flow in Second-Feet

Daily:	Max.	6,200	Sept. 2, 1962	Min.	0.1	July 25, 1953 & several days in August 1958
Monthly:	Max.	418	Sept. 1958	Min.	0.6	Oct., Nov., Dec., 1953 & May 1968
Yearly:	Max.	55.9	1941	Min.	4.3	1951

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1.6	↟ 1.3	↟ 1.7	↟ 1.5	↟ 0.9	0.6	↟ 713	3.8	1.5	↟ 3.1	↟ 1.3	2.3
2	↟ 1.7	1.4	1.6	1.6	.9	.5	236	↟ 1.3	1.5	2.6	1.3	↟ 2.3
3	1.6	1.5	1.6	1.4	↟ .9	↟ .5	↟ 5.2	1.5	↟ 1.7	2.0	1.3	2.4
4	1.6	1.5	1.5	1.3	.9	.5	883	9.0	1.7	↟ 1.5	↟ 1.3	2.4
5	↟ 1.6	↟ 1.7	1.6	↟ 1.2	1.0	.5	7.9	↟ 5.7	1.3	1,330	1.5	2.5
6	1.6	1.6	1.5	1.2	↟ 1.0	↟ .5	4.2	1.8	1.3	63.4	1.6	2.6
7	1.6	1.5	1.5	1.2	.9	.4	899	1.0	1.3	↟ 5.2	↟ 1.8	2.6
8	↟ 1.7	↟ 1.4	↟ 1.5	↟ 1.2	.8	.4	↟ 487	↟ 1.1	1.3	2.3	1.8	2.6
9	1.7	1.3	1.4	1.2	.7	.3	2.6	1.1	↟ 1.3	2.3	1.8	↟ 2.6
10	1.7	1.3	1.4	1.2	.7	↟ .3	41.4	9.8	1.3	↟ 2.3	1.8	2.5
11	↟ 1.7	1.4	↟ 1.3	1.3	.6	.3	2.2	6.0	1.3	2.3	1.8	2.4
12	1.5	↟ 1.3	1.3	5.8	.5	5.0	↟ 513	↟ 2.0	↟ 1.3	2.3	1.7	2.3
13	1.4	1.3	1.4	1.6	↟ .4	.3	195	2.0	1.3	2.3	1.7	2.3
14	1.4	1.3	1.3	1.2	.4	↟ .3	3.5	2.0	1.3	2.3	1.7	2.2
15	↟ 1.4	1.3	↟ 1.3	↟ 1.2	.4	.3	↟ 2.0	↟ 4.7	1.3	↟ 7.4	↟ 1.7	2.1
16	1.4	↟ 1.3	1.2	1.2	.4	.3	53.5	1.2	1.3	1.1	2.1	↟ 2.0
17	1.4	1.4	1.1	1.2	.5	↟ .3	1.5	7.7	↟ 1.3	1.1	2.6	2.1
18	1.2	1.4	1.0	↟ 1.2	.5	.3	↟ 1.0	6.2	1.3	↟ 1.1	↟ 3.0	2.2
19	↟ 1.2	1.4	↟ .9	1.2	.5	.3	1.4	↟ 1.8	1.3	1.1	2.9	2.2
20	1.3	↟ 1.4	1.0	1.1	↟ .6	.3	1.4	1.6	1.3	1.1	2.7	↟ 2.3
21	1.4	1.4	1.2	1.0	.5	↟ .3	1.4	1.3	1.3	1.1	2.6	2.4
22	1.4	1.5	↟ 1.4	↟ .8	.5	.3	↟ 15.8	↟ 1.2	1.3	↟ 1.1	2.5	2.5
23	↟ 1.3	↟ 1.5	1.3	.8	↟ .5	.3	6.8	1.2	2,470 ↟	1.1	2.4	↟ 2.6
24	1.2	1.7	1.1	.8	.5	↟ .3	1,700	4.6	↟ 208	1.2	2.2	2.6
25	1.2	1.6	↟ 1.0	.8	.4	.3	↟ 253	8.6	15.0	↟ 1.2	↟ 2.1	2.5
26	↟ 1.2	↟ 1.5	1.1	.7	.3	.3	9.7	↟ 1.3	↟ 4.4	1.2	837	2.5
27	1.2	1.5	1.1	.7	↟ .3	↟ .3	2.6	1.8	4.1	1.2	359	2.5
28	1.3	1.6	1.1	.7	.3	.3	.3	2.6	3.9	1.2	30.6	2.5
29	↟ 1.4	1.6	↟ 1.1	↟ .7	.3	.3	↟ 2.2	3.4	3.6	1.3	7.9	2.4
30	1.4		4.1	.7	.4	9.9	2.4	↟ 5.9	3.4	1.3	3.7	↟ 2.4
31	1.4		1.2		↟ .4		↟ 4.5	10.0		1.3		2.3
Sum	44.7	41.9	42.8	37.7	17.9	24.8	6,052.5	113.2	2,742.2	1,450.0	1,287.4	74.1

Month	Current Year 1968 Extreme Gage Feet High	Extreme Gage Feet Low	Extreme Second-Feet High Day	Extreme Second-Feet High	Extreme Second-Feet Low Day	Extreme Second-Feet Low	Average Second-Feet	Total Acre-Feet	Period 1932-1968 Acre-Feet Average	Acre-Feet Maximum	Acre-Feet Minimum
Jan.	5.40	5.37	↟ 2	∅ 1.7	†18	∅ 1.2	1.4	88.7	152	273	46.4
Feb.	5.41	5.38	↟ 5	1.8	↟ 1	1.2	1.4	83.1	219	3,120	41.5
Mar.	5.64	5.36	30	18.1	19	.7	1.4	84.9	154	270	46.4
Apr.	5.68	5.38	12	24.3	†26	.7	1.3	74.8	220	1,070	57.9
May	5.49	5.40	20	2.3	11	.3	.6	35.5	1,138	8,520	34.7
June	6.01	5.35	30	80.0	↟ 9	∅ .3	.8	49.2	2,125	12,653	49.2
July	8.63	5.12	24	15,500	↟ 2	∅ .3	195	12,005	3,389	18,500	46.8
Aug.	5.88	5.14	15	34.6	7	∅ 1.0	3.7	225	3,036	16,330	56.9
Sept.	8.60		23	8,040	↟ 5	∅ 1.3	91.4	5,439	3,857	24,900	128
Oct.	7.72	5.45	5	4,300	†16	∅ 1.1	46.8	2,876	1,648	19,200	36.9
Nov.	7.79	5.61	26	4,650	↟ 1	∅ 1.3	42.9	2,554	234	2,554	35.7
Dec.	5.64	5.60	↟ 6	∅ 2.6	16	∅ 2.0	2.4	147	160	408	39.3
Yearly	8.63			15,500		0.3	32.6	23,662.2	16,332	40,444	3,109.2

↟ Discharge measurement made on this day † And other days ∅ Mean daily

RIO GRANDE BELOW RIO CONCHOS NEAR PRESIDIO, TEXAS

DESCRIPTION: Cableway, bubbler gage, concrete control weir, water-stage recorders (graphic and digital), and binary decimal transmitter located on the left bank at latitude 29° 31' 05", longitude 104° 17' 35", and river mile 940.9; 0.4 river mile downstream from Alamito Creek, 10.1 river miles downstream from the international highway bridge between Presidio, Texas and Ojinaga, Chihuahua and 307.3 river miles downstream from the American Dam at El Paso, Texas. The zero of the gage is 2,536.00 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 120 discharge measurements during the year, 112 by the United States Section and 8 by the Mexican Section of this Commission, and a continuous record of gage heights. Computations for high flows, and for low and medium flows prior to May 1, 1968 when the weir was placed in operation, by shifting control methods. Low and medium flow computations based on a stable control weir rating curve defined by meter measurements. Records available: 1955 through 1968. Records are also available from 1896 through June 13, 1932 for a station located about 12.1 river miles downstream from the Rio Conchos and 1.3 miles upstream from Alamito Creek; and from June 14, 1953 through 1954 for a station about 2.0 river miles downstream from the Rio Conchos and 11.4 river miles upstream from Alamito Creek.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station. Period records shown in the summary below include monthly volumes for the period 1948 through 1954 at this location, which are based on discharge records at Alamito Creek Station and at a station on the Rio Grande 11.4 river miles upstream from the Alamito Creek confluence, and estimated irrigation diversions and arroyo inflow between the two river stations. The elevation of the zero of the gage prior to placing the concrete control weir in operation was 2,527.99 feet above mean sea level, U. S. C. & G. S. datum. The transmitter, operated in cooperation with the United States Weather Bureau, relays gage height data upon interrogation by telephone via commercial circuits.

EXTREME FLOWS FROM RECORDS‡: Momentary: Max. 54,300 second-feet on October 1, 1958 with a gage height of 20.37 feet. Min. 0.2 second-foot several days in July 1955, and on June 30, 1958.

Average Flow in Second-Feet ‡

Daily:	Max.	52,200	Oct. 1, 1958	Min.	0.2	Several days July 1955; June 30,	1958
Monthly:	Max.	17,100	Oct. 1958	Min.	3.6	May	1955
Yearly:	Max.	2,590	1958	Min.	283		1956

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	548	✝106	✝ 54.8	✝ 39.5	✝ 187	125	✝ 204	2,110	3,000	✝ 6,400	✝1,890	575
2	✝ 580	107	53.4	44.5	184	148	625	1,490	2,380	6,440	1,910	✝ 515
3	642	111	51.0	40.1	✝ 152	✝ 142	✝ 1,580	1,290	✝ 2,740	6,190	1,890	450
4	519	114	84.4	36.1	138	138	2,800	1,560	4,470	✝ 3,950	1,890	403
5	✝ 527	✝112	✝121	✝ 51.3	148	145	664	✝ 1,390	5,370	4,460	1,910	✝ 359
6	488	97.8	117	67.1	✝ 169	✝ 122	5,140	1,460	✝ 5,430	3,460	1,890	✝ 335
7	546	93.6	118	97.0	162	132	✝ 10,000	1,320	5,460	✝ 3,320	✝1,890	312
8	✝ 601	✝ 93.7	✝116	✝ 102	162	113	✝ 3,180	✝ 1,330	5,490	3,190	1,870	304
9	606	85.0	101	90.2	✝ 166	110	2,520	1,280	✝ 5,610	3,190	1,870	✝ 294
10	583	85.9	126	108	159	✝ 119	2,490	1,750	5,730	✝ 3,140	1,850	272
11	✝ 494	93.8	✝147	318	145	116	1,660	1,750	✝ 5,790	3,140	1,850	260
12	449	✝100	150	688	152	113	✝ 1,090	✝ 1,930	✝ 5,730	3,220	1,810	243
13	419	96.2	134	726	✝ 148	107	976	2,050	✝ 5,730	3,110	2,050	235
14	465	96.0	122	437	145	✝ 94.2	2,180	1,410	✝ 6,290	3,350	2,010	228
15	✝ 438	100	✝114	✝ 283	142	113	✝ 705	✝ 1,990	✝ 7,220	✝ 2,820	1,830	228
16	314	✝ 96.2	98.5	244	129	122	915	2,670	✝ 9,040	1,280	1,730	✝ 223
17	✝ 245	79.8	92.6	205	✝ 129	✝ 103	662	2,920	✝ 10,400	917	1,790	215
18	208	82.4	80.9	✝ 180	145	94.2	✝ 552	2,200	✝ 11,600	✝ 748	✝1,810	207
19	✝ 186	82.0	✝ 58.3	✝ 148	145	94.2	752	✝ 2,200	✝ 13,800	963	1,810	195
20	175	✝ 80.0	42.8	156	✝ 215	80.3	878	2,290	✝ 15,600	1,570	1,790	✝ 191
21	174	67.6	43.6	169	1,300	✝ 72.1	731	2,160	✝ 16,300	1,870	1,790	187
22	166	58.5	✝ 47.1	✝ 182	358	72.1	✝ 530	✝ 1,700	✝ 16,600	✝ 1,890	1,810	184
23	✝ 162	✝ 55.3	34.4	156	✝ 184	83.0	602	1,730	✝ 18,000	1,910	✝1,870	177
24	152	✝ 60.4	34.2	141	178	✝ 91.1	1,520	2,570	15,600	1,910	2,070	173
25	149	60.8	✝ 30.1	✝ 121	166	77.6	✝ 1,560	2,010	✝ 12,500	✝ 1,930	✝2,090	169
26	✝ 139	✝ 55.0	18.4	123	138	✝ 69.4	2,240	1,830	✝ 4,380	1,930	2,840	497
27	128	45.5	✝ 12.9	126	✝ 152	✝ 57.0	1,810	1,750	1,750	1,910	3,450	1,710
28	125	33.8	15.3	138	145	40.6	1,330	1,750	2,520	1,910	2,080	1,810
29	✝ 122	43.1	✝ 20.8	✝ 160	✝ 138	32.9	1,280	1,710	✝ 6,010	1,910	1,130	1,870
30	120		37.2	168	132	61.7	1,510	✝ 3,110	6,330	1,910	705	1,910
31	111		39.1		✝ 116		✝ 1,460	2,380		1,910		1,980
Sum	10,571	2,392.4	2,310.8	5,537.8	6,124	2,988.4	54,146	59,090	236,870	85,848	57,175	16,651

Month	Current Year 1968 Extreme Gage ** Feet High	Extreme Gage ** Feet Low	Extreme Second-Feet High Day	Extreme Second-Feet High	Extreme Second-Feet Low Day	Extreme Second-Feet Low	Average Second-Feet	Total Acre-Feet	Period **1948-1968 Acre-Feet Average	Maximum	Minimum
Jan.	9.91	8.90	3	699	31	109	341	20,968	31,306	66,200	11,700
Feb.	8.90	8.23	5	121	28	29.2	82.5	4,745	29,585	75,700	4,745
Mar.	9.09	7.89	12	164	27	9.7	74.5	4,583	23,243	52,600	4,583
Apr.	10.15	8.25	13	1,010	3	30.8	185	10,984	9,528	22,400	309
May	4.35	1.53	21	3,630	31	100	198	12,147	14,969	31,800	219
June	1.71	1.19	2	159	30	20.0	99.6	5,927	29,386	69,123	2,600
July	6.80	1.22	7	13,100	1	25.2	1,750	107,399	62,815	236,000	4,680
Aug.	4.96	3.18	30	5,250	9	1,250	1,910	117,205	82,055	230,284	11,900
Sept.	8.66	3.25	23	23,200	28	1,330	7,900	469,832	140,280	582,000	11,980
Oct.	5.64	2.55	5	7,620	19	630	2,770	170,280	106,091	1,051,000	6,090
Nov.	5.15	2.55	†26	5,820	30	630	1,910	113,407	41,675	113,407	9,530
Dec.	3.65	1.72	31	1,950	26	162	537	33,027	31,475	70,700	9,980
Yearly	8.66	7.89		23,200		9.7	1,470	1,070,504	602,408	1,876,260	120,283

‡ Period 1955-1968 ** See explanation in REMARKS above † And other days

✝ Discharge measurement made on this day

TERLINGUA CREEK NEAR TERLINGUA, TEXAS

DESCRIPTION: Cableway, gravity well, and water-stage recorder located on the left bank at latitude 29° 12' 00", longitude 103° 36' 15", 2.7 creek miles from the confluence with the Rio Grande, and about 8.5 miles south of Terlingua, Brewster County, Texas. This creek enters the Rio Grande at river mile 876.6, the lower end of Santa Helena Canyon, and 371.6 river miles downstream from the American Dam at El Paso, Texas. The zero of the gage is 2,200.64 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 86 discharge measurements during the year and a continuous record of gage heights. Computations by shifting control methods. Records available: 1932 through 1968.

REMARKS: Irrigation diversions modify the flow of this spring-fed creek at this station.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 34,900 second-feet on May 24, 1935 with a gage height of 17.59 feet on a gage 0.3 mile downstream. Min. .01 several days in June and July 1950.

Average Flow in Second-Feet

Daily:	Max.	17,200	June 1, 1937	Min.	0.01	Several days June-July 1950
Monthly:	Max.	921	June 1937	Min.	0.48	October 1934
Yearly:	Max.	146	1937	Min.	5.5	1943

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	3.4	✝ 2.8	✝ 3.3	✝ 4.8	✝ 2.7	2.0	1,350 ✝	✝ 9.7	740	✝ 4.1	✝ 3.3	5.8
2	✝ 3.1	2.6	3.5	3.2	2.7	1.9	* 43.8	6.2	313	4.1	3.1	✝ 5.0
3	3.5	2.8	3.4	2.5	✝ 2.7	✝ 1.9	* 4.0	5.2	45.0	514	2.9	4.1
4	3.5	3.0	3.8	2.4	2.7	1.9	* 4.0	95.2	✝ 12.9	* 10.1	✝ 2.7	3.6
5	✝ 3.5	✝ 2.9	✝ 3.9	✝ 2.4	2.6	2.1	* 4.0	192	49.0	* 9.0	2.7	3.3
6	3.2	2.9	3.9	2.2	✝ 2.6	2.1	* 4.0	✝ 14.5	5.6	* 8.7	2.7	3.1
7	2.9	2.8	3.8	1.8	2.6	✝ 2.2	1,290	* 7.0	4.0	* 8.6	2.8	2.9
8	✝ 3.4	2.6	✝ 3.8	1.6	2.6	2.2	301	* 5.0	6.7	✝ 8.5	✝ 2.8	2.6
9	3.1	✝ 2.4	3.6	✝ 1.2	✝ 30.9	2.2	✝ 301	✝ 3.0	3.8	* 6.0	2.8	✝ 2.4
10	3.2	2.6	3.5	1.4	1.9	2.1	167	3.0	✝ 45.7	4.0	2.8	2.5
11	✝ 3.4	2.3	✝ 3.3	1.6	* 2.3	✝ 2.1	* 16.2	3.1	4.2	3.5	2.7	2.6
12	3.3	✝ 1.7	3.2	1,440 ✝	1.9	610	* 3.2	3.1	2.9	3.1	2.7	2.7
13	3.2	2.3	3.2	288	✝ 1.9	✝ 27.2	* 24.2	✝ 100	11.6	3.1	✝ 2.7	2.7
14	3.4	2.6	3.3	63.4	2.2	" 2.5	93.4	* 157	4.3	✝ 3.1	2.7	2.8
15	✝ 3.4	✝ 2.8	3.3	✝ 8.5	2.4	74.2	✝ 21.0	* 52.1	18.9	96.2	2.7	2.9
16	2.8	2.8	3.4	4.1	✝ 2.7	32.4	* 10.0	✝ 41.4	6.0	13.4	2.6	✝ 3.0
17	2.5	3.0	3.4	3.5	2.7	✝ 2.7	45.4	1,920	3.7	5.9	✝ 2.6	2.9
18	✝ 3.8	2.9	✝ 3.3	✝ 3.0	2.7	2.2	18.6	618	3.2	5.0	2.6	2.8
19	2.3	✝ 2.9	3.4	2.8	2.7	1.8	✝ 104	265	2.9	4.0	2.7	2.7
20	2.3	2.8	3.1	2.8	33.8	✝ 1.5	* 12.5	✝ 31.7	2.9	3.3	2.7	2.7
21	2.4	2.6	3.1	2.7	✝ 15.1	1.5	* 4.0	17.8	2.9	✝ 3.3	✝ 2.8	2.6
22	✝ 2.7	2.5	✝ 3.4	✝ 2.6	2.7	1.7	1.4	65.8	3.2	3.3	2.8	2.5
23	2.6	✝ 2.5	3.5	2.4	2.6	1.8	✝ 47.3	✝ 33.9	622	3.3	2.8	✝ 2.4
24	2.6	2.6	3.4	2.2	✝ 2.6	✝ 1.9	311	70.9	✝ 987	3.3	2.8	2.4
25	2.7	2.8	✝ 3.3	✝ 2.1	2.5	1.9	184	89.1	177	3.4	2.8	2.4
26	2.7	3.0	3.1	2.2	2.4	2.0	3,180 ✝	✝ 17.4	32.7	3.4	83.6	2.4
27	2.8	✝ 3.1	2.9	2.3	2.4	2.0	212	8.7	✝ 8.2	3.4	1,210	2.4
28	3.7	3.1	✝ 2.6	2.5	✝ 2.3	✝ 2.0	* 54.0	6.9	5.0	✝ 3.5	48.8	2.5
29	✝ 3.2	3.3	38.3	✝ 2.7	2.2	1.9	✝ 52.1	5.6	4.5	3.4	4.2	2.5
30	3.0		25.8	2.7	2.1	177	8.0	✝ 4.2	4.5	3.3	3.4	2.5
31	2.9		13.8		2.0		122	39.2		3.3		✝ 2.5
Sum	94.5	79.0	172.6	1,865.6	148.2	970.9	7,993.1	3,891.7	3,133.3	754.6	1,419.3	89.7

Month	Current Year 1968								Period 1932-1968		
	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
			High		Low						
	High	Low	Day		Day				Average	Maximum	Minimum
Jan.	2.59		18	✝ 3.8	†19	✝ 2.3	3.0	187	193	875	82.7
Feb.	2.58	2.39	22	4.0	9	.8	2.7	157	255	4,400	73.4
Mar.	3.99	2.52	29	563	28	2.2	5.6	342	238	2,410	72.4
Apr.	6.06		12	4,770	9	✝ 1.2	62.2	3,700	1,090	15,500	55.1
May	4.16		20	640	†10	✝ 1.9	4.8	294	3,916	26,000	81.3
June	5.82		12	3,840	†20	✝ 1.5	32.4	1,926	7,109	54,800	59.5
July	8.72		1	12,800	22	✝ 1.4	258	15,854	8,653	28,700	518
Aug.	6.45		17	5,340	† 9	✝ 3.0	126	7,719	5,311	33,617	123
Sept.	5.84	2.98	23	3,910	†19	✝ 2.9	104	6,215	6,851	42,200	123
Oct.	7.86		3	9,580	†12	✝ 3.1	24.3	1,497	2,771	17,243	50.8
Nov.	5.54	2.99	27	3,290	†16	✝ 2.6	47.3	2,815	358	2,980	64.9
Dec.	3.08	3.02	1	5.6	† 9	✝ 2.4	2.9	178	292	3,080	90.0
Yearly	8.72			12,800		0.8	56.3	40,884	37,037	105,807	3,958

✝ Discharge measurement made on this day ✝ Mean daily † And other days
" Estimated * Partly estimated

RIO GRANDE AT JOHNSON RANCH NEAR CASTOLON, TEXAS

DESCRIPTION: Cableway, gravity well, and water-stage recorder located on the left bank at latitude 29° 02' 05", longitude 103° 23' 30", and river mile 855.3; two miles west-northwest of old Johnson Ranch headquarters, 5.5 river miles upstream from Smoky Creek, 13.0 river miles upstream from Chisos Crossing and the Chihuahua-Coahuila state line, 14.0 river miles downstream from Castolon, Brewster County, Texas and Santa Helena Ranch, Chihuahua, and 392.9 river miles downstream from the American Dam at El Paso, Texas. The zero of the gage is 2,045.30 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 87 discharge measurements during the year and a continuous record of gage heights. Computations by shifting control methods. Records available: April 1936 through 1968.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 61,900 second-feet on September 27, 1958 with a gage height of 24.70 feet. A flow estimated at 97,000 second-feet with a stage of 24.6 feet occurred at this station site on October 3, 1932. Min. no flow several days in 1953, 1955, 1957, and 1958.

Average Flow in Second-Feet

Daily:	Max.	56,900	Sept. 10, 1942	Min.	0	Several days 1953, 1955, 1957 & 1958
Monthly:	Max.	23,600	Sept. 1942	Min.	0	May 1953
Yearly:	Max.	4,780	1942	Min.	167	1953

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	487	↟ 173	↟ 93.6	↟ 67.1	↟ 95.8	105	↟ 524	↟ 1,650	4,690	↟ 6,280	↟ 1,960	952
2	↟ 513	170	90.2	47.6	101	88.8	931	1,970	3,250	6,290	1,950	↟ 739
3	550	166	88.4	39.8	↟ 126	↟ 90.1	192	1,360	2,630	7,150	1,940	657
4	614	166	94.0	35.8	165	115	1,190	1,300	↟ 2,910	6,180	↟ 1,950	601
5	↟ 549	↟ 167	↟ 97.8	↟ 34.3	158	126	2,040	1,810	4,450	4,490	1,960	550
6	508	159	97.6	31.0	↟ 426	113	758	↟ 1,410	4,690	4,760	1,970	510
7	518	154	120	29.6	167	↟ 115	6,530	1,410	5,020	3,890	1,960	477
8	↟ 528	148	↟ 130	30.2	153	110	8,960	1,190	5,030	↟ 3,660	↟ 1,960	453
9	596	↟ 133	131	↟ 27.5	↟ 161	108	↟ 3,650	↟ 1,180	5,190	3,480	1,960	↟ 439
10	618	135	134	31.5	145	98.3	2,770	1,310	↟ 5,430	3,310	1,950	423
11	↟ 602	134	↟ 129	36.3	177	↟ 89.5	2,300	1,660	5,640	3,280	1,920	402
12	544	↟ 126	112	1,710 ↟	138	492	1,520	1,720	5,670	3,270	1,890	375
13	479	127	122	1,090	↟ 126	↟ 225	1,300	↟ 1,860	5,750	3,390	↟ 1,870	363
14	440	131	128	642	125	105	1,300	2,060	5,830	↟ 3,220	1,870	342
15	↟ 449	↟ 134	124	↟ 506	132	89.1	↟ 1,990	1,620	6,430	3,500	1,850	329
16	482	133	114	339	↟ 126	189	816	↟ 1,980	6,950	2,770	1,820	↟ 315
17	413	139	87.8	276	118	↟ 80.1	809	5,080	8,150	1,670	↟ 1,800	310
18	↟ 351	136	↟ 80.3	↟ 234	106	66.8	798	2,900	↟ 9,470	1,290	1,830	294
19	290	↟ 187	74.3	196	104	76.2	↟ 778	3,210	10,800	1,080	1,840	284
20	258	145	69.1	162	110	↟ 65.4	1,050	↟ 2,080	12,600	879	1,860	276
21	239	121	69.7	145	1,770 ↟	54.3	915	2,190	15,000	↟ 1,560	↟ 1,860	267
22	↟ 222	112	↟ 63.9	↟ 136	1,070	50.1	744	1,860	16,300	1,940	1,860	258
23	215	↟ 107	60.1	139	589	42.9	↟ 584	↟ 1,750	17,400	1,970	1,870	↟ 246
24	211	103	57.3	144	↟ 308	↟ 38.6	1,310	1,840	↟ 20,100	1,990	1,910	246
25	206	102	↟ 58.1	↟ 131	215	38.0	1,500	2,340	18,300	1,990	2,060	244
26	197	101	52.9	109	187	31.3	↟ 4,590	↟ 1,880	14,300	2,010	2,090	244
27	197	↟ 102	47.6	97.4	173	32.8	2,670	1,760	↟ 4,290	2,020	4,680	238
28	194	101	↟ 42.5	83.9	↟ 146	↟ 30.2	1,880	1,690	2,060	↟ 2,020	3,110	1,310
29	↟ 186	96.7	52.4	↟ 80.4	144	28.2	↟ 1,400	1,640	3,530	2,010	2,140	1,630
30	180		308	87.1	138	50.0	1,240	↟ 1,610	6,150	2,000	1,430	1,750
31	178		129		118		1,400	3,220		1,980		↟ 1,830
Sum	12,014	3,903.7	3,058.6	6,718.5	7,817.8	2,943.7	58,439	60,540	238,010	95,279	61,120	17,354

Month	Current Year 1968 Extreme Gage Feet High	Extreme Gage Feet Low	Extreme Second-Feet High Day	Extreme Second-Feet High	Extreme Second-Feet Low Day	Extreme Second-Feet Low	Average Second-Feet	Total Acre-Feet	Period 1948-1968 Acre-Feet Average	Maximum	Minimum
Jan.	2.71	1.59	4	653	31	176	388	23,830	31,329	65,200	11,300
Feb.	2.07	1.22	19	312	29	95.2	135	7,743	30,224	71,400	7,743
Mar.	2.92	.94	30	800	29	36.8	98.7	6,067	23,950	52,300	4,440
Apr.	6.04	.85	12	5,210	9	25.2	224	13,326	11,143	23,900	457
May	6.08	1.00	21	5,190	1	53.7	252	15,507	20,198	56,000	0
June	3.91	.77	12	1,560	30	18.8	98.1	5,839	38,231	103,610	3,270
July	10.40	1.21	8	10,400	3	76.3	1,890	115,914	74,281	300,000	5,930
Aug.	8.91	3.28	17	8,440	10	1,140	1,950	120,081	89,880	229,205	12,300
Sept.	16.41	4.05	24	21,400	29	1,470	7,930	472,093	152,052	611,394	9,350
Oct.	11.56	2.69	3	12,600	†20	814	3,070	188,986	118,400	1,157,000	4,940
Nov.	7.32	3.01	27	6,250	30	1,130	2,040	121,232	43,308	132,000	8,600
Dec.	3.92	1.51	31	1,850	27	230	560	34,422	32,577	70,800	9,510
Yearly	16.41	0.77		21,400		18.8	1,550	1,125,040	665,573	2,059,290	120,747

↟ Discharge measurement made on this day † And other days

RIO GRANDE AT FOSTER RANCH NEAR LANGTRY, TEXAS
(ABOVE MAIN STEM HEAD OF AMISTAD RESERVOIR)

DESCRIPTION: Cableway, bubbler gage, concrete control weir, and water-stage recorders (graphic and digital) located on the left bank at latitude 29° 46' 50", longitude 101° 45' 20", and river mile 651.0; 500 feet downstream from the Terrell-Val Verde County Line, 16.9 river miles upstream from Langtry, Texas, and 597.2 river miles downstream from the American Dam at El Paso, Texas. The zero of the gage is 1,157.17 feet above mean sea level, U.S.C. & G.S. datum.

RECORDS: Based on 53 discharge measurements during the year and a continuous record of gage heights. Computations for high flows by shifting control methods. Low and medium flow computations based on a stable control weir rating curve defined by meter measurements. Records available: September 1961 through 1968.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station. The concrete control weir was placed in operation on February 21, 1967.

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	690	435	330	↟ 1,140	345	553	↟ 217	1,330	1,970	5,340	2,090	2,360
2	↟ 680	426	330	642	426	402	231	1,550	3,720	6,210	2,130	↟ 1,790
3	700	418	330	544	410	↟ 360	1,140	1,610	↟ 5,280	7,100	2,110	1,400
4	730	418	↟ 338	418	402	345	1,040	2,280	3,070	7,780	↟ 2,110	1,210
5	761	↟ 410	338	345	368	330	835	↟ 1,620	2,630	7,850	2,110	1,080
6	772	402	338	308	↟ 308	308	584	1,550	3,450	5,430	2,110	1,010
7	815	393	330	300	443	352	1,850	1,980	4,610	↟ 4,800	2,110	928
8	772	385	322	↟ 278	426	338	↟ 2,690	1,590	4,740	4,180	2,130	847
9	↟ 740	385	330	451	443	338	8,700	1,520	↟ 4,960	3,830	2,150	↟ 792
10	730	385	330	500	506	↟ 322	9,420	1,320	5,070	3,660	2,110	769
11	720	393	↟ 322	278	571	300	4,230	1,280	5,230	3,590	2,110	736
12	783	↟ 393	338	271	5,390	285	2,740	↟ 1,300	5,340	3,500	↟ 2,110	715
13	815	393	338	308	↟ 982	393	2,340	2,000	5,310	3,450	2,110	694
14	804	393	345	2,230	497	392	1,810	1,770	5,340	3,450	2,110	673
15	↟ 783	385	338	↟ 1,450	426	741	1,540	2,300	5,400	3,430	2,090	652
16	720	377	338	996	393	915	1,540	2,530	↟ 5,650	3,430	2,090	↟ 631
17	700	385	330	836	345	↟ 515	1,900	3,090	6,120	3,590	2,070	621
18	700	393	↟ 338	758	338	377	1,240	6,670	7,070	2,920	↟ 2,040	612
19	710	↟ 402	345	621	322	322	2,820	↟ 5,770	8,190	2,250	2,040	602
20	670	393	338	534	↟ 315	636	2,040	4,520	↟ 8,920	1,810	2,020	592
21	621	377	322	488	315	461	1,520	2,930	12,000	1,470	2,020	573
22	↟ 574	410	308	↟ 435	322	338	↟ 1,330	2,420	12,000	1,300	2,020	553
23	536	418	300	418	1,510	285	1,370	2,590	↟ 12,200	1,420	2,000	↟ 544
24	536	393	300	385	847	↟ 271	1,140	2,020	16,300	1,960	2,000	544
25	510	368	↟ 300	368	982	265	1,730	1,950	14,400	2,000	↟ 2,000	544
26	501	↟ 360	292	352	704	251	2,350	↟ 2,070	↟ 15,500	2,040	2,040	525
27	483	345	292	352	↟ 534	231	2,640	2,400	↟ 16,100	2,040	2,270	516
28	492	338	285	360	452	231	3,950	1,950	10,100	↟ 2,040	2,420	498
29	↟ 483	338	278	↟ 338	402	237	2,660	1,830	4,350	2,070	3,980	488
30	492		278	322	385	231	1,930	1,790	3,030	2,070	2,710	↟ 498
31	483		336		970		1,540	1,790		2,070		1,340
Sum	20,506	11,311	9,977	17,026	21,079	11,325	71,067	71,320	218,050	108,080	65,410	25,337

Month	Current Year 1968 — Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Period Sept. 1961-1968 — Acre-Feet		
			High		Low				Average	Maximum	Minimum
	High	Low	Day		Day						
Jan.	2.29	1.90	13	836	31	457	661	40,674	42,801	47,616	36,149
Feb.	1.92	1.76	22	461	29	330	390	22,435	34,852	49,064	22,435
Mar.	2.72	1.68	31	1,480	31	271	322	19,789	33,678	42,893	19,789
Apr.	3.50	1.68	14	3,020	†11	271	568	33,771	31,145	43,337	22,352
May	6.81	1.72	12	10,700	6	300	680	41,810	44,400	79,766	26,024
June	2.71	1.60	15	1,470	30	217	378	22,463	87,154	164,392	22,463
July	9.24	1.60	9	15,200	† 1	217	2,290	140,961	89,363	140,961	30,268
Aug.	8.02	2.59	†17	12,800	11	1,270	2,300	141,463	107,044	227,569	37,698
Sept.	13.70	2.85	24	23,200	1	1,720	7,270	432,502	240,092	634,303	77,100
Oct.	7.65	2.56	3	12,000	23	1,220	3,490	214,377	107,915	214,377	52,702
Nov.	4.10	2.99	29	4,480	25	1,980	2,180	129,741	59,556	129,741	41,903
Dec.	3.23	1.95	1	2,490	†29	488	817	50,256	46,434	52,989	38,349
Yearly	13.70	1.60		23,200		217	1,780	1,290,242	924,434	1,520,593	710,413

↟ Discharge measurement made on this day † And other days

RIO GRANDE AT LANGTRY, TEXAS

DESCRIPTION: Cableway, gravity well, and water-stage recorder located on the right bank at Langtry, Texas, latitude 29° 48' 00", longitude 101° 33' 30", and river mile 634.1; 24.1 river miles upstream from Pecos River, 66.6 river miles upstream from Amistad Dam, and 614.1 river miles downstream from American Dam at El Paso, Texas. The cableway is located 1,500 feet downstream from the gage well. The zero of the gage is 1,091.69 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 87 discharge measurements during the year and a continuous record of gage heights. Computations by shifting control methods. Records available: May 1900 through October 1914; December 1919 through March 1920; 1924 through 1968.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station.

EXTREME FLOWS FROM RECORDS: The highest known gage height was 56.9 feet, which occurred June 17, 1922 with a discharge of 204,000 second-feet, estimated by extension of the rating curve. The lowest recorded flow was 208 second-feet, which occurred July 12, 1953.

Average Flow in Second-Feet ‡

Daily:	Max.	70,930	Oct. 5, 1932	Min.	216	June 17 & 18, 1953
Monthly:	Max.	23,700	Sept. 1942	Min.	263	May 1953
Yearly:	Max.	5,320	1942	Min.	450	1953

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	791	* 522	416	1,080	405	682	* 284	* 1,510	2,000	4,940	2,230	2,560
2	* 779	514	424	768	* 475	507	279	1,650	3,740	6,190	2,210	*1,980
3	786	505	428	642	654	* 452	3,730	1,590	* 5,340	* 6,670	2,170	1,550
4	833	495	* 431	* 526	538	436	1,240	2,220	3,180	7,810	*2,120	1,320
5	848	* 498	431	447	451	415	1,080	1,840	* 2,700	7,860	2,140	1,190
6	870	495	431	409	* 378	* 400	717	1,630	3,100	5,440	2,140	1,100
7	907	482	* 431	394	438	436	2,060	1,890	3,720	* 4,960	*2,140	1,040
8	898	* 468	431	* 384	477	408	2,460	* 1,720	4,340	4,500	2,170	973
9	* 840	467	426	476	* 449	430	* 7,570	1,590	* 4,880	4,000	2,190	* 924
10	866	466	426	583	549	* 418	9,410	1,450	4,970	* 3,760	2,180	890
11	* 871	476	426	* 373	585	396	4,520	1,380	5,120	3,680	2,170	840
12	908	* 475	421	368	5,170	396	3,180	1,380	* 5,330	3,620	*2,180	818
13	923	472	431	373	1,180	415	2,710	1,980	5,310	3,560	2,170	777
14	915	475	* 437	1,920	666	* 561	2,170	1,860	5,360	* 3,510	*2,130	738
15	* 886	* 466	442	*1,730	520	609	* 1,720	* 2,210	5,440	3,520	2,120	709
16	828	461	436	1,170	* 505	1,060	1,560	2,570	5,600	3,480	2,130	* 679
17	792	484	425	911	447	* 656	2,290	2,340	6,080	* 3,740	2,140	667
18	* 778	486	* 430	* 852	397	486	* 1,450	6,700	6,840	3,100	*2,150	653
19	793	* 493	438	740	386	424	2,640	5,680	* 7,920	2,350	2,120	626
20	766	491	428	629	* 392	* 608	2,500	4,350	8,860	1,890	2,140	613
21	713	483	* 420	578	386	561	1,660	3,450	10,700	* 1,620	2,120	609
22	* 673	487	406	* 541	381	417	* 1,460	2,440	13,300	1,470	2,130	589
23	635	* 513	397	511	* 1,430	363	1,460	* 2,750	12,100	1,450	2,100	* 578
24	615	496	388	481	1,070	* 336	1,180	2,240	* 17,400	* 2,130	2,080	576
25	* 595	455	* 389	* 458	1,080	335	* 1,740	2,090	14,800	2,210	*2,070	576
26	580	* 427	382	440	868	334	2,600	2,030	* 16,000	2,210	2,100	575
27	571	426	381	433	* 660	* 329	2,270	2,590	17,100	2,210	2,390	573
28	562	425	* 379	420	579	312	4,310	2,280	11,200	* 2,180	2,490	567
29	* 547	* 424	375	* 413	544	300	* 3,040	2,000	4,820	2,200	4,370	566
30	545		376	401	535	287	2,270	* 1,930	3,500	2,230	3,070	* 572
31	530		372		* 988		1,820	1,930		* 2,250		1,240
Sum	23,444	13,827	12,854	19,451	23,588	13,769	77,580	73,260	220,750	110,740	68,060	27,668

Month	Current Year 1968							Period 1948-1968		
	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
			High		Low				Average	Maximum	Minimum
	High	Low	Day		Day						
Jan.	1.64	1.11	13	931	31	530	756	46,501	49,241	86,600	27,300
Feb.	1.11	.91	1	528	29	418	477	27,426	46,572	95,300	25,000
Mar.	.93	.82	15	442	31	372	415	25,496	43,373	77,600	23,300
Apr.	3.63	.82	14	3,110	†11	368	648	38,581	39,535	112,000	16,700
May	9.07	.87	12	9,490	6	363	761	46,777	56,030	192,000	16,200
June	2.14	.69	15	1,330	30	283	459	27,311	86,240	258,000	15,800
July	12.06	.69	3	13,900	2	275	2,500	153,880	103,195	325,000	20,200
Aug.	10.42	2.15	18	11,400	12	1,370	2,360	145,311	116,040	248,000	31,100
Sept.	17.65	2.74	24	23,000	1	1,950	7,360	437,858	184,965	639,064	19,600
Oct.	9.65	2.04	4	10,800	23	1,360	3,570	219,653	159,323	1,335,000	23,200
Nov.	5.44	2.73	29	5,010	†25	2,060	2,270	134,997	62,314	184,000	22,600
Dec.	3.34	1.05	1	2,680	31	558	898	54,879	50,699	93,100	24,800
Yearly	17.65	0.69		23,000		275	1,870	1,358,670	999,547	2,365,800	326,100

‡ Period 1931-1968 * Discharge measurement made on this day † And other days

PECOS RIVER NEAR LANGTRY, TEXAS

DESCRIPTION: Cableway, concrete control weir, bubbler gage, and water-stage recorders (graphic and digital) located on the right bank at latitude 29° 48' 10", longitude 101° 26' 45", about 7.5 miles east of Langtry, Texas, 9.5 river miles upstream from the Pecos High Bridge, and 15.0 river miles from the confluence with the Rio Grande. This stream enters the Rio Grande at river mile 610.0, 24.1 river miles downstream from Langtry, Texas, and 638.2 river miles downstream from the American Dam at El Paso, Texas. The zero of the gage is 1,133.08 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 47 discharge measurements during the year and a continuous record of gage heights. Computations for high flows by shifting control methods. Low and medium flow computations based on stable control weir rating curves defined by meter measurements. Records available: July 1967 through 1968. Records are also available for Pecos River near Comstock, 9.5 river miles downstream, from March 17 through December 3, 1898 and May 1900 through October 7, 1954; for Pecos River near Shumla, 3.5 river miles upstream, from October 8, 1954 through June 1967; and for Pecos River at Mouth near Comstock, from March 1961 through July 2, 1968.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station. The flood of June 1954, which had a discharge of 948,000 second-feet at the gaging station near the railroad bridge 9.5 river miles downstream, exceeded a gage height of 100 feet at this station. This station was placed in operation June 30, 1967.

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	140	137	128	146	116	129	↟ 94.5	124	144	118	105	135
2	↟ 143	137	128	↟ 152	113	129	94.5	124	148	116	102	↟ 135
3	143	134	132	190	261	132	↟6,380	121	148	182	102	129
4	146	134	132	179	135	↟ 341	↟1,100	116	148	148	↟ 102	132
5	146	134	↟ 132	156	135	323	735	↟ 113	141	121	102	126
6	146	↟ 131	135	142	129	226	490	113	138	116	102	129
7	140	134	135	138	↟ 126	188	279	110	135	↟ 116	102	129
8	152	↟ 126	135	138	118	167	226	107	135	118	105	129
9	↟ 158	126	135	↟ 138	118	157	↟ 324	105	↟ 129	116	118	129
10	149	126	132	146	1,590	148	459	105	126	118	116	132
11	146	131	132	165	1,070	↟ 141	188	102	121	118	110	132
12	140	134	↟ 135	355	511	135	178	↟ 102	118	116	110	135
13	140	↟ 134	132	259	398	126	167	102	118	116	110	132
14	140	137	128	206	↟ 296	121	154	107	138	116	107	129
15	↟ 140	137	128	182	248	118	↟ 151	102	141	113	110	126
16	140	137	128	↟ 163	222	116	141	97.0	135	113	110	124
17	140	146	128	163	207	132	141	97.0	126	113	107	124
18	143	152	125	152	197	↟ 132	154	1,370	124	113	↟ 107	126
19	146	152	↟ 135	211	183	113	141	↟1,440	118	107	107	124
20	146	↟ 149	135	156	180	110	167	445	116	107	110	124
21	146	143	128	156	↟ 173	110	315	245	116	107	107	124
22	143	140	152	152	170	110	↟ 424	226	118	110	110	124
23	↟ 140	137	175	↟ 138	163	107	260	212	124	110	110	↟ 124
24	140	137	182	132	163	105	212	195	121	113	113	124
25	137	137	175	125	160	↟ 102	184	184	121	113	↟ 113	126
26	137	137	↟ 152	122	157	99.5	174	↟ 174	124	110	113	126
27	137	↟ 134	142	119	148	99.5	160	167	132	107	121	126
28	137	131	138	119	↟ 141	97.0	154	154	124	↟ 105	124	121
29	137	131	138	↟ 119	138	94.5	↟ 144	144	121	105	132	126
30	137		138	119	135	94.5	138	138	121	105	135	↟ 126
31	↟ 137		142		129		129	141		105		126
Sum	4,412	3,955	4,292	4,838	8,030	4,203.0	14,058.0	7,082.0	3,869	3,591	3,322	3,954

Month	Current Year 1968								Period July 1967-1968		
	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
			High		Low				Average	Maximum	Minimum
	High	Low	Day		Day						
Jan.	1.91	1.83	9	162	†25	137	142	8,751			
Feb.	1.89	1.79	18	155	† 8	126	136	7,845			
Mar.	1.96	1.78	24	186	†20	122	138	8,513			
Apr.	2.37	1.76	12	383	†28	116	161	9,596			
May	5.42	1.74	10	5,670	† 2	113	259	15,928			
June	2.62	1.67	4	542	†29	94.5	140	8,337			
July	14.12	1.67	3	22,400	† 1	94.5	453	27,884	18,996	27,884	10,108
Aug.	5.48	1.67	18	3,970	†16	94.5	228	14,047	12,166	14,047	10,286
Sept.	1.87	1.74	† 2	151	†20	113	129	7,674	10,900	14,126	7,674
Oct.	2.83	1.71	3	736	†28	105	116	7,123	7,396	7,670	7,123
Nov.	1.82	1.70	†29	135	† 2	102	111	6,589	7,132	7,674	6,589
Dec.	1.82	1.77	† 1	135	28	121	128	7,843	8,062	8,281	7,843
Yearly	14.12	1.67		22,400		94.5	179	130,130			

↟ Discharge measurement made on this day † And other days

PECOS RIVER AT MOUTH NEAR COMSTOCK, TEXAS

DESCRIPTION: Cableway, bubbler gage, and water-stage recorder located on the left bank at latitude 29° 42' 20", longitude 101° 21' 35", 0.4 river mile downstream from Highway 90 bridge, 1.0 river mile from the confluence with the Rio Grande, and about 12 miles west of Comstock, Val Verde County, Texas. This stream enters the Rio Grande at river mile 610.0, 24.1 river miles downstream from Langtry, Texas, and 638.2 river miles downstream from the American Dam at El Paso, Texas. The zero of the gage is 1,031.58 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 27 discharge measurements during the year and a continuous record of gage heights. Computations by shifting control methods. Discharge for days which contain storm runoff and are affected by backwater from the Rio Grande are not computed. Records available: March 1961 through July 2, 1968. Records are also available for Pecos River near Comstock, 4.5 river miles upstream, from March 17 through December 3, 1898 and May 1900 through October 7, 1954; and for Pecos River near Shumla, 17.5 river miles upstream, from October 8, 1954 through June 1967; and for Pecos River near Langtry, 14.0 river miles upstream, from July 1967 through 1968. The operation of this station was discontinued on July 2, 1968 when it was inundated by water impounded by Amistad Dam.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station. The rating curve for this station is affected by backwater from the Rio Grande when the stage at Langtry station exceeds about 2.5 feet. The flood of June 1954, which had a discharge of 948,000 second-feet at the gaging station near the railroad bridge 4.5 miles upstream, reached an elevation of 1,113.9 feet above mean sea level at this station.

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	143	148	139	151	119	131	108					
2	† 145	148	136	155	119	132	111					
3	145	142	136	166	229	132						
4	146	139	135	† 195	196	† 210						
5	146	135	† 137	170	130	384						
6	145	† 135	136	150	122	255						
7	145	137	135	144	† 130	208						
8	151	136	135	141	126	182						
9	† 159	† 137	133	† 146	129	165						
10	158	138	133	155	1,360	158						
11	151	139	138	141	991	† 147						
12	148	143	† 144	270	530	143						
13	149	† 148	143	272	398	134						
14	151	149	136	216	342	131						
15	† 153	148	136	190	293	129						
16	154	147	137	† 175	272	129						
17	151	153	136	169	253	136						
18	153	160	133	166	236	† 149						
19	160	165	† 137	194	218	129						
20	160	† 159	144	177	200	121						
21	160	160	139	155	† 201	116						
22	158	156	140	152	168	109						
23	† 150	150	173	† 156	165	108						
24	149	146	180	144	162	107						
25	147	145	180	133	158	† 106						
26	149	142	† 171	130	154	107						
27	147	† 142	160	125	150	109						
28	147	143	156	128	† 143	108						
29	149	142	151	127	137	107						
30	† 149		148	† 122	131	106						
31	149		144		132							
Sum	4,667	4,232	4,481	4,915	8,094	4,388						

Month	Current Year 1968								Period #Max. 1961-1968		
	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
			High		Low				** Average	Maximum	Minimum
	High	Low	Day		Day						
Jan.	1.90	1.79	†20	160	1	143	151	9,257	10,608	12,675	9,257
Feb.	1.93	1.72	18	168	8	135	146	8,394	9,210	11,088	7,874
Mar.	1.96	1.68	25	183	11	131	145	8,888	9,520	11,419	8,152
Apr.	2.74	1.57	12	330	30	117	164	9,749	10,748		8,616
May	8.96	1.54	10	6,140	2	118	261	16,054	12,944		
June	3.25	1.45	† 4	498	29	104	146	8,704	7,779		7,230
July									7,626		
Aug.									7,469		5,792
Sept.											
Oct.									14,158		6,244
Nov.									11,694	16,080	6,857
Dec.									11,006	13,984	8,448
Yearly											

† Discharge measurement made on this day # Some months missing † And other days

** See explanation in RECORDS above

GOODENOUGH SPRING NEAR COMSTOCK, TEXAS

DESCRIPTION: Gravity well and water-stage recorder located on the left bank about 100 feet from the spring source at latitude 29° 32' 10", longitude 101° 15' 10", 0.8 mile from the confluence with the Rio Grande, and about 12 miles southwest of Comstock, Val Verde County, Texas. This stream enters the Rio Grande at river mile 583.3, 15.8 river miles upstream from Amistad Dam, and 664.9 river miles downstream from the American Dam at El Paso, Texas. The zero of the gage is 967.42 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 27 discharge measurements during the year and a continuous record of gage heights. Computations by shifting control methods. From June 23, 1946, when recorder installation became inoperable, to October 12, 1954, discharges were estimated between measurements. Prior to June 23, 1946, records were based on continuous records of gage heights. Records available: 1924 through July 11, 1968.

REMARKS: The flow of this spring is very uniform and not modified by diversions or storage. Backwater reaches the station when a discharge of approximately 35,000 second-feet occurs in the Rio Grande at the confluence. A maximum gage height of 43.35 feet was reached by backwater on June 28, 1954. The operation of this station was discontinued on July 11, 1968 when it was inundated by water impounded by Amistad Dam.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 3,580 second-feet on September 23, 1964 with a gage height of 13.10 feet. Min. 65.8 second-feet on February 27, 1957.

Average Flow in Second-Feet

Daily:	Max.	651	Oct. 10, 1958	Min.	66.8	March 1, 1957
Monthly:	Max.	421	Oct. 1932	Min.	69.4	Feb. 1957
Yearly:	Max.	266	1933	Min.	83.1	1952

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	119	114	115	114	† 158	141	137					
2	118	115	116	115	151	147	140					
3	† 118	118	114	† 115	147	148	151					
4	118	118	116	114	149	143	178					
5	122	118	118	112	173	† 140	201					
6	121	119	† 118	113	174	138	195					
7	121	† 121	119	114	158	167	176					
8	124	121	119	113	146	158	167					
9	127	121	120	112	143	152	179					
10	† 127	121	119	† 112	146	† 145	† 176					
11	126	121	119	114	168	142	179					
12	122	120	118	118	180	140						
13	123	119	† 119	118	183	139						
14	124	† 119	119	117	178	139						
15	122	119	120	118	† 168	140						
16	† 121	118	119	119	160	139						
17	122	119	121	† 118	154	143						
18	121	119	121	126	152	149						
19	121	119	121	155	148	† 144						
20	122	121	† 120	180	145	141						
21	123	† 121	119	184	144	140						
22	124	121	118	183	† 140	139						
23	122	118	118	179	139	138						
24	† 124	118	117	† 173	140	138						
25	123	117	118	158	141	138						
26	121	114	117	150	142	† 137						
27	120	114	† 116	145	143	138						
28	118	† 114	116	144	143	138						
29	115	114	115	157	† 145	137						
30	114		115	163	144	137						
31	† 112		115		143							
Sum	3,755	3,431	3,655	4,053	4,745	4,275						

Month	Current Year 1968 Extreme Gage Feet High	Extreme Gage Feet Low	Extreme Second-Feet High Day	Extreme Second-Feet High	Extreme Second-Feet Low Day	Extreme Second-Feet Low	Average Second-Feet	Total Acre-Feet	Period 1930-1968 Acre-Feet Average	Maximum	Minimum
Jan.	1.81	1.63	† 9	127	31	112	121	7,448	7,764	19,620	4,450
Feb.	1.64	1.48	† 7	122	29	112	118	6,805	6,873	17,030	3,860
Mar.	1.52	1.42	20	122	† 3	114	118	7,250	7,432	17,770	4,340
Apr.	2.84	1.42	18	283	† 5	112	135	8,039	7,258	16,580	4,820
May	2.28	1.89	13	183	10	139	153	9,412	7,983	16,840	4,870
June	2.75	1.94	7	253	30	135	142	8,479	7,926	16,040	4,470
July									8,275	16,460	4,500
Aug.									7,973	15,840	4,840
Sept.									9,081	25,000	5,120
Oct.									9,534	25,870	4,820
Nov.									8,466	21,850	4,540
Dec.									8,206	20,470	4,500
Yearly									96,771	192,840	60,320

† Discharge measurement made on this day † And other days

DOLAN SPRINGS NEAR LOMA ALTA, TEXAS

DESCRIPTION: Concrete wall with 90° V-notch weir of 14 second-foot capacity, bubbler gage, and water-stage recorder located on the left bank of Snake Creek near its mouth, latitude 29° 53' 40", longitude 100° 59' 00", and about 12 miles west of Loma Alta, Val Verde County, Texas. Snake Creek enters Dolan Creek from the left side, 0.9 creek mile from the confluence with Devils River. Dolan Creek enters Devils River from the left side, 16.8 river miles upstream from Pafford Crossing, and 42.3 river miles from the confluence with the Rio Grande. The elevation of the zero of the gage has not been determined.

RECORDS: Based on a continuous record of gage heights and the weir discharge table. Records available: 1966 through 1968.

REMARKS: The flow of these springs is very uniform during periods of dry weather and is not modified by diversions or storage. All storm flow passing this station is deducted and is not included in the tabulation below. This station was established for purposes of correlating the flow of these springs with precipitation data and the flow of other springs in the area.

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1.6	1.6	1.5	1.4	1.4	2.8	1.7	1.6	1.5	1.4	1.6	1.4
2	1.6	1.5	1.6	1.5	1.5	2.7	1.7	1.5	1.5	1.4	1.6	1.4
3	1.6	1.4	1.4	1.5	2.1	2.7	1.8	1.5	1.5	1.4	1.6	1.4
4	1.6	1.4	1.4	1.4	1.8	2.6	1.9	1.5	1.5	1.4	1.5	1.4
5	1.5	1.4	1.4	1.4	2.3	2.6	2.0	1.5	1.4	1.4	1.5	1.4
6	1.5	1.4	1.5	1.4	1.8	2.5	2.0	1.5	1.5	1.4	1.5	1.4
7	1.5	1.4	1.6	1.4	1.7	2.4	1.9	1.5	1.5	1.4	1.5	1.4
8	1.5	1.4	1.6	1.5	1.7	2.4	1.9	1.5	1.5	1.4	1.4	1.4
9	1.5	1.4	1.7	1.4	1.6	2.3	1.8	1.5	1.5	1.4	1.4	1.4
10	1.4	1.4	1.7	1.4	3.4	2.3	1.8	1.5	1.5	1.4	1.4	1.4
11	1.4	1.5	1.6	1.4	6.6	2.3	1.8	1.5	1.5	1.4	1.4	1.4
12	1.4	1.5	1.5	1.5	6.8	2.2	1.8	1.5	1.5	1.4	1.4	1.4
13	1.4	1.5	1.5	1.6	6.2	2.2	1.8	1.5	1.4	1.5	1.4	1.4
14	1.5	1.5	1.5	1.6	5.8	2.2	1.7	1.5	1.4	1.5	1.4	1.4
15	1.5	1.5	1.6	1.5	5.6	2.1	1.7	1.5	1.4	1.5	1.4	1.4
16	1.6	1.4	1.6	1.6	5.4	2.1	1.7	1.6	1.4	1.5	1.4	1.4
17	1.7	1.6	1.6	1.6	5.1	2.0	1.7	1.5	1.4	1.4	1.4	1.4
18	1.6	1.8	1.6	1.6	4.7	1.9	1.7	1.5	1.4	1.4	1.4	1.3
19	1.5	1.8	1.6	1.4	4.2	1.9	1.7	1.5	1.4	1.4	1.4	1.3
20	1.5	1.9	1.6	1.4	4.2	1.8	1.7	1.5	1.4	1.5	1.4	1.2
21	1.5	1.7	1.4	1.5	4.1	1.8	1.7	1.5	1.4	1.4	1.4	1.3
22	1.5	1.7	1.5	1.6	4.0	1.8	1.7	1.6	1.4	1.4	1.4	1.3
23	1.5	1.6	1.5	1.4	3.8	1.7	1.7	1.6	1.4	1.4	1.4	1.3
24	1.5	1.7	1.6	1.4	3.6	1.8	1.7	1.6	1.4	1.4	1.4	1.3
25	1.5	1.7	1.6	1.5	3.5	1.7	1.7	1.6	1.4	1.4	1.4	1.3
26	1.5	1.7	1.6	1.5	3.4	1.7	1.7	1.5	1.4	1.4	1.4	1.3
27	1.6	1.6	1.5	1.5	3.3	1.7	1.6	1.5	1.4	1.4	1.4	1.3
28	1.6	1.6	1.6	1.5	3.1	1.7	1.6	1.5	1.4	1.4	1.4	1.4
29	1.6	1.5	1.6	1.4	3.0	1.7	1.6	1.6	1.4	1.5	1.4	1.4
30	1.6		1.6	1.5	3.0	1.7	1.6	1.6	1.4	1.5	1.4	1.4
31	1.6		1.5		2.8		1.6	1.5		1.6		1.4
Sum	47.4	45.1	48.1	44.3	111.5	63.3	54.0	47.3	43.1	44.3	43.0	42.3

Month	Current Year 1968								Period 1966-1968		
	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum
Jan.			17	ø 1.7	†10	ø 1.4	1.5	94.0	186	300	94.0
Feb.	0.91	0.77	20	2.0	† 6	1.3	1.6	89.5	139	187	89.5
Mar.	.88	.78	10	1.8	† 3	1.4	1.6	98.4	129	151	95.4
Apr.	.85	.77	17	1.7	5	1.3	1.5	87.9	119	151	87.9
May	2.81	.78	12	ø 6.8	1	1.4	3.6	221	248	415	109
June	1.05	.85	1	2.8	†27	1.7	2.1	126	199	372	99.4
July	.93	.83	5	2.1	†27	1.6	1.7	107	198	369	107
Aug.	.83	.81	† 1	1.6	† 2	1.5	1.5	93.8	189	354	93.8
Sept.	.83	.80	9	1.6	†13	1.4	1.4	85.5	216	387	85.5
Oct.	.83	.77	31	1.6	26	1.3	1.4	87.9	232	439	87.9
Nov.	.84	.77	† 1	1.6	†11	1.3	1.4	85.3	210	433	85.3
Dec.			† 1	ø 1.4	20	ø 1.2	1.4	83.9	199	407	83.9
Yearly	2.81			ø 6.8		ø 1.2	1.7	1,257.2	2,264	3,782	1,257.2

ø Mean daily † And other days

DEVILS RIVER AT PAFFORD CROSSING NEAR COMSTOCK, TEXAS
(ABOVE HEAD OF DEVILS BRANCH, AMISTAD RESERVOIR)

DESCRIPTION: Concrete control wall with rectangular notch opening of 440 second-foot capacity, bubbler gage, water-stage recorders (graphic and digital), and binary decimal transmitter located on the left bank at latitude 29° 40' 35", longitude 101° 00' 00", about 11.5 miles east of Comstock, Val Verde County, Texas, and 25.5 river miles from the confluence with the Rio Grande. This stream enters the Rio Grande at river mile 568.1, 0.6 river miles upstream from Amistad Dam, and 680.1 river miles downstream from American Dam at El Paso, Texas. The zero of the gage is 1,131.88 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 24 discharge measurements by wading during the year, a stable rating curve, and a continuous record of gage heights. The rating curve for discharge above the capacity of the notch is estimated. Records available: 1960 through 1968. Records are also available from May 1900 through March 1914 for a station 23.8 river miles downstream; from December 1923 through September 1932 for a station 22.8 river miles downstream; from September 2, 1932 through August 1957 for a station 21.0 river miles downstream; from August 7, 1954 through January 1958 for a station 5.4 river miles upstream; and from August 1954 through May 31, 1968 for a station at the mouth 24.7 river miles downstream. A graph of Devils River flow from 1871 through 1939 may be found in Water Bulletin No. 9.

REMARKS: At this station the flow of this spring-fed stream is very uniform during periods of dry weather and is not modified by diversions or storage. The transmitter relays gage height data upon interrogation from the Amistad Dam hydrographic office of the United States Section of this Commission and is also programmed to relay similar data to this same office at predetermined time intervals. Transmission is via radio.

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	103	93.9	103	91.2	* 77.6	123	93.9	91.2	88.4	83.0	78.5	81.2
2	103	93.9	103	91.2	77.6	123	93.9	91.2	91.2	83.0	75.9	81.2
3	103	91.2	99.8	93.9	77.6	123	123	91.2	* 91.2	80.3	75.9	81.2
4	103	93.9	99.8	88.4	96.6	* 123	200	91.2	88.4	96.6	75.9	81.2
5	103	93.9	99.8	88.4	99.8	119	182	* 91.2	99.8	88.4	73.2	78.5
6	103	* 93.9	103	85.7	88.4	116	156	91.2	93.9	88.4	75.9	78.5
7	96.6	93.9	103	85.7	88.4	123	141	91.2	91.2	85.7	75.9	78.5
8	106	93.9	103	85.7	88.4	119	133	91.2	91.2	85.7	75.9	75.9
9	110	91.2	99.8	93.9	88.4	116	* 133	88.4	91.2	88.4	75.9	* 75.9
10	* 110	91.2	99.8	91.2	357	113	228	85.7	88.4	85.7	75.9	75.9
11	110	93.9	99.8	88.4	330	* 110	200	85.7	88.4	85.7	75.9	78.5
12	103	93.9	91.2	99.8	249	110	148	85.7	85.7	85.7	* 75.9	78.5
13	99.8	96.6	91.2	93.9	228	110	141	83.0	91.2	85.7	75.9	78.5
14	99.8	99.8	91.2	88.4	223	106	126	83.0	103	* 85.7	75.9	78.5
15	99.8	99.8	91.2	85.7	213	99.8	123	83.0	106	84.9	75.9	75.9
16	99.8	99.8	91.2	* 85.7	213	99.8	119	83.0	* 99.8	81.3	75.9	75.9
17	99.8	113	88.4	85.7	204	133	116	80.3	88.4	80.4	75.9	75.9
18	96.6	116	91.2	88.4	200	119	113	83.0	85.7	76.9	75.9	75.9
19	96.6	126	* 93.9	99.8	195	116	110	* 85.7	85.7	78.8	75.9	73.2
20	99.8	* 123	123	91.2	* 182	113	103	88.4	88.4	77.9	75.9	73.2
21	99.8	116	103	91.2	177	106	103	88.4	88.4	77.2	75.9	73.2
22	99.8	113	99.8	91.2	168	103	99.8	88.4	88.4	76.6	75.9	73.2
23	96.6	110	96.6	99.8	160	99.8	103	93.9	85.7	76.1	75.9	* 73.2
24	* 96.6	110	93.9	93.9	156	99.8	99.8	93.9	93.9	78.2	75.9	73.2
25	96.6	110	93.9	88.4	148	* 99.8	96.6	91.2	91.2	77.6	* 75.9	73.2
26	96.6	110	91.2	85.7	148	106	96.6	93.9	91.2	74.3	75.9	73.2
27	96.6	110	91.2	85.7	141	103	93.9	91.2	88.4	73.8	75.9	73.2
28	96.6	103	91.2	85.7	137	99.8	96.6	88.4	83.0	* 73.2	78.5	75.9
29	96.6	103	91.2	85.7	129	91.2	* 93.9	83.0	83.0	75.9	78.5	75.9
30	96.6		91.2	83.0	123	91.2	93.9	83.0	* 83.0	75.9	78.5	75.9
31	96.6		91.2		119		93.9	83.0		75.9		75.9
Sum	3,114.6	2,977.7	3,000.7	2,692.6	4,982.8	3,314.2	3,853.8	2,722.8	2,713.4	2,522.9	2,284.7	2,368.0

Month	Current Year 1968								Period 1960-1968		
	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
			High		Low				Average	Maximum	Minimum
	High	Low	Day		Day						
Jan.	1.35	1.28	† 8	113	18	91.2	100	6,178	11,172	16,072	6,178
Feb.	1.39	1.26	† 18	126	1	85.7	103	5,906	9,326	13,464	5,906
Mar.	1.51	1.27	20	172	† 11	88.4	96.8	5,952	8,908	13,700	5,952
Apr.	1.39	1.24	18	126	30	80.3	89.8	5,341	11,407	38,777	5,341
May	2.31	1.23	10	790	† 1	77.6	161	9,883	11,445	32,716	4,884
June	1.58	1.27	† 16	204	30	88.4	110	6,574	17,551	54,328	4,575
July	1.84	1.27	4	324	† 1	88.4	124	7,644	10,639	24,000	4,122
Aug.	1.30	1.24	23	96.6	† 12	80.3	87.8	5,401	10,157	17,400	3,955
Sept.	1.36	1.23	5	116	† 28	77.6	90.4	5,382	39,208	273,004	5,382
Oct.	1.34	1.23	4	110	28	73.2	81.4	5,004	14,139	31,772	5,004
Nov.	1.28	1.26	† 1	78.5	5	73.2	76.2	4,532	10,689	20,494	4,532
Dec.	1.29	1.25	† 1	81.2	20	70.6	76.4	4,697	9,965	18,056	4,697
Yearly	2.31	1.23		790		70.6	99.9	72,494	164,606	393,573	72,494

* Discharge measurement made on this day † And other days

DEVILS RIVER AT MOUTH NEAR DEL RIO, TEXAS

DESCRIPTION: Rock and concrete control wall with a rectangular notch opening of about 600 second-foot capacity, gravity well, and water-stage recorder located on the right bank at latitude 29° 28' 15", longitude 101° 03' 25", 0.8 mile from the confluence with the Rio Grande, 3.7 river miles downstream from U. S. Highway 90 bridge, and about 12 miles northwest of Del Rio, Texas. This stream enters the Rio Grande at river mile 568.1, 0.6 river mile upstream from Amistad Dam, and 680.1 river miles downstream from American Dam at El Paso, Texas. The zero of the gage is 911.00 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 21 discharge measurements by wading during the year, a continuous record of gage heights, and a stable rating curve for discharges up to about 600 second-feet; above this discharge, and when affected by backwater from the Rio Grande, records are based on discharges at a station 3.7 miles upstream. Records available: August 1954 through May 31, 1968. For additional records see "Devils River at Pafford Crossing near Comstock, Texas" on preceding page.

REMARKS: The monthly flow of this spring-fed stream is not modified. Prior to December 20, 1965, the daily flow was modified by two power dams with a combined hydroelectric generating capacity of 3,100 kva, the operation of which began in 1929. These dams stopped operating December 20, 1965 incident to the construction of Amistad Dam. The rating curve for this station is affected by backwater from the Rio Grande when the stage at "Below Amistad Dam" station exceeds about 8 feet. The flood of June 1954, affected by backwater, reached an elevation of 969.00 feet at the steam electric plant approximately 2,000 feet upstream from this station. The operation of this station was discontinued on May 31, 1968 when it was inundated by water impounded by Amistad Dam.

EXTRRME FLOWS FROM RECORDS: Momentary: Max. 122,000 second-feet on September 21, 1964 with a gage height of 25.09 feet. Min. 51.9 second-feet on February 7, 1957 with a gage height of 0.70 foot. Extreme flow data for Devils River prior to 1955 may be found in previous water bulletins.

Average Flow in Second-Feet

Daily:	Max.	58,000	Sept. 21, 1964	Min.	82.6	Oct. 6, 1956	
Monthly:	Max.	7,490	Sept. 1964	Min.	158	July 1956 & Jan.	1957
Yearly:	Max.	992	1957	Min.	201		1956

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	255	259	219	224	227							
2	261	212	226	227	230							
3	* 265	226	236	* 236	231							
4	272	227	219	236	231							
5	263	223	232	201	284							
6	273	225	242	215	260							
7	242	* 224	240	220	260							
8	265	216	* 238	223	252							
9	271	215	237	232	* 249							
10	* 266	225	233	* 244	296							
11	261	235	309	230	4,410							
12	273	221	211	259	860							
13	233	238	* 198	266	650							
14	250	* 233	216	247	444							
15	249	233	223	224	* 414							
16	* 248	218	226	228	395							
17	251	269	224	* 232	396							
18	276	272	227	289	355							
19	232	303	230	7,490	362							
20	250	282	650	421	349							
21	243	299	* 817	355	342							
22	255	214	260	317	* 339							
23	251	245	252	447	332							
24	* 233	235	240	* 293	326							
25	245	242	236	272	322							
26	243	232	237	262	319							
27	255	232	238	258	308							
28	255	* 255	* 242	261	296							
29	249	209	239	* 245	* 289							
30	250		239	229	275							
31	* 250		239		272							
Sum	7,885	6,919	7,775	15,023	14,575							

Month	Current Year 1968							Period 1955-1968		
	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet		
			High		Low			Average	Maximum	Minimum
	High	Low	Day		Day					
Jan.	1.94	1.53	6	334	13	204	254	15,640	22,994	39,200	9,700
Feb.	2.41	1.51	21	493	22	173	239	13,724	20,344	38,000	8,950
Mar.	3.57	1.40	20	1,140	12	149	251	15,422	19,898	34,500	10,400
Apr.	9.26	1.44	19	21,200	5	170	501	29,798	23,999	60,872	12,600
May	7.17	1.66	11	11,400	3	225	470	28,910	47,671	347,000	11,500
June									44,989	127,000	10,100
July									23,780	48,100	9,710
Aug.									22,090	32,100	9,760
Sept.									69,010	445,849	9,650
Oct.									38,463	92,500	13,569
Nov.									25,049	41,900	10,100
Dec.									23,914	40,800	9,980
Yearly									382,201	718,350	145,600

* Discharge measurement made on this day

RIO GRANDE BELOW AMISTAD DAM, NEAR DEL RIO, TEXAS

DESCRIPTION: Cableway, gravity well, concrete control weir, and water-stage recorders (graphic and digital) located on the left bank at latitude 29° 25' 30", longitude 101° 02' 20", and river mile 565.3, 2.2 river miles downstream from Amistad Dam, 10.6 river miles upstream from the international highway bridge between Del Rio, Texas and Cd. Acuña, Coahuila, and 682.9 river miles downstream from American Dam at El Paso, Texas. The zero of the gage is 898.00 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 100 discharge measurements during the year, 82 by the United States Section and 18 by the Mexican Section of this Commission, and a continuous record of gage heights. Computations for high flows, and for low and medium flows prior to April 29, 1968 when the weir was placed in operation, by shifting control methods. Low and medium flow computations based on a stable control weir rating curve defined by meter measurements. Records available: September 1954 through 1968. Records are also available from May 1900 through April 1915 for a station 1.8 miles upstream; from December 1919 through March 1920 for a station 1.7 miles downstream near McKee's Switch; from July 2, 1941 through August 1954, and October 1960 through 1967 for a station at the international highway bridge 10.6 miles downstream; and from December 1923 through July 2, 1941, and 1968 for a station approximately 10.4 miles downstream.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station. On May 31, 1968, Amistad Dam started impounding water. After this day, flow at this station is controlled largely by releases from Amistad Reservoir, 2.3 river miles upstream. The concrete control weir was constructed 500 feet upstream from the old station site and placed in operation on April 29, 1968. The elevation of the zero of the gage at the old station site was 893.79 feet above mean sea level, U. S. C. & G. S. datum.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 172,000 second-feet on September 24, 1964 with a gage height of 29.90 feet. Min. 48.0 second-feet on December 21, 1968 with a gage height of 1.20 feet. The flood of June 1954 reached a peak gage height of 55.72 feet and a maximum discharge of 1,158,000 second-feet at the old station site, determined by slope-area computations. This is the greatest rate of discharge recorded at any point on the Rio Grande and is equivalent to a discharge of 133 second-feet per square mile from the 8,718 square mile flood-producing storm area which included the watersheds of the Pecos River below Sheffield, the Devils River, and the Rio Grande beginning above Osman Canyon near Langtry, except that in Mexico it included only 543 square miles of watershed.

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,540	↟ 1,230	1,070	↟ 1,020	1,100	↟ 750	↟ 940	1,380	1,540	1,520	1,310	1,730
2	↟1,530	1,190	1,050	1,700	↟1,060	1,150	940	↟ 1,380	1,570	↟ 1,520	1,650	1,740
3	1,530	1,180	1,040	1,490	1,080	↟ 1,210	1,420	1,400	1,520	1,540	1,650	↟1,740
4	1,530	1,160	↟ 995	1,340	1,460	1,190	2,740	1,400	↟ 1,440	1,540	1,650	1,740
5	↟1,570	↟ 1,140	1,020	↟ 1,170	1,400	1,190	2,140	1,400	↟ 1,440	1,540	↟1,650	↟1,740
6	1,570	1,120	1,020	1,080	↟1,210	1,330	1,400	↟ 1,420	1,420	1,570	1,680	1,740
7	1,580	1,100	↟1,060	1,040	1,120	1,600	1,400	1,420	1,440	1,570	1,680	1,740
8	1,660	↟ 1,080	1,060	↟ 1,030	1,120	↟ 1,690	↟ 1,400	1,420	1,440	↟ 1,460	1,680	1,740
9	1,690	1,070	1,060	1,020	1,170	1,540	1,420	1,420	1,440	1,380	1,680	1,740
10	↟1,600	1,070	1,050	1,250	1,190	↟ 1,390	1,180	1,440	↟ 1,440	1,380	1,680	↟1,740
11	1,580	1,080	1,110	1,250	5,740	1,310	967	1,440	↟ 1,460	1,380	1,680	1,740
12	1,590	↟ 1,090	1,010	↟ 1,060	4,070	1,210	↟ 678	1,440	1,460	1,380	1,680	↟1,740
13	1,600	1,090	959	1,180	5,290	1,120	↟ 374	↟ 1,440	1,480	1,380	↟1,680	1,740
14	1,630	1,090	↟ 999	1,110	↟2,450	↟ 1,080	↟ 724	↟ 1,440	1,500	1,380	1,680	1,740
15	1,620	↟ 1,100	1,010	2,430	1,780	1,100	875	1,460	1,500	↟ 1,380	1,680	1,740
16	1,590	1,100	1,040	2,150	↟1,540	1,120	↟ 924	1,460	1,500	1,380	1,680	1,740
17	1,550	1,160	1,070	1,750	1,490	1,540	991	1,460	1,520	1,380	1,680	↟1,740
18	↟1,530	1,220	↟1,080	↟ 1,660	1,390	1,730	↟ 991	1,480	↟ 1,520	↟ 1,380	1,680	1,740
19	1,490	↟ 1,280	1,070	8,420	1,310	↟ 1,580	1,030	1,480	↟ 1,540	1,380	↟1,680	1,740
20	1,500	1,260	1,610	2,000	↟1,270	↟ 1,430	1,040	↟ 1,500	1,540	1,380	1,680	↟1,720
21	1,490	1,270	↟1,140	1,630	1,250	↟ 1,290	1,030	1,520	↟ 1,540	1,380	↟1,680	1,140
22	↟1,410	1,130	1,050	* 1,430	1,210	1,310	1,260	1,520	1,570	1,380	1,690	1,700
23	1,350	↟ 1,140	1,060	* 1,420	1,190	1,230	1,470	1,520	1,590	1,380	1,690	1,610
24	1,300	1,160	1,070	* 1,270	1,990	↟ 1,140	↟ 1,360	1,540	1,570	1,380	1,690	↟1,700
25	↟1,290	1,170	↟1,090	* 1,130↟	1,920	1,050	1,360	1,540	↟ 1,460	1,380	1,700	1,700
26	1,270	↟ 1,170	1,110	* 1,090	1,850	1,010	1,360	1,540	↟ 1,480	1,380	1,700	1,200
27	1,280	1,130	1,120	* 1,070	↟1,610	↟ 993	1,360	↟ 1,540	↟ 1,500	1,380	1,700	↟1,120
28	1,290	1,110	↟1,100	* 1,060	1,400	958	1,360	1,540	1,520	1,380	1,690	1,120
29	1,270	↟ 1,070	1,080	1,030	1,300	926	1,380	1,540	1,520	↟ 1,380	↟1,700	1,120
30	↟1,270		1,070	1,060	1,210	926	↟ 1,380	1,540	1,520	1,380	1,700	1,120
31	1,260		1,040		930		1,380	1,540		1,380		↟1,120
Sum	45,960	33,160	33,313	47,340	54,100	37,093	38,274	45,560	44,980	44,000	50,050	49,420

Month	** Extreme Gage Feet		Current Year 1968 Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Period 1955-1968 Acre-Feet		
			High		Low						
	High	Low	Day		Day				Average	Maximum	Minimum
Jan.	2.02	1.66	† 8	1,730	31	1,250	1,480	91,162	101,398	146,000	66,100
Feb.	1.77	1.47	21	1,390	29	1,040	1,140	65,773	90,142	155,000	65,773
Mar.	2.42	1.42	20	2,280	12	942	1,070	66,076	86,539	140,000	66,076
Apr.	7.00	1.39	19	13,500	1	998	1,580	93,899	93,607	208,000	54,100
May	4.79	1.50	11	10,000	31	211	1,750	107,307	155,873	812,000	60,700
June	2.51		7	1,800	1	ø 750	1,240	73,574	165,171	353,000	56,800
July	2.91	1.37	† 4	2,810	13	173	1,230	75,916	145,931	289,000	46,000
Aug.	2.40	2.32	†24	1,540	† 1	1,380	1,470	90,368	158,092	290,000	67,500
Sept.	2.43	2.33	24	1,610	† 3	1,400	1,500	89,218	333,771	1,095,435	71,900
Oct.	2.42	2.26	† 2	1,590	2	1,260	1,420	87,274	280,816	1,487,000	87,274
Nov.	2.47	1.42	30	1,720	1	210	1,670	99,274	120,657	281,000	68,200
Dec.	2.47	1.20	† 2	1,740	21	48.0	1,590	98,025	107,275	166,000	65,200
Yearly	7.00	1.20		13,500		48.0	1,430	1,037,866	1,839,272	3,537,200	858,900

↟ Discharge measurement made on this day * Partly estimated ø Mean daily † And other days
** See explanation in REMARKS above

ARROYO DEL BUEY NEAR CD. ACUNA, COAHUILA

DESCRIPTION: Cipolletti weir of 35.3 second-foot capacity, gravity well, and water-stage recorder located on the left bank at latitude 29° 24' 20", longitude 101° 02' 25", 0.2 creek mile from the confluence with the Rio Grande, and about 8.5 miles northwest of Cd. Acuña, Coahuila. This stream enters the Rio Grande from the Mexican side at river mile 564.0, 3.5 river miles downstream from Amistad Dam, 4.1 river miles downstream from Devils River, 9.3 river miles upstream from the international highway bridge between Del Rio, Texas and Cd. Acuña, Coahuila, and 684.2 river miles downstream from the American Dam at El Paso, Texas. The elevation of the zero of the gage has not been determined.

RECORDS: Based on a continuous record of gage heights and the weir discharge table. Records available: November 1961 through 1968.

REMARKS: The flow of this stream is not modified by diversions or storage. Flows exceeding the capacity of the weir were estimated and are included in the tabulation below. This station was established for investigational purposes in connection with Amistad Dam to determine what effect future storage in Amistad Reservoir will have on the flow of this stream. Backwater from the Rio Grande will affect the flow of this stream when the flow in the river is approximately 20,000 second-feet.

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.2	0.2	0.2	0.4	1.1	0.4	0.4	1.7	2.7	4.0	7.0	8.7
2	.2	.2	.2	.4	1.1	.4	.4	1.7	2.7	4.0	7.0	8.7
3	.2	.2	.2	.2	1.1	.4	1.7	1.7	2.7	4.3	7.0	8.8
4	.2	.2	.2	.2	1.4	.4	3.6	1.7	2.7	22.3	7.0	8.8
5	.2	.2	.2	.2	1.1	.4	1.2	1.9	2.7	6.1	7.0	8.8
6	.2	.2	.2	.2	1.0	.4	1.2	1.9	2.9	5.5	7.0	8.8
7	.2	.2	.2	.2	1.0	.4	1.2	1.9	2.9	5.5	7.1	8.8
8	.2	.2	.2	.2	.8	.4	1.2	1.9	2.9	5.5	7.2	8.8
9	.2	.2	.2	.2	.8	.4	1.2	1.9	2.9	5.8	7.3	8.8
10	.2	.2	.2	.2	.8	.4	1.1	1.9	2.9	5.8	7.4	8.8
11	.2	.2	.2	.2	.8	.4	1.1	2.0	2.9	5.8	7.5	8.8
12	.2	.2	.2	.2	.7	.4	1.1	2.0	2.9	5.8	7.5	8.8
13	.2	.2	.2	.2	.7	.4	1.1	2.0	2.9	5.8	7.6	8.8
14	.2	.2	.2	.2	.6	.4	1.0	2.2	2.9	5.8	7.7	8.8
15	.2	.2	.2	.2	.6	.4	1.0	2.2	2.9	5.8	7.8	8.8
16	.2	.2	.2	.2	.6	.4	1.0	2.2	2.9	5.8	7.8	8.8
17	.2	.2	.2	.2	.6	.6	.8	2.2	2.9	5.8	7.9	8.8
18	.2	.2	.2	* 10.3	.5	.5	1.0	2.2	2.9	5.8	8.0	8.8
19	.2	.2	.2	*103	.5	.4	1.0	2.2	2.9	5.8	8.1	8.8
20	.2	.2	.2	4.9	.5	.4	1.1	2.2	2.9	5.8	8.2	8.8
21	.2	.2	.2	2.5	.4	.4	1.1	2.2	2.9	6.0	8.3	8.8
22	.2	.2	.2	2.0	.4	.4	1.2	2.4	2.9	6.0	8.3	8.8
23	.2	.2	.2	1.9	.4	.4	1.2	2.4	3.1	6.2	8.3	8.8
24	.4	.2	.2	1.9	.4	.4	1.3	2.4	3.2	6.2	8.4	8.7
25	.4	.2	.4	1.7	.4	.4	1.3	2.4	3.2	6.5	8.4	8.7
26	.4	.2	.4	1.7	.4	.4	1.4	2.5	3.5	6.5	8.5	8.8
27	.4	.2	.4	1.6	.4	.4	1.4	2.5	3.5	6.5	8.5	8.8
28	.4	.2	.4	1.4	.4	.4	1.6	2.7	3.6	6.7	8.5	8.6
29	.4	.2	.4	1.3	.4	.4	1.6	2.7	3.8	6.7	8.6	8.6
30	.4		.4	1.2	.4	.4	1.6	2.7	3.8	7.0	8.6	8.5
31	.2		.4		.4		1.7	2.7		7.0		8.5
Sum	7.6	5.8	7.6	*139.2	20.7	12.3	38.8	67.2	90.5	198.1	233.5	271.4

Month	Current Year 1968						Period #Nov. 1961-1968		
	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet		
			High		Low			** Average	Maximum	Minimum
	High	Low	Day		Day					
Jan.	0.10	0.07	† 24	0.4	† 1	0.2	0.3	16.7	14.8	25.5	6.8
Feb.	.07	.07	† 1	.2	† 1	.2	.2	13.9	12.0	17.3	5.4
Mar.	.10	.07	† 25	.4	† 1	.2	.2	14.7	12.6	17.8	9.3
Apr.	6.04	.07	19	u 240	† 3	.2	* 4.7	* 277	106	305	6.3
May	.66	.10	4	6.2	† 21	.4	.7	41.4	62.7		10.9
June	.20	.10	17	1.1	† 1	.4	.4	25.1	54.2		6.3
July	1.51	.10	3	22.8	† 1	.4	1.2	76.0	25.9	76.0	6.5
Aug.	.39	.30	† 28	2.7	† 1	1.7	2.2	133	32.3		6.7
Sept.	.46	.39	† 29	3.8	† 1	2.7	3.0	180	87.8	199	6.6
Oct.	2.46	.49	4	51.9	† 1	4.0	6.4	392	87.3		6.5
Nov.	.82	.72	† 29	8.6	† 1	7.0	7.8	463	78.6	463	6.3
Dec.	.82	.82	† 3	8.8	† 30	8.5	8.6	538	82.3	538	6.5
Yearly	6.04	0.07		u 240		0.2	3.0	2,170.8	656.5		216.8

† And other days # Some months missing ** See explanation in REMARKS above u Estimated
* Partly estimated

ERNESTINA AND MARIS SPRINGS NEAR CD. ACUNA, COAHUILA

In order to determine what effect storage in the projected Amistad Reservoir will have on the flow of various Mexican springs in the vicinity of Amistad Dam, gaging stations were established in November 1961 at Ernestina and Maris Springs. The stations and springs are described as follows:

ERNESTINA SPRING

DESCRIPTION: A 90° V-notch weir of 1.4 second-foot capacity and staff gage located at the spring on the right high bank of Arroyo del Buey about 100 feet from the right bank of the Rio Grande at latitude 29° 24' 20", longitude 101° 02' 15", and about 8.5 miles northwest of Cd. Acuña, Coahuila. This spring enters the Rio Grande at river mile 564.0, 9.3 river miles upstream from the international highway bridge between Del Rio, Texas and Cd. Acuña, Coahuila, 3.5 river miles downstream from Amistad Dam, 4.1 river miles downstream from Devils River, and 684.2 river miles downstream from the American Dam at El Paso, Texas. The elevation of the zero of the gage has not been determined.

RECORDS: Based on weekly staff gage readings and the weir discharge table. Mean daily discharges determined by prorating between readings. The flow of this spring is small and very uniform except during periods of very heavy rainfall at which time the capacity of the weir may be exceeded. The daily flow throughout the year ranged from 0.018 to 0.092 second-foot, or 8 to 41 gallons per minute, and the monthly average ranged from 0.025 to 0.067 second-foot, or 11 to 30 gallons per minute. The total volume for the year amounted to 27.3 acre-feet. Waters from this spring have a high sulphur content. Records available: November 7, 1961 through 1968.

MARIS SPRING

DESCRIPTION: Cipolletti weir of 11.1 second-foot capacity and staff gage located at the spring about 100 feet from the right bank of the Rio Grande at latitude 29° 24' 00", longitude 101° 01' 55", and about 8 miles northwest of Cd. Acuña, Coahuila. This spring enters the Rio Grande at river mile 563.5, 8.8 river miles upstream from the international highway bridge between Del Rio, Texas and Cd. Acuña, Coahuila, 4.0 river miles downstream from Amistad Dam, 4.6 river miles downstream from Devils River, and 684.7 river miles downstream from the American Dam at El Paso, Texas. The elevation of the zero of the gage has not been determined.

RECORDS: Based on weekly staff gage readings and the weir discharge table. Mean daily discharges, determined by prorating between readings, and annual and period summary are tabulated below. Flows exceeding the capacity of the weir are not included. Records available: November 14, 1961 through 1968.

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.1	0.1	0.1	0.2	2.4	0.6	0.4	1.1	2.3	3.4	5.7	7.2
2	.1	.1	.1	.2	2.3	.6	.4	1.2	2.3	3.4	5.7	7.3
3	.1	.1	.1	.1	2.2	.6	.4	1.2	2.3	3.5	5.8	7.3
4	.1	.1	.1	.1	2.2	.6	.6	1.3	2.4	4.0	5.9	7.4
5	.1	.1	.1	.1	2.1	.6	.8	1.3	2.4	4.5	5.9	7.4
6	.1	.1	.1	.1	2.0	.6	1.0	1.4	2.4	5.0	6.0	7.5
7	.1	.1	.1	.1	1.9	.6	1.3	1.4	2.5	5.5	6.0	7.5
8	.1	.1	.1	.1	1.8	.6	1.5	1.5	2.5	6.0	6.1	7.5
9	.1	.1	.1	.1	1.7	.6	1.7	1.6	2.6	6.5	6.1	7.5
10	.1	.1	.1	.1	1.8	.5	1.9	1.6	2.6	7.0	6.1	7.6
11	.1	.1	.1	.1	1.9	.5	1.8	1.6	2.6	6.8	6.2	7.6
12	.1	.1	.1	.1	2.1	.5	1.7	1.6	2.7	6.6	6.2	7.6
13	.1	.1	.1	.1	2.2	.6	1.5	1.7	2.7	6.4	6.3	7.6
14	.1	.1	.1	.1	2.3	.6	1.4	1.7	2.8	6.2	6.4	7.7
15	.1	.1	.1	.1	2.4	.7	1.2	1.7	2.8	6.0	6.4	7.7
16	.1	.1	.1	.1	2.2	.7	1.1	1.7	2.8	5.8	6.4	7.7
17	.1	.1	.1	.1	1.9	.8	1.0	1.8	2.8	5.6	6.5	7.7
18	.1	.1	.1	1.7	1.7	.9	1.0	1.8	2.9	5.6	6.5	7.8
19	.1	.1	.1	3.1	1.5	1.0	1.0	1.8	2.9	5.5	6.6	7.8
20	.1	.1	.1	4.7	1.2	.9	1.0	1.9	2.9	5.5	6.6	7.8
21	.1	.1	.1	6.2	1.0	.8	1.0	1.9	3.0	5.4	6.7	7.9
22	.1	.1	.1	7.7	.8	.7	1.0	1.9	3.0	5.4	6.7	8.0
23	.1	.1	.2	9.2	.7	.7	1.0	2.0	3.1	5.3	6.8	8.1
24	.1	.1	.2	10.7	.7	.6	1.0	2.0	3.1	5.3	6.9	8.2
25	.1	.1	.3	9.5	.7	.6	1.0	2.0	3.1	5.3	6.9	8.3
26	.1	.1	.3	8.3	.6	.5	1.0	2.1	3.2	5.4	7.0	8.4
27	.1	.1	.4	7.1	.6	.5	1.0	2.1	3.2	5.4	7.0	8.5
28	.1	.1	.3	6.0	.5	.5	1.0	2.2	3.2	5.5	7.1	8.6
29	.1	.1	.3	4.8	.5	.4	1.1	2.2	3.3	5.5	7.1	8.7
30	.1		.2	3.6	.5	.4	1.1	2.2	3.4	5.6	7.2	8.9
31	.1		.2		.5		1.1	2.3		5.6		8.9
Sum	3.1	2.9	4.6	84.5	46.9	18.8	34.0	53.8	83.8	168.5	192.8	243.7

Month	Current Year 1968								Period #Dec. 1961-1968		
	Extreme Gage Feet		g Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
	High	Low	High Day	High	Low Day	Low			**Average	Maximum	Minimum
Jan.			† 1	0.1	† 1	0.1	0.1	8.7	17.3	65.3	4.4
Feb.			† 1	.1	† 1	.1	.1	7.1	11.1	33.6	4.1
Mar.			27	.4	† 1	.1	.2	10.5	11.3	22.4	4.9
Apr.			24	10.7	† 3	.1	2.8	169	41.0	169	4.2
May			† 1	2.4	† 28	.5	1.5	93.3	86.7		8.7
June			19	1.0	† 29	.4	.6	37.2	32.7		6.0
July			10	1.9	† 1	.4	1.1	66.4	29.3	66.4	7.9
Aug.			31	2.3	1	1.1	1.7	107	31.1	107	6.2
Sept.			30	3.4	† 1	2.3	2.8	166	156		5.4
Oct.			10	7.0	† 1	3.4	5.4	335	80.4		4.6
Nov.			30	7.2	† 1	5.7	6.4	382	109	382	4.2
Dec.			31	8.9	1	7.2	7.8	482	85.5	482	4.4
Yearly				10.7		0.1	2.6	1,864.2	691.4		146.2

† And other days
g Mean daily
** See explanation in Maris Spring RECORDS text above
# Some months missing

EIGHT MILE CREEK NEAR DEL RIO, TEXAS

DESCRIPTION: Concrete wall with 90° V-notch weir of 6.9 second-foot capacity, bubbler gage, and water-stage recorder located on the left bank at latitude 29° 24' 05", longitude 101° 00' 55", 0.8 creek mile from the confluence with the Rio Grande, and about 8 miles northwest of Del Rio, Texas. This stream enters the Rio Grande from the United States side at river mile 562.9, 4.6 river miles downstream from Amistad Dam, 8.2 river miles upstream from the international highway bridge between Del Rio, Texas and Cd. Acuña, Coahuila, and 685.3 river miles downstream from the American Dam at El Paso, Texas. The elevation of the zero of the gage has not been determined.

RECORDS: Based on a continuous record of gage heights and the weir discharge table. Records available: March 1961 through 1968.

REMARKS: The source of flow of this stream is from surface runoff during rainy periods and the subsequent flow from underground seepage as a result of such rains. Flows of 0.05 second-foot or less are shown as zero in the discharge tabulations; however, the monthly volumes in the annual and period summary are based on the sum of mean daily discharges computed to the nearest hundredth of a second-foot when the mean daily flow is less than 0.1 second-foot. All storm water from surface runoff passing this station is deducted and is not included in the tabulation below. This station was established for investigational purposes in connection with Amistad Dam to determine what effect future storage in Amistad Reservoir will have on the flow of this stream.

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	0 0	0 0	0 0	0	0	0	0	0	0	0
2	0	0	0 0	0	0 0	0 0	0	0	0	0	0	0
3	0	0	0 0	0 0	0 0	0 0	0	0	0	0 0	0	0
4	0	0	0 0	0	0 0	0 0	.1	0	0	0 0	0	0
5	0	0	0 0	0	.1	0 0	.2	0	0	0	0	0
6	0	0	0 0	0	.1	0 0	.1	0	0	0	0	0
7	0	0	0 0	0	.1	0 0	.1	0	0	0	0	0
8	0	0	0 0	0 0	.1	0 0	.1	0	0	0	0	0
9	0	0	0 0	0	0 0	0	0 0	0	0	0	0	0
10	0	0	0 0	0	0 0	0	0 0	0	0	0	0	0
11	0	0 0	0 0	0	0 0	0	0 0	0	0	0	0	0
12	0	0 0	0 0	0	.1	0	0 0	0	0	0	0	0
13	0	0 0	0 0	0	.1	0	0 0	0	0	0	0	0
14	0	0 0	0 0	0	0 0	0	0 0	0	0	0	0	0
15	0	0	0 0	0	0 0	0	0 0	0	0	0	0	0
16	0	0	0 0	0	0 0	0	0 0	0	0	0	0	0
17	0	0 0	0 0	0	0 0	0	0	0	0	0	0	0
18	0	0 0	0 0	0	0 0	0 0	0	0	0	0	0	0
19	0	0 0	0 0	0 0	0 0	0 0	0	0	0	0	0	0
20	0	0 0	0 0	.3	0 0	0	0	0	0	0	0	0
21	0	0 0	0 0	.5	0 0	0	0	0	0	0	0	0
22	0	0 0	0 0	.4	0 0	0	0	0	0	0	0	0
23	0	0 0	0 0	.2	0 0	0	0	0	0	0	0	0
24	0	0 0	0 0	.1	0 0	0	0	0	0	0	0	0
25	0	0 0	0 0	.1	0 0	0	0	0	0	0	0	0
26	0	0 0	0 0	.1	0 0	0	0	0	0	0	0	0
27	0	0 0	0 0	.1	0 0	0	0	0	0	0	0	0
28	0	0 0	0 0	.1	0 0	0	0	0	0	0	0	0
29	0	0 0	0 0	0 0	0 0	0	0	0	0	0	0	0
30	0		0 0	0 0	0	0	0	0	0	0	0	0
31	0		0 0		0		0	0		0		0
Sum	0	0	0	1.9	0.6	0	0.6	0	0	0	0	0

Month	Current Year 1968								Period #Mar. 1961-1968		
	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet **		
			High		Low				Average	Maximum	Minimum
	High	Low	Day		Day						
Jan.	0.09		29	0 0	† 1	0	0	0	0.9	4.4	0
Feb.	.84		19	ø 0 0	† 1	0	0 0	.7	.4	1.4	0
Mar.	.64	0.10	12	ø 0 0	† 1	0 0	0 0	1.0	1.1	5.1	0
Apr.	4.22		21	ø .5	† 2	0	.1	4.0	3.7		0
May	1.71		† 5	ø .1	†30	0	0 0	2.5	2.0		0
June	1.27		2	ø 0 0	† 1	0	0 0	.4	1.0		0
July	2.25		5	ø .2	† 1	0	0 0	1.4	.2		0
Aug.				0		0	0	0	2.0		0
Sept.				0		0	0	0	2.6		0
Oct.	.38		4	ø 0 0	† 1	0	0	.1	2.2		0
Nov.				0		0	0	0	1.4	6.5	0
Dec.				0		0	0	0	1.6	11.3	0
Yearly	4.22			ø 0.5		0	0 0	10.1	19.1		3.4

ø Flow ranged from 0.005 to 0.05 second-foot # Some months missing ø Mean daily
† And other days ** See explanation in REMARKS above

MCKEE SPRING NEAR DEL RIO, TEXAS

DESCRIPTION: Concrete wall with V-notch weir of 6.9 second-foot capacity, gravity well, and water-stage recorder located on the right bank of the discharge channel, a short distance from the spring. The spring is located on the left flood plain of the Rio Grande at latitude 29° 23' 35", longitude 101° 01' 15", about 150 feet from the edge of the low flow channel, and about 8 miles northwest of Del Rio, Texas. Water from this spring enters the Rio Grande at river mile 562.7, 4.8 river miles downstream from Amistad Dam, 8.0 river miles upstream from the international highway bridge between Del Rio, Texas and Cd. Acuña, Coahuila, and 685.5 river miles downstream from the American Dam at El Paso, Texas. The zero of the gage is 893.54 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 10 discharge measurements prior to the date the recorder was installed; and a continuous record of gage heights and the weir discharge table, thereafter. Records available: November 1961 through 1968.

REMARKS: The flow of this spring is uniform during periods of dry weather and is not modified by diversions or storage. Flows of 0.05 second-foot or less are shown as zero in the discharge tabulations; however, the monthly volumes in the annual and period summary are based on the sum of mean daily discharges computed to the nearest hundredth of a second-foot when the mean daily flow is less than 0.1 second-foot. This station was established for investigational purposes in connection with Amistad Dam to determine what effect future storage in Amistad Reservoir will have on the flow of this spring. It is estimated that backwater from the Rio Grande will reach the emergence of the spring when the flow in the river is approximately 14,000 second-feet. The recorder and weir were installed on March 29, 1968.

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	0	0	0.4	0	0	0.2	0.4	0.9	1.4	1.8
2	0	0	0	0	.3	0	0 0	.2	.4	1.0	1.4	1.9
3 *	0	0	0	* 0	.2	0	2.8	.2	.4	1.0	1.5	1.9
4	0	0	0	0	.2	0	2.6	.2	.4	1.0	1.5	1.9
5	0	0	0	0	.3	0	1.9	.2	.4	1.1	1.5	1.9
6	0	0 *	0	0	.2	0	1.0	.2	.4	1.1	1.5	1.9
7	0 *	0	0	0	* .1	0	.6	.2	.5	1.2	1.5	1.9
8	0	0	0	0	.1	0	.4	.2	.5	1.1	1.5	1.9
9	0	0	0	0	*0 0	0	.3	.2	.5	1.1	1.6	1.9
10	0	0	0	* 0	0 0	0	.1	.1	.5	1.1	1.6	1.9
11	0	0	0	0	.9	0	.1	.1	.5	1.2	1.6	1.9
12	0	0	0	0	.7	0	0 0	.1	.6	1.2	1.6	1.9
13	0	0 *	0	0	.9	0	0	.1	.6	1.2	1.6	1.9
14	0 *	0	0	0	.3	0	0 0	.1	.6	1.2	1.6	1.9
15	0	0	0	0	* .2	0	0 0	.1	.7	1.3	1.7	1.8
16 *	0	0	0	0	.1	0	0 0	.1	.7	1.3	1.7	1.8
17	0	0	0	* 0	.1	0	.1	.1	.7	1.3	1.7	1.9
18	0	0	0	.2	0	0	.1	.1	.7	1.3	1.7	1.8
19	0	0	0	* 7.1	0	0	0 0	.2	.7	1.3	1.7	1.9
20	0	0	* 0	4.6	0	0	0 0	.2	.7	1.3	1.7	1.8
21	0	* 0	0	3.3	0	0	0 0	.2	.8	1.3	1.7	1.8
22	0	0	0	2.4	* 0	0	.1	.2	.8	1.3	1.7	1.8
23	0	0	0	1.8	0	0	.2	.3	.8	1.4	1.7	1.8
24	0	0	0	* 1.4	.1	0	.1	.3	.8	1.4	1.7	1.9
25	0	0	0	1.2	0	0	.1	.3	.8	1.5	1.7	2.0
26	0	0	0	1.0	0	0	.1	.3	.8	1.5	1.8	1.9
27	0	0	* 0	.8	0	0	.1	.4	.9	1.4	1.8	1.9
28	0	0	0	.8	0	0	.1	.4	.9	1.4	1.8	1.8
29	0	0	0	.7	0	0	.1	.4	.9	1.4	1.8	1.8
30	0		0	* .5	0	0	.2	.4	.9	1.4	1.8	1.8
31 *	0		0		0		.2	.4		1.4		1.8
Sum	0	0	0	25.8	5.1	0	11.3	6.7	19.3	38.6	49.1	57.8

Month	Current Year 1968 Extreme Gage Feet High	Extreme Gage Feet Low	Extreme Second-Feet High Day	Extreme Second-Feet High	Extreme Second-Feet Low Day	Extreme Second-Feet Low	Average Second-Feet	Total Acre-Feet	Period Nov. 1961-1968 Acre-Feet Average	Maximum	Minimum
Jan.				0		0	0	0	60.1	193	0
Feb.				0		0	0	0	53.4	167	0
Mar.				0		0	0	0	62.0	205	0
Apr.			19	ß 7.1	† 1	0	.9	51.2	74.8	185	0
May	0.92		11	2.0	†18	0	.2	10.0	103	423	.7
June				0		0	0	0	56.6	180	0
July	1.20		3	4.0	† 1	0	.4	22.8	42.4	140	0
Aug.	.47	0.29	†27	.4	†10	.1	.2	13.3	38.3	128	0
Sept.	.67	.47	†27	.9	† 1	.4	.6	38.3	55.8	168	0
Oct.	.81	.67	†25	1.5	1	.9	1.2	76.6	58.6	121	0
Nov.	.88	.80	†26	1.8	† 1	1.4	1.6	97.4	80.8	253	0
Dec.	.92	.88	25	2.0	1	1.8	1.9	115	73.4	234	0
Yearly				ß 7.1		0	0.6	424.6	759.2	2,062	0.7

* Discharge measurement made on this day ß Mean daily † And other days
θ Flow ranged from 0.005 to 0.05 second-foot

ARROYO DE LA TREINTA Y UNA NEAR CD. ACUNA, COAHUILA

DESCRIPTION: Cipolletti weir of 35.3 second-foot capacity, gravity well, and water-stage recorder located on the left bank at latitude 29° 22' 40", longitude 101° 01' 10", 0.6 creek mile from the confluence with the Rio Grande, and about 6.5 *miles northwest of Cd. Acuña, Coahuila. This stream enters the Rio Grande from the Mexican side at river mile 561.2,* 6.3 river miles downstream from Amistad Dam, 6.5 river miles upstream from the international highway bridge between Del Rio, Texas and Cd. Acuña, Coahuila, 6.9 river miles downstream from Devils River, and 687.0 river miles downstream from the American Dam at El Paso, Texas. The elevation of the zero of the gage has not been determined.

RECORDS: Based on a continuous record of gage heights and the weir discharge table. Records available: May 1961 through 1968.

REMARKS: The flow of this stream is very uniform during periods of dry weather and is not modified by diversions or storage. Flows exceeding the capacity of the weir were estimated and are included in the tabulation below. In 1968, the flow of this stream exceeded the capacity of the weir only during one day in April and part of one day in April, May, June, and July. This station was established for investigational purposes in connection with Amistad Dam to determine what effect future storage in Amistad Reservoir will have on the flow of this stream. It is estimated that backwater from the Rio Grande will affect the flow at this station only during times of extremely high releases.

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.2	0.4	0.2	0.2	0.5	0.8	1.3	1.9	1.6	3.1	3.2	3.2
2	.2	.4	.2	.2	.5	.6	1.3	1.9	1.6	3.1	3.2	3.2
3	.2	.4	.2	.2	.5	.4	* 25.4	1.9	1.6	5.4	3.2	3.2
4	.2	.4	.2	.2	* 5.4	.4	3.3	1.9	1.6	3.5	3.2	3.2
5	.2	.4	.2	.2	3.7	.2	2.4	1.9	1.6	3.2	3.2	3.2
6	.2	.4	.2	.2	.6	.2	2.2	1.9	1.6	3.2	3.2	3.2
7	.2	.4	.2	.2	.5	.2	2.2	1.9	1.6	3.2	3.2	3.2
8	.2	.4	.2	.2	.5	.2	2.2	1.7	1.6	3.2	3.2	3.2
9	.2	.4	.2	.2	.5	.2	2.2	1.7	1.6	3.2	3.2	3.2
10	.4	.2	.2	.2	.5	.2	2.0	1.7	1.4	3.2	3.2	3.2
11	.4	.2	.4	.2	1.2	.6	2.0	1.6	1.6	3.2	3.2	3.2
12	.4	.2	.2	.2	.6	1.4	2.0	1.6	1.7	3.2	3.2	3.2
13	.4	.2	.2	.2	.5	1.3	2.0	1.6	1.7	3.2	3.2	3.2
14	.4	.2	.2	.2	.5	1.2	2.0	1.6	1.9	3.2	3.2	3.2
15	.4	.2	.2	.2	.4	1.3	2.0	1.6	1.9	3.2	3.2	3.2
16	.4	.2	.2	.2	.4	1.3	2.0	1.6	1.7	3.2	3.2	3.2
17	.4	.3	.2	.2	.4	* 7.2	2.0	1.6	1.7	3.2	3.2	3.2
18	.4	.4	.2	* 8.4	.2	1.6	2.0	1.6	1.7	3.2	3.2	3.2
19	.2	.5	.2	* 50.1	.2	1.4	2.0	1.6	1.7	3.2	3.2	3.2
20	.2	.4	.2	1.3	.2	1.4	1.9	1.6	1.9	3.1	3.2	3.2
21	.2	.2	.2	.8	.2	1.4	1.9	1.6	1.9	3.1	3.2	3.2
22	.2	.2	.2	.7	.2	1.4	1.9	1.9	2.2	3.1	3.2	3.2
23	.2	.2	.2	.6	.2	1.6	1.9	1.9	2.6	3.1	3.2	3.2
24	.2	.2	.2	.6	.2	1.6	1.9	1.9	3.0	3.1	3.2	3.2
25	.2	.2	.2	.6	.2	1.6	1.9	1.9	3.1	3.1	3.2	3.2
26	.2	.2	.2	.6	.2	1.6	1.9	1.9	3.2	3.1	3.2	3.2
27	.2	.2	.2	.6	.2	1.4	1.9	1.9	3.1	3.1	3.2	3.2
28	.2	.2	.2	.6	.2	1.4	1.7	1.9	3.1	3.1	3.2	3.2
29	.2	.2	.2	.6	.2	1.3	1.7	1.9	3.1	3.1	3.2	3.2
30	.2		.2	.5	.2	1.3	1.7	1.6	3.1	3.1	3.2	3.2
31	.4		.2		.2		1.7	1.6		3.2		3.1
Sum	8.2	8.4	6.4	* 69.4	* 20.0	36.7	* 84.5	54.4	61.7	100.4	96.0	99.1

Current Year 1968 — **Period #May 1961-1968**

Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
			High		Low				**		
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum
Jan.	0.10	0.07	† 10	0.4	† 1	0.2	0.3	17.3	21.9	36.9	15.2
Feb.	.23	.07	19	1.2	† 10	.2	.3	17.1	20.8	33.8	13.9
Mar.	.20	.07	11	1.1	† 1	.2	.2	14.2	21.4	39.9	14.2
Apr.		.07	18	u 195	† 1	.2	* 2.3	* 139	60.7		10.5
May		.07	4	u 97.8	† 18	.2	* .7	* 41.5	34.9		5.9
June		.07	17	u 61.8	† 5	.2	1.2	73.3	40.5		4.2
July		.23	3	u 103	† 1	1.3	* 2.7	* 168	37.8	* 168	4.4
Aug.	.30	.26	† 1	1.9	† 11	1.6	1.7	107	44.1		8.2
Sept.	.43	.26	26	3.2	10	1.4	2.0	122	64.3		13.1
Oct.	1.61	.43	3	25.7	† 1	3.1	3.2	200	63.3		12.1
Nov.	.43	.43	† 1	3.2	† 1	3.2	3.2	193	49.7	193	14.2
Dec.	.43	.43	† 1	3.2	31	3.1	3.2	199	45.2	199	15.2
Yearly		0.07		u 195		0.2	1.8	1,291.4	504.6		250.4

† And other days # *Some months missing* ** *See explanation in* REMARKS above u Estimated
* Partly estimated

ROSITA SPRING NEAR CD. ACUNA, COAHUILA

DESCRIPTION: Cipolletti weir of 3.5 second-foot capacity and staff gage located at the spring about 65 feet from the right bank of the Rio Grande at latitude 29° 21' 55", longitude 101° 00' 25", and about 5.5 miles northwest of Cd. Acuña, Coahuila. This spring, located in Mexico, enters the Rio Grande at river mile 560.4, 5.7 river miles upstream from the international highway bridge between Del Rio, Texas and Cd. Acuña, Coahuila, 7.1 river miles downstream from Amistad Dam, 7.7 river miles downstream from Devils River, and 687.8 river miles downstream from the American Dam at El Paso, Texas. The elevation of the zero of the gage has not been determined.

RECORDS: Based on weekly staff gage readings and the weir discharge table. Mean daily discharges determined by prorating between readings. Records available: November 17, 1961 through 1968.

REMARKS: The flow of this spring is very uniform during periods of dry weather and is not modified by diversions or storage. This station was established for investigational purposes in connection with Amistad Dam to determine what effect future storage in Amistad Reservoir will have on the flow of this spring.

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.1	0.1	0.1	0.1	0.1
2	.2	.2	.2	.2	.4	.2	.3	.1	.1	.1	.1	.1
3	.2	.2	.2	.2	.4	.2	.3	.1	.1	.1	.1	.1
4	.2	.2	.2	.2	.4	.2	.3	.1	.1	.1	.1	.1
5	.2	.2	.2	.2	.4	.2	.3	.1	.1	.1	0	.1
6	.2	.2	.2	.2	.4	.2	.2	.1	.1	.1	0	.1
7	.2	.2	.2	.2	.5	.2	.2	.1	.1	.1	0	.1
8	.2	.2	.2	.2	.5	.2	.2	.1	.1	.1	0	.1
9	.2	.2	.2	.2	.5	.2	.2	.1	.1	.1	0	.1
10	.2	.2	.2	.2	.5	.2	.2	.2	.1	.1	.1	.1
11	.2	.2	.2	.2	.5	.2	.2	.2	.1	.1	.1	.1
12	.2	.2	.2	.2	.5	.2	.2	.2	.1	.1	.1	.1
13	.2	.2	.2	.2	.4	.2	.2	.2	.1	.1	.1	.1
14	.2	.2	.2	.2	.4	.2	.2	.3	.1	.1	.1	.1
15	.2	.2	.2	.2	.3	.2	.2	.3	.1	.1	.1	.1
16	.2	.2	.2	.2	.3	.2	.2	.3	.1	0	.1	.1
17	.2	.2	.2	.2	.3	.2	.2	.3	.1	0	.1	.1
18	.2	.2	.2	.2	.3	.2	.2	.3	.1	0	.1	.1
19	.2	.2	.2	.2	.3	.2	.2	.2	.1	.1	.1	.1
20	.2	.2	.2	.2	.3	.2	.2	.2	.1	.1	.1	.1
21	.2	.2	.2	.2	.2	.3	.2	.2	.1	.1	.1	.1
22	.2	.2	.2	.3	.2	.3	.2	.2	.1	.1	.1	.1
23	.2	.2	.2	.3	.2	.3	.2	.2	.1	.1	.1	.1
24	.2	.2	.2	.3	.2	.3	.2	.1	.1	.1	.1	.1
25	.2	.2	.2	.3	.2	.3	.2	.1	.1	.1	.1	.1
26	.2	.2	.2	.3	.2	.3	.2	.1	.1	.1	.1	.1
27	.2	.2	.2	.3	.2	.3	.1	.1	.1	.1	.1	.1
28	.2	.2	.2	.3	.2	.3	.1	.1	.1	.1	.1	.1
29	.2	.2	.2	.3	.2	.3	.1	.1	.1	.1	.1	.1
30	.2		.2	.3	.2	.3	.1	.1	.1	.1	.1	.1
31	.2		.2		.2		.1	.1		.1		.1
Sum	6.2	5.8	6.2	6.9	10.1	7.0	6.2	5.0	3.0	2.8	2.5	3.1

Month	Extreme Gage Feet		Current Year 1968 ∅ Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Period #Dec. 1961-1968 Acre-Feet		
			High		Low						
	High	Low	Day		Day				** Average	Maximum	Minimum
Jan.			† 1	0.2	† 1	0.2	0.2	10.9	11.9	15.2	10.9
Feb.			† 1	.2	† 1	.2	.2	10.1	10.4	13.7	8.1
Mar.			† 1	.2	† 1	.2	.2	10.9	11.3	15.2	7.8
Apr.			† 22	.3	† 1	.2	.2	13.3	11.7	14.7	10.1
May			† 7	.5	† 21	.2	.4	20.8	14.3		10.9
June			† 21	.3	† 1	.2	.3	15.8	13.0	17.3	10.5
July			† 1	.3	† 27	.1	.2	12.1	12.5	16.2	10.9
Aug.			† 14	.3	† 1	.1	.2	10.5	11.3	13.6	8.4
Sept.			† 1	.1	† 1	.1	.1	6.3	12.5		6.3
Oct.			† 1	.1	† 16	0	.1	5.5	12.0	18.1	5.5
Nov.			† 1	.1	† 5	0	.1	4.9	10.1	13.5	4.9
Dec.			† 1	.1	† 1	.1	.1	6.5	12.2	19.5	6.5
Yearly				0.5		0	0.2	127.6	143.2		124.3

† And other days ** See explanation in REMARKS above # Some months missing ∅ Mean daily

CANTU SPRING ON CIENEGAS CREEK NEAR DEL RIO, TEXAS

DESCRIPTION: Gravity well and water-stage recorder located in a concrete enclosure in the channel of a small tributary to Cienegas Creek at latitude 29° 23' 15", longitude 100° 56' 00", about 2.5 miles northwest of Del Rio, Texas, and 3.5 creek miles from the confluence with the Rio Grande. The spring is isolated from surface runoff by the concrete enclosure and discharges through an opening near its top into the creek. Cienegas Creek enters the Rio Grande at river mile 556.6, 1.9 river miles upstream from the international highway bridge between Del Rio, Texas and Cd. Acuña, Coahuila, and 691.6 river miles downstream from the American Dam at El Paso, Texas. The elevation of the zero of the gage has not been determined.

RECORDS: Based on 40 discharge measurements during the year and a continuous record of gage heights. Records available: March 1961 through 1968.

REMARKS: The flow of this spring is very uniform and is not modified by diversions or storage. A weir was installed on May 24, 1961 and removed November 21, 1962. Flows of 0.05 second-foot or less are shown as zero in the discharge tabulations; however, the monthly volumes in the annual and period summary are based on the sum of mean daily discharges computed to the nearest hundredth of a second-foot when the mean daily flow is less than 0.1 second-foot. This station was established for investigational purposes in connection with Amistad Dam to determine what effect future storage in Amistad Reservoir will have on the flow of this spring.

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	0	0	* 0	0.1	0.4	0.3	0 0	0 0	* 0.3	0.9
2	0	0	0	0	0	.1	* .4	.2	0 0	*0 0	.3	.9
3	* 0	0	0	* 0	0	.1	.5	.2	0 0	0 0	.4	1.0
4	0	0	0	0	0	.1	.6	.2	0 0	0 0	.4	* 1.0
5	0	0	0	0	0	* .1	.6	.2	* 0 0	0 0	.4	1.0
6	0	0	0	0	0	.1	.7	.1	0 0	0 0	* .4	1.0
7	0	* 0	* 0	0	0	.1	.8	* .1	0 0	.1	.4	1.0
8	0	0	0	0	* 0	.1	.8	.1	0 0	.1	.4	1.0
9	0	0	0	0	0	.2	.9	.1	0 0	.1	.4	1.0
10	0	0	0	0	0	.2	* 1.0	.1	0 0	.1	.4	1.0
11	0	0	0	0	0	.2	.9	.1	0 0	.1	.5	* 1.0
12	0	0	0	0	0	* .2	.9	.1	0 0	.1	.5	1.1
13	0	0	0	0	0	.2	.8	.1	0 0	.1	.5	1.2
14	0	0	0	0	0	.3	.7	* .1	0 0	.1	* .5	1.3
15	0	0	0	0	* 0	.3	.6	.1	0 0	.1	.5	1.4
16	* 0	0	0	0	0	.4	.6	.1	0 0	.1	.5	1.5
17	0	0	0	* 0	0	.4	* .5	.1	0 0	.1	.5	1.6
18	0	0	0	0	0	.5	.5	.1	* 0 0	.2	.6	* 1.7
19	0	0	0	0	0	* .5	.5	.1	0 0	.2	.6	1.6
20	0	0	* 0	0	0	.5	.5	0 0	0 0	.2	* .6	1.6
21	0	* 0	0	0	0	.5	.4	0 0	0 0	.2	.6	1.5
22	0	0	0	0	* 0	.5	.4	*0 0	0 0	.2	.7	1.4
23	0	0	0	0	0 0	.5	.4	0 0	0 0	* .2	.7	1.4
24	* 0	0	0	* 0	0 0	.5	.4	0 0	0 0	.2	.7	1.3
25	0	0	0	0	0 0	.5	.4	0 0	0 0	.2	.7	1.3
26	0	0	0	0	0 0	.5	.4	0 0	0 0	.2	.8	* 1.2
27	0	0	* 0	0	.1	.5	.4	0 0	0 0	.3	* .8	1.2
28	0	0	0	0	.1	* .5	.3	0 0	0 0	.3	.8	1.2
29	0	0	0	0	.1	.5	.3	0 0	0 0	.3	.9	1.2
30	0		0	0	.1	.4	.3	0 0	0 0	.3	.9	1.2
31	* 0		0		* .1		* .3	0 0		.3		1.2
Sum	0	0	0	0	0.5	9.6	17.2	2.5	0	4.4	16.7	37.9

Month	Current Year 1968							Period Mar. 1961-1968		
	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet		
			High		Low			Average	Maximum	Minimum
	High	Low	Day		Day					
Jan.				0		0	0	0	96.0	201	0
Feb.				0		0	0	0	73.7	178	0
Mar.				0		0	0	0	77.5	184	0
Apr.				0		0	0	0	73.8	195	0
May	1.30		†27	.1	† 1	0	0 0	1.0	78.1	225	0
June	1.65	1.30	†18	.5	† 1	.1	.3	19.0	82.0	199	0
July			10	1.0	†28	.3	.6	34.1	72.0	167	0
Aug.			1	.3	†29	0 0	.1	5.4	75.3	205	0
Sept.	1.20	1.10	†16	0 0	† 1	0 0	0 0	1.9	81.1	193	0
Oct.	2.40	1.15	†27	.3	† 1	0 0	.1	8.8	92.1	196	0
Nov.	2.04	1.41	†29	.9	† 1	.3	.6	33.1	88.6	186	0
Dec.	1.68	1.60	18	1.7	† 1	.9	1.2	75.2	96.4	193	0
Yearly				1.7		0	0.2	178.5	986.6	2,194	0

* Discharge measurement made on this day 0 Flow ranged from 0.005 to 0.05 second-foot
0 Mean daily † And other days

BRIGGS FARM DITCH NEAR DEL RIO, TEXAS
(DIVERSIONS FROM CIENEGAS CREEK)

DESCRIPTION: Gravity well and water-stage recorder located on the right bank of a concrete flume at latitude 29° 21' 40", longitude 100° 56' 30", 2,900 feet from the ditch intake which branches off the right bank of Cienegas Creek immediately upstream from a small diversion dam across the creek, and about 2.5 miles west of Del Rio, Texas. The point of diversion is 1.8 creek miles from the confluence with the Rio Grande. Cienegas Creek enters the Rio Grande at river mile 556.6, 1.9 river miles upstream from the international highway bridge between Del Rio, Texas and Cd. Acuña, Coahuila, and 691.6 river miles downstream from the American Dam at El Paso, Texas. The elevation of the zero of the gage has not been determined.

RECORDS: Based on 49 discharge measurements and a continuous record of gage heights. Computations by shifting control methods. Records available: March 1965 through 1968. Discharge measurement data available since November 1962.

REMARKS: Water from Cienegas Creek is diverted into this ditch for irrigation use. The source of this water is from springs. Flows of 0.05 second-foot or less are shown as zero in the discharge tabulations; however, the monthly volumes in the annual and period summary are based on the sum of mean daily discharges computed to the nearest hundredth of a second-foot when the mean daily flow is less than 0.1 second-foot. Storm flow entering the ditch is deducted and is not included in the tabulation below. Except at times when other small diversions from Cienegas Creek occur, the total yield of the springs may be determined by combining the flow shown in the tabulation below with that passing the Cienegas Creek Station shown on the following page. There were no other appreciable diversions from Cienegas Creek in 1968. This station was established for investigational purposes in connection with Amistad Dam to determine what effect future storage in Amistad Reservoir will have on the flow of these springs. The recorder was installed on March 1, 1965, and the concrete flume on March 15, 1968.

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	ϑ 0	0	0	0.9	0.9	0.7	0.6	1.1	0.9	2.0	2.3	3.3
2	ϑ 0	0	0	.9	.9	.7	✱ .6	1.1	.9	✱ 2.1	2.3	3.2
3	✱ϑ 0	0	0	✱ .9	.8	.7	.7	1.1	.9	2.1	2.4	3.1
4	ϑ 0	0	0	.9	.8	.7	.7	1.1	.9	2.2	2.4	✱ 3.0
5	ϑ 0	0	✱ 0	.9	.8	✱ .7	.8	1.0	✱ .9	2.2	2.5	3.0
6	.1	0	0	.9	.8	.7	.8	1.0	.9	2.2	✱ 2.5	2.9
7	.1	✱ 0	0	.8	.7	.7	.9	✱ 1.0	.9	2.2	2.5	2.9
8	.1	0	0	.8	.7	.7	1.0	1.1	.9	2.3	2.5	2.9
9	✱ .1	0	1.0	.8	✱ .7	.6	1.0	1.2	.9	✱ 2.3	2.5	2.9
10	.1	0	1.5	✱ .8	.7	.6	✱ 1.1	1.3	.9	2.3	2.6	2.8
11	.1	0	1.5	.8	.7	.6	1.1	1.3	✱ .9	2.3	2.6	✱ 2.8
12	.1	0	.6	.7	.7	✱ .6	1.0	1.4	1.0	2.3	2.6	2.8
13	.1	0	0	.7	.7	.6	1.0	1.5	1.0	2.2	2.6	2.8
14	.1	✱ 0	✱ 0	.6	.7	.6	1.0	✱ 1.6	1.1	2.2	✱ 2.6	2.8
15	.1	0	.2	.6	✱ .7	.6	1.0	1.6	1.2	2.2	2.6	2.8
16	✱ .1	0	.6	.5	.7	.6	.9	1.5	1.3	2.2	2.6	2.8
17	ϑ 0	0	.6	✱ .5	.7	.6	✱ .9	1.5	1.3	2.2	2.6	2.8
18	ϑ 0	0	.6	.6	.7	.6	1.0	1.4	✱ 1.4	2.2	2.7	✱ 2.8
19	ϑ 0	0	.6	.7	.6	✱ .6	1.0	1.4	1.4	2.2	2.7	2.7
20	ϑ 0	0	✱ .6	.8	.6	.6	1.1	1.3	1.4	2.1	✱ 2.7	2.6
21	ϑ 0	✱ 0	.8	.8	.6	.6	1.1	✱ 1.3	1.4	2.1	2.8	2.6
22	ϑ 0	0	.8	.9	✱ .6	.6	1.2	1.2	1.3	2.1	3.0	2.5
23	ϑ 0	0	.8	1.0	.6	.6	1.2	1.2	1.3	✱ 2.1	3.1	2.4
24	✱ϑ 0	0	.8	✱ 1.1	.6	.5	✱ 1.3	1.1	1.3	2.1	3.2	2.4
25	ϑ 0	0	.8	1.1	.6	.5	1.3	1.1	✱ 1.3	2.1	3.3	2.3
26	ϑ 0	0	.8	1.0	.7	.5	1.3	1.0	1.4	2.1	3.5	✱ 2.2
27	0	0	✱ .8	1.0	.7	.5	1.2	1.0	1.5	2.2	✱ 3.6	2.3
28	0	✱ 0	.8	1.0	.7	✱ .5	1.2	✱ .9	1.6	2.2	3.5	2.3
29	0	0	.8	.9	✱ .7	.5	1.2	.9	1.8	2.2	3.4	2.4
30	0		.8	✱ .9	.7	.6	1.2	.9	1.9	✱ 2.2	3.3	2.5
31	✱ 0		.8		.7		✱ 1.2	.9		2.2		2.6
Sum	1.1	0	16.6	24.8	21.8	18.2	31.6	37.0	35.8	67.6	83.5	84.2

Month	Current Year 1968 Extreme Gage Feet High	Extreme Gage Feet Low	ϑ Extreme Second-Feet High Day	High	Low Day	Low	Average Second-Feet	Total Acre-Feet	Period Mar. 1965-1968 Acre-Feet Average	Maximum	Minimum
Jan.	0.57		† 6	0.1	†27	0	ϑ 0	2.5	90.8	202	2.5
Feb.			0		0	0	0	0	78.7	151	0
Mar.	.56		†10	1.5	† 1	0	.5	32.9	130	200	32.9
Apr.	.87	0.50	†24	1.1	†16	.5	.8	49.2	110	177	49.2
May	1.00	.40	† 1	.9	†19	.6	.7	43.2	84.7	158	27.6
June	.68	.40	† 1	.7	†24	.5	.6	36.1	43.7	107	7.1
July	1.06	.59	†24	1.3	† 1	.6	1.0	62.7	85.2	134	62.7
Aug.	1.06	.62	†14	1.6	†28	.9	1.2	73.4	49.7	74.2	9.5
Sept.	.98	.64	30	1.9	† 1	.9	1.2	71.0	65.6	133	26.2
Oct.	1.36	.90	† 8	2.3	1	2.0	2.2	134	92.3	200	17.1
Nov.	1.20	.92	27	3.6	† 1	2.3	2.8	166	174	280	20.6
Dec.	1.11	.98	1	3.3	26	2.2	2.7	167	141	206	2.9
Yearly	1.36			3.6		0	1.2	838.0	1,145.7	1,372.7	838.0

✱ Discharge measurement made on this day ϑ Flow ranged from 0.005 to 0.05 second-foot
ϑ Mean daily † And other days

CIENEGAS CREEK NEAR DEL RIO, TEXAS

DESCRIPTION: Gravity well and water-stage recorder located on the downstream side of the left abutment of the Cienegas Road bridge at latitude 29° 21' 35", longitude 100° 56' 20", 1.1 creek miles from the confluence with the Rio Grande, and about 2.5 miles west of Del Rio, Texas. This stream enters the Rio Grande at river mile 556.6, 1.9 river miles upstream from the international highway bridge between Del Rio, Texas and Cd. Acuña, Coahuila, and 691.6 river miles downstream from the American Dam at El Paso, Texas. The elevation of the zero of the gage has not been determined.

RECORDS: Based on 51 discharge measurements and a continuous record of gage heights. Computations by shifting control methods. *Records available: March 1965 through 1968. Discharge measurement data available since November 1962.* Records are also available from September 1931 through June 1935 for a station 0.9 creek mile downstream.

REMARKS: Low flow of this stream is from springs, one of which is Cantu Spring whose discharge is shown on page 37. The flow of this stream is modified by irrigation diversions through the Briggs Farm ditch 0.8 creek mile upstream and, occasionally, by other smaller diversions upstream. During 1968, there were no appreciable diversions from the creek, other than through the Briggs Farm ditch (see preceding page). All storm flow passing this station is deducted and is not included in the tabulation below. The total yield of the springs may be determined by combining the flow passing this station with the diversions through the Briggs Farm ditch. This station was established for investigational purposes in connection with Amistad Dam to determine what effect future storage in Amistad Reservoir will have on the flow of these springs. The recorder was installed on March 9, 1965.

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2.5	1.3	1.8	0.6	0.7	1.1	0.4	0.4	0.2	0.2	0.3	0.9
2	2.3	1.0	1.6	.6	.7	1.1	↟ .4	.3	.3	↟ .2	.3	.9
3	↟ 2.3	1.3	1.3	↟ .6	.7	1.2	.5	.3	.3	.2	.3	1.0
4	1.9	1.5	1.5	.5	.8	1.2	1.3	.3	.3	.2	.3	↟ 1.0
5	1.6	1.4	↟ 1.5	.5	.8	↟ 1.3	3.2	.3	↟ .3	.2	.3	1.0
6	1.5	1.4	1.5	.4	.8	1.3	4.4	.2	.3	.3	↟ .3	.9
7	1.3	↟ 1.4	1.5	.6	.8	1.2	4.5	↟ .2	.3	.3	.3	.9
8	2.3	1.2	1.5	.6	.8	1.2	4.4	.2	.2	.3	.3	.9
9	↟ 2.4	1.3	1.4	.6	↟ .7	1.1	3.7	.2	.2	↟ .3	.3	.9
10	2.4	1.6	1.2	↟ .5	.9	1.1	↟ 2.8	.2	.2	.3	.4	.8
11	2.4	1.8	1.4	.6	1.0	1.0	2.6	.2	↟ .2	.3	.4	↟ .8
12	2.3	1.6	1.6	.6	2.5	↟ 1.0	2.0	.2	.2	.3	.4	.9
13	2.2	1.7	↟ 1.4	.6	2.3	1.0	2.0	.2	.2	.3	.4	.9
14	1.7	↟ 2.1	1.4	.5	2.0	.9	2.1	↟ .2	.2	.3	↟ .4	1.0
15	2.2	1.7	1.4	.5	↟ 1.8	.9	2.0	.2	.2	.3	.4	1.0
16	↟ 2.8	1.2	1.3	.5	1.6	.8	2.1	.2	.2	.3	.4	1.1
17	2.8	2.4	1.1	↟ .5	1.4	.8	↟ 1.9	.2	.2	.2	.3	1.1
18	2.5	2.6	1.2	.5	1.3	.7	1.4	.1	↟ .2	.2	.3	↟ 1.2
19	2.6	2.9	1.0	1.8	1.2	↟ .7	.9	.1	.2	.2	.3	1.2
20	2.4	2.5	↟ .9	2.6	1.1	.7	.9	.1	.2	.2	↟ .3	1.2
21	2.4	↟ 2.0	.8	2.0	1.1	.6	.8	↟ .1	.2	.2	.4	1.2
22	2.2	1.8	.7	1.5	↟ .9	.6	.7	.1	.2	.2	.4	1.2
23	2.0	1.8	.6	1.4	.9	.6	.5	.1	.2	↟ .2	.5	1.1
24	↟ 1.9	1.9	.6	↟ 1.3	.9	.5	↟ .4	.1	.2	.2	.5	1.1
25	1.9	1.9	.6	1.1	.9	.5	.5	.2	↟ .2	.2	.6	1.1
26	1.7	1.6	.7	.9	.9	.4	.4	.2	.2	.2	.6	↟ 1.1
27	1.7	1.3	↟ .7	.9	.9	↟ .4	.4	.2	.2	.3	↟ .7	1.1
28	2.0	↟ 1.6	.7	.9	.9	.4	.5	↟ .2	.2	.3	.7	1.1
29	2.1	1.6	.7	.8	↟ .9	.5	.5	.2	.2	↟ .3	.8	1.1
30	2.2		.7	↟ .8	.7	.5	.4	.2	.2	.3	.8	1.2
31	↟ 2.3		.7		.5		↟ .3	.2		.3		1.2
Sum	66.8	49.4	35.0	25.8	33.4	25.3	48.9	6.1	6.6	7.8	12.7	32.1

Month	Current Year 1968								Period Mar. 1965-1968		
	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
			High		Low				Average	Maximum	Minimum
	High	Low	Day		Day						
Jan.	1.27	1.07	16	3.5	† 7	1.3	2.2	132	189	260	132
Feb.	1.43	1.02	19	ø 2.9	27	.9	1.7	98.0	157	205	98.0
Mar.	1.13	.83	1	1.9	23	.4	1.1	69.4	140	219	69.4
Apr.	4.32	.77	20	ø 2.6	† 6	.4	.9	51.2	114	245	48.0
May	1.54	.81	12	ø 2.5	31	.5	1.1	66.2	157	287	66.2
June	.98	.80	† 5	ø 1.3	†26	ø .4	.8	50.2	138	250	14.7
July	2.35	.73	7	ø 4.5	31	.3	1.6	97.0	71.8	111	7.5
Aug.	.74	.67	1	ø .4	†18	ø .1	.2	12.1	98.3	220	6.5
Sept.	.74	.68	† 2	ø .3	† 1	ø .2	.2	13.1	126	200	13.1
Oct.	.77	.68	† 6	ø .3	† 1	ø .2	.3	15.5	130	262	15.5
Nov.	.98	.74	†29	ø .8	† 1	ø .3	.4	25.2	88.0	131	25.2
Dec.	1.47	.89	†18	ø 1.2	†10	ø .8	1.0	63.7	123	155	63.7
Yearly	4.32	0.67		ø 4.5		ø 0.1	1.0	693.6	1,532.1	‡ 2,038	693.6

↟ Discharge measurement made on this day ø Mean daily † And other days
‡ Period March through December 1965

ARROYO LAS VACAS AT CD. ACUNA, COAHUILA

DESCRIPTION: Concrete wall with a 90° V-notch weir of 353 second-foot capacity, gravity well, and water-stage recorder located on the left bank at Cd. Acuña, Coahuila, latitude 29° 19' 45", longitude 100° 57' 20", and 1.8 creek miles from the confluence with the Rio Grande. This stream enters the Rio Grande at river mile 554.7, on the upstream side of the international highway bridge between Del Rio, Texas and Cd. Acuña, Coahuila, 12.8 river miles downstream from Amistad Dam, and 693.5 river miles downstream from the American Dam at El Paso, Texas. The zero of the gage is 885.82 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on one discharge measurement during the year, a stable rating curve up to 353 second-feet, which is the capacity of the weir, and a continuous record of gage heights. Computations by shifting control methods for flows exceeding the capacity of the weir. The capacity of the weir was exceeded only for a few hours on April 18 and 19, June 17, and July 3, 1968. Records available: Occasional estimates from June 1935 to March 19, 1938 and a continuous record from March 20, 1938 through 1968.

REMARKS: Low flow of this stream is from springs and is modified by irrigation diversions upstream. On June 17, 1961, a flood destroyed the station leaving the control wall under several feet of silt. The station was reconstructed in September and a V-notch weir with a capacity of 353 second-feet, constructed at this station, started operating December 14, 1961. On June 28, 1954, backwater from the Rio Grande reached an elevation of 902.49 feet at this station. Records prior to 1965 were published under the title "Arroyo Las Vacas near Cd. Acuña, Coahuila."

EXTREME FLOWS FROM RECORDS: Momentary: Max. 63,570 second-feet with a gage height of 25.26 feet on June 17, 1961. Min. no flow several occasions in 1956, 1957, 1960, 1961, and September 1, 1967.

Average Flow in Second-Feet ‡

Daily:	Max.	23,940	June 17, 1961	Min.	0	Several days Dec. 1956, Jan. 1957, & Sept. 1, 1967
Monthly:	Max.	1,050	June 1961	Min.	0.4	Several months 1952, 1953, & 1954
Yearly:	Max.	96.7	1961	Min.	2.8	1952

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2.8	3.5	3.2	4.2	2.8	2.1	1.1	1.1	1.1	0.7	0.4	0.7
2	2.8	3.5	2.8	3.9	2.8	2.1	1.1	1.1	1.1	.7	.4	.7
3	2.8	3.5	2.8	3.9	2.8	1.8	103	1.1	1.1	.7	.4	.4
4	2.8	3.5	2.8	3.5	2.8	1.4	7.1	1.1	.7	.7	.4	.4
5	2.8	3.5	2.8	3.5	2.8	1.4	3.9	1.1	.7	.7	.4	.7
6	2.8	3.5	2.8	3.5	2.8	1.4	3.2	1.1	.7	.7	.4	.4
7	2.8	3.5	2.8	3.2	2.8	1.4	3.2	1.1	.7	.4	.4	.4
8	2.8	3.5	2.8	3.2	2.8	1.4	2.8	1.1	.7	.7	.4	.4
9	2.8	3.2	2.8	2.8	2.8	1.4	2.1	1.1	.7	14.1	.4	.7
10	2.8	3.2	3.9	2.8	2.8	1.4	2.1	1.1	.7	1.1	.4	.7
11	2.8	3.2	4.9	2.8	3.2	1.4	1.8	.7	.7	1.1	.4	.7
12	2.8	2.8	3.5	2.8	3.2	1.4	1.8	.7	.7	1.1	.4	.7
13	2.8	2.8	3.5	2.8	3.2	1.4	1.8	.7	.7	.7	.4	.7
14	2.8	2.8	3.9	2.8	2.8	1.4	1.4	.7	.7	1.1	.4	.7
15	2.8	2.8	3.9	2.8	2.8	1.4	1.4	1.1	.7	.7	.7	.7
16	2.8	2.8	4.2	2.8	2.8	1.1	1.4	.7	.7	.7	.4	.7
17	2.8	3.5	4.2	2.8	2.8	87.2	1.4	.7	.4	.7	.4	.7
18	2.8	4.6	4.9	148	2.5	3.9	1.4	1.1	.7	.7	.4	.7
19	3.2	4.2	4.9	♦ 537	2.5	2.5	1.4	1.1	.7	.7	.4	.7
20	3.2	3.5	4.2	10.6	2.5	2.5	1.4	.7	.4	.4	.4	.7
21	3.2	3.2	4.2	5.3	2.5	2.1	1.4	.7	.7	.4	.4	.7
22	3.2	2.8	4.2	4.2	2.5	2.1	1.4	.7	.4	.4	.4	.7
23	3.2	2.8	4.2	3.5	2.5	1.8	1.1	.7	.4	.4	.4	.7
24	3.2	2.8	4.2	3.5	2.5	1.8	1.1	.7	.4	.4	.4	.7
25	3.5	2.8	4.9	3.5	2.5	1.8	1.1	.7	.4	.4	.4	.7
26	3.5	2.8	4.9	3.5	2.5	1.4	1.1	.7	.4	.4	.4	.7
27	3.5	2.8	5.3	3.2	2.1	1.8	1.1	.7	.4	.4	1.1	.7
28	3.5	2.8	5.3	3.2	2.1	1.8	1.1	.7	.4	.4	.7	.7
29	3.5	2.8	5.3	3.5	2.1	1.8	1.1	.7	.7	.4	.4	.4
30	3.5		5.7	3.2	2.1	1.1	1.1	.7	.7	.4	10.6	.4
31	3.5		5.7		2.1		1.1	.7		.4		.4
Sum	94.1	93.0	125.5	786.3	81.8	137.5	157.5	26.9	19.5	32.8	23.5	19.3

Current Year 1968									Period 1938-1968		
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
	High	Low	High Day	High	Low Day	Low			Average	Maximum	Minimum
Jan.	0.49	0.33	8	7.1	7	2.5	3.2	188	337	910	31.5
Feb.	.66	.33	18	15.2	15	2.5	3.2	186	508	5,950	33.3
Mar.	.62	.33	10	13.1	† 1	2.8	4.2	250	597	2,600	59.2
Apr.	5.35	.33	18	3,850	† 9	2.8	26.1	1,561	1,416	16,610	75.4
May	.43	.30	11	5.3	† 27	2.1	2.5	162	1,502	9,080	90.0
June	2.66	.23	17	572	† 16	1.1	4.6	271	3,126	62,520	43.8
July	2.95	.23	3	784	† 1	1.1	4.9	311	995	8,230	26.8
Aug.	.26	.16	† 1	1.4	28	.4	.7	52.7	628	3,850	42.2
Sept.	.23	.16	† 1	1.1	† 17	.4	.7	38.1	2,969	49,566	37.3
Oct.	1.77	.16	9	179	† 7	.4	1.1	64.0	1,183	9,390	22.6
Nov.	1.15	.13	30	60.7	† 1	.4	.7	43.8	322	1,670	21.0
Dec.	.20	.16	† 1	.7	† 3	.4	.7	38.1	295	780	22.0
Yearly	5.35	0.13		3,850		0.4	4.2	3,165.7	13,878	70,026.3	2,066.7

† And other days ‡ Period 1938-1968 ♦ Discharge measurement made on this day

RIO GRANDE AT DEL RIO, TEXAS

DESCRIPTION: Gravity well, concrete control weir, water-stage recorders (graphic and digital), and binary decimal transmitter located on the right bank 1,200 feet upstream from the international highway bridge between Del Rio, Texas and Cd. Acuña, Coahuila at latitude 29° 19' 35", longitude 100° 55' 50", and river mile 554.9; 12.6 river miles downstream from Amistad Dam, and 693.3 river miles downstream from the American Dam at El Paso, Texas. The zero of the gage is 869.20 feet above mean sea level, *U. S. C. & G. S. datum*.

RECORDS: Based on 87 discharge measurements during the year, 84 by the United States Section and 3 by the Mexican Section of this Commission, and a continuous record of gage heights. Computations for high flow by shifting control methods. Low and medium flow computations based on a stable control weir rating curve defined by meter measurements. Records available: December 1923 through July 2, 1941 and 1968. Records are also available from May 1900 through April 1915 for a station 12.2 miles upstream; from December 1919 through March 1920 for a station 8.7 miles upstream near McKee's Switch; from July 2, 1941 through 1954 and October 1960 through 1967 for a station 1,200 feet downstream at the international highway bridge; and from September 1954 through 1968 for a station, Rio Grande below Amistad Dam, 10.4 miles upstream.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station. Except for tributary inflows and small intervening diversions below Amistad Dam, flow at this station, after May 31, 1968 when Amistad Dam began impounding water, is controlled largely by releases from Amistad Reservoir, 12.6 river miles upstream. Mean daily discharges from January 1 to February 8, 1968 are the discharges at Rio Grande near Del Rio station less Arroyo Las Vacas flow. The concrete control weir was placed in operation on February 8, 1968. The transmitter, operated in cooperation with the United States Weather Bureau, relays gage height data upon interrogation by telephone via commercial circuits.

EXTREME FLOWS FROM RECORDS: The greatest recorded flow of 1,140,000 second-feet occurred on June 28, 1954, with a gage height of 38.25 feet at a station 1,200 feet downstream. This peak flow was deduced by subtracting 18,000 second-feet from the peak discharge which occurred below Amistad Dam Site, 10.5 miles upstream. This subtraction was for estimated flattening of the flood wave in traveling between these points. The lowest recorded flow was 94.2 second-feet which occurred July 13, 1968, with a gage height of 1.31 feet.

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,500	✝1,210	1,030	✝ 966	1,070	✝ 737	✝ 929	1,380	1,530	✝1,500	1,300	1,750
2	✝1,490	1,160	1,030	✝1,500	✝ 1,050	1,170	943	✝ 1,390	1,530	1,500	1,650	1,720
3	1,500	1,140	1,030	1,490	1,110	✝ 1,220	1,460	1,400	1,520	1,530	1,650	✝1,700
4	1,500	1,130	✝1,010	1,310	1,490	1,190	2,670	1,390	✝ 1,400	1,580	1,650	1,720
5	✝1,550	✝1,110	1,030	1,170	1,490	1,170	2,380	1,410	1,400	1,550	✝1,680	1,720
6	1,560	1,100	1,050	1,050	✝ 1,220	✝ 1,280	1,400	✝ 1,390	1,400	1,550	1,680	1,700
7	1,540	1,090	✝1,030	1,010	1,140	1,500	1,400	1,410	1,420	1,550	1,680	1,700
8	1,570	✝1,100	1,040	✝ 988	1,110	1,670	✝ 1,400	1,410	1,440	✝1,480	1,680	1,700
9	✝1,620	1,070	1,040	974	1,180	1,520	1,420	✝ 1,410	1,450	1,380	1,680	1,700
10	1,540	1,080	1,040	1,210	1,180	✝ 1,410	1,300	1,430	✝ 1,450	1,380	1,680	✝1,700
11	1,550	1,100	✝1,090	1,280	5,220	1,320	1,020	1,430	1,460	1,380	1,680	1,700
12	✝1,560	✝1,090	1,030	1,060	3,650	1,220	810	1,440	1,470	1,410	✝1,680	1,700
13	1,550	1,120	968	1,160	5,520	1,130	✝ 243	✝ 1,440	1,490	1,410	1,680	1,670
14	1,610	1,120	1,000	1,120	2,560	1,060	✝ 695	1,450	1,490	1,380	1,680	1,670
15	✝1,600	✝1,120	1,020	✝2,220	1,900	1,070	832	1,450	1,480	✝1,380	1,680	1,700
16	1,590	1,090	1,030	2,220	✝ 1,570	1,090	✝ 917	1,440	1,480	1,380	1,660	1,700
17	1,540	1,150	1,020	1,790	1,500	✝ 1,400	975	1,410	1,490	1,380	1,690	✝1,700
18	✝1,490	1,170	✝1,010	1,600	1,370	1,630	983	1,440	✝ 1,500	1,380	1,690	1,670
19	1,450	✝1,230	1,020	8,560	1,300	1,550	987	1,480	1,500	1,380	✝1,700	1,670
20	1,460	1,200	✝1,450	2,040	✝ 1,260	1,430	984	✝ 1,470	1,510	1,380	1,700	1,670
21	1,470	1,190	1,130	1,510	1,220	1,300	987	1,490	1,520	1,380	1,700	1,240
22	✝1,430	1,100	1,040	1,390	1,210	1,290	1,140	1,490	1,540	1,380	1,720	1,570
23	1,370	✝1,120	1,020	1,450	1,200	1,230	✝ 1,440	1,500	1,550	1,380	1,700	1,650
24	1,300	1,150	1,010	1,280	✝ 1,850	✝ 1,130	✝ 1,320	1,500	1,550	1,380	1,700	✝1,700
25	✝1,280	1,150	✝1,020	✝1,190	1,870	1,050	1,320	1,510	✝ 1,450	1,380	1,700	1,700
26	1,270	✝1,130	1,020	1,140	1,780	1,000	1,330	1,520	1,460	1,380	✝1,700	1,320
27	1,260	1,090	1,010	1,130	✝ 1,640	980	1,340	✝ 1,520	1,480	1,380	1,720	1,160
28	1,260	1,100	996	1,110	1,420	958	1,340	1,530	1,480	1,380	1,720	1,160
29	✝1,240	✝1,060	994	1,100	1,290	938	1,360	1,530	1,490	✝1,380	1,750	1,160
30	1,220		984	1,080	1,200	920	✝ 1,370	1,530	1,500	1,380	1,750	1,160
31	1,220		974		✝ 1,020		1,380	1,540		1,380		✝1,160
Sum	45,090	32,670	32,166	47,048	53,530	36,563	38,077	45,130	44,430	44,040	50,330	48,940

Month	Current Year 1968							Period #1961-1968		
	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet		
			High		Low					
	High	Low	Day		Day			Average	Maximum	Minimum
Jan.			9	ø 1,620	†30	ø1,220	1,450	89,436	101,417	140,534	84,965
Feb.	2.04		21	1,290	29	ø1,060	1,130	64,801	84,130	114,720	64,801
Mar.	2.35	1.87	20	2,080	† 4	941	1,040	63,801	83,500	105,835	63,801
Apr.	4.48	1.87	19	13,500	† 1	941	1,570	93,320	91,854	148,509	67,492
May	3.95	1.45	11	9,640	31	233	1,730	106,177	102,291	146,421	64,938
June	2.22	1.41	† 7	1,730	1	186	1,220	72,523	183,114	376,480	72,523
July	2.62	1.31	3	2,900	13	94.2	1,230	75,526	133,006	233,470	75,526
Aug.	2.15	2.05	31	1,550	† 1	1,310	1,460	89,515	146,035	274,709	80,287
Sept.	2.17	2.08	24	1,600	† 4	1,380	1,480	88,127	358,674	1,137,598	88,127
Oct.	2.22	2.05	4	1,730	15	1,310	1,420	87,353	161,556	266,720	87,353
Nov.	2.23	1.72	30	1,770	1	712	1,680	99,830	106,231	125,807	76,038
Dec.	2.22	1.37	† 1	1,750	†21	206	1,580	97,072	100,126	118,174	83,308
Yearly	4.48	1.31		13,500		94.2	1,420	1,027,481	1,651,934	2,393,402	1,027,481

✝ Discharge measurement made on this day ø Mean daily † And other days

* Values prior to February 1968 are Rio Grande near Del Rio discharges less Arroyo Las Vacas flow

SAN FELIPE SPRINGS AT DEL RIO, TEXAS

DESCRIPTION: Two large and at least two smaller springs rise near the northeast city limits of Del Rio, Texas in or near the channel of San Felipe Creek at latitude 29° 22' 20" and longitude 100° 53' 00". The total yield of these springs consists of waters measured in the Val Verde Canal at Del Rio, Texas and in San Felipe Creek at Moore Park, Del Rio, Texas, and diversions by the City of Del Rio. Diversions by the San Felipe Irrigation Company through the Val Verde Canal are measured at a gaging station consisting of a paved measuring section and gravity well and water-stage recorder located on the left side of the canal under the U. S. Highway 277 Bridge across San Felipe Creek at latitude 29° 21' 55" and longitude 100° 53' 10". The bridge is located about 0.6 creek mile downstream from the source of the springs and 2.9 creek miles from the confluence of the creek with the Rio Grande. The gaging station on San Felipe Creek at Moore Park consists of gravity well and water-stage recorder located on the left bank about 300 feet downstream from the U. S. Highway 277 Bridge at latitude 29° 21' 50" and longitude 100° 53' 10". This stream enters the Rio Grande at river mile 553.1, 1.6 river miles downstream from the international highway bridge between Del Rio, Texas and Cd. Acuña, Coahuila, and 695.1 river miles downstream from the American Dam at El Paso, Texas. The zeros of the gages for the two stations are, respectively, 942.58 feet and 930.77 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Records for the Val Verde Canal and San Felipe Creek at Moore Park are based on 50 and 52 discharge measurements, respectively, by wading during the year, and continuous records of gage heights. Computations by shifting control methods. Records for the Del Rio Pumping Plant are furnished by the City of Del Rio Water Department. Records available: Total yield of the springs, February 1961 through 1968.

REMARKS: The flows tabulated below represent only the total yield of the springs. All storm runoff has been eliminated from the tabulations.

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	65.3	67.0	72.2	69.9	68.1	80.4	80.9	77.3	78.6	71.4	66.9	68.0
2	65.3	65.8	73.7	70.9	68.7	80.2	79.4	77.8	80.8	72.2	66.6	67.2
3	65.6	66.0	72.8	72.5	68.4	79.1	81.7	78.1	79.8	72.1	68.5	65.7
4	66.3	66.2	71.6	67.6	70.2	75.8	87.1	81.7	77.9	79.1	67.9	65.5
5	65.4	66.6	71.0	69.4	69.7	76.9	85.3	80.0	80.7	81.3	68.2	66.4
6	65.5	67.1	70.1	68.6	70.7	74.0	82.7	80.1	78.2	80.3	66.7	66.5
7	64.7	64.5	70.3	70.4	72.9	74.5	82.0	81.0	78.6	78.6	67.1	67.5
8	64.8	66.5	70.8	67.7	70.6	81.2	84.8	81.1	79.4	82.6	67.0	66.4
9	64.3	66.0	70.1	69.0	72.6	80.9	81.2	80.2	75.7	77.1	70.0	65.5
10	64.6	68.4	70.5	70.7	72.8	78.3	85.2	81.6	77.2	71.4	69.9	66.0
11	63.9	68.4	70.3	69.4	74.7	78.3	82.5	81.3	72.3	71.9	69.9	67.1
12	63.7	66.4	71.2	69.9	72.5	77.8	82.9	79.4	74.4	73.3	69.5	68.9
13	63.8	68.4	70.4	68.3	73.3	77.9	81.6	78.3	79.1	72.7	68.5	69.3
14	64.9	69.0	69.8	67.3	75.9	74.9	80.1	75.3	80.7	72.4	67.1	68.6
15	65.3	70.4	69.8	69.7	76.9	75.9	79.3	81.3	80.2	70.3	65.2	67.6
16	64.4	70.3	66.4	67.5	76.0	77.9	79.5	78.7	78.9	67.2	65.9	65.6
17	64.2	70.6	69.4	66.8	77.3	78.0	76.3	79.1	77.3	68.3	65.7	66.2
18	64.6	70.9	69.4	69.7	76.5	79.1	76.2	82.2	76.3	69.2	65.7	64.9
19	64.7	68.3	70.4	74.7	75.6	76.1	76.3	82.9	75.5	68.4	64.8	62.3
20	65.9	69.1	68.1	73.2	75.2	78.3	77.7	79.5	72.4	66.5	65.7	63.3
21	66.2	70.6	70.3	72.3	76.4	77.7	76.3	78.0	73.7	69.0	65.9	65.1
22	65.1	70.1	70.6	72.3	75.3	77.8	74.8	77.9	72.4	71.9	61.5	64.6
23	65.4	70.1	70.5	71.2	76.8	78.4	76.2	77.7	72.5	74.2	59.1	65.6
24	66.5	70.6	72.3	71.2	76.9	78.0	76.8	72.4	76.9	69.4	56.6	64.9
25	66.2	70.2	72.5	70.3	78.8	77.6	79.5	84.0	72.5	67.8	55.8	65.4
26	65.8	71.1	72.3	71.3	77.2	79.2	76.4	77.1	73.3	69.2	57.2	65.9
27	67.1	71.9	73.1	69.5	78.2	82.0	80.7	72.2	74.8	66.8	60.4	65.7
28	66.6	70.7	72.9	68.1	78.6	79.7	82.2	73.8	74.1	68.0	58.6	66.3
29	66.2	71.7	73.7	70.1	78.4	78.7	80.3	74.3	75.5	69.0	60.3	66.0
30	67.2		70.9	69.7	76.7	81.0	81.3	73.3	72.9	67.2	69.2	66.4
31	67.1		70.1		77.2		76.1	78.2		67.1		65.0
Sum	2,026.6	1,992.9	2,197.5	2,099.2	2,309.1	2,345.6	2,483.3	2,435.8	2,292.6	2,225.9	1,951.4	2,049.4

Current Year 1968 — Period Feb. 1961-1968

Month	Extreme Gage Feet		Ø Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
			High		Low						
	High	Low	Day		Day				Average	Maximum	Minimum
Jan.			30	67.2	12	63.7	65.4	4,020	4,897	6,500	2,274
Feb.			27	71.9	7	64.5	68.7	3,953	4,510	5,909	2,119
Mar.			† 2	73.7	16	66.4	70.9	4,359	4,860	6,407	2,365
Apr.			19	74.7	17	66.8	70.0	4,164	4,593	6,239	2,291
May			25	78.8	1	68.1	74.5	4,580	4,915	6,379	2,842
June			27	82.0	6	74.0	78.2	4,652	4,757	6,073	2,481
July			4	87.1	31	76.1	80.1	4,926	4,790	6,292	2,214
Aug.			25	84.0	27	72.2	78.6	4,831	4,669	6,810	2,114
Sept.			2	80.8	11	72.3	76.4	4,547	4,602	6,400	2,555
Oct.			8	82.6	20	66.5	71.8	4,415	4,992	6,680	2,508
Nov.			9	70.0	25	55.8	65.0	3,871	4,729	6,052	2,384
Dec.			13	69.3	19	62.3	66.1	4,065	4,898	6,651	2,390
Yearly				87.1		55.8	72.2	52,383	57,212	74,062	36,580

Ø Mean daily † And other days

SAN FELIPE CREEK NEAR DEL RIO, TEXAS

DESCRIPTION: Cableway, bubbler gage, and water-stage recorders (graphic and digital) located on the left bank at latitude 29° 19' 55", longitude 100° 53' 20", immediately upstream from the Silos Farm road bridge, 1.1 creek miles from the confluence with the Rio Grande, and about 2 miles south-southeast of Del Rio, Texas. This stream enters the Rio Grande at river mile 553.1, 1.6 river miles downstream from the international highway bridge between Del Rio, Texas and Cd. Acuña, Coahuila, and 695.1 river miles downstream from the American Dam at El Paso, Texas. The zero of the gage is 877.43 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 52 discharge measurements during the year and a continuous record of gage heights. Computations by shifting control methods. Records available: September 1931 through 1968.

REMARKS: Municipal diversions at Del Rio and irrigation diversions greatly modify the flow of this spring-fed creek at this station. Backwater from the Rio Grande reaches this station when the Rio Grande near Del Rio reaches a stage of 15 feet or a flow of about 60,000 second-feet. On June 28, 1954 combined creek flow and backwater from the Rio Grande reached a stage of 24.51 feet, the highest of record, at this station.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 45,000 second-feet on June 14, 1935 with a gage height of 23.20 feet. Min. 0.4 second-foot on July 20, 1953.

Average Flow in Second-Feet

Daily:	Max.	16,200	June 14, 1935	Min.	1.5	July 21,	1953
Monthly:	Max.	805	June 1935	Min.	4.6	July	1953
Yearly:	Max.	136	1935	Min.	25.1		1953

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	66.2	54.0	61.3	43.6	42.6	53.3	57.3	↟ 33.8	47.0	50.1	44.8	57.7
2	66.4	54.0	55.8	43.9	43.3	57.5	↟ 62.0	34.1	43.4	49.4	44.7	56.9
3	↟ 66.6	53.0	59.1	↟ 42.3	44.2	60.1	89.9	33.6	39.9	↟ 86.8	46.6	54.9
4	66.4	51.9	62.5	40.9	47.2	↟ 61.5	218	35.7	36.7	70.8	45.5	58.4
5	66.2	52.0	↟ 64.7	39.4	50.7	62.7	82.5	31.8	↟ 38.3	69.6	45.4	↟ 60.8
6	66.0	↟ 50.0	65.5	40.9	49.6	59.5	71.0	31.3	40.5	67.2	43.3	62.5
7	65.7	52.2	66.5	42.4	↟ 52.3	56.5	68.3	29.9	45.1	68.3	↟ 46.2	63.2
8	66.6	57.7	67.3	38.0	57.5	62.9	75.3	↟ 32.0	46.4	68.3	48.4	64.9
9	66.4	61.1	65.8	↟ 43.4	59.5	65.2	↟ 76.2	35.7	42.1	65.8	54.1	63.3
10	↟ 65.1	63.5	65.4	44.7	62.7	64.2	72.9	35.6	42.3	↟ 56.7	54.4	66.1
11	64.9	64.7	73.7	45.1	85.6	↟ 63.2	75.7	35.6	41.4	56.8	53.5	67.9
12	64.8	65.9	↟ 67.1	48.6	65.7	64.7	76.0	32.7	↟ 44.9	55.9	56.0	↟ 68.5
13	64.6	↟ 70.4	66.6	45.1	63.3	66.1	73.8	32.7	50.0	56.0	55.2	69.1
14	63.3	73.0	66.1	44.5	↟ 67.6	63.2	66.9	35.5	52.8	55.1	↟ 54.4	68.5
15	62.1	66.2	64.3	43.9	61.8	61.4	62.7	↟ 38.4	52.4	53.0	51.8	66.6
16	↟ 63.0	61.9	60.6	↟ 42.3	58.4	64.0	61.8	36.1	53.1	51.2	46.3	63.6
17	61.2	68.6	64.6	39.9	59.1	98.1	57.6	36.7	52.7	↟ 51.3	46.9	65.3
18	62.7	70.1	65.3	74.7	57.7	↟ 72.4	↟ 56.7	39.4	51.1	50.7	46.5	61.1
19	62.0	74.0	↟ 68.3	342	59.4	67.2	56.0	39.1	↟ 46.3	49.3	46.1	↟ 59.2
20	63.5	↟ 66.9	66.8	54.4	61.3	63.2	54.2	32.8	42.9	48.7	46.5	62.1
21	61.7	66.9	65.5	53.8	↟ 67.6	57.1	54.7	↟ 33.5	44.7	47.2	↟ 46.1	65.1
22	61.0	65.6	64.1	53.2	67.2	56.3	43.8	32.7	49.3	49.5	45.7	66.8
23	↟ 59.2	68.1	59.5	53.6	60.2	57.5	36.6	31.9	53.3	48.9	45.4	66.1
24	61.6	65.7	55.9	↟ 54.1	58.7	54.8	38.6	34.1	59.4	48.4	47.0	64.1
25	57.4	64.5	54.6	53.4	58.2	↟ 59.6	↟ 39.9	38.2	56.8	↟ 45.9	50.0	74.5
26	58.7	63.4	↟ 54.3	52.7	55.7	67.9	39.8	36.4	↟ 57.4	47.0	52.9	↟ 70.1
27	59.9	↟ 67.0	54.8	50.9	56.3	64.1	50.8	38.6	55.5	44.2	58.3	68.5
28	60.1	68.2	52.0	53.5	↟ 54.9	61.6	50.7	↟ 46.0	55.8	43.4	52.2	67.0
29	58.1	67.1	49.5	51.7	54.2	61.3	48.4	40.4	57.1	45.6	↟ 49.6	66.6
30	↟ 55.0		48.8	↟ 42.9	50.7	61.0	45.2	35.2	54.1	46.7	68.9	65.0
31	53.9		47.2		47.1		36.4	42.9		↟ 45.9		65.9
Sum	1,940.3	1,827.6	1,903.5	1,719.8	1,780.3	1,888.1	1,999.7	1,102.4	1,452.7	1,693.7	1,492.7	2,000.3

Month	Current Year 1968 Extreme Gage Feet High	Extreme Gage Feet Low	Extreme Second-Feet High Day	High	Low Day	Low	Average Second-Feet	Total Acre-Feet	Period 1932-1968 Acre-Feet Average	Maximum	Minimum
Jan.	1.34	1.21	8	72.6	30	52.8	62.6	3,849	4,151	7,450	934
Feb.	1.84	1.16	19	136	5	49.1	63.0	3,625	3,285	8,630	487
Mar.	1.70	1.08	11	116	31	39.6	61.4	3,776	3,054	6,510	689
Apr.	7.76	1.03	19	2,970	3	33.4	57.3	3,411	3,467	10,400	566
May	2.36	1.02	11	219	1	38.0	57.4	3,531	4,612	17,600	739
June	3.16	1.07	17	366	1	44.8	62.9	3,745	4,998	47,900	301
July	6.45	.98	4	1,790	31	27.2	64.5	3,966	3,336	8,800	285
Aug.	1.32	.95	28	56.2	5	22.9	35.6	2,187	3,080	7,150	350
Sept.	1.75	1.12	24	120	4	32.8	48.4	2,881	4,933	28,678	872
Oct.	5.08	1.08	3	922	28	37.8	54.6	3,359	4,280	8,470	1,000
Nov.	1.92	1.09	30	139	† 6	40.4	49.8	2,961	3,543	7,000	526
Dec.	1.38	1.19	25	75.7	2	49.2	64.5	3,968	3,609	7,020	496
Yearly	7.76	0.95		2,970		22.9	56.8	41,259	46,348	98,137	18,201

↟ Discharge measurement made on this day † And other days

DIVERSIONS FROM THE RIO GRANDE

MAVERICK CANAL AT MILE 13 NEAR QUEMADO, TEXAS

DESCRIPTION: Light-weight cableway for making current meter measurements from the bank, bubbler gage, and water-stage recorder located on the left bank of a gunnite-lined section of the canal at latitude 29° 03' 00", longitude 100° 39' 40", 0.5 canal mile downstream from the Tequesquite Creek Siphon, 3.5 canal miles upstream from the Las Moras Creek Siphon, about 7.5 miles north-northwest of Quemado, Maverick County, Texas, and 12.8 canal miles from the canal intake. The canal intake is at river mile 537.4, 17.3 river miles downstream from the international highway bridge between Del Rio, Texas and Cd. Acuña, Coahuila, and 710.8 river miles downstream from the American Dam at El Paso, Texas. The elevation of the zero of the gage has not been determined.

RECORDS: Based on 53 discharge measurements during the year and a continuous record of gage heights. Computations by shifting control methods. Gage heights at this station are affected by gate operation at Las Moras Siphon. Records available: June 21, 1949 through 1968.

REMARKS: Water from the Rio Grande is diverted into the main canal by Maverick County Water Control and Improvement District No. 1 for power generation and irrigation use. At a point 31.6 canal miles downstream from the headworks of this canal, a portion of the diverted water returns to the river through the Maverick Power Plant and the remainder enters the Maverick Canal Extension. In 1968, a total of 41,928 acres of land were irrigated from this canal and its extension. Of this total, 10,242 acres were between this point and the power plant and 31,686 acres were irrigated from the Maverick Canal Extension. A total of 854,708 acre-feet of water returned to the Rio Grande at the power plant and through the irrigation system (see pages 49, 51, and 54).

EXTREME FLOWS FROM RECORDS: Momentary: Max. 1,680 second-feet on September 15, 1967. Min. no flow several days in June, July, and November 1954.

Average Flow in Second-Feet

Daily:	Max.	1,620	July 13, 1952 & Sept. 13, 1963	Min.	0	June 28 through July 11 & Nov. 2,	1954
Monthly:	Max.	1,530	July 1952	Min.	319	July	1954
Yearly:	Max.	1,420	1961	Min.	914		1956

Mean Daily Discharge in Second-Feet 1968 —— Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,320	1,090	1,080	1,030	1,130	773	891	1,400	1,490	1,470	1,420	1,520
2	1,300	1,070	1,060	1,060	*1,120	1,020	* 921	1,400	1,480	*1,460	1,400	1,520
3	1,290	1,020	1,070	*1,350	1,110	1,240	980	1,390	1,470	1,460	1,480	*1,520
4	*1,280	1,020	1,080	1,320	1,330	1,250	1,350	1,360	1,450	1,480	1,490	1,520
5	1,280	1,010	1,070	1,260	1,470	*1,220	1,430	1,360	*1,410	1,480	*1,500	1,530
6	1,300	999	*1,090	1,140	1,400	1,220	1,370	1,360	1,410	1,460	1,500	1,510
7	1,300	*1,000	1,080	1,050	1,250	1,330	1,340	*1,360	1,410	1,460	1,510	1,520
8	1,300	1,110	1,070	1,010	1,150	1,510	1,320	1,350	1,410	*1,480	1,520	1,510
9	*1,340	1,120	1,080	992	*1,190	1,500	1,330	1,360	1,400	1,450	1,530	1,510
10	1,330	1,120	1,060	*1,130	1,220	1,440	*1,350	1,370	*1,400	1,460	1,540	1,510
11	1,320	1,140	1,120	1,230	1,300	1,340	1,110	1,390	1,420	1,430	1,530	*1,510
12	1,310	1,140	*1,160	1,250	1,460	*1,250	* 922	1,390	1,420	1,430	1,530	1,510
13	1,310	1,150	1,020	1,110	1,480	1,150	598	*1,400	1,440	1,420	1,530	1,510
14	1,320	*1,170	1,020	1,190	1,590	1,050	411	1,400	1,460	1,420	*1,540	1,510
15	1,330	1,180	1,040	1,180	*1,490	991	756	1,400	1,450	1,420	1,530	1,510
16	1,340	1,150	1,050	1,430	1,480	1,040	* 844	1,400	1,460	*1,420	1,530	1,510
17	*1,330	1,150	1,070	*1,430	1,460	1,160	970	1,420	1,470	1,420	1,530	1,520
18	1,330	1,240	1,070	1,450	1,420	1,480	1,010	1,430	*1,440	1,410	1,520	*1,520
19	1,310	1,290	1,080	1,460	1,370	*1,440	1,010	1,440	1,450	1,420	*1,510	1,510
20	1,310	1,290	*1,170	1,510	1,360	1,410	1,020	1,430	1,470	1,430	1,510	1,530
21	1,320	*1,260	1,340	1,490	1,310	1,290	1,010	*1,440	1,480	1,430	1,510	1,530
22	1,300	1,250	1,180	1,470	*1,290	1,170	992	1,430	1,480	*1,450	1,520	1,190
23	1,250	1,180	1,130	*1,440	1,230	1,220	*1,300	1,440	1,480	1,450	1,520	1,490
24	*1,180	1,180	1,090	1,460	1,270	1,150	1,370	1,440	*1,490	1,450	1,520	1,500
25	1,140	1,200	1,080	1,320	1,530	1,050	1,320	1,460	1,460	1,438	1,520	1,500
26	1,130	1,200	1,080	1,240	1,540	*1,030	1,310	1,450	1,440	1,440	1,520	*1,500
27	1,130	*1,150	*1,080	1,200	1,570	970	1,340	*1,430	1,450	1,440	*1,530	1,160
28	1,130	1,130	1,070	1,180	1,490	939	1,360	1,430	1,460	1,440	1,530	1,180
29	1,120	1,140	1,060	1,190	*1,400	908	1,370	1,440	1,470	*1,420	1,520	1,200
30	1,110		1,060	1,140	1,310	882	*1,390	1,450	1,470	1,410	1,530	1,200
31	*1,110		1,040		1,220		1,410	1,460		1,410		1,190
Sum	39,170	33,149	33,750	37,712	41,940	35,423	35,105	43,680	43,490	44,650	45,370	44,950

Current Year 1968

Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Period 1950-1968 Acre-Feet		
			High		Low						
	High	Low	Day		Day				Average	Maximum	Minimum
Jan.	3.42	2.48	†15	1,340	30	1,080	1,260	77,694	76,597	89,500	61,900
Feb.	3.22	1.98	†19	1,310	7	964	1,140	65,751	68,876	82,500	52,700
Mar.	3.47	2.22	21	1,400	†13	995	1,090	66,943	72,317	90,700	52,000
Apr.	4.05	2.16	†20	1,520	9	977	1,260	74,802	66,187	81,000	45,400
May	4.45	2.51	14	1,630	3	1,100	1,350	83,188	71,627	84,975	39,400
June	3.95	.10	† 8	1,530	1	464	1,180	70,262	74,235	88,900	34,400
July	3.81	-1.00	23	1,450	14	283	1,130	69,631	74,042	93,900	19,600
Aug.	3.90	3.47	31	1,480	† 5	1,350	1,410	86,639	78,564	91,459	53,000
Sept.	4.02	3.45	†24	1,500	9	1,320	1,450	86,262	77,375	89,039	47,000
Oct.	4.05	3.65	3	1,500	†18	1,400	1,440	88,563	79,463	91,578	54,300
Nov.	4.28	3.16	†10	1,540	2	1,280	1,510	89,991	76,249	89,991	55,900
Dec.	4.29	1.58	† 1	1,530	22	841	1,450	89,158	77,841	89,158	58,600
Yearly	4.45	-1.00		1,630		283	1,310	948,884	893,373	1,027,400	663,500

* Discharge measurement made on this day † And other days

PINTO CREEK NEAR DEL RIO, TEXAS

DESCRIPTION: Cableway, solid ledge rock and concrete control, bubbler gage, and digital water-stage recorder located on the right bank at latitude 29° 08' 45", longitude 100° 43' 05", 1.6 creek miles from the confluence with the Rio Grande, and about 19 miles southeast of Del Rio, Texas. This stream enters the Rio Grande at river mile 530.1, 6.1 river miles downstream from the Maverick County Water Control and Improvement District No. 1 diversion dam, and 718.1 river miles downstream from the American Dam at El Paso, Texas. The zero of the gage is 813.68 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 51 discharge measurements during the year and a continuous record of gage heights. Records available: September 1955 through 1968 at this station, and November 22, 1928 through August 1955 at a site 3.9 miles upstream.

REMARKS: Small irrigation diversions modify the flow of this spring-fed creek at this station. When the flow in the Rio Grande at the confluence of this creek exceeds about 80,000 second-feet, backwater may reach this station. Backwater from the Rio Grande flood of June 1954 reached a gage height of 28.8 feet, or an elevation of 842.50 feet above mean sea level, at this station. On June 29, 1966 the graphical water-stage recorder was replaced by a digital recorder.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 186,000 second-feet on June 24, 1948 with a gage height of 32.0 feet. Min. frequently no flow.

Average Flow in Second-Feet

Daily:	Max.	28,200	June 24, 1948	Min.	0	Frequently
Monthly:	Max.	953	June 1948	Min.	0	Frequently
Yearly:	Max.	105	1932	Min.	1.8	1945

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1.3	5.3	3.5	3.8	3.3	1.5	1.0	0.5	0.1	0.2	0.3	0.7
2	1.2	4.4	3.7	3.9	✟ 3.2	1.6	✟ .9	.5	.2	✟ .2	.3	.7
3	1.2	4.1	3.6	✟ 4.0	3.0	1.5	1.1	.4	.2	.2	.3	✟ .7
4	✟ 1.2	4.2	3.7	3.4	2.9	1.5	1.2	.3	.2	.3	.3	.7
5	1.2	4.0	4.0	3.0	2.7	✟ 1.5	1.2	.3	✟ .2	.2	✟ .4	.6
6	1.3	3.8	✟ 4.3	3.1	2.2	1.4	1.0	.2	.3	.3	.4	.6
7	1.3	✟ 3.9	3.9	3.6	2.3	1.2	.9	✟ .2	.3	.3	.4	.4
8	1.4	3.9	3.9	3.8	✟ 2.0	1.1	.8	.2	.4	✟ .4	.4	.4
9	✟ 1.4	3.9	4.1	4.2	.9	1.0	.8	.2	.4	.4	.4	.4
10	1.5	4.5	4.7	✟ 5.0	.8	.9	✟ .8	.2	✟ .4	.5	.4	.4
11	1.5	5.5	14.0	4.3	1.0	.9	.6	.2	.3	.5	.4	✟ .4
12	1.4	5.1	✟ 8.1	7.1	1.0	✟ .7	.6	.3	.2	.5	.4	.4
13	1.4	5.4	4.5	6.7	1.2	.7	.6	✟ .3	.2	.5	.4	.4
14	1.4	✟ 6.8	4.6	4.7	1.3	.6	.7	.3	1.1	.4	✟ .4	.5
15	1.4	6.0	4.9	4.1	✟ 1.5	.5	.7	.3	.5	.4	.4	.5
16	1.3	5.3	5.0	4.0	1.5	.4	✟ .7	.3	.4	✟ .4	.4	.5
17	✟ 1.3	6.7	5.0	✟ 4.2	1.5	254	.6	.2	.4	.4	.4	.4
18	1.2	8.2	5.2	4.1	1.6	39.9	.5	.1	✟ .3	.4	.4	✟ .4
19	1.2	10.8	5.5	4.4	1.6	✟ 6.3	.4	.1	.3	.4	✟ .4	.5
20	1.4	9.3	✟ 5.7	4.3	1.7	1.9	.3	.1	.3	.4	.4	.5
21	1.4	✟ 6.8	6.5	4.2	1.7	1.6	.2	✟ .1	.3	.4	.4	.5
22	1.9	5.2	4.4	4.1	✟ 1.8	1.4	.1	.1	.3	✟ .4	.4	.5
23	5.7	5.3	4.6	✟ 3.5	1.8	1.2	✟ .1	.1	.4	.4	.4	.5
24	✟ 5.3	4.9	4.7	3.1	1.8	1.1	.1	.1	✟ .4	.4	.4	.6
25	5.2	5.0	4.7	3.2	1.7	1.2	.2	.2	.4	.3	.4	.6
26	5.2	4.8	4.8	3.4	1.7	✟ 1.3	.3	.2	.3	.3	.4	✟ .5
27	5.3	✟ 4.6	✟ 4.8	3.3	1.7	1.1	.4	✟ .2	.3	.3	✟ .4	.5
28	5.6	4.6	4.8	3.4	1.7	1.1	.5	.1	.2	.3	.4	.5
29	5.5	3.9	4.9	3.7	1.7	1.0	.6	.1	.2	✟ .3	.5	.5
30	5.5		4.7	3.4	1.6	1.0	✟ .7	.1	.2	.3	.7	.5
31	✟ 5.4		4.5		1.6		.6	.1		.3		.5
Sum	78.5	156.2	155.3	121.0	56.0	331.1	19.2	6.6	9.7	11.0	12.0	15.8

Month	Current Year 1968						Period 1929-1968		
	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet		
	High	Low	High Day	High	Low Day	Low			Average	Maximum	Minimum
Jan.			23	∮ 5.7	† 2	1.2	2.5	156	482	2,270	0
Feb.	1.12	0.87	19	11.1	† 6	3.4	5.4	310	574	5,760	0
Mar.	1.44		11	18.6	1	∮ 3.5	5.0	308	508	2,500	0
Apr.	1.10	.80	12	10.3	27	2.4	4.0	240	1,418	27,100	0
May		.54	1	∮ 3.3	† 9	.8	1.8	111	2,483	29,400	0
June	5.18	.59	17	1,700	†15	.4	11.0	657	4,433	56,700	0
July	.76	.56	4	2.1	†22	∮ .1	.6	38.1	1,731	30,000	0
Aug.	.60	.49	1	.6	† 7	.1	.2	13.1	1,563	48,700	0
Sept.	.76	.50	14	2.1	1	.1	.3	19.2	2,710	48,965	0
Oct.	.64	.55	† 3	.6	† 1	.1	.4	21.8	934	8,940	0
Nov.	.67	.54	30	1.0	† 1	.3	.4	23.8	396	2,590	0
Dec.	.64	.53	† 1	.8	27	.2	.5	31.3	486	2,470	0
Yearly	5.18	0.49		1,700		0.1	2.7	1,929.3	17,718	76,259.3	1,325.2

✟ Discharge measurement made on this day ∮ Mean daily † And other days

RIO SAN DIEGO AT JIMENEZ, COAHUILA

DESCRIPTION: Cableway, masonry and concrete Cipolletti weir of 777 second-foot capacity, gravity well, and water-stage recorder located on the left bank on Río San Diego, and gravity well and water-stage recorder on Acequia de Dolores, an irrigation canal that runs along the left bank of the river under the cable, located at latitude 29° 04' 20", longitude 100° 43' 50", about 3.5 miles west of Jiménez, Coahuila, and 4.1 river miles from the confluence with the Rio Grande. Part of the canal flow measured here returns to the river downstream. This stream enters the Rio Grande at river mile 525.2, 6.3 river miles downstream from the Maverick County Water Control and Improvement District No. 1 diversion dam, 29.4 river miles downstream from the international highway bridge between Del Rio, Texas and Cd. Acuña, Coahuila, and 723.0 river miles downstream from the American Dam at El Paso, Texas. The zero of the gage is 831.72 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: For the river, based on the weir discharge table and a continuous record of gage heights; and for the canal, on 40 discharge measurements during the year and a continuous record of gage heights. The flows tabulated below include the flow of the canal. Records published for this station prior to 1964 do not include the discharge of the canal. The capacity of the weir was exceeded only during a few hours on May 5, July 10, and October 13, 1968. Records available: 1922 through 1968. The records from 1922 through September 1932 are considered doubtful.

REMARKS: Reservoirs and irrigation diversions upstream from these stations modify the flow of this spring-fed stream. On December 24, 1955, the zero of the gage was raised 2.62 feet to make it coincide with the crest of the weir. In November 1961, the zero of the gage was raised an additional 0.20 foot and the capacity of the weir was increased from 706 to 777 second-feet at the time the weir, which was damaged by the June 17, 1961 flood, was repaired.

EXTREME FLOWS FROM RECORDS‡: Momentary: Max. 81,930 second-feet on June 17, 1961 with a gage height of 20.70 feet. Min. no flow occurred on several occasions during April, May, and June 1939, May and August 1952, and July and August 1953.

Average Flow in Second-Feet ‡

Daily:	Max.	33,730	June 17, 1961	Min.	0	Occasionally
Monthly:	Max.	2,380	Oct. 1932	Min.	8.0	July 1956
Yearly:	Max.	527	1935	Min.	24.0	1956

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	93.6	80.2	74.2	62.2	47.3	67.5	45.2	180	118	135	89.3	92.9
2	93.6	80.2	80.2	66.4	47.3	73.8	44.8	174	126	134	89.3	86.2
3	93.6	80.2	72.0	61.1	47.3	67.5	46.3	171	118	210	89.3	80.2
4	93.6	80.2	75.6	55.4	120	66.7	274	171	112	178	89.3	73.8
5	93.6	80.2	75.9	55.1	235	55.8	191	172	155	149	89.3	73.8
6	93.6	74.2	75.9	55.1	70.3	55.8	265	167	134	133	89.3	73.8
7	93.6	74.2	69.9	55.1	69.9	55.8	255	167	142	133	83.3	73.8
8	93.6	67.8	69.9	55.1	59.7	55.8	282	167	150	133	83.3	73.8
9	93.6	74.2	63.9	55.1	59.7	55.8	321	167	154	155	89.3	67.5
10	93.6	80.2	69.2	60.7	59.7	55.4	685	167	203	228	89.3	67.5
11	93.6	80.2	91.5	55.1	86.5	55.8	353	159	167	154	83.3	63.2
12	93.6	80.2	88.6	66.0	70.6	56.2	317	151	159	148	83.3	64.3
13	93.6	80.2	82.6	66.0	83.0	46.3	319	150	167	146	77.0	64.3
14	93.6	80.2	82.3	66.0	97.5	45.9	298	148	233	138	77.0	64.3
15	93.6	80.2	88.3	60.7	111	45.9	277	139	202	138	77.0	64.3
16	93.6	80.2	88.6	54.7	118	45.9	279	133	184	138	77.0	64.3
17	93.6	80.2	88.6	54.7	118	53.3	272	126	176	131	77.0	64.6
18	93.6	82.6	88.6	49.4	118	66.4	266	119	167	131	77.0	64.6
19	93.6	93.6	95.0	22.6	118	56.9	266	119	167	118	76.6	64.6
20	93.6	93.6	95.0	23.3	118	51.6	310	119	167	119	76.6	64.6
21	93.6	93.6	87.9	23.7	118	51.6	257	119	167	119	76.6	64.6
22	93.6	80.2	75.6	35.3	111	51.6	236	119	167	119	77.0	64.6
23	86.9	80.2	75.2	37.8	103	51.2	236	119	167	111	77.0	64.6
24	80.2	80.2	69.2	37.8	102	51.2	228	119	167	104	77.0	64.6
25	80.2	80.2	67.5	37.8	97.1	52.3	222	119	167	104	77.3	64.6
26	80.2	80.2	59.0	42.7	87.6	73.5	208	119	159	104	77.3	66.0
27	80.2	80.2	64.6	43.1	87.2	56.5	207	119	159	104	77.7	66.0
28	80.2	80.2	64.6	47.7	77.0	56.5	234	111	151	104	77.7	66.4
29	80.2	75.6	64.6	47.7	69.9	51.2	211	104	151	98.9	75.6	66.4
30	80.2		64.6	47.7	68.9	45.9	199	104	143	90.0	84.0	66.4
31	80.2		64.6		63.2		180	111		90.0		66.4
Sum	2,787.7	2,333.4	2,373.2	1,501.1	2,839.7	1,675.6	7,784.3	4,329	4,799	4,096.9	2,440.0	2,127.0

Month	Current Year 1968 Extreme Gage Feet High	Low	Extreme Second-Feet High Day	High	Low Day	Low	Average Second-Feet	Total Acre-Feet	Period 1933-1968 Acre-Feet Average	Maximum	Minimum
Jan.	0.33	0.30	† 1	93.6	† 24	80.2	90.1	5,528	6,928	36,430	1,860
Feb.	.33	.26	† 18	93.6	† 8	67.8	80.5	4,627	5,559	25,760	1,060
Mar.	.36	.23	11	102	26	58.6	76.6	4,708	4,933	27,040	1,340
Apr.	.26	.10	2	66.4	19	14.5	50.1	2,978	6,060	40,270	1,110
May	2.82	.20	† 11	2,260	† 10	42.7	91.5	5,634	11,991	120,200	861
June	.39	.20	26	120	16	41.0	55.8	3,323	11,373	108,300	543
July	2.03	.20	10	1,430	† 2	44.5	251	15,443	8,036	37,890	490
Aug.	.52	.36	1	180	30	104	140	8,590	6,571	32,180	738
Sept.	.72	.36	14	311	4	112	160	9,515	15,562	94,667	1,183
Oct.	1.51	.30	13	971	† 30	90.1	132	8,119	14,201	71,830	1,698
Nov.	.33	.26	30	92.9	† 4	73.8	81.2	4,841	9,894	64,060	803
Dec.	.33	.23	1	92.9	27	60.7	68.5	4,219	6,754	45,320	1,130
Yearly	2.82	0.10		2,260		14.5	107	77,525	107,862	381,720	17,430

† And other days ‡ Period October 1932-1968

RIO GRANDE BELOW MAVERICK DAM NEAR QUEMADO, TEXAS

DESCRIPTION: Cableway, bubbler gage, control weir of 1,270 second-foot capacity, gravity well, and water-stage recorders located on the right bank at latitude 29° 03' 00", longitude 100° 40' 00", and river mile 523.4; 1.5 miles south-southeast of Jiménez, Coahuila, 1.8 river miles downstream from Rio San Diego, about 7.5 miles north-northwest of Quemado, Maverick County, Texas, 12.8 river miles downstream from the Maverick County Water Control and Improvement District No. 1 diversion dam, 31.3 river miles downstream from the international highway bridge between Del Rio, Texas and Cd. Acuña, Coahuila, and 724.8 river miles downstream from the American Dam at El Paso, Texas. The zero of the gage is 769.00 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 47 discharge measurements during the year, 46 by the Mexican Section and one by the United States Section of this Commission, and a continuous record of gage heights. Computations by shifting control methods prior to completion of the weir and for flows exceeding the capacity of the weir thereafter. Computations for flows within the capacity of the weir were based on a stable control weir rating curve defined by meter measurements. Records available: 1965 through 1968. Records, excluding some high flow periods, are also available from 1956 through May 1965 for a station 8.1 river miles upstream.

REMARKS: This station was placed in operation January 1, 1965 and replaces the station "Rio Grande below Maverick Dam near Del Rio, Texas" which stopped operating June 1, 1965. Irrigation diversions 14.0 river miles upstream largely control the flow at this station. A bubbler gage replaced the gravity well on May 1, 1966. The weir was placed in operation June 1, 1967 at which time a bubbler gage and gravity well were installed and the zero of the gage was set 3.28 feet higher.

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	360	261	88.3	84.8	53.0	23.0	24.7	242	261	↟ 233	113	452
2	↟ 360	237	91.8	↟ 84.8	61.1	16.2	↟ 26.5	244	282	233	115	374
3	360	237	102	413	68.9	20.5	27.9	244	↟ 275	269	275	↟ 353
4	360	237	106	214	223	28.6	1,460	243	239	↟ 544	275	338
5	360	237	106	141	473	22.6	1,850	233	204	381	300	342
6	388	240	106	109	↟ 205	16.2	569	↟ 185	191	346	321	345
7	406	231	106	91.8	119	20.8	279	177	197	335	321	339
8	466	103	106	91.8	119	154	307	177	224	↟ 335	305	325
9	↟ 494	95.3	106	↟ 88.3	91.8	172	↟ 364	180	236	273	343	325
10	466	98.9	111	102	106	93.6	809	177	↟ 319	403	327	↟ 325
11	441	109	166	106	1,500	49.1	357	172	223	223	325	325
12	441	↟ 106	↟ 147	115	3,670	35.3	263	164	215	212	332	340
13	406	117	117	111	4,520 ↟	29.7	221	164	244	212	336	325
14	381	127	120	102	1,510	20.5	180	↟ 165	424	212	↟ 339	325
15	406	113	120	1,070	908	12.4	166	169	335	↟ 204	346	325
16	↟ 424	106	120	1,430	459	11.7	↟ 220	156	325	198	325	329
17	406	118	120	↟ 756	316	274	210	155	311	189	325	↟ 335
18	381	121	120	399	245	279	192	166	↟ 284	170	↟ 313	346
19	360	148	↟ 120	7,450	162	196	187	180	279	170	313	343
20	360	↟ 141	138	2,070	↟ 152	118	227	↟ 184	286	170	321	331
21	360	122	364	456	159	83.7	187	183	290	170	332	331
22	325	102	146	216	141	91.5	160	191	305	↟ 152	332	196
23	325	95.3	99.2	↟ 125	127	46.3	↟ 158	201	↟ 316	141	335	260
24	↟ 311	88.3	102	168	106	42.4	194	205	331	134	333	↟ 301
25	311	88.3	109	85.8	869	35.3	159	237	309	127	↟ 325	348
26	311	88.3	106	72.0	470	34.6	145	235	231	127	340	353
27	311	↟ 91.8	95.3	56.5	↟ 431	31.8	150	↟ 212	220	127	399	194
28	311	81.2	106	53.0	246	28.6	176	209	224	120	371	98.9
29	311	70.6	109	51.2	120	28.3	160	212	246	↟ 120	360	98.9
30	↟ 311		113	↟ 47.0	77.7	27.5	↟ 159	226	230	113	395	98.9
31	311		106		63.6		157	215		113		95.3
Sum	11,524	4,011.0	3,772.6	16,360.0	17,772.1	2,043.2	9,745.1	6,103	8,056	6,756	9,492	9,217.0

Month	Current Year 1968 Extreme Gage Feet High	Extreme Gage Feet Low	Extreme Second-Feet High Day	High	Extreme Second-Feet Low Day	Low	Average Second-Feet	Total Acre-Feet	Period 1965-1968 Acre-Feet Average	Maximum	Minimum
Jan.	0.92	0.66	9	530	† 24	311	371	22,863	30,683	57,984	13,081
Feb.	.66	.36	1	279	29	67.1	138	7,956	19,016	41,460	7,249
Mar.	1.05	.33	21	653	31	84.8	122	7,484	16,912	36,094	5,047
Apr.	5.84	.23	19	13,300	30	38.8	544	32,447	44,656	107,207	12,858
May	4.00	.26	11	7,660	1	53.0	572	35,270	42,263	71,084	7,373
June	1.51	.20	17	1,080	† 15	10.6	68.2	4,052	106,753	291,508	4,052
July	2.13	.30	4	2,280	† 1	24.7	314	19,331	53,941	124,703	19,048
Aug.	.59	.43	† 2	244	16	145	197	12,101	78,308	182,733	12,101
Sept.	1.02	.49	14	583	5	177	269	15,981	245,957	680,385	15,981
Oct.	1.57	.36	4	1,270	† 30	113	218	13,399	81,040	169,643	13,399
Nov.	.92	.36	30	501	† 1	113	316	18,832	32,163	45,872	18,832
Dec.	.98	.33	1	551	31	91.8	297	18,282	24,555	30,175	18,282
Yearly	5.84	0.20		13,300		10.6	286	207,998	776,247	1,440,472	207,998

† And other days ↟ Discharge measurement made on this day

RIO SAN RODRIGO NEAR MOUTH AT EL MORAL, COAHUILA

DESCRIPTION: Cableway, gravity well, and water-stage recorder located on the left bank at El Moral, Coahuila, latitude 28° 53' 45", longitude 100° 38' 05", 0.6 river mile from the confluence with the Rio Grande, and about 15.5 miles northwest of Piedras Negras, Coahuila. The stream enters the Rio Grande at river mile 512.0, 19.5 river miles downstream from the Maverick County Water Control and Improvement District No. 1 diversion dam, 20.7 river miles upstream from the international highway bridge between Eagle Pass, Texas and Piedras Negras, Coahuila, and 736.2 river miles downstream from the American Dam at El Paso, Texas. The zero of the gage is 746.82 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 49 discharge measurements made at low and medium flows during the year and a continuous record of gage heights. Computations by shifting control methods. Records available: 1962 through 1968.

REMARKS: This station, located 10.6 river miles downstream from the permanent station which was in operation from 1922 through May 1966, was originally installed on a provisional basis; however, it became the permanent station on June 1, 1966 when the operation of the upstream station was discontinued. The rating curve for this station is affected by backwater from the Rio Grande when its flow is approximately 10,000 second-feet. The flow of this spring-fed stream is modified by diversions above this station. A pilot channel was constructed in October 1963.

EXTREME FLOWS FROM RECORDS‡: Momentary: Max. 72,000 second-feet on June 17, 1961 determined by slope-area computations. Min. frequently no flow.

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	53.0	30.0	26.5	25.4	12.0	21.5	8.8	91.8	68.5	47.7	44.1	54.0
2	* 53.0	26.5	28.3	* 24.7	12.0	22.2	* 8.1	89.7	78.0	* 48.7	43.8	45.2
3	53.0	24.7	29.3	24.7	12.0	20.8	1,620	89.7	80.2	134	43.8	38.5
4	53.0	24.7	30.7	23.0	11.7	* 20.5	1,390	86.9	* 74.2	618	41.0	* 35.3
5	53.0	23.0	* 31.8	22.2	12.0	19.8	501	84.0	70.6	148	* 41.0	33.5
6	53.0	* 22.6	31.8	21.9	10.9	19.1	1,750	83.3	69.6	98.2	40.6	31.4
7	53.0	22.6	33.2	21.9	11.3	18.4	1,190	* 80.5	66.4	82.6	35.3	30.7
8	53.0	23.0	35.3	21.9	11.3	17.7	992	78.8	63.6	77.3	33.2	29.7
9	* 53.0	24.7	35.3	* 21.9	15.5	17.7	* 957	76.3	61.8	* 74.9	33.2	29.3
10	53.0	26.5	35.3	23.0	191	17.7	918	74.5	60.0	78.4	33.9	29.0
11	49.4	29.7	71.7	21.9	604	* 17.7	678	73.5	* 59.3	74.2	31.8	* 29.0
12	45.9	30.0	* 49.1	21.9	317	17.0	551	72.4	57.2	72.4	31.8	28.3
13	45.9	* 33.5	35.3	21.9	215	15.9	456	69.2	59.0	70.3	31.4	28.3
14	45.9	37.8	36.0	20.5	134	15.9	392	64.6	78.0	67.8	* 31.8	28.3
15	42.4	38.1	36.0	19.4	97.1	14.1	339	* 74.2	81.9	67.1	30.7	27.2
16	* 42.4	36.4	36.0	19.1	75.2	14.1	* 298	75.2	72.4	* 66.4	30.4	26.8
17	42.4	37.1	36.0	* 18.4	59.3	14.1	257	68.2	65.0	64.3	30.0	26.5
18	56.2	40.6	36.0	18.4	47.0	14.1	222	65.3	59.0	63.6	28.3	* 26.5
19	49.4	45.9	* 36.0	28.3	39.6	12.7	194	65.3	* 55.8	61.8	* 29.0	25.1
20	49.4	45.9	39.6	18.4	33.5	12.7	233	65.3	54.0	62.9	29.7	24.7
21	49.4	* 42.4	36.0	18.0	* 29.0	12.7	189	* 63.2	52.6	63.6	29.7	24.7
22	45.9	40.6	33.5	16.6	25.4	12.7	155	61.4	51.2	61.1	29.7	24.7
23	45.9	36.0	33.5	* 15.2	23.0	12.7	138	60.0	50.1	* 56.9	29.7	24.0
24	* 42.4	34.6	33.5	13.8	20.5	11.7	* 129	60.4	49.1	53.0	29.7	23.0
25	42.4	33.9	33.5	13.4	19.4	11.7	120	62.2	* 49.4	50.1	29.7	23.0
26	40.6	33.5	33.5	13.8	18.0	26.1	113	65.0	49.1	48.0	* 30.4	* 23.0
27	38.8	* 33.2	32.5	13.4	17.0	12.4	123	66.4	48.4	47.7	40.6	23.0
28	37.1	33.5	31.8	13.4	* 16.2	* 10.9	118	* 62.9	47.7	45.9	38.1	23.0
29	37.1	33.5	31.8	13.1	15.9	10.2	97.5	62.2	46.6	45.6	36.4	23.0
30	* 37.1		33.5	* 12.7	15.2	9.9	93.9	61.1	46.6	* 45.2	54.0	23.0
31	37.1		31.8		14.8		* 93.6	61.1		44.5		22.6
Sum	1,453.1	944.5	1,094.1	582.2	2,135.8	474.7	14,324.9	2,214.6	1,825.3	2,640.2	1,042.8	884.3

Current Year 1968									Period #1962-1968		
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum
Jan.	1.18	1.02	18	63.6	† 28	37.1	47.0	2,881	1,127	2,881	0
Feb.	1.12	.98	† 19	46.3	5	21.2	32.5	1,874	692	1,874	0
Mar.	1.41	1.05	11	106	† 1	26.5	35.3	2,171	622		0
Apr.	1.38	.85	19	74.2	30	12.0	19.4	1,154	1,358	4,248	122
May	3.48	.82	11	1,270	† 4	10.6	68.9	4,236	2,555		17.0
June	1.31	.72	26	67.1	30	9.2	15.9	941	790	1,722	0
July	5.97	.72	3	6,180	† 1	7.1	463	28,394	4,239	28,394	0
Aug.	1.41	1.21	1	91.8	24	59.0	71.3	4,392	977	4,392	0
Sept.	1.38	1.12	15	84.4	29	45.9	60.7	3,621	7,493		0
Oct.	4.53	1.12	4	2,750	31	44.5	85.1	5,236	4,068	11,438	0
Nov.	1.61	.98	30	127	† 19	28.3	34.6	2,068	2,082	6,147	0
Dec.	1.21	.92	1	58.6	31	21.9	28.6	1,754	1,471	4,269	0
Yearly	5.97	0.72		6,180		7.1	80.9	58,722	27,474		3,850.7

† And other days # Some months missing * Discharge measurement made on this day
‡ Period 1961-1968

RETURN FLOW TO THE RIO GRANDE AT MAVERICK POWER PLANT NEAR EAGLE PASS, TEXAS

DESCRIPTION: A part of the water diverted from the river into the Maverick Canal is returned to the Rio Grande through the hydroelectric power plant located on the left bank of the Rio Grande at latitude 28° 49' 50", longitude 100° 33' 10", about 9 miles north-northwest of Eagle Pass, Texas, and about 32.2 canal miles downstream from the point of diversion. The return enters the Rio Grande at river mile 501.5 and 746.7 river miles downstream from the American Dam at El Paso, Texas.

RECORDS: Based on records furnished by the Maverick County Water Control and Improvement District No. 1, showing hourly discharge in cubic feet per second based on hourly manometer readings, through each turbine at the Central Power and Light Company hydroelectric power plant. The mean daily discharges computed from the manometer readings have been multiplied by a factor to make them agree with periodic current meter measurements of flows made under stable flow conditions by hydrographers of this Commission. There were 53 discharge measurements made during the year. Records available: 1949 through 1968.

REMARKS: This power plant began operating April 16, 1952 with hydroelectric power generating facilities for 12,000 kw. Because the September 1932 flood washed out the upper end of the Maverick Canal, this plant did not operate from September 2, 1932 until March 17, 1937. Since then it has operated continuously except for 44 days in 1953 and 1 day in 1968 when shortage of water prevented operation and from June 30 through July 19, during flood of 1954, and while the canal was being repaired.

Average Flow in Second-Feet

Daily:	Max.	1,400	Sept. 20 & 21, 1966	Min.	0	Frequently 1953 & 1954; July 14, 1968
Monthly:	Max.	1,270	Sept. 1966	Min.	14.1	June 1953
Yearly:	Max.	1,020	1950 & 1961	Min.	443	1953 & 1956

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	925	753	710	531	520	338	168	874	940	↟1,130	941	1,330
2	919	731	687	519	504	243	↟ 144	843	1,030	1,120	914	1,340
3	↟ 929	710	688	↟ 803	↟ 490	445	175	823	↟1,040	1,100	1,030	↟1,330
4	933	711	694	804	583	↟ 449	559	808	992	1,210	1,020	1,330
5	928	706	715	710	1,010	360	846	769	974	1,280	↟1,020	1,350
6	941	646	↟ 775	614	1,080	356	813	↟ 711	987	1,280	984	1,350
7	941	↟ 621	773	545	↟ 974	466	777	671	985	1,280	983	1,350
8	959	653	805	457	884	649	742	699	988	↟1,300	1,010	1,360
9	1,010	704	812	↟ 492	850	691	↟ 764	712	969	1,290	1,060	1,350
10	↟1,010	701	812	693	982	635	790	753	↟ 943	1,280	1,110	↟1,350
11	1,000	724	863	875	1,070	593	717	837	963	1,270	1,110	1,300
12	1,000	732	↟ 982	971	1,270	↟ 523	↟ 562	792	966	1,290	1,060	1,280
13	993	↟ 734	924	900	1,300	377	382	↟ 745	1,020	1,290	↟1,020	1,290
14	1,000	823	863	952	1,320	280	0	696	1,210	1,240	1,030	1,300
15	980	887	880	956	↟1,310	199	217	674	1,230	↟1,130	1,060	1,300
16	↟ 907	847	881	1,160	1,310	259	↟ 368	681	1,240	1,110	1,060	1,270
17	902	803	878	↟1,080	1,290	453	387	693	↟1,250	1,110	1,080	↟1,210
18	948	895	846	1,040	1,260	↟ 783	454	737	1,140	1,080	1,070	1,220
19	963	↟ 974	795	1,060	1,210	817	434	713	1,150	1,080	↟1,030	1,200
20	1,040	1,010	841	1,110	1,170	776	464	↟ 712	1,190	1,070	1,020	1,210
21	1,030	967	↟1,030	1,130	↟1,120	704	489	709	1,230	1,070	1,040	1,220
22	1,040	898	938	1,100	979	578	441	697	1,210	↟1,070	1,050	973
23	993	843	845	↟1,080	843	602	↟ 569	757	1,180	1,080	1,060	1,110
24	925	840	787	1,060	803	495	800	795	↟1,190	1,090	1,070	↟1,180
25	↟ 860	856	752	856	994	328	757	882	1,180	1,050	1,050	1,190
26	829	860	↟ 728	742	1,030	288	737	893	1,100	1,050	↟1,070	1,180
27	820	↟ 831	707	678	937	208	782	889	1,090	1,060	1,230	936
28	807	809	662	614	794	↟ 185	900	888	1,110	998	1,320	808
29	802	785	622	617	↟ 664	197	929	↟ 880	1,150	↟ 966	1,330	779
30	↟ 768		551	568	513	228	↟ 979	889	1,130	958	1,330	749
31	760		536		456		964	902		950		724
Sum	28,862	23,054	24,382	24,717	29,520	13,505	18,110	24,124	32,777	35,282	32,162	36,869

Current Year 1968

Month	Extreme Gage Feet		∅ Extreme Second-Feet				Average Second-Feet	Total Acre-Feet
	High	Low	High		Low			
			Day		Day			
Jan.			†20	1,040	31	760	931	57,248
Feb.			20	1,010	7	621	795	45,728
Mar.			21	1,030	31	536	787	48,362
Apr.			16	1,160	8	457	824	49,026
May			14	1,320	31	456	952	58,553
June			19	817	28	185	450	26,787
July			30	979	14	0	584	35,921
Aug.			31	902	7	671	778	47,850
Sept.			17	1,250	1	940	1,090	65,013
Oct.			8	1,300	31	950	1,140	69,982
Nov.			†29	1,330	2	914	1,070	63,793
Dec.			8	1,360	31	724	1,190	73,130
Yearly				1,360		0	884	641,393

Period 1949-1968

Acre-Feet		
Average	Maximum	Minimum
54,130	72,800	34,400
47,823	68,500	24,900
45,052	65,400	18,900
38,955	58,600	6,080
47,117	69,188	2,280
43,054	68,900	841
40,401	63,000	2,880
48,469	69,000	22,600
54,494	75,591	18,500
56,160	70,870	23,000
53,040	67,400	27,300
56,081	73,130	34,300
584,776	740,000	320,701

↟ Discharge measurement made on this day ∅ Mean daily † And other days

DIVERSIONS FROM THE RIO GRANDE
MAVERICK CANAL EXTENSION BELOW THE POWER PLANT
NEAR EAGLE PASS, TEXAS

DESCRIPTION: Gage well and digital water-stage recorder located on the downstream side of a wooden pile bridge at latitude 28° 49' 50", longitude 100° 32' 40", about 1 mile downstream from the heading of this canal extension, about 9 miles north-northwest of Eagle Pass, Texas, and about 32.8 canal miles downstream from the point of diversion from the Rio Grande, which is located at river mile 537.4. The elevation of the zero of the gage has not been determined.

RECORDS: Based on 53 discharge measurements during the year and a continuous record of gage heights. Computations by shifting control methods. Records available: 1939 through 1968.

REMARKS: The main Maverick Canal divides into two branches at a point about 9 miles north-northwest of Eagle Pass, Texas, and about 31.8 canal miles downstream from the point at which water from the Rio Grande is diverted. One branch leads to the Maverick Power Plant and back to the Rio Grande while the other branch forms this Maverick Canal Extension, which is used to transmit irrigation water. Irrigation from this canal extension began in June 1938. In 1968, 31,686 acres of land north and south of Eagle Pass were irrigated. A total of 127,957 acre-feet of water from this canal extension returned to the river through the irrigation system which extends approximately 67 canal miles downstream.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 580 second-feet on July 25, 1964. Min. occasionally no flow.

Average Flow in Second-Feet

Daily:	Max.	559	July 14, 1964	Min.	0	Occasionally
Monthly:	Max.	525	July 1964	Min.	18.7	March 1939
Yearly:	Max.	345	1964	Min.	62.1	1939

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	235	244	266	320	342	491	508	276	348	↟ 129	287	102
2	233	245	264	321	342	420	↟ 511	329	264	129	269	103
3	232	226	262	↟ 331	↟ 343	498	515	359	↟ 235	158	252	↟ 102
4	↟ 234	212	263	333	241	↟ 507	523	358	235	132	255	103
5	232	211	242	374	90.4	539	466	357	234	107	↟ 255	102
6	229	247	↟ 194	376	92.7	↟ 552	431	↟ 383	234	107	274	103
7	226	↟ 270	197	371	↟ 95.4	552	432	413	234	107	285	103
8	213	273	187	364	97.4	538	433	392	235	↟ 107	285	103
9	178	274	178	↟ 338	98.7	539	↟ 422	367	235	106	272	102
10	↟ 180	274	181	174	98.0	537	402	369	↟ 235	105	263	↟ 102
11	182	274	165	158	113	532	345	373	235	105	262	144
12	179	274	↟ 84.0	115	108	↟ 528	↟ 291	374	235	105	286	157
13	181	↟ 273	85.5	84.2	106	527	282	↟ 394	219	104	↟ 301	148
14	183	219	84.9	86.8	100	528	261	424	145	127	301	148
15	208	162	84.3	89.5	↟ 96.6	527	313	437	132	↟ 189	278	148
16	↟ 264	188	84.1	93.1	99.1	537	↟ 290	438	123	189	266	165
17	292	217	86.1	↟ 145	98.6	494	291	440	↟ 119	186	267	↟ 194
18	257	189	114	229	98.2	↟ 495	293	443	172	185	268	193
19	205	↟ 158	157	228	97.2	490	313	440	201	184	↟ 268	196
20	182	160	154	228	96.5	483	353	↟ 441	165	183	267	198
21	183	163	↟ 156	230	↟ 103	479	356	443	144	182	267	198
22	182	212	156	229	199	476	345	446	144	↟ 180	267	191
23	179	208	186	↟ 225	242	487	↟ 340	418	143	180	267	198
24	195	211	210	239	240	484	341	401	↟ 144	180	265	↟ 202
25	↟ 222	210	208	295	243	498	339	380	137	181	265	202
26	222	211	↟ 207	292	243	495	338	349	132	182	↟ 265	202
27	229	↟ 211	207	310	334	492	340	349	131	183	162	192
28	244	207	239	345	399	↟ 489	341	353	131	204	100	189
29	243	222	270	344	432	495	331	↟ 354	131	248	101	234
30	↟ 244		309	343	474	503	↟ 276	352	130	↟ 248	102	265
31	244		321		506		276	349		259		263
Sum	6,712	6,445	5,801.9	7,610.6	6,268.8	15,212	11,298	12,001	5,602	4,971	7,522	5,052

Month	Average Rainfall Inches **		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Period 1939-1968 Acre-Feet		
			High		Low						
	1939-1968	1968	Day		Day				Average	Maximum	Minimum
	Current Year 1968										
Jan.	0.81	1.29	18	303	† 9	178	217	13,313	12,482	19,800	2,140
Feb.	.98	1.53	†11	277	21	154	222	12,784	11,764	18,200	2,120
Mar.	.76	1.43	†30	323	12	82.8	187	11,508	14,693	23,310	1,150
Apr.	1.83	1.81	5	386	†12	82.9	254	15,096	14,535	24,802	3,430
May	3.09	5.67	31	510	5	∅ 90.4	202	12,434	12,728	27,664	2,840
June	1.66	.67	† 6	557	2	376	507	30,173	15,911	30,173	3,750
July	1.39	2.13	5	527	14	218	364	22,410	17,649	32,276	4,510
Aug.	1.91	.44	23	450	† 1	275	387	23,804	15,990	29,812	3,480
Sept.	2.99	3.54	1	351	17	117	187	11,112	12,426	22,640	4,600
Oct.	1.94	2.19	31	288	† 9	103	160	9,860	13,239	21,800	5,130
Nov.	.68	1.78	12	304	27	99.3	251	14,920	13,127	20,117	4,170
Dec.	.68	.19	31	270	† 9	95.4	163	10,021	13,026	20,200	4,280
Yearly	18.72	22.67		557		82.8	258	187,435	167,570	250,801	44,950

↟ Discharge measurement made on this day † And other days ∅ Mean daily

** On United States side from Maverick Power Plant to Cuervo Creek

RETURN FLOW TO THE RIO GRANDE FROM MAVERICK CANAL
MAVERICK DAM TO EAGLE PASS, TEXAS

DESCRIPTION: Part of the water diverted from the Rio Grande into the Maverick Canal is returned to the river through various drains and spillways of the irrigation system located between Maverick Diversion Dam and Eagle Pass, Texas. These return flows are measured at gaging stations consisting of sharp-crested Cipolletti weirs or control structures equipped with continuous water-stage recorders located at Lateral 2 Spill, Cañon Grande, Quemado Creek, Lateral 15 Spill, Hardt Spill, Houchin Spill, Lateral 12 Spill, Lateral 8-B Spill, Elm Creek, and Seco Creek; and a Parshall flume at the Lateral 2 Sand Trap Spill into Las Moras Creek immediately below the canal siphon.

RECORDS: Based on the weir discharge table and a continuous record of gage heights. All storm flow occurring at these stations is deducted from the records and is not shown below. Records available: April 1959 through 1968.

REMARKS: *In addition to the flows listed below,* water from the Maverick Canal is returned to the Rio Grande in this reach at the Maverick Power Plant (see page 49).

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	143	89.4	101	124	151	145	127	146	145	133	127	111
2	148	86.0	102	128	157	138	124	154	145	142	134	98.3
3	152	87.7	110	142	172	162	144	152	139	147	158	89.7
4	150	90.0	109	137	163	165	168	152	136	122	163	84.6
5	154	84.6	108	123	169	183	168	140	149	106	169	73.5
6	150	89.9	112	128	147	163	147	140	155	103	163	62.7
7	142	96.7	111	138	139	159	147	149	151	93.4	143	63.2
8	144	99.9	107	139	131	176	128	140	158	76.9	149	61.0
9	145	96.8	105	132	152	159	112	153	176	79.9	138	64.4
10	139	99.5	103	137	123	163	123	161	185	78.6	137	67.5
11	131	117	104	132	111	164	131	125	175	72.0	110	75.6
12	125	115	99.6	138	115	167	135	124	160	62.3	126	88.2
13	126	119	91.7	128	112	167	125	128	157	61.2	154	82.1
14	133	126	93.2	128	110	171	81.1	145	146	61.8	149	82.1
15	131	123	96.7	120	109	176	93.1	137	107	74.6	146	84.7
16	136	112	99.5	128	104	147	101	138	101	89.9	159	86.6
17	137	118	98.8	138	100	173	123	151	93.0	86.2	156	109
18	145	126	104	145	97.6	161	114	155	86.3	104	153	106
19	153	126	106	153	99.0	135	135	169	86.1	108	155	104
20	129	116	107	147	96.6	145	148	169	77.3	115	168	103
21	111	112	95.9	127	95.8	146	142	163	73.8	126	168	111
22	108	110	96.6	126	108	132	138	181	90.1	119	159	107
23	118	106	90.4	106	131	136	137	174	96.7	120	156	103
24	104	107	90.9	115	140	130	131	181	101	95.6	162	110
25	87.9	104	92.1	114	146	126	131	173	92.4	114	155	108
26	90.5	105	103	122	153	144	143	160	106	119	144	115
27	83.3	111	112	122	134	154	157	137	149	142	147	112
28	82.2	107	114	136	144	147	150	129	149	128	116	104
29	80.4	108	121	141	176	152	121	137	142	140	106	116
30	86.0		137	136	180	147	136	148	144	144	114	119
31	87.3		124		157		152	158		145		109
Sum	3,851.6	3,088.5	3,245.4	3,930	4,123.0	4,633	4,112.2	4,669	3,871.7	3,309.4	4,384	2,911.2

Month	Current Year 1968 Extreme Gage Feet High	Extreme Gage Feet Low	ø Extreme Second-Feet High Day	High	Low Day	Low	Average Second-Feet	Total Acre-Feet	Period Apr. 1959-1968 Acre-Feet Average	Maximum	Minimum
Jan.			5	154	29	80.4	124	7,640	7,855	13,430	5,860
Feb.			†14	126	5	84.6	106	6,126	6,418	7,652	4,830
Mar.			30	137	23	90.4	105	6,437	7,321	8,952	6,437
Apr.			19	153	23	106	131	7,795	7,242	7,795	6,514
May			30	180	21	95.8	133	8,178	7,124	8,777	6,116
June			5	183	25	126	154	9,190	7,775	9,219	5,484
July			† 4	168	14	81.1	133	8,157	8,313	9,858	6,830
Aug.			†22	181	12	124	151	9,261	8,204	9,666	6,262
Sept.			10	185	21	73.8	129	7,680	7,257	9,477	5,809
Oct.			3	147	13	61.2	107	6,564	7,072	8,583	4,144
Nov.			5	169	29	106	146	8,696	7,366	8,696	5,630
Dec.			30	119	8	61.0	93.9	5,774	7,341	8,821	5,774
Yearly				185		61.0	126	91,498	89,288	104,997	80,730

ø Mean daily † And other days

RIO GRANDE AT EAGLE PASS, TEXAS

DESCRIPTION: Cableway, gravity well, water-stage recorder, and resistance-type transmitter located on the left bank at latitude 29° 42' 50", longitude 100° 30' 25", and river mile 491.8; 0.5 river mile upstream from the international highway bridge between Eagle Pass, Texas and Piedras Negras, Coahuila, 73.4 river miles downstream from Amistad Dam, and 756.4 river miles downstream from the American Dam at El Paso, Texas. The zero of the gage is 682.91 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 83 discharge measurements during the year, 43 by the Mexican Section and 40 by the United States Section of this Commission, and a continuous record of gage heights. Computations by shifting control methods. Records available: May 1900 through March 1914; August 1914 through April 1916; September 1916; September and October 1917; October 1918; September and October 1919; August and September 1920; June 1922; September, November, and December 1923; and 1924 through 1968.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station. The transmitter is coupled, via leased telephone circuits, to a receiver located in the office of the Eagle Pass and Piedras Negras Bridge Company from where the Wheatstone bridge circuit can be balanced to indicate the existing gage height. This system is operated in cooperation with the United States Weather Bureau.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 964,100 second-feet, determined by slope-area calculations, on June 29, 1954 with a gage height of 53.51 feet. Well-authenticated information indicates the occurrence of a flood in June 1865 with an estimated discharge of 1,236,000 second-feet and a gage height of 56.00 feet on the present gage and also that these were the only floods since 1745 with flows greater than 825,000 second-feet. Min. 24.4 second-feet on June 22, 1953 with a gage height of 0.07 foot.

Average Flow in Second-Feet ‡

Daily:	Max.	572,100	June 28, 1954	Min.	30.7	June 22, 1953
Monthly:	Max.	48,000	Sept. 1932	Min.	248	April 1953
Yearly:	Max.	9,180	1932	Min.	870	1956

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,540	1,170	968	809	749	664	508	1,390	1,360	1,540	1,270	1,910
2	1,510	1,120	953	* 777	749	547	456	1,360	* 1,510	* 1,540	1,230	* 1,910
3	* 1,500	1,110	953	1,060	742	* 678	* 484	1,310	1,600	1,610	1,370	1,900
4	1,500	1,110	* 961	1,360	876	720	2,930	1,300	1,580	4,340	* 1,560	1,890
5	1,480	1,090	* 968	1,060	2,220	* 696	3,100	* 1,240	* 1,530	2,170	1,560	1,890
6	1,500	* 1,030	1,020	929	* 1,900	660	3,250	1,150	1,510	1,840	1,540	1,900
7	1,500	953	1,030	830	1,500	692	2,470	* 1,070	1,460	* 1,780	1,510	1,890
8	1,520	989	1,040	* 752	1,240	837	* 2,120	1,080	1,420	1,760	1,530	1,890
9	* 1,610	936	1,060	724	* 1,200	1,090	2,090	1,110	* 1,440	* 1,740	1,580	* 1,880
10	1,680	946	1,060	* 886	1,490	* 1,050	* 2,480	1,150	1,480	1,770	1,620	1,870
11	1,580	1,010	* 1,290	1,080	5,400	* 901	2,100	1,210	* 1,420	1,700	1,590	* 1,840
12	1,530	* 1,020	1,310	1,200	7,730	805	1,660	* 1,170	1,340	1,620	1,550	1,800
13	1,540	1,030	1,220	1,190	* 5,720	703	1,340	1,110	1,380	1,590	1,550	1,830
14	1,540	* 1,140	* 1,110	1,180	* 4,240	611	890	* 1,080	1,700	1,580	1,580	1,830
15	* 1,590	1,230	1,120	* 1,170	2,780	533	* 918	1,050	1,750	* 1,480	1,580	1,830
16	1,530	1,180	1,130	* 2,100	2,250	523	1,030	1,070	1,680	* 1,470	1,590	* 1,820
17	* 1,480	1,130	1,130	2,280	1,930	* 745	* 1,080	1,060	* 1,520	1,460	1,620	1,790
18	2,790	1,220	* 1,120	1,780	1,800	1,290	1,090	1,110	* 1,640	1,430	1,610	* 1,790
19	1,920	* 1,340	1,070	5,400	1,670	* 1,310	1,030	* 1,130	1,570	1,430	1,560	1,790
20	1,660	* 1,390	1,280	6,110	1,560	1,200	1,090	1,110	1,590	1,430	1,560	1,790
21	1,590	1,370	1,370	2,090	1,490	1,060	1,150	* 1,100	1,630	* 1,440	1,570	1,790
22	* 1,550	1,240	* 1,340	* 1,600	* 1,330	886	* 1,020	1,110	1,610	1,430	1,590	1,580
23	1,480	1,180	1,090	1,360	1,200	876	1,060	1,150	1,600	* 1,430	1,620	* 1,450
24	1,410	1,140	1,000	* 1,250	1,130	* 777	1,310	1,210	* 2,140	1,390	1,620	1,710
25	1,330	1,150	* 982	1,110	1,610	646	1,270	1,300	* 1,810	1,360	1,610	1,760
26	1,290	* 1,170	964	953	1,920	600	1,210	* 1,380	1,510	1,360	1,600	1,790
27	1,270	1,160	* 946	876	* 1,640	586	1,270	1,350	1,470	1,390	1,830	1,540
28	1,240	1,110	922	830	1,380	519	1,490	1,310	1,500	1,340	1,900	1,140
29	1,240	* 1,060	897	812	1,120	498	* 1,540	1,290	1,510	* 1,300	1,870	1,080
30	1,220		840	763	911	505	1,550	1,300	* 1,560	* 1,280	1,910	1,060
31	* 1,200		819		777		* 1,390	1,350		1,280		1,010
Sum	47,320	32,724	32,963	44,321	62,254	23,208	46,376	37,110	46,820	50,280	47,680	52,950

Month	Current Year 1968							Period 1948-1968		
	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet		
	High	Low	Day	High	Day Low			Average	Maximum	Minimum
Jan.	4.40	2.79	18	4,060	31 1,200	1,530	93,805	98,560	199,100	42,690
Feb.	2.92	2.59	20	1,390	9 936	1,130	64,897	100,962	398,200	33,320
Mar.	3.15	2.40	21	1,770	31 798	1,060	65,429	82,419	211,100	26,970
Apr.	8.01	2.23	19	13,700	8 682	1,480	87,921	104,325	414,600	14,770
May	7.02	2.23	12	10,700	2 699	2,010	123,518	166,384	1,108,000	8,430
June	2.95	1.74	18	1,510	16 452	773	46,055	338,373	2,794,000	4,530
July	4.43	1.64	6	3,780	3 417	1,500	91,998	176,515	629,800	17,380
Aug.	2.85	2.53	1	1,410	15 989	1,200	73,555	157,100	519,100	35,730
Sept.	4.53	2.82	24	3,960	12 1,320	1,560	92,859	330,303	1,736,025	27,050
Oct.	5.91	2.76	4	7,130	31 1,240	1,620	99,695	259,045	1,768,000	31,560
Nov.	3.25	2.69	30	1,940	2 1,180	1,590	94,575	120,992	451,200	35,630
Dec.	3.25	2.53	† 1	1,910	31 961	1,710	105,033	103,104	245,100	41,000
Yearly	8.01	1.64		13,700	417	1,430	1,039,340	2,038,082	4,518,490	631,520

† And other days ‡ Period 1924-1968 * Discharge measurement made on this day

RIO ESCONDIDO AT VILLA DE FUENTE, COAHUILA

DESCRIPTION: Cableway, gravity well, and water-stage recorder located on the downstream side of the left abutment of the highway bridge over Río Escondido on the outskirts of Villa de Fuente, Coahuila, 1.2 river miles downstream from the cableway, at latitude 28° 40' 10", longitude 100° 32' 50", about 3 miles southwest of Piedras Negras, Coahuila, 3.7 river miles from the confluence with the Rio Grande, and 6.8 river miles downstream from the confluence of Río San Antonio with Río Escondido. Río Escondido enters the Rio Grande at river mile 488.2, 3.1 river miles downstream from the international highway bridge between Eagle Pass, Texas and Piedras Negras, Coahuila, and 760.0 river miles downstream from the American Dam at El Paso, Texas. The zero of the gage is 708.78 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 46 discharge measurements during the year and a continuous record of gage heights. Computations by shifting control methods. Records available: 1922 through 1968. Records from 1922 through September 1932 are considered doubtful.

REMARKS: Diversions and drainage returns modify the flow of this spring-fed stream at this station. Backwater from the Rio Grande reached an elevation of 729.92 feet during the flood of June 1954. Prior to November 1954, the gage well was located at the present cableway site. The weir was destroyed by a flood on September 24, 1964.

EXTREME FLOWS FROM RECORDS‡: Momentary: Max. 24,000 second-feet on June 29, 1936 with a gage height of 19.13 feet. Min. frequently no flow.

Average Flow in Second-Feet ‡

Daily:	Max.	13,100	Sept. 24, 1964	Min.	0	Several days 1956-1958 & 1965
Monthly:	Max.	827	Sept. 1964	Min.	0.3	September 1965
Yearly:	Max.	115	1958	Min.	2.4	1956

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2.8	10.6	7.8	*3.2	2.5	6.4	*3.2	1.8	1.4	3.5	3.5	3.9
2	2.8	10.6	7.8	3.2	2.5	6.4	2.8	1.8	*1.8	3.5	3.5	*3.2
3	*2.8	10.6	7.8	3.2	2.5	*6.7	2.8	1.8	1.8	13.1	3.5	3.2
4	2.8	10.6	*7.1	3.2	102	6.4	2.8	1.8	1.4	73.8	*3.5	3.2
5	2.8	10.6	7.1	2.8	232	5.3	60.0	*1.8	1.4	22.2	3.5	3.2
6	2.8	*10.6	7.1	3.2	*24.7	5.3	6.7	1.8	1.4	15.5	3.5	3.2
7	2.8	14.8	7.4	3.2	14.1*	5.3	4.6	1.8	1.4	*11.7	3.5	3.2
8	3.2	17.0	7.8	*3.2	14.1u	5.3	*3.5	1.8	1.4	8.5	3.5	3.2
9	3.5	17.0	7.8	3.9	44.1u	4.9	3.2	1.8	*80.2	7.1	3.5	*3.2
10	3.5	17.0	8.5	9.2	44.1u	*4.9	3.2	1.8	5.6	7.1	3.5	3.2
11	3.5	17.7	8.5	3.5	44.1u	4.9	3.2	1.8	2.5	7.1	3.5	3.2
12	3.5	*18.7	8.1	8.5	44.1u	4.9	3.2	*1.8	2.5	6.7	*3.5	3.2
13	3.5	18.4	7.8	3.9	*44.1*	4.6	3.2	1.8	2.5	5.6	3.5	3.2
14	3.5	17.7	7.4	3.5	40.6	4.2	2.8	1.8	2.5	4.6	3.5	3.2
15	*3.5	17.7	7.4	*3.2	22.2	3.5	*2.8	1.4	2.5	5.3	3.5	3.2
16	3.5	13.4	7.1	3.2	23.0	3.2	2.8	1.4	2.5	5.3	3.5	*3.2
17	3.5	12.0	3.9	3.2	21.5	*3.2	2.5	1.4	*2.1	4.6	3.5	3.2
18	10.6	11.3	3.5	3.2	19.4	3.2	2.5	1.4	2.1	6.0	*3.5	3.2
19	5.3	*10.6	3.2	2.8	22.2	3.2	2.5	*1.4	2.1	9.2	3.5	3.2
20	4.6	10.6	3.2	3.2	*20.5	6.7	2.5	1.4	2.1	6.7	3.5	3.2
21	4.6	9.2	3.2	3.2	19.1	3.2	4.2	1.4	2.1	*8.5	3.9	3.2
22	*6.4	8.5	3.2	*3.2	15.2	3.2	*2.8	1.4	2.1	9.5	3.9	3.2
23	8.8	8.8	3.2	3.2	4.6	3.2	2.5	1.1	*2.1	10.2	3.9	*4.2
24	8.8	8.5	3.2	3.2	3.2	*3.2	2.5	1.4	2.1	10.2	3.9	6.7
25	8.8	8.8	*3.2	3.2	3.2	5.6	2.5	1.4	2.5	9.9	*3.5	4.9
26	8.8	*8.8	3.2	3.2	3.2	7.1	2.5	*1.1	2.5	9.9	3.5	4.9
27	8.5	8.5	3.2	3.2	*2.1	3.2	2.5	1.4	2.8	9.9	3.5	4.9
28	9.2	8.5	3.2	2.8	1.8	3.2	2.5	1.4	2.8	9.9	3.5	4.9
29	9.2	8.5	3.2	2.5	1.8	2.8	*2.5	1.4	3.2	8.1	3.5	4.9
30	8.8		3.2	2.5	1.8	2.8	2.5	1.4	*3.5	4.9	5.3	*4.9
31	8.8		3.2		1.8		2.1	1.8		3.5		4.9
Sum	165.5	355.6	171.5	106.7	*842.1	136.0	149.9	48.8	146.9	321.6	108.4	116.3

Current Year 1968									Period 1933-1968		
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
			High		Low				Average	Maximum	Minimum
	High	Low	Day		Day						
Jan.	0.36	-0.36	18	24.7	†1	2.8	5.3	329	1,908	15,990	43.8
Feb.	-.07	-.20	†12	18.7	†22	8.5	12.4	705	1,345	9,990	38.9
Mar.	-.16	-.33	†10	8.5	†19	3.2	5.7	339	1,175	6,910	92.4
Apr.	.20	-.36	12	56.5	30	1.8	3.5	211	1,897	21,950	81.1
May	3.74	-.39	5	826	†27	1.8	*27.2	*1,670	3,828	25,470	154
June	.23	-.46	25	58.3	†25	2.8	4.6	270	2,335	19,730	60.3
July	1.12	-.56	5	256	31	1.8	4.9	297	1,643	9,740	57.6
Aug.	-.52	-.66	†1	1.8	†23	1.1	1.4	95.7	1,845	20,830	34.9
Sept.	3.61	-.59	9	795	†1	1.4	4.9	291	3,933	49,182	17.8
Oct.	2.07	-.46	4	230	†1	3.5	10.2	638	2,384	20,530	43.8
Nov.	-.30	-.46	30	10.6	†1	3.5	3.5	216	1,590	25,730	43.8
Dec.	-.36	-.46	24	7.1	†2	3.2	3.9	230	1,385	3,580	67.3
Yearly	3.74	-0.66		826		1.1	7.4	5,291.7	25,268	83,164	1,755.3

† And other days ‡ Period 1932-1968 * Discharge measurement made on this day u Estimated
* Partly estimated

RETURN FLOW TO THE RIO GRANDE FROM MAVERICK CANAL EAGLE PASS TO SAN ANTONIO CROSSING

DESCRIPTION: Part of the water diverted from the Rio Grande into the Maverick Canal is returned to the river through various drains and spillways of the irrigation system located between Eagle Pass, Texas and the San Antonio Crossing Gaging Station. These return flows are measured at gaging stations consisting of sharp-crested Cipolletti weirs or control structures equipped with continuous water-stage recorders located at Lateral 40 Spill, Lateral 40 D Spill, Cañon Diablo, Lateral 50 Lowline No. 1, Lateral 50 Spill, Lateral 50 Lowline No. 2, Rosita Creek, Lateral 60 K Spill, Sauz Creek, Lateral 70 Spill No. 1, Lateral 70 Spill No. 2, Indio Creek, Gravel Spill, Lateral 71 Spill, and Cuervo Creek.

RECORDS: Based on the weir discharge table, stable station control rating tables, and a continuous record of gage heights. All storm flow occurring at these stations is deducted from the records and is not shown below. Records available: April 1959 through 1968.

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	187	183	161	185	206	290	266	181	218	98.4	129	126
2	191	167	182	212	205	280	261	140	261	86.8	159	107
3	180	161	218	189	212	265	239	154	282	85.4	178	90.3
4	164	162	218	159	221	267	266	194	220	112	177	87.3
5	164	150	220	163	248	252	350	217	179	135	155	86.3
6	174	139	239	180	234	238	339	187	176	121	157	93.3
7	180	126	218	222	159	231	328	169	183	102	149	89.6
8	178	131	187	230	93.5	253	332	184	188	102	156	89.0
9	186	142	176	227	81.0	268	314	204	192	101	159	89.0
10	162	163	179	252	87.5	248	337	204	185	97.1	172	90.0
11	145	183	187	201	95.9	244	334	174	167	98.8	169	83.2
12	147	178	162	158	110	232	297	188	172	100	168	73.5
13	150	175	137	158	110	216	239	178	184	96.1	158	84.2
14	157	189	98.8	131	108	219	221	151	189	85.3	160	107
15	154	179	83.0	99.1	99.6	196	218	158	162	100	190	109
16	155	144	82.2	90.8	102	212	234	164	112	118	182	108
17	161	133	82.2	80.5	103	269	227	168	100	143	176	109
18	191	158	80.4	89.2	99.9	238	201	215	97.3	150	168	119
19	183	203	78.3	110	94.0	222	193	233	103	160	164	126
20	194	153	105	142	93.4	222	192	224	125	158	144	135
21	160	126	133	159	96.1	252	217	212	142	161	144	155
22	144	124	125	198	89.3	239	240	204	128	161	136	153
23	133	138	116	162	97.2	262	224	170	102	145	148	138
24	124	164	136	150	136	271	184	183	108	133	162	137
25	132	172	142	137	177	230	155	259	114	134	160	153
26	141	184	148	154	175	228	158	228	112	131	154	160
27	155	183	135	176	166	198	181	184	112	124	193	167
28	170	165	111	200	168	222	223	182	103	127	194	143
29	178	155	111	203	199	228	240	184	103	124	142	132
30	180		118	218	232	260	225	172	100	129	118	125
31	176		162		248		218	176		159		148
Sum	5,096	4,630	4,530.9	5,035.6	4,546.4	7,252	7,653	5,841	4,619.3	3,777.9	4,821	3,612.7

Current Year 1968 — **Period Apr. 1959-1968**

Month	Extreme Gage Feet		∅ Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
			High		Low						
	High	Low	Day		Day				Average	Maximum	Minimum
Jan.			20	194	24	124	164	10,108	10,332	12,435	7,079
Feb.			19	203	22	124	160	9,184	10,119	13,117	6,000
Mar.			6	239	19	78.3	146	8,987	11,574	13,498	8,987
Apr.			10	252	17	80.5	168	9,988	11,062	13,030	9,380
May			† 5	248	9	81.0	147	9,017	10,320	13,926	6,205
June			1	290	15	196	242	14,384	11,814	14,430	8,900
July			5	350	25	155	247	15,180	12,817	15,219	9,940
Aug.			25	259	2	140	188	11,586	11,982	14,299	8,390
Sept.			3	282	18	97.3	154	9,162	10,282	13,974	6,595
Oct.			†21	161	14	85.3	122	7,493	10,207	12,248	7,493
Nov.			28	194	30	118	161	9,562	10,175	11,843	7,650
Dec.			27	167	12	73.5	117	7,166	9,904	12,157	6,464
Yearly				350		73.5	168	121,817	130,588	149,031	112,110

∅ Mean daily † And other days

RIO GRANDE AT SAN ANTONIO CROSSING NEAR EL INDIO, TEXAS

DESCRIPTION: Cableway, bubbler gage, concrete control weir, and water-stage recorders (graphic and digital) located on the left bank at latitude 28° 20' 40", longitude 100° 18' 35", and river mile 455.8; 0.5 river mile downstream from Cuervo Creek, which marks the lower end of the Maverick County Water Control and Improvement District No. 1, 1.9 river miles upstream from Tovar Creek, 5 miles northeast of Villa Guerrero, Coahuila, about 11.5 miles south of El Indio, Texas, 35.5 river miles downstream from the international highway bridge between Eagle Pass, Texas and Piedras Negras, Coahuila, and 792.4 river miles downstream from the American Dam at El Paso, Texas. The zero of the gage is 580.00 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 60 discharge measurements during the year, 57 by the United States Section and 3 by the Mexican Section of this Commission, and a continuous record of gage heights. Computations for high flows by shifting control methods. Low and medium flow computations based on a stable control weir rating curve defined by meter measurements. Records available: March, April, May, October, November, and December 1952 with some days missing; January through August 20, 1953; September 23, 1953 through June 14, 1954; and May 27, 1955 through 1968 with some days missing prior to September 1955.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station. The June 1954 flood reached an elevation of 624.31 feet at this station with a discharge of 912,000 second-feet, determined by slope-area computations. The lowest recorded flow was 54.4 second-feet on June 24, 1953 with an elevation of 581.96 feet at a station 1,700 feet upstream from the present site. The concrete control weir was placed in operation on April 2, 1966 and the cableway was installed in March 1967.

EXTREME FLOWS FROM RECORDS‡: Momentary: Max. 250,000 second-feet on September 25, 1964, determined by slope-area computations, with a gage height of 26.03 feet. Min. 262 second-feet on several days in August 1956 with a gage height of 0.38 foot.

Average Flow in Second-Feet ‡

Daily:	Max.	185,000	Sept. 25, 1964	Min.	299	July 20 & Aug. 2-4, 1956
Monthly:	Max.	31,700	Sept. 1964	Min.	445	July 1956
Yearly:	Max.	6,130	1958	Min.	1,040	1956

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,730	1,420	1,280	999	✟ 996	1,080	754	1,480	1,500	✟1,530	1,340	2,100
2	1,760	1,380	1,200	✟ 996	982	926	729	1,420	1,590	1,520	1,350	1,940
3	✟1,710	1,350	1,230	956	982	926	✟ 705	1,370	1,710	1,530	1,340	1,780
4	1,700	1,350	1,250	1,430	1,010	✟ 994	1,950	1,370	✟1,630	4,990	1,520	✟1,780
5	1,710	1,350	✟1,260	1,400	5,800	994	3,670	1,390	1,530	3,090	1,600	1,780
6	1,730	✟1,300	1,260	1,170	2,440	953	3,670	✟ 1,330	1,530	2,000	✟1,620	1,780
7	1,770	1,210	1,300	1,110	✟ 1,820	926	3,180	1,250	1,480	1,820	1,580	1,780
8	1,800	1,200	1,300	1,060	1,360	1,010	2,580	1,220	1,470	1,760	1,570	1,780
9	1,860	1,260	1,280	✟ 1,030	1,170	1,220	✟ 2,460	1,270	1,500	✟1,740	1,600	1,770
10	✟1,970	1,250	1,280	1,520	2,350	1,350	2,760	1,280	1,800	1,710	1,680	✟1,750
11	1,870	1,290	1,530	1,270	4,600	✟ 1,260	2,970	1,300	✟ 1,560	1,820	1,700	1,770
12	1,790	1,310	1,550	1,290	13,800	1,120	2,170	1,340	1,480	1,630	1,650	1,720
13	1,780	✟1,310	✟1,470	1,560	✟ 5,700	1,020	1,700	1,300	1,480	1,600	✟1,620	1,730
14	1,750	1,380	1,280	1,310	6,420	887	1,360	✟ 1,220	1,670	1,560	1,620	1,750
15	1,760	1,480	1,220	1,310	3,100	810	1,070	1,210	1,850	✟1,530	1,650	1,730
16	✟1,750	1,430	1,250	✟ 1,380	2,500	724	1,200	1,210	1,770	1,500	1,660	1,730
17	1,700	1,330	1,250	2,550	2,070	823	✟ 1,260	1,210	✟ 1,690	1,520	1,630	✟1,720
18	2,370	1,350	1,240	2,000	1,850	✟ 1,160	1,260	1,250	1,660	1,480	1,630	1,730
19	2,660	1,580	1,210	1,800	1,770	1,460	1,230	1,340	1,580	1,470	1,620	1,750
20	2,010	✟1,530	1,310	✟10,500	1,630	1,370	1,200	✟ 1,300	1,580	1,480	✟1,600	1,750
21	1,860	1,510	✟1,530	2,940	✟ 1,530	1,340	1,290	1,300	1,640	1,480	1,600	1,770
22	1,770	1,440	1,730	1,960	1,460	1,180	1,290	1,280	1,630	1,480	1,580	1,770
23	1,670	1,400	1,430	1,640	1,310	1,060	1,160	1,270	1,610	✟1,480	1,600	1,480
24	1,650	1,400	1,250	✟ 1,500	1,270	1,080	✟ 1,290	1,340	1,640	1,450	1,620	✟1,550
25	1,560	1,410	1,230	1,460	1,330	939	1,400	1,500	✟ 2,820	1,410	1,620	1,700
26	✟1,520	1,470	✟1,170	1,260	2,080	862	1,320	1,510	1,690	1,410	✟1,650	1,750
27	1,500	1,470	1,140	1,170	1,860	✟ 823	1,350	1,450	1,510	1,410	1,960	1,750
28	1,470	✟1,440	1,100	1,130	1,660	748	1,570	✟ 1,420	1,510	1,420	2,020	1,440
29	1,450	1,340	1,030	1,110	1,440	712	1,580	1,390	1,530	1,390	1,910	1,260
30	✟1,450		990	1,030	✟ 1,240	724	1,520	1,390	1,560	✟1,350	1,890	1,230
31	1,430		975		1,070		✟ 1,540	1,430		1,360		1,200
Sum	54,510	39,940	39,525	51,841	78,600	30,481	53,188	41,340	49,200	52,920	49,030	52,520

Month	Current Year 1968 Extreme Gage Feet High	Extreme Gage Feet Low	Extreme Second-Feet High Day	High	Extreme Second-Feet Low Day	Low	Average Second-Feet	Total Acre-Feet	Period 1956-1968 Acre-Feet Average	Maximum	Minimum
Jan.	7.28	6.43	18	4,080	31	1,430	1,760	108,121	119,577	219,000	63,200
Feb.	6.58	6.30	21	1,700	8	1,180	1,380	79,221	104,948	174,000	72,600
Mar.	6.60	6.18	22	1,850	30	978	1,280	78,398	93,404	152,000	60,600
Apr.	8.85	6.15	20	13,900	3	928	1,730	102,827	122,975	433,000	42,600
May	9.47	6.14	11	18,900	2	955	2,540	155,903	201,904	1,054,000	50,500
June	6.48	5.89	19	1,490	29	676	1,020	60,459	213,155	737,000	35,300
July	7.56	5.84	6	4,210	1	611	1,720	105,498	142,896	312,000	27,400
Aug.	6.50	6.24	26	1,540	†15	1,150	1,330	81,998	140,148	274,000	44,200
Sept.	7.70	6.45	25	4,640	† 1	1,450	1,640	97,588	414,581	1,888,661	81,200
Oct.	8.24	6.37	4	8,500	30	1,320	1,710	104,967	332,666	1,741,000	104,967
Nov.	6.80	6.37	30	2,090	1	1,320	1,630	97,251	148,032	454,000	59,000
Dec.	6.84	6.28	1	2,170	31	1,170	1,690	104,173	127,397	263,000	60,800
Yearly	9.47	5.84		18,900		611	1,620	1,176,404	2,161,683	4,441,400	756,800

‡ Period 1956-1968 ✟ Discharge measurement made on this day † And other days

RIO GRANDE AT PALAFOX NEAR LAREDO, TEXAS

DESCRIPTION: Cableway, gravity well, and water-stage recorder located on the right bank on the outskirts of Palafox, Webb County, Texas and Villa Hidalgo, Coahuila at latitude 27° 47' 55", longitude 99° 52' 40", and river mile 403.0; 1.9 river miles downstream from Arroyo Agua Verde in Mexico, 13.1 river miles upstream from Santo Tomas Creek in United States, 44.7 river miles upstream from the international highway bridge between Laredo, Texas and Nuevo Laredo, Tamaulipas, and 845.2 river miles downstream from the American Dam at El Paso, Texas. The zero of the gage is 436.02 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 49 discharge measurements during the year, 46 by the Mexican Section and 3 by the United States Section of this Commission, and a continuous record of gage heights. Computations by shifting control methods. High flows prior to early 1962 were computed from a rating curve developed after the cableway was installed. Records available: August 1959 through 1968.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station. The recorder was installed on August 5, 1959 and the cableway in early 1962.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 214,000 second-feet on September 25, 1964 with a gage height of 42.06 feet. Min. 353 second-feet on July 26, 1964 with a gage height of -0.43 foot.

Average Flow in Second-Feet

Daily:	Max.	163,000	Sept. 26, 1964	Min.	371	July 25, 1964
Monthly:	Max.	30,400	Sept. 1964	Min.	862	May 1967
Yearly:	Max.	4,420	1964	Min.	1,680	1968

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,640	1,450	1,280	1,020	1,110	1,170	671	1,550	1,500	1,630	1,450	2,080
2	1,730	1,410	1,260	1,030	✟ 1,020	1,550	✟ 703	1,510	1,750	✟ 1,610	1,420	2,190
3	1,730	1,380	1,210	1,050	982	936	699	1,450	1,810	1,590	1,430	2,030
4	1,710	1,360	1,260	✟ 1,060	982	✟ 819	826	1,380	1,670	4,870	1,450	✟ 1,900
5	1,700	1,350	1,300	1,460	3,110	911	2,520	1,380	4,100	5,690	✟ 1,650	1,870
6	1,680	1,340	1,310	1,380	4,200	925	3,510	✟ 1,410	2,190	2,850	1,680	1,870
7	1,700	✟ 1,310	1,350	1,240	2,320	883	3,570	1,300	1,690	2,090	1,660	1,870
8	1,710	1,250	1,380	1,170	1,860	848	2,870	1,180	1,590	✟ 1,920	1,650	1,870
9	1,750	1,250	1,350	✟ 1,220	✟ 1,480	911	✟ 2,480	1,160	1,660	1,870	1,620	1,870
10	1,800	1,270	1,330	1,620	2,840	1,200	2,470	1,220	1,710	1,850	1,680	✟ 1,870
11	1,870	1,300	1,410	1,600	2,400	✟ 1,330	3,090	1,240	1,890	1,840	1,720	1,890
12	1,780	1,310	1,600	1,380	11,300	1,170	2,670	1,260	1,640	1,870	✟ 1,740	1,870
13	1,750	1,330	1,580	1,400	8,510	1,020	2,100	1,300	1,570	1,720	1,700	1,810
14	1,710	1,380	1,540	1,540	✟ 6,180	936	1,720	1,230	1,660	1,680	1,680	1,820
15	1,730	1,400	✟ 1,350	1,330	4,270	812	1,300	✟ 1,110	2,060	✟ 1,640	1,690	1,850
16	✟ 1,770	1,470	1,290	✟ 1,360	2,960	731	✟ 996	1,100	2,010	1,600	1,700	1,850
17	1,770	1,450	1,310	1,650	2,400	671	1,130	1,090	1,840	1,570	✟ 1,720	✟ 1,850
18	1,750	1,390	1,310	2,380	2,080	✟ 724	1,240	1,110	✟ 1,760	1,570	1,720	1,820
19	2,710	1,440	1,320	1,920	1,950	1,150	1,240	1,190	1,750	1,560	✟ 1,700	1,820
20	2,360	1,600	✟ 1,270	5,760	1,830	1,480	1,190	✟ 1,270	1,640	1,570	1,680	1,820
21	1,940	1,580	1,350	6,000	1,670	1,380	1,150	1,230	1,670	1,570	1,670	1,850
22	1,800	1,510	1,450	2,620	✟ 1,620	1,390	1,260	1,230	1,730	✟ 1,590	1,670	1,870
23	✟ 1,770	✟ 1,450	1,650	✟ 2,090	1,530	1,180	✟ 1,230	1,190	1,730	1,590	1,670	1,820
24	1,700	1,410	1,400	1,710	1,360	1,060	1,090	1,190	✟ 1,710	1,570	1,700	✟ 1,510
25	1,620	1,380	1,260	1,520	1,320	✟ 1,090	1,260	1,410	2,370	1,520	1,700	1,670
26	1,540	1,380	✟ 1,200	1,450	1,480	982	1,360	1,590	2,360	1,490	✟ 1,710	1,820
27	1,500	1,410	1,190	1,340	2,080	858	1,310	✟ 1,550	1,730	1,470	1,850	1,890
28	1,500	1,410	1,170	1,400	✟ 1,850	759	1,410	1,450	1,580	1,470	2,020	1,810
29	1,470	1,350	1,130	1,240	1,680	717	1,680	1,410	1,600	✟ 1,480	2,060	1,410
30	✟ 1,470		1,070	1,130	1,450	678	✟ 1,620	1,360	1,620	1,430	1,980	1,270
31	1,450		1,050		1,250		1,550	1,360		1,410		✟ 1,230
Sum	54,110	40,320	40,930	53,070	81,074	30,271	51,915	40,410	55,590	59,180	50,770	55,970

Month	Current Year 1968 Extreme Gage Feet High	Extreme Gage Feet Low	Extreme Second-Feet High Day	Extreme Second-Feet High	Extreme Second-Feet Low Day	Extreme Second-Feet Low	Average Second-Feet	Total Acre-Feet	Period Aug. 1959-1968 # Acre-Feet Average	Maximum	Minimum
Jan.	3.48	1.77	19	3,440	31	1,420	1,740	107,275	117,481	167,000	74,038
Feb.	2.03	1.38	20	1,640	† 8	1,240	1,390	80,055	103,765	165,800	80,055
Mar.	2.13	1.15	23	1,750	31	1,040	1,320	81,204	93,863	149,600	65,317
Apr.	7.48	1.08	20	11,800	4	1,000	1,770	105,285	105,294	167,429	85,742
May	9.12	1.02	12	16,100	4	961	2,620	160,901	139,771	270,690	53,059
June	2.79	.33	2	2,490	† 17	664	1,010	60,099	196,540	665,725	60,099
July	3.81	.33	7	3,960	4	664	1,670	103,002	150,920	321,949	53,697
Aug.	2.13	1.25	25	1,770	17	1,060	1,300	80,223	157,755	262,677	79,011
Sept.	5.28	1.71	5	6,710	1	1,420	1,850	110,231	431,127	1,811,078	110,231
Oct.	5.64	1.67	5	7,450	31	1,390	1,910	117,410	236,257	393,942	117,410
Nov.	2.56	1.64	28	2,090	4	1,400	1,690	100,662	131,477	178,200	79,586
Dec.	2.66	1.31	2	2,270	31	1,210	1,800	111,036	122,520	175,100	91,717
Yearly	9.12	0.33		16,100		664	1,680	1,217,383	1,986,770	3,208,230	1,217,383

† And other days # High flow prior to 1962 are based on a rating developed after this date
✟ Discharge measurement made on this day

RIO GRANDE AT LAREDO, TEXAS

DESCRIPTION: Cableway, bubbler gage, and water-stage recorder located on the right bank at Laredo, Texas at latitude 27° 29' 45", longitude 99° 29' 30", and river mile 357.2; immediately downstream from the Laredo, Texas sewer plant, 1.1 river mile downstream from the international highway bridge between Laredo, Texas and Nuevo Laredo, Tamaulipas, and 891.0 river miles downstream from the American Dam at El Paso, Texas. The zero of the gage is 345.28 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 76 discharge measurements during the year, 72 by the Mexican Section and 4 by the United States Section of this Commission, and a continuous record of gage heights. Computations by shifting control methods. Records available: May 1900 through 1913; May, June, and October 1914; September 1916; September and October 1917; October 1918; September and October 1919; August and September 1920; June, November, and December 1922; and 1923 through 1968. Gage height records are available for January, February, and March 1914.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station. This station was established in January 1955 to replace the station 1.5 miles upstream which was destroyed by the June-July 1954 flood. Prior to July 11, 1968 the recorder was located 0.2 river mile upstream, where the cableway is still located, and the zero of the gage was 347.90 feet above mean sea level, U. S. C. & G. S. datum.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 716,900 second-feet on June 30, 1954, determined by slope-area calculations with a gage height of 61.35 feet. Much well-authenticated information establishes the occurrence of a greater flood in June 1865 with a gage height of 62.5 feet on the same gage and discharge of approximately 950,000 second-feet and also that these were the only floods since 1745 with flows greater than 600,000 second-feet. Min. no flow several days in June and July 1953 and on July 24, 1956.

Average Flow in Second-Feet ‡

Daily:	Max.	576,000	June 30, 1954	Min.	0	Several days June, July 1953
Monthly:	Max.	49,500	Sept. 1932	Min.	5.5	June 1953
Yearly:	Max.	9,670	1932	Min.	1,080	1956

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,680	1,450	1,330	✟ 1,010	1,140	1,150	✟ 636	1,440	1,330	1,540	1,290	2,080
2	✟ 1,720	1,450	1,300	972	1,080	1,450	710	1,470	✟ 1,680	1,560	1,320	✟ 2,200
3	1,720	1,430	✟ 1,310	972	1,040	✟ 1,230	706	1,410	1,790	1,550	1,290	2,190
4	1,750	1,380	1,330	972	1,040	936	706	1,350	1,760	✟ 7,800	✟ 1,320	2,060
5	1,780	1,240	1,370	1,010	1,040	✟ 872	1,090	✟ 1,310	3,280	6,360	1,360	1,950
6	1,750	✟ 1,240	1,370	1,320	✟ 4,940	936	✟ 3,410	1,280	✟ 4,340	4,590	1,550	✟ 1,940
7	1,780	1,210	✟ 1,350	1,240	2,980	961	3,530	1,270	1,940	✟ 2,740	1,580	1,940
8	1,830	1,170	1,370	✟ 1,110	✟ 2,220	918	✟ 3,310	1,210	1,640	2,060	1,590	1,940
9	1,900	1,110	1,370	1,070	1,680	901	2,680	1,090	✟ 1,590	1,920	1,590	✟ 1,920
10	✟ 1,900	1,120	1,380	1,330	2,040	✟ 971	2,540	1,100	2,040	1,890	1,590	1,910
11	1,900	1,210	✟ 1,470	1,550	3,070	1,190	✟ 2,690	1,150	1,790	1,850	✟ 1,620	1,910
12	1,920	✟ 1,190	1,490	✟ 1,480	6,220	1,280	3,110	1,180	1,770	1,860	1,700	1,920
13	1,900	1,210	1,550	1,360	✟ 11,700	1,130	2,410	1,200	1,620	1,820	1,680	1,910
14	1,800	1,310	1,480	1,360	5,930	1,040	1,920	✟ 1,220	1,570	✟ 1,700	1,650	1,860
15	✟ 1,780	1,310	1,450	✟ 1,380	6,140	953	✟ 1,540	1,150	1,700	1,640	1,610	1,890
16	1,800	1,310	✟ 1,320	1,290	3,530	‘855	1,180	1,110	2,000	1,620	1,620	✟ 1,880
17	1,750	1,390	1,290	✟ 1,260	✟ 2,830	✟ 777	✟ 971	1,090	✟ 1,900	1,580	1,650	1,890
18	1,750	1,390	✟ 1,240	✟ 2,250	2,380	742	1,100	1,080	1,740	1,510	✟ 1,670	1,890
19	1,940	1,350	1,240	✟ 2,150	2,100	777	1,170	✟ 1,080	1,700	1,510	1,680	1,890
20	✟ 2,810	1,500	1,240	1,970	✟ 1,870	1,240	1,170	1,150	✟ 1,640	1,510	1,680	1,910
21	2,090	✟ 1,710	1,170	✟ 8,550	1,730	1,390	1,140	1,210	1,570	✟ 1,510	1,650	1,910
22	✟ 1,830	1,630	1,290	✟ 3,500	1,550	1,380	✟ 1,130	1,200	1,600	1,510	1,620	1,890
23	1,750	1,600	1,370	✟ 2,350	1,470	1,450	1,200	1,180	✟ 1,640	1,530	1,620	✟ 1,910
24	1,720	1,490	1,410	1,840	1,360	✟ 1,200	1,140	1,170	1,630	1,530	1,620	1,800
25	1,660	1,390	✟ 1,290	1,520	1,240	1,110	1,040	1,270	1,770	✟ 1,510	✟ 1,650	1,570
26	1,600	✟ 1,390	1,160	✟ 1,450	1,220	1,300	1,220	✟ 1,470	✟ 2,750	1,480	1,670	1,730
27	1,500	1,390	✟ 1,100	1,370	✟ 1,610	1,060	1,260	1,540	1,900	1,450	1,680	1,820
28	1,480	1,420	1,100	1,500	1,870	918	1,280	1,480	1,590	✟ 1,430	1,940	1,880
29	✟ 1,480	1,420	1,080	✟ 1,840	1,640	819	✟ 1,330	1,410	1,500	1,410	2,030	1,770
30	1,480		1,030	1,180	1,390	724	1,530	1,350	✟ 1,530	1,410	2,070	✟ 1,380
31	1,450		996		1,270		1,470	1,310		1,360		1,280
Sum	55,200	39,410	40,246	52,156	81,320	31,660	50,319	38,930	56,300	64,740	48,590	58,020

Month	Current Year 1968 Extreme Gage ** Feet High	Extreme Gage ** Feet Low	Extreme Second-Feet High Day	Extreme Second-Feet High	Extreme Second-Feet Low Day	Extreme Second-Feet Low	Average Second-Feet	Total Acre-Feet	Period 1948-1968 Acre-Feet Average	Maximum	Minimum
Jan.	2.26	1.41	20	3,170	31	1,430	1,780	109,488	111,572	219,200	54,800
Feb.	1.48	1.15	21	1,710	† 9	1,080	1,360	78,212	111,979	423,700	41,050
Mar.	1.57	1.25	13	1,550	31	975	1,300	79,844	92,887	323,400	30,960
Apr.	6.40	1.21	21	10,800	† 2	953	1,740	103,401	118,467	464,000	28,300
May	8.30	1.15	12	14,600	† 3	1,020	2,620	161,335	211,027	1,331,000	33,360
June	1.61	.85	2	1,870	18	660	1,060	62,781	302,101	1,994,000	337
July	2.59	.85	7	3,960	† 1	636	1,620	99,815	200,205	655,500	17,470
Aug.	2.79	2.23	26	1,570	† 10	1,070	1,250	77,169	173,230	534,400	36,970
Sept.	7.09	2.53	6	7,310	1	1,300	1,880	111,624	358,635	1,674,055	30,900
Oct.	9.32	2.49	4	11,700	31	1,290	2,090	128,470	288,155	1,822,000	31,910
Nov.	3.38	2.53	30	2,130	† 1	1,290	1,620	96,397	137,877	488,900	43,110
Dec.	3.48	2.36	2	2,260	31	1,260	1,870	115,063	117,489	266,400	52,230
Yearly	8.30	0.85		14,600		636	1,680	1,223,599	2,223,624	4,571,770	786,640

† And other days ✟ Discharge measurement made on this day ** See explanation in REMARKS above

‡ Period 1924-1968

RIO SALADO AT LAS TORTILLAS, TAMAULIPAS

DESCRIPTION: Cableway, control weir with notch opening of 2,500 second-foot capacity, gravity well, and water-stage recorder located on the right bank at latitude 26° 50' 10", longitude 99° 33' 50", 2.0 river miles downstream from the confluence of Río Sabinas with Río Salado, 6 miles southeast of the town of Las Tortillas, Tamaulipas, and 24.8 river miles from the confluence with the Rio Grande. This stream enters the Rio Grande at river mile 298.4, 24.6 river miles upstream from Falcon Dam, and 949.8 river miles downstream from the American Dam at El Paso, Texas. The zero of the gage is 325.72 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 17 discharge measurements during the year, a stable rating curve up to 2,500 second-feet, and a continuous record of gage heights. Computations by shifting control methods for flows greater than 2,500 second-feet. Records available: September 9, 1953 through 1968. Records are also available for a station at old Cd. Guerrero, 18.6 miles downstream, from 1900 through 1913 and 1923 through September 8, 1953.

REMARKS: Reservoirs and irrigation diversions modify the flow at this station.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 49,400 second-feet on September 25, 1967 with a gage height of 32.94 feet. Min. frequently no flow. The maximum discharge was measured at the highway bridge 13.0 river miles downstream from the station. Extreme flow data for the Río Salado at Cd. Guerrero prior to September 8, 1953 may be found in previous bulletins.

Average Flow in Second-Feet ‡

Daily:	Max.	49,100	Sept. 25, 1967	Min.	0	Frequently
Monthly:	Max.	8,500	Oct. 1958	Min.	0	Frequently
Yearly:	Max.	2,020	1958	Min.	56.8	1956

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	274	↟ 171	↟ 139	108	639	56.2	↟ 60.7	↟ 129	242	228	↟ 150	85.6
2	274	161	150	97.1	259	1,200	70.6	118	3,170	213	150	97.1
3	274	161	139	97.1	177	125	70.6	97.1	↟ 713	↟ 189	145	↟ 108
4	259	161	161	86.5	↟ 145	75.9	65.7	108	197	579	145	108
5	259	161	182	↟ 75.9	129	75.9	308	97.1	171	4,410	134	91.8
6	260	161	213	73.5	124	124	274	86.5	1,820	1,880	134	86.5
7	260	150	213	70.6	161	86.5	323	75.9	3,670	328	129	86.5
8	266	139	197	75.9	197	70.6	1,340	70.6	678	251	129	75.9
9	282	139	↟ 197	75.9	171	60.7	961	70.6	320	220	129	86.5
10	290	145	182	132	145	55.4	579	65.7	301	710	129	86.5
11	297	161	182	406	129	50.1	1,290	55.4	809	466	124	86.5
12	290	182	171	251	129	↟ 50.1	1,090	55.4	607	243	118	81.2
13	282	189	171	182	129	45.2	657	50.1	413	213	118	75.9
14	259	197	161	150	118	50.1	682	45.2	335	228	108	75.9
15	274	189	150	124	108	50.1	565	35.0	274	213	↟ 108	81.2
16	259	182	↟ 150	108	↟ 97.1	50.1	197	29.7	259	↟ 189	108	75.9
17	259	182	150	102	86.5	55.4	139	24.7	236	182	108	75.9
18	251	182	150	97.1	75.9	68.2	139	24.7	213	189	102	70.6
19	228	182	150	91.8	68.2	97.1	139	24.7	182	197	102	70.6
20	228	182	150	97.1	65.7	97.1	139	24.7	182	189	102	70.6
21	220	189	139	256	60.7	67.7	139	24.7	177	189	102	70.6
22	220	↟ 182	139	243	65.7	67.7	139	24.7	171	189	102	70.6
23	213	171	139	166	60.7	188	139	24.7	161	189	97.1	70.6
24	197	161	129	139	50.1	300	139	29.7	161	189	97.1	70.6
25	197	161	118	134	50.1	161	129	40.3	434	182	97.1	70.6
26	197	171	108	129	55.4	218	129	45.2	220	182	91.8	75.9
27	197	161	108	124	55.4	129	118	50.1	692	171	75.9	75.9
28	197	161	108	118	60.7	75.9	118	60.7	434	171	75.9	75.9
29	197	139	108	139	60.7	65.7	118	61.1	290	171	75.9	70.6
30	189		108	1,710	57.9	55.4	118	171	258	171	75.9	70.6
31	182		108		55.4		118	118		171		73.4
Sum	7,531	4,873	4,670	5,659.5	3,786.2	3,872.1	10,493.6	1,938.3	17,790	13,292	3,362.7	2,472.0

Current Year 1968 — ‡ Period 1954-1968

Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	‡ Acre-Feet		
			High		Low						
	High	Low	Day		Day				Average	Maximum	Minimum
Jan.	1.25	0.95	11	305	31	171	243	14,932	5,870	57,070	0
Feb.	1.02	.85	14	197	29	139	168	9,664	5,559	66,880	0
Mar.	1.05	.75	† 6	213	† 23	108	151	9,263	2,789	29,690	0
Apr.	3.25	.62	30	2,490	7	70.6	189	11,231	5,374	19,300	0
May	2.56	.49	1	1,460	† 25	50.1	122	7,506	22,473	100,919	302
June	3.31	.46	2	2,590	† 12	45.2	129	7,672	11,516	27,410	0
July	3.02	.52	11	2,120	1	55.4	339	20,820	4,945	20,820	0
Aug.	1.02	.33	30	197	† 17	24.7	62.5	3,846	11,301	52,110	0
Sept.	4.86	.72	2	5,230	1	97.1	593	35,293	88,876	491,452	2,860
Oct.	4.56	.89	6	4,910	31	150	427	26,376	51,034	522,800	110
Nov.	.89	.66	† 1	150	† 27	75.9	112	6,672	26,840	338,000	0
Dec.	.82	.62	3	129	† 17	70.6	79.8	4,906	14,024	176,100	0
Yearly	4.86	0.33		5,230		24.7	218	158,181	250,601	1,463,797	41,238.2

† And other days ‡ Period September 1953-1968 ↟ Discharge measurement made on this day

RIO GRANDE BELOW FALCON DAM, TEXAS

DESCRIPTION: The discharges reported below represent water measured as it leaves Falcon Reservoir through turbine penstocks, bypass valves, spillway gates, and leakage. Falcon Dam, astride the Rio Grande, is located at latitude 26° 33' 25", longitude 99° 10' 05", and river mile 273.8; about 7 miles southwest of Falcon, Texas, 84.5 river miles downstream from the international highway bridge between Laredo, Texas and Nuevo Laredo, Tamaulipas, and 974.4 river miles downstream from the American Dam at El Paso, Texas. A gravity well and water-stage recorder located 2.5 river miles downstream and a cableway located one-mile further downstream are used to measure the flow of this station at times when spillway gates are in operation.

RECORDS: Based on daily Simplex meter records of releases through the six turbines, established rating curves for the four hollow-jet bypass valves, estimates of gate leakage, and measurements of flow at the cable during spillgate operations. Records available: 1958 through 1968. Records are also available from December 17, 1952 through 1957 for a station at Chapeño, 2.5 miles downstream, where discharges included arroyo inflow below Falcon Dam, which inflow is eliminated from the records reported below.

REMARKS: Computation of flow was made jointly by the United States and Mexican Sections of this Commission from a consolidation of the basic data gathered by each Section incident to the international operation of Falcon Reservoir.

EXTREME FLOWS FROM RECORDS‡: Momentary: Max. 48,900 second-feet on November 9, 1958. Min. 1.5 second-feet on March 24 and 25, 1957 (at Chapeño gaging station).

Average Flow in Second-Feet ‡

Daily:	Max.	47,800	Nov. 9, 1958	Min.	1.5	March 24 & 25, 1957
Monthly:	Max.	32,500	Oct. 1958	Min.	24.0	Sept. 1967
Yearly:	Max.	6,930	1958	Min.	1,830	1968

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2,020	1,500	1,350	1,080	2,500	6,360	18.0	516	3,310	3,300	711	1,010
2	1,350	1,530	1,530	1,070	2,030	6,360	516	529	2,850	2,210	1,210	519
3	1,140	1,170	1,530	1,070	4,530	7,020	615	531	956	1,720	1,220	694
4	1,390	521	1,510	1,280	5,340	7,380	618	527	773	1,040	611	706
5	1,830	538	1,540	1,910	5,300	6,430	613	529	1,010	721	418	707
6	2,000	1,030	1,520	2,400	5,330	5,030	532	534	1,320	1,570	425	513
7	2,000	1,030	1,180	2,410	5,340	4,900	526	780	1,080	2,250	421	514
8	2,010	525	1,180	2,110	5,340	5,520	527	852	1,010	3,060	417	515
9	2,680	521	1,270	2,090	5,350	6,850	18.0	791	434	3,220	425	760
10	3,010	18.0	1,280	1,090	5,340	6,270	18.0	1,250	18.0	1,820	427	1,010
11	2,340	680	1,260	521	5,360	5,510	18.0	1,730	18.0	516	415	755
12	2,000	1,030	1,260	769	5,340	4,880	18.0	1,680	18.0	18.0	412	666
13	2,010	2,020	1,270	1,020	5,310	4,370	18.0	2,150	18.0	513	1,720	507
14	18.0	2,700	764	1,020	6,220	3,320	18.0	2,520	18.0	511	1,430	710
15	672	3,010	519	1,020	6,310	3,830	18.0	2,420	18.0	917	1,010	811
16	1,360	3,010	854	1,020	6,320	3,970	18.0	2,500	18.0	1,160	1,110	886
17	1,760	3,020	1,030	1,020	7,010	4,220	18.0	2,610	18.0	964	903	948
18	2,020	2,390	1,020	1,030	6,100	3,740	18.0	2,590	18.0	697	799	1,100
19	2,350	2,030	1,020	1,020	5,270	2,860	18.0	2,700	18.0	558	812	1,220
20	2,520	1,660	1,190	1,010	6,120	1,950	514	3,350	18.0	609	807	1,000
21	2,520	1,510	1,260	516	7,030	1,260	2,010	4,150	18.0	619	823	1,020
22	2,490	1,510	1,090	1,580	7,030	999	2,990	4,310	18.0	516	817	1,020
23	2,510	1,510	760	3,150	7,040	524	3,260	4,430	2,880	420	1,220	834
24	2,500	1,180	602	4,160	7,020	515	2,780	4,220	2,020	417	2,030	1,020
25	2,200	344	519	2,180	5,010	511	1,750	4,810	1,900	519	2,220	1,020
26	1,660	18.0	1,020	1,680	5,000	186	1,530	4,210	2,070	611	2,130	1,010
27	1,510	18.0	1,030	2,000	5,030	18.0	1,490	3,580	2,420	614	1,630	1,000
28	1,510	18.0	1,020	2,000	4,020	18.0	1,820	3,220	2,230	611	1,200	1,010
29	1,510	675	1,020	2,340	4,000	18.0	1,430	3,420	2,530	239	907	1,000
30	1,510		1,020	2,530	3,830	18.0	1,220	3,660	2,500	211	798	2,050
31	1,510		1,020		5,140		879	3,640		214		3,110
Sum	57,910.0	36,716.0	34,438	48,096	165,910	104,837.0	25,836.0	74,739	31,527.0	32,365.0	29,478	29,645

Current Year 1968									Period #1954-1968		
Month	Extreme Gage Feet		ø Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
	High	Low	High Day	High	Low Day	Low			Average	Maximum	Minimum
Jan.			10	3,010	14	18.0	1,870	114,864	197,846	412,727	46,100
Feb.			17	3,020	†10	18.0	1,270	72,826	175,285	367,384	16,600
Mar.			5	1,540	†15	519	1,110	68,308	138,852	347,000	2,390
Apr.			24	4,160	21	516	1,600	95,398	226,787	461,541	19,530
May			23	7,040	2	2,030	5,350	329,082	293,742.	526,000	48,754
June			4	7,380	†27	18.0	3,490	207,944	283,836	551,000	119,917
July			23	3,260	† 1	18.0	833	51,246	117,094	229,828	18,300
Aug.			25	4,810	1	516	2,410	148,245	130,268	206,000	25,900
Sept.			1	3,310	†10	18.0	1,050	62,534	140,071	674,219	1,428
Oct.			1	3,300	12	18.0	1,040	64,196	227,227	1,997,000	27,100
Nov.			25	2,220	12	412	983	58,470	129,619	1,128,000	9,376
Dec.			31	3,110	6	513	956	58,801	123,800	465,000	37,100
Yearly				7,380		18.0	1,830	1,331,914	2,184,427	5,016,800	1,331,914

‡ Period 1954-1968 ø Mean daily # Values prior to 1958 are Chapeño discharges less arroyo inflow
† And other days

RIO ALAMO AT CD. MIER, TAMAULIPAS

DESCRIPTION: Cableway, reinforced concrete weir of 177 second-foot capacity, gravity well, and water-stage recorder located on the right bank at a point called "El Paso del Cántaro", latitude 26° 27' 10", longitude 99° 09' 20", about 0.5 mile north of Cd. Mier, Tamaulipas, and 5.0 river miles from the confluence with the Rio Grande. This stream enters the Rio Grande at river mile 261.4, 12.4 river miles downstream from Falcon Dam, and 986.8 river miles downstream from the American Dam at El Paso, Texas. The weir is located about 300 feet downstream from the recorder. The zero of the gage is 188.35 feet above mean sea level, U. S. C. & G. S. datum, which coincides with the weir crest elevation.

RECORDS: Based on 9 discharge measurements made at high flows during the year, the weir discharge table at low flows, and a continuous record of gage heights. High flow computations by shifting control methods. Records available: July 1923 through 1968.

REMARKS: Small reservoirs and irrigation diversions modify the flow of this spring-fed stream at this station. On June 11, 1952 the zero of the gage was raised 1.31 feet to make it coincide with the weir crest elevation.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 144, 800 second-feet on September 11, 1948 with a gage height of 33.56 feet. Min. periods of no flow have occurred at times during all years of record except 1934, 1935 and 1968.

Average Flow in Second-Feet ‡

Daily:	Max.	87,230	Sept. 11, 1948	Min.	0	Frequently
Monthly:	Max.	7,310	Sept. 1967	Min.	0	Frequently
Yearly:	Max.	837	1967	Min.	16.4	1929

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	220	120	109	69.2	99.6	68.5	61.1	50.9	65.3	65.0	42.4	47.3
2	214	115	104	69.2	94.3	1,010	73.1	54.7	720	65.0	40.6	47.3
3	208	109	104	71.3	89.7	371	66.0	63.2	438	63.2	40.6	50.9
4	202	115	107	65.0	87.2	140	94.6	57.9	105	61.1	38.8	54.7
5	196	126	120	54.7	91.8	96.1	236	50.9	65.0	138	35.3	54.7
6	196	115	134	47.3	97.1	84.8	✱ 759	47.3	353	93.2	37.1	56.9
7	196	104	131	47.3	87.2	71.3	258	45.9	129	73.5	37.1	56.9
8	190	107	115	54.7	✱ 572	67.1	106	43.8	76.3	69.2	38.8	54.7
9	202	107	109	50.9	413	67.1	78.4	43.8	318	177	38.8	47.3
10	208	109	112	69.6	290	63.2	388	42.4	392	252	40.6	47.3
11	184	115	109	91.8	350	61.1	✱ 802	42.4	327	124	42.4	47.3
12	178	131	102	67.1	125	56.9	✱ 1,840	39.2	174	89.7	40.6	50.9
13	175	126	99.6	67.1	99.6	54.7	✱ 2,280	37.1	94.3	73.5	38.8	54.7
14	172	120	99.6	65.0	94.3	50.9	239	35.3	80.5	69.2	42.4	50.9
15	168	126	99.6	63.2	89.7	47.3	93.6	31.1	75.9	67.1	43.8	47.3
16	165	126	99.6	59.0	87.2	45.6	75.9	26.1	71.3	63.2	50.9	47.3
17	165	131	96.8	47.3	84.8	69.2	69.2	23.3	67.1	59.0	50.9	47.3
18	165	137	96.8	42.4	80.5	79.1	67.1	23.3	65.0	54.7	45.6	47.3
19	160	139	96.8	40.6	73.5	61.4	67.1	20.1	63.2	54.7	43.8	47.3
20	160	139	91.8	42.4	322	73.1	65.0	17.3	59.0	61.4	43.8	47.3
21	160	139	84.8	946 ✱	✱ 625	84.4	63.2	15.9	59.0	66.4	45.6	50.9
22	160	134	73.5	1,360 ✱	219	448	63.2	15.9	61.1	65.3	47.3	45.6
23	154	131	75.9	427	112	357	61.1	14.5	65.0	56.9	50.9	33.9
24	154	126	73.5	107	91.8	120	56.9	14.5	71.3	54.7	54.7	35.3
25	148	120	71.3	89.7	75.9	80.5	54.7	47.0	67.1	54.7	47.3	37.1
26	148	126	69.2	87.2	71.3	85.1	52.3	56.9	67.1	47.3	47.3	35.3
27	139	126	67.1	87.2	69.2	118	62.9	28.3	73.5	45.6	50.9	35.3
28	134	126	67.1	84.8	67.1	73.5	71.0	16.2	67.1	45.6	47.3	27.9
29	137	126	65.0	286 ✱	126	65.0	63.2	13.4	67.1	45.6	47.3	27.9
30	137		65.0	130	231	61.1	59.0	13.1	74.2	43.9	47.3	27.9
31	131		69.2		103		54.7	13.1		45.6		27.9
Sum	5,326	3,571	2,918.2	4,790.0	5,119.8	4,131.0	8,381.3	1,044.8	4,411.4	2,345.3	1,319.0	1,390.6

Month	Current Year 1968 Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Period 1924-1968 Acre-Feet		
			High		Low						
	High	Low	Day		Day				Average	Maximum	Minimum
Jan.	1.41	1.05	1	220	31	131	172	10,563	3,286	34,920	0
Feb.	1.12	.92	† 19	139	7	104	123	7,080	2,483	25,550	0
Mar.	1.05	.66	6	134	† 29	65.0	94.3	5,792	2,443	19,830	0
Apr.	3.35	.49	21	1,980	19	40.6	160	9,508	6,577	36,210	0
May	3.12	.66	8	1,680	† 28	63.2	165	10,157	13,606	137,000	0
June	3.31	.52	2	1,960	† 16	45.6	138	8,187	11,719	83,240	0
July	4.27	.56	13	3,490	† 25	50.9	270	16,606	6,114	37,590	0
Aug.	1.61	.23	25	297	† 25	13.1	33.5	2,072	17,627	205,700	0
Sept.	3.54	.62	9	2,280	† 20	59.0	147	8,751	41,845	434,387	135
Oct.	3.02	.52	9	1,550	30	43.8	75.6	4,653	18,821	193,700	0
Nov.	.59	.46	24	54.7	5	35.3	43.8	2,616	3,799	25,165	0
Dec.	.59	.39	† 6	56.9	† 28	27.9	44.8	2,758	3,191	15,982	0
Yearly	4.27	0.23		3,490		13.1	122	88,743	131,511	605,678.4	11,898.7

† And other days ‡ Period 1924-1968 ✱ Discharge measurement made on this day

CONTRIBUTIONS FROM RIO SAN JUAN
FALCON DAM TO FORT RINGGOLD

DESCRIPTION: The Lower Río San Juan Irrigation District in Mexico lies along the Rio Grande between Cd. Miguel Alemán and Río Bravo, Tamaulipas and is irrigated with water impounded by Marte R. Gómez Dam situated on the Río San Juan 12.4 river miles upstream from the confluence with the Rio Grande. The Río San Juan enters the Rio Grande at river mile 237.8 and 1,010.4 river miles downstream from the American Dam at El Paso, Texas. Drain water from this irrigation district enters the Rio Grande between Falcon Dam and the Fort Ringgold Gaging Station through the Río San Juan Channel, Rancherías Drain, and Los Fresnos Drain; and between this station and Anzalúdas Dam through Puertecitos, Los Indios, Huizache, and Morillo Drains. Only the portion of water reaching the Rio Grande via channels located upstream from the Fort Ringgold Gaging Station is shown below. The portion of drain water from this irrigation district reaching the Rio Grande via channels located downstream from the Fort Ringgold Gaging Station is shown on page 65 in this bulletin.

RECORDS: Water entering the Rio Grande through the Río San Juan Channel, included in the tabulation below and composed of spills and leakage from Marte R. Gómez Dam, and storm inflow and drainage below the dam, was measured at the Río San Juan Gaging Station at Camargo, Tamaulipas 3.1 river miles upstream from the confluence with the Rio Grande. (See next page for station description and separate tabulation of discharge for this station). The discharge through Rancherías Drain was determined by prorating between 49 current meter measurements made during the year. There was no drainage flow through Los Fresnos Drain in 1968. All storm water measured at these two drains was deducted and is not included in the tabulation below. Records available: 1953 through 1968.

REMARKS: In 1968 there were 132,927 irrigable acres in the Lower Río San Juan Irrigation District.

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,390	972	517	202	637	442	748	322	22.1	103	1,830	521
2	1,370	943	524	252	516	330	747	314	21.7	88.5	1,810	398
3	1,360	911	527	233	389	426	747	321	168	81.8	1,800	595
4	1,350	897	534	233	289	769	743	338	624	75.1	1,650	489
5	1,330	883	538	150	211	558	775	377	978	68.4	1,600	398
6	1,320	867	545	57.5	104	337	930	357	1,370	61.4	1,580	444
7	1,300	851	531	44.5	76.4	208	1,140	336	1,700	54.7	1,400	461
8	1,290	837	516	64.6	51.7	172	1,110	290	2,350	48.0	1,300	408
9	1,280	823	505	71.4	103	100	930	259	2,870	41.4	1,040	376
10	1,260	809	491	300	1,000	28.4	856	128	4,240	355	790	387
11	1,250	795	476	400	969	189	1,430	77.7	5,400	126	733	398
12	1,260	781	462	439	860	630	2,600	64.8	6,680	56.4	578	419
13	1,270	764	447	502	641	553	2,960	52.2	6,540	56.0	525	447
14	1,280	750	437	519	401	401	3,070	39.3	5,940	126	522	370
15	1,290	736	422	494	266	313	2,590	36.4	5,190	290	550	329
16	1,300	722	408	452	142	252	2,180	33.1	4,590	464	589	330
17	1,310	693	394	412	45.1	155	2,000	30.2	4,030	704	645	335
18	1,320	662	384	355	23.3	144	1,750	26.9	3,470	955	627	345
19	1,330	633	370	286	19.9	292	1,530	24.0	3,070	1,690	574	350
20	1,340	605	356	208	101	309	1,340	20.7	2,740	2,010	543	314
21	1,310	573	344	1,360	337	344	1,180	17.8	2,050	2,190	588	320
22	1,280	545	331	1,720	857	344	978	17.7	938	2,170	581	412
23	1,250	513	318	1,710	1,570	422	795	17.7	984	2,170	543	343
24	1,220	485	305	1,550	1,000	856	597	17.6	1,050	2,200	557	267
25	1,190	492	292	1,320	714	1,120	378	48.3	896	2,220	546	253
26	1,160	495	279	1,100	608	1,200	268	98.4	179	2,170	532	267
27	1,120	502	266	829	556	1,200	259	73.3	135	2,210	734	264
28	1,100	506	254	765	538	1,140	286	48.5	121	2,190	448	238
29	1,060	513	240	1,310	528	996	286	23.4	115	2,140	380	196
30	1,040		227	909	507	805	286	23.0	110	2,040	461	210
31	1,000		215		611		300	22.6		1,920		242
Sum	38,930	20,558	12,455	18,248	14,671.4	15,035.4	35,789	3,855.6	68,571.8	31,074.7	26,056	11,126

Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Period 1954-1968 Acre-Feet		
			High		Low						
	High	Low	Day		Day				Average	Maximum	Minimum
Current Year 1968											
Jan.			1	1,390	31	1,000	1,260	77,184	9,223	77,184	126
Feb.			1	972	24	485	709	40,778	5,006	40,778	246
Mar.			6	545	31	215	402	24,706	3,519	24,706	250
Apr.			22	1,720	7	44.5	609	36,208	4,502	36,208	196
May			23	1,570	19	19.9	474	29,121	5,210	29,121	555
June			† 26	1,200	10	28.4	501	29,825	6,021	33,142	476
July			14	3,070	27	259	1,150	71,000	13,724	122,305	312
Aug.			5	377	24	17.6	124	7,647	20,778	274,079	202
Sept.			12	6,680	2	21.7	2,290	135,978	140,377	1,878,782	298
Oct.			22	2,220	9	41.4	1,000	61,630	98,189	901,800	229
Nov.			1	1,830	29	380	869	51,684	29,461	230,400	154
Dec.			3	595	29	196	359	22,069	13,171	98,974	200
Yearly				6,680		17.6	810	587,830	349,181	2,896,004	11,025

g Mean daily † And other days

RIO SAN JUAN AT CAMARGO, TAMAULIPAS

DESCRIPTION: Cableway, gravity well, and water-stage recorder located on the left bank opposite Camargo, Tamaulipas at latitude 26° 18' 50", longitude 98° 50' 20", 3.1 river miles from the confluence with the Rio Grande, and 9.3 river miles downstream from Marte R. Gómez Dam. This stream enters the Rio Grande at river mile 237.8, 3.9 river miles upstream from the Rio Grande gaging station at Fort Ringgold, 36.0 river miles downstream from Falcon Dam, and 1,010.4 river miles downstream from the American Dam at El Paso, Texas. The zero of the gage is at mean sea level, U. S. C. & G. S. datum. See note in REMARKS.

RECORDS: Based on 46 discharge measurements during the year, staff gage readings through February 28, and a continuous record of gage heights thereafter. Computations by shifting control methods. Discharge prorated between measurements during times of extremely low flow. Records available: January 1954 through 1968.

REMARKS: Except for storm inflow, diversion, and drainage returns below Marte R. Gómez Dam, the flow at this station is controlled by spills from Marte R. Gómez Reservoir and leakage through the dam. Backwater from the Rio Grande frequently reaches this station. Flow passing this station, combined with drain water entering the Rio Grande through Rancherías and Los Fresnos drains, is also published under heading "Contributions from Río San Juan - Falcon Dam to Fort Ringgold" (see previous page). Prior to July 1, 1968 the zero of the gage was 130.45 feet above mean sea level, U. S. C. & G. S. datum.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 115,000 second-feet on September 25, 1967 with a gage height of 42.03 feet. Min. 0.7 second-foot several days in April 1960.

Average Flow in Second-Feet

Daily:	Max.	115,000	Sept. 25, 1967	Min.	0.7	April 23, 24 & 25, 1960
Monthly:	Max.	31,600	Sept. 1967	Min.	2.1	November 1964
Yearly:	Max.	3,990	1967	Min.	14.6	1963

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,380	968	512	✟ 199	✟ 629	431	742	318	18.0	101	1,830	519
2	1,370	939	519	249	509	318	742	309	18.0	✟ 86.5	1,800	396
3	1,360	✟ 908	523	230	381	413	742	316	165	79.8	1,790	593
4	1,340	893	530	230	282	756	✟ 738	332	✟ 622	73.1	1,650	✟ 487
5	1,330	879	533	147	204	544	770	371	975	66.4	1,600	396
6	1,310	865	✟ 540	53.7	97.5	✟ 322	925	350	1,360	59.3	1,580	441
7	1,300	848	526	40.3	70.3	194	1,130	✟ 328	✟ 1,700	52.6	✟ 1,400	459
8	1,290	833	512	60.0	45.9	159	1,110	283	2,340	45.9	1,300	406
9	1,270	819	501	66.4	✟ 97.8	88.3	925	251	2,870	✟ 39.2	1,040	374
10	1,260	805	487	295	996	17.7	851	121	4,240	353	788	385
11	✟ 1,250	791	473	396	964	179	1,440	70.6	✟ 5,400	124	731	✟ 396
12	1,260	777	459	434	855	622	2,600	57.9	6,670	54.4	576	417
13	1,270	759	445	498	636	544	2,960	45.6	6,530	54.0	✟ 523	445
14	1,270	745	434	516	396	392	3,070	✟ 32.8	5,930	124	519	367
15	1,290	731	420	✟ 491	261	304	✟ 2,580	30.0	5,190	✟ 288	547	327
16	1,300	✟ 718	✟ 406	448	137	243	2,180	26.8	4,590	✟ 463	586	327
17	1,310	689	392	410	39.6	145	2,000	24.0	4,030	703	643	333
18	1,310	657	381	352	17.7	135	1,740	20.8	✟ 3,470	953	625	✟ 342
19	1,320	629	367	281	14.1	✟ 283	1,530	18.0	3,070	1,690 ✟	572	347
20	✟ 1,330	600	353	202	95.3	300	1,330	14.8	2,730	2,010	540	311
21	1,300	569	341	1,350	331	335	1,180	✟ 12.0	2,040	2,190 ✟	586	317
22	1,270	540	328	1,720	✟ 851	335	✟ 975	12.0	936	2,160	✟ 579	410
23	1,240	509	315	1,700	1,570	413	791	12.0	982	2,160	540	340
24	1,210	✟ 480	303	1,540 ✟	✟ 996	848	593	12.0	1,050	2,200 ✟	554	✟ 265
25	1,180	487	290	1,310	706	1,110	374	42.7	893	2,220	544	251
26	1,150	491	277	1,090	600	✟ 1,190	265	92.9	177	2,160	530	265
27	1,120	498	263	819	547	1,200	256	67.8	132	2,200	✟ 731	262
28	1,090	501	251	756	530	1,130	283	43.1	119	2,190	445	236
29	1,060	509	238	1,300	519	989	283	✟ 18.0	113	2,140	378	194
30	1,030		225	901	498	798	283	18.0	108	2,040 ✟	459	208
31	999		212		600		✟ 297	18.0		1,920 ✟		240
Sum	38,769	20,437	12,356	18,084.4	14,476.2	14,738.0	35,685	3,668.8	68,468	31,000.2	25,986	11,056

Current Year 1968 — Period 1954-1968

Month	Extreme Gage ** Feet High	Extreme Gage ** Feet Low	Extreme Second-Feet High Day	Extreme Second-Feet High	Extreme Second-Feet Low Day	Extreme Second-Feet Low	Average Second-Feet	Total Acre-Feet	Acre-Feet Average	Acre-Feet Maximum	Acre-Feet Minimum
Jan.	7.38	6.96	1	1,380	31	999	1,250	76,938	9,128	76,938	88.4
Feb.	6.96	5.35	1	968	24	480	706	40,536	4,893	40,536	203
Mar.	6.10	5.25	6	540	31	212	399	24,513	3,411	24,513	212
Apr.	8.89	4.59	23	1,790	† 6	35.3	604	35,876	4,359	35,876	177
May	8.79		10	1,730	† 19	10.6	466	28,709	4,926	28,709	245
June	8.40		† 26	1,200	† 10	17.7	491	29,238	5,749	32,689	274
July	141.08	135.96	12	3,320	† 26	247	1,150	70,735	13,583	122,020	182
Aug.	135.96	133.23	† 4	371	† 21	12.0	118	7,275	20,673	273,904	161
Sept.	142.16	133.69	12	6,780	† 1	18.0	2,280	135,824	140,254	1,878,406	226
Oct.	139.73	134.09	† 24	2,260	† 6	39.2	999	61,509	98,074	901,500	193
Nov.	139.34	136.29	3	1,890	† 29	367	865	51,553	29,343	230,100	126
Dec.	137.47	135.70	3	798	† 29	194	357	21,931	13,068	98,547	163
Yearly	142.16			6,780		17.7	805	584,637	347,461	2,891,093	10,534

† And other days ✟ Discharge measurement made on this day ** See explanation in REMARKS above

DIVERSIONS FROM THE RIO GRANDE
UNITED STATES SIDE - FALCON DAM TO FORT RINGGOLD

Since June 1956 the United States portion of the water in Falcon Reservoir and in the Rio Grande below Falcon Dam has been under the jurisdiction of the 93rd District Court of Texas, the disposition of such water being made through its Special Water Master.

During 1968, 9,388 irrigable acres and several towns and rural homes were served water diverted from the Rio Grande between Falcon Dam and the river gaging station at Fort Ringgold under the jurisdiction of this Court. The area irrigated from the Rio Grande in this river reach was 1.2% of the total irrigable acres below Falcon Dam.

The total diversion during 1968 in this river reach was 4,989 acre-feet, or 0.8% of the total water diverted from the Rio Grande below Falcon Dam. All the records of diversions in this river reach were furnished by the Special Water Master. About 75% of the water diverted was measured by means of flow meters and the rest was determined by periodic current meter measurements of pump discharges and recorded pump operating time. More than one crop per year is often grown on parts of this land.

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	3.9	6.6	9.7	14.9	3.0	2.1	6.7	7.5	3.2	2.4	8.7	3.5
2	4.0	4.0	9.7	15.5	2.0	13.5	6.7	8.4	3.2	2.0	8.3	3.5
3	4.3	3.0	6.8	15.3	3.3	12.9	6.7	7.3	4.6	1.8	6.3	8.6
4	4.2	12.9	6.8	14.2	2.0	12.9	7.7	11.7	5.1	2.3	7.2	4.5
5	4.3	14.2	6.8	14.1	1.9	13.8	3.7	11.6	4.5	2.5	9.1	6.4
6	3.7	16.2	4.8	14.0	1.9	14.6	5.4	10.7	4.1	4.6	8.6	6.2
7	1.6	15.1	4.0	6.7	3.2	14.6	1.7	10.6	4.4	6.4	9.4	4.0
8	2.5	14.9	3.8	9.0	3.3	14.5	1.7	8.5	3.3	6.5	8.4	5.2
9	2.5	14.8	2.8	9.0	2.7	16.7	1.7	7.8	3.9	7.1	7.1	5.0
10	1.6	13.4	9.6	6.7	1.7	17.4	2.8	7.4	2.8	5.8	8.6	6.8
11	1.5	6.8	12.2	6.7	1.6	17.5	2.8	7.5	2.8	4.9	8.5	6.0
12	1.5	8.1	12.4	6.1	6.0	18.6	1.8	9.8	3.3	4.4	11.2	4.8
13	1.5	9.2	13.2	6.3	6.6	21.0	1.7	9.8	3.5	8.3	12.6	4.9
14	3.2	9.2	13.3	2.4	7.1	21.0	2.6	9.8	2.6	8.0	14.5	6.2
15	3.2	6.2	12.6	2.4	5.8	19.9	2.6	10.1	3.5	9.3	9.2	6.9
16	4.0	6.1	12.4	4.3	6.3	5.2	2.6	9.2	3.4	9.7	8.2	7.7
17	4.4	5.1	10.5	3.7	5.9	5.9	3.4	9.0	3.2	9.5	6.8	12.4
18	3.6	2.1	9.7	2.2	5.9	6.6	3.7	8.2	3.2	9.5	6.7	10.7
19	3.8	2.1	9.7	3.3	6.3	6.8	2.9	8.1	3.3	8.0	8.4	10.7
20	3.2	2.1	10.6	2.4	6.1	6.6	2.9	9.0	3.5	6.4	9.7	11.8
21	5.3	2.6	10.5	1.8	6.1	5.7	9.5	9.0	3.4	6.4	10.3	8.2
22	7.6	2.3	10.3	1.8	6.2	3.5	10.4	8.7	3.7	6.8	12.2	5.6
23	7.6	1.9	9.8	1.9	5.1	3.7	5.8	8.3	4.1	6.3	9.8	5.9
24	7.5	1.9	14.0	3.0	7.8	3.7	5.8	8.0	4.2	8.5	3.9	5.5
25	8.9	7.0	16.0	1.8	7.7	6.0	5.8	5.2	3.7	8.9	6.6	0
26	8.2	8.8	16.1	1.7	2.1	6.6	5.7	4.3	4.4	8.5	7.2	11.0
27	8.1	11.2	16.1	1.7	2.8	6.5	4.8	4.0	3.0	9.4	8.4	12.4
28	6.5	11.1	16.7	2.0	2.1	6.0	4.3	3.3	3.4	8.3	7.0	13.2
29	9.3	9.7	15.9	2.0	3.7	6.1	5.0	3.2	2.4	8.2	8.8	5.0
30	9.8		16.0	3.0	2.2	6.7	5.9	3.2	2.0	8.9	5.2	8.3
31	9.7		12.1		2.7		5.2	3.2		8.1		8.7
Sum	151.0	228.6	334.9	179.9	131.1	316.6	140.0	242.4	105.7	207.7	256.9	219.6

Month	Average Rainfall Inches **		Ø Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Period 1957-1968 Acre-Feet		
			High		Low						
	1957-1968	1968	Day		Day				Average	Maximum	Minimum
Jan.	1.20	1.20	30	9.8	†11	1.5	4.9	300	609	1,291	159
Feb.	1.21	1.27	6	16.2	†23	1.9	7.9	453	662	1,480	223
Mar.	.70	.70	28	16.7	9	2.8	10.8	664	984	1,845	158
Apr.	1.74	3.30	2	15.5	†26	1.7	6.0	357	1,008	1,890	357
May	2.65	1.83	24	7.8	11	1.6	4.2	260	1,228	2,624	251
June	2.22	2.65	†13	21.0	1	2.1	10.6	628	1,315	2,610	449
July	.89	3.16	22	10.4	† 7	1.7	4.5	278	824	1,620	278
Aug.	2.34	1.67	4	11.7	†29	3.2	7.8	481	723	935	481
Sept.	4.96	4.43	4	5.1	30	2.0	3.5	210	592	1,230	178
Oct.	2.42	1.31	16	9.7	3	1.8	6.7	412	713	1,220	131
Nov.	1.33	.26	14	14.5	24	3.9	8.6	510	552	1,170	216
Dec.	.87	.20	28	13.2	25	0	7.1	436	654	1,580	145
Yearly	22.53	21.98		21.0		0	6.9	4,989	9,864	14,754	4,989

Current Year 1968

** United States side - average of several stations in this reach Ø Mean daily † And other days

RIO GRANDE AT FORT RINGGOLD, RIO GRANDE CITY, TEXAS

DESCRIPTION: Cableway, gravity well, water-stage recorders (graphic and digital), and impulse-type transmitter located on the left bank at Fort Ringgold, latitude 26° 22' 05", longitude 98° 48' 20", and river mile 233.9; about 1 mile downstream from Rio Grande City, Texas, 3.9 river miles downstream from Río San Juan, and 1,014.3 river miles downstream from American Dam at El Paso, Texas. The zero of the gage is 100.00 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 38 discharge measurements during the year and a continuous record of gage heights. Computations by shifting control methods. Records available: January 1955 through 1968. Records composed of the addition of discharges of the Rio Grande at Roma, Texas, and the Río San Juan at Santa Rosalía, Tamaulipas are available for May, June, and October 1914; September 1916; September and October 1917; October 1918; September and October 1919; August and September 1920; June 1922; September 1923; and 1924 through 1931. Records are also available for the station "Rio Grande near Rio Grande City," 3.0 miles downstream, for 1932 through 1954.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station. Except for tributary inflows and intervening diversions below Falcon Dam, flow at this station is controlled largely by releases from Falcon Reservoir, 39.9 river miles upstream. The transmitter relays gage height data to the Anzalduas Dam office of the United States Section of this Commission and to the Anzalduas Dam control room via leased telephone circuits. The data is recorded automatically at both locations.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 220,000 second-feet on September 22 and 23, 1967 with a gage height of 61.40 feet. Min. no flow occurred several days in June and July 1953.

Average Flow in Second-Feet ‡

Daily:	Max.	207,000	September 23, 1967	Min.	14.6	April 13, 1957
Monthly:	Max.	49,600	October 1958	Min.	235	March 1957
Yearly:	Max.	9,140	1958	Min.	2,260	1957 & 1964

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	3,510	2,670	979	1,290	3,220	6,500	955	1,310	3,770	2,810	2,050	1,420
2	3,520	2,680	1,770	1,410	✱ 3,190	8,340	✱ 981	932	3,550	3,490	2,430	1,480
3	2,950	2,570	2,010	1,390	2,650	6,000	1,210	859	3,970	✱ 2,440	2,900	1,190
4	✱ 2,710	2,200	2,140	1,340	5,120	9,150	1,510	866	1,780	1,870	2,820	1,230
5	2,930	1,560	2,110	1,460	5,760	✱ 8,520	1,550	882	1,750	1,230	2,160	1,170
6	3,330	✱ 1,480	2,170	2,030	5,360	5,650	1,990	892	✱ 2,260	924	1,890	✱ 1,210
7	3,550	1,850	2,140	2,450	5,540	5,150	2,420	889	3,010	1,650	1,630	1,020
8	3,600	1,870	✱ 1,810	2,490	✱ 5,620	5,320	1,930	1,080	3,460	2,380	1,500	986
9	3,730	1,340	1,840	2,280	5,960	7,110	1,730	1,080	3,790	3,160	1,360	939
10	4,390	1,280	1,960	2,430	6,410	7,620	1,330	1,050	✱ 5,090	4,260	1,170	1,190
11	4,530	1,130	2,030	1,600	6,640	6,000	✱ 1,800	1,380	5,790	✱ 2,270	1,120	1,490
12	3,850	1,320	2,210	1,090	6,740	6,060	✱ 4,290	1,890	✱ 7,300	821	1,030	1,260
13	3,580	1,780	2,010	1,280	6,130	5,170	5,180	1,910	7,240	458	994	1,150
14	3,460	2,990	1,760	1,540	6,670	✱ 4,430	3,790	2,360	6,780	540	2,230	970
15	✱ 1,710	3,780	1,290	1,530	7,020	3,790	3,030	✱ 2,690	6,050	823	2,020	1,080
16	1,950	4,190	1,030	1,510	✱ 6,930	4,080	✱ 2,710	2,580	5,210	1,310	1,660	1,210
17	2,760	4,300	1,300	✱ 1,490	7,180	3,870	2,390	2,710	4,410	1,760	1,770	1,300
18	3,160	4,350	1,520	1,410	8,080	4,650	2,040	2,870	3,810	1,910	1,550	1,350
19	3,580	3,590	1,510	1,370	5,580	3,880	1,740	2,620	3,400	2,260	1,420	✱ 1,460
20	3,940	3,130	1,490	1,300	5,840	3,040	1,510	2,880	3,060	2,700	✱ 1,390	1,600
21	4,040	2,620	1,670	4,480	8,060	2,370	1,590	✱ 3,460	2,450	3,000	1,420	1,450
22	4,030	2,390	1,850	✱ 4,510	7,850	1,760	3,230	4,400	939	✱ 3,010	1,450	1,460
23	4,080	2,200	1,420	4,950	8,690	1,970	3,870	4,670	✱ 899	✱ 2,920	1,420	1,430
24	4,090	2,160	1,070	5,140	✱ 8,540	1,790	3,960	4,700	3,400	2,820	1,790	1,190
25	4,040	1,780	875	5,000	6,960	1,670	3,210	4,790	3,000	2,820	2,790	1,360
26	✱ 3,750	1,040	804	3,300	6,210	1,800	✱ 2,260	5,180	2,260	2,830	2,810	1,380
27	3,070	✱ 821	1,210	2,590	5,920	✱ 1,670	2,000	4,230	2,260	2,950	2,830	1,330
28	2,790	✱ 678	1,260	2,760	5,570	1,520	2,020	3,750	2,640	2,940	2,240	1,300
29	2,770	700	✱ 1,280	3,070	✱ 4,650	1,290	2,320	3,270	2,470	2,880	1,680	1,280
30	✱ 2,720		1,290	3,290	4,660	1,120	✱ 1,960	3,520	2,740	2,440	1,420	1,270
31	2,700		1,290		4,720		1,660	3,860		2,210		2,280
Sum	104,820	64,399	49,098	71,780	187,470	131,290	72,166	79,500	108,538	69,886	54,944	40,435

Month	Current Year 1968						Period #1954-1968		
	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet		
			High		Low			Average	Maximum	Minimum
	High	Low	Day		Day					
Jan.	30.69	27.77	11	6,310	16	1,480	3,380	207,910	204,179	397,255	55,635
Feb.	30.66	26.62	18	6,220	28	629	2,220	127,735	186,031	376,607	25,500
Mar.	29.26	26.56	4	3,260	26	596	1,580	97,386	143,525	378,000	14,400
Apr.	31.37	26.82	25	7,190	1	749	2,390	142,376	236,543	447,815	75,100
May	32.25	27.92	24	9,720	3	1,630	6,050	371,847	313,935	521,000	80,891
June	32.78	26.99	4	10,600	30	1,010	4,380	260,414	302,487	560,000	120,468
July	30.78	26.88	13	5,760	1	924	2,330	143,141	139,093	303,952	22,300
Aug.	31.32	26.46	26	7,060	11	637	2,560	157,688	162,471	522,593	25,000
Sept.	31.50	26.82	†12	7,540	22	879	3,620	215,285	358,183	2,712,754	51,341
Oct.	30.77	25.90	10	6,370	14	346	2,250	138,619	347,770	3,047,000	30,000
Nov.	29.63	26.73	26	4,290	13	814	1,830	108,981	168,306	1,442,000	29,274
Dec.	29.38	26.58	31	3,890	†15	713	1,300	80,203	137,003	540,000	36,100
Yearly	32.78	25.90		10,600		346	2,830	2,051,585	2,699,526	6,619,700	1,637,900

‡ Period 1955-1968 ✱ Discharge measurement made on this day † And other days
# 1954 Values are Rio Grande City Station less arroyo inflow

CONTRIBUTIONS FROM RIO SAN JUAN
FORT RINGGOLD TO ANZALDUAS DAM

DESCRIPTION: The Lower Río San Juan Irrigation District in Mexico lies along the Rio Grande between Cd. Miguel Alemán and Río Bravo, Tamaulipas and is irrigated with water impounded by Marte R. Gómez Dam situated on the Río San Juan 12.4 river miles upstream from the confluence with the Rio Grande. The Río San Juan enters the Rio Grande at river mile 237.8 and 1,010.4 river miles downstream from the American Dam at El Paso, Texas. Drain water from this irrigation district enters the Rio Grande between Falcon Dam and the Fort Ringgold Gaging Station through the Río San Juan Channel, Rancherías Drain, and Los Fresnos Drain; and between this station and Anzaldúas Dam through Puertecitos, Los Indios, Huizache, and Morillo Drains. Only the portion of drain water from this irrigation district reaching the Rio Grande via drains located downstream from the Fort Ringgold Gaging Station is shown below. The portion of water reaching the Rio Grande via channels located upstream from the Fort Ringgold Gaging Station is shown on page 61 in this bulletin.

RECORDS: Drain water reaching the Rio Grande through Puertecitos, Los Indios, Huizache, and Morillo Drains was determined by prorating between frequent current meter measurements. In 1968, 52, 52, 52, and 52 meter measurements were made at *Puertecitos*, Los Indios, Huizache, and Morillo Drains, respectively. All storm water measured at these drains was deducted and is not included in the tabulation below. In 1968, 70% of the drain water from this irrigation district reaching the Rio Grande between Fort Ringgold Gaging Station and Anzaldúas Dam was contributed by Morillo Drain. Records available: 1953 through 1968.

REMARKS: In 1968 there were 132,927 irrigable acres in the Lower Río San Juan Irrigation District.

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	86.7	60.6	63.4	49.1	97.3	220	81.2	47.4	66.6	51.2	47.2	39.7
2	88.3	60.8	62.9	48.1	95.8	198	78.6	47.0	64.3	53.6	46.4	39.2
3	89.8	61.1	62.4	47.2	96.7	177	76.1	46.6	61.9	56.0	45.4	38.7
4	89.4	61.3	62.0	45.7	97.5	155	73.9	46.6	59.6	58.2	44.6	38.2
5	88.7	61.5	61.6	44.2	98.4	134	72.3	45.7	57.9	60.5	43.7	38.1
6	88.1	61.7	61.1	42.7	99.2	131	70.6	45.3	58.3	62.7	42.9	38.2
7	87.5	61.9	60.7	41.2	100	128	69.0	44.8	58.8	65.0	42.0	38.1
8	86.9	62.2	58.2	39.7	101	125	67.3	44.1	59.2	67.2	43.1	38.1
9	86.3	61.9	55.8	38.2	102	122	65.6	45.2	59.6	69.4	44.3	38.0
10	85.7	61.8	53.3	38.1	103	119	64.0	46.4	60.0	68.2	45.6	38.0
11	84.0	61.6	50.9	38.1	103	116	63.5	47.6	60.5	67.1	46.7	38.0
12	82.4	61.5	48.4	38.1	103	114	63.0	48.8	60.9	66.0	47.9	38.4
13	80.7	61.3	46.0	38.1	104	113	62.6	50.0	58.3	64.8	49.1	38.2
14	79.0	61.1	47.3	38.2	104	112	62.2	51.1	55.8	63.7	49.9	38.2
15	77.3	60.9	46.6	38.3	105	111	61.8	53.0	53.2	60.3	48.9	37.9
16	75.6	62.8	50.9	38.3	108	111	61.3	59.3	50.7	56.9	47.9	38.0
17	74.0	64.8	51.3	38.3	112	110	60.9	65.6	48.1	54.8	46.9	37.8
18	72.3	66.7	52.6	50.0	116	109	59.8	72.0	45.6	52.9	45.9	37.9
19	72.3	68.7	53.9	55.7	121	108	58.7	78.3	43.0	52.7	44.9	37.2
20	72.1	70.7	55.3	64.3	125	106	57.6	84.6	42.5	52.7	43.9	37.2
21	72.1	72.6	55.1	73.0	129	104	56.5	90.9	42.0	52.5	42.9	37.0
22	72.0	71.4	54.8	81.7	133	102	55.4	97.0	41.4	52.3	42.7	37.0
23	71.9	70.2	54.6	90.4	138	100	54.3	93.9	40.9	52.2	42.7	37.0
24	71.8	69.0	54.3	99.1	162	98.1	53.1	90.9	40.4	52.1	42.5	36.9
25	70.3	67.9	54.1	106	186	96.2	51.8	87.9	39.8	52.1	42.4	37.1
26	68.6	66.7	53.9	105	211	94.1	51.0	84.8	39.3	51.4	42.2	37.3
27	67.0	65.5	53.7	103	235	91.5	50.2	81.7	41.7	50.7	42.1	37.4
28	65.3	64.3	52.8	102	260	90.0	49.4	78.6	44.1	50.1	41.2	37.5
29	63.6	63.8	51.8	100	284	86.4	48.7	75.6	46.4	49.5	40.7	37.6
30	61.9		50.9	98.8	263	83.8	47.9	71.2	48.9	48.8	40.2	37.8
31	60.3		50.0		241		47.1	68.9		48.1		37.9
Sum	2,391.9	1,866.3	1,692.6	1,830.6	4,333.9	3,565.1	1,895.4	1,990.8	1,549.7	1,763.7	1,336.8	1,173.6

Month	Current Year 1968								Period 1954-1968		
	Extreme Gage Feet		∅ Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
			High		Low						
	High	Low	Day		Day				Average	Maximum	Minimum
Jan.			3	89.8	31	60.3	77.2	4,745	2,087	4,745	561
Feb.			21	72.6	1	60.6	64.3	3,702	3,283	6,540	1,230
Mar.			1	63.4	13	46.0	54.6	3,356	2,747	4,960	1,006
Apr.			25	106	† 10	38.1	60.9	3,625	3,072	6,111	899
May			29	284	2	95.8	140	8,595	5,619	8,843	1,557
June			1	220	30	83.8	119	7,069	5,506	8,210	2,422
July			1	81.2	31	47.1	61.1	3,759	3,337	4,760	1,638
Aug.			22	97.0	8	44.1	64.2	3,948	2,319	3,948	889
Sept.			1	66.6	26	39.3	51.7	3,073	2,143	4,150	665
Oct.			9	69.4	31	48.1	56.9	3,498	2,727	9,831	623
Nov.			14	49.9	30	40.2	44.6	2,652	2,320	10,461	562
Dec.			1	39.7	24	36.9	37.9	2,328	1,938	6,148	592
Yearly				284		36.9	69.4	50,350	37,098	69,212	13,462

∅ Mean Daily † And other days

DIVERSIONS FROM THE RIO GRANDE
UNITED STATES SIDE - FORT RINGGOLD TO ANZALDUAS DAM

Since June 1956 the United States portion of the water in Falcon Reservoir and in the Rio Grande below Falcon Dam has been under the jurisdiction of the 93rd District Court of Texas, the disposition of such water being made through its Special Water Master.

During 1968, 185,093 irrigable acres and several towns and rural homes were served water diverted from the Rio Grande between the river gaging station at Fort Ringgold and Anzalduas Dam under the jurisdiction of this Court. The area irrigated from the Rio Grande in this river reach was 23.8% of the total irrigable acres below Falcon Dam.

The total diversion during 1968 in this river reach was 150,544 acre-feet, or 23.0% of the total water diverted from the Rio Grande below Falcon Dam. About 91% of the water diverted in this river reach was determined by this Commission through continuous records of discharge at open channel rating stations and at deflection meter stations developed by this Commission. The records for the rest of these diversions were furnished by the Special Water Master and were either measured by flow meters or were determined from periodic current meter measurements of pump discharges and recorded pump operating time. More than one crop per year is often grown on parts of this land.

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1.5	67.2	68.1	172	165	175	3.9	243	186	338	328	102
2	34.8	64.9	58.3	195	110	173	3.9	196	370	351	234	391
3	111	37.8	13.7	241	138	465	3.9	145	404	350	193	356
4	44.9	28.7	57.3	151	69.4	508	3.3	92.9	445	241	502	432
5	16.7	59.6	47.4	180	6.2	569	49.5	281	405	93.4	454	463
6	1.6	72.3	80.8	154	70.3	557	1.3	274	361	48.3	449	369
7	.2	144	13.1	77.1	57.5	544	9.2	281	283	101	371	218
8	.8	114	15.8	224	93.5	420	35.0	227	149	156	268	113
9	.2	106	2.6	199	91.3	266	79.0	244	472	270	126	370
10	92.4	68.7	9.2	167	153	648	131	129	386	182	139	383
11	49.4	17.8	55.2	123	84.1	737	18.8	59.9	310	201	363	375
12	37.8	71.0	60.7	83.2	7.5	717	64.2	384	232	129	518	358
13	30.3	93.4	119	14.0	149	696	12.5	412	324	29.1	454	334
14	1.0	44.4	134	18.5	187	616	11.6	449	204	148	454	197
15	33.8	13.3	141	176	244	444	80.9	483	133	174	430	120
16	1.0	91.0	63.9	287	269	273	92.8	402	373	232	272	278
17	74.7	65.3	73.8	265	272	594	201	190	344	247	139	433
18	66.5	4.1	176	183	161	336	99.6	96.8	381	262	459	470
19	17.3	4.5	202	178	54.9	307	155	461	414	189	471	418
20	.9	4.1	220	161	155	129	84.1	518	390	122	510	331
21	1.6	84.8	128	70.9	127	32.6	43.1	506	264	269	515	225
22	6.0	66.2	166	53.0	150	41.8	239	521	160	290	466	123
23	5.6	27.2	117	76.7	180	2.6	303	471	428	292	324	284
24	8.8	4.2	66.7	91.9	242	61.8	404	316	471	286	211	165
25	57.9	9.0	206	30.8	104	43.8	336	180	462	283	541	13.8
26	67.8	56.4	226	71.0	34.6	32.4	357	460	472	223	540	210
27	20.0	90.9	244	78.0	236	38.1	217	448	448	133	502	333
28	1.0	89.8	196	3.4	289	114	124	466	294	333	193	231
29	55.4	50.3	226	76.4	324	85.5	299	535	200	321	404	121
30	55.6		129	126	342	15.6	262	458	432	314	227	349
31	117		88.3		378		295	320		303		315
Sum	1,013.5	1,650.9	3,404.9	3,926.9	4,944.3	9,642.2	4,019.6	10,249.6	10,197	6,910.8	11,057	8,880.8

Month	Average Rainfall Inches **		Ø Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	‡Period 1957-1968 ‡Acre-Feet		
			High		Low						
	1957-1968	1968	Day		Day				Average	Maximum	Minimum
	Current Year 1968										
Jan.	1.34	2.04	31	117	† 7	0.2	32.7	2,010	9,877	28,747	2,010
Feb.	1.17	.80	7	144	†18	4.1	56.9	3,275	9,938	38,599	1,640
Mar.	.68	.85	27	244	9	2.6	110	6,754	16,648	41,200	637
Apr.	1.50	2.12	16	287	28	3.4	131	7,789	22,955	36,074	5,760
May	2.17	1.92	31	378	5	6.2	159	9,807	24,586	48,400	3,996
June	2.44	3.37	11	737	23	2.6	321	19,125	28,772	59,900	10,689
July	.74	2.72	24	404	6	1.3	130	7,973	23,045	45,400	7,973
Aug.	1.50	1.06	29	535	11	59.9	331	20,330	21,078	30,000	15,747
Sept.	3.81	1.48	† 9	472	15	133	340	20,226	16,104	35,000	4,136
Oct.	2.67	2.34	2	351	13	29.1	223	13,708	15,226	30,400	2,830
Nov.	1.23	.20	25	541	9	126	369	21,932	11,861	21,932	2,930
Dec.	1.16	.07	18	470	25	13.8	286	17,615	10,012	17,615	2,506
Yearly	20.41	18.97		541		0.2	207	150,544	210,102	302,180	136,460

** United States side - average of several stations in the reach Ø Mean daily † And other days

DIVERSIONS FROM THE RIO GRANDE

ANZALDUAS CANAL NEAR REYNOSA, TAMAULIPAS

DESCRIPTION: Cableway, gravity well, and water-stage recorder located on the left bank at latitude 26° 08' 05", longitude 98° 20' 10", 0.5 canal mile from the canal intake, and about 5 miles northwest of Reynosa, Tamaulipas. The canal intake is immediately upstream from Anzalduas Dam at river mile 171.6, 102.2 river miles downstream from Falcon Dam, and 1,076.6 river miles downstream from the American Dam at El Paso, Texas. The zero of the gage is 86.32 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 31 discharge measurements during the year, 26 by the Mexican Section and 5 by the United States Section of this Commission, and a continuous record of gage heights. Computations by shifting control methods. Records available: 1952 through 1968.

REMARKS: Diversions by this canal are for irrigation and domestic use in Mexico and for conveying water for storage in Culebrón, Villa Cárdenas, and Palito Blanco reservoirs about 23 canal miles downstream from this station. During 1968, 366,512 acres were irrigated with water delivered through this canal. More than one crop per year was grown on parts of this land. Flow at this canal station is affected by backwater from the operation of canal gates 4.5 miles, 11.3 miles, and 22.5 miles below this station. During 1968 there was no water returned to the Rio Grande through Poniente Drain.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 10,950 second-feet on June 2, 1957 with a gage height of 16.01 feet. Min. no flow occurs frequently.

Average Flow in Second-Feet

Daily:	Max.	9,350	May 29,	1957	Min.	0	Frequently
Monthly:	Max.	4,640	May	1964	Min.	0	Several months
Yearly:	Max.	1,980		1959	Min.	150	1952

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	24.7	24.7	24.7	24.7	918	4,060	21.2	357	2,220	1,680	611	21.2
2	24.7	24.7	24.7	177	925	4,980	10.6	279	2,060	1,700	710	21.2
3	24.7	24.7	24.7	367	1,480	5,440 ✟	0	219	1,770	1,480	713	21.2
4	24.7	24.7	24.7	367	✟ 2,020	5,300	0	201	1,520	1,150	713	21.2
5	24.7	24.7	24.7	636 ✟	2,870	5,330	0	191	1,030	✟ 1,050	✟ 639	21.2
6	24.7	24.7	24.7	925	✟ 3,140	5,300	10.6	180	✟ 625	1,390	✟ 424	21.2
7	24.7	24.7	24.7	1,080	2,910	3,920	10.6	180	516	1,410	438	21.2
8	24.7	24.7	24.7	1,020 ✟	2,820	3,110 ✟	10.6	247	523	1,410	438	21.2
9	24.7	24.7	24.7	1,060	✟ 3,160	3,180	10.6	364	530	1,420	230	21.2
10	24.7	24.7	24.7	1,070	✟ 3,780	3,180	10.6	364	282	1,420	21.2	21.2
11	24.7	24.7	24.7	1,070	3,920	3,190	10.6	357	21.2	1,410	21.2	21.2
12	24.7	24.7	24.7	883	3,920	2,670	10.6	480	10.6	1,420	21.2	21.2
13	24.7	24.7	24.7	727	4,060	1,910 ✟	10.6	✟ 551	10.6	812	21.2	21.2
14	24.7	24.7	24.7	491	4,240	1,480 ✟	10.6	788	10.6	540	21.2	21.2
15	24.7	24.7	24.7	367 ✟	4,380	1,240	10.6	1,010	10.6	537	21.2	21.2
16	24.7	24.7	24.7	187	✟ 5,400	1,250	10.6	1,190	10.6	618	21.2	21.2
17	24.7	24.7	24.7	28.3	5,650	1,150	10.6	1,260	10.6	717	21.2	21.2
18	24.7	24.7	24.7	28.3	4,520	1,140	10.6	1,800	173	703	21.2	21.2
19	24.7	24.7	24.7	28.3	4,940	1,140	10.6	✟ 1,940	424	886	21.2	21.2
20	24.7	24.7	24.7	28.3	✟ 4,660	925	10.6	1,940	738	1,070	21.2	21.2
21	24.7	24.7	24.7	28.3	3,710	505	10.6	1,950	✟ 851	1,070	21.2	21.2
22	24.7	24.7	24.7	248	3,350	138	240	1,950	890	1,070	109	21.2
23	24.7	24.7	24.7	357	✟ 3,290	28.3	335	2,260	879	1,060	456	21.2
24	24.7	24.7	24.7	346	3,150	28.3	✟ 332	✟ 2,470	883	1,060	547	21.2
25	24.7	24.7	24.7	438	3,380	28.3	346	2,910	886	✟ 1,050	540	21.2
26	24.7	24.7	24.7	530 ✟	3,350	28.3	353	✟ 3,000	1,020	1,070	537	21.2
27	24.7	24.7	24.7	540	✟ 3,460	28.3	360	2,680	1,170	1,070	547	21.2
28	24.7	24.7	24.7	618	3,440	28.3	127	2,280	1,250	1,080	639	21.2
29	24.7	24.7	24.7	855	3,430	24.7	21.2	2,330	1,350	996	713	21.2
30	24.7		24.7	922	3,390	21.2	215	2,270	✟ 1,510	851	353	21.2
31	24.7		24.7		3,530		357	✟ 2,220		586		21.2
Sum	765.7	716.3	765.7	15,447.2	107,193	60,753.7	2,887.6	40,218	23,184.8	33,786	9,611.4	657.2

Current Year 1968									Period 1954-1968		
Month	Average Rainfall Inches **		∅ Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
			High		Low				Average	Maximum	Minimum
	1954-1968	1968	Day		Day						
Jan.	1.18	3.15	† 1	24.7	† 1	24.7	24.7	1,520	92,127	197,745	1,520
Feb.	1.42	1.02	† 1	24.7	† 1	24.7	24.7	1,422	107,530	251,519	1,086
Mar.	.67	.79	† 1	24.7	† 1	24.7	24.7	1,520	43,908	147,900	1,128
Apr.	1.73	1.93	7	1,080	1	24.7	516	30,647	123,208	265,969	23,381
May	2.28	2.17	17	5,650	1	918	3,460	212,665	179,999	285,477	29,169
June	2.44	3.90	3	5,440	30	21.2	2,030	120,513	132,168	270,700	15,256
July	1.18	3.23	27	360	† 3	0	93.2	5,730	45,564	162,400	5,730
Aug.	1.85	1.26	26	3,000	† 6	180	1,300	79,796	77,835	186,909	6,709
Sept.	4.61	2.56	1	2,220	† 12	10.6	773	45,985	72,370	165,800	9,860
Oct.	2.68	2.13	2	1,700	15	537	1,090	67,089	43,619	162,400	0
Nov.	1.54	.98	† 3	713	† 10	21.2	320	19,066	15,817	83,690	0
Dec.	1.22	.35	† 1	21.2	† 1	21.2	21.2	1,303	38,437	166,700	1,303
Yearly	22.80	23.47		5,650		0	809	587,256	972,582	1,434,920	564,686

† And other days ∅ Mean daily ** Average of several stations
✟ Discharge measurement made on this day

RIO GRANDE BELOW ANZALDUAS DAM, TEXAS

DESCRIPTION: Cableway, gravity well, and water-stage recorder located on the right bank at latitude 26° 08' 00", longitude 98° 20' 05", and river mile 171.1; 0.5 river mile downstream from Anzalduas Dam, about 4.5 miles northwest of Reynosa, Tamaulipas, 12.2 river miles upstream from the international highway bridge between Hidalgo, Texas and Reynosa, Tamaulipas, and 1,077.1 river miles downstream from the American Dam at El Paso, Texas. The zero of the gage is at mean sea level, U. S. C. & G. S. datum. See note in REMARKS.

RECORDS: Based on 87 discharge measurements during the year, 72 by the Mexican Section and 15 by the United States Section of this Commission, and a continuous record of gage heights. Computations by shifting control methods. Records available: 1952 through 1968.

REMARKS: Except during local storms, flow at this station is controlled largely by releases from Falcon Reservoir and by diversions into Anzalduas Canal. Excessive upstream flood flows are partly diverted into the Mission Inlet of the United States floodway system before reaching this station. Prior to January 1, 1968 the zero of the gage was 82.61 feet above mean sea level, U. S. C. & G. S. datum.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 131,000 second-feet on September 24, 1967 with a gage height of 30.51 feet. Min. periods of no flow have occurred on several occasions in 1953, 1954, 1956, and 1957.

Average Flow in Second-Feet

Daily:	Max.	121,000	Sept. 25, 1967	Min.	0	Occasionally
Monthly:	Max.	37,830	Oct. 1958	Min.	5.5	March 1957
Yearly:	Max.	6,410	1958	Min.	158	1957

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	3,670	2,930	904	971	2,260	897	2,220	1,180	646	↟1,120	↟1,360	1,330
2	3,640	↟2,830	1,100	840	2,220	999	2,400	883	↟1,090	1,060	752	1,140
3	↟3,670	2,830	1,850	922	↟1,730	1,870	1,370	↟1,160	1,400	↟1,010	1,150	1,070
4	3,270	2,800	2,170	↟1,040	1,380	1,770	↟ 703	1,400	1,470	809	1,350	1,180
5	3,130	2,560	2,280	1,000	2,790	2,340	↟ 406	1,080	925	572	↟1,720	1,180
6	↟3,270	2,010	↟2,240	675	2,580	2,630	971	918	812	572	↟1,470	1,090
7	3,670	↟1,770	2,330	975	2,770	↟2,100	2,070	593	763	↟ 897	1,110	1,100
8	3,850	↟2,030	2,370	↟ 999	↟3,020	2,120	↟2,300	533	2,420	833	1,130	1,100
9	3,960	↟2,070	↟2,080	1,210	↟2,690	2,310	↟2,020	↟ 604	↟2,800	908	1,270	↟1,100
10	↟4,030	↟1,770	2,020	1,010	2,370	2,980	1,770	593	3,600	763	1,420	↟ 950
11	4,520	1,750	2,090	788	2,620	↟3,470	1,510	530	6,220	↟ 565	↟ 929	848
12	4,520	1,550	2,100	646	3,070	3,150	2,490	533	6,750	678	710	1,410
13	↟4,100	1,510	2,230	484	↟2,640	↟3,270	↟4,980	622	↟6,670	558	777	1,100
14	3,850	2,090	2,060	696	1,390	3,310	5,470	749	↟7,030	551	1,230	1,030
15	3,600	3,150	↟1,820	1,110	2,130	↟2,980	4,060	636	6,820	↟ 456	1,120	1,000
16	2,320	↟3,670	1,450	1,290	1,380	3,000	3,160	↟ 636	6,000	378	908	862
17	↟2,230	3,960	1,240	↟1,590	↟1,150	3,190	2,590	643	5,300	378	1,560	↟ 886
18	3,030	4,100	↟1,350	1,440	2,460	2,810	2,330	689	4,130	378	1,310	904
19	↟3,450	↟4,030	1,500	1,160	2,640	2,600	2,040	798	3,200	378	1,710	971
20	3,780	3,480	1,520	1,230	1,240	2,870	↟1,830	833	↟2,650	770	2,140	1,200
21	4,060	3,080	1,500	2,370	2,370	↟2,620	1,770	1,070	2,250	↟1,350	1,160	1,500
22	↟4,100	2,730	1,670	↟5,330	4,240	2,230	1,900	1,070	1,660	1,950	879	1,460
23	4,060	↟2,580	↟1,800	4,800	↟4,520	2,080	1,980	↟1,070	202	2,150	↟ 777	982
24	4,100	2,420	1,610	4,940	5,120	2,080	2,060	1,090	466	2,340	1,030	1,380
25	4,030	2,370	↟ 901	↟4,910	5,300	↟1,970	2,860	1,370	858	1,590	1,490	1,300
26	↟3,850	↟2,070	692	4,380	3,960	2,000	2,210	1,960	1,110	1,560	1,480	1,260
27	3,600	↟1,430	689	↟2,440	2,780	2,480	1,700	1,900	↟1,100	1,650	1,300	1,130
28	3,220	1,220	↟ 975	1,010	2,370	2,670	1,660	↟1,560	837	1,600	939	↟1,140
29	↟3,000	↟ 936	↟1,200	2,210	1,810	2,610	↟2,150	1,330	653	1,640	↟1,090	1,310
30	2,930		1,240	2,260	1,180	2,270	1,590	1,120	1,190	1,760	1,170	1,470
31	2,880		1,060		↟1,020		1,250	908		1,750		1,330
Sum	111,390	71,726	50,041	54,726	79,200	73,676	67,820	30,061	81,022	32,974	36,441	35,633

Month	Current Year 1968 Extreme Gage Feet High	Extreme Gage Feet Low	Extreme Second-Feet High Day	Extreme Second-Feet High	Extreme Second-Feet Low Day	Extreme Second-Feet Low	Average Second-Feet	Total Acre-Feet	Period 1954-1968 Acre-Feet Average	Maximum	Minimum
Jan.	89.73	85.86	12	5,010	16	2,050	3,600	220,916	91,330	220,916	1,090
Feb.	88.91	84.06	† 18	4,310	29	936	2,470	142,213	73,391	241,900	830
Mar.	86.58	82.87	† 7	2,560	25	177	1,610	99,297	79,771	235,500	339
Apr.	90.52	83.14	22	5,930	† 12	470	1,850	108,563	87,452	155,700	3,160
May	90.03	83.27	25	5,510	31	869	2,550	157,021	116,196	202,400	35,360
June	87.57	83.27	† 13	3,810	2	869	2,450	146,143	150,844	217,800	7,850
July	89.90	81.59	14	5,760	† 4	120	2,190	134,564	78,751	253,970	2,000
Aug.	85.70	82.05	† 26	2,390	8	297	971	59,616	60,156	257,297	943
Sept.	93.77	81.04	† 11	9,680	† 23	35.3	2,700	160,706	218,993	1,862,856	3,920
Oct.	86.09	82.12	24	2,850	† 15	378	1,060	65,429	273,491	2,326,000	1,730
Nov.	85.37	82.28	† 19	2,330	22	448	1,210	72,273	148,177	1,438,000	1,430
Dec.	84.51	82.02	31	1,740	17	335	1,150	70,732	89,490	540,100	1,500
Yearly	93.77	81.04		9,680		35.3	1,980	1,437,473	1,468,042	4,640,968	114,749

† And other days ↟ Discharge measurement made on this day

RIO GRANDE FLOODWAY DISCHARGES
LOWER RIO GRANDE VALLEY

On the United States Side

Part of the excess water from floods entering the Lower Rio Grande Valley is diverted from the river through the United States floodway system, whose inlet is located approximately 6 miles upstream from Anzaldúas Dam.

Floodwater entering the system is measured at the Mission Branch Station South of McAllen and continues to flow eastward for about 22 miles to a point 3 miles southwest of Mercedes, Texas, where the floodway divides, one channel going northeastward through the Arroyo Colorado Floodway to the Gulf of Mexico, and the other going to the Gulf via the North Floodway, traveling first northward and then eastward to the Gulf. The flow into the Arroyo Colorado Floodway is controlled by a divisor dike presently under construction at the point of division. The flow of the Arroyo Colorado Floodway is measured at El Fuste Siphon South of Mercedes and further downstream at the bridge on U. S. Highway No. 83 south of Harlingen. The North Floodway flow is measured at the bridge on old U. S. Highway No. 83 west of Mercedes and further downstream at the bridge on U. S. Highway No. 77 near Sebastian.

In 1968 no flood flow was diverted through this floodway system.

On the Mexican Side

Part of the excess water from floods entering the Lower Rio Grande Valley is diverted from the river through the Mexican floodway system, with inlets located approximately 38 miles (Retamal Heading), 51 miles (San Rafael), and 107 miles (Floodway No. 2), respectively, downstream from Anzaldúas Dam. Floodway No. 3, 1.2 miles upstream from the Brownsville-Matamoros Bridge, is greatly obstructed and is considered to be inoperative.

Floodwater diverted through Retamal Heading is measured at a cableway station 0.9 mile downstream from the headgate. It flows through Retamal Canal into Culebrón and Villa Cárdenas Lakes from which it discharges through floodgates into Floodway No. 1 and flows southeastward into the Gulf of Mexico. Floodwater diverted at San Rafael is measured near the intake and flows through San Rafael Drain into Culebrón and Villa Cárdenas Lakes from which it discharges into Floodway No. 1. Floodwater entering Floodway No. 2 is measured at the Matamoros-Reynosa highway crossing and flows south and east into the Gulf of Mexico.

In 1968 no flood flows were diverted into this floodway system. There were no diversions for irrigation purposes through Retamal Canal in 1968.

DIVERSIONS FROM THE RIO GRANDE
UNITED STATES SIDE - ANZALDUAS DAM TO PROGRESO

Since June 1956 the United States portion of the water in Falcon Reservoir and in the Rio Grande below Falcon Dam has been under the jurisdiction of the 93rd District Court of Texas, the disposition of such water being made through its Special Water Master.

During 1968, 145,718 irrigable acres and several towns and rural homes were served water diverted from the Rio Grande between Anzalduas Dam and the Progreso International Bridge under the jurisdiction of this Court. The area irrigated from the Rio Grande in this river reach was 18.7% of the total irrigable acres below Falcon Dam.

The total diversion during 1968 in this river reach was 157,634 acre-feet, or 24.1% of the total water diverted from the Rio Grande below Falcon Dam. About 97% of the water diverted in this river reach was determined by this Commission through continuous records of discharge at open channel rating stations and at deflection meter stations developed by this Commission. The records for the rest of these diversions were furnished by the Special Water Master and were either measured by flow meters or were determined from periodic current meter measurements of pump discharges and recorded pump operating time. More than one crop per year is often grown on parts of this land.

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	39.0	113	213	443	45.2	173	240	372	322	7.6
2	0	0	39.3	80.5	269	223	12.6	245	385	390	252	321
3	0	0	10.0	95.1	198	549	8.1	188	354	312	83.2	419
4	0	6.4	18.9	262	126	782	.1	48.2	243	209	338	438
5	0	52.1	1.7	334	37.5	858	2.1	229	238	124	444	371
6	0	141	0	194	166	780	.1	170	270	108	423	323
7	0	220	7.6	75.4	73.9	732	0	78.9	198	216	366	192
8	0	311	0	207	72.6	728	0	196	42.7	174	345	64.1
9	0	182	0	293	34.1	472	19.7	260	228	117	211	255
10	0	71.9	3.3	202	172	758	69.0	170	204	96.4	63.0	184
11	0	.3	63.2	205	30.1	1,000	68.8	58.2	333	97.8	304	112
12	0	17.7	79.7	261	13.7	983	111	77.0	351	187	378	108
13	0	.3	165	111	282	986	143	78.5	350	6.7	362	101
14	0	11.8	159	58.7	307	952	62.3	75.9	242	163	336	93.6
15	0	11.1	214	229	336	853	286	78.8	101	206	346	39.9
16	114	12.0	128	275	390	713	385	79.0	265	198	194	85.1
17	165	5.6	126	72.5	399	824	457	62.8	314	129	99.8	274
18	0	0	211	85.4	391	711	563	59.4	339	112	155	280
19	0	133	297	59.4	180	670	640	462	225	91.7	158	290
20	0	168	194	22.3	113	612	561	561	233	79.0	320	305
21	0	10.8	92.0	2.7	78.0	338	442	593	253	66.9	405	275
22	0	33.3	77.7	78.4	24.2	67.9	632	578	85.5	130	423	66.9
23	0	2.8	65.9	272	85.8	.1	723	622	255	255	332	292
24	19.5	9.3	55.8	360	62.9	283	677	462	260	297	115	207
25	18.4	1.5	74.9	306	60.6	324	658	103	369	398	360	3.5
26	24.4	13.6	216	231	35.2	122	630	388	445	336	396	336
27	23.4	57.8	300	308	199	60.9	537	461	428	60.6	274	360
28	0	14.3	320	260	331	40.0	142	460	260	229	112	269
29	0	15.9	318	70.9	413	6.1	325	619	86.1	295	378	137
30	0		162	83.3	468	3.3	212	577	368	328	314	384
31	0		102		521		118	440		340		423
Sum	364.7	1,503.5	3,541.0	5,207.6	6,082.6	15,874.3	8,530.0	8,653.7	7,965.3	6,124.1	8,609.0	7,016.7

Month	Average Rainfall Inches **		Current Year 1968 ∅ Extreme Second-Feet High		Low		Average Second-Feet	Total Acre-Feet	Period 1957-1968 Acre-Feet Average	Maximum	Minimum
	1957-1968	1968	Day		Day						
Jan.	1.43	2.34	17	165	† 1	0	11.8	723	9,224	33,848	723
Feb.	1.29	.94	8	311	† 1	0	51.8	2,982	8,623	28,535	1,140
Mar.	.73	.97	28	320	† 6	0	114	7,024	13,849	36,100	1,050
Apr.	1.50	1.61	24	360	21	2.7	174	10,329	17,615	25,732	3,630
May	2.61	2.58	31	521	12	13.7	196	12,065	20,134	35,500	3,091
June	2.47	3.08	11	1,000	23	.1	529	31,487	29,068	42,000	14,658
July	.88	2.81	23	723	† 7	0	275	16,919	24,343	41,100	13,105
Aug.	1.52	1.11	23	622	4	48.2	279	17,165	16,663	25,800	7,922
Sept.	3.76	1.74	26	445	8	42.7	266	15,799	13,705	28,000	3,214
Oct.	3.02	2.89	25	398	13	6.7	198	12,147	14,776	29,215	2,059
Nov.	1.52	.16	5	444	10	63.0	287	17,076	9,982	22,818	1,015
Dec.	1.40	.14	4	438	25	3.5	226	13,918	9,742	17,500	1,978
Yearly	22.13	20.37		1,000		0	217	157,634	187,724	241,270	147,810

** United States side - average of several stations in the reach ∅ Mean daily † And other days

RIO GRANDE NEAR PROGRESO, TEXAS

DESCRIPTION: Gravity well, water-stage recorder, and digital transmitter located on the downstream side of the center pier of the Progreso International Bridge at latitude 26° 03' 45", longitude 97° 57' 00", and river mile 123.8; 0.8 river mile downstream from the Progreso pumping plant, 2 miles south of Progreso, Texas, 47.3 river miles downstream from Anzaldúas Dam, and 1,124.4 river miles downstream from the American Dam at El Paso, Texas. Meter measurements are made from the bridge. An auxiliary gage well and water-stage recorder located about 300 feet upstream from the bridge are used when the low-flow channel shifts to the left bank. The zero of the gage at both recorders is 52.56 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 71 discharge measurements during the year, 55 by the Mexican Section and 16 by the United States Section of this Commission, and a continuous record of gage heights. Computations by shifting control methods. Records available: December 1952 through August 24, 1953; and December 1953 through 1968.

REMARKS: Except for diversions, tributary inflows, and drainage returns below Falcon Dam, flow at this station after August 25, 1953 was controlled largely by releases from Falcon Reservoir, 150 miles upstream. Excessive upstream flood flows are partly diverted through the Mission inlet of the United States floodway system and through Retamal Heading of the Mexican floodway system before reaching this station. The transmitter relays gage height data upon interrogation by telephone via commercial circuits.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 60,700 second-feet on September 26, 1967 with a gage height of 24.84 feet. Min. no flow several days in June, July, and August 1953.

Average Flow in Second-Feet

Daily:	Max. 48,400	Sept. 26, 1967	Min. 0		Frequently 1953
Monthly:	Max. 16,730	Oct. 1958	Min. 5.1		June 1953
Yearly:	Max. 3,960	1967	Min. 666		1957

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	3,670	2,870	1,180	1,210	2,150	798	✟ 2,430	1,210	752	✟ 816	1,390	890
2	✟ 3,740	2,900	1,090	✟ 1,140	2,020	671	2,400	1,110	671	788	1,180	1,230
3	3,740	2,860	1,290	982	1,920	713	2,400	862	✟ 795	720	756	✟ 968
4	3,570	2,850	1,920	985	1,480	✟ 999	1,740	1,110	1,110	742	1,030	745
5	3,310	2,780	✟ 2,240	936	1,590	1,000	✟ 1,170	✟ 1,440	1,180	809	✟ 1,080	✟ 795
6	3,200	✟ 2,470	2,350	876	2,520	1,380	689	1,060	844	643	1,220	862
7	3,350	1,960	2,350	830	✟ 2,340	1,530	1,090	964	689	593	1,110	883
8	3,640	1,640	2,400	978	✟ 2,620	1,230	2,170	682	798	✟ 639	844	1,000
9	✟ 3,740	1,790	2,380	✟ 950	2,800	1,300	2,370	558	1,870	685	844	1,090
10	3,880	1,930	2,240	✟ 1,080	2,540	✟ 1,640	✟ 2,120	509	✟ 2,370	840	1,120	✟ 946
11	4,240	1,860	2,190	1,060	2,300	1,920	1,900	586	✟ 3,160	823	1,310	932
12	4,730	1,770	✟ 2,170	862	2,600	✟ 2,140	1,660	✟ 646	✟ 6,110	717	✟ 855	869
13	4,700	✟ 1,610	✟ 2,180	727	2,870	2,000	2,570	632	6,220	664	533	1,190
14	4,270	1,700	2,040	643	✟ 2,260	2,090	4,590	667	6,530	660	473	1,160
15	3,960	2,250	1,790	710	1,370	2,130	5,120	826	7,130	✟ 540	766	1,070
16	✟ 3,420	3,120	1,450	✟ 1,060	1,690	1,990	✟ 3,740	703	6,890	494	823	1,080
17	2,390	3,670	1,250	1,230	1,240	✟ 2,020	2,760	703	✟ 5,900	403	872	✟ 932
18	2,340	4,030	1,330	1,670	1,080	2,160	2,160	738	4,980	418	1,240	759
19	3,060	4,170	✟ 1,330	1,600	2,250	1,950	1,790	720	3,640	452	✟ 1,190	657
20	3,470	✟ 3,850	1,350	1,410	2,480	2,040	1,460	✟ 540	2,940	509	1,420	745
21	3,880	✟ 3,410	1,470	1,410	✟ 1,590	2,300	1,300	505	2,400	650	1,620	925
22	4,130	3,030	1,580	2,670	✟ 2,670	2,330	1,300	544	2,100	✟ 1,270	992	1,250
23	✟ 4,200	2,750	1,760	✟ 4,660	✟ 4,060	2,290	✟ 1,240	618	1,610	1,670	667	✟ 1,360
24	4,240	2,610	1,890	4,480	4,630	✟ 2,180	1,270	614	✟ 671	1,810	551	946
25	4,240	2,490	1,700	4,520	✟ 5,160	1,890	1,470	809	260	1,860	851	1,120
26	4,100	2,410	✟ 1,220	4,560	5,300	1,820	2,020	1,220	480	1,340	✟ 1,000	1,290
27	3,920	✟ 2,120	✟ 876	3,850	4,030	✟ 2,020	1,660	✟ 1,410	731	1,290	1,010	1,000
28	3,600	1,630	731	2,230	✟ 2,790	2,490	1,440	1,400	752	1,500	1,040	848
29	3,210	1,400	749	1,290	2,250	2,790	1,710	1,120	749	1,380	908	929
30	✟ 3,030		1,020	✟ 2,070	1,510	2,680	✟ 1,910	872	703	✟ 1,340	710	✟ 1,130
31	2,960		1,270		1,040		1,560	735		1,410		1,070
Sum	113,930	73,930	50,786	52,679	77,150	54,491	63,209	26,113	75,035	28,475	29,405	30,671

Month	Current Year 1968 Extreme Gage Feet High	Extreme Gage Feet Low	Extreme Second-Feet High Day	High	Extreme Second-Feet Low Day	Low	Average Second-Feet	Total Acre-Feet	Period 1954-1968 Acre-Feet Average	Maximum	Minimum
Jan.	9.51	5.97	12	4,870	† 17	2,150	3,670	226,008	94,416	241,800	17,340
Feb.	8.79	4.36	19	4,200	29	1,300	2,550	146,640	76,109	371,900	12,620
Mar.	6.50	3.02	† 8	2,450	29	682	1,640	100,711	74,938	379,400	4,990
Apr.	9.32	2.92	23	4,840	† 14	639	1,760	104,494	81,958	144,000	32,060
May	9.91	3.28	26	5,510	31	893	2,490	153,028	105,626	153,028	33,164
June	6.63	2.66	29	2,860	2	646	1,820	108,080	124,494	176,300	63,350
July	9.74	2.62	15	5,330	6	636	2,040	125,444	75,587	235,822	16,970
Aug.	4.72	2.10	† 4	1,640	10	466	844	51,812	56,360	189,578	10,400
Sept.	11.84	1.25	† 15	7,200	25	212	2,500	148,794	144,332	837,532	21,650
Oct.	5.38	1.80	25	2,020	17	374	918	56,485	166,446	1,028,000	14,030
Nov.	4.92	1.94	21	1,760	14	413	982	58,341	96,099	735,000	18,000
Dec.	4.33	2.62	23	1,410	† 18	636	989	60,849	81,831	487,200	7,370
Yearly	11.84	1.25		7,200		212	1,850	1,340,686	1,178,196	2,869,204	482,410

† And other days ✟ Discharge measurement made on this day

DIVERSIONS FROM THE RIO GRANDE
UNITED STATES SIDE – PROGRESO TO SAN BENITO

Since June 1956 the United States portion of the water in Falcon Reservoir and in the Rio Grande below Falcon Dam has been under the jurisdiction of the 93rd District Court of Texas, the disposition of such water being made through its Special Water Master.

During 1968, 313,655 irrigable acres and several towns and rural homes were served water diverted from the Rio Grande between the Progreso International Bridge and the gage near San Benito under the jurisdiction of this Court. The area irrigated from the Rio Grande in this river reach was 40.3% of the total irrigable acres below Falcon Dam.

The total diversion during 1968 in this river reach was 266,680 acre-feet or 40.7% of the total water diverted from the Rio Grande below Falcon Dam. About 99% of the water diverted in this river reach was determined by this Commission through continuous records of discharges at open channel rating stations and at deflection meter stations developed by this Commission. The records for the rest of these diversions were furnished by the Special Water Master and were either measured by flow meters or were determined from periodic current meter measurements of pump discharges and recorded pump operating time. More than one crop per year is often grown on parts of this land.

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	26.5	83.9	95.7	497	820	260	76.3	481	212	580	368	420
2	104	68.6	68.0	447	816	221	96.1	407	245	545	317	269
3	71.8	0	0	439	799	587	285	331	610	504	368	274
4	38.8	27.5	12.8	469	569	702	132	151	679	517	508	282
5	97.8	59.8	22.6	617	185	824	170	218	716	521	542	306
6	137	163	15.8	628	458	1,080	105	262	630	495	522	313
7	90.7	172	0	551	611	1,200	3.7	212	546	489	490	302
8	100	215	65.1	832	604	1,230	3.7	191	435	512	436	118
9	21.2	126	144	836	613	1,120	119	238	756	575	264	318
10	26.4	64.6	83.2	729	586	1,330	35.8	163	423	472	79.1	354
11	93.3	0	45.3	798	549	1,630	40.1	131	274	452	356	362
12	20.1	125	73.0	451	382	1,700	358	283	336	418	650	306
13	86.0	80.7	142	228	208	1,580	377	280	349	306	611	304
14	10.4	26.4	94.6	101	329	1,780	181	225	214	272	360	286
15	156	114	170	336	224	1,680	231	5.9	181	278	319	260
16	256	21.0	130	418	288	1,580	461	97.8	361	208	545	306
17	159	25.5	0	405	446	1,580	672	110	200	184	440	304
18	74.5	12.8	156	406	273	1,560	997	88.3	159	226	826	287
19	58.6	74.3	164	338	118	1,320	996	224	207	219	693	345
20	41.8	120	110	291	55.6	1,170	853	383	236	197	553	420
21	25.8	121	125	118	58.5	1,170	684	384	211	287	497	368
22	77.6	89.7	197	345	50.7	738	936	366	144	274	495	208
23	126	102	44.6	318	191	282	967	388	409	143	417	391
24	140	109	0	283	145	104	981	425	440	243	150	355
25	85.5	48.7	163	286	112	176	1,010	337	358	251	812	132
26	68.5	46.5	218	307	66.2	60.0	1,010	755	407	230	732	455
27	0	80.4	240	417	282	131	673	875	410	109	771	545
28	46.0	123	239	294	270	171	430	888	435	348	608	587
29	65.7	123	409	306	204	122	622	862	401	330	752	663
30	39.2		415	717	277	33.6	522	752	512	278	609	799
31	112		261		278		504	653		310		821
Sum	2,423.4		13,208		27,071.6		11,167.0		10,773		11,460	
	2,456.2	3,903.7		10,868.0		14,531.7		11,496		15,090.1		

Month	Current Year 1968								Period 1957-1968		
	Average Rainfall Inches **		∅ Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
			High		Low				Average	Maximum	Minimum
	1957-1968	1968	Day		Day						
Jan.	1.53	3.39	16	256	27	0	79.2	4,872	32,341	81,383	4,872
Feb.	1.60	1.41	8	215	† 3	0	83.6	4,807	18,846	45,337	4,807
Mar.	.79	.89	30	415	† 3	0	126	7,743	22,653	54,200	3,280
Apr.	1.53	1.09	9	836	14	101	440	26,198	42,706	74,653	12,900
May	3.13	3.57	1	820	22	50.7	351	21,557	49,492	74,629	10,366
June	2.81	4.15	14	1,780	30	33.6	902	53,697	76,749	123,000	46,957
July	1.18	2.15	†25	1,010	† 7	3.7	469	28,824	42,122	77,132	13,077
Aug.	2.00	1.91	28	888	15	5.9	360	22,150	27,717	45,900	13,538
Sept.	4.35	2.33	9	756	22	144	383	22,802	26,538	59,400	4,308
Oct.	3.19	2.59	1	580	27	109	348	21,368	25,334	58,164	5,146
Nov.	1.86	.34	18	826	10	79.1	503	29,931	18,968	44,359	4,853
Dec.	1.59	.47	31	821	8	118	370	22,731	22,089	37,500	6,663
Yearly	25.56	24.29		1,780		0	367	266,680	405,555	525,771	266,680

** United States side - average of several stations in the reach ∅ Mean daily † And other days

RIO GRANDE NEAR SAN BENITO, TEXAS

DESCRIPTION: Cableway, concrete control weir, bubbler gage, water-stage recorders (graphic and digital), and impulse-type transmitter, located on the left bank at latitude 26° 02' 00", longitude 97° 43' 40", and river mile 96.5; 5.6 river miles downstream from San Benito pumping plant, about 9.5 miles southwest of San Benito, Texas, and 1,151.7 river miles downstream from the American Dam at El Paso, Texas. An auxiliary gage well is located 0.2 river mile upstream from the gage. The zero of the gage is at mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 26 discharge measurements during the year and a continuous record of gage heights. Computations for high flows by shifting control methods. Low and medium flow computations based on a stable control weir rating curve defined by meter measurements. Records available: November 26, 1952 through August 25, 1953, and December 1953 through 1968.

REMARKS: Except for diversions, tributary inflows, and drainage returns below Falcon Dam, flow at this station after August 25, 1953 was controlled largely by releases from Falcon Reservoir, 177.3 river miles upstream. Excessive upstream flood flows are partly diverted through the United States and Mexican floodway systems before reaching this station. The transmitter relays gage height data via leased telephone circuits to the Anzalduas Dam office of the United States Section of this Commission and to the McAllen, Texas office of the Special Water Master, who, under the jurisdiction of the 93rd District Court of Texas, has control of the United States portion of water in Falcon Reservoir and in the Rio Grande below Falcon Dam. The data is recorded automatically at both locations. The concrete control weir was constructed in December 1965 and the gage was moved to its present location just above the weir on January 4, 1967.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 25,000 second-feet on September 29, 1967 with a gage height of 61.05 feet. Min. no flow occurs frequently.

Average Flow in Second-Feet ‡

Daily:	Max.	24,800	September 29, 1967	Min.	0	Frequently
Monthly:	Max.	13,400	October 1967	Min.	39.5	December 1956
Yearly:	Max.	2,970	1967	Min.	200	1956

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	3,340	2,820	1,180	841	1,420	647	2,270	817	365	* 211	967	325
2	3,440	2,780	997	748	1,280	511	2,130	717	482	275	940	649
3	3,490	2,780	1,020	576	1,220	406	2,070	625	381	251	596	* 838
4	3,470	2,740	1,550	616	1,140	309	1,810	680	320	240	382	609
5	3,240	2,680	2,130	534	1,080	* 335	1,200	1,130	* 539	275	* 556	529
6	3,080	2,430	2,320	398	1,860	259	686	931	432	273	620	566
7	3,090	* 1,970	* 2,400	335	1,910	530	668	* 761	299	207	681	612
8	3,300	1,570	2,380	350	1,900	327	1,500	641	304	151	539	721
9	3,480	1,480	2,320	307	* 2,210	221	2,080	435	729	149	479	762
10	* 3,600	1,770	2,240	* 422	2,140	343	1,980	353	1,500	232	754	674
11	3,660	1,900	2,190	532	1,870	427	* 1,810	398	2,260	415	975	616
12	3,870	1,760	2,160	405	2,100	614	1,430	428	3,940	359	665	546
13	3,960	* 1,640	2,120	504	2,410	586	1,300	394	* 5,140	368	218	662
14	3,880	1,590	2,130	547	2,360	521	3,300	387	5,280	342	146	883
15	3,690	1,830	2,020	510	1,500	548	4,230	664	5,800	* 283	153	777
16	3,450	2,600	1,780	562	1,180	689	3,760	671	* 5,960	251	384	763
17	2,810	3,140	1,690	618	1,070	667	2,540	500	5,390	253	359	685
18	2,340	3,360	1,450	1,010	763	656	1,610	591	4,600	193	447	550
19	2,810	3,470	1,170	1,220	1,280	* 777	965	564	3,910	187	501	387
20	3,240	3,410	1,220	1,160	2,390	765	773	390	2,900	244	646	* 336
21	3,510	3,210	1,310	1,070	1,930	1,110	659	210	2,300	245	1,100	339
22	3,680	2,970	1,420	1,620	1,940	1,580	537	189	1,920	658	799	746
23	3,740	2,680	1,600	3,350	3,280	1,730	404	231	1,510	1,170	457	928
24	* 3,740	2,480	1,880	* 3,990	* 3,830	1,970	* 330	269	736	1,430	423	771
25	3,750	2,410	1,820	3,920	4,110	1,720	410	287	240	1,520	374	666
26	3,730	2,340	1,350	3,880	4,300	1,610	832	499	137	1,250	242	883
27	3,660	2,130	* 747	3,690	4,000	1,720	1,050	597	145	1,010	322	633
28	3,520	* 1,710	* 472	2,870	3,110	1,890	956	644	313	1,040	411	348
29	3,280	* 1,420	407	1,500	2,390	2,380	970	547	360	1,020	412	261
30	3,070		481	1,090	1,810	2,490	1,130	340	332	950	299	236
31	2,910		830		1,040		1,220	261		977		314
Sum	105,830	69,070	48,784	39,175	64,823	28,338	46,610	16,151	58,524	16,429	15,847	18,610

Month	Current Year 1968								Period 1954-1968		
	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet			
			High		Low						
	High	Low	Day		Day			Average	Maximum	Minimum
Jan.	45.72	39.58	13	4,000	18	2,260	3,410	209,914	49,408	227,000	2,920
Feb.	44.58	37.12	19	3,500	29	1,330	2,380	137,000	50,258	363,000	3,380
Mar.	40.59	34.92	† 7	2,420	29	353	1,570	96,763	45,657	360,000	2,560
Apr.	44.65	34.77	24	4,050	† 9	284	1,310	77,704	37,522	118,000	11,500
May	46.06	35.40	26	4,330	18	650	2,090	128,576	48,402	128,576	16,873
June	40.75	34.62	30	2,560	9	208	945	56,208	47,350	81,119	16,100
July	45.38	34.85	15	4,280	24	316	1,500	92,451	38,651	197,219	4,690
Aug.	36.48	34.51	5	1,210	22	182	521	32,036	28,339	136,690	3,100
Sept.	48.27	34.37	16	6,060	27	122	1,950	116,082	100,842	599,652	7,710
Oct.	37.68	34.43	25	1,580	10	127	530	32,587	130,512	825,802	3,840
Nov.	36.41	34.34	21	1,190	14	134	528	31,433	72,118	662,000	5,640
Dec.	35.96	34.69	23	952	30	214	600	36,913	59,402	479,000	2,430
Yearly	48.27	34.34		6,060		122	1,440	1,047,667	708,461	2,152,948	145,520

‡ Period 1954-1968 * Discharge measurement made on this day † And other days

DIVERSIONS FROM THE RIO GRANDE
UNITED STATES SIDE – SAN BENITO TO BROWNSVILLE

Since June 1956 the United States portion of the water in Falcon Reservoir and in the Rio Grande below Falcon Dam has been under the jurisdiction of the 93rd District Court of Texas, the disposition of such water being made through its Special Water Master.

During 1968, 117,462 irrigable acres and several towns and rural homes were served water diverted from the Rio Grande between the river gages near San Benito and near Brownsville under the jurisdiction of this Court. The area irrigated from the Rio Grande in this river reach was 15.1% of the total irrigable acres below Falcon Dam.

The total diversion during 1968 in this river reach was 73,788 acre-feet or 11.3% of the total water diverted from the Rio Grande below Falcon Dam. About 94% of the water diverted in this river reach was determined by this Commission through continuous records of discharge at open channel rating stations and at deflection meter stations developed by this Commission. The records for the rest of these diversions were furnished by the Special Water Master and were either measured by flow meters or were determined from periodic current meter measurements of pump discharges and recorded pump operating time. More than one crop per year is often grown on parts of this land.

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	14.0	12.9	312	133	329	56.2	58.0	241	35.6	83.3	177	33.6
2	6.8	67.8	84.7	242	264	29.7	38.7	256	77.5	73.3	39.7	179
3	13.2	10.5	26.3	213	194	106	40.3	180	110	85.4	36.5	240
4	41.2	11.0	12.3	71.0	79.1	169	72.0	115	86.0	48.2	76.6	219
5	83.7	82.3	12.7	33.5	6.0	215	35.7	170	78.8	17.8	228	111
6	8.4	12.1	12.9	27.0	5.0	214	24.3	150	75.9	12.5	303	70.3
7	10.3	32.5	13.2	27.4	9.8	103	17.8	190	78.3	13.1	185	75.0
8	11.4	164	13.7	40.3	7.9	130	38.7	274	48.2	21.8	96.2	25.7
9	5.5	148	9.3	58.9	105	181	30.0	379	90.7	57.5	66.8	201
10	70.8	30.2	14.8	10.8	121	226	19.3	70.9	99.7	81.4	51.0	240
11	9.2	19.2	12.0	52.8	46.6	242	22.0	58.5	34.6	156	90.1	199
12	6.6	12.8	14.2	59.2	21.8	258	13.6	283	35.7	55.9	90.7	87.1
13	6.6	15.3	16.4	17.1	149	257	33.6	239	40.3	21.0	173	48.4
14	7.1	14.4	12.2	16.7	152	253	33.6	108	3.0	138	88.0	29.0
15	21.4	14.7	28.3	212	227	294	77.7	111	9.1	150	38.0	33.4
16	152	15.5	31.4	315	282	279	105	110	66.6	144	24.6	88.3
17	127	16.4	12.7	332	113	211	369	97.7	18.2	168	55.9	172
18	136	14.4	9.7	298	36.9	188	489	43.2	134	148	152	133
19	17.6	15.0	60.2	312	17.1	134	451	11.5	117	38.9	228	21.9
20	11.7	12.7	241	146	18.0	140	193	29.8	113	27.3	141	30.5
21	11.5	9.8	208	32.6	33.8	117	191	32.2	16.0	128	69.8	27.6
22	17.5	13.6	55.0	51.5	35.5	72.4	406	40.9	23.2	174	79.8	52.1
23	12.6	17.9	46.1	51.1	32.6	18.5	435	63.8	126	297	23.6	233
24	16.1	16.0	12.9	64.6	32.0	88.4	431	58.9	149	156	17.5	362
25	13.7	17.4	17.8	112	15.9	52.9	368	58.0	228	32.7	188	106
26	14.8	46.3	31.8	183	24.2	36.6	361	226	155	65.5	149	212
27	11.0	28.8	27.6	130	39.7	35.1	345	261	64.5	12.1	98.8	204
28	10.6	24.1	37.0	138	109	64.9	290	269	29.4	61.2	42.9	129
29	15.8	136	30.8	107	87.3	43.3	301	292	18.7	72.5	78.3	160
30	15.1		59.3	233	78.9	10.0	280	162	82.0	197	42.0	208
31	14.5		22.5		71.9		283	55.7		316		217
Sum	913.7	1,031.6	1,498.8	3,720.5	2,745.0	4,225.0	5,853.3	4,637.1	2,244.0	3,053.4	3,130.8	4,147.9

Month	Current Year 1968 Average Rainfall Inches ** 1957-1968	1968	Ø Extreme Second-Feet High Day	High	Low Day	Low	Average Second-Feet	Total Acre-Feet	Period 1957-1968 Acre-Feet Average	Maximum	Minimum
Jan.	1.75	4.36	16	152	9	5.5	29.5	1,812	9,619	22,100	1,290
Feb.	1.92	1.21	8	164	21	9.8	35.6	2,046	5,946	12,284	1,028
Mar.	.70	.94	1	312	9	9.3	48.3	2,973	6,066	15,200	705
Apr.	1.56	1.34	17	332	14	16.7	124	7,380	11,267	21,828	2,180
May	2.87	5.67	1	329	6	5.0	88.5	5,445	14,658	27,670	2,561
June	2.87	3.75	15	294	30	10.0	141	8,380	19,373	32,279	8,280
July	1.13	1.73	18	489	12	13.6	189	11,610	11,613	23,145	3,687
Aug.	2.33	2.61	9	379	19	11.5	150	9,198	8,067	10,700	4,291
Sept.	5.47	3.68	25	228	14	3.0	74.8	4,451	6,257	12,600	876
Oct.	3.15	2.40	31	316	27	12.1	98.5	6,056	6,355	11,300	1,591
Nov.	1.60	.71	6	303	24	17.5	104	6,210	5,104	9,021	2,320
Dec.	1.83	.62	24	362	19	21.9	134	8,227	6,659	11,200	2,163
Yearly	27.18	29.02		489		3.0	102	73,788	110,984	161,503	73,788

** United States side - average of several stations in the reach Ø Mean daily

RIO GRANDE NEAR BROWNSVILLE, TEXAS

DESCRIPTION: Cableway, bubbler gage, and water-stage recorder located on the left bank at latitude 25° 52' 35", longitude 97° 27' 15", and river mile 48.8; 1,000 feet downstream from El Jardín pumping plant, 6.8 river miles downstream from the international highway bridge (Gateway) between Brownsville, Texas and Matamoros, Tamaulipas, and 1,199.4 river miles downstream from the American Dam at El Paso, Texas. The zero of the gage is at mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 22 discharge measurements during the year and a continuous record of gage heights. Computations by shifting control methods. Records available: 1934 through 1968.

REMARKS: Except for diversions, tributary inflows, and drainage returns below Falcon Dam, flow at this station after August 25, 1953 was controlled largely by releases from Falcon Reservoir, 225 river miles upstream. Excessive upstream flood flows are partly diverted into the United States and Mexican floodway systems before reaching this station.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 31,700 second-feet on October 8, 1945 with a gage height of 31.48 feet. Min. no flow occurs frequently.

Average Flow in Second-Feet

Daily:	Max.	30,800	Sept. 14, 1942; Oct. 8, 1945	Min.	0	Frequently
Monthly:	Max.	23,200	Oct. 1941	Min.	0	June, July 1953
Yearly:	Max.	9,010	1941	Min.	42.1	1956

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2,860	*3,000	1,270	* 829	968	1,020	2,460	876	178	311	686	265
2	3,310	2,900	1,100	807	1,020	763	2,290	646	191	210	852	215
3	3,470	2,880	1,210	584	1,020	537	2,150	530	296	* 200	837	347
4	3,520	2,880	1,250	638	1,090	398	2,030	518	239	239	598	515
5	3,460	2,870	1,690	676	1,130	233	1,700	607	186	249	382	* 412
6	3,240	2,800	2,140	634	1,170	* 212	1,180	930	350	271	309	426
7	3,070	2,550	2,330	529	1,840	186	866	771	303	296	367	452
8	3,100	2,080	2,400	452	1,840	411	841	* 609	202	238	540	500
9	3,270	1,640	2,400	406	1,880	295	1,560	318	186	190	522	571
10	3,450	1,620	2,350	466	* 2,070	121	* 2,050	224	594	148	480	521
11	3,550	1,900	2,270	* 428	2,030	113	1,990	259	1,440	173	609	461
12	3,670	1,950	2,200	511	1,880	196	1,780	219	2,310	283	825	442
13	3,890	*1,800	*2,170	472	2,080	310	1,340	68.9	3,620	368	* 596	488
14	4,000	1,710	2,130	533	2,380	382	1,680	155	* 4,690	318	214	585
15	3,940	*1,700	2,090	512	2,140	252	3,120	225	5,110	275	172	747
16	3,670	1,970	1,970	348	1,190	195	3,970	451	* 5,480	216	174	673
17	*3,290	2,740	1,770	297	1,080	211	3,660	527	5,690	* 184	189	612
18	2,630	3,210	1,670	437	1,050	401	2,210	436	5,460	162	299	468
19	2,380	3,510	1,440	753	910	576	1,090	521	4,930	171	200	519
20	2,810	3,670	1,140	910	1,570	665	775	505	4,090	179	175	421
21	3,160	3,690	959	1,030	2,340	719	753	352	3,120	200	519	359
22	3,440	3,520	1,220	1,040	1,820	1,060	518	179	2,420	127	841	359
23	3,650	3,190	1,330	1,710	* 2,110	1,480	254	106	1,860	366	696	582
24	3,720	2,860	1,570	3,100	3,220	1,690	94.3	114	1,280	806	454	570
25	3,740	2,680	1,800	* 3,750	3,880	1,820	* 40.4	148	775	1,170	328	446
26	3,790	2,570	1,650	3,720	4,380	1,610	104	121	229	1,240	210	533
27	3,800	2,510	1,250	3,690	4,680	1,570	480	155	181	1,100	177	554
28	3,770	2,280	* 832	3,480	4,300	1,610	777	254	203	913	244	490
29	3,610	*1,850	674	2,580	3,280	1,940	730	308	311	903	283	335
30	3,360		615	1,360	2,370	2,400	726	244	340	884	355	156
31	3,150		663		1,610		883	239		708		93.2
Sum	105,770	74,530	49,553	36,682	64,328	23,376	44,051.7	11,615.9	56,264	13,098	13,133	14,117.2

Month	Current Year 1968							Period 1954-1968		
	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet		
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum
Jan.	18.87	14.39	14	4,000	19	2,280	3,410	209,795	37,294	224,000	283
Feb.	17.94	11.67	21	3,710	9	1,470	2,570	147,830	44,573	362,000	1,060
Mar.	14.44	7.14	9	2,410	30	598	1,600	98,288	39,216	361,000	2,050
Apr.	17.47	5.44	25	3,820	17	252	1,220	72,759	25,544	127,000	875
May	18.98	8.82	27	4,740	19	898	2,080	127,595	31,069	127,595	4,140
June	14.13	4.79	30	2,540	10	89.6	779	46,366	26,867	60,836	2,430
July	17.73	4.36	16	4,090	25	29.5	1,420	87,377	30,572	190,638	1,120
Aug.	9.35	4.57	6	986	13	51.6	375	23,040	19,010	97,786	218
Sept.	20.78	5.15	17	5,720	5	139	1,880	111,600	86,267	516,325	950
Oct.	10.75	4.38	26	1,300	22	92.5	423	25,980	104,721	738,596	756
Nov.	9.24	4.30	12	929	20	83.9	438	26,049	61,761	528,000	1,290
Dec.	8.37	4.35	15	756	31	82.4	455	28,001	53,978	480,000	524
Yearly	20.78	4.30		5,720		29.5	1,380	1,004,680	560,872	1,863,269	30,596

* Discharge measurement made on this day

DIVERSIONS FROM THE RIO GRANDE
UNITED STATES SIDE – BROWNSVILLE TO THE GULF

Since June 1956 the United States portion of the water in Falcon Reservoir and in the Rio Grande below Falcon Dam has been under the jurisdiction of the 93rd District Court of Texas, the disposition of such water being made through its Special Water Master.

During 1968, 6,100 acres, or 0.8% of the total irrigable acreage below Falcon Dam, were served by diversions between the gage near Brownsville and the mouth of the river under the jurisdiction of this Court.

The total diversion during 1968 in this river reach was 1,205 acre-feet, or 0.2% of the total water diverted from the Rio Grande below Falcon Dam. All the records of diversions in this river reach were furnished by the Special Water Master and were determined by periodic current meter measurements of pump discharges and recorded pump operating time. More than one crop per year is often grown on parts of this land.

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	0	3.4	0	0	3.0	19.1	0	5.5	2.0	0
2	0	0	0	3.4	0	0	2.0	16.3	0	6.6	2.2	0
3	0	0	0	3.4	0	0	2.0	12.3	0	4.6	1.3	0
4	0	0	0	5.9	0	0	2.0	7.5	0	5.5	4.6	1.2
5	0	2.6	0	4.6	0	0	0	10.4	0	.7	13.1	2.0
6	0	2.6	0	4.6	0	1.3	0	15.3	0	2.5	12.6	2.5
7	0	2.6	0	5.6	0	0	0	12.9	0	1.5	8.8	2.2
8	0	2.6	0	3.8	0	0	0	12.9	0	1.3	3.0	1.0
9	0	0	0	3.6	0	0	0	7.8	0	0	0	1.0
10	0	0	0	2.6	0	0	0	3.3	0	0	0	1.7
11	0	0	2.3	2.6	0	0	0	3.3	0	0	0	2.4
12	0	0	2.3	2.6	0	4.9	1.5	0	0	0	0	0
13	0	0	0	0	0	9.0	1.4	0	0	0	0	0
14	0	0	0	0	0	11.1	0	0	0	0	0	0
15	0	0	0	0	0	9.0	2.1	0	0	0	0	0
16	0	0	0	0	0	9.4	2.1	0	0	3.0	0	0
17	0	0	0	0	0	9.3	4.5	1.2	0	3.0	0	0
18	0	0	0	0	0	9.8	4.5	2.2	0	3.1	0	0
19	0	0	0	0	0	3.0	2.5	2.2	0	4.2	0	0
20	0	0	0	0	0	0	2.5	2.2	0	.9	0	0
21	0	0	0	0	0	0	8.2	2.8	0	0	0	0
22	0	0	0	0	0	0	6.9	2.8	0	0	0	0
23	0	0	0	0	0	0	6.9	0	0	0	0	0
24	0	0	0	0	0	0	14.1	0	0	0	0	0
25	0	0	0	1.8	0	0	19.0	0	0	0	0	0
26	0	0	1.1	1.8	0	0	19.0	0	0	1.9	0	0
27	0	0	1.1	1.8	0	0	16.9	0	0	4.7	0	0
28	0	1.6	1.1	2.4	0	0	16.4	0	1.7	0	0	0
29	0	1.6	1.1	1.7	0	0	19.7	0	5.9	0	0	0
30	0		1.1	1.7	0	0	19.7	0	5.0	0	0	0
31	0		0	1.7	0		19.1	0		2.0		2.3
Sum	0	13.6	10.1	59.0	0	66.8	196.0	134.5	12.6	51.0	47.6	16.3

Month	Average Rainfall Inches **		Current Year 1968 ø Extreme Second-Feet High		Low		Average Second-Feet	Total Acre-Feet	Period 1957-1968 Acre-Feet		
	1957-1968	1968	Day		Day				Average	Maximum	Minimum
Jan.	1.94	3.95		0		0	0	0	454	1,275	0
Feb.	2.07	1.26	† 5	2.6	† 1	0	.5	27.0	160	415	0
Mar.	.75	1.10	†11	2.3	† 1	0	.3	20.0	129	305	0
Apr.	1.55	1.62	4	5.9	†13	0	2.0	117	239	633	0
May	2.61	5.88		0		0	0	0	362	1,356	0
June	2.59	3.80	14	11.1	† 1	0	2.2	132	547	1,393	132
July	.97	1.51	†29	19.7	† 4	0	6.3	389	252	778	43.6
Aug.	2.16	2.36	1	19.1	†12	0	4.3	267	159	317	63.5
Sept.	5.77	3.99	29	5.9	† 1	0	.4	25.0	73.2	190	0
Oct.	2.90	2.83	2	6.6	† 9	0	1.6	101	78.4	218	0
Nov.	1.63	1.05	5	13.1	† 9	0	1.6	94.4	92.2	252	0
Dec.	1.92	.28	6	2.5	† 1	0	.5	32.3	117	335	0
Yearly	26.86	29.63		19.7		0	1.7	1,204.7	2,662.8	5,036.3	1,204.7

** United States side - average of several stations in the reach ø Mean daily † And other days

DIVERSIONS FROM THE RIO GRANDE
UNITED STATES SIDE BELOW FALCON DAM

Since June 1956 the United States portion of the water in Falcon Reservoir and in the Rio Grande below Falcon Dam has been under the jurisdiction of the 93rd District Court of Texas, the disposition of such water being made through its Special Water Master.

The official records for 1968 show that, in this area, 777,416 irrigable acres, several towns and many rural homes were served Rio Grande water under the jurisdiction of this Court.

The total diversion in 1968 was 654,886 acre-feet, most of which was made by pumping from the river. About 96% of the water diverted was determined by this Commission through continuous records of discharges at open channel rating stations and at deflection meter stations developed by this Commission. The records for the rest of the diversions were furnished by the Special Water Master and were either measured by flow meters or were determined from periodic current meter measurements of pump discharges and recorded pump operating time. Drainage from more than 90% of this area does not return to the Rio Grande but some of it is re-used in the area. More than one crop per year is often grown on parts of this land.

Diversion data pertaining to "Diversions from the Rio Grande - United States Side below Rio Grande City" for the period 1922 through 1957 may be found in previous issues of these Water Bulletins. The area irrigated below Rio Grande City is about 99% of the total acreage irrigated on the United States side below Falcon Dam.

A breakdown by river reaches of the total diversion below Falcon Dam shown in the tabulation below may be found in appropriate downstream order on preceding pages of this Water Bulletin. Because the mean daily discharges are rounded, the total acre-feet shown in the summary below may not equal the sum of the acre-feet of the individual reaches.

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	45.9	171	524	933	1,530	936	193	1,160	677	1,380	1,210	567
2	150	205	260	983	1,460	660	160	1,130	1,080	1,370	853	1,160
3	200	51.3	56.8	1,010	1,330	1,720	346	864	1,480	1,260	688	1,300
4	129	86.5	108	973	846	2,170	217	426	1,460	1,020	1,440	1,380
5	202	271	91.2	1,180	237	2,480	261	920	1,440	759	1,690	1,260
6	151	407	114	1,020	701	2,650	136	882	1,340	671	1,720	1,080
7	103	586	37.9	743	755	2,590	32.4	785	1,110	827	1,430	793
8	115	822	98.4	1,320	781	2,520	79.1	909	678	872	1,160	327
9	29.4	577	159	1,400	846	2,060	249	1,140	1,550	1,030	675	1,150
10	191	249	120	1,120	1,030	2,980	258	544	1,120	838	341	1,170
11	153	44.1	190	1,190	711	3,630	152	318	954	912	1,120	1,060
12	66.0	235	242	863	431	3,680	550	1,040	958	794	1,650	864
13	124	199	456	376	795	3,550	569	1,020	1,070	371	1,610	792
14	21.7	106	413	197	982	3,630	291	868	666	729	1,250	612
15	214	159	566	955	1,040	3,300	680	689	428	817	1,140	460
16	527	146	366	1,300	1,240	2,810	1,050	698	1,070	795	1,040	765
17	530	118	223	1,080	1,240	3,220	1,710	471	879	740	742	1,200
18	281	33.4	562	975	868	2,810	2,160	298	1,020	761	1,600	1,180
19	97.3	229	733	891	376	2,440	2,250	1,170	966	551	1,560	1,090
20	57.6	307	776	623	348	2,060	1,700	1,500	976	433	1,530	1,100
21	44.2	229	564	226	303	1,660	1,380	1,530	747	757	1,500	904
22	109	205	506	530	267	924	2,280	1,520	416	875	1,480	456
23	152	152	283	720	494	307	2,440	1,550	1,220	993	1,110	1,210
24	192	140	149	804	490	541	2,510	1,270	1,320	990	497	1,090
25	184	83.6	478	738	300	603	2,400	683	1,420	974	1,910	255
26	184	172	709	796	162	258	2,380	1,830	1,480	865	1,820	1,220
27	62.5	269	829	937	760	272	1,790	2,050	1,350	329	1,650	1,450
28	64.1	264	810	699	1,000	396	1,010	2,090	1,020	980	963	1,230
29	146	336	1,000	564	1,030	263	1,570	2,310	714	1,030	1,620	1,090
30	120		782	1,160	1,170	69.2	1,300	1,950	1,400	1,130	1,200	1,750
31	253		486		1,250		1,220	1,470		1,280		1,790
Sum	4,898.7	6,852.9	12,692.3	26,306	24,773	57,189.2	33,273.5	35,085	32,009	27,133	38,199	31,755

Month	Current Year 1968							Period 1957-1968		
	Average Rainfall Inches **		ø Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
			High		Low						
	1957-1968	1968	Day		Day				Average	Maximum	Minimum
Jan.	1.46	2.66	17	530	14	21.7	158	9,717	62,125	166,872	9,717
Feb.	1.44	1.10	8	822	18	33.4	236	13,593	44,177	126,230	11,785
Mar.	.72	.88	29	1,000	7	37.9	409	25,175	60,351	149,000	6,280
Apr.	1.56	1.82	9	1,400	14	197	877	52,178	95,789	157,807	25,100
May	2.59	2.96	1	1,530	26	162	799	49,137	110,507	171,000	20,436
June	2.60	3.52	12	3,680	30	69.2	1,910	113,435	155,909	259,000	86,810
July	.92	2.44	24	2,510	7	32.4	1,070	65,998	102,223	178,000	41,158
Aug.	1.89	1.59	29	2,310	18	298	1,130	69,591	74,401	113,000	48,709
Sept.	4.45	2.47	9	1,550	22	416	1,070	63,490	63,229	136,000	12,709
Oct.	2.92	2.37	1	1,380	27	329	875	53,818	62,498	124,598	12,991
Nov.	1.48	.34	25	1,910	10	341	1,270	75,768	46,550	97,969	12,674
Dec.	1.38	.23	31	1,790	25	255	1,020	62,986	49,284	84,500	14,034
Yearly	23.41	22.38		3,680		21.7	902	654,886	927,043	1,153,049	654,886

** United States side - average of several stations in the reach ø Mean daily

OUTFALLS FROM SEWERS INTO THE RIO GRANDE
In Acre-Feet

EL PASO SEWAGE OUTFALL

This sewage enters the Rio Grande through the outfalls of the El Paso, Ascarate, and Ysleta Sewage Plants, located 6.6, 8.2, and 15 river miles, respectively, downstream from the American Dam. The outfall from the El Paso Plant consists of flows measured by a Parshall meter and estimates of amounts which bypass the meter. The effluent from the Socorro Plant, located 17 miles below American Dam, is discharged into ponds at the approximate rate of 10 c.f.s. When the ponds overflow, the effluent may enter either the Rio Grande or Riverside Canal. No record has been kept of the amount of this effluent entering the Rio Grande and it is not included in the table below. All of the plants are operated by the El Paso Water Utilities of the Public Service Board of the City of El Paso, Texas and the records are furnished by that agency.

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Yearly
1968	1,661	1,582	1,748	1,676	1,734	1,698	1,809	1,758	1,639	1,668	1,509	1,413	19,895
* Average	1,634	1,564	1,744	1,663	1,803	1,780	1,872	1,911	1,790	1,793	1,666	1,663	20,883

EAGLE PASS SEWAGE OUTFALL

This sewage outfall enters the Rio Grande 757.5 river miles downstream from the American Dam at El Paso, Texas and about 600 feet upstream from the Eagle Pass-Piedras Negras International Railroad Bridge. The records are based on weekly current meter measurements or gage height observations made by personnel of the International Boundary and Water Commission. There are no records available prior to 1962.

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Yearly
1968	72.4	67.4	62.3	52.8	50.4	37.7	58.1	62.5	66.8	63.5	76.4	78.1	748.4
# Average	56.0	54.8	49.5	45.0	43.8	39.4	38.1	45.2	51.9	53.2	56.7	60.0	593.6

LAREDO SEWAGE OUTFALL

This sewage outfall enters the Rio Grande 890.8 river miles downstream from the American Dam at El Paso, Texas and immediately upstream from the Laredo Gaging Station. The record is based on estimates by the Texas State Health Department.

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Yearly
1968	371	379	409	438	507	497	412	547	330	395	494	462	5,241
* Average	335	348	417	412	467	444	435	411	357	349	384	352	4,711

BROWNSVILLE SEWAGE OUTFALL

This sewage outfall enters the Rio Grande 3.4 river miles downstream from the Gateway Bridge between Brownsville, Texas and Matamoros, Tamaulipas; 3.4 river miles upstream from the Brownsville Gaging Station; and 52.2 river miles from the Gulf of Mexico. Records are furnished by the City of Brownsville. No cooling water waste was returned to the Rio Grande by the City of Brownsville Water Plant.

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Yearly
1968	402	330	349	269	289	284	415	451	418	371	288	244	4,110
* Average	289	266	316	268	289	318	327	324	322	322	290	275	3,606

* Period averages are for past 10 years # Period 1962-1968

MUNICIPAL AND INDUSTRIAL WATER USES

In Acre-Feet

Tabulated below are monthly and yearly amounts of water pumped directly from the Rio Grande into the municipal distribution systems of several cities along the border, except the City of El Paso which pumps its water from the Franklin Canal and the City of Del Rio which pumps its water from San Felipe Springs. The basic data for the cities are furnished by the municipalities. Central Power and Light Company furnishes the data for the Laredo Power Station. All diversions in the United States listed below are in the State of Texas, while those in Mexico are in the State of Tamaulipas, except for Piedras Negras which is in the State of Coahuila. Because of changing conditions, the period records are limited here to the past 10 years.

During March through September 1968, the City of El Paso pumped water from wells near Canutillo, Texas into the Rio Grande about 17 miles upstream from the point of diversion at the water plant. This water amounted to 2,526 acre-feet and is included in the figures below. All Rio Grande water used by United States municipalities below Falcon Dam is included in the figures shown under "Diversions from the Rio Grande - United States Side . . ." (by river reaches and total below Falcon Dam) on pages 63, 66, 70, 72, 74, 76, and 77 herein. The City of Reynosa, Tamaulipas, Mexico no longer pumps water from the Rio Grande. All its water supply is from the Rode Canal of the Marte R. Gómez Reservoir. Cd. Mier, Tamaulipas started diverting water from the Rio Grande for municipal use January 1953. There were no actual records kept of this diversion prior to May 1960. This diversion has been estimated to be 32.4 acre-feet per month during this period. The Del Mar Conservation District started diverting water from the Rio Grande in late December 1961, Piedras Negras in November 1964, and San Ygnacio in November 1965. The Laredo Power Station, Central Power and Light Company, started operation in April 1951. The Cd. Miguel Aleman, Tamaulipas water plant started operation in late August 1967. Prior to this date, all water for municipal use was supplied by the Roma, Texas water plant. The city of Roma, Texas no longer supplies water to Cd. Miguel Aleman, Tamaulipas.

Population data for all cities are estimates based on the 1960 official census, except Falcon Village where the population was estimated by the International Boundary and Water Commission, and Del Mar and San Ygnacio where the population was estimated from the number of meter connections.

In United States

Month	EL PASO (Pop. 339,000)				DEL RIO ø (Pop. 26,000)			
	1968	Period 1959-1968			1968	Period 1959-1968		
		Average	Maximum	Minimum		Average	Maximum	Minimum
Jan.	0	0	0	0	303.8	297.9	407.0	212.4
Feb.	0	0	0	0	306.2	302.5	411.5	236.2
Mar.	283	344.6	831	37.9	350.1	449.8	599.2	338.4
Apr.	1,030	1,170.2	2,096	671.4	482.5	500.9	611.1	324.3
May	2,067	1,345.5	2,540	3.0	563.4	536.4	768.8	372.0
June	2,165	1,598.2	2,498	637.0	731.6	677.0	907.6	482.9
July	1,304	1,558.1	2,565	830.8	715.0	808.8	1,027.2	464.2
Aug.	1,832	1,600.7	1,978	881.5	954.1	795.9	1,147.4	532.5
Sept.	1,937	1,191.0	1,937	343.9	584.8	557.5	731.7	431.0
Oct.	769	321.5	1,016	0	511.4	405.4	521.1	282.1
Nov.	369	111.2	397	0	406.6	314.2	413.5	217.1
Dec.	109	78.6	677.1	0	344.1	283.5	372.0	220.1
Yearly	11,865	9,319.6	15,517	3,805.3	6,253.6	5,929.8	6,969.4	4,500.3

Month	EAGLE PASS (Pop. 16,500)				DEL MAR (Pop. 1,240)			
	1968	Period 1959-1968			1968	Period 1962-1968		
		Average	Maximum	Minimum		Average	Maximum	Minimum
Jan.	155.8	128.4	161.3	100.3	13.7	7.7	22.6	0.3
Feb.	153.5	126.9	153.5	101.2	12.9	7.5	21.0	.6
Mar.	173.5	161.9	196.0	133.9	7.6	6.7	21.9	0
Apr.	189.3	162.1	189.3	114.3	26.3	12.7	35.3	0
May	204.6	180.5	254.9	144.3	25.5	11.8	31.9	0
June	253.6	221.0	258.6	166.8	35.3	14.5	35.3	0
July	278.5	242.4	293.1	173.1	16.5	13.7	37.3	0
Aug.	325.5	234.5	325.5	178.8	37.9	22.8	50.4	1.9
Sept.	195.1	185.2	229.9	164.8	23.4	15.0	23.4	1.7
Oct.	194.1	160.4	194.1	127.3	15.5	10.7	19.7	1.7
Nov.	186.6	139.1	187.1	100.3	18.2	14.6	32.1	1.5
Dec.	179.4	131.6	179.4	92.3	13.9	13.8	31.8	1.5
Yearly	2,489.5	2,074.0	2,489.5	1,624.3	246.7	151.5	346.7	15.0

ø Includes Laughlin Air Force Base

MUNICIPAL AND INDUSTRIAL WATER USES

In Acre-Feet

In United States

Month	LAREDO (Pop. 75,600)				LAREDO POWER STATION			
	1968	Period 1959-1968			1968	Period 1959-1968		
		Average	Maximum	Minimum		Average	Maximum	Minimum
Jan.	674.0	609.2	773.4	479.3	40.4	29.7	40.4	15.4
Feb.	665.5	610.7	777.0	393.7	22.1	36.1	72.7	13.5
Mar.	786.4	802.3	990.6	598.6	21.1	38.0	79.3	10.7
Apr.	952.0	894.8	1,050.5	644.8	36.4	44.7	76.4	26.0
May	1,102.7	1,016.4	1,449.0	880.7	55.5	54.7	74.4	35.6
June	1,243.3	1,110.7	1,429.3	913.5	52.4	65.0	80.3	46.9
July	1,176.2	1,242.1	1,703.7	939.1	63.4	86.4	102.9	63.4
Aug.	1,562.2	1,203.9	1,562.2	930.5	86.9	93.2	109.7	75.6
Sept.	845.2	913.4	1,245.1	742.1	64.0	67.7	83.8	49.8
Oct.	962.3	851.0	994.7	730.2	47.1	44.4	62.3	28.4
Nov.	914.8	711.0	969.0	533.4	54.8	43.4	61.7	21.8
Dec.	840.8	640.3	840.8	482.1	61.0	41.3	61.0	21.5
Yearly	11,725.4	10,605.8	12,393.0	8,654.3	605.1	644.6	820.0	475.6

Month	SAN YGNACIO (Pop. 900)				NEW ZAPATA (Pop. 2,437)			
	1968	Period November 1965-1968			1968	Period 1959-1968		
		Average	Maximum	Minimum		Average	Maximum	Minimum
Jan.	1.6	1.3	1.6	0.8	20.2	23.4	43.0	14.6
Feb.	1.9	1.8	2.5	1.1	18.6	24.4	40.2	14.9
Mar.	2.2	2.6	3.4	2.1	25.0	29.7	41.2	23.0
Apr.	2.9	3.1	4.0	2.4	27.8	34.4	46.0	27.0
May	2.2	2.0	2.4	1.5	31.5	33.7	46.4	18.3
June	2.6	2.0	2.6	1.4	37.6	38.3	49.2	27.7
July	3.3	2.3	3.3	.8	34.4	43.4	57.6	34.1
Aug.	4.1	3.1	4.1	1.4	44.9	41.0	52.7	31.7
Sept.	2.5	2.0	2.5	1.5	21.1	31.8	50.4	21.1
Oct.	2.7	2.0	2.7	1.5	24.2	30.8	47.6	24.2
Nov.	2.7	2.0	2.7	1.4	24.6	25.1	44.3	17.4
Dec.	2.4	1.6	2.4	1.1	25.0	24.4	43.1	16.4
Yearly	31.1	25.8	31.1	21.3	334.9	380.4	483.8	310.5

Month	FALCON VILLAGE (Pop. 140)				ROMA * (Pop. 2,400)			
	1968	Period 1959-1968			1968	Period 1959-1968		
		Average	Maximum	Minimum		Average	Maximum	Minimum
Jan.	5.4	5.4	6.8	3.7	14.4	28.8	38.6	14.4
Feb.	5.7	5.4	7.2	3.0	14.4	28.1	36.0	14.4
Mar.	5.9	7.3	9.8	5.3	18.2	34.9	45.3	18.2
Apr.	7.8	8.4	10.1	6.5	17.0	36.9	48.7	17.0
May	8.6	9.1	11.5	6.5	19.9	39.7	49.7	19.9
June	8.8	9.4	12.8	7.5	21.1	40.9	50.1	21.1
July	9.5	11.7	14.7	9.5	21.9	45.1	54.9	21.9
Aug.	10.3	10.8	13.2	8.3	25.7	42.7	51.8	25.7
Sept.	5.8	8.1	11.0	5.8	18.6	35.7	49.5	18.6
Oct.	6.6	7.6	8.9	6.4	19.5	34.8	44.5	19.5
Nov.	7.0	6.0	7.9	4.9	18.3	30.6	44.0	15.7
Dec.	6.7	5.8	7.8	3.8	19.2	29.2	43.2	15.4
Yearly	88.1	95.0	105.9	87.5	228.2	427.4	528.0	228.2

Month	RIO GRANDE CITY (Pop. 7,418)				BROWNSVILLE (Pop. 58,400)			
	1968	Period 1959-1968			1968	Period 1959-1968		
		Average	Maximum	Minimum		Average	Maximum	Minimum
Jan.	55.9	55.6	67.5	40.8	663.1	627.4	734.8	449.3
Feb.	53.7	53.2	63.2	35.6	599.1	592.1	700.8	420.2
Mar.	60.8	66.0	83.2	46.9	645.9	726.1	870.3	524.4
Apr.	61.4	70.9	92.1	50.7	676.4	737.8	903.8	512.9
May	67.5	76.4	88.1	61.4	675.3	762.4	952.5	644.2
June	80.4	83.2	105.3	69.8	761.8	846.9	1,047.4	641.7
July	59.2	89.1	107.7	59.2	860.4	1,006.0	1,191.3	808.2
Aug.	88.1	87.0	95.1	77.6	883.8	976.5	1,177.1	790.2
Sept.	62.9	70.3	92.1	56.4	733.6	770.6	927.7	665.4
Oct.	58.3	62.3	69.1	58.0	799.1	729.6	811.6	655.5
Nov.	59.8	57.5	74.0	46.0	848.1	673.6	848.1	549.0
Dec.	60.2	58.2	80.4	46.7	896.5	680.2	896.5	538.4
Yearly	768.2	829.7	939.2	731.1	9,041.1	9,129.0	10,153.6	7,632.5

* Includes Los Saenz and Escobares, *Texas*

MUNICIPAL AND INDUSTRIAL WATER USES

In Acre-Feet

In Mexico

Month	PIEDRAS NEGRAS (Pop. 61,190)				NUEVO LAREDO (Pop. 145,000)			
	1968	Period 1965-1968			1968	Period 1959-1968		
		Average	Maximum	Minimum		Average	Maximum	Minimum
Jan.	185.0	187.0	212.2	163.8	875.4	764.6	939.4	567.7
Feb.	166.8	165.9	172.0	160.3	842.1	735.3	842.1	497.5
Mar.	195.1	197.7	205.8	184.6	972.3	905.4	1,037.9	619.7
Apr.	209.8	216.2	236.6	194.2	1,100.0	986.2	1,144.1	687.2
May	242.4	235.8	287.6	198.5	1,364.7	1,091.7	1,364.7	956.3
June	294.6	271.0	295.7	241.8	1,630.7	1,123.4	1,630.7	915.0
July	301.2	304.8	316.5	297.2	1,607.9	1,213.5	1,607.9	997.7
Aug.	346.3	291.5	346.3	248.2	1,856.3	1,220.1	1,856.3	957.4
Sept.	248.1	233.0	248.1	222.1	1,303.3	1,057.7	1,303.3	913.2
Oct.	247.1	226.4	247.1	208.5	1,339.0	1,031.6	1,339.0	877.3
Nov.	224.3	201.6	224.3	176.4	1,155.3	859.2	1,155.3	643.1
Dec.	208.5	188.2	208.5	171.1	1,155.0	826.0	1,155.0	664.9
Yearly	2,869.2	2,719.1	2,869.2	2,599.5	15,202.0	11,814.7	15,202.0	9,625.0

Month	NUEVA CD. GUERRERO (Pop. 4,955)				CD. MIER (Pop. 8,920)			
	1968	Period 1959-1968			1968	Period 1959-1968		
		Average	Maximum	Minimum		Average	Maximum	Minimum
Jan.	19.8	33.5	48.7	19.8	21.8	30.6	38.9	21.8
Feb.	19.1	30.9	44.3	19.1	20.1	31.1	41.3	20.1
Mar.	25.4	37.2	48.0	25.4	26.6	36.5	47.0	26.6
Apr.	19.9	36.9	52.5	19.9	25.5	36.4	46.2	25.5
May	48.9	41.9	53.8	35.2	36.7	39.6	50.3	32.4
June	21.2	39.6	52.9	21.2	24.8	37.2	49.7	24.8
July	26.2	40.7	54.6	26.2	28.9	39.4	50.3	28.9
Aug.	32.9	39.9	52.0	26.8	34.5	38.4	49.7	29.2
Sept.	34.9	37.2	46.4	22.2	35.0	37.1	47.2	24.7
Oct.	27.8	36.9	49.1	24.0	29.6	36.3	46.9	25.6
Nov.	24.6	35.5	46.5	24.6	31.0	34.8	41.3	25.4
Dec.	24.7	35.0	48.6	24.6	26.2	32.8	38.9	25.0
Yearly	325.4	445.2	552.8	325.4	340.7	430.2	533.3	340.7

Month	CD. MIGUEL ALEMAN (Pop. 13,700)				MATAMOROS (Pop. 134,000)			
	1968	Period Aug. 1967-1968			1968	Period 1959-1968		
		Average	Maximum	Minimum		Average	Maximum	Minimum
Jan.	29.0				479.8	484.2	730.6	278.5
Feb.	29.0				475.0	441.0	618.2	286.7
Mar.	32.4				512.2	502.5	729.7	302.9
Apr.	31.0				463.1	518.9	693.7	288.8
May	36.5				444.3	547.9	749.4	335.7
June	37.8				453.3	560.8	719.6	382.6
July	40.9				456.3	598.2	808.5	364.3
Aug.	36.2	23.0	36.2	9.7	574.7	621.2	868.3	428.1
Sept.	35.6	30.8	35.6	26.0	516.2	552.4	830.2	406.8
Oct.	34.4	27.2	34.4	19.9	483.0	559.0	821.6	416.8
Nov.	42.3	35.8	42.3	29.3	456.2	516.0	751.2	339.2
Dec.	37.5	33.2	37.5	28.9	480.6	510.8	738.9	286.2
Yearly	422.6				5,794.7	6,412.9	8,914.5	4,301.4

STORED WATER IN LARGE RESERVOIRS OF THE RIO GRANDE BASIN

In Thousands of Acre-Feet

Data are presented below for all storage reservoirs in the Rio Grande Basin in the United States and Mexico that exceed 15,000 acre-feet in capacity, except San Esteban Reservoir on Alamito Creek which according to the Texas Water Commission has a capacity of 18,800 acre-feet. There are no monthly storage data available for this reservoir. Also presented below are data for international Amistad Reservoir and Falcon Reservoir on the Rio Grande. The monthly figures represent the water in storage on the last day of each month, in thousands of acre-feet. The capacities indicated are at spillway level. Storage figures greater than the capacity indicate that the water surface was above spillway level.

The reservoirs and the source of the data are: Rio Grande, Continental, Santa Maria, Terrace, and Mountain Home from the State of Colorado, Division of Water Resources; Sanchez from the Sanchez Ditch and Reservoir Company; Platoro, El Vado, and Abiquiu from the Rio Grande Compact Commission; Costilla and Bluewater from the United States Geological Survey; Storrie from State Engineer Office of New Mexico; Elephant Butte, Caballo Dam, Alamogordo, McMillan, and Avalon from the United States Bureau of Reclamation; Red Bluff from the Red Bluff Water Power Control District; Lake Casa Blanca from the Webb County Office; Willacy from the Willacy County Water Control and Improvement District No. 1; Boquilla, La Colina, and Rosetilla from Industrial Electric, S. A. of Mexico; Francisco I. Madero, Luis L. León, Centenario, San Miguel, Venustiano Carranza, La Boca, Marte R. Gómez, Culebrón, Villa Cárdenas, and Palito Blanco from the Ministry of Hydraulic Resources of Mexico; Amistad Reservoir (International) and Falcon Reservoir (International) from International Boundary and Water Commission.

In the United States

Month	RIO GRANDE (Capacity 51.1)		CONTINENTAL (Capacity 22.7)		SANTA MARIA (Capacity 45.1)		TERRACE (Capacity 17.2)		MOUNTAIN HOME (Capacity 18.6)	
	1968	#Average 1927-1968	1968	#Average 1928-1968	1968	#Average 1928-1968	1968	#Average 1925-1968	1968	#Average 1924-1968
Jan.	6.3	12.5	3.5	4.7	2.1	6.7	6.7	3.0	2.3	3.7
Feb.	7.4	13.7	4.0	5.1	2.5	7.1	7.0	3.3	2.6	4.1
Mar.	8.7	15.1	4.4	5.5	2.9	8.1	7.0	3.7	2.9	4.5
Apr.	10.6	15.5	4.9	6.1	3.4	9.4	7.7	4.6	3.1	5.1
May	15.2	21.0	4.9	7.8	3.4	13.4	8.4	6.9	3.6	6.9
June	32.0	22.4	5.2	8.1	4.4	15.2	9.0	8.3	4.4	7.0
July	11.0	13.0	2.6	5.7	.5	10.0	8.2	5.4	3.1	5.0
Aug.	16.1	6.4	3.4	3.7	1.3	5.2	14.2	3.3	3.3	3.2
Sept.	16.1	6.3	4.0	3.7	2.2	4.8	12.2	2.8	2.5	2.8
Oct.	16.1	7.2	4.0	3.6	2.2	5.1	12.0	3.0	2.1	2.8
Nov.	17.6	9.8	4.7	4.0	2.7	5.7	12.3	2.8	2.4	3.1
Dec.	18.9	11.4	4.3	4.4	3.1	6.1	11.6	3.1	2.6	3.4
Avg.	14.7	12.9	4.2	5.2	2.6	8.1	9.7	4.2	2.9	4.3
Max.	32.0	52.1	5.2	26.7	4.4	42.1	14.2	17.7	4.4	16.4
Min.	6.3	0	2.6	0	0.5	0	6.7	0	2.1	0

Month	SANCHEZ (Capacity 103.2)		PLATORO (Capacity 60.0)		COSTILLA (Capacity 15.7)		EL VADO (Capacity 196.5)		ABIQUIU (Capacity 1,225.4)	
	1968	#Average 1927-1968	1968	Average 1952-1968	1968	#Average 1922-1968	1968	Average 1935-1968	1968	Average 1965-1968
Jan.	12.4	10.8	3.0	6.5	4.7	4.2	1.1	32.7	0	0
Feb.	12.4	11.0	3.0	6.5	5.2	4.6	1.2	29.6	0	.3
Mar.	12.4	11.6	3.0	6.6	5.8	5.2	1.3	29.0	.7	1.8
Apr.	12.9	13.2	3.3	7.5	7.0	6.3	6.8	70.3	1.2	1.6
May	14.9	17.2	5.1	10.5	10.2	8.4	21.3	119.6	50.0	16.3
June	13.5	16.3	11.3	17.6	10.6	7.8	21.2	108.2	33.9	22.8
July	10.5	11.6	11.3	14.3	6.8	5.1	21.4	86.7	29.4	21.2
Aug.	12.9	9.3	12.6	13.0	6.1	3.5	21.2	63.1	14.0	32.2
Sept.	12.0	9.5	12.6	13.0	5.0	3.0	21.2	51.0	13.8	34.2
Oct.	11.5	10.0	12.6	12.6	5.4	3.2	21.2	46.9	13.7	34.3
Nov.	11.6	10.2	3.0	6.8	5.8	3.6	1.1	36.1	2.0	15.6
Dec.	11.7	10.6	3.0	6.8	6.2	3.9	1.1	31.2	2.0	.8
Avg.	12.4	11.8	7.0	10.1	6.6	4.9	11.7	58.7	13.4	15.1
Max.	14.9	62.4	12.6	54.0	10.6	15.1	21.4	203.5	50.0	99.0
Min.	10.5	0	3.0	0	4.7	0	1.1	0	0	0

Some months missing

STORED WATER IN LARGE RESERVOIRS OF THE RIO GRANDE BASIN

In Thousands of Acre-Feet

In the United States

Month	BLUEWATER (Capacity 43.5)		ELEPHANT BUTTE (Capacity 2,195.0)		CABALLO (Capacity 344.0)		STORRIE (Capacity 23.3)		ALAMOGORDO (Capacity 110.7)	
	1968	#Average 1927-1968	1968	Average 1915-1968	1968	#Average 1938-1968	1968	#Average 1939-1968	1968	#Average 1937-1968
Jan.	2.9	5.8	304.6	784.2	44.8	109.2	8.5	8.2	68.2	67.7
Feb.	3.0	6.6	343.5	784.9	43.4	134.6	7.6	8.1	72.4	71.5
Mar.	4.2	10.3	283.8	765.3	51.4	118.1	9.1	8.8	45.2	60.7
Apr.	5.9	13.2	216.8	763.1	100.5	109.4	9.3	9.2	43.5	54.0
May	5.7	11.4	201.2	864.2	147.1	107.9	9.3	10.1	48.5	58.1
June	5.3	9.2	190.9	898.5	144.0	87.4	6.2	8.7	26.9	51.7
July	5.3	7.9	136.8	842.0	127.9	65.2	5.5	9.0	34.5	50.1
Aug.	5.7	6.9	224.0	786.1	78.4	37.7	6.7	10.0	58.2	55.1
Sept.	5.4	6.6	229.9	756.5	39.3	27.6	5.3	9.3	58.6	54.8
Oct.	5.2	6.2	236.0	752.4	41.5	44.8	4.8	8.7	57.8	58.9
Nov.	5.0	6.1	295.4	762.8	43.4	62.4	4.7	9.0	62.0	59.9
Dec.	4.8	5.9	333.6	777.6	44.9	80.8	5.0	7.9	66.6	64.4
Avg.	4.9	8.0	249.7	794.8	75.6	82.1	6.8	8.9	53.5	58.9
Max.	5.9	47.1	ø 343.5	ø2,302.8	ø160.4	ø 346.6	9.3	26.3	72.4	156.3
Min.	2.9	0	ø 135.7	ø 3.3	ø 38.1	ø 0.1	4.7	0	26.9	0.4

Month	McMILLAN and AVALON (Capacity 38.0)		RED BLUFF (Capacity 310.0)		LAKE CASA BLANCA (Capacity 22.1)		WILLACY (Capacity 25.0)		TOTAL IN U.S. RESERVOIRS (Capacity 4,867.1)	
	1968	#Average 1908-1968	1968	#Average 1936-1968	1968	Average 1962-1968	1968	#Average 1939-1968	1968	‡ Estimated Average
Jan.	9.8	26.9	102.5	100.5	21.6	8.5	16.6	14.3	621.6	1,210.1
Feb.	11.8	27.1	104.7	102.2	21.4	8.2	15.0	13.5	668.1	1,242.0
Mar.	23.1	26.5	101.0	99.1	21.0	8.0	13.5	12.8	601.4	1,200.7
Apr.	14.8	17.5	89.5	84.1	20.5	8.3	15.6	13.1	577.3	1,211.5
May	7.6	20.2	88.4	88.6	20.3	9.2	17.3	13.9	682.4	1,411.6
June	7.8	19.5	76.5	91.1	20.2	9.9	19.2	14.1	642.5	1,423.8
July	26.1	18.4	72.8	80.5	20.0	9.5	17.6	13.7	551.3	1,274.3
Aug.	11.9	17.1	59.2	76.8	19.6	9.1	14.9	12.4	583.7	1,154.1
Sept.	4.9	18.0	52.6	77.7	21.7	12.3	16.2	14.1	535.5	1,108.0
Oct.	2.1	20.3	51.4	87.4	21.6	11.2	16.8	14.7	538.0	1,133.3
Nov.	4.1	21.8	53.7	90.3	21.6	11.0	16.3	14.6	569.4	1,135.6
Dec.	5.8	25.0	55.8	94.9	21.4	10.7	13.6	14.1	616.0	1,165.0
Avg.	10.8	21.5	75.7	89.4	20.9	9.7	16.0	13.8	599.1	1,222.4
Max.	26.1	85.5	104.7	327.5	21.7	28.2	19.2	22.6	682.4	
Min.	2.1	0	51.4	10.0	19.6	3.5	13.5	0	535.5	

Some months missing ø Daily extremes ‡ Totals of period averages in all reservoirs

STORED WATER IN LARGE RESERVOIRS OF THE RIO GRANDE BASIN

In Thousands of Acre-Feet

In Mexico

Month	LA BOQUILLA (Capacity 2,417.5)		LA COLINA (Capacity 19.5)		ROSETILLA (Capacity 15.4)		FRANCISCO I. MADERO (Capacity 344.6)		LUIS L. LEON (Capacity 689.1)	
	1968	#Average 1914-1968	1968	Average 1940-1968	1968	Average 1940-1968	1968	#Average 1948-1968	1968	
Jan.	1,966.2	1,406.7	18.3	17.7	14.3	12.7	218.0	203.0	14.5	
Feb.	1,931.1	1,376.0	18.5	18.1	14.8	13.3	220.9	201.4	44.9	
Mar.	1,894.5	1,325.0	19.1	18.1	14.3	12.6	203.7	195.6	61.2	
Apr.	1,815.7	1,255.8	18.9	18.6	15.2	12.0	162.6	168.9	70.9	
May	1,724.1	1,198.8	18.9	18.4	15.1	11.6	122.3	148.1	82.0	
June	1,627.3	1,118.6	19.1	18.4	14.2	12.1	88.2	134.0	95.3	
July	2,059.2	1,157.3	19.9	18.6	13.3	11.4	292.4	147.1	225.9	
Aug.	2,252.2	1,328.1	19.9	18.1	14.9	12.5	329.2	171.6	274.7	
Sept.	2,440.6	1,490.0	19.9	17.9	15.5	13.0	344.7	205.9	614.9	
Oct.	2,395.6	1,495.6	18.7	17.7	15.2	12.9	342.6	210.8	588.7	
Nov.	2,365.5	1,463.6	12.6	17.1	13.8	12.2	342.0	210.3	543.7	
Dec.	2,339.5	1,439.6	18.6	17.9	16.1	13.3	339.8	210.1	552.1	
Avg.	2,067.6	1,337.9	18.5	18.0	14.7	12.5	250.5	183.9	264.1	
Max.	2,440.6	2,544.7	19.9	20.5	16.1	19.4	344.7	366.6	ø 615.9	
Min.	1,627.3	16.9	12.6	11.9	13.3	0.4	88.2	1.4	ø 3.8	

Month	CENTENARIO and SAN MIGUEL (Capacity 19.9)		VENUSTIANO CARRANZA (Capacity 1,122.8)		LA BOCA (Capacity 33.2)		MARTE R. GOMEZ (Capacity 898.3)		CULEBRON and VILLA CARDENAS (Capacity 90.0)	
	1968	Average 1934-1968	1968	Average 1930-1968	1968	Average 1963-1968	1968	#Average 1943-1968	1968	#Average 1939-1968
Jan.	17.3	12.9	271.0	354.0	32.8	19.0	919.3	541.7	46.4	41.3
Feb.	18.2	12.7	252.4	335.4	32.5	19.0	911.8	489.3	43.5	38.0
Mar.	17.6	9.5	220.8	315.3	32.5	18.5	905.9	456.0	35.3	34.4
Apr.	15.6	8.1	214.4	305.3	32.5	17.9	907.3	437.5	30.5	36.6
May	13.0	9.0	177.9	294.3	32.5	18.2	856.6	414.7	22.1	39.7
June	7.4	7.7	122.7	280.7	32.6	17.8	897.9	387.3	27.1	41.9
July	11.5	7.4	168.0	271.2	31.2	19.2	807.4	365.2	14.2	36.6
Aug.	14.0	7.9	168.0	273.4	32.6	21.0	768.5	437.2	11.4	36.5
Sept.	15.7	10.1	206.9	328.4	32.6	21.9	838.3	537.4	8.7	46.4
Oct.	17.1	12.3	235.4	357.9	32.6	22.6	934.2	594.0	7.6	49.1
Nov.	17.0	12.5	240.7	363.6	32.6	23.0	913.3	592.8	7.6	41.8
Dec.	17.5	12.8	246.0	362.6	32.6	23.2	910.3	591.3	7.1	46.7
Avg.	15.2	10.2	210.4	320.2	32.5	20.1	880.9	487.0	21.8	40.8
Max.	18.2	20.7	ø 271.0	1,163.4	32.8	33.6	ø 937.2	1,465.4 ø	46.4	116.8
Min.	7.4	0	ø 122.7	* 1.0	31.2	0	ø 768.5	**17.8	7.1	0

Month	PALITO BLANCO (Capacity 124.0)								TOTAL IN MEXICAN RESERVOIRS (Capacity 5,774.3)	
	1968	Average 1942-1968							1968	Estimated ‡ Average
Jan.	12.2	40.5							3,530.3	2,664.0
Feb.	11.9	35.4							3,500.5	2,583.5
Mar.	7.8	35.9							3,412.7	2,482.1
Apr.	10.1	32.6							3,293.7	2,364.2
May	11.0	32.3							3,075.5	2,267.1
June	14.8	33.4							2,946.6	2,147.2
July	10.5	32.6							3,653.5	2,292.5
Aug.	8.8	30.3							3,894.2	2,611.3
Sept.	7.9	42.0							4,545.7	3,327.9
Oct.	22.4	48.1							4,610.1	3,409.7
Nov.	19.5	46.2							4,508.3	3,326.8
Dec.	17.4	46.3							4,497.0	3,315.9
Avg.	12.9	38.0							3,789.1	2,732.7
Max.	22.4	140.1							4,610.1	
Min.	7.8	0							2,946.6	

\# Some months missing ø Daily extremes * Minimum since full reservoir in 1932
** Minimum since full reservoir in 1947 ‡ Totals of period averages in all reservoirs

STORED WATER IN LARGE RESERVOIRS OF THE RIO GRANDE BASIN

International Falcon Reservoir

Falcon Dam is the lowermost of the major international storage dams authorized for construction on the Rio Grande by the Water Treaty of 1944 between the United States and Mexico and was the first dam constructed. It is located 84.5 river miles downstream from Laredo, Texas and Nuevo Laredo, Tamaulipas, 974.4 river miles downstream from the American Dam, and 273.8 river miles upstream from the Gulf of Mexico.

Maximum storage for period of record: 3,490,600 acre-feet on October 19, 1958.

Storage Capacities

(1956 Survey)

Elevation	Description	At Indicated Elevation		Between Indicated Elevations	
		Reservoir Capacity Acre-Feet	Reservoir Area Acres	Storage Volume Acre-Feet	Type of Storage
175.0	Original River Bed at Dam Axis	0	0	2,816	Silt and Dead
203.33	Lowest Outlet (Mexican Penstock)	2,816	676	2,368,405	Silt and Conservation
296.4	Top of Conservation Storage	2,371,221	78,342	909,462	Ordinary Flood
306.7	Top of Spillway Gates	3,280,683	98,959	800,134	Super Flood
314.2	Maximum Water Surface	4,080,817	115,613		

During winter months, 400,000 acre-feet of flood control capacity may be utilized for additional conservation storage.

Storage in Thousands of Acre-Feet at 24:00 Hours — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2,962.8	2,959.2	2,963.8	2,958.2	2,958.2	2,747.4	2,582.3	2,608.9	2,485.0	2,626.5	2,684.7	2,688.1
2	2,962.8	2,959.2	2,964.7	2,957.3	2,953.6	2,743.1	2,584.0	2,609.8	2,551.0	2,622.3	2,686.4	2,689.8
3	2,963.8	2,958.2	2,964.7	2,957.3	2,949.1	2,727.5	2,584.0	2,610.6	2,551.8	2,621.5	2,686.4	2,691.5
4	2,966.5	2,959.2	2,964.7	2,957.3	2,939.9	2,712.0	2,584.0	2,612.3	2,551.8	2,636.5	2,687.3	2,691.5
5	2,966.5	2,961.0	2,964.7	2,951.8	2,928.9	2,696.6	2,584.8	2,611.4	2,561.7	2,655.9	2,689.8	2,694.1
6	2,966.5	2,961.0	2,962.8	2,948.1	2,922.5	2,688.1	2,585.6	2,611.4	2,566.6	2,667.7	2,689.8	2,696.6
7	2,967.5	2,960.1	2,962.8	2,946.3	2,920.7	2,678.8	2,589.8	2,610.6	2,574.1	2,671.1	2,690.7	2,698.3
8	2,967.5	2,959.2	2,962.8	2,943.6	2,916.2	2,665.2	2,594.8	2,609.8	2,578.2	2,671.1	2,690.7	2,698.3
9	2,965.6	2,960.1	2,963.8	2,943.6	2,909.8	2,651.7	2,604.8	2,607.3	2,587.3	2,671.1	2,690.7	2,700.9
10	2,962.8	2,966.5	2,963.8	2,942.6	2,901.6	2,639.9	2,609.8	2,604.8	2,590.6	2,671.1	2,689.8	2,701.8
11	2,961.0	2,969.3	2,963.8	2,942.6	2,896.2	2,631.5	2,619.8	2,603.1	2,593.9	2,671.1	2,688.1	2,703.5
12	2,960.1	2,971.2	2,961.9	2,944.5	2,889.0	2,622.3	2,624.0	2,599.8	2,599.8	2,672.8	2,686.4	2,706.0
13	2,959.2	2,975.8	2,958.2	2,947.2	2,900.7	2,613.1	2,627.3	2,594.8	2,603.9	2,675.4	2,684.7	2,709.5
14	2,960.1	2,973.0	2,957.3	2,949.1	2,901.6	2,603.9	2,632.3	2,586.5	2,608.1	2,677.1	2,685.6	2,709.5
15	2,963.8	2,969.3	2,959.2	2,948.1	2,899.8	2,594.8	2,635.7	2,582.3	2,609.8	2,677.1	2,687.3	2,710.3
16	2,964.7	2,966.5	2,959.2	2,947.2	2,895.3	2,587.3	2,637.4	2,577.4	2,613.1	2,678.8	2,688.1	2,710.3
17	2,965.6	2,966.5	2,959.2	2,948.1	2,890.8	2,586.5	2,639.1	2,570.8	2,620.6	2,680.5	2,689.8	2,712.0
18	2,966.5	2,963.8	2,960.1	2,949.1	2,878.2	2,579.8	2,639.9	2,565.8	2,620.6	2,679.6	2,689.0	2,714.6
19	2,967.5	2,961.0	2,961.0	2,950.0	2,872.8	2,575.7	2,641.6	2,560.9	2,620.6	2,679.6	2,688.1	2,715.5
20	2,965.6	2,958.2	2,961.0	2,952.7	2,863.8	2,572.4	2,639.9	2,552.6	2,622.3	2,678.8	2,688.1	2,716.3
21	2,965.6	2,959.2	2,960.1	2,966.5	2,848.6	2,573.2	2,634.9	2,545.2	2,625.6	2,678.8	2,688.1	2,716.3
22	2,965.6	2,959.2	2,957.3	2,975.8	2,833.4	2,574.9	2,630.7	2,537.9	2,629.0	2,680.5	2,688.1	2,717.2
23	2,964.7	2,957.3	2,954.6	2,972.1	2,823.7	2,577.4	2,625.6	2,528.9	2,628.2	2,681.3	2,689.8	2,715.5
24	2,962.8	2,956.4	2,952.7	2,967.5	2,813.0	2,576.5	2,620.6	2,521.5	2,628.2	2,683.0	2,689.8	2,715.5
25	2,960.1	2,958.2	2,951.8	2,962.8	2,803.3	2,574.9	2,616.4	2,515.8	2,637.4	2,683.9	2,688.1	2,715.5
26	2,958.2	2,959.2	2,951.8	2,961.0	2,794.5	2,585.6	2,613.9	2,508.5	2,637.4	2,683.0	2,688.1	2,717.2
27	2,959.2	2,959.2	2,951.8	2,961.0	2,787.5	2,585.6	2,612.3	2,504.4	2,635.7	2,683.9	2,686.4	2,718.0
28	2,959.2	2,961.9	2,953.7	2,961.9	2,779.6	2,584.0	2,613.1	2,497.9	2,634.0	2,683.9	2,684.7	2,719.8
29	2,960.1	2,964.7	2,955.5	2,962.8	2,774.4	2,582.3	2,611.4	2,492.3	2,631.5	2,683.9	2,686.4	2,720.6
30	2,960.1		2,956.4	2,961.9	2,765.6	2,580.7	2,609.8	2,485.8	2,629.8	2,683.9	2,688.1	2,719.8
31	2,959.2		2,958.2		2,755.2		2,608.1	2,484.2		2,684.7		2,715.5

Month	1968							Period 1954-1968		
	MOMENTARY MAXIMUM			MOMENTARY MINIMUM			Average Storage	Mean Monthly Storage		
	Elevation	Storage	Day	Elevation	Storage	Day		Average	Maximum	Minimum
Jan.	303.43	2,967.5	† 7	303.33	2,958.2	26	2,963.3	1,980.6	2,963.3	218.7
Feb.	303.52	2,975.8	13	303.31	2,956.4	24	2,962.5	1,866.1	2,962.5	156.2
Mar.	303.40	2,964.7	† 1	303.26	2,951.8	†25	2,959.5	1,808.4	2,959.5	226.7
Apr.	303.52	2,975.8	22	303.16	2,942.6	†10	2,954.6	1,702.4	2,954.6	325.6
May	303.37	2,961.9	1	301.06	2,755.2	31	2,869.9	1,633.0	2,869.9	490.1
June	301.06	2,755.2	1	298.90	2,572.4	20	2,623.8	1,534.2	2,623.8	273.7
July	299.73	2,641.6	19	299.00	2,580.7	1	2,614.1	1,608.8	2,614.1	209.9
Aug.	299.38	2,612.3	4	297.82	2,484.2	31	2,564.9	1,598.7	2,564.9	208.0
Sept.	299.68	2,637.4	†25	297.82	2,484.2	1	2,600.9	1,741.7	2,600.9	256.2
Oct.	300.24	2,684.7	31	299.49	2,621.5	3	2,670.8	2,064.8	3,250.2	308.3
Nov.	300.31	2,690.7	† 7	300.24	2,684.7	† 1	2,688.0	2,119.5	2,964.4	390.9
Dec.	300.66	2,720.6	29	300.28	2,688.1	† 1	2,708.0	2,138.3	2,960.2	343.4
Yearly	303.52	2,975.8		297.82	2,484.2		2,764.5	1,816.6	2,764.5	544.3

† And other days

STORED WATER IN LARGE RESERVOIRS OF THE RIO GRANDE BASIN

International Amistad Reservoir

Amistad Dam is the second of the major international storage dams constructed on the Rio Grande as authorized by the Water Treaty of 1944 between the United States and Mexico. It is located at mile 567.5, 12.8 river miles upstream from Del Rio, Texas and Cd. Acuña, Coahuila, and 680.7 river miles downstream from the American Dam at El Paso, Texas.

Permanent storage began July 12, 1968 when the last of the temporary outlets used during the course of construction was closed. The dam was about 98% complete at the end of 1968 and is scheduled for completion during the summer of 1969.

Storage Capacities

Elevation	Description	At Indicated Elevation		Between Indicated Elevations	
		Reservoir Capacity Acre-Feet	Reservoir Area Acres	Storage Volume Acre-Feet	Type of Storage
898.0	Original River Bed at Dam Axis	0	0		
				7,970	Silt and Dead
930.0	Lowest Outlet (United States Penstocks)	7,970	712		
				3,497,268	Silt and Conservation
1,117.0	Top of Conservation Storage	3,505,238	64,860		
				1,744,342	Ordinary Flood
1,140.4	Top of Spillway Gates	5,249,580	84,359		
				407,067	Super Flood
1,145.1	Maximum Water Surface	5,656,647	88,988		

Storage in Thousands of Acre-Feet at 24:00 Hours — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1						2.6	2.0	138.5	225.1	576.7	693.2	723.2
2						3.0	2.1	139.6	229.1	586.0	694.3	725.0
3						3.0	19.8	140.8	237.3	599.3	694.6	724.1
4						2.9	29.0	142.5	242.9	611.0	694.6	723.7
5						3.0	30.7	145.2	246.2	624.5	695.3	722.7
6						3.6	32.6	146.3	249.8	632.7	696.3	721.5
7						5.4	33.6	147.9	256.1	638.4	696.5	720.2
8						4.4	35.9	149.6	263.2	644.5	697.0	718.4
9						3.6	43.7	150.7	270.6	649.4	698.1	717.3
10						3.2	63.1	151.7	278.0	653.9	698.6	715.9
11						2.8	74.0	152.5	285.5	657.1	699.1	714.5
12						2.6	81.3	153.2	293.2	661.2	699.7	713.2
13						2.4	86.7	154.3	301.6	664.4	700.4	711.2
14						2.4	90.7	156.0	309.8	668.0	701.2	709.3
15						2.6	93.5	157.5	318.0	671.6	701.9	707.5
16						2.9	95.9	160.2	326.7	675.0	703.2	706.1
17						4.6	98.7	162.8	335.5	678.9	703.7	704.6
18						4.3	101.2	173.4	345.2	681.6	703.9	703.0
19						3.7	102.9	188.2	357.1	682.8	704.2	700.7
20						3.1	108.3	196.8	371.5	683.1	704.9	699.0
21						3.0	111.3	202.4	386.9	683.5	705.6	699.0
22						2.8	113.3	205.2	410.6	683.8	706.5	696.9
23						2.6	114.7	208.0	431.0	683.1	707.4	694.4
24						2.4	115.8	210.5	459.8	683.8	707.9	692.7
25						2.2	116.5	212.6	484.9	684.5	708.6	691.0
26						2.2	119.3	214.4	511.3	685.7	709.8	690.6
27						2.1	122.0	216.8	540.3	686.9	710.9	689.6
28						2.1	128.0	219.0	562.5	688.1	711.8	688.9
29						2.0	132.4	220.5	569.4	689.4	717.5	688.4
30						2.0	135.4	221.9	572.4	690.7	721.5	687.9
31					1.0		137.3	223.5		691.8		687.2

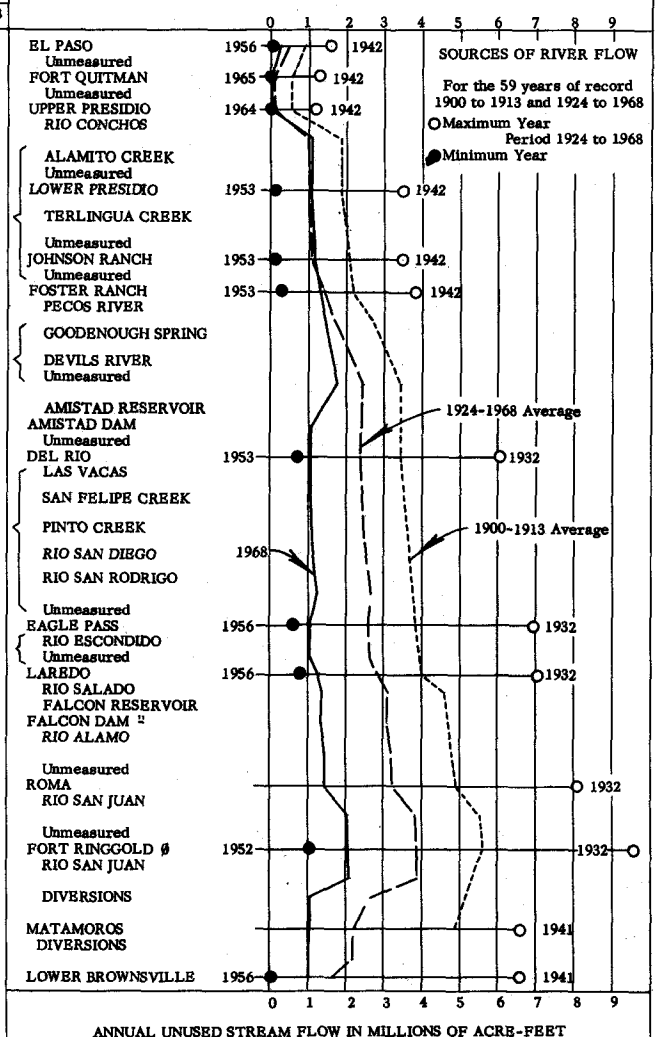
Month	1968							Period		
	MOMENTARY MAXIMUM			MOMENTARY MINIMUM			Average Storage	Mean Monthly Storage		
	Elevation	Storage	Day	Elevation	Storage	Day		Average	Maximum	Minimum
Jan.										
Feb.										
Mar.										
Apr.										
May										
June	925.80	5.4	7	917.57	2.0	30	3.0			
July	984.00	137.3	31	917.57	2.0	1	83.0			
Aug.	1,000.17	223.5	31	984.00	137.3	1	176.2			
Sept.	1,037.30	572.4	30	1,000.17	223.5	1	355.7			
Oct.	1,044.99	691.8	31	1,037.30	572.4	1	661.0			
Nov.	1,046.67	721.5	30	1,044.99	691.8	1	702.9			
Dec.	1,046.87	725.0	2	1,044.72	687.2	31	706.1			
Yearly	1,046.87	725.0								

† And other days

SOURCES OF RIVER FLOW

The graph and the column of figures on this page represent data on the annual yield of drainage areas tributary to various stream-gaging stations in the Rio Grande watershed. The graphic values are for the entire tributary area, while the column figures are reduced to the yield from one average square mile of the tributary area. There were no reservoirs of consequence on the area from 1900 to 1913; therefore, the figures in the first column correspond to those for that period in the graph. Because more than 10,000,000 acre-feet of reservoir capacity have been developed on the watershed since 1913, in which large volumes of unused runoff are stored in some years and released in later years as unused stream flow (thus reducing the unused stream flow in some years and adding thereto in others), it is significant to differentiate between the unused runoff and unused stream flow.

Average Annual Unused Water Acre-Feet per Square Mile			
RUNOFF		STREAM FLOW	
1900-1913	1924-1968	1924-1968	
29.7	14.5	15.2	EL PASO
			Unmeasured
19.6	4.0	4.7	FORT QUITMAN
			Unmeasured
16.4	3.4	4.1	UPPER PRESIDIO
42.6	29.8	28.9	RIO CONCHOS
			ALAMITO CREEK
			Unmeasured
			LOWER PRESIDIO
19.8	17.7	17.7	TERLINGUA CREEK
			Unmeasured
			JOHNSON RANCH
			Unmeasured
25.9	16.0	15.9	FOSTER RANCH
12.4	9.0	9.0	PECOS RIVER
			GOODENOUGH SPRING
104.3	106.7	106.7	DEVILS RIVER
			Unmeasured
			AMISTAD RESERVOIR
26.9	19.1	18.9	AMISTAD DAM
			Unmeasured
26.9	19.0	18.9	DEL RIO
			LAS VACAS
			SAN FELIPE CREEK
110.8	52.6	52.5	PINTO CREEK
			RIO SAN DIEGO
			RIO SAN RODRIGO
			Unmeasured
29.2	20.1	19.9	EAGLE PASS
32.4	33.4	33.4	RIO ESCONDIDO
			Unmeasured
29.3	20.6	20.4	LAREDO
23.1	13.0	12.8	RIO SALADO
			FALCON RESERVOIR
			FALCON DAM ‡
			RIO ALAMO
			Unmeasured
			ROMA
** 48.4	** 48.3	** 46.8	RIO SAN JUAN
			Unmeasured
			FORT RINGGOLD ø
			RIO SAN JUAN
			DIVERSIONS
			MATAMOROS
			DIVERSIONS
			LOWER BROWNSVILLE



‡ Values prior to 1953 considered the same as for Zapata Gaging Station. ø Values prior to 1955 considered the same as for Rio Grande City Gaging Station. ** Includes contributions of the Río San Juan entering the Rio Grande above and below Rio Grande City.

SUSPENDED SILT IN THE RIO GRANDE AND TRIBUTARIES

The following tables are based on determinations of gravimetric percentages of dry silt in water samples taken at each station by one of the following three methods:

A. By lowering an open small-neck bottle in one or more verticals in the stream cross section, being careful to approach but not strike bottom, thus securing an integrated sample throughout the depth. By taking from each sample an amount of water volumetrically proportional to the river flow represented by that sample, a composite, representative of the monthly river flow, is made and its gravimetric percentage of silt determined.

B. By sampling at the stream surface with a separate bottle at each of three points, spaced 1/6, 1/2, and 5/6 of the stream width. The gravimetric percentage in each sample is determined, a coefficient of 1.10 is applied to the average of the three, and the product applied to the volume of stream flow represented by that set of samples.

C. By sampling, at 2-hour intervals, the water pumped directly from the river to the Laredo, Texas Water Treatment Plant. From daily composites of these samples, a monthly composite, representative of the river flow, is made as stated in Method A and its gravimetric percentage of silt determined.

For ease of comparison, the assumption is made that one cubic foot of silt weighs 66.7 pounds, or one acre-foot of silt weighs 1,452 tons.

Month	1968						Period of Record		
	Tons		No. of Samples	Gravimetric Percentages			Acre-Feet at 1,452 Tons Per Acre Foot		
	Water	Silt		Average	Maximum Sample	Minimum Sample	Average	Maximum	Minimum

Rio Grande at El Paso, Texas

Period: Sept. 1947-1968

Jan.	3,775,000	136	30	0.003600			0.09	0.21	1.4	0
Feb.	2,552,000	140	29	.005480			.10	.27	2.2	.01
Mar.	53,755,000	18,300	31	.03404			12.6	20.2	52.7	.89
Apr.	37,063,000	7,280	30	.01964			5.0	11.9	45.2	3.0
May	31,890,000	3,040	31	.009520			2.1	8.7	63.3	.03
June	56,276,000	10,500	30	.01860			7.2	23.1	152	2.4
July	63,307,000	35,900	31	.05676			24.7	36.9	124	1.1
Aug.	55,342,000	18,000	31	.03248			12.4	39.0	112	2.0
Sept.	32,475,000	6,340	30	.01952			4.4	24.4	123	1.1
Oct.	9,011,000	652	31	.007240			.45	5.2	51.0	.01
Nov.	6,795,000	304	28	.004480			.21	.31	1.5	.01
Dec.	7,104,000	247	30	.003480			.17	.31	2.1	.01
Yearly	359,345,000	100,839	362	0.02806			69.42	170.50	436.87	34.37

Samples and Analyses by U. S. Section, Method A

Rio Conchos near Ojinaga, Chihuahua

Period: 1956-1968

Jan.	27,017,000	0	9	0	0	0	0	0	0	0
Feb.	4,534,000	0	9	0	0	0	0	.35	4.5	0
Mar.	5,669,000	0	8	0	0	0	0	0	0	0
Apr.	12,551,000	0	9	0	0	0	0	.45	5.8	0
May	14,857,000	75,000	10	.5051	1.9797	0	51.7	35.9	145	0
June	8,165,000	0	8	0	0	0	0	185	688	0
July	127,350,000	2,110,000	18	1.6569	3.0832	0	1,450	303	1,450	0
Aug.	157,539,000	928,000	17	.5892	2.6107	.0633	689	638	2,650	8.1
Sept.	636,960,000	1,330,000	14	.2088	.8277	.1252	916	1,504	9,330	14.4
Oct.	257,998,000	138,000	15	.0536	.1075	0	95.0	1,073	12,400	0
Nov.	170,304,000	0	13	0	0	0	0	8.6	70.2	0
Dec.	47,639,000	0	13	0	0	0	0	1.6	14.0	0
Yearly	1,470,583,000	4,581,000	143	0.3115	3.0832	0	3,151.7	3,749.90	21,903.3	284.7

Samples and Analyses by Mexican Section, Method B

Rio Grande below Rio Conchos near Presidio, Texas

Period: 1955-1968

Jan.	28,497,000	2,310	10	0.008120			1.6	3.6	14.4	0.70
Feb.	6,449,000	199	8	.003080			.14	3.8	22.2	.14
Mar.	6,229,000	214	10	.003440			.15	6.9	70.9	.15
Apr.	14,928,000	1,740	8	.01167			1.2	7.4	95.7	.12
May	16,508,000	743	10	.004502			.51	31.7	161	.21
June	8,055,000	416	8	.005160			.29	140	465	.29
July	145,961,000	583,000	12	.3997	0.5688	0.01070	402	332	1,420	2.0
Aug.	159,288,000	282,000	8	.1769	.5171	.05640	194	439	1,360	21.8
Sept.	638,526,000	471,000	19	.07378	.1506	.06040	324	680	3,610	14.9
Oct.	231,419,000	73,600	7	.03180			50.7	437	4,770	4.8
Nov.	154,126,000	8,260	7	.005360			5.7	10.6	45.2	1.3
Dec.	44,885,000	2,690	7	.006000			1.8	3.7	13.7	.90
Yearly	1,454,871,000	1,426,172	114	0.09803			982.09	2,095.7	8,793.44	172.78

Samples and Analyses by U. S. Section, Method A

SUSPENDED SILT IN THE RIO GRANDE AND TRIBUTARIES

Month	1968						Period of Record		
	Tons		No. of Samples	Gravimetric Percentages			Acre-Feet at 1,452 Tons Per Acre Foot		
	Water	Silt		Average	Maximum Sample	Minimum Sample	Average	Maximum	Minimum
Río Grande at Johnson Ranch near Castolon, Texas								Period: Oct. 1951-1968	
Jan.	32,386,000	1,450	8	0.004480			1.0	3.2	14.4	0.72
Feb.	10,523,000	303	8	.002880			.21	17.4	253	.21
Mar.	8,245,000	208	8	.002520			.14	2.5	9.4	.14
Apr.	18,111,000	47,500	9	.2621			32.7	61.2	692	.01
May	21,075,000	25,300	9	.1200			17.4	141	426	0
June	7,936,000	3,360	8	.04232			2.3	443	1,570	2.3
July	157,533,000	1,511,000	7	.9590	4.5869	0.1152	1,040	859	4,090	51.6
Aug.	163,196,000	457,000	9	.2801	1.1835	.05250	315	982	3,840	2.8
Sept.	641,599,000	1,585,000	7	.2470	.3596	.2191	1,090	1,083	8,990 *	98.5
Oct.	256,842,000	154,000	5	.06004			106	912	13,500 ‡	2.4
Nov.	164,761,000	8,170	6	.004960			5.6	16.3	151	.28
Dec.	46,781,000	5,430	5	.01160			3.7	7.1	48.3	.41
Yearly	1,528,988,000	3,798,721	89	0.2484			2,614.05	4,527.7	23,869.62	603.27

Samples and Analyses by U. S. Section, Method A
* Partly estimated ‡ Estimated

Rio Grande at Langtry, Texas								Period: April 1944-1968		
Jan.	63,197,000	1,900	7	0.003000			1.3	8.2	83.3	0.74
Feb.	37,273,000	895	8	.002400			.62	16.2	238	.31
Mar.	34,650,000	568	7	.001640			.39	5.5	27.0	.29
Apr.	52,434,000	151,000	8	.2884			104	53.4	614	.14
May	63,572,000	65,800	6	.1035			45.3	227	873	.95
June	37,117,000	16,800	6	.04528			11.6	550	2,450	.91
July	209,131,000	1,512,000	1	.7231			1,040	1,138	5,780	4.6
Aug.	197,485,000	698,000	4	.3536	0.7785	0.2822	481	1,034	3,900	4.7
Sept.	595,072,000	2,179,000	5	.3661	.9099		1,500	1,602	8,300	1.0
Oct.	298,520,000	392,000	8	.1314	.2150	.05740	270	953	8,760	5.1
Nov.	183,468,000	15,900	4	.008640			11.0	105	1,850	1.3
Dec.	74,583,000	86,300	4	.1157			59.4	10.5	46.8	.18
Yearly	1,846,502,000	5,120,163	68	0.2773			3,524.61	5,702.8	17,860.74	645.10

Samples and Analyses by U. S. Section, Method A

Pecos River near Langtry, Texas								Period: Nov. 1954-1968		
Jan.	11,893,000	200	4	0.001680			0.14	0.26	0.62	0.05
Feb.	10,662,000	256	4	.002400			.18	.24	.70	.05
Mar.	11,570,000	268	4	.002320			.18	.29	.79	.05
Apr.	13,041,000	423	5	.003240			.29	13.8	167	.06
May	21,647,000	615	2	.002840			.42	29.5	407	.07
June	11,330,000	322	4	.002840			.22	3.5	41.7	.12
July	37,896,000	955	4	.002520			.66	2.5	22.2	.05
Aug.	19,091,000	2,550	4	.01336			1.8	2.1	23.8	.04
Sept.	10,429,000	129	2	.001240			.09	35.8	359	.09
Oct.	9,681,000	267	3	.002760			.18	9.8	59.8	.07
Nov.	8,955,000	129	3	.001440			.09	.33	1.1	.03
Dec.	10,659,000	247	3	.002320			.17	.19	.55	.05
Yearly	176,854,000	6,361	42	0.003597			4.42	98.31	577.44	3.12

Samples and Analyses by U. S. Section, Method A

**** Rio Grande near Del Rio, Texas**								Period: Aug. 1955-1968		
Jan.	121,548,000	3,050	12	0.002510			2.1	9.3	44.1	0.61
Feb.	88,068,000	3,860	12	.004382			2.7	19.0	178	.50
Mar.	86,709,000	3,350	13	.003865			2.3	8.6	34.6	.73
Apr.	126,827,000	87,100	13	.06871			60.0	80.6	612	.83
May	144,300,000	265,000	14	.1838			183	217	1,600	1.2
June	98,563,000	3,630	12	.003680			2.5	609	1,720	2.5
July	102,644,000	23,600	14	.02300			16.3	597	2,240	8.7
Aug.	121,656,000	4,180	8	.003440			2.9	898	3,290	2.9
Sept.	119,769,000	2,160	13	.001800			1.5	1,431	4,800	1.5
Oct.	118,717,000	2,280	12	.001920			1.6	1,147	9,350	1.6
Nov.	135,674,000	2,820	13	.002080			1.9	68.0	410	1.9
Dec.	131,926,000	2,430	12	.001840			1.7	10.3	45.5	1.7
Yearly	1,396,401,000	403,460	148	0.02889			278.5	5,094.8	15,563.3	278.5

Samples and Analyses by U. S. Section, Method A
** Samples after July 9 collected at Rio Grande below Amistad Dam station

SUSPENDED SILT IN THE RIO GRANDE AND TRIBUTARIES

Rio Grande at Laredo, Texas

Period: #1953-1968

Month	1968 Tons Water	1968 Tons Silt	1968 No. of Samples	1968 Gravimetric Percentages Average	Maximum Sample	Minimum Sample	Acre-Feet at 1,452 Tons Per Acre Foot	Period of Record Average	Maximum	Minimum
Jan.	148,800,000	12,000	31	0.008040			8.3	10.9	28.0	2.2
Feb.	106,294,000	2,510	29	.002360			1.7	17.4	95.7	1.7
Mar.	108,512,000	25,900	31	.02384			17.8	12.2	26.8	.78
Apr.	140,527,000	96,400	30	.06860			66.4	199	1,920	.47
May	219,263,000	240,000	31	.1096			165	395	3,540	2.3
June	85,323,000	6,450	30	.007560			4.4	1,192	12,400	.62
July	135,654,000	45,000	31	.03316			31.0	730	3,440	5.0
Aug.	104,877,000	12,900	31	.01228			8.9	581	1,960	4.2
Sept.	151,703,000	53,200	30	.03504			36.6	1,315	5,010	36.6
Oct.	174,597,000	89,300	31	.05112			61.5	980	7,520	29.7
Nov.	131,009,000	15,600	30	.01188			10.7	117	1,190	6.1
Dec.	156,377,000	20,000	31	.01276			13.8	13.8	67.6	2.8
Yearly	1,662,936,000	619,260	366	0.03724			426.1	5,563.3	19,257.72	426.1

Samples by Laredo Water Plant and Analyses by U. S. Section, Method C

ø Rio Grande below Falcon Dam, Texas, U. S. Tailrace

Period: July 1955-1968

Jan.	156,106,000	562	9	0.0003600			0.39	1.5	5.4	0.14
Feb.	98,974,000	1,460	7	.001480			1.0	2.1	9.1	.06
Mar.	92,834,000	1,190	12	.001280			.82	1.2	4.3	.15
Apr.	129,651,000	5,030	10	.003880			3.5	3.2	12.2	.25
May	447,240,000	7,870	12	.001760			5.4	3.1	5.4	.19
June	282,607,000	3,170	9	.001120			2.2	3.9	18.7	.42
July	69,646,000	2,370	6	.003400			1.6	.94	1.9	.41
Aug.	201,473,000	2,260	11	.001120			1.6	1.1	2.8	.22
Sept.	84,987,000	1,260	5	.001480			.87	1.3	5.7	0
Oct.	87,246,000	2,200	8	.002520			1.5	3.6	37.5	.18
Nov.	79,464,000	1,530	10	.001920			1.1	1.0	5.5	.02
Dec.	79,914,000	1,280	9	.001600			.88	1.9	14.7	.11
Yearly	1,810,142,000	30,182	108	0.001667			20.86	24.84	92.15	7.24

Samples and Analyses by U. S. Section, Method A

Río Alamo at Cd. Mier, Tamaulipas

Period: 1934-1968

Jan.	14,356,000	144	8	0.001	0.011	0.0006	0.10	1.9	21.8	0
Feb.	9,622,000	96.2	7	.001	.011	.0006	.07	3.1	48.6	0
Mar.	7,872,000	31.5	5	.0004	.006	0	.02	6.8	91.6	0
Apr.	12,922,000	27,700	6	.214	.5373	.0121	19.1	30.8	229	0
May	13,804,000	19,000	14	.138	.4030	.0022	13.1	49.1	281	0
June	11,127,000	10,300	12	.093	.2048	.0029	7.1	54.7	471	0
July	22,568,000	19,600	12	.087	.2764	.0011	13.5	18.1	143	0
Aug.	2,816,000	282	4	.010	.0950	0	.19	137	1,610	0
Sept.	11,893,000	1,070	11	.009	.0396	0	.74	235	2,920	0
Oct.	6,324,000	253	10	.004	.0121	0	.17	87.3	753	0
Nov.	3,555,000	0	3	0	0	0	0	2.3	40.7	0
Dec.	3,748,000	0	0	¤ 0	0	0	0	1.6	33.7	0
Yearly	120,607,000	78,476.7	92	0.0651	0.5373	0	54.09	627.7	3,156.57	54.09

Samples and Analyses by Mexican Section, Method B

Rio Grande at Fort Ringgold, Rio Grande City, Texas

Period: May 1959-1968

Jan.	282,561,000	12,200	10	0.004320			8.4	10.9	32.6	0.52
Feb.	173,599,000	4,100	8	.002360			2.8	6.4	13.7	.35
Mar.	132,353,000	2,440	12	.001840			1.7	6.3	26.7	.39
Apr.	193,496,000	18,900	12	.009760			13.0	23.2	51.0	10.0
May	505,359,000	26,700	13	.005280			18.4	64.2	259	4.0
June	353,916,000	25,300	11	.007160			17.4	36.8	94.4	4.7
July	194,536,000	53,900	11	.02772			37.1	23.9	90.9	2.1
Aug.	214,306,000	30,300	11	.01416			20.9	78.6	510	1.2
Sept.	292,584,000	37,600	12	.01284			25.9	149	798	12.3
Oct.	188,390,000	13,500	11	.007160			9.3	44.3	184	2.6
Nov.	148,111,000	6,520	11	.004400			4.5	3.7	9.2	1.3
Dec.	109,000,000	2,090	9	.001920			1.4	4.1	12.1	1.0
Yearly	2,788,211,000	233,550	131	0.008376			160.8	451.4	1,691.1	160.8

Samples and Analyses by U. S. Section, Method A

\# Some months missing ø Discharge based on record of total releases from Falcon Reservoir ¤ Estimated

SUSPENDED SILT IN THE RIO GRANDE AND TRIBUTARIES

‡ Rio Grande near Los Ebanos, Texas

Period: May 1956-1968

Month	1968 Tons Water	1968 Tons Silt	1968 No. of Samples	1968 Gravimetric Percentages Average	Maximum Sample	Minimum Sample	Acre-Feet at 1,452 Tons Per Acre Foot	Period of Record Average	Maximum	Minimum
Jan.	282,561,000	11,300	9	0.003992			7.8	20.8	107	0.76
Feb.	173,599,000	7,670	8	.004418			5.3	7.5	16.0	.74
Mar.	132,353,000	3,710	9	.002800			2.6	9.0	40.2	.65
Apr.	193,496,000	6,220	9	.003213			4.3	77.8	635	3.0
May	505,359,000	21,200	9	.004200			14.6	95.1	289	5.3
June	353,916,000	10,600	8	.003000			7.3	66.9	209	3.2
July	194,536,000	10,000	9	.005160			6.9	14.4	79.9	.74
Aug.	214,306,000	10,200	9	.004760			7.0	110	1,150	2.0
Sept.	292,584,000	14,200	8	.004840			9.8	121	459	6.1
Oct.	188,390,000	9,230	9	.004900			6.4	51.2	314	3.2
Nov.	148,111,000	6,610	9	.004462			4.6	9.2	75.1	.62
Dec.	109,000,000	4,880	9	.004476			3.4	5.0	16.3	1.8
Yearly	2,788,211,000	115,820	105	0.004154			80.0	587.9	1,788.7	80.0

Samples and Analyses by U. S. Section, Method A

δ Rio Grande below Anzaldúas Dam, Texas

Period: May 1956-1968

Jan.	300,236,000	7,660	13	0.002550			5.3	9.3	49.0	0.79
Feb.	193,275,000	4,080	12	.002112			2.8	3.3	11.9	.42
Mar.	134,950,000	3,250	13	.002410			2.2	4.3	27.3	.25
Apr.	147,543,000	21,100	13	.01428			14.5	50.6	279	3.5
May	213,400,000	7,710	12	.003614			5.3	34.4	79.9	1.4
June	198,616,000	10,800	12	.005440			7.4	53.4	414	4.5
July	182,880,000	11,300	14	.006200			7.8	35.4	333	.92
Aug.	81,021,000	2,260	12	.002789			1.6	44.4	502	.73
Sept.	218,408,000	6,810	9	.003120			4.7	180	1,480	.81
Oct.	88,921,000	2,930	13	.003293			2.0	111	676	.71
Nov.	98,223,000	4,010	8	.004080			2.8	23.3	274	.51
Dec.	96,128,000	2,180	12	.002271			1.5	12.7	135	.41
Yearly	1,953,601,000	84,090	143	0.004304			57.9	562.1	2,541.0	57.9

Samples and Analyses by U. S. Section, Method A

Rio Grande near San Benito, Texas

Period: April 1955-1968

Jan.	285,284,000	59,600	3	0.02088			41.0	15.0	121	0.13
Feb.	186,190,000	19,100	5	.01028			13.2	10.7	97.8	.15
Mar.	131,506,000	7,680	4	.005843			5.3	5.4	50.6	.11
Apr.	105,604,000	3,890	5	.003680			2.7	6.2	17.9	.11
May	174,741,000	25,900	5	.01482			17.8	31.4	265	2.2
June	76,390,000	6,010	5	.007871			4.1	12.4	34.1	2.1
July	125,646,000	5,750	5	.004578			4.0	10.4	91.6	.11
Aug.	43,539,000	1,490	5	.003426			1.0	8.6	48.5	.07
Sept.	157,761,000	26,000	4	.01647			17.9	53.9	218	.30
Oct.	44,287,000	4,520	7	.01020			3.1	71.9	636	.34
Nov.	42,719,000	1,900	6	.004440			1.3	20.7	247	.35
Dec.	50,167,000	1,910	8	.003800			1.3	13.6	163	.06
Yearly	1,423,834,000	163,750	62	0.01150			112.7	260.2	894.82	23.27

Samples and Analyses by U. S. Section, Method A

Rio Grande near Brownsville, Texas

Period: April 1955-1968

Jan.	285,122,000	23,500	5	0.008247			16.2	7.1	67.4	0.02
Feb.	200,909,000	18,800	8	.009357			12.9	12.9	80.6	.04
Mar.	133,579,000	13,700	8	.01024			9.4	6.6	70.2	.08
Apr.	98,883,000	15,900	10	.01610			11.0	4.2	27.7	.04
May	173,408,000	17,800	6	.01024			12.3	10.1	58.5	.38
June	63,014,000	7,240	7	.01149			5.0	9.7	58.4	.29
July	118,750,000	11,000	8	.009240			7.6	31.9	292	.08
Aug.	31,313,000	1,410	9	.004498			.97	6.5	45.0	.01
Sept.	151,670,000	26,900	9	.01773			18.5	51.9	255	0
Oct.	35,308,000	8,130	8	.02304			5.6	37.2	242	.03
Nov.	35,402,000	3,430	9	.009680			2.4	24.3	283	.12
Dec.	38,055,000	1,750	7	.004603			1.2	12.0	142	.02
Yearly	1,365,413,000	149,560	94	0.01095			103.07	214.4	1,072.26	1.97

Samples and Analyses by U. S. Section, Method A

‡ Discharge based on record of flow at Fort Ringgold δ Discharge based on record of flow at "Below Anzaldúas Dam" plus return flow at "Poniente Drain." There was no flow through this drain in 1968

CHEMICAL ANALYSIS OF WATER SAMPLES FROM THE RIO GRANDE AND TRIBUTARIES - 1968

The following tables are based on chemical analyses of composites representative of the river flow at Rio Grande and tributary stations. The monthly composites were made by the United States Section of this Commission by taking from each independent water sample an amount of water volumetrically proportional to the river flow represented by that sample. The chemical analyses were made by the U. S. Department of Agriculture, Agricultural Research Service, U. S. Salinity Laboratory, Riverside, California. All other data were computed by the United States Section of this Commission.

To convert milligram equivalents to parts per million by weight, multiply each ion by its appropriate conversion factor. These factors are: Ca, 20; Mg, 12.16; Na, 23; (CO_3 plus HCO_3) expressed as CO_3, 30; SO_4, 48; Cl, 35.5; NO_3, 62. To convert tons per acre-foot to parts per million, multiply tons per acre-foot by 735.5. Electrical conductivity, reported in the tables as ECx10^6 at 25°C, is a relative measure of the total salt concentration.

Month	No. of Samples	Dissolved Solids		ECx10^6 @25°C	Boron p.p.m.	pH	% Na **	% Cl ***	Mean Milligram Equivalents per Liter						
		Tons Per Acre-Foot	Total Tons						Ca	Mg	Na	CO_3 + HCO_3	SO_4	Cl	NO_3

Rio Grande at El Paso, Texas

Sampling by U. S. Section

Jan.	30	2.22	6,170	2,440	0.67	7.8	66	34	6.09	2.34	16.67	5.10	11.70	8.70	0.01
Feb.	29	2.27	4,260	2,540	.32	8.9	70	37	5.08	2.42	17.70	4.25	11.98	9.45	T
Mar.	31	1.15	45,500	1,290	.15	7.9	49	27	4.87	1.66	6.40	3.15	6.40	3.55	T
Apr.	30	1.26	34,400	1,370	.08	8.1	52	30	5.05	1.66	7.37	3.55	6.30	4.25	.01
May	31	1.26	29,600	1,390	.21	7.6	54	26	4.97	1.68	7.66	3.70	7.02	3.75	T
June	30	1.05	43,500	1,180	.21	7.8	50	22	4.53	1.50	6.04	3.50	5.98	2.75	T
July	31	.99	46,100	1,120	.20	8.0	51	24	4.23	1.42	5.86	3.55	5.34	2.75	.02
Aug.	31	1.06	43,200	1,170	.11	8.0	51	25	4.43	1.38	6.16	3.70	5.38	3.00	.01
Sept.	30	1.32	31,500	1,460	.25	7.6	54	28	5.54	1.36	8.03	4.21	6.75	4.23	.01
Oct.	31	2.09	13,900	2,280	.24	7.5	62	33	6.57	2.56	14.86	5.02	11.08	8.02	.02
Nov.	28	2.13	10,600	2,330	.33	7.6	61	33	6.74	2.77	14.98	5.36	11.22	8.00	.01
Dec.	30	2.04	10,700	2,250	.21	8.6	63	35	6.31	2.06	14.47	4.20	11.11	8.08	T
Mean ⊕	∯362	1.21	∯ 319,430	1,340	0.18	7.9	53	27	4.84	1.59	7.29	3.68	6.46	3.73	0.01
Period Avg.		1.10	459,000	1,220			52	29	4.37	1.58	6.57	3.51	5.47	3.68	
Tons of Constituents, 1968									34,900	6,950	60,300	39,700	112,000	47,600	
Avg. Tons, Period 1930-1968									49,700	10,900	85,700	59,800	149,000	74,100	

Rio Grande at Fort Quitman, Texas

Sampling by U. S. Section

Jan.	5	10.6	2,010	11,200	1.03	7.8	68	67	24.77	14.55	85.10	3.00	37.92	83.25	0.02
Feb.	1	10.8	292	11,400	1.03	7.6	68	68	25.41	15.35	86.35	2.45	38.01	87.00	T
Mar. u	0	10.8	133	11,400	1.03	7.6	68	68	25.41	15.38	86.35	2.45	38.01	87.00	T
Apr.	1	11.6	299	12,200	1.05	7.7	67	70	28.11	16.76	92.40	2.80	38.76	95.50	.01
May	1	12.1	72.6	12,800	.92	7.6	68	70	28.79	17.16	96.60	2.85	39.94	100.5	.01
June	No	Flow													
July	7	1.36	7,940	1,550	.21	8.3	51	34	6.14	1.72	8.29	4.65	6.07	5.55	.03
Aug.	6	3.55	21,700	3,970	.37	8.2	63	57	10.93	4.37	25.99	4.45	13.15	23.70	.03
Sept.	4	6.53	10,300	7,150	.61	7.6	65	64	18.19	8.24	49.22	4.66	22.74	48.98	.01
Oct.	5	7.99	6,690	8,640	.64	7.5	66	66	21.26	10.39	62.21	4.60	27.53	61.48	.03
Nov.	4	5.87	10,800	6,430	.44	7.5	66	61	16.34	7.30	45.35	5.27	21.35	42.07	.05
Dec.	3	5.81	14,400	6,660	.47	7.9	65	61	16.78	6.89	43.35	5.29	21.04	41.17	.02
Mean ⊕	∯37	3.94	∯74,636.6	4,390	0.38	8.0	63	58	12.01	4.90	29.06	4.70	14.58	26.81	0.03
Period Avg.		2.40	319,000	2,720			61	55	7.70	3.13	16.95	3.63	8.86	15.42	
Tons of Constituents, 1968									6,200	1,540	17,200	3,630	18,000	24,500	
Avg. Tons, Period 1930-1968									27,900	6,890	70,500	19,700	77,000	98,900	

⊕ Weighted mean ∯ Total ** Percent of total cations *** Percent of total anions u Estimated T Trace

CHEMICAL ANALYSES OF WATER SAMPLES FROM THE RIO GRANDE AND TRIBUTARIES - 1968

Rio Grande above Rio Conchos near Presidio, Texas

Sampling by U. S. Section

Month	No. of Samples	Dissolved Solids: Tons Per Acre-Foot	Dissolved Solids: Total Tons	EC x 10⁶ @25°C	Boron p. p. m.	pH	% Na **	% Cl ***	Mean Milligram Equivalents per Liter: Ca	Mg	Na	CO_3 + HCO_3	SO_4	Cl	NO_3
Jan.	No	Flow													
Feb.	No	Flow													
Mar.	No	Flow													
Apr. *	0														
May	No	Flow													
June	No	Flow													
July	9	0.65	5,460	738	0.10	7.9	45	17	3.73	0.32	3.36	2.50	3.76	1.25	0.01
Aug.	8	.67	1,900	757	.06	8.1	49	21	3.39	.40	3.64	2.60	3.35	1.60	.02
Sept.	7	.95	4,000	1,090	.13	7.3	44	27	5.40	.58	4.70	2.61	5.24	2.98	.02
Oct.	4	.86	383	1,000	.10	7.5	51	26	4.08	.72	5.03	2.49	4.72	2.58	.02
Nov. u	0	1.73	183	1,990	.16	7.7	59	45	6.67	1.19	11.54	2.18	8.59	8.75	.02
Dec.	7	1.73	308	1,990	.16	7.7	59	45	6.67	1.19	11.54	2.18	8.59	8.75	.02
Mean @	∅35	0.76	∅12,234	862	0.10	7.8	46	22	4.17	0.48	3.95	2.54	4.18	1.93	0.01
Period Avg.		1.90	220,000	2,130							12.68	3.13		10.87	
Tons of Constituents, 1968									1,840	115	2,000	1,680	4,420	1,510	
Avg. Tons, Period 1935-1968											46,000	14,800		60,800	

Río Conchos near Ojinaga, Chihuahua

Sampling by Mexican Section

Month	No. of Samples	Dissolved Solids: Tons Per Acre-Foot	Dissolved Solids: Total Tons	EC x 10⁶ @25°C	Boron p. p. m.	pH	% Na **	% Cl ***	Mean Milligram Equivalents per Liter: Ca	Mg	Na	CO_3 + HCO_3	SO_4	Cl	NO_3
Jan.	8	1.34	26,600	1,410	0.26	7.9	57	20	4.65	1.52	8.12	2.65	8.95	2.90	0.07
Feb.	9	1.74	5,800	1,870			57		# 8.28		10.91	2.55		6.05	
Mar.	8	1.56	6,510	1,650			55		# 7.47		9.08	2.55		4.20	
Apr.	9	1.23	11,400	1,300			52		# 6.34		6.94	2.55		2.75	
May	10	1.29	14,100	1,370			50		# 7.06		7.01	2.95		2.95	
June	8	1.46	8,770	1,550			56		# 7.22		9.12	3.00		3.40	
July	18	1.02	95,600	1,040	.16	8.1	34	12	6.60	.84	3.75	2.80	7.10	1.35	.06
Aug.	15	.94	109,000	969			42		# 5.79		4.25	3.05		1.10	
Sept.	14	.66	309,000	715			39		# 4.53		2.89	3.21		.79	
Oct.	14	.52	98,700	571			37		# 3.58		2.08	2.64		.68	
Nov.	13	.65	81,500	705			37		# 4.42		2.65	2.93		.78	
Dec.	13	1.01	35,400	1,070			44		# 6.03		4.75	3.23		1.88	
Mean @	∅139	0.74	∅ 802,380	792			40		# 4.89		3.26	3.00		1.01	
Period Avg.		0.72	539,000	760			40		# 4.64		3.15	2.69		1.12	
Tons of Constituents, 1968											110,000	132,000		52,700	
Avg. Tons, Period 1935-1968											74,300	82,500		40,700	

Rio Grande at Johnson Ranch near Castolon, Texas

Sampling by U. S. Section

Month	No. of Samples	Dissolved Solids: Tons Per Acre-Foot	Dissolved Solids: Total Tons	EC x 10⁶ @25°C	Boron p. p. m.	pH	% Na **	% Cl ***	Mean Milligram Equivalents per Liter: Ca	Mg	Na	CO_3 + HCO_3	SO_4	Cl	NO_3
Jan.	8	1.42	33,800	1,460	0.41	7.7	54	18	5.37	1.52	8.24	3.05	9.40	2.75	0.06
Feb.	8	1.74	13,500	1,830			55		# 8.34		10.33	2.15		4.85	
Mar.	8	1.85	11,200	1,920			52		# 9.46		10.32	2.85		4.90	
Apr.	9	1.32	17,600	1,320			47		# 7.38		6.51	2.75		2.30	
May	9	1.26	19,500	1,300			45		# 7.44		6.18	3.15		2.40	
June	8	1.55	9,050	1,590			54		# 7.66		9.00	2.60		3.45	
July	7	.89	103,000	911	.08	8.0	33	8	5.75	.82	3.18	3.10	5.95	.75	.09
Aug.	9	1.01	121,000	1,020			44		# 5.99		4.67	3.20		1.25	
Sept.	7	.60	283,000	640			37		# 4.15		2.42	3.06		.56	
Oct.	5	.59	112,000	632			36		# 4.10		2.30	2.82		.70	
Nov.	6	.69	83,700	754			39		# 4.66		2.95	2.89		.90	
Dec.	5	1.20	41,300	1,250			44		# 7.07		5.66	3.29		2.36	
Mean @	∅89	0.75	∅ 848,650	793			39		# 4.95		3.23	3.01		.93	
Period Avg.		0.90	602,000	950			44		# 5.52		4.25	2.83		1.62	
Tons of Constituents, 1968											114,000	138,000		50,500	
Avg. Tons, Period 1948-1968											88,600	77,000		51,900	

@ Weighted mean ∅ Total ** Percent of total cations *** Percent of total anions * Flow negligible
# Sum of calcium and magnesium u Estimated

CHEMICAL ANALYSES OF WATER SAMPLES FROM THE RIO GRANDE AND TRIBUTARIES - 1968

Month	No. of Samples	Dissolved Solids: Tons Per Acre-Foot	Dissolved Solids: Total Tons	EC x 10⁶ @25°C	Boron p.p.m.	pH	% Na **	% Cl ***	Mean Milligram Equivalents per Liter: Ca	Mg	Na	CO_3 + HCO_3	SO_4	Cl	NO_3
Rio Grande at Langtry, Texas															
Sampling by U. S. Section															
Jan.	7	1.06	49,300	1,130	0.18	7.8	50	17	4.15	1.56	5.82	2.90	6.71	2.05	0.06
Feb.	8	.92	25,200	1,020	.24	7.6	44	20	3.87	1.76	4.49	2.80	5.60	2.05	.01
Mar.	7	.83	21,200	949	.13	8.0	41	20	3.83	1.76	3.90	2.95	4.75	1.90	T
Apr.	8	.87	33,600	929	.09	8.0	39	14	4.51	1.24	3.74	3.00	5.26	1.40	.02
May	6	.73	34,100	798	.11	8.2	37	15	4.07	1.02	2.98	2.90	3.95	1.25	.05
June	6	.72	19,700	779	.16	7.9	37	15	3.99	1.12	2.94	3.30	3.65	1.25	.02
July	1	.92	142,000	945	.07	8.1	28	14	6.36	1.00	2.82	2.35	6.44	1.40	.08
Aug.	4	.93	135,000	961	.17	8.2	41	12	5.13	.80	4.18	3.15	5.88	1.20	.05
Sept.	5	.59	258,000	648	.10	8.2	36	8	3.73	.48	2.36	3.46	2.61	.53	.06
Oct.	8	.58	127,000	639	.07	7.8	35	10	3.58	.66	2.30	3.12	2.72	.67	.03
Nov.	4	.70	94,500	765	.09	7.6	37	12	3.99	.93	2.88	3.11	3.72	.97	.02
Dec.	4	.86	47,200	922	.15	7.9	40	16	4.40	1.09	3.70	3.17	4.70	1.49	.04
Mean @	∯68	0.73	∯986,800	782	0.11	8.0	37	12	4.27	0.81	2.97	3.12	3.99	0.98	0.05
Period Avg.		0.77	790,000	838			40	17	4.06	1.03	3.44	2.88	4.15	1.48	
Tons of Constituents, 1968									158,000	18,200	126,000	173,000	354,000	64,200	
Avg. Tons, Period 1945-1968									113,000	17,400	110,000	120,000	277,000	72,900	
Pecos River near Langtry, Texas															
Sampling by U. S. Section															
Jan.	4	2.37	20,700	2,810	0.17	8.0	58	62	6.77	4.87	16.20	3.20	7.40	17.35	0.02
Feb.	4	2.65	20,800	3,130	.23	8.1	59	63	7.17	5.43	18.31	2.90	8.59	19.75	.02
Mar.	4	2.98	25,400	3,560	.20	7.5	61	65	7.70	6.15	21.42	2.65	9.72	23.12	.01
Apr.	5	3.21	30,800	3,760	.21	8.1	62	66	8.02	6.50	23.41	2.50	10.29	25.12	.01
May	2	2.36	37,600	2,820	.21	7.9	60	63	6.54	4.67	16.47	3.05	7.29	17.60	.01
June	4	1.90	15,800	2,330	.20	7.8	60	62	5.25	3.93	13.68	2.75	5.81	14.25	.01
July	4	1.82	50,700	2,210	.16	8.2	59	62	5.09	3.83	12.89	2.65	5.62	13.65	.02
Aug.	4	.98	13,800	1,190	.07	8.1	53	55	3.55	1.88	6.01	2.50	2.66	6.35	.05
Sept.	2	1.50	11,500	1,790	.13	7.5	57	59	4.45	2.99	9.75	2.75	4.30	10.18	.03
Oct.	3	1.51	10,800	1,850	.10	7.7	57	59	4.46	3.22	10.19	2.85	4.60	10.67	.02
Nov.	3	1.64	10,800	1,980	.13	7.6	57	60	4.96	3.43	11.09	2.99	4.88	11.67	.02
Dec.	3	1.96	15,400	2,350	.25	8.0	57	61	5.84	3.69	12.78	3.05	5.82	13.73	.03
Mean @	∯42	2.03	∯264,100	2,430	0.17	7.9	59	62	5.70	4.13	14.09	2.79	6.27	15.00	0.02
Period Avg.		1.99	392,000	2,340			57	62	5.96	3.96	13.16	2.66	6.29	14.32	
Tons of Constituents, 1968									20,200	8,890	57,300	14,800	53,300	94,100	
Avg. Tons, Period 1955-1968									32,000	12,900	81,100	21,400	80,900	136,000	
Rio Grande below Amistad Dam near Del Rio, Texas															
Sampling by U. S. Section															
Jan.															
Feb.															
Mar.															
Apr.															
May															
June	Sampling for chemical analyses began at this station July 1968														
July	14	0.56	42,500	653	0.07	8.0	33	19	3.61	0.80	2.16	2.50	2.82	1.25	0.03
Aug.	8	.76	68,700	823	.08	8.0	37	20	4.27	.96	3.13	2.70	4.02	1.70	.01
Sept.	13	.79	70,500	837	.15	7.9	42	17	4.09	.78	3.46	2.78	4.08	1.45	.02
Oct.	12	.67	58,500	728	.13	7.8	43	14	3.52	.62	3.10	2.66	3.66	1.06	.02
Nov.	13	.61	60,600	703	.04	7.8	41	14	3.55	.57	2.88	2.81	3.29	.97	.01
Dec.	12	.64	62,700	704	.16	7.9	40	15	3.50	.70	2.78	2.84	3.16	1.04	.01
Mean @															
Period Avg.															
Tons of Constituents															
Avg. Tons, Period															

@ Weighted mean ∯ Total ** Percent of total cations *** Percent of total anions T Trace

CHEMICAL ANALYSES OF WATER SAMPLES FROM THE RIO GRANDE AND TRIBUTARIES - 1968

Month	No. of Samples	Dissolved Solids: Tons Per Acre-Foot	Dissolved Solids: Total Tons	EC x 10⁶ @25°C	Boron p.p.m.	pH	% Na **	% Cl ***	Mean Milligram Equivalents per Liter: Ca	Mg	Na	CO_3 + HCO_3	SO_4	Cl	NO_3
Rio Grande at Laredo, Texas															
Sampling by Laredo Water Plant															
Jan.	31	0.91	99,600	1,010	0.15	7.8	48	28	3.61	1.62	4.78	2.90	4.32	2.85	0.06
Feb.	29	.87	68,000	1,010			47		# 5.27		4.66	2.50		3.45	
Mar.	31	.86	68,700	1,020			47		# 5.27		4.67	2.45		3.70	
Apr.	30	.87	90,000	967			45		# 5.23		4.36	2.75		3.50	
May	31	.66	106,000	779			41		# 4.43		3.06	2.65		2.45	
June	30	.81	50,900	941			46		# 4.99		4.31	2.40		3.20	
July	31	.56	55,900	633	.09	8.0	37	24	3.05	.96	2.36	2.55	2.24	1.55	.06
Aug.	31	.74	57,100	783			39		# 4.77		3.09	2.50		1.75	
Sept.	30	.75	83,700	798			40		# 4.95		3.24	2.74		1.57	
Oct.	31	.66	84,800	699			41		# 4.12		2.82	2.59		1.22	
Nov.	30	.69	66,500	765			42		# 4.48		3.26	2.98		1.30	
Dec.	31	.70	80,500	764			40		# 4.53		3.03	2.92		1.31	
Mean ⊕	∅366	0.75	∅ 911,700	834			43		# 4.72		3.54	2.68		2.23	
Period Avg.		0.66	1,481,000	755			40		# 4.48		3.01	2.52		2.08	
Tons of Constituents, 1968											135,000	134,000		132,000	
Avg. Tons, Period 1956-1968											211,000	230,000		224,000	
Río Salado at Las Tortillas, Tamaulipas															
Sampling by Mexican Section															
Jan.	1	2.24	33,400	2,330	0.59	8.0	46	38	7.84	5.41	11.50	2.50	12.51	9.55	0.28
Feb.	1	2.32	22,400	2,430			46		#13.87		11.78	2.55		10.00	
Mar.	3	2.94	27,200	3,090			49		#16.77		15.88	2.30		5.25	
Apr.	1	3.26	36,600	3,260			49		#18.53		17.62	2.60		14.00	
May	2	1.64	12,300	1,820			48		# 9.76		8.96	2.55		6.80	
June	1	5.07	38,900	4,810			49		#28.21		27.20	1.50		20.40	
July	1	1.63	33,900	1,730	.40	8.1	45	32	6.14	3.97	8.32	2.40	10.13	5.85	.07
Aug.	2	1.51	5,810	1,570			42		# 9.52		7.03	2.55		5.10	
Sept.	1	1.28	45,200	1,340			43		# 7.66		5.85	1.74		4.09	
Oct.	3	1.61	42,500	1,690			45		# 9.49		7.84	2.57		5.73	
Nov.	2	2.54	16,900	2,540			47		#14.61		12.83	2.23		9.38	
Dec.	1	4.07	20,000	4,010			46		#24.04		20.63	2.93		15.26	
Mean ⊕	∅19	2.12	∅335,110	2,180			46		#12.44		10.79	2.28		7.76	
Period Avg.		0.71	187,000	779			32		# 5.48		2.63	2.56		1.89	
Tons of Constituents, 1968											53,400	14,700		59,200	
Avg. Tons, Period 1955-1968											21,600	27,500		24,000	
‡ Rio Grande below Falcon Dam, Texas–U. S. Tailrace															
Sampling by U. S. Section															
Jan.	9	0.65	74,700	745	0.17	7.8	43	27	3.17	1.02	3.10	2.25	3.15	2.00	0.01
Feb.	7	.65	47,300	757	.18	8.0	41	26	3.43	.86	2.99	2.30	3.31	1.95	.02
Mar.	12	.64	43,700	766	.16	7.8	40	25	3.31	1.10	3.00	2.35	3.27	1.90	.01
Apr.	10	.67	63,900	780	.11	8.1	41	26	3.37	1.10	3.16	2.45	3.35	2.00	.01
May	12	.70	230,000	801	.18	8.0	42	27	3.37	1.18	3.34	2.40	3.34	2.15	.01
June	9	.71	148,000	818	.16	8.0	44	29	3.27	1.26	3.52	2.30	3.47	2.35	.01
July	6	.70	35,900	827	.17	8.1	45	30	3.17	1.32	3.66	2.20	3.59	2.45	T
Aug.	11	.75	111,000	841	.17	8.0	46	30	3.19	1.28	3.78	2.15	3.66	2.50	T
Sept.	5	.74	46,300	860	.17	7.6	46	31	3.19	1.30	3.85	2.13	3.70	2.57	.01
Oct.	8	.76	48,800	872	.20	7.8	47	30	3.14	1.32	3.92	2.13	3.78	2.57	T
Nov.	10	.75	43,900	880	.18	7.7	46	31	3.19	1.36	3.93	2.17	3.78	2.63	T
Dec.	9	.74	43,500	890	.21	7.8	47	31	3.17	1.28	3.91	2.14	3.84	2.63	T
Mean ⊕	∅108	0.70	∅ 937,000	812	0.17	7.9	44	28	3.27	1.19	3.46	2.28	3.46	2.27	0.01
Period Avg.		0.67	1,438,000	780					3.25	1.17	3.23	2.31	3.17	2.26	
Tons of Constituents, 1968									119,000	26,200	144,000	124,000	301,000	146,000	
Avg. Tons, Period 1956-1968									190,000	41,600	217,000	202,000	444,000	234,000	

⊕ Weighted mean ∅ Total ** Percent of total cations *** Percent of total anions T Trace
Sum of calcium and magnesium ‡ Tonnage figures based on total release from Falcon Reservoir

CHEMICAL ANALYSES OF WATER SAMPLES FROM THE RIO GRANDE AND TRIBUTARIES - 1968

Month	No. of Samples	Dissolved Solids: Tons Per Acre-Foot	Dissolved Solids: Total Tons	EC x 10⁶ @25°C	Boron p.p.m.	pH	% Na **	% Cl ***	Mean Milligram Equivalents per Liter: Ca	Mg	Na	CO_3 + HCO_3	SO_4	Cl	NO_3
Rio Grande at Fort Ringgold, Rio Grande City, Texas															
Sampling by U. S. Section															
Jan.	10	0.80	166,000	914	0.26	7.8	44	32	3.91	1.18	3.95	2.60	3.52	2.95	0.07
Feb.	8	.84	107,000	994	.21	8.1	44	34	3.95	1.38	4.26	2.60	3.88	3.35	.07
Mar.	12	.88	85,700	1,010	.26	8.0	46	35	4.01	1.40	4.61	2.55	3.98	3.55	.04
Apr.	12	.82	117,000	950	.24	8.0	46	34	3.85	1.18	4.27	2.40	3.76	3.20	.03
May	13	.74	275,000	846	.17	7.6	43	28	3.61	1.22	3.61	2.55	3.46	2.40	.02
June	11	.78	203,000	911	.16	7.7	44	32	3.73	1.34	3.95	2.50	3.73	2.95	.02
July	11	.91	130,000	1,060	.26	8.0	46	35	4.03	1.62	4.84	2.40	4.34	3.70	.05
Aug.	11	.84	132,000	937	.21	8.0	47	33	3.55	1.36	4.34	2.45	3.80	3.10	.02
Sept.	12	.93	200,000	1,050	.26	8.0	46	35	3.91	1.62	4.74	2.06	4.64	3.63	.04
Oct.	11	.88	122,000	1,020	.24	7.8	47	35	3.56	1.66	4.71	2.09	4.34	3.49	.02
Nov.	11	.90	98,100	1,050	.22	7.6	48	36	3.79	1.58	4.90	2.24	4.35	3.69	.01
Dec.	9	.97	77,800	1,150	.30	8.0	49	38	3.98	1.55	5.33	2.29	4.61	4.20	.04
Mean ⊛	∯131	0.84	∯1,713,600	963	0.22	7.8	45	33	3.79	1.39	4.29	2.41	3.93	3.18	0.03
Period Avg.		0.70	1,764,000	810			43	30	3.36	1.15	3.44	2.36	3.25	2.44	
Tons of Constituents, 1968									212,000	47,200	275,000	202,000	527,000	315,000	
Avg. Tons, Period 1959-1968									232,000	48,100	273,000	244,000	538,000	298,000	
Morillo Drain in Mexico, 8.4 River Miles above Anzaldúas Dam															
Sampling by Mexican Section															
Jan.	5	14.8	47,300	15,700	7.63	7.7	75	72	23.97	18.64	130.5	2.40	45.77	124.8	0.02
Feb.	4	15.0	36,400	15,700	7.76	7.6	75	72	25.05	18.84	131.6	2.65	46.75	127.5	.01
Mar.	4	15.5	34,000	16,000	7.80	8.1	76	72	24.33	19.84	138.2	2.15	48.34	132.0	.01
Apr.	4	11.6	29,500	12,400	6.29	7.6	76	72	19.85	12.87	104.8	2.45	35.59	99.00	.02
May	5	7.68	54,800	8,560	4.07	7.6	72	66	14.92	9.74	65.00	3.20	27.28	59.00	.03
June	4	10.2	57,800	11,000	5.51	7.6	75	69	18.57	11.87	90.95	3.45	34.43	83.00	.03
July	4	12.2	31,500	12,800	6.70	8.0	75	69	20.33	16.08	109.1	3.20	40.97	100.5	.02
Aug.	5	10.2	27,500	10,900	5.63	8.3	76	68	17.18	11.55	91.05	2.95	35.08	81.50	.03
Sept.	4	10.8	20,100	11,400	6.14	7.7	76	69	18.50	11.72	94.75	3.22	35.60	85.67	.02
Oct.	5	10.9	20,900	11,600	5.86	7.9	77	68	17.74	11.85	98.65	3.49	36.80	86.07	.05
Nov.	4	10.9	16,800	11,500	5.88	7.9	77	68	17.90	12.35	99.15	3.30	37.25	87.44	.05
Dec.	4	11.2	14,900	11,900	5.88	7.8	76	68	19.00	12.75	98.57	3.60	38.64	89.20	.04
Mean ⊛	∯52	11.2	∯391,500	11,900	5.95	7.8	75	70	19.18	13.44	98.67	3.03	36.82	91.15	0.03
Period Avg.		12.7	357,000	13,300			75	70	21.60	15.91	109.8	3.11	41.42	103.7	
Tons of Constituents, 1968									18,300	7,800	108,000	4,340	84,400	154,000	
Avg. Tons, Period 1962-1968									16,600	7,420	96,800	3,580	76,300	141,000	
Rio Grande below Anzaldúas Dam, Texas															
Sampling by U. S. Section															
Jan.	31	1.20	265,000	1,390	0.35	8.1	53	46	4.58	1.88	7.10	2.45	4.77	6.25	0.06
Feb.	29	1.27	181,000	1,520	.44	7.8	55	48	4.59	2.00	7.95	2.25	5.43	7.10	.08
Mar.	31	1.46	145,000	1,740	.45	7.7	56	51	5.05	2.30	9.42	2.25	5.94	8.55	.06
Apr.	30	1.28	139,000	1,490	.43	7.5	55	46	4.81	1.84	8.03	2.60	5.22	6.85	.06
May	31	.98	154,000	1,120	.27	7.7	50	38	4.07	1.46	5.48	2.60	4.18	4.20	.03
June	30	1.11	162,000	1,300	.38	7.8	53	43	4.29	1.68	6.81	2.55	4.84	5.60	.02
July	31	1.29	174,000	1,510	.44	8.2	54	47	4.69	2.25	8.03	2.30	5.60	7.05	.04
Aug.	31	1.21	72,100	1,390	.38	8.1	55	45	4.27	1.90	7.61	2.40	5.24	6.20	.01
Sept.	30	1.09	175,000	1,280	.29	7.8	50	41	4.33	1.95	6.28	2.07	5.36	5.26	.02
Oct.	31	1.19	77,900	1,400	.37	8.0	55	44	4.22	1.86	7.30	2.15	5.43	6.00	.02
Nov.	30	1.26	91,100	1,470	.41	7.9	54	45	4.47	2.17	7.90	2.33	5.75	6.62	.03
Dec.	31	1.36	96,200	1,610	.41	8.0	56	47	4.79	2.02	8.67	2.48	5.84	7.43	.04
Mean ⊛	∯366	1.21	∯1,732,300	1,410	0.38	7.9	53	45	4.50	1.92	7.35	2.38	5.19	6.28	0.04
Period Avg.		0.93	1,423,000	1,100			51	41	3.77	1.45	5.44	2.41	3.95	4.42	
Tons of Constituents, 1968									176,000	45,600	330,000	140,000	487,000	435,000	
Avg. Tons, Period 1959-1968									157,000	36,700	260,000	150,000	394,000	326,000	

⊛ Weighted mean ∯ Total ** Percent of total cations *** Percent of total anions

ELECTRICAL CONDUCTIVITY OF WATER SAMPLES
1968

The following tables show electrical conductivity, expressed in mhos per centimeter cube x 10^6 at 25° C, of individual water samples taken at Rio Grande and tributary stations. The determinations were made by the United States Section of this Commission.

Electrical conductivity is a relative indication of the concentration of dissolved solids in the water samples. Though no exact relationship exists between conductivity and dissolved solids in natural waters, a study of recent data pertaining to stations on the Rio Grande watershed indicates that the relationship may be expressed within 10% by the following equations:

Tons per Acre-Foot = .0008878 (EC x 10^6 at 25° C) when conductivity (EC x 10^6 at 25° C) is below 7,520 micromhos.

Tons per Acre-Foot = .001052 (EC x 10^6 at 25° C) - 1.235 when conductivity (EC x 10^6 at 25° C) ranges between 7,520 and 22,000 micromhos.

Date	EC x 10^6 @25°C	Date	EC x 10^6 @25°C	Date	EC x 10^6 @25°C	Date	EC x 10^6 @25°C	Date	EC x 10^6 @25°C	Date	EC x 10^6 @25°C	Date	EC x 10^6 @25°C

Rio Grande at El Paso, Texas

January		February		April		May		July		August		September		November	
2	2,430	16	2,570	1	1,200	16	1,340	1	1,170	15	1,410	30	2,150	14	2,200
3	2,420	17	2,440	2	1,170	17	1,320	2	1,140	16	1,440	October		15	2,170
4	2,430	18	2,440	3	1,140	18	1,350	3	1,170	17	1,310	1	2,220	16	2,220
5	2,430	19	2,480	4	1,240	19	1,320	4	1,090	18	1,340	2	2,160	17	2,270
6	2,430	20	2,530	5	1,310	20	1,320	5	1,080	19	1,240	3	2,180	18	2,290
7	2,420	21	2,600	6	1,360	21	1,380	6	998	20	1,250	4	2,210	19	2,250
8	2,340	22	2,590	7	1,380	22	1,430	7	1,180	21	1,190	5	2,210	20	2,280
9	2,300	23	2,590	8	1,380	23	1,480	8	1,260	22	1,120	6	2,230	21	2,240
10	2,390	24	2,630	9	1,350	24	1,530	9	1,030	23	1,020	7	2,260	22	2,230
11	2,410	25	2,700	10	1,290	25	1,600	10	1,530	24	1,060	8	2,220	23	2,230
12	2,430	26	2,760	11	1,300	26	1,610	11	1,780	25	1,030	9	2,250	24	2,240
13	2,440	27	2,810	12	1,330	27	1,500	12	1,640	26	1,070	10	2,290	25	2,230
14	2,450	28	2,770	13	1,330	28	1,470	13	1,570	27	1,100	11	2,270	26	2,120
15	2,420	29	2,700	14	1,370	29	1,420	14	1,630	28	1,150	12	2,260	27	2,130
16	2,410	March		15	1,430	30	1,380	15	1,540	29	1,160	13	2,250	28	2,260
17	2,410	1	2,860	16	1,450	31	1,390	16	1,660	30	1,310	14	2,260	30	2,230
18	2,430	2	1,450	17	1,570	June		17	1,880	31	1,410	15	2,260	December	
19	2,440	3	1,330	18	1,590	1	1,370	18	1,810	September		16	2,290	1	2,220
20	2,450	4	1,360	19	1,650	2	1,310	19	2,070	1	1,300	17	2,300	2	2,160
21	2,440	5	1,360	20	1,640	3	1,370	20	1,370	2	1,430	18	2,300	3	2,220
22	2,440	6	1,390	21	1,620	4	1,300	21	1,310	3	1,420	19	2,290	4	2,270
23	2,400	7	1,370	22	1,560	5	1,200	22	1,100	4	1,740	20	2,060	5	2,280
24	2,400	8	1,370	23	1,530	6	1,210	23	1,080	5	1,810	21	2,220	6	2,260
25	2,470	9	1,320	24	1,500	7	1,200	24	1,060	6	1,870	22	2,280	7	2,270
26	2,480	10	1,310	25	1,540	8	1,220	25	884	7	1,250	23	2,300	8	2,270
27	2,480	11	1,310	26	1,470	9	1,210	26	940	8	1,170	24	2,320	9	2,240
28	2,510	12	1,300	27	1,460	10	1,180	27	1,030	9	1,230	25	2,330	10	2,230
29	2,520	13	1,290	28	1,470	11	1,190	28	1,050	10	1,230	26	2,290	11	2,210
30	2,520	14	1,300	29	1,520	12	1,170	29	999	11	1,180	27	2,320	12	2,150
31	2,530	15	1,290	30	1,510	13	1,160	30	993	12	1,240	28	2,310	13	2,210
February		16	1,250	May		14	1,180	31	1,020	13	1,180	29	2,300	14	2,200
1	2,600	17	1,270	1	1,440	15	1,190	August		14	1,130	30	2,290	15	2,240
2	2,540	18	1,250	2	1,510	16	1,180	1	1,100	15	1,160	31	2,320	16	2,240
3	2,590	19	1,220	3	1,470	17	1,150	2	990	16	1,260	November		17	2,240
4	2,560	20	1,240	4	1,430	18	1,170	3	1,110	17	1,330	1	2,350	18	2,270
5	2,610	21	1,230	5	1,390	19	1,160	4	1,110	18	1,470	2	2,350	19	2,330
6	2,530	22	1,220	6	1,410	20	1,160	5	1,070	19	1,530	3	2,360	20	2,330
7	2,580	23	1,230	7	1,400	21	1,150	6	1,140	20	1,740	4	2,340	21	2,330
8	2,610	24	1,230	8	1,380	22	1,140	7	1,150	21	1,890	5	2,350	22	2,390
9	2,640	25	1,180	9	1,360	23	1,130	8	1,170	22	1,960	6	2,360	23	2,430
10	2,570	26	1,190	10	1,380	24	1,130	9	1,200	23	1,640	7	2,400	24	2,410
11	2,510	27	1,250	11	1,440	25	1,120	10	1,400	24	1,780	8	2,370	26	2,370
12	2,490	28	1,210	12	1,330	26	1,120	11	1,480	25	1,980	9	2,370	27	2,170
13	2,530	29	1,260	13	1,310	27	1,120	12	1,450	26	2,130	10	2,360	28	2,270
14	2,480	30	1,260	14	1,290	28	1,170	13	1,400	27	2,180	12	2,370	29	2,310
15	2,540	31	1,250	15	1,290	29	1,140	14	1,380	28	2,180	13	2,370	30	2,290
						30	1,170			29	2,110			31	2,320

Sampling by U. S. Section

ELECTRICAL CONDUCTIVITY OF WATER SAMPLES

1968

Rio Grande at Fort Quitman, Texas

Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C
January		February		July		July		August		September		October		November	
3	11,190	7	11,550	5	1,200	25	678	21	10,580	18	7,320	23	9,910	20	6,480
10	11,300	April		6	1,240	26	2,280	22	3,940	25	8,450	30	6,580	29	5,250
17	11,670	17	12,270	8	1,540	August		28	3,490	October		November		December	
24	10,140	May		17	5,500	7	4,580	September		2	9,340	5	7,210	4	5,630
31	11,540	1	12,640	24	679	8	756	4	5,820	9	7,940	13	7,020	11	6,220
						14	8,670	11	9,560	16	9,370			18	6,450

Sampling by U. S. Section

Rio Grande above Rio Conchos near Presidio, Texas

July		July		August		August		September		September		October		December	
3	488	22	917	2	694	19	1,070	6	950	24	851	10	857	6	1,270
10	662	25	1,260	5	724	22	604	9	1,340	October		18	870	9	1,820
12	663	29	737	8	622	26	814	12	1,720	1	1,330	December		16	3,920
16	836	31	675	12	846	September		17	1,170	7	1,040	2	1,280	20	4,300
18	959			15	981	3	952	23	883			2	1,270	23	4,480

Sampling by U. S. Section

Río Conchos near Ojinaga, Chihuahua

January		March		May		July		August		September		October		November	
4	1,400	4	1,790	2	1,440	1	1,610	1	1,080	5	801	14	555	22	717
8	1,380	7	1,920	6	1,440	3	1,390	2	843	6	783	16	762	25	689
11	1,250	11	1,510	9	1,510	4	809	5	1,070	7	796	18	1,030	27	637
13	1,410	14	1,530	13	1,490	5	883	7	1,060	9	756	21	590	29	815
15	1,400	18	1,490	16	1,510	6	951	9	1,090	11	702	23	562	December	
22	1,630	21	1,630	20	1,510	7	898	12	952	13	703	25	558	2	1,270
26	1,750	25	1,590	21	973	8	836	14	1,010	14	718	28	612	4	1,390
29	1,800	28	1,750	23	1,230	10	989	15	1,020	15	619	30	601	6	1,530
February		April		27	1,500	12	917	16	1,040	26	757	November		9	1,650
1	1,860	1	1,700	30	1,500	15	1,360	17	1,020	27	884	1	648	11	1,650
5	1,890	4	1,710	June		17	1,320	21	870	30	535	4	621	13	1,710
8	1,920	8	1,580	3	1,540	19	1,310	23	956	October		6	646	16	1,740
12	1,920	11	1,490	6	1,520	22	1,460	26	940	1	499	8	658	18	1,750
15	1,890	15	1,020	10	1,540	24	1,430	28	960	3	451	11	742	20	1,700
19	1,910	18	1,370	13	1,560	26	1,010	30	972	4	555	13	711	23	1,720
22	1,910	22	1,530	17	1,570	27	1,150	September		7	526	15	727	25	1,820
26	1,930	25	1,540	20	1,560	29	1,160	2	831	9	516	18	715	27	825
29	1,860	28	1,530	24	1,560	31	1,060	4	853	11	523	20	709	30	747
				27	1,580			4	867						

Sampling by Mexican Section

Rio Grande below Rio Conchos near Presidio, Texas

January		February		April		May		July		August		September		November	
2	1,380	16	2,100	1	2,330	23	739	8	805	26	921	19	597	1	659
5	1,450	20	2,190	5	2,260	27	1,680	12	1,040	30	903	20	538	4	650
8	1,350	23	2,250	8	1,870	31	1,740	14	930	September		20	547	7	686
11	1,320	26	2,290	15	988	June		15	1,260	3	816	22	532	12	760
15	1,380	March		18	1,320	3	1,690	18	1,150	5	820	25	500	15	735
17	1,490	1	2,350	22	1,700	6	1,680	22	1,390	6	812	26	595	18	725
19	1,730	5	2,020	25	1,770	10	1,750	25	709	9	755	30	481	25	700
23	1,850	8	2,010	29	1,760	14	1,770	29	1,170	11	686	October		December	
26	1,950	11	1,650	May		17	1,700	31	1,180	11	639	4	512	2	1,370
29	1,860	15	1,670	1	1,680	21	1,800	August		12	717	7	618	6	1,530
February		19	1,810	3	1,530	24	1,830	5	977	13	716	10	550	9	1,800
1	1,950	22	2,040	6	1,640	27	1,860	8	1,040	14	714	15	542	16	1,810
5	1,990	25	2,160	9	1,620	July		12	1,040	15	700	18	1,170	20	1,970
8	2,030	27	2,090	13	1,600	1	2,050	15	1,020	17	649	22	612	23	2,040
12	2,060	29	2,360	17	1,700	2	1,280	19	969	18	622	25	605	30	759
				20	1,660	3	1,100	22	897						

Sampling by U. S. Section

ELECTRICAL CONDUCTIVITY OF WATER SAMPLES

1968

Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C

Rio Grande at Johnson Ranch near Castolon, Texas

Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C
January		February		March		May		June		July		September		November	
2	1,440	12	1,880	25	1,770	1	1,710	13	816	29	946	10	754	1	683
5	1,440	15	1,890	28	1,770	3	1,790	17	1,140	August		18	650	4	690
8	1,430	19	1,890	April		6	1,630	20	1,820	1	1,250	18	627	8	699
11	1,420	23	1,880	1	1,050	9	1,610	24	1,700	6	1,120	24	528	13	755
15	1,410	27	1,890	5	1,680	13	1,750	28	1,880	9	1,110	24	537	17	768
18	1,390	March		9	1,740	16	1,710	July		13	1,060	27	617	21	756
22	1,520	1	1,930	12	1,340	21	769	1	1,540	16	1,050	October		December	
29	1,720	5	1,920	15	1,090	24	1,520	9	765	20	977	1	530	2	905
February		8	1,990	18	1,320	28	977	15	843	23	941	8	631	9	1,550
1	1,790	11	2,040	22	1,270	June		19	1,460	26	917	14	605	16	1,740
5	1,850	18	2,000	25	1,390	3	1,490	23	1,000	30	977	21	1,270	23	1,820
9	1,890	22	1,810	29	1,670	7	1,750	26	689	September		28	659	31	789
						11	1,770			4	844				

Sampling by U. S. Section

Rio Grande at Langtry, Texas

Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C
January		February		March		April		May		August		September		November	
2	1,230	8	1,030	14	933	18	1,040	27	924	8	1,050	26	630	4	714
9	1,180	12	1,090	18	946	22	692	June		15	1,050	October		12	713
15	1,150	15	1,020	21	978	25	1,050	3	1,120	22	881	3	639	18	797
18	1,130	19	1,000	25	979	29	903	10	654	26	944	7	555	25	777
22	1,100	23	1,010	28	952	May		14	750	September		10	579	December	
25	1,050	29	1,030	April		2	872	17	500	5	756	14	632	2	619
29	1,000	March		4	1,130	6	811	24	761	12	740	17	638	9	850
February		4	872	8	700	13	631	27	787	19	678	21	613	16	1,090
1	1,000	7	959	11	719	20	638	July		24	497	24	823	30	1,130
5	1,020			15	952	23	1,040	22	967			31	697		

Sampling by U. S. Section

Pecos River near Langtry, Texas

Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C
January		February		April		May		July		August		October		November	
2	2,410	20	3,060	2	3,810	28	2,660	1	2,320	12	2,130	7	1,710	18	2,000
9	2,790	27	3,300	9	4,270	June		15	2,060	19	398	14	1,890	December	
23	2,900	March		16	4,030	4	2,550	22	2,110	26	1,550	28	1,950	2	2,040
31	2,990	5	3,380	23	3,200	8	2,270	29	2,170	September		November		9	2,140
February		12	3,390	30	3,420	11	2,240	August		9	1,800	4	1,950	23	2,520
6	3,090	19	3,490	May		25	2,300	5	2,120	30	1,790	12	1,960		
13	3,090	26	3,860	21	2,990										

Sampling by U. S. Section

Devils River at Pafford Crossing near Comstock, Texas

Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C
January		February		April		May		June		August		September		November	
3	396	28	392	10	377	15	322	19	355	5	366	30	352	18	375
10	393	March		17	363	22	330	26	348	19	374	October		December	
16	299	8	387	24	334	29	386	July		26	366	7	356	2	388
24	367	13	367	29	333	June		3	312	September		14	347	9	386
31	354	April		May		5	360	15	353	3	360	21	351	16	384
February		3	364	9	374	12	355	29	353	23	349	28	363	23	388
14	391														

Sampling by U. S. Section # Water samples prior to August were collected at mouth near Del Rio, Texas

ELECTRICAL CONDUCTIVITY OF WATER SAMPLES
1968

Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C

Rio Grande below Amistad Dam near Del Rio, Texas

January		February		April		May		June		August		October		November	
5	1,060	16	976	1	1,100	15	582	26	879	7	804	2	794	15	709
8	1,100	19	963	3	1,200	17	702	28	848	9	784	4	787	18	692
10	1,030	21	1,020	5	1,120	20	804	July		12	783	7	757	20	706
12	1,100	23	946	8	1,240	22	798	1	761	14	795	9	741	22	681
15	1,050	26	1,010	10	978	24	791	3	717	16	831	14	693	25	695
17	1,040	28	995	12	1,150	27	1,080	5	439	26	841	16	681	27	678
19	1,040	March		15	1,500	29	787	9	400	September		18	699	29	678
22	1,070	1	989	17	1,040	31	813	10	987	3	831	21	695	December	
24	999	4	954	19	396	June		12	806	4	828	23	691	2	683
26	1,020	6	979	22	1,100	3	786	15	702	6	830	25	697	4	675
29	977	8	961	24	874	5	982	17	699	9	824	28	708	6	677
31	996	11	1,030	26	799	7	1,020	19	679	11	833	30	711	9	694
February		13	929	29	987	10	763	22	694	13	834	November		11	687
2	933	15	926	May		12	974	24	692	17	831	1	688	13	682
5	999	18	1,020	1	929	14	852	26	701	18	837	4	686	16	688
7	990	20	999	3	951	17	803	29	703	20	844	6	691	18	692
9	971	22	973	6	1,130	19	639	31	749	23	814	8	683	20	693
12	954	25	1,050	8	862	21	753	August		25	824	12	693	23	692
14	978	27	1,080	10	821	24	727	2	805	27	805	13	710	27	689
		29	1,130	13	882			5	785	30	793			30	695

Sampling by U. S. Section # Water samples prior to July 9 were collected at Rio Grande near Del Rio, Texas

Rio Grande below Maverick Dam near Del Rio, Texas

January		February		April		May		July		August		October		November	
1	1,020	15	972	1	1,060	16	549	1	728	16	838	1	787	16	704
2	999	16	983	2	1,080	17	590	2	729	17	830	2	787	17	711
3	1,030	17	978	3	1,180	18	683	3	708	18	829	3	787	18	713
4	1,040	18	978	4	990	19	704	4	511	19	821	4	779	19	695
5	1,600	19	947	5	1,030	20	793	5	453	20	828	5	730	20	715
6	1,050	20	977	6	1,120	21	779	6	485	21	841	6	759	21	704
7	1,050	21	976	7	1,180	22	819	7	404	22	848	7	746	22	695
8	1,030	22	985	8	1,230	23	780	8	388	23	857	8	750	23	691
9	1,060	23	954	9	1,200	24	813	9	400	24	858	9	749	24	688
10	1,050	24	995	10	1,050	25	976	10	438	25	847	10	715	25	690
11	1,050	25	995	11	964	26	881	11	727	26	812	11	736	26	702
12	1,080	26	995	12	898	27	982	12	914	27	845	12	716	27	686
13	1,070	27	966	13	1,060	28	1,130	13	889	28	843	13	701	28	679
14	1,060	28	959	14	869	29	1,020	14	778	29	853	14	701	29	682
15	1,040	29	982	15	1,090	30	785	15	777	30	862	15	693	30	684
16	1,030	March		16	1,580	31	847	16	724	31	846	16	716	December	
17	1,040	1	962	17	1,020	June		17	707	September		17	686	1	671
18	1,040	2	994	18	1,120	1	824	18	711	1	810	18	706	2	681
19	1,040	3	994	19	763	2	845	19	740	2	808	19	701	3	683
20	1,030	4	1,010	20	395	3	891	20	707	3	825	20	704	4	679
21	1,050	5	1,010	21	766	4	735	21	678	4	819	21	699	5	682
22	1,050	6	1,010	22	960	5	895	22	737	5	837	22	697	6	691
23	1,040	7	1,020	23	1,090	6	920	23	695	6	824	23	689	7	692
24	1,010	8	1,000	24	964	7	897	24	796	7	826	24	694	8	685
25	1,020	9	957	25	876	8	1,020	25	724	8	850	25	697	9	691
26	1,010	10	988	26	855	9	732	26	851	9	827	26	697	10	696
27	999	11	970	27	835	10	759	27	707	10	824	27	718	11	693
28	989	12	998	28	895	11	833	28	714	11	821	28	713	12	689
29	967	13	916	29	962	12	864	29	720	12	850	29	705	13	684
30	962	14	985	30	954	13	920	30	715	13	828	30	712	14	688
31	972	15	986	May		14	937	31	743	14	804	31	711	15	694
February		16	983	1	934	15	836	August		15	828	November		16	691
1	996	17	984	2	936	16	734	1	766	16	831	1	707	17	691
2	948	18	977	3	926	17	750	2	819	17	829	2	691	18	691
3	961	19	976	4	931	18	788	3	818	18	828	3	694	19	692
4	962	20	965	5	1,050	19	684	4	788	19	826	4	681	20	691
5	967	21	907	6	757	20	711	5	811	20	834	5	688	21	695
6	951	22	861	7	1,120	21	733	6	786	21	832	6	693	22	711
7	961	23	938	8	850	22	734	7	815	22	829	7	693	23	699
8	971	24	984	9	910	23	679	8	810	23	818	8	695	24	698
9	970	25	976	10	857	24	796	9	841	24	807	9	681	25	711
10	977	26	1,000	11	772	25	763	10	817	25	807	10	689	26	700
11	983	27	1,090	12	1,350	26	801	11	815	26	815	11	691	27	704
12	977	28	1,120	13	759	27	862	12	810	27	810	12	682	28	698
13	970	29	1,110	14	667	28	844	13	802	28	801	13	698	29	722
14	976	30	1,100	15	559	29	818	14	797	29	797	14	708	30	700
		31	1,070			30	865	15	818	30	793	15	705	31	699

Sampling by Maverick County Water Control and Improvement District No. 1

ELECTRICAL CONDUCTIVITY OF WATER SAMPLES

1968

Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C

Rio Grande at San Antonio Crossing near El Indio, Texas

January		February		April		May		July		August		October		November	
3	1,070	20	1,100	2	1,160	13	733	3	953	14	804	1	832	13	757
10	1,020	28	1,070	9	1,130	21	751	9	550	20	868	9	804	20	776
16	1,090	March		16	1,130	30	1,040	17	638	28	860	15	797	26	799
26	1,060	5	1,100	20	1,060	June		24	680	September		23	756	December	
30	1,060	13	1,050	24	704	4	972	31	743	4	862	30	756	4	763
February		21	1,040	May		11	1,030	August		11	838	November		10	746
6	988	26	999	1	860	18	1,000	6	805	17	853	6	785	17	749
13	1,050			7	1,020	27	777			25	834			24	771

Sampling by U. S. Section

Rio Grande at Laredo, Texas

January		February		April		May		July		August		October		November	
1	937	15	1,000	1	995	16	1,010	1	826	16	786	1	783	16	751
2	933	16	1,010	2	1,040	17	800	2	822	17	794	2	829	17	753
3	997	17	1,030	3	1,050	18	874	3	826	18	797	3	828	18	748
4	1,020	18	993	4	1,060	19	839	4	830	19	813	4	606	19	742
5	933	19	1,040	5	1,090	20	719	5	826	20	816	5	545	20	757
6	937	20	1,010	6	1,080	21	673	6	893	21	813	6	639	21	760
7	1,020	21	963	7	1,130	22	663	7	856	22	815	7	584	22	758
8	1,030	22	946	8	1,140	23	669	8	561	23	816	8	544	23	758
9	1,050	23	993	9	1,090	24	654	9	624	24	821	9	482	24	766
10	1,050	24	1,060	10	1,080	25	711	10	562	25	834	10	616	25	766
11	976	25	1,060	11	1,090	26	769	11	430	26	833	11	707	26	765
12	1,050	26	1,040	12	1,040	27	746	12	425	27	821	12	770	27	770
13	1,050	27	1,010	13	1,070	28	811	13	423	28	820	13	780	28	764
14	973	28	1,010	14	1,090	29	818	14	455	29	820	14	779	29	746
15	1,050	29	1,010	15	1,130	30	840	15	478	30	848	15	779	30	754
16	969	March		16	1,180	31	849	16	492	31	853	16	772	December	
17	1,020	1	993	17	1,260	June		17	488	September		17	763	1	774
18	1,010	2	972	18	1,110	1	854	18	485	1	850	18	759	2	747
19	1,040	3	1,030	19	1,040	2	941	19	527	2	834	19	748	3	728
20	1,040	4	1,020	20	1,090	3	949	20	652	3	818	20	740	4	742
21	1,040	5	1,020	21	1,130	4	969	21	740	4	830	21	744	5	759
22	1,020	6	977	22	794	5	887	22	630	5	814	22	736	6	734
23	866	7	1,030	23	573	6	972	23	650	6	646	23	733	7	728
24	856	8	997	24	530	7	1,120	24	643	7	472	24	733	8	739
25	896	9	978	25	506	8	1,090	25	663	8	599	25	726	9	753
26	963	10	1,040	26	484	9	1,010	26	694	9	762	26	740	10	745
27	999	11	1,060	27	526	10	979	27	682	10	815	27	748	11	742
28	1,030	12	1,040	28	625	11	967	28	668	11	762	28	731	12	744
29	1,020	13	1,020	29	841	12	967	29	646	12	810	29	742	13	753
30	1,030	14	1,000	30	979	13	983	30	667	13	868	30	745	14	742
31	1,040	15	1,040	May		14	943	31	684	14	833	31	738	15	748
February		16	1,050	1	993	15	980	August		15	816	November		16	758
1	1,040	17	1,070	2	1,020	16	972	1	705	16	809	1	739	17	757
2	1,040	18	996	3	987	17	996	2	718	17	800	2	739	18	757
3	1,030	19	998	4	940	18	1,070	3	707	18	827	3	746	19	748
4	1,010	20	997	5	933	19	988	4	691	19	828	4	758	20	747
5	1,010	21	992	6	933	20	919	5	724	20	824	5	752	21	751
6	991	22	995	7	864	21	929	6	689	21	798	6	778	22	748
7	985	23	1,010	8	666	22	1,000	7	709	22	865	7	770	23	752
8	983	24	1,010	9	659	23	970	8	729	23	816	8	755	24	758
9	988	25	1,020	10	838	24	875	9	736	24	831	9	761	25	748
10	995	26	1,030	11	871	25	803	10	773	25	820	10	742	26	746
11	996	27	978	12	757	26	810	11	773	26	820	11	736	27	748
12	995	28	968	13	588	27	823	12	765	27	831	12	752	28	750
13	999	29	991	14	446	28	761	13	773	28	824	13	750	29	751
14	1,010	30	934	15	635	29	742	14	789	29	815	14	747	30	771
		31	938			30	782	15	783	30	677	15	747	31	767

Sampling by Laredo Water Plant

ELECTRICAL CONDUCTIVITY OF WATER SAMPLES

1968

Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C

Río Salado at Las Tortillas, Tamaulipas

January		March		April		May		July		September		October		November	
4	2,330	1	2,800	5	3,300	16	2,360	1	1,740	3	1,320	16	1,820	15	3,050
February		9	3,340	May		June		August		October		November		December	
1	2,500	16	3,150	4	1,220	12	4,790	1	1,630	3	1,040	1	2,140	3	3,840
								17	1,540						

Sampling by Mexican Section

Río Grande below Falcon Dam, Texas, U. S. Tailrace

January		February		April		May		June		August		October		November	
2	737	21	736	3	770	10	786	14	811	12	835	7	846	15	861
8	729	23	735	5	767	13	786	17	813	14	835	9	865	22	858
10	728	March		8	770	15	787	19	815	16	834	11	851	25	857
12	736	1	748	10	770	20	801	24	813	19	837	18	849	27	859
17	726	4	745	15	772	22	792	26	828	21	839	21	861	29	859
19	727	6	746	17	771	24	796	July		23	842	25	852	December	
24	726	9	747	19	779	27	795	3	822	26	843	28	853	4	862
29	729	11	748	22	774	29	799	5	824	28	845	30	854	9	856
31	731	15	747	24	780	31	796	22	822	30	842	November		13	858
February		18	749	29	792	June		24	826	September		4	865	16	869
2	745	20	753	May		3	808	26	823	3	855	6	851	20	867
7	745	22	755	3	793	5	807	29	828	6	844	8	850	23	864
12	752	25	759	6	788	11	808	August		23	838	11	854	25	859
16	733	27	761	8	788	13	808	7	838	27	840	13	862	27	861
19	734	29	761					9	839	30	843			30	861

Sampling by U. S. Section

Rancherías Drain in Mexico, 69.3 River Miles above Anzaldúas Dam

January		March		April		May		June		August		October		November	
4	8,200	6	9,030	17	8,290	22	8,170	26	8,370	7	8,380	2	8,100	27	7,680
11	8,550	13	7,720	24	6,420	30	5,420	July		14	5,840	9	7,760	December	
18	8,220	20	7,900	May		June		3	8,420	21	6,070	24	8,050	4	8,060
February		27	7,660	2	8,460	6	5,090	10	2,430	29	7,620	November		11	7,740
21	7,970	April		9	8,780	12	6,940	24	8,260	September		7	7,970	18	7,070
28	7,800	3	7,880	15	8,590	19	7,610	31	8,610	4	7,990	13	8,390	24	7,220
		10	9,270									21	7,280	31	7,730

Sampling by Mexican Section

Río San Juan at Camargo, Tamaulipas

January		March		May		June		August		September		October		November	
11	1,020	6	1,170	1	1,110	19	* 1,240	7	* 1,130	11	1,050	19	1,030	27	1,060
20	966	17	1,170	9	* 1,610	26	1,080	14	* 1,880	18	1,010	November		December	
February		April		22	1,850	July		21	* 2,930	October		7	1,040	4	1,040
3	1,010	1	1,290	24	1,050	4	1,090	29	* 3,060	2	* 1,400	13	1,060	11	1,090
16	1,050	15	1,090	June		22	1,150	September		9	* 1,990	22	1,040	18	1,100
24	1,110	24	980	6	1,150	31	1,110	4	3,110	16	1,220			24	1,100

* Samples collected below Marte R. Gómez Dam
Sampling by Mexican Section

ELECTRICAL CONDUCTIVITY OF WATER SAMPLES

1968

Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C

Rio Grande at Fort Ringgold, Rio Grande City, Texas

Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C
January		February		April		May		July		August		September		November	
3	896	28	1,440	10	926	23	847	1	1,310	19	905	25	966	8	1,100
8	896	March		12	1,360	24	829	5	1,280	21	895	27	918	11	1,130
10	833	1	1,480	15	1,150	27	824	8	1,040	22	867	October		14	998
12	861	6	961	17	949	29	834	10	1,170	26	884	4	924	18	1,100
15	1,060	8	923	19	1,130	31	917	12	999	28	875	9	893	20	1,130
19	903	11	1,030	22	880	June		15	992	30	876	11	827	22	1,120
22	862	13	934	24	846	3	841	17	1,040	September		14	1,820	25	928
24	822	15	1,080	26	876	5	841	19	1,130	2	867	16	1,310	27	946
26	916	18	1,210	29	901	6	846	22	1,390	4	1,220	18	1,040	December	
29	1,010	21	925	May		7	863	26	908	6	1,080	21	1,020	2	1,120
February		22	947	2	877	10	833	29	927	9	1,030	23	1,040	4	1,140
2	881	25	1,210	3	906	14	848	August		11	1,050	25	1,030	10	1,190
5	1,110	28	947	6	804	17	836	7	1,340	13	1,030	28	1,020	11	1,130
12	1,270	29	974	8	804	19	865	9	1,240	16	1,020	30	1,040	16	1,150
16	826	April		10	929	21	1,210	12	989	18	1,050	November		18	1,120
19	882	1	1,290	13	817	24	1,260	14	944	20	1,080	1	1,070	20	967
23	893	5	945	15	819	28	1,180	16	913	23	1,310	4	1,000	23	1,120
26	1,190	9	886	20	821							6	1,050	30	1,140

Sampling by U. S. Section

Puertecitos Drain in Mexico, 46.8 River Miles above Anzaldúas Dam

Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C
January		February		April		May		July		August		October		November	
3	6,800	15	7,050	3	6,890	16	6,530	3	6,470	21	6,570	3	5,600	13	6,310
10	7,110	21	6,950	10	6,850	23	6,620	10	6,020	29	6,680	9	5,020	21	6,120
18	7,030	28	6,950	17	6,810	30	6,380	17	6,280	September		16	6,410	27	5,420
25	7,030	March		24	6,420	June		24	6,330	4	6,540	24	6,480	December	
February		7	7,010	May		6	5,830	31	6,320	11	6,760	31	6,400	4	6,160
1	7,000	13	6,880	2	6,780	12	6,030	August		18	6,500	November		11	6,170
8	6,910	20	7,010	10	6,730	19	6,530	7	6,440	26	6,560	7	6,380	18	5,980
		27	6,840			26	5,930	14	6,420					24	6,110

Sampling by Mexican Section

Los Indios Drain in Mexico, 46.8 River Miles above Anzaldúas Dam

Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C
January		February		April		May		July		August		October		November	
3	4,560	15	4,510	3	4,550	16	4,540	3	4,390	14	4,450	3	4,290	13	4,170
10	4,570	21	4,570	10	4,600	23	3,620	10	4,280	21	4,390	9	4,120	21	4,070
18	4,570	28	4,530	17	4,500	30	2,960	17	4,390	29	4,160	16	4,160	28	4,110
25	4,570	March		24	3,380	June		24	4,390	September		24	4,150	December	
February		7	4,570	May		6	3,810	31	4,270	4	4,260	31	4,130	4	4,150
1	4,560	13	4,560	2	4,410	12	4,290	August		11	4,040	November		11	4,110
8	4,510	20	4,440	10	4,540	19	4,360	7	4,380	18	4,290	7	4,130	18	4,090
		27	4,550			26	3,860			26	4,270			24	4,060

Sampling by Mexican Section

Huizache Drain in Mexico, 41.8 River Miles above Anzaldúas Dam

Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C
January		February		April		May		July		August		October		November	
3	4,920	21	4,850	3	4,820	16	4,060	3	5,050	14	4,510	3	4,310	14	4,480
10	4,950	28	4,850	10	4,730	23	4,310	10	4,930	21	4,220	9	4,150	21	4,680
18	5,000	March		17	4,730	30	4,190	17	5,070	29	4,190	16	4,170	28	4,310
25	4,880	7	4,810	24	4,020	June		24	5,020	September		24	4,870	December	
February		13	4,840	May		6	4,330	31	4,900	4	4,330	31	4,910	5	4,680
1	4,870	20	4,820	2	4,290	12	4,410	August		11	4,690	November		12	4,710
8	4,790	27	4,850	10	4,130	19	4,180	7	4,810	18	4,860	7	4,750	19	4,770
15	4,850					26	4,080			26	4,800			26	4,730

Sampling by Mexican Section

ELECTRICAL CONDUCTIVITY OF WATER SAMPLES

1968

Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C

Rio Grande near Los Ebanos, Texas

Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C
January		March		May		June		August		October		November		December	
16	1,040	29	1,390	7	847	4	836	27	936	15	1,810	8	1,230	6	1,280
February		April		10	846	21	1,450	30	918	18	1,150	12	1,360	9	1,360
20	1,050	5	1,380	14	842	July		September		22	1,120	15	1,430	14	1,280
23	1,740	9	1,140	17	823	5	1,090	3	975	25	1,090	19	1,210	17	1,320
27	1,750	12	1,290	21	829	23	1,120	17	969	29	1,090	22	1,260	20	1,110
March		23	1,060	24	837	August		24	986	November		26	1,050	24	1,240
8	1,070	May		28	835	6	1,130	29	966	1	1,170	29	1,070	27	1,240
22	1,360	3	1,060	31	846	20	920	October		6	1,140	December		31	1,030
								1	1,830			3	1,260		

Sampling by U. S. Section

Rio Grande at Penitas, Texas

Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C
January		February		March		May		June		August		September		November	
3	1,260	16	1,450	29	1,740	15	884	26	1,460	5	1,420	27	1,050	6	1,080
5	1,220	19	1,070	April		17	839	28	1,320	7	1,700	30	1,000	7	1,150
8	1,180	21	1,380	1	1,310	20	879	July		9	1,680	October		15	1,530
10	1,330	23	1,170	3	1,430	22	849	1	1,490	12	1,540	2	1,020	25	1,250
12	1,220	26	1,470	5	1,250	24	1,020	3	1,720	14	1,270	4	951	27	1,060
15	1,410	28	1,500	8	1,010	27	921	5	1,680	16	1,030	7	1,190	29	1,000
17	1,950	March		10	946	29	906	8	1,720	19	1,000	9	1,230	December	
19	1,270	1	1,850	15	1,640	31	1,030	10	1,380	21	1,010	11	1,010	2	1,100
22	1,130	4	2,040	17	1,280	June		12	1,510	23	1,010	14	1,120	4	1,310
24	1,040	6	1,400	19	1,230	3	862	15	1,310	29	1,080	16	1,830	6	1,350
26	1,080	8	1,130	22	1,320	5	840	17	1,140	30	1,020	18	1,960	9	1,360
29	1,360	11	1,550	24	954	7	882	19	1,260	September		21	1,230	11	1,400
31	1,360	13	1,550	26	886	10	902	22	1,410	3	996	23	1,150	13	1,340
February		15	1,210	29	1,000	12	871	25	1,040	4	1,000	25	1,150	16	1,390
2	1,520	18	1,520	May		14	973	26	1,000	9	1,080	28	1,160	18	1,380
5	1,380	20	1,450	6	1,210	17	1,070	29	1,220	11	1,100	30	1,160	20	1,300
7	1,550	22	1,350	8	868	19	1,150	31	1,280	20	1,100	November		23	1,260
9	1,540	25	1,380	10	862	21	1,100	August		23	1,190	1	1,180	27	1,260
12	1,900	27	1,560	13	1,020	24	1,450	2	1,160	25	1,590	4	1,210	30	1,240
14	1,670														

Sampling by U. S. Section

Rio Grande above Anzaldúas Dam, South of Abram, Texas

Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C
January		February		March		May		June		August		September		November	
3	1,100	16	1,100	29	1,740	15	845	26	1,360	5	1,460	27	983	6	1,090
5	1,180	19	1,030	April		17	852	28	1,370	7	1,620	30	1,080	7	1,080
8	1,140	21	1,040	1	1,510	20	869	July		9	1,700	October		15	1,490
10	1,120	23	1,160	3	1,470	22	877	1	1,500	12	1,550	2	989	25	1,290
12	1,060	26	1,350	5	1,460	24	943	3	1,730	14	1,230	4	962	27	1,010
15	1,130	28	1,360	8	1,250	27	908	5	1,750	16	1,120	7	1,230	29	1,060
17	1,300	March		10	1,090	29	894	8	1,360	19	1,040	9	1,370	December	
19	1,380	1	1,770	15	1,370	31	987	10	1,220	21	972	11	967	2	1,130
22	1,060	4	1,810	17	1,540	June		12	1,330	23	979	14	1,260	4	1,180
24	1,100	6	1,280	19	1,370	3	867	15	935	29	954	16	1,420	6	1,230
26	1,040	8	1,280	22	1,210	5	845	17	1,160	30	939	18	1,960	9	1,360
29	1,120	11	1,420	24	998	7	877	19	1,180	September		21	1,180	11	1,410
31	1,190	13	1,350	26	899	10	954	22	1,380	3	951	23	1,140	13	1,380
February		15	1,300	27	1,090	12	865	25	1,030	4	940	25	1,120	16	1,310
2	1,200	18	1,440	May		14	1,040	26	941	9	1,150	28	1,110	18	1,420
5	1,210	20	1,570	6	913	17	977	29	1,090	11	1,070	30	1,120	20	1,320
7	1,320	22	1,310	8	944	19	989	31	1,170	20	1,130	November		23	1,140
9	1,540	25	1,200	10	882	21	962	August		23	1,160	1	1,140	27	1,300
12	1,530	27	1,310	13	881	24	1,140	2	1,220	25	1,610	4	1,190	30	1,300
14	1,670														

Sampling by U. S. Section

ELECTRICAL CONDUCTIVITY OF WATER SAMPLES

1968

Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C

Morillo Drain in Mexico, 8.4 River Miles above Anzaldúas Dam

January		March		May		June		August		September		October		November	
3	15,480	13	16,840	2 *	12,830	12 #	9,400	1 #	10,950	5 *	12,640	18 #	10,790	21 *	13,360
10	15,050	20	15,840	10 #	9,990	12 *	12,360	1 *	16,040	12 #	9,250	18 *	12,970	28 #	10,910
18	15,260	27	16,890	10 *	11,220	20 #	10,000	8 #	10,950	12 *	13,870	25 #	11,310	28 *	13,170
24	15,260	April		15 #	10,770	20 *	14,310	8 *	15,190	19 #	10,560	25 *	13,260	December	
31	15,700	3 #	13,580	15 *	10,060	27 #	8,970	15 #	12,090	19 *	15,100	31 #	11,250	5 #	10,900
February		3 *	18,030	23 #	7,230	27 *	13,640	15 *	10,920	26 #	10,700	31 *	15,070	5 *	13,220
8	15,640	9 #	12,500	23 *	10,370	July		22 #	11,250	26 *	15,190	November		12 #	10,890
15	16,100	9 *	17,190	29 #	7,380	4	12,430	22 *	12,740	October		7 #	11,090	12 *	14,110
21	15,640	17 #	13,490	29 *	4,620	11	13,650	30 #	8,610	3 #	11,390	7 *	15,270	19 #	10,890
28	15,640	17 *	17,460	June		17	13,010	30 *	11,120	3 *	11,710	14 #	11,180	19 *	13,770
March		25	10,330	5 #	8,980	25 #	10,870	September		14 #	10,400	14 *	10,270	26 #	10,950
7	15,010	May		5 *	12,010	25 *	16,700	5 #	10,510	14 *	12,970	21 #	10,670	26 *	15,510
		2 #	7,710												

\# Samples collected from Esterito Drain which flows into Morillo Drain upstream from the flow measuring station.
* Samples collected upstream from the Esterito Drain confluence.
Sampling by Mexican Section

Rio Grande below Anzaldúas Dam, Texas

January		February		April		May		July		August		October		November	
1	1,390	15	2,130	1	2,200	16	1,040	1	1,890	16	1,510	1	1,230	16	1,930
2	1,360	16	1,570	2	1,870	17	1,050	2	2,010	17	1,370	2	1,340	17	1,790
3	1,380	17	1,260	3	1,780	18	1,060	3	2,200	18	1,270	3	1,190	18	1,710
4	1,420	18	1,260	4	1,900	19	1,050	4	2,350	19	1,190	4	1,220	19	1,580
5	1,450	19	1,240	5	1,870	20	1,100	5	2,400	20	1,240	5	1,220	20	1,480
6	1,580	20	1,250	6	1,820	21	1,150	6	2,320	21	1,200	6	1,130	21	1,610
7	1,560	21	1,310	7	1,870	22	1,100	7	2,350	22	1,190	7	1,350	22	1,600
8	1,440	22	1,390	8	1,670	23	1,100	8	2,250	23	1,180	8	1,570	23	1,440
9	1,410	23	1,400	9	1,550	24	1,060	9	1,750	24	1,070	9	1,640	24	1,530
10	1,400	24	1,470	10	1,310	25	1,140	10	1,580	25	1,050	10	1,470	25	1,610
11	1,370	25	1,500	11	1,260	26	1,090	11	1,590	26	1,210	11	1,290	26	1,700
12	1,320	26	1,550	12	1,190	27	1,100	12	1,560	27	1,130	12	1,060	27	1,500
13	1,300	27	1,590	13	1,260	28	1,140	13	1,690	28	1,070	13	1,100	28	1,330
14	1,310	28	1,580	14	1,220	29	1,140	14	1,130	29	1,090	14	1,130	29	1,200
15	1,350	29	1,590	15	1,270	30	1,180	15	1,040	30	1,170	15	1,150	30	1,120
16	1,400	March		16	1,930	31	1,220	16	1,070	31	1,200	16	1,320	December	
17	1,470	1	1,640	17	1,910	June		17	1,200	September		17	1,450	1	1,180
18	1,830	2	1,720	18	2,120	1	1,270	18	1,300	1	1,150	18	1,860	2	1,170
19	1,770	3	2,290	19	1,950	2	1,210	19	1,370	2	1,110	19	2,420	3	1,230
20	1,540	4	2,720	20	1,770	3	1,070	20	1,410	3	1,120	20	2,260	4	1,230
21	1,390	5	2,170	21	1,650	4	1,100	21	1,480	4	1,100	21	1,680	5	1,330
22	1,330	6	1,660	22	1,790	5	987	22	1,590	5	1,080	22	1,410	6	1,430
23	1,310	7	1,550	23	1,370	6	1,080	23	1,680	6	1,250	23	1,300	7	1,490
24	1,290	8	1,550	24	1,270	7	1,140	24	1,580	7	1,220	24	1,280	8	1,520
25	1,290	9	1,490	25	1,070	8	1,170	25	1,370	8	1,520	25	1,290	9	1,750
26	1,290	10	1,600	26	1,080	9	1,160	26	1,140	9	1,670	26	1,280	10	1,700
27	1,330	11	1,660	27	1,120	10	1,120	27	1,120	10	1,270	27	1,290	11	1,610
28	1,380	12	1,700	28	1,170	11	1,060	28	1,180	11	1,270	28	1,280	12	1,720
29	1,420	13	1,590	29	1,270	12	1,110	29	1,210	12	1,250	29	1,280	13	1,970
30	1,470	14	1,510	30	1,580	13	1,100	30	1,360	13	1,210	30	1,280	14	1,920
31	1,530	15	1,510	May		14	1,140	31	1,420	14	1,140	31	1,280	15	1,750
February		16	1,490	1	1,280	15	1,170	August		15	1,180	November		16	1,650
1	1,550	17	1,520	2	1,300	16	1,260	1	1,430	16	1,140	1	1,280	17	1,600
2	1,540	18	1,620	3	1,320	17	1,270	2	1,410	17	1,150	2	1,320	18	1,620
3	1,520	19	1,750	4	1,390	18	1,230	3	1,400	18	1,170	3	1,360	19	2,630
4	1,510	20	1,970	5	1,270	19	1,250	4	1,400	19	1,190	4	1,390	20	1,750
5	1,480	21	1,980	6	1,110	20	1,280	5	1,700	20	1,210	5	1,320	21	1,720
6	1,530	22	1,890	7	1,070	21	1,350	6	1,690	21	1,260	6	1,330	22	1,680
7	1,570	23	1,760	8	1,060	22	1,270	7	1,720	22	1,260	7	1,280	23	1,580
8	1,670	24	1,720	9	1,040	23	1,390	8	1,830	23	1,280	8	1,270	24	1,480
9	1,910	25	1,570	10	1,050	24	1,390	9	1,990	24	1,280	9	1,280	25	1,400
10	1,940	26	1,590	11	1,070	25	1,580	10	2,080	25	1,520	10	1,380	26	1,450
11	1,740	27	1,570	12	1,120	26	1,680	11	2,220	26	1,790	11	1,380	27	1,460
12	1,840	28	1,600	13	1,130	27	1,750	12	2,200	27	1,560	12	1,430	28	1,490
13	1,880	29	1,820	14	1,100	28	1,850	13	2,100	28	1,220	13	1,440	29	1,530
14	2,120	30	2,050	15	1,050	29	1,860	14	2,000	29	1,250	14	1,450	30	1,520
		31	2,190			30	1,760	15	1,830	30	1,230	15	1,670	31	1,580

Sampling by U. S. Section

ELECTRICAL CONDUCTIVITY OF WATER SAMPLES

1968

Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C

North Floodway near Sebastian, Texas

January		February		April		May		July		August		October		November	
2	7,740	13	8,020	2	8,270	21	2,360	9	6,140	20	4,580	1	3,730	12	5,150
9	7,530	20	7,740	9	7,690	June		16	6,100	27	4,550	8	3,120	26	4,650
16	8,140	27	8,450	16	7,690	4	5,260	23	4,450	September		15	4,590	December	
23	7,330	March		23	5,290	11	4,760	30	3,880	3	4,560	22	4,910	3	4,670
30	8,080	5	8,260	May		18	3,730	August		10	4,250	31	4,770	10	4,060
February		12	8,460	7	5,460	July		6	4,810	17	4,290	November		17	5,140
6	8,200	19	8,310	14	7,050	2	6,370	13	4,960	24	3,940	5	5,200	31	4,240
		26	8,380												

Sampling by U. S. Section

Rio Grande at Mercedes, Texas, Pumps

January		February		April		May		July		August		October		November	
1	2,100	15	1,820	1	1,940	16	1,320	1	1,820	16	2,190	1	1,450	16	1,520
2	1,940	16	2,100	2	2,050	17	1,170	2	1,720	17	2,060	2	1,290	17	1,480
3	1,620	17	2,200	3	2,210	18	1,130	3	1,800	18	1,960	3	1,270	18	1,500
4	1,390	18	1,490	4	2,270	19	1,110	4	1,950	19	1,830	4	1,310	19	1,870
5	1,410	19	1,300	5	1,920	20	1,020	5	1,960	20	1,690	5	1,350	20	1,770
6	1,400	20	1,300	6	1,820	21	1,040	6	2,050	21	1,530	6	1,260	21	1,720
7	1,580	21	1,210	7	1,910	22	1,120	7	2,190	22	1,460	7	1,230	22	1,510
8	1,580	22	1,250	8	1,900	23	1,110	8	2,320	23	1,350	8	1,360	23	1,410
9	1,600	23	1,240	9	1,890	24	1,080	9	2,130	24	1,320	9	1,340	24	1,650
10	1,540	24	1,390	10	1,770	25	1,080	10	2,270	25	1,270	10	1,310	25	1,620
11	1,430	25	1,390	11	1,670	26	1,050	11	1,860	26	1,310	11	1,660	26	1,500
12	1,410	26	1,530	12	1,510	27	1,060	12	1,690	27	1,160	12	1,600	27	1,530
13	1,400	27	1,460	13	1,430	28	1,060	13	1,580	28	1,050	13	1,640	28	1,630
14	1,300	28	1,630	14	1,400	29	1,080	14	1,600	29	1,420	14	1,640	29	1,700
15	1,280	29	1,590	15	1,420	30	1,140	15	1,560	30	1,140	15	1,380	30	1,610
16	1,310	March		16	1,410	31	1,180	16	1,210	31	1,110	16	1,250	December	
17	1,450	1	1,610	17	1,290	June		17	1,050	September		17	1,220	1	1,440
18	1,460	2	1,730	18	1,370	1	1,200	18	1,080	1	1,290	18	1,290	2	1,400
19	1,470	3	1,660	19	1,900	2	1,270	19	1,170	2	1,220	19	1,330	3	1,160
20	1,570	4	1,600	20	2,040	3	1,320	20	1,280	3	1,220	20	1,390	4	1,200
21	1,800	5	2,150	21	2,140	4	1,430	21	1,360	4	1,240	21	1,390	5	1,240
22	1,740	6	3,030	22	1,930	5	1,250	22	1,440	5	1,160	22	1,580	6	1,280
23	1,490	7	2,330	23	1,700	6	1,190	23	1,460	6	1,170	23	2,000	7	1,270
24	1,380	8	1,750	24	1,550	7	1,090	24	1,500	7	1,130	24	1,680	8	1,400
25	1,300	9	1,650	25	1,310	8	1,060	25	1,670	8	1,220	25	1,390	9	1,400
26	1,310	10	1,640	26	1,320	9	1,120	26	1,670	9	1,230	26	1,330	10	1,500
27	1,290	11	1,620	27	1,100	10	1,180	27	1,580	10	1,250	27	1,310	11	1,540
28	1,370	12	1,620	28	1,050	11	1,170	28	1,130	11	1,910	28	1,320	12	1,730
29	1,380	13	1,620	29	1,180	12	1,080	29	1,160	12	1,370	29	1,330	13	1,750
30	1,340	14	1,680	30	1,200	13	1,060	30	1,120	13	1,290	30	1,310	14	1,670
31	1,340	15	1,630	May		14	1,100	31	1,220	14	1,250	31	1,310	15	1,670
February		16	1,580	1	1,320	15	1,080	August		15	1,200	November		16	1,920
1	1,510	17	1,510	2	1,890	16	1,070	1	1,230	16	1,190	1	1,330	17	1,970
2	1,520	18	1,610	3	1,380	17	1,210	2	1,430	17	1,140	2	1,320	18	1,810
3	1,520	19	1,520	4	1,300	18	1,370	3	1,520	18	1,140	3	1,310	19	1,680
4	1,540	20	1,650	5	1,350	19	1,320	4	1,470	19	1,140	4	1,340	20	1,670
5	1,490	21	1,600	6	1,460	20	1,260	5	1,490	20	1,180	5	1,420	21	1,650
6	1,480	22	1,930	7	1,340	21	1,260	6	1,490	21	1,190	6	1,390	22	1,770
7	1,510	23	2,050	8	1,280	22	1,280	7	1,380	22	1,230	7	1,380	23	1,720
8	1,510	24	2,000	9	1,110	23	1,410	8	1,550	23	1,220	8	1,350	24	1,740
9	1,560	25	1,810	10	1,010	24	1,260	9	1,800	24	1,270	9	1,410	25	1,700
10	1,710	26	1,770	11	1,020	25	1,290	10	1,760	25	1,280	10	1,350	26	1,690
11	1,960	27	1,770	12	1,040	26	1,440	11	1,780	26	1,310	11	1,350	27	1,470
12	1,800	28	1,750	13	1,060	27	1,410	12	1,800	27	1,350	12	1,340	28	1,390
13	1,960	29	1,780	14	1,040	28	1,580	13	1,940	28	1,390	13	1,420	29	1,510
14	1,830	30	1,720	15	1,120	29	1,760	14	2,090	29	1,790	14	1,480	30	1,530
		31	1,600			30	1,820	15	2,240	30	1,720	15	1,520	31	1,530

Sampling by U. S. Section

ELECTRICAL CONDUCTIVITY OF WATER SAMPLES

1968

Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C

Rio Grande near San Benito, Texas

Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C
January		March		April		June		July		September		October		December	
10	1,500	7	2,500	24	1,770	10	1,170	29	1,140	12	1,330	25	1,380	2	1,510
18	1,380	14	1,760	May		17	1,130	August		20	1,200	28	1,320	5	1,260
24	1,400	25	1,970	7	1,360	19	1,200	6	1,500	23	1,240	November		10	1,470
February		28	1,810	17	1,190	24	1,420	13	1,780	October		1	1,310	13	1,750
2	1,590	April		24	1,080	July		23	1,570	1	1,760	4	1,350	16	1,820
6	1,570	3	2,030	27	1,170	1	1,940	27	1,340	7	1,460	12	1,310	20	1,730
13	1,970	8	1,820	31	1,140	8	2,170	29	1,100	11	1,240	14	1,400	24	1,750
15	1,860	10	1,910	June		16	1,240	September		14	1,630	22	1,620	30	1,550
23	1,270	17	1,380	3	1,260	22	1,390	4	1,310	17	1,370	25	1,600		

Sampling by U. S. Section

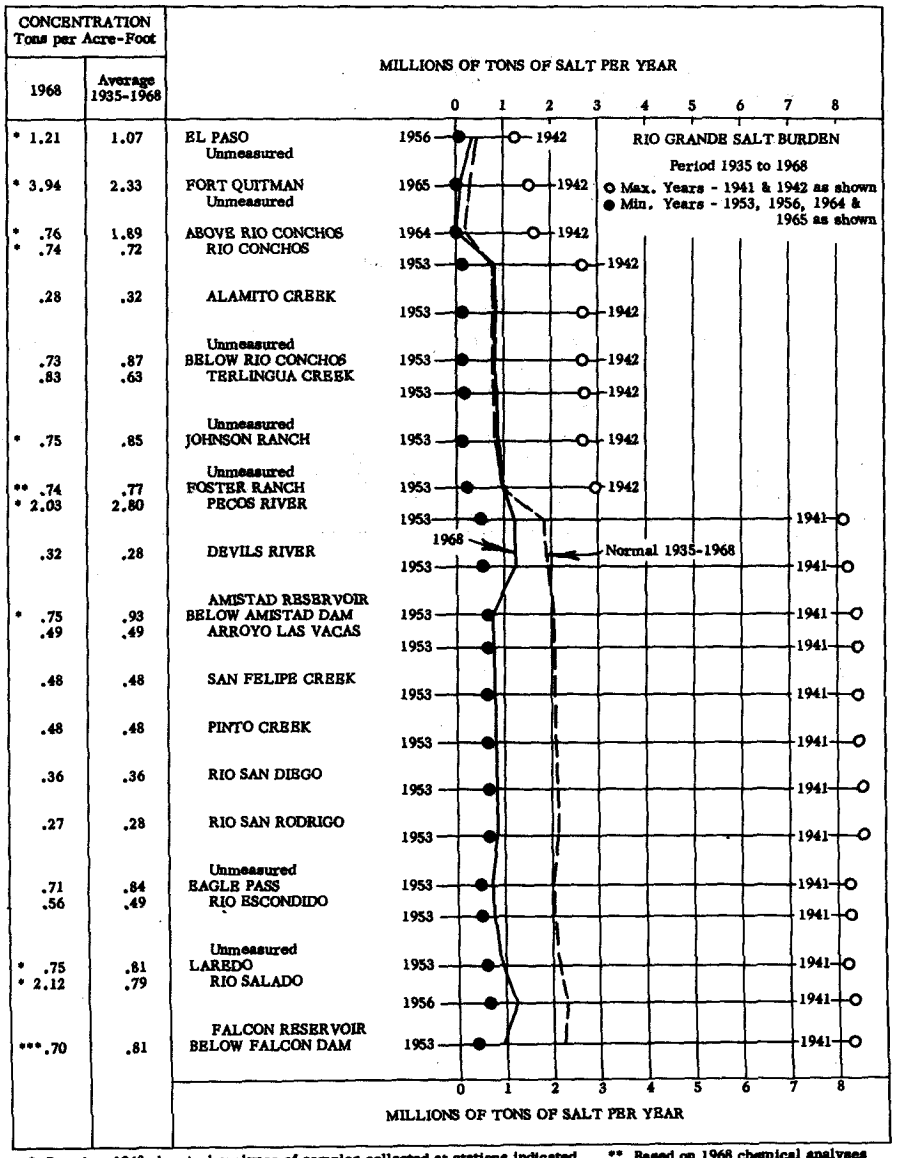
Rio Grande near Brownsville, Texas

Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C
January		February		April		May		July		August		October		November	
11	1,510	26	1,380	5	1,890	27	1,050	10	2,260	23	2,110	3	1,500	15	1,590
17	1,300	March		8	2,130	31	1,070	15	1,670	29	1,450	7	1,770	18	1,510
24	1,480	4	1,610	11	1,760	June		18	1,160	September		11	1,550	22	1,960
26	1,340	8	2,880	15	1,810	3	1,220	22	1,280	4	1,390	14	1,410	25	1,710
29	1,300	11	1,780	17	1,650	6	1,470	25	1,620	6	1,330	17	1,740	29	1,520
February		15	1,620	22	1,870	10	1,660	29	1,660	12	1,320	21	1,710	December	
1	1,460	18	1,650	25	2,290	13	1,410	August		13	1,410	24	1,450	2	1,730
5	1,550	21	1,590	29	1,150	17	1,320	2	1,240	18	1,160	28	1,360	5	1,510
9	1,590	25	1,990	May		21	1,260	5	1,400	20	1,180	November		9	1,300
12	1,650	28	1,860	10	1,180	24	1,230	8	1,540	25	1,250	1	1,350	13	1,470
15	1,900	April		13	1,040	July		12	1,580	27	1,370	4	1,360	16	1,770
19	1,930	1	1,780	17	1,240	1	1,750	16	1,820	30	1,400	6	1,440	20	2,040
23	1,240	3	1,740	23	1,050	8	1,900	21	2,160			13	1,390	30	1,810

Sampling by U. S. Section

RIO GRANDE SALT BURDEN

The term "salt", as used herein, means total dissolved solids. The 1968 concentrations which are marked by an asterisk (*) are based on the chemical analyses shown on preceding pages of this bulletin. Those without asterisks are based on chemical analyses reported in previous water bulletins or have been developed by deduction. Average concentrations shown for the period 1935-1968 are the weighted means of the values determined for the 34-year period indicated.



* Based on 1968 chemical analyses of samples collected at stations indicated ** Based on 1968 chemical analyses of samples collected at Langtry Station *** Based on 1968 chemical analyses of samples collected at Falcon Dam - U. S. Tailrace

SANITARY ASPECTS OF WATER QUALITY

The United States and Mexican Sections of this Commission and the Texas State Department of Health cooperate in the joint sanitary water-sampling program along the Rio Grande. All analyses below have been made under the "Rules of Laboratory Procedure," as approved by the participating agencies and which conform with the procedures set out in the manual "Standard Methods for the Examination of Water and Wastewater," Twelfth Edition (1965), prepared jointly by the American Public Health Association, the American Water Works Association and the Water Pollution Control Federation. These analyses were made in the laboratories of the El Paso Water Plant, the Cameron County Health Unit, and the United States Section of the International Boundary and Water Commission. The percentages of dissolved oxygen (D. O.) shown below are the percent saturation at the elevation of the sampling stations.

Franklin Canal at El Paso, Texas, Water Plant

Date 1968	D. O. Percent Saturation	B. O. D. Parts Per Million	Coliform Organisms per 100 c. c.	Total Bacteria per c. c. (plate count)	Date 1968	D. O. Percent Saturation	B. O. D. Parts Per Million	Coliform Organisms per 100 c. c.	Total Bacteria per c. c. (plate count)
Jan. * 2	94.2	4.2	260	260	July 16	95.6	2.0	23,000	1,440
* 9	86.0	4.6	23,000	1,140	23	101	3.0	1,100	1,580
* 16	87.6	5.6	1,600	2,400	30	89.8	1.8	600	495
* 23	129	4.0	3,600	2,750	Aug. 6	94.4	2.0		1,470
30	88.3	7.6	2,300	2,180	13	93.7	1.5	38,000	2,920
Feb. 6	106	8.5	3,400	10,370	20	89.8	3.0	1,400,000	55,500
13	81.2	9.3	36,000	12,790	27	89.8	3.0	240,000	15,650
20	88.5	7.6	240,000	3,320	Sept. 3	125	2.5	3,600	3,625
* 27	79.1	6.8	34,000	27,560	10	137	3.7	94,000	6,255
Mar. 5	79.2	2.7	160,000	93,900	17	120	4.5	230,000	5,300
12	85.4	5.4	170,000	9,310	24	133	2.8	6,000	1,850
19	84.3	4.0	23,000	5,850	Oct. 1	181	21.2	36,000	1,470
26	88.4	3.8	23,000	3,300	8	174	2.4	7,900	6,755
Apr. 2	86.0	2.9	16,000	4,890	15	144	2.9	16,000	1,960
9	96.3	3.0	34,000	25,990	22		3.4	11,000	8,150
16	90.1	2.7	5,400	7,930	29	137	7.0	11,000	13,700
23	94.7	2.7	110,000	7,720	Nov. 4	119	3.4	6,200	1,200
30	88.3	2.6	2,300	2,220	12	134	4.2	9,300	1,400
May 7	106	2.5	6,200	1,025	19	127	4.2	21,000	730
14	104	1.4	2,300	325	26	120	5.8	23,000	2,365
21	92.8	1.8	3,600	3,880	Dec. 3		2.6	11,000	860
28	110	5.1	6,200	290	10	150	5.1	36,000	1,090
June 4	102	6.5	11,000	815	17	104	4.7	23,000	1,990
11	99.1	2.9	62,000	3,220	24	119		36,000	31,200
18	107	4.0	6,200	6,190	31	127	3.3	11,000	880
25	85.3	1.6		290					
July 2	98.8	1.5	24,000	6,464	Total	5,457.7	220.9	3,327,060	419,274
9	115	5.6	23,000	3,060	Average	107	4.2	65,200	7,910

Rio Grande at Ysleta, Texas-Zaragoza, Chih. Bridge

Jan. 2	50.2	23.4	2,300,000	185,500	July 16	44.9	4.4	360,000	22,700
9	54.0	27.0	2,800,000	293,000	23	72.2	16.6	93,000	45,300
16	41.3	25.7	5,600,000	1,398,000	30	73.6	4.8	160,000	8,100
23	34.7	19.6	24,000,000	1,100,000	Aug. 6	36.1	12.6	6,200,000	1,100,000
30	30.7	35.1	38,000,000	3,032,000	13	51.0	10.4	110,000	27,000
Feb. 6	27.0	61.8	2,100,000	744,500	20	55.7	6.6	3,600,000	282,000
13	32.8	21.6	24,000,000	673,500	27	54.6	6.6	60,000	1,500
20	28.1	44.6	140,000,000	551,500	Sept. 3	49.3	6.0		440,000
27	23.5	34.3	2,300,000	62,000	10	85.3	7.8	6,200,000	212,000
Mar. 5	70.3	4.5	1,600,000	32,750	17	60.0	7.9	360,000	205,000
12	77.5	11.7	620,000	61,450	24	0	19.5	3,600,000	1,369,000
19	82.2	10.6	62,000	15,050	Oct. 1	0	19.2	60,000	850,000
26	84.1	8.7	160,000	30,700	8	63.6	15.2	16,000,000	120,500
Apr. 2	79.4	5.3	280,000	44,200	15	0	12.6	24,000,000	98,000
9	68.8	17.1	14,000,000	523,000	22	0	21.7	11,000,000	760,000
16	31.7	18.3	2,300,000	484,000	29	32.0	41.6	22,000,000	907,500
23	41.6	29.1	24,000,000	730,000	Nov. 4	60.4	62.8	38,000,000	8,340,000
30	39.3	29.4	70,000,000	1,092,200	12	57.4	27.0	11,000,000	630,000
May 7	10.7	28.7	16,000,000	693,000	19	46.3	28.3	11,000,000	1,280,000
14	7.6	68.5	70,000,000	2,215,000	26	0	14.4	38,000,000	1,068,000
21	52.8	42.8	16,000,000	120,500	Dec. 3	53.3	31.6	620,000	5,198,000
28	47.7	8.5	620,000	34,500	10	0	72.0	38,000,000	1,015,000
June 4	38.7	6.5	550,000	68,500	17	69.9	83.9	2,300,000	446,500
11	74.0	5.2	2,100,000	423,500	24	84.3		5,500,000	217,000
18	73.3	10.6	360,000	102,100	31	49.5	64.4	38,000,000	400,000
25	51.0	5.0	1,100,000	5,400					
July 2	76.0	2.0	160,000	52,700	Total	2,503.1	1,205.0	737,258,000	39,820,950
9	74.7	1.5	23,000	9,300	Average	47.2	23.2	14,178,000	751,300

* Samples taken from the Rio Grande at the Water Plant

SANITARY ASPECTS OF WATER QUALITY

* Rio Grande at Laredo, Texas, Water Plant

Date 1958	Coliform Organisms per 100 c. c.	Total Bacteria per c. c. (plate count)	Date 1958	Coliform Organisms per 100 c. c.	Total Bacteria per c. c. (plate count)	Date 1958	Coliform Organisms per 100 c. c.	Total Bacteria per c. c. (plate count)
Jan. 2	230	270	May 13	38,000	30,000	Sept. 23	1,100	2,500
8	360	30	20	11,000	6,500	30	11,000	2,425
15	230	190	27	1,100	2,000	Oct. 7	11,000	1,775
22	230	305	June 3	620	1,650	14	2,300	650
29	230	480	10	620	450	21	620	540
Feb. 5	110	225	17	2,300	300	28	2,300	500
12	60	160	24	360	725	Nov. 4	230	200
19	110	70	July 1	620	275	12	620	475
26	26	165	8	16,000	800	18	2,300	875
Mar. 4	60	165	15	2,300	2,815	25	0	350
11	3,600	235	22	620	820	Dec. 2	11,000	775
18	110	190	29	1,100	1,375	9	1,100	1,800
25	60	115	Aug. 5	360	905	16	620	650
Apr. 1	230	510	12	360	500	23	230	210
8	230	240	19	360	385	30	230	300
15	360	1,375	26	620	425			
22	3,600	1,750	Sept. 3	24,000	2,250			
29	70,000	2,375	9	2,300	475	Total	234,326	101,400
May 6	3,600	25,000	16	3,600	875	Average	4,420	1,910

♂ Rio Grande at 8.6 Miles below Laredo, Texas, R. R. Bridge

Jan. 2	23,000	20,000	June 17	62,000	37,500	Oct. 21	110,000	137,500
15	62,000	7,000	24	36,000	42,500	28	110,000	77,500
22	23,000	10,500	July 1	36,000	15,000	Nov. 4	94,000	6,500
29	160,000	13,500	8	160,000	117,500	18	110,000	47,500
Feb. 6	23,000		15	240,000	119,500	25	62,000	21,500
Mar. 18	23,000	31,500	22	110,000	127,500	Dec. 2	62,000	21,500
25	36,000	7,000	29	36,000	80,000	9	62,000	29,000
Apr. 1	62,000	105,000	Aug. 5	62,000	330,000	16	36,000	14,500
8	110,000	31,000	19	110,000	26,000	23	62,000	10,000
15	240,000	77,500	26	240,000	27,500	30	23,000	42,500
22	240,000	60,000	Sept. 17	62,000				
May 6	23,000	150,000	23	36,000	28,500			
13	240,000	77,500	30	36,000	65,000			
June 3	110,000	33,000	Oct. 7	62,000	72,500	Total	3,492,000	2,410,500
10	62,000	250,000	14	36,000	40,000	Average	87,300	63,400

* Rio Grande below Falcon Dam, Texas, U. S. Tailrace

Jan. 2	23	135	May 6	6.0	140	Sept. 9	0	15
15	11	25	13	0	125	30	0	15
22	2.6	25	27	2.6	135	Oct. 7	0	35
29	5.2	55	June 3	0	125	14	0	2.0
Feb. 5	2.6	75	10	11	235	21	0	.5
12	2.6	95	17	23	50	28	0	1.5
19	23	50	24	6.0	175	Nov. 18	0	32.5
26	2.6	50	July 2	6.0		25	0	20.0
Mar. 4	23	85	8	0	40	Dec. 2	0	10
11	110	45	15	0	15	9	0	20
18	0	80	22	0	25	16	0	10
26	0		29	0	15	30	2.6	15
Apr. 1	23	155	Aug. 5	0	0			
8	5.2	120	12	0	20			
15	23	60	19	0	15			
22	2.6	75	26	0	15	Total	322.6	2,511.5
29	6.0	70	Sept. 3	0	5	Average	7.0	57.1

⊖ Rio Grande at Mercedes, Texas, Pumps

Jan. 2	1,100		May 14	6,200		Sept. 24	620	
9	1,600		21	3,600		Oct. 1	3,400	
16	24,000		28	1,600		8	910	
23	620		June 4	2,300		15	6,200	
30	540		11	3,400		22	6,200	
Feb. 6	5,500		18	6,200		Nov. 5	5,500	
13	360		25	5,500		12	2,300	
20	620		July 2	620		19	3,600	
27	110		9	3,600		26	3,600	
Mar. 5	3,600		16	16,000		Dec. 3	3,600	
12	210		23	1,600		10	130	
19	230		30	6,200		17	1,100	
26	620		Aug. 6	3,600		24	1,100	
Apr. 2	2,100		13	2,300		31	340	
9	5,500		20	1,100				
16	6,200		27	16,000				
23	2,300		Sept. 3	3,600				
30	3,600		10	9,400		Total	202,830	
May 7	1,600		17	11,000		Average	3,900	

* Samples and Analyses by U. S. Section ♂ Samples by Mexican Section and Analyses by U. S. Section
⊖ Samples by U. S. Section and Analyses by Cameron County Health Unit

RAINFALL ON THE RIO GRANDE WATERSHED IN THE UNITED STATES

In Inches

Tabulated below, in approximate downstream order, are monthly records of United States rainfall stations located in Texas with averages for their periods of record. For location, elevation, period of record, type of gage in use, watershed subdivision in which the station is located, and the observer, see alphabetical listing of these stations shown on pages 136 through 139 in this bulletin. These rainfall records have not been published elsewhere. Records of daily rainfall amounts, where available, are on file in the office of the United States Section of this Commission. Daily records for years prior to 1953 may also be found in corresponding water bulletins.

Detailed listings of the months and years for which records are available through 1956 may be found under "Index to Precipitation Records" in Water Bulletins 10, 14, 22 and 26.

Month	American Dam		Island Station		County Line Station		Fort Hancock Bridge		Guayuco Arroyo	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	0.42	0.40	0.31	0.33	0.32	0.35	0.46	0.37	0.32	0.31
Feb.	.89	.35	.75	.28	.68	.23	1.16	.28	.89	.21
Mar.	1.08	.35	.76	.26	.64	.28	.42	.24	.58	.17
Apr.	.17	.21	.15	.17	.16	.23	.11	.28	.10	.20
May	T	.22	.15	.32	.58	.36	0	.53	.10	.35
June	T	.61	.06	.55	0	.58	.07	.83	.10	.56
July	3.89	1.44	2.58	1.08	4.68	1.15	5.12	1.28	3.20	1.39
Aug.	1.90	1.36	2.59	1.24	3.46	1.35	3.98	1.68	3.82	1.69
Sept.	.02	1.04	0	.85	.02	.96	.61	.93	.09	1.04
Oct.	.30	.59	.06	.73	.05	.88	.20	1.00	.91	1.09
Nov.	1.11	.24	1.43	.25	1.71	.27	1.85	.29	1.44	.22
Dec.	.32	.42	.43	.39	.11	.34	.20	.42	.24	.36
Yearly	10.10	7.23	9.27	6.45	12.41	6.98	14.18	8.13	11.79	7.59

Month	Fort Quitman		Neely Ranch		Moody Bennett Ranch		La Nutria Station		Bill Shannon Ranch	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	0.33	0.40	0.28	0.34	0.34	0.33	T		1.30	0.60
Feb.	.61	.24	.76	.19	.33	.31	T		1.00	.38
Mar.	.71	.24	.51	.19	.46	.14	.40	0.35	1.25	.49
Apr.	.09	.25	.30	.13	.27	.16	.20	.10	1.25	.19
May	0	.42	.06	.37	.10	.52	0	.05	.50	1.05
June	0	.86	.03	.79	.40	.84	.50	1.50	1.00	1.08
July	3.18	1.51	4.32	1.72	4.11	1.76	3.10	2.12	5.75	1.91
Aug.	4.21	1.73	2.62	1.70	3.07	1.89	3.23	2.75	2.30	1.98
Sept.	.02	.95	.10	1.27	.59	.96	1.15	.92	5.75	1.69
Oct.	.59	.85	.99	1.01	.97	.70	.02	.01	1.50	1.15
Nov.	1.33	.30	1.30	.24	1.58	.42	.99	.64	1.20	.28
Dec.	.17	.36	.15	.39	0	.25	.01	T	1.55	.58
Yearly	11.24	8.11	11.42	8.34	12.22	8.28	9.60		24.35	11.38

Month	Adobes Ranch		Shafter		Livingston Ranch		Presidio (IB&WC Gage)		Quebec Ranch	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	0	0.39			0	0.56	0.10	0.32	0.40	0.55
Feb.	.15	.22			0	.39	.15	.21	.60	.26
Mar.	.59	.21			.45	.25	.30	.15	1.10	.32
Apr.	.73	.17			5.79	.52	.90	.21	.40	.26
May	.21	.62			0	.36	.60	.45	0	.98
June	.09	1.22			1.23	1.66	.10	1.10	0	1.95
July	6.99	1.95	11.95		6.75	1.66	4.30	1.24	3.90	2.22
Aug.	1.05	1.64	3.95		1.50	1.81	1.40	1.20	4.80	2.26
Sept.	2.05	1.73	4.20		3.50	1.51	1.00	1.06	1.30	1.80
Oct.	.10	.60	1.80		0	.91	0	.52	.20	.75
Nov.	1.65	.28	2.50		2.70	.47	1.00	.27	.70	.37
Dec.	0	.30	0		0	.28	.10	.24	0	.35
Yearly	13.61	9.33			21.92	10.38	9.95	6.97	13.40	12.07

T Trace

RAINFALL ON THE RIO GRANDE WATERSHED IN THE UNITED STATES

In Inches

Month	Bloys Camp		Kerr Mitchell Ranch		Loma Vista Ranch		H. T. Fletcher Ranch		L. T. Van Eman Ranch	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	0.72	0.74	0.30	0.56	0.25	0.76	0	0.83	0.70	0.61
Feb.	1.03	.66	.40	.37	0	.33	.20	.31	.60	.27
Mar.	1.27	.52	.73	.20	.15	.19	1.50	.38	.65	.23
Apr.	1.16	.48	1.12	.47	1.10	.56	1.20	.47	2.13	.54
May	.29	1.52	1.58	1.13	.50	.90	.25	1.11	T	.89
June	.73	2.60	.80	1.84	1.80	1.91	.80	1.61	.90	1.90
July	8.42	3.37	5.17	1.90	6.70	2.14	3.10	2.84	4.05	2.27
Aug.	7.89	3.88	4.18	1.96	4.65	1.84	6.55	2.88	2.50	1.97
Sept.	1.49	2.53	1.79	1.51	1.60	1.46	1.75	1.87	3.50	2.41
Oct.	.82	1.51	.12	1.31		1.06	.85	1.38	2.20	.92
Nov.	3.60	.65	2.24	.35		.28	4.00	.47	3.40	.64
Dec.	.08	.62	0	.40		.46	0	.43	0	.36
Yearly	27.50	19.08	18.43	12.00		11.89	20.20	14.58	20.63	13.01

Month	Casa Piedra		H. M. Greenwood (Cienega Ranch)		Redford		Lajitas		02 Ranch	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	0	0.38	0.30	0.67	0.15	0.39	0.46		0.35	0.55
Feb.	0	.24	.55	.31	.20	.21	.77		.52	.40
Mar.	.80	.40	.75	.30	.40	.18	.75		.69	.32
Apr.	1.20	.41	1.50	.56	1.20	.35	1.38		2.22	.40
May	0	.36	0	.84	.40	.47	.07		1.23	1.06
June	.20	1.60	1.60	2.05	.35	.88	.16	1.27	.56	1.44
July	4.30	2.07	11.25	2.34	4.21	1.27	.97	.92	7.00	1.84
Aug.	2.80	2.66	4.55	2.09	1.69	1.11	3.19	2.74	2.97	2.22
Sept.	2.10	.95	4.01	2.47	.90	1.60	1.08	.96	2.55	1.67
Oct.	.40	.64	1.00	1.28	.23	.82	.35	.18	.75	1.44
Nov.	2.90	.76	2.35	.47	1.02	.35	.35	.18	2.07	.62
Dec.	0	.30	0	.60	.05	.18	.20	.24	0	.39
Yearly	14.70	10.77	27.86	13.98	10.80	7.81	9.73		20.91	12.35

Month	Earl Hammond Ranch		Big Bend Chevron Station		Terlingua Creek Station		Castolon		Johnson Ranch	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	0.60	0.26	0.44		0.40	0.29	0.60	0.28	0.40	0.38
Feb.	.65	.53	.55		.50	.15	.62	.21	.80	.20
Mar.	.83	.31	.64		.70	.17	.82	.34	.65	.17
Apr.	1.65	.51	1.32		1.30	.42	1.29	.44	.90	.43
May	.30	.58	.65		1.10	.55	1.57	.98	.70	1.05
June	.84	1.63	.12		T	.99	.60	1.48	.20	1.03
July	4.65	1.88	3.49		.90	.93	1.74	1.58	.90	1.05
Aug.	1.40	1.78	2.02	1.74	1.50	.85	1.75	1.60	1.20	.91
Sept.	1.97	1.32	3.07	1.88	3.20	.94	2.48	1.47	2.85	1.22
Oct.	1.53	1.22	.30	.46	.50	.58	.02	.58	0	.61
Nov.	1.93	.58	.84	.42	.60	.16	.68	.13	.50	.19
Dec.	0	.38	.01	.10	.40	.27	.03	.28	.40	.31
Yearly	16.35	10.98	13.45		11.10	6.30	12.20	9.37	9.50	7.55

Month	J. F. Woodward Ranch		Yarborough Ranch		Kokernot Ranch Headquarters		Buttrill Ranch		Black Gap Game Refuge	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	0.48	0.62	0.06	0.39	0.25	0.61	T	0.65	0.36	0.52
Feb.	.85	.41	1.00	.42	.45	.30	0	.17	1.05	.53
Mar.	.48	.17	1.34	.52	.55	.16	0	.21	.88	.27
Apr.	1.98	.51	1.77	.66	2.42	.67	.25	.50	.50	.45
May	.32	1.13	.56	.87	.57	.78	1.30	1.05	.64	1.30
June	.55	1.91	.77	2.06	.89	1.23	2.95	1.40	.52	1.16
July	3.83	2.08	4.89	2.44	2.43	1.53	2.47	1.70	.82	1.55
Aug.	3.86	2.69	4.90	4.25	2.49	1.14	2.40	.82	1.00	1.05
Sept.	3.27	1.74	3.63	2.51	3.35	1.08	2.05	1.37	2.78	1.54
Oct.	.68	1.01	.60	1.19	.54	.80	0	.73	.65	.87
Nov.	2.78	.60	3.05	1.36	.45	.34	1.50	.30	2.08	.37
Dec.	0	.27	0	.07	1.22	.32	0	.26	0	.29
Yearly	19.08	13.14	22.57	16.74	15.61	8.96	12.92	9.16	11.28	9.90

T Trace

RAINFALL ON THE RIO GRANDE WATERSHED IN THE UNITED STATES

In Inches

Month	Stillwell Crossing		Persimmon Gap Ranger Station		Sheep Pasture		Mouth of Maravillas Creek		Heath Crossing	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	0.47	0.56	0.70	0.51	0.43	0.54	0.27	0.20	0.56	0.73
Feb.	.89	.45	1.30	.48	.90	.74	.50	.09	.91	.66
Mar.	.76	.39	1.00	.21	.88	.68	.68	.39	.98	.49
Apr.	.65	.27	1.25	.52	.88	.46	0	.57	.69	.34
May	0	.72	.85	.94	.64	.51	.64	.67	.25	.12
June	.57	1.14	.52	1.17	.70	1.56	.62	1.64	.42	1.20
July	1.30	2.33	.84	1.42	1.83	1.04	.25	.90	.52	1.19
Aug.	1.42	.92		.77	2.11	1.13		1.95	1.62	1.43
Sept.	2.09	2.39		1.01	1.70	2.46		1.06	1.76	2.67
Oct.	.36	.77		1.14	.58	1.15	.58	.64	0	1.03
Nov.	1.56	.35		.26	3.10	.96	2.80	.43	1.55	.52
Dec.	0	.37		.33	0	.22	0	.10	0	.20
Yearly	10.07	10.66		8.76	13.75	11.45		8.64	9.26	10.58

Month	Dove Mountain Ranch		Slaughter Ranch		McGonagill Ranch Headquarters		McGonagill Ranch East Mill		E. W. Hardgrave Ranch	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	0.45	0.62	0.70	0.65	0	0.44	0	0.45	0.84	0.61
Feb.	1.01	.30	1.20	.86	.60	.63	.30	.20	.97	.74
Mar.	.95	.27	2.80	.90	.60	.43	1.20	.53	.92	.35
Apr.	1.50	.47	1.30	.48	1.25	.48	.60	.62	3.20	1.23
May	0	.90	1.40	.80	0	.99	0	.93	1.68	1.35
June	.68	1.36	.40	1.00	.34	2.06	.90	1.85	.42	1.74
July	12.43	2.11	2.70	1.46	6.21	2.35	6.40	1.37	1.75	1.24
Aug.	5.03	1.04	2.20	2.04	6.20	1.41	4.00	1.20	1.61	.90
Sept.	1.05	1.08	2.40	1.69	2.45	1.71	1.00	1.80	2.68	2.44
Oct.	.17	1.24	.80	1.39	.40	.92	.40	1.03	.58	1.63
Nov.	1.05	.33	2.20	.80	.70	.20	.60	.20	2.06	.55
Dec.	0	.38	0	.20	0	.17	0	.24	.03	.35
Yearly	24.32	10.10	18.10	12.27	18.75	11.79	15.40	10.42	16.74	13.13

Month	*Lewis James* Ranch		Dryden		Bricker Ranch		Ross Foster Ranch		Billings Ranch	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	0.68	0.63	0.69	0.57	0.87	0.47	0.60	0.63	0.70	0.35
Feb.	1.27	.89	1.30	.51	1.53	.65	1.25	.72	.50	.50
Mar.	.70	.38	2.12	.44	.87	.39	.50	.16	1.30	.77
Apr.	.47	.93	.84	.86	.95	.92	.45	.75	1.60	1.11
May	2.46	1.22	.83	1.75	.74	1.08	2.20	1.62	2.10	1.08
June	.26	1.41	0	1.10	0	1.43	0	1.32	.90	.43
July	2.42	2.97	1.22	1.09	1.86	.77	2.75	.58	5.70	2.37
Aug.	1.80	2.11	1.86	1.23	1.35	.83	1.65	.49	2.10	2.13
Sept.	3.11	3.20	2.78	1.75	4.12	1.86	1.37	2.46	3.80	4.53
Oct.	.41	1.22	.16	1.18	.35	1.06	.05	.97	.50	.87
Nov.	2.05	.83	1.87	.41	1.53	.35	.70	.14	1.98	.99
Dec.	0	.29	0	.45	0	.36	0	.25	1.65	1.08
Yearly	15.63	16.08	13.67	11.34	14.17	10.17	11.52	10.09	22.83	16.21

Month	W. A. Arledge Ranch		Hoffman Ranch		C. L. Arthur Ranch		Owens Ranch		Todd Field	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	1.27	0.74	0.20	0.43	0.19	0.76	1.07	0.39	1.44	0.55
Feb.	1.38	.51	.30	.49	.34	.41	.69	.54	.96	.84
Mar.	1.00	.49	.75	.33	1.06	.38	2.61	1.23	2.34	1.00
Apr.	1.45	1.20	.53	.36	.55	.31	1.80	1.20	1.73	1.82
May	2.54	1.84	.45	1.09	.50	1.10	1.12	1.45	1.15	1.09
June	.33	1.71	.13	2.08	1.30	1.87	.36	1.49		2.35
July	6.52	1.10	3.71	1.83	4.38	2.55	1.73	.59	2.47	.70
Aug.	1.93	1.16	5.05	2.36	3.50	2.39	.28	1.35	1.19	1.75
Sept.	1.77	1.91	2.25	1.81	2.25	1.50	1.06	2.45	1.01	3.14
Oct.	.11	1.49	1.75	1.21	.65	1.06	.41	.72	0	1.11
Nov.	1.16	.46	2.02	.50	1.65	.38	2.85	1.28	2.00	.73
Dec.	0	.53	0	.40	.60	.39	.38	.45	0	.30
Yearly	19.46	13.14	17.14	12.89	16.97	13.10	14.36	13.14		15.38

RAINFALL ON THE RIO GRANDE WATERSHED IN THE UNITED STATES

In Inches

Month	Wills Ranch		Terrell Plant (E. P. N. G. Co.)		† Latham Ranch		Cash Ranch			
	1968	Average	1968	Average	1968	Average	1967	1968	Average	
Jan.	1.07	0.50	0.76	0.47	2.00	1.02	0	1.22	0.57	
Feb.	1.07	.81	.69	.66	2.26	1.54	.68	1.37	.92	
Mar.	.95	.55	2.57	.54	1.12	.97	0	.83	.44	
Apr.	1.67	1.91	1.72	2.20	2.48	2.16	.45	.92	1.28	
May	3.28	1.77	.75	1.06	4.62	4.59	.35	2.16	1.67	
June	.81	1.62	.75	2.12	0	2.43	0	0	.54	
July	1.70	1.30	2.61	1.00	5.90	3.12	1.83	4.75	1.79	
Aug.	.43	1.62	.35	.57	7.12	3.66	2.97	1.33	2.21	
Sept.	2.53	3.22	2.89	2.23	2.30	4.74	4.46	2.06	3.05	
Oct.	0	.90	0	1.08	T	.90	.72	.37	.88	
Nov.	2.33	.79	2.19	.73	2.00	1.20	.86	1.47	.71	
Dec.	0	.33	0	.33	0	.58	.88	0	.56	
Yearly	15.84	15.32	15.28	12.99	29.80	26.91	13.20	16.48	14.62	

Month	Prosser Ranch No. 3		Pecos River Near Langtry Station		Dead Mans Canyon Near Comstock		Prosser Ranch No. 1		Continental Ranch	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	1.20	0.70	0.74		0.84		0.80	0.52	2.10	1.05
Feb.	1.70	.97	1.70		1.35		1.80	1.03	2.15	1.15
Mar.	.35	.41	.70		.50		.55	.34	.85	.52
Apr.	1.55	1.24	1.25		2.10		1.70	1.45	1.90	1.28
May	3.40	2.38	1.90		1.50		1.70	1.76	2.60	2.21
June	1.20	.95	1.00		1.90		.29	.86	1.70	1.30
July	2.10	1.62	2.80	2.45	4.00		4.35	2.51	7.70	2.85
Aug.	1.10	1.59	1.60	.94	1.30		1.10	1.90	2.65	1.60
Sept.	2.25	2.65	.73	2.06	1.50	1.47	2.30	2.59	1.40	2.98
Oct.	.70	1.12	1.15	1.29	2.30	1.45	.30	1.30	1.30	1.48
Nov.	1.00	.45	1.24	.72	1.00	.79	1.00	.45	1.50	.55
Dec.	0	.28	0	.15	0	.32	.05	.26	0	.24
Yearly	16.55	14.36	14.81		18.29		15.94	14.97	25.85	17.21

Month	Martin King Ranch		Brotherton Ranch		P. W. Kelly Ranch		Haby Ranch		Comstock	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	1.22	0.65	1.41	1.11	1.40	0.59	1.18	0.60	1.21	0.67
Feb.	1.86	.86	1.58	1.04	1.71	1.05	1.49	1.04	1.76	.90
Mar.	.60	.23	.89	.32	2.13	.91	1.29	.58	1.02	.59
Apr.	1.96	.92	1.57	1.02	2.24	1.20	2.36	1.23	2.04	1.36
May	1.45	1.54	2.16	1.26	2.13	1.79	1.92	1.02	1.03	1.89
June	1.55	1.54	2.01	2.13	2.61	2.07	2.78	2.27	2.46	2.23
July	2.68	1.22	3.81	.80	5.67	1.82	3.14	1.11	3.51	1.00
Aug.	2.44	.97	2.41	1.40	1.85	1.26	2.22	1.32	1.91	1.60
Sept.	.82	2.51	.99	2.43	1.29	1.92	.76	1.87	1.17	2.12
Oct.	.44	2.12	.46	1.67	1.37	1.78	.54	1.25	.60	1.82
Nov.	1.29	.46	1.26	.46	.69	.38	1.07	.43	1.39	.55
Dec.	.03	.44	0	.18	T	.37	.08	.24	.15	.72
Yearly	16.34	13.46	18.55	13.82	23.09	15.14	18.83	12.96	18.25	15.45

Month	Cow Creek Near Comstock		* Goodenough Spring Raft		Cow Creek Near Mouth		Feely		Lock Store	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	0.88	0.54	0.99	0.36	0.82	0.55	1.60	0.87	0.98	0.58
Feb.	1.34	.81	1.35	.62	1.42	.89	1.40	1.03	.99	1.11
Mar.	.75	.38	.60	.23	1.40	.63	1.30	.82	1.40	.82
Apr.	2.25	1.17	2.10	1.10	2.10	.95	2.90	1.72	1.35	1.27
May	.95	.84	.25	1.05		.88	2.30	2.18	4.02	2.38
June	2.03	1.41	1.65	2.19	1.40	1.19	2.70	2.16	.89	1.23
July	1.40	.58		.65	1.35	.59	2.60	.88		1.24
Aug.	1.66	1.15		.83		.97	.03	.71		1.27
Sept.	.74	1.86		3.18		2.66	1.50	2.16		3.10
Oct.	.32	1.19		1.99		1.41	1.70	1.70		.87
Nov.	.30	.24	.70	.35		.24	1.15	.59		.70
Dec.	T	.37	.40	.41		.56	0	.46		.27
Yearly	12.62	10.54		12.96		11.52	19.18	15.28		14.84

T Trace † Formerly Oberkampf Ranch * Formerly Goodenough Spring

RAINFALL ON THE RIO GRANDE WATERSHED IN THE UNITED STATES

In Inches

Month	W. E. Sawyer Ranch		Sub-Station 14		J. M. Baggett Ranch		J. S. Pierce Ranch		Whitehead Brothers Ranch	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	1.70	0.85	2.48	1.09	1.83	0.77	1.20	0.60	1.45	0.73
Feb.	1.40	.97	2.26	1.09	1.70	1.22	1.00	.78	1.90	1.12
Mar.	2.33	1.50	1.19	.97	1.03	.69			1.20	.70
Apr.	2.30	1.70	3.48	1.71	2.29	1.30			1.95	1.03
May	2.45	1.96	2.39	2.93	3.99	3.46			3.57	1.62
June	.80	.88	1.93	2.89	0	1.21			.68	1.24
July	3.40	2.25	2.61	2.12	3.09	1.06		.42	.10	1.15
Aug.	.40	1.24	1.32	1.78	1.52	1.89		3.05	.30	.93
Sept.	1.70	3.27	2.19	3.09		5.71		3.80	1.90	3.66
Oct.	.30	1.02	.41	2.21		1.59		1.65	.10	1.42
Nov.	1.90	1.23	2.07	.95		.61		.38	1.50	1.08
Dec.	.55	.58	.85	1.17		.87		.68	0	.27
Yearly	19.23	17.45	23.18	22.00		20.38			14.65	14.95

Month	Prosser Ranch No. 2		Bakers Crossing		Allen Dunbar Ranch		Erekson Ranch		Vinegarone	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	1.10	0.65	1.08	1.00	1.50	0.88	1.96	1.08	0.90	0.46
Feb.	2.10	1.25	1.68	1.21	2.00	1.43	1.80	1.37	2.00	1.15
Mar.	.40	.46	1.29	.65	1.80	.74	1.84	.70	.82	.42
Apr.	2.37	1.33	2.28	.99	1.10	2.40	1.80	2.17	1.85	1.02
May	1.95	2.01	3.05	2.34		2.59	2.95	2.50	1.90	1.01
June	1.00	1.28	1.60	1.90		3.50	2.91	3.43	1.80	1.89
July	3.80	2.18	5.07	1.39		1.87	.90	1.82	.95	.78
Aug.	1.10	1.84	1.71	1.22		2.05	1.45	1.53	.30	1.58
Sept.	2.25	2.87	1.66	3.12		3.83	1.41	3.40	1.95	3.27
Oct.	.40	1.05	.38	1.34		2.59	1.81	2.29	.10	1.31
Nov.	1.40	.52	1.61	.60		.77	2.31	.96	2.10	1.23
Dec.	T	.25	.07	.67		.63	.16	.38	.10	.28
Yearly	17.87	15.69	21.48	16.43		23.28	21.30	21.63	14.77	14.40

Month	Loma Alta		Dolan Springs		H. K. Fawcett Ranch		Ed. Crane Ranch		Hinds "AT" Ranch	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	1.27		1.40	0.70	1.30	0.80	1.26	0.87	0.92	0.63
Feb.	1.81	1.16	2.00	1.15	2.55	.85	1.72	1.27	1.92	1.10
Mar.	1.44	.82	1.55	.83	1.67	.87	1.02	.68	1.63	.60
Apr.	2.55	1.60	2.30	2.48	3.09	1.53	2.65	1.74	1.43	1.28
May	2.94	1.72	3.15	1.32	4.30	2.26	2.83	2.53	1.42	1.70
June	2.79	1.74	1.50	1.20		1.81	1.43	2.15	3.15	2.14
July	.53	1.12	2.43	1.19	0	.78		1.47	5.11	1.07
Aug.	.93	.88	.15	2.24	1.00	1.55		1.19	.89	1.15
Sept.	1.82	3.04	1.90	4.14	1.50	3.95		3.06	3.80	2.77
Oct.	.21	1.66	.30	1.23	.42	2.00		2.17	.86	2.41
Nov.	1.88	1.90	.85	.62	1.62	.76		.78	1.23	.59
Dec.	.15	.54	.10	.37	1.00	.49		.67	0	.56
Yearly	18.32		17.63	17.47		17.65		18.58	22.36	16.00

Month	H. T. Miers Ranch Headquarters		H. T. Miers Ranch No. 2		A. A. Baker Ranch		Gillis Ranch		Goldwire Ranch	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	0.86	0.79	1.06	0.63	1.05	0.44	1.09	0.52		
Feb.	1.80	1.41	1.88	1.19	1.64	1.00	1.73	1.15		
Mar.	2.23	.80	2.14	.93	.76	.54	2.16	.94		
Apr.	3.57	1.98	3.25	1.85	1.85	1.28	2.59	1.76		
May	2.28	2.65	1.31	1.99	2.14	1.83	1.90	1.78		
June	2.30	3.61	2.20	2.72	1.52	1.15	1.43	2.39		
July	1.00	1.41	1.75	1.10	4.20	.81	3.98	1.30		
Aug.	.75	1.23	.19	1.20	1.43	1.06	.50	1.36		
Sept.	1.80	3.20	1.99	3.83	1.38	3.13	2.57	2.69		
Oct.	.60	3.19	1.74	1.82	.64	1.48	.49	1.92		
Nov.	1.50	.84	1.55	.81	.99	.55	1.35	.68	1.08	
Dec.	0	.56	.07	.45	.14	.40	.09	.52	0	
Yearly	18.69	21.67	19.13	18.52	17.74	13.67	19.88	17.01		

T Trace

RAINFALL ON THE RIO GRANDE WATERSHED
IN THE UNITED STATES
In Inches

Month	Pafford Crossing		Big Satan Creek Station		Cliff Lowry Ranch		Lowry Ranch No. 2		Tuffy Whitehead Ranch	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	0.88	0.57			1.16	0.54	0.85	0.55	1.02	0.43
Feb.	1.65	.96			1.69	1.27	1.46	1.12	1.38	.98
Mar.	.70	.24			2.10	.65	2.81	1.20	1.68	.54
Apr.	3.10	1.33			3.04	1.99	2.96	2.67	3.39	1.38
May	1.60	1.74			2.12	2.49	3.99	2.26	1.64	1.39
June	2.00	2.40			2.33	1.65	2.85	2.05	3.21	1.54
July	2.82	.98			1.98	.60	2.02	.60	2.48	.79
Aug.	.15	1.01			.54	1.01	.16	.83	1.15	.67
Sept.	2.75	3.37			2.20	4.91	2.90	3.55	1.28	3.29
Oct.	.70	2.04			1.63	1.55	.93	1.46	.45	1.51
Nov.	1.30	.47	1.30		1.68	.72	1.56	.88	.99	.50
Dec.	0	.47	0		.17	.42	.09	.46	.08	.40
Yearly	17.65	15.58			20.64	17.80	22.58	17.63	18.75	13.42

Month	Stewart Ranch		Sellers Ranch		J. G. Brite Ranch		A. O. Baker Ranch		Hutto Ranch No. 1	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	1.23	0.51	1.00	0.52	0.94	0.46	1.12	0.68	1.14	0.60
Feb.	1.47	1.07	1.55	.86	1.42	1.21	1.56	.95	1.59	1.27
Mar.	1.86	.41	1.65	.45	2.32	.80	1.52	.79	1.01	.56
Apr.	2.81	1.73	3.45	1.57	3.75	2.22	4.28	3.95	2.36	2.26
May	2.20	1.60	2.70	1.61	3.00	2.52	3.80	2.23	1.25	1.06
June	1.98	2.36	2.70	2.72	3.63	1.82	3.66	2.18	2.13	1.64
July	1.68	1.17	1.55	.80	2.21	.80	2.02	1.00	1.90	.99
Aug.	.36	.65	.75	.92	.63	1.08	.27	.81	1.12	1.35
Sept.	2.02	3.56	1.35	2.14	1.84	3.91		4.08	1.28	4.74
Oct.	1.24	1.67	2.35	1.70	5.68	1.90		1.35	.73	1.17
Nov.	1.76	.62	1.13	.44	1.54	.59		.54	1.97	.95
Dec.	.06	.52	.38	.42	.10	.39		.54	.05	.50
Yearly	18.67	15.87	20.56	14.15	27.06	17.70		19.10	16.53	17.09

Month	Hutto Ranch No. 2		Wardlaw Ranch		Amistad Raft		Amistad Dam		Below Amistad Dam Station	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	0.93	0.53	1.02	0.60			1.00	0.48	1.13	0.48
Feb.	1.53	1.23	1.36	1.05			1.32	1.03	1.40	.77
Mar.	.91	.54	.96	.37			1.28	.68	.93	.37
Apr.	2.34	2.53	3.70	1.89			3.55	2.09	2.05	1.30
May	1.46	1.66	.69	1.99			1.10	2.22	1.50	1.88
June	1.80	2.01	1.60	2.11			2.19	1.35	2.85	2.00
July	2.38	.84	2.84	1.44			2.12	.66	2.30	.82
Aug.	.20	1.25	.28	1.23			.23	.90	.10	.91
Sept.	1.33	5.97	.96	3.31			1.14	4.46	1.10	2.69
Oct.	.33	1.09	.46	1.86			.66	1.10	.62	1.85
Nov.	1.98	.76	1.64	.57			1.52	.52	1.50	.50
Dec.	.03	.41	.02	.43	0.07		.66	.47	0	.34
Yearly	15.22	18.82	15.53	16.85			16.77	15.96	15.48	13.91

Month	Laughlin Air Force Base		Gillis Headquarters Ranch		Lewis Ranch		Maverick County Canal Headgate		Sultenfuss Ranch	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	0.76	0.57	1.40		1.16	0.81	1.62	0.56	2.65	1.12
Feb.	1.45	.99	1.80		1.23	1.24	1.52	1.10	2.16	1.79
Mar.	1.16	.44	1.20		1.08	.65	1.77	.66	2.28	1.28
Apr.	.63	1.96	3.10		2.04	2.61	1.22	1.76	2.10	3.43
May	.56	1.50	3.50		3.80	2.31	.48	2.13	1.23	1.66
June	2.34	3.17	2.40		1.87	2.27	1.30	2.21	2.60	2.50
July	2.70	1.44	1.50		.74	.36	1.00	1.53	.40	.16
Aug.	1.24	1.53	.90		.62	1.45	.46	1.28	.40	1.34
Sept.	1.52	3.30	1.40		1.53	6.20	2.38	3.08	1.50	5.36
Oct.	1.23	2.37	1.20		.43	1.89	1.80	1.95	0	1.60
Nov.	1.88	.78	2.19		1.94	.96	1.69	.66	2.81	1.32
Dec.	.07	.57	0		0	.67	.10	.56	0	.90
Yearly	15.54	18.62	20.59		16.44	21.42	15.34	17.48	18.13	22.46

RAINFALL ON THE RIO GRANDE WATERSHED IN THE UNITED STATES

In Inches

Month	Pinto Creek Station		Las Moras Creek		Wipff Ranch		Lateral No. 2 Spill		Normandy	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	0.90	0.44	2.00	0.79	3.70	0.83	2.10	0.69	3.96	0.86
Feb.	1.35	.88	1.47	1.28	1.25	1.03	1.20	.92	1.16	.83
Mar.	1.30	.58	1.74	.69	1.35	.73	1.65	.69	2.39	.97
Apr.	.80	1.49	.68	1.52	.90	1.79	.80	1.67	1.29	1.76
May	.50	1.70	2.85	2.19	3.20	1.88	2.05	2.32	3.39	2.48
June	1.85	2.93	.92	2.97	1.65	1.90	1.35	1.63	1.27	1.50
July	1.30	1.09	1.67	1.15	.60	1.54	2.30	1.84	1.99	1.90
Aug.	.45	.94	.36	1.39	.20	1.18	.60	1.56	.67	1.64
Sept.	2.05	3.36	2.17	4.30	1.80	3.15	1.80	3.06	1.67	3.38
Oct.	1.30	2.14	2.11	2.32	1.00	1.62	2.95	2.00	3.34	2.02
Nov.	1.30	.69	2.10	1.16	2.30	1.02	2.50	1.08	1.64	.89
Dec.	0	.54	.25	.71	.25	.64	.10	.58	1.19	.83
Yearly	13.10	16.78	18.32	20.47	18.20	17.31	19.40	16.04	23.96	19.06

Month	Lateral No. 12 Headgate		Lateral No. 15 Spill		Maverick Power Plant		Cooper Ranch		Coal Mine	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	3.15	0.70	3.55	0.74	3.44	0.78	0.30	0.44	1.43	0.53
Feb.	1.10	.69	1.15	.75	1.53	.83	1.15	.79	1.32	.88
Mar.	1.60	.68	1.55	.58	1.75	.92	1.00	.59	1.45	.77
Apr.	.75	1.88	.80	1.62	1.65	1.94	.60	1.80	.71	1.97
May	3.60	2.50	4.10	2.60	7.20	2.83	4.05	2.26	5.48	2.69
June	1.95	1.52	1.05	1.21	1.52	1.93	1.10	1.48	.89	1.29
July	1.70	1.54	1.30	1.69	1.35	1.36	.90	2.02	1.53	2.45
Aug.	.20	1.05	.10	1.02	.70	1.44	.30	1.22	.03	1.22
Sept.	1.25	2.92	1.65	2.29	2.09	2.77	3.50	3.15	5.33	3.49
Oct.	4.00	2.27	2.60	2.33	2.09	2.25	2.95	2.15	2.36	2.31
Nov.	2.50	.77	2.35	.69	2.11	.68	1.65	.66	1.73	.60
Dec.	T	.61	.05	.64	.13	.64	.25	.57	.05	.50
Yearly	21.80	17.13	20.25	16.16	25.56	18.37	17.75	17.13	22.31	18.70

Month	Elm Creek Station		Chittim Ranch		Eagle Pass		Cañon Diablo		Rosita Creek Siphon	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	1.45	0.44	1.20	0.44	1.45	0.63	1.10	0.49	1.20	0.41
Feb.	1.30	.74	1.40	.80	1.98	1.01	1.40	.81	1.40	.87
Mar.	1.15	.61	1.30	.07	1.43	1.31	1.75	1.44	1.60	.69
Apr.	.95	1.90	1.40	2.02	1.67	1.87	2.05	2.49	.95	1.92
May	5.55	3.01	6.35	3.10	5.46	4.41	9.10	5.48	7.00	2.93
June	1.00	1.04	1.25	.98	1.02	.87	.40	.50	.30	.95
July	.80	2.06	1.55	2.03	1.59	1.25	.85	.45	1.40	1.90
Aug.	T	1.12	T	1.16	T	1.77	T	1.13	.25	.83
Sept.	5.40	2.84	5.00	3.32	4.30	5.26	3.15	4.89	4.20	3.10
Oct.	2.05	2.34	2.35	2.51	2.39	1.32	3.15	1.27	2.20	2.24
Nov.	1.50	.61	1.20	.54	.48	.52	1.55	.75	1.75	.74
Dec.	T	.60	T	.61	.87	1.05	.05	.68	.50	.70
Yearly	21.15	17.31	23.00	17.58	22.64	21.27	24.55	20.38	22.75	17.28

Month	Weyrich Farm		Trees Farm		Rosita Creek Station		Farias Ranch		Indio Ranch	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	1.30	0.47	1.10	0.41	1.10	0.37	1.45	0.49	1.09	0.50
Feb.	1.50	1.07	1.09	.86	1.45	.74	2.05	1.23	1.77	.99
Mar.	1.80	.95	1.68	.65	2.20	.79	1.49	.72	1.38	.76
Apr.	1.40	2.60	2.09	1.94	1.30	2.48	2.79	2.71	1.42	2.91
May	5.10	3.78	7.40	2.89	5.50	2.55	6.43	3.23	6.52	2.86
June	.30	.50	.66	1.08	.20	.96	.42	1.51	.49	1.24
July	.80	.38	1.43	1.92	.95	1.00	2.33	2.43	4.93	2.34
Aug.	.20	.64	.23	.90	.20	1.01	1.13	1.40	.20	1.21
Sept.	2.80	3.77	3.42	2.70	2.65	2.85	2.23	3.92	2.63	3.91
Oct.	2.20	1.00	3.72	2.93	3.15	2.49	2.72	2.58	2.17	2.30
Nov.	1.50	.81	2.16	.68	1.95	.68	2.64	.90	1.90	.93
Dec.	.40	.69	.04	.62	.05	.62	.18	.84	.20	.69
Yearly	19.30	16.66	25.02	17.58	20.70	16.54	25.86	21.96	24.70	20.64

T Trace

RAINFALL ON THE RIO GRANDE WATERSHED IN THE UNITED STATES

In Inches

Month	El Indio		Van Dalsem Farm		Wuensche Farm		Keisling Farm		Cuervo Creek Station	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	1.37	0.77	0.95	0.40	1.06	0.61	1.16	0.45	0.90	0.61
Feb.	2.00	.96	1.70	1.04	1.61	1.10	1.56	1.05	1.40	.79
Mar.	.85	.67	1.05	.71	1.18	.80	1.65	1.01	1.00	.58
Apr.	1.70	1.82	2.60	2.68	3.49	2.09	3.19	2.61	2.70	2.00
May	5.80	3.34	4.30	2.85	4.93	2.85	4.11	2.82	1.85	2.39
June	.20	1.50	.20	1.21	.58	1.21	.71	1.20	.80	1.17
July	3.55	1.10	5.00	1.71	3.60	1.34	3.83	1.57	1.95	1.30
Aug.		1.89	.80	.91	1.41	1.22	1.27	1.01	.80	1.26
Sept.	3.00	3.17	4.90	3.82	3.44	3.41	3.40	3.12	2.20	3.27
Oct.		1.67	1.10	2.06	1.19	1.81	.96	1.86	.55	1.91
Nov.	2.85	.67	2.25	.73	1.92	.73	1.51	.63	1.30	.73
Dec.	.20	.67	.10	.70	.16	.61	.11	.96	.05	.59
Yearly		18.23	24.95	18.82	24.57	17.78	23.46	18.29	15.50	16.60

Month	Apache Ranch		La Mesa Ranch		Laredo Water Plant		Fort McIntosh (Laredo)		Los Isauros Ranch	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.		0.76	0	T	0.85	0.79	1.12	0.73	1.26	0.96
Feb.		1.06	2.00	1.75	1.47	.81	1.62	.87	1.38	1.24
Mar.	1.75	.35	2.00	1.75	.85	.56	1.18	.71	.75	.58
Apr.	2.00	1.67	2.00	2.35	2.17	1.09	2.28	1.28	.88	.52
May	3.75	2.36	2.50	1.25	.97	2.31	1.16	2.56	2.80	2.29
June	3.00	1.37	1.50	1.50	.56	1.92	1.43	2.06	3.28	2.41
July	2.75	1.54	2.00	1.00	2.40	1.18	3.03	1.41	2.00	.74
Aug.	1.50	2.19	0	3.35	.57	1.55	.46	1.79	.75	2.02
Sept.	4.25	3.38	5.50	10.30	4.81	3.04	5.11	2.82	5.05	5.65
Oct.	3.00	2.35	2.50	1.25	2.81	1.53	3.13	1.63	3.50	1.58
Nov.	1.20	.86	1.00	4.25	.85	.85	.09	1.14	0	.50
Dec.	0	.90	0	0	.03	.91	.68	.88	1.38	1.56
Yearly		18.79	21.00	28.75	18.34	16.54	21.29	17.88	23.03	20.05

Month	Corralitos Ranch		Huisache Ranch		Zapata Water Plant		El Peyote Ranch		Arroyo Tigre Chiquito	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	0.86	0.66	1.06	0.82	1.15	0.92	1.60	1.60	1.02	0.95
Feb.	2.09	.71	2.14	.89	1.85	.77	1.55	1.08	1.53	.90
Mar.	.50	.27	.50	.41	.60	.48	1.10	.60	.40	.35
Apr.	1.85	1.19	1.90	1.55	1.60	1.74	.35	1.40	.70	1.15
May	1.37	1.47	1.10	2.03	.20	2.71	2.30	3.65	2.10	2.35
June	2.05	2.22	1.28	1.96	1.37	1.49	3.25	3.52	2.29	2.03
July	4.18	.84	1.82	1.00	1.48	.91	4.50	2.17	1.21	.76
Aug.	1.00	1.74	.90	1.36	4.20	1.67	.65	1.73	.15	2.45
Sept.	5.65	2.86	10.35	3.37	9.58	3.96	3.90	6.87	7.00	4.64
Oct.	1.40	1.46	1.20	1.84	1.56	1.41	2.75	1.75	1.13	2.09
Nov.	T	.80	.10	.89	.22	1.05	.20	.77	.17	1.23
Dec.	.50	.53	.60	.75	0	.65	1.05	.45	.55	.67
Yearly	21.45	14.75	22.95	16.87	23.81	17.76	23.20	25.59	18.25	19.57

Month	Falcon Dam		Roma (International Bridge)		Garciasville		Los Ebanos		La Joya	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	0.98	0.85	1.00	0.93	1.08	1.00	1.05	1.21	0.96	1.21
Feb.	1.59	.81	1.00	1.02	.87	.89	.65	.71	.65	.91
Mar.	.45	.78	1.40	.81	.50	.42	.55	.45	.75	.43
Apr.	1.87	1.28	3.51	1.47	3.10	1.25	1.92	1.82	2.01	1.15
May	.54	2.40	0	1.96	2.79	2.01	2.10	1.87	1.30	1.99
June	2.60	2.43	2.80	1.97	4.60	2.06	2.75	1.89	1.87	2.45
July	1.94	.69	.86	.77	2.08	1.04	1.95	.52	3.04	.64
Aug.	1.88	2.57	1.32	2.24	2.88	1.54	3.30	2.03	2.85	1.73
Sept.	6.09	4.15	2.29	4.28	2.26	3.94	1.90	2.78	.70	3.26
Oct.	1.69	2.31	1.53	2.27	2.53	2.11	1.00	1.94	.70	1.82
Nov.	.34	1.21	0	.78	.20	1.15	.20	.80	.24	1.14
Dec.	.41	.69	0	.54	0	.79	0	.72	.05	1.08
Yearly	20.38	20.17	15.71	19.04	22.89	18.20	17.87	16.74	15.12	17.81

T Trace

RAINFALL ON THE RIO GRANDE WATERSHED IN THE UNITED STATES

In Inches

Month	HCWCID #6, Goodwin Pump No. 4B		HCWCID #6, Goodwin Pump No. 3		HCWCID #6, Goodwin Pump No. 5		HCWCID #6, Goodwin Pump No. 3A		HCWCID #6, Goodwin Pump No. 4	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	1.62	1.06	1.93	1.21	1.39	1.15	3.29	1.14	4.83	1.78
Feb.	.86	.95	.78	1.09	.93	1.01	1.53	1.12	.58	1.02
Mar.	.80	.57	.89	.66	.84	.61	.81	.65	.83	.56
Apr.	1.95	1.21	1.82	1.36	1.90	1.34	1.11	1.58	1.62	1.33
May	1.69	1.91	.96	2.06	2.19	2.65	1.76	1.89	.36	2.19
June	5.13	2.25	4.34	2.18	4.10	2.14	3.30	2.51	4.77	2.58
July	2.13	.60	4.32	.68	2.32	.59	3.65	.67	3.63	.71
Aug.	.52	1.35	.43	1.41	1.40	1.88	.25	1.29	.51	1.20
Sept.	1.22	3.18	1.48	3.05	1.61	3.60	.88	3.12	.45	3.99
Oct.	1.98	2.93	1.19	3.07	2.59	2.92	1.19	3.03	2.00	3.43
Nov.	0	1.14	.34	1.03	0	1.07	.33	1.12	.28	1.19
Dec.	0	.97	.06	1.16	.10	1.15	0	1.09	0	1.34
Yearly	17.90	18.12	18.54	18.96	19.37	20.11	18.10	19.21	19.86	21.32

Month	Penitas (Edinburg Pumping Plant)		New Mission Pumping Plant		O. C. Dale Farm		HCWCID #15 (Edinburg Office)		Edinburg Filtration Plant	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	1.77	1.34	0.60	0.73	4.25	1.49	2.65	1.27	2.83	1.34
Feb.	.79	1.02	.30	.70	1.04	1.14	1.22	1.02	.62	1.05
Mar.	.87	.53	.80	.61	1.41	.70	.93	.66	1.83	.79
Apr.	1.52	1.01	1.30	1.45	1.45	1.82	2.42	1.51	2.12	1.62
May	1.81	2.04	2.50	3.02	1.28	1.92	1.97	2.00	1.29	2.12
June	3.92	2.82	.40	2.56	4.33	2.63	3.11	2.26	2.21	2.36
July	3.29	.76	1.00	.55	3.39	.94	2.60	.78	1.78	.72
Aug.	1.04	1.38	0	1.32	.68	1.75	.88	1.58	.39	1.26
Sept.	.66	3.67	.50	2.30	2.47	3.36	.45	3.36	1.73	3.32
Oct.	.55	2.78	.85	2.10	3.12	3.36	6.54	2.82	2.77	2.48
Nov.	.58	1.18	0	.75	.34	1.38	.19	1.12	.25	1.28
Dec.	.07	1.32	0	1.08	.24	1.24	.09	1.11	.15	1.20
Yearly	16.87	19.85	8.25	17.17	24.00	21.73	23.05	19.49	17.97	19.54

Month	La Feria Pumping Plant		La Feria Materials Yard		CCWCID #19 (Adams Gardens)		San Benito Pump		Whipple Farm	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	6.85	1.53	1.81	1.16	2.14	0.94	4.20	1.25	5.35	1.62
Feb.	2.20	1.52	1.25	1.14	1.25	1.10	1.23	.91	1.25	1.73
Mar.	.80	.78	.98	.68	1.13	.63	.63	.86	.95	.64
Apr.	2.20	1.95	.86	1.38	.87	1.41	1.04	1.28	1.05	1.91
May	2.70	3.32	3.78	4.00	4.22	2.64	1.56	2.38	9.60	3.14
June	5.80	2.90	4.56	3.03	3.76	2.42	2.43	2.15	5.65	2.86
July	1.10	1.64	.62	1.19	.71	.76	.79	1.43	2.00	1.75
Aug.	3.32	2.64	1.38	2.20	1.36	1.95	1.23	1.89	2.15	2.51
Sept.	1.30	6.01	1.58	4.36	.97	3.12	.60	3.86	2.30	5.98
Oct.	3.50	4.06	2.67	3.05	1.96	2.68	2.45	2.30	2.95	3.30
Nov.	.65	2.38	.17	2.06	.27	1.53	.37	1.02	.85	1.56
Dec.	0	1.58	.09	2.50	.36	1.23	.67	1.39	.50	1.64
Yearly	30.42	30.31	19.75	26.75	19.00	20.41	17.20	20.72	34.60	28.64

Month	❶ CCWCID #11 (Bayview Dist. Office)		Los Fresnos Pumping Plant							
	1968	Average	1968	Average						
Jan.	4.67	1.48	5.40	1.37						
Feb.	1.35	1.62		1.56						
Mar.	1.34	.84		.52						
Apr.	1.01	1.72		1.78						
May	10.00	2.78		2.32						
June	3.10	2.13	4.50	3.55						
July	2.20	1.32	1.30	1.44						
Aug.	2.19	2.77	5.20	2.29						
Sept.	2.64	5.50	5.80	5.15						
Oct.	1.18	2.22	2.70	4.17						
Nov.	1.68	1.39	0	1.68						
Dec.	0	1.56	1.00	1.49						
Yearly	31.36	25.33		27.32						

❶ Average of 18 gages

RAINFALL ON THE RIO GRANDE WATERSHED IN MEXICO

In Inches

Tabulated below, in approximate downstream order, are monthly records of Mexican rainfall stations with averages for their periods of record. For location, elevation, period of record, type of gage in use, watershed subdivision in which the station is located, and the observer, see alphabetical listing of these stations shown on pages 140 through 144 in this bulletin. These rainfall records have not been published elsewhere. Records of daily rainfall amounts, where available, are on file in the office of the Mexican Section.

Detailed listings of the months and years for which records are available through 1956 may be found under "Index to Precipitation Records" in Water Bulletins 10, 14, 22 and 26.

Month	Juárez, Chihuahua		Zaragoza, Chihuahua		Garita Km. 28, Chihuahua		Samalayuca, Chihuahua		San Agustín, Chihuahua	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	0.47	0.39	1.93	0.51	0.39	0.34	0.39	0.36	0.28	0.38
Feb.	1.38	.44	1.30	.47	.79	.34	1.38	.48	.83	.31
Mar.	1.18	.40	1.18	.57	1.26	.35	1.22	.43	.83	.38
Apr.	.20	.33	.04	.17	.31	.12	.47	.16	.12	.16
May	0	.35	.04	.16	.12	.10	.16	.13	.16	.25
June	T	.65	T	.79	.08	.72	.08	.82	.08	.72
July	8.27	1.45	6.54	1.70	5.75	1.59	5.24	1.62	4.06	1.54
Aug.	1.06	1.49	2.20	1.00	2.48	1.64	5.94	2.00	1.26	1.03
Sept.	.08	1.30	T	1.65	0	1.47	.04	1.73	0	1.22
Oct.	.12	.97	.04	.38	.16	.65	.28	.56	.08	.55
Nov.	1.73	.53	2.13	.42	1.69	.35	1.42	.39	1.65	.33
Dec.	.35	.54	.04	.54	.39	.53	.31	.52	.47	.57
Yearly	14.84	8.84	15.44	8.36	13.42	8.20	16.93	9.20	9.82	7.44

Month	Guadalupe, Chihuahua		Tinajas, Chihuahua		Praxedis G. Guerrero, Chihuahua		San Antonio, Chihuahua		Porvenir, Chihuahua	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	0.39	0.32	0.51	0.27	0.20	0.30	0.51	0.33	0.31	0.33
Feb.	.75	.37	.91	.31	.39	.28	.79	.27	1.02	.36
Mar.	.63	.46	.87	.34	.83	.39	.98	.32	.47	.27
Apr.	.16	.08	.24	.10	.04	.07	.28	.07	.12	.14
May	.55	.22	0	.22	.43	.22	.04	.16	0	.44
June	.04	.76	.12	.75	.08	.82	0	1.24	.12	.95
July	4.57	1.27	3.23	1.60	6.77	1.80	5.43	2.17	3.66	1.55
Aug.	3.11	1.42	3.54	1.76	3.39	1.40	3.90	2.40	3.86	1.78
Sept.	0	1.09	0	1.21	.08	.87	1.54	1.39	T	.97
Oct.	.12	.97	.59	.85	.04	.88	.31	.84	.20	.86
Nov.	1.81	.44	1.57	.40	1.34	.43	1.50	.53	1.65	.50
Dec.	.20	.38	.20	.36	0	.36	.16	.48	.24	.39
Yearly	12.33	7.78	11.78	8.17	13.59	7.82	15.44	10.20	11.65	8.54

Month	Vado de Cedillos, Chihuahua		Los Barriles, Chihuahua		Banderas, Chihuahua		Luis L. León, Chihuahua		El Cuarenta, Chihuahua	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	0.87	0.29	0.63	0.56	0.28	0.09	0.43	0.34	0.20	0.19
Feb.	.83	.25	.67	.31	.83	.20	1.02	.24	.67	.28
Mar.	.67	.18	.75	.25	.28	.25	.79	.21	.55	.31
Apr.	.08	.18	.43	.20	.08	.05	.28	.17	.39	.11
May	T	.33	T	.35	0	.16	.24	.29	T	.16
June	.55	1.29	.20	1.38	.28	1.12	T	1.32	.63	.96
July	4.17	1.64	6.02	2.13	3.86	1.25	4.57	1.71	5.24	1.67
Aug.	3.90	2.01	3.86	2.62	3.66	2.99	3.19	2.11	5.28	2.48
Sept.	.39	1.07	T	1.86	T	1.14	T	1.02	.08	1.43
Oct.	.47	1.02	1.38	1.26	.55	.58	.55	1.05	1.10	.66
Nov.	1.81	.40	2.32	.76	1.50	.40	1.42	.53	2.01	.56
Dec.	.24	.45	.20	.48	.20	.20	.24	.39	.12	.42
Yearly	13.98	9.11	16.46	12.16	11.52	8.43	12.73	9.38	16.27	9.23

T Trace

RAINFALL ON THE RIO GRANDE WATERSHED IN MEXICO

In Inches

Month	El Cuervo, Chihuahua		El Llano, Chihuahua		Carichic, Chihuahua		Siquifichic, Chihuahua		El Vergel, Chihuahua	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	0.08	0.26	0.12	0.23	2.48	0.58	1.30	1.15	2.68	1.87
Feb.	.75	.29	.47	.18	1.97	.68	1.97	.60	1.57	.82
Mar.	.55	.20	.67	.32	.71	.23	1.18	.35	1.85	.68
Apr.	.94	.30	.59	.22	1.18	.17	1.69	.29	3.94	.65
May	T	.39	.08	.21	.71	.36	0	.41	.63	.78
June	.31	1.38	.20	1.31	2.40	1.97	1.57	1.86	1.42	3.06
July	7.09	1.86	4.09	1.30	7.32	6.14	6.38	5.23	11.89	6.96
Aug.	2.09	3.12	3.74	2.82	5.98	5.08	5.87	5.57	4.37	6.93
Sept.	1.18	1.96	2.68	2.90		5.00	2.68	3.07	7.52	5.23
Oct.	.20	.66	1.10	.81		1.22	.04	1.11	1.14	1.70
Nov.	.28	.11	1.10	.38		.69	1.50	.34	2.13	.60
Dec.	0	.08	0	.27		.93		1.13	.59	1.84
Yearly	13.47	10.61	14.84	10.95		21.05		21.11	39.73	31.12

Month	Balleza, Chihuahua		El Sitio, Chihuahua		La Boquilla, Chihuahua		San Antonio, Durango		Estación Rosario, Durango	
	1968	Average	1968	Average	1968	Average	1968	Average	1962	1963
Jan.	0.87	0.40	T	0.27	0.39	0.31	0.31	0.35		0
Feb.	1.18	.33	1.22	.38	.98	.15	.83	.11		0
Mar.	1.50	.14	.91	.15	.83	.17	1.26	.10		T
Apr.	.91	.23	.63	.23	1.50	.19	.94	.26		.31
May		.22	0	.53	.43	.55	.16	.56		.71
June	.43	1.55	.04	1.93	.43	1.43	.31	1.79		.91
July	9.13	4.54	7.83	4.18	6.93	2.91	7.28	4.30	3.82	4.72
Aug.	4.45	4.82	4.76	4.94	3.62	2.95	4.41	3.74	1.18	5.04
Sept.	4.06	3.39	6.30	3.64	2.80	2.93	8.78	4.05	3.11	3.94
Oct.	.91	.86	.20	.76	.24	.90	.43	1.01	1.50	1.81
Nov.	.59	.49	.43	.41	.04	.32	.71	.21	0	T
Dec.	T	.53	.39	.40	.16	.38	.71	.26	.08	.08
Yearly		17.50	22.71	17.82	18.35	13.19	26.13	16.74		17.52

Month	Estación Rosario, Durango						Ojo Caliente, Chihuahua		Villa Coronado, Chihuahua	
	1964	1965	1966	1967	1968	Average	1968	Average	1968	Average
Jan.	0.16	0.08	1.42	0.35	0.35	0.39	0.43	0.20	0.04	0.46
Feb.	.08	.63	.35	.20	.94	.37	1.18	.17	.43	.18
Mar.	.20	0	0	0	1.61	.30	.63	.18	1.50	.38
Apr.	0	.16	.55	T	.87	.32	1.14	.19	1.77	.50
May	.79	.08	4.57	.04	.47	1.11	.08	.54	0	.57
June	2.83	1.18	2.36	8.78	.51	2.76	.87	1.73	.63	1.76
July	3.86	2.24	2.80	4.06	12.32	4.83	9.06	3.21	6.57	4.37
Aug.	2.99	3.86	7.99	8.90	5.51	5.07	3.46	2.69		4.02
Sept.	5.20	4.92	5.31	2.95	11.46	5.27	2.56	2.53		4.23
Oct.	1.26	0	2.52	.75	1.50	1.33	.67	1.19		1.09
Nov.	T	.39	1.18	.04	1.02	.38	.04	.13		.34
Dec.	.20	1.30	.51	.98	.83	.57	.47	.28		.42
Yearly	17.57	14.84	29.56	27.05	37.39	22.70	20.59	13.04		18.32

Month	Santa Bárbara, Chihuahua		Valle Allende, Chihuahua		Escalón, Chihuahua			Jiménez, Chihuahua		
	1968	Average	1968	Average	1967	1968	Average	1968	Average	
Jan.	0.67	0.53	0.28	0.28	0.20	0.59	0.45	0.35	0.26	
Feb.	.91	.56	1.02	.20	0	.83	.21	1.02	.12	
Mar.	1.77	.39	.63	.10	.35	.67	.10	.87	.10	
Apr.	.87	.28	1.65	.31	T	1.26	.37	.39	.14	
May	.28	1.15	.12	.72	.04	.35	.61	.20	.44	
June	.43	2.71	1.02	2.16	2.17	.67	1.56	.12	1.10	
July	9.76	3.89	6.69	3.44	1.02	7.52	2.38	8.35	3.25	
Aug.	4.02	5.31	3.82	4.74	3.19	2.99	2.69	2.32	2.23	
Sept.	5.91	5.60	10.47	4.50	.94	4.57	2.98	0	2.28	
Oct.	.47	.66	.98	.99	T	.28	1.02	0	1.41	
Nov.	.16	.29	.43	.11	T	.08	.20	.28	.15	
Dec.	.31	.58	.04	.31	.35	.94	.30	.12	.24	
Yearly	25.56	21.95	27.15	17.86	8.26	20.75	12.87	14.02	11.72	

T Trace

RAINFALL ON THE RIO GRANDE WATERSHED IN MEXICO

In Inches

Month	Parral, Chihuahua		Camargo, Chihuahua		Santa Rita, Chihuahua		Victoria, Chihuahua		Tacubaya, Chihuahua	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	0.75	0.22	0.47	0.46	0.47	0.43	0.31	0.19	0.63	0.16
Feb.	.83	.17	1.10	.25	1.69	.35	1.69	.40	1.65	.46
Mar.	.98	.12	.98	.16	.91	.20	.75	.21	.75	.15
Apr.	2.13	.21	1.22	.23	.94	.32	.47	.24		.29
May	T	.45	.04	.68	.12	.59	.04	1.11	.08	1.13
June	.55	1.80	.43	1.73	.08	1.74	1.73	2.55	.16	1.92
July	15.71	4.27	9.49	3.26	5.47	2.35	6.38	2.45	9.53	4.05
Aug.	5.51	4.26	4.25	2.69	5.91	2.49	4.65	3.64	1.97	2.27
Sept.	9.84	4.34	2.68	2.98	3.07	2.18	3.15	2.56	2.95	3.18
Oct.	.39	1.19	1.10	1.11	.04	.85	.20	.43	0	.65
Nov.	.31	.48	0	.34	.35	.19	T	.03	T	.05
Dec.	.75	.38	.55	.44	0	.44	.39	.33	.55	.60
Yearly	37.75	17.89	22.31	14.33	19.05	12.13	19.76	14.14		14.91

Month	Rosetilla, Chihuahua		Nonoava, Chihuahua		La Cieneguilla, Chihuahua		El Maguey, Chihuahua		Tres Hermanos, Chihuahua	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	0.43	0.43	0.20	0.09	0	T	0.24	0.30	0	0.20
Feb.	.67	.13	.31	.34	.94	.26	1.38	.26	1.02	.18
Mar.	.63	.12	.87	.54	.87	.17	.71	.15	.59	.14
Apr.	2.72	.30	1.22	.41	.39	.10	.20	.15	0	.03
May	T	.27	0	.07	0	.35	T	.47	0	.35
June	.59	1.13	.04	1.51	0	2.72	.28	1.85		2.22
July	10.75	2.61	12.20	7.80	6.65	3.84	7.95	3.98	16.38	5.22
Aug.	5.08	2.68	3.07	3.86		3.87	5.55	3.99		2.85
Sept.	3.03	1.99	1.14	1.58		3.48	5.28	3.62		1.70
Oct.	.24	.77	2.36	1.18		.43	.43	.84		.83
Nov.	.08	.19	.12	.34		.18	.16	.16		.23
Dec.	.39	.38	T	.63		.43	.55	.37		.25
Yearly	24.61	11.00	21.53	18.35		15.83	22.73	16.14		14.20

Month	Villalba, Chihuahua		Las Vírgenes, Chihuahua		Km. 135, Chihuahua		Km. 99, Chihuahua		Delicias, Chihuahua	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	0.16	0.34	0.16	0.28	0.20	0.08	0.55	0.12	0.31	0.36
Feb.	.71	.14	.67	.10	.79	.16	.87	.26	.63	.13
Mar.	.47	.06	.28	.04	.51	.10	.35	.11	.35	.11
Apr.	1.34	.19	1.65	.23	1.30	.41	1.50	.29	2.52	.28
May	.04	.36	T	.28	.08	.46	0	.45	.16	.29
June	2.28	1.12	.79	1.14	.20	1.59	.98	1.82	.28	1.17
July	9.45	3.40	9.88	2.37	9.13	2.47	8.15	2.78	7.87	2.47
Aug.	5.24	2.98	7.20	2.49	4.92	3.12	4.72	2.70	4.33	2.56
Sept.	1.89	2.49	3.54	1.98	2.01	2.56	3.27	2.57	4.80	2.08
Oct.	.28	.96	.31	.73	.28	.49	.31	.63	.16	.81
Nov.	.04	.26	.04	.23	.16	.18	.04	.23	.08	.25
Dec.	.55	.40	.51	.37	.31	.29		.49	.35	.41
Yearly	22.45	12.70	25.03	10.24	19.89	11.91		12.45	21.84	10.92

Month	Lázaro Cárdenas, Chihuahua		Meoqui, Chihuahua		Las Burras, Chihuahua		Cd. Guerrero, Chihuahua		Bachiniva, Chihuahua	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	0.31	0.28	0.24	0.18	0.16	0.26	0.39	0.61	0.35	0.44
Feb.	.71	.19	.79	.16	.63	.16	1.89	.42	.79	.17
Mar.	.63	.11	.24	.09	.35	.13	1.18	.21	1.57	.33
Apr.	.98	.37	2.60	.62	1.02	.22	1.22	.20	T	.09
May	.24	.51	T	.45	T	.32	T	.27	0	.17
June	.16	1.86	.16	1.32	.08	1.13	.43	1.56	T	1.69
July	10.00	2.88	8.35	2.50	7.52	2.58	9.72	4.70	28.43	6.51
Aug.	3.03	2.55	4.09	2.40	3.31	2.50	6.57	5.31	8.03	4.73
Sept.	2.24	2.40	2.13	1.51	1.18	1.96	2.20	3.05	.59	2.39
Oct.	.39	.54	.28	.64	.35	.52	.67	1.17	.83	1.14
Nov.	.16	.24	.04	.09	.12	.15	1.22	.52	.16	.33
Dec.	0	.23	.43	.46	.28	.39	.08	.72	0	.47
Yearly	18.85	12.16	19.35	10.42	15.00	10.32	25.57	18.74	40.75	18.46

T Trace

RAINFALL ON THE RIO GRANDE WATERSHED IN MEXICO

In Inches

Month	Cuauhtémoc, Chihuahua		La Trasquila, Chihuahua		Colonia Anáhuac, Chihuahua		Presa Chihuahua, Chihuahua		Chihuahua, Chihuahua	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	0.31	0.28	0.28	0.16	0.39	0.29	0.16	0.11	0.08	0.28
Feb.	.98	.14	1.26	.39	.55	.26	.91	.19	.91	.20
Mar.	.94	.13	.55	.13	1.18	.19	.94	.20	.91	.22
Apr.	1.65	.23	1.65	.25	2.09	.36	1.34	.27	1.26	.20
May	.04	.34	.08	.35	T	.47	.12	.70	.35	.37
June	1.38	1.55	.04	1.41	.67	1.59	.04	2.88	.04	1.49
July	10.24	4.77	5.12	3.69	14.49	5.50	13.07	4.83	7.87	3.42
Aug.	2.99	4.12	3.94	3.08	4.68	5.15	7.56	4.63	4.33	3.38
Sept.	3.15	2.70	.08	2.94	2.64	3.42	1.65	2.82	1.26	2.78
Oct.	2.32	1.07	.47	.62	2.01	1.00	.35	.79	.31	.82
Nov.	1.26	.28	.39	.39	.51	.34	.39	.25	.31	.42
Dec.	.24	.44	0	.31	0	.30	.20	.42	.20	.37
Yearly	25.50	16.05	13.86	13.72	29.21	18.87	26.73	18.09	17.83	13.95

Month	Majalca, Chihuahua		Planta Zootécnica, Chihuahua		Los Ojos, Chihuahua		Los Pozos, Chihuahua		Villa Aldama, Chihuahua	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	0.75	0.30	0.20	0.28	0.16	0.46	0.16	0.35	0.12	0.25
Feb.	1.06	.28	1.10	.17	.87	.22	.55	.23	.63	.11
Mar.	.87	.41	.83	.20	.83	.18	.79	.16	1.26	.30
Apr.	1.77	.63	1.02	.32	1.61	.33	.94	.26	1.18	.24
May	.08	.94	.16	.34	0	.61	.24	.54	.04	.44
June	.51	2.87	.28	1.83	T	1.19	.16	1.34	T	2.11
July	11.54	5.91	10.75	3.75	8.46	3.77		2.17	7.24	3.50
Aug.	7.52	5.36	5.59	4.13	5.59	2.88	3.70	2.49	4.21	3.11
Sept.	1.81	3.32	1.02	2.28	.87	2.90	.51	2.16	1.38	2.71
Oct.	.35	.58	.43	.89	.20	.93	.16	.83	.16	.45
Nov.	.43	.24	.31	.28	T	.28		.43	.31	.24
Dec.	T	.24	.20	.40	0	.24	.08	.24	0	.36
Yearly	26.69	21.08	21.89	14.87	18.59	13.99		11.20	16.53	13.82

Month	La Campana, Chihuahua		Las Choyas, Chihuahua		Cerros Prietos, Chihuahua		Presa El Granero, Chihuahua		El Anteojo, Chihuahua	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	0.08	0.28	0.20	0.31	0.12	0.14	0.28	0.11	T	0.01
Feb.	.94	.31	.83	.34	.83	.20	.39	.24	.67	.18
Mar.	.87	.18	.47	.10		.04	.16	.22	.24	.07
Apr.	1.97	.27	1.18	.28		.07	1.10	.41	.94	.45
May	.43	.25	.12	.26		.42	T	.14	.08	.55
June	.08	1.83	1.02	1.06		1.57	0	1.74	T	2.48
July	4.09	3.14	5.75	2.68		1.45	4.02	1.54	9.29	2.37
Aug.	4.57	3.41	3.31	3.05		4.43	2.68	2.70	3.03	2.53
Sept.	.39	2.95		1.71		2.06	.63	2.30	.91	1.62
Oct.	.43	.93		1.03		1.14	.04	.31	.47	.39
Nov.	.24	.26		.27		.20	.63	.15	.20	.09
Dec.		.33		.27		.30	0	.26	.08	.40
Yearly		14.14		11.36		12.02	9.93	10.12	15.91	11.14

Month	Parrita, Chihuahua		Maijoma, Chihuahua		Cuchillo Parado, Chihuahua		Coyame, Chihuahua		Las Varas, Chihuahua	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	T	0.06	0.16	0.53		0.13	0.47	0.15	0.16	0.33
Feb.	1.26	.27	.47	.35		.08	1.02	.27	1.34	.57
Mar.	.55	.08	.94	.15		.14	.28	.11	.47	.19
Apr.	1.50	.71	1.06	.26		.09	1.61	.38	1.26	.23
May	0	.30	.47	.65	0.39	.60	.04	.48	.08	.24
June	.08	2.11	.24	1.50	.12	1.19	0	1.40	.04	1.06
July	6.93	2.47	5.28	2.73	6.85	2.29	4.25	1.89	5.75	3.26
Aug.	4.45	3.24	4.37	3.30	1.89	2.19	3.39	1.85	3.39	3.64
Sept.	.47	2.83	2.44	2.60	.59	.85	.98	2.30	.08	2.58
Oct.	.31	.99	.24	1.02	.24	.30	.94	.78	.39	1.22
Nov.	.39	.24	.39	.38	.16	.24	1.02	.30	.39	.49
Dec.	.08	.16	.35	.38	0	.14	0	.18	0	.28
Yearly	16.02	13.46	16.41	13.85		8.24	14.00	10.09	13.35	14.09

T Trace

RAINFALL ON THE RIO GRANDE WATERSHED IN MEXICO

In Inches

Month	Gallego, Chihuahua		El Sueco, Chihuahua		Ojinaga (IB&WC), Chihuahua		Ojinaga (M. S. of Mexico), Chihuahua		Potrero del Llano, Chihuahua	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	0.16	0.22	0.55	0.44	0.16	0.44	0.28	0.34	0.39	0.13
Feb.	1.61	.48	1.14	.52	.24	.26	.28	.22	.51	.29
Mar.	.75	.16	.59	.26	.47	.14	.75	.19	.24	.75
Apr.	1.46	.23	1.46	.26	.98	.28	1.10	.27	1.06	.30
May	T	.18	T	.10	.28	.38	.83	.55	.51	.28
June	.43	1.03	.20	.74	.04	1.26	T	1.00	0	1.55
July	6.26	2.62	3.78	2.71	3.50	1.27	4.06	1.30	6.57	2.09
Aug.	4.57	3.68	2.68	3.92	1.89	1.50	2.40	1.46	3.31	2.51
Sept.	1.02	2.20	.08	2.23	.87	1.22	1.10	1.43	.94	1.42
Oct.	1.73	1.17	.83	.87	.24	.83	.31	.93	.31	.40
Nov.	.20	.30	.47	.48	1.14	.38	1.42	.39	.71	.15
Dec.	T	.21	T	.20	0	.28	0	.41	0	.46
Yearly	18.19	12.48	11.78	12.73	9.81	8.24	12.53	8.49	14.55	10.33

Month	Manuel Benavides, Chihuahua		Sierra Mojada, Coahuila		Mina La Borrada, Coahuila		Las Norias, Coahuila		Santa Rosa, Coahuila	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	0.59	0.14	1.06	0.56	0.43	0.30	0.08	0.44	1.18	0.93
Feb.	.91	.22	.43	.27	.87	.42	.16	.52	.98	.80
Mar.	1.26	.31	1.22	.32	.35	.21	.16	.27	.71	.47
Apr.	1.06	.33	1.26	.30	1.57	.41	.08	.69	1.42	.98
May	.63	1.00	.16	1.03	.08	.90	.20	1.31	0	.88
June	.04	1.56	1.65	2.33	1.02	1.93	.24	2.34	.98	1.65
July	5.59	2.33	6.54	2.80	3.11	1.11	.28	1.81	.31	1.43
Aug.	4.84	2.69	6.22	2.81	4.61	2.00	.39	1.86	.79	.86
Sept.	.28	1.78	4.76	2.97	.67	1.79	.28	2.15	.98	1.98
Oct.	.28	.64	0	1.28	2.48	1.14	.04	1.35	0	2.32
Nov.	.35	.15	.35	.51	1.65	.39	.08	.38	0	1.00
Dec.	0	.24	.55	.63	.31	.24	.08	.46	0	.41
Yearly	15.83	11.39	24.20	15.81	17.15	10.84	2.07	13.58	7.35	13.71

Month	L. D. 8, Coahuila		San Fernando, Coahuila		El Cedrito, Coahuila		Hacienda San Miguel, Coahuila		San Gregorio, Coahuila	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	1.33	0.72	0.79	0.30	0	0.17	0.94	0.28	1.18	0.28
Feb.	.75	.86	1.34	.71	1.97	.80	1.89	.64	1.57	.71
Mar.	.48	.33	.67	.25	.28	.15	.55	.80	1.06	.25
Apr.	2.79	1.90	2.28	1.14	1.89	1.17	3.39	1.62	4.25	1.61
May	.50	.80	.98	.91	1.50	1.25	3.70	1.90	1.77	1.55
June	.93	.72	.79	.70	1.18	.98	1.34	2.54	1.26	1.33
July		1.50	2.36	.69	1.34	1.16	3.35	1.25	6.06	1.04
Aug.		2.50	1.57	1.32	1.85	1.56	1.18	1.00	1.14	2.01
Sept.		2.20	1.69	3.20	2.44	3.03	1.81	3.46	.71	3.74
Oct.		2.62	.79	1.31	0	1.28	.43	1.78	2.17	1.66
Nov.		.20	2.13	.38	1.50	.25	.24	.36		.16
Dec.		.34	0	.34	0	.21	.51	.36		.13
Yearly		14.69	15.39	11.25	13.95	12.01	19.33	15.99		14.47

Month	L. D. 12, Coahuila		Presa Amistad, Coahuila		Manantial Maria, Coahuila		El Paisano, Coahuila		Presa Centenario, Coahuila	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	1.20	0.68	0.87	0.32	0.79	0.31	0.94	0.28	0.67	0.45
Feb.	.75	.74	1.38	.84	1.50	.83	1.38	.84	1.57	1.08
Mar.	.63	.71	1.77	.61	.75	.33	1.73	.44	1.73	.65
Apr.	2.57	2.37	2.68	2.15	2.64	1.85	4.06	1.65	.31	1.50
May	1.25	.96	1.57	1.66	0	1.65	1.34	1.56	.79	1.44
June	1.71	1.29	1.34	1.13	.67	1.14	.71	1.60	2.09	2.12
July		.38	2.52	.46	3.98	.61	3.90	.72	3.62	.98
Aug.		1.74	.39	.88	T	.79	.39	1.25	.51	1.63
Sept.		3.11	.94	4.31	.59	4.09	.94	4.31	1.42	6.39
Oct.		2.03	.67	1.15	.75	1.08	1.89	1.36	.47	1.20
Nov.		.25		.18		.07		.28	2.17	1.01
Dec.		.43		.19		.28		.27	0	.47
Yearly		14.69		13.88		13.03		14.56	15.35	18.92

T Trace

RAINFALL ON THE RIO GRANDE WATERSHED IN MEXICO

In Inches

Month	Cd. Acuña, Coahuila		Cd. Acuña Km. 22 SE, Coahuila		Presa Cabeceras, Coahuila		Presa San Miguel, Coahuila		Palestina, Coahuila	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	0.63	0.58		0.14	0.91	0.47	1.22	0.55	0.91	0.94
Feb.	1.54	.86	0.71	.91	1.42	.80	1.93	1.08	1.93	1.02
Mar.	1.34	.81	1.50	.57	1.65	.74	1.50	.83	1.93	.67
Apr.	2.68	1.60	.71	2.08	.98	1.69	.71	1.11	.75	1.68
May	.79	2.42	.87	3.71	2.20	2.20	2.05	1.91	.39	2.48
June	.87	2.47	1.02	1.75	.71	1.15	2.17	1.69	2.09	2.34
July	4.06	1.06	1.89	.55	5.08	1.31	3.46	.83	4.45	1.78
Aug.	.39	1.40	.98	1.08	0	.66	.35	1.06	.39	1.87
Sept.	1.10	3.32	2.24	5.33	2.44	7.27	1.81	4.92	1.57	3.22
Oct.	1.93	2.08	1.97	2.40	1.26	1.51	.51	1.39	.31	1.71
Nov.	1.18	.55		.94	1.73	.78	1.50	.80	1.93	.72
Dec.	0	.52		.59	0	.38	0	.66	0	.83
Yearly	16.51	17.67		20.05	18.38	18.96	17.21	16.83	16.65	19.26

Month	Chupadero, Coahuila		Jiménez, Coahuila		El Remolino, Coahuila		El Moral Km. 17, SW, Coahuila		El Moral, Coahuila	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	1.34	0.56	1.26	0.68	0.71	0.41	1.18	0.35	2.76	0.92
Feb.	1.61	.94	1.57	.98	.79	.65	.91	.78	1.14	.87
Mar.	1.34	.58	2.20	.83	1.06	.59	1.18	.83	1.57	1.03
Apr.	.67	1.99	.59	1.86	1.10	2.02		1.57	1.38	1.76
May	.63	1.56	2.52	2.71	5.00	2.23		3.52	3.86	3.00
June	1.18	2.21	1.34	2.81	1.14	3.09		.96	.79	.88
July	2.05	1.01	2.66	1.42	10.08	1.66		.19	T	.14
Aug.	.24	1.21	.31	1.50	0	1.00		.99	.67	1.75
Sept.	3.70	4.57	2.28	3.29	3.74	4.83		4.92	1.34	4.35
Oct.	.94	2.18	3.03	2.24	2.52	2.74		1.10	0	.76
Nov.	.63	.66	1.14	.79	1.38	.52		.48		.39
Dec.	.16	.48	.87	.72	0	.53		.66		.66
Yearly	14.49	17.95	19.79	19.83	27.52	20.27		16.35		16.51

Month	Piedras Negras, Coahuila		Piedras Negras, Km. 22 SW, Coahuila		Allende, Coahuila		Villa Guerrero, Coahuila		Rancho San Diego, Coahuila	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	1.57	0.66	0.83	0.46	1.22	0.58	0.79	0.45	0.47	0.11
Feb.	2.32	.98	1.38	.88	1.26	1.11	1.73	.82	1.18	.47
Mar.	1.14	.76	1.14	.99	1.38	.44	1.18	.57	2.52	.58
Apr.	2.36	2.17	1.02	2.87	1.42	1.23	3.39	2.05	2.09	1.79
May	4.84	3.10	3.82	3.08	2.99	2.28	1.81	2.65	1.18	3.09
June	1.81	1.62	2.09	.81	.39	1.65	0	1.37	0	1.48
July	1.50	2.13	2.68	.79	1.65	1.55	2.80	1.21	5.91	1.58
Aug.	.04	1.85	.47	1.47	1.06	2.32	1.89	1.48	1.50	1.50
Sept.	6.30	3.35	3.39	5.04	3.31	3.25	3.15	4.71	1.77	3.83
Oct.	2.09	2.74	1.18	2.84	.43	1.76	.43	2.35	0	1.00
Nov.	.71	.68		.32	1.57	.50	1.61	.55	1.30	.59
Dec.	.59	.68		.77	.16	.59	0	.67	1.26	.59
Yearly	25.27	20.72		20.32	16.84	17.26	18.78	18.88	19.18	16.61

Month	Rancho Mercedes, Coahuila		Villa Hidalgo, Coahuila		Colombia, Nuevo León		Rancho Los Vidrios, Tamaulipas		Nuevo Laredo (M. S. of Mexico), Tampe.	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	2.05	0.34	0.87	0.77	0	0.09	T	0.94	1.18	0.77
Feb.	2.01	.77	1.46	.98	1.81	.76	1.65	1.06	1.85	.92
Mar.	2.24	.94	1.46	.61	1.26	.90	1.18	.41	1.38	.66
Apr.	3.11	2.55	3.62	1.73	1.54	1.67	2.05	1.59	1.30	1.21
May	3.86	2.93	.59	2.44	1.57	3.06	1.57	2.56	1.46	2.24
June	1.73	1.30	3.39	1.47	.79	1.49	1.57	1.60	1.42	1.88
July	.63	.75	1.50	.82	1.77	.83	2.40	1.25	3.35	1.34
Aug.	1.26	1.43	.59	1.95	.91	3.84	.47	2.11	.39	1.53
Sept.	1.14	2.20	7.56	3.38	6.97	6.42	4.45	3.00	4.65	2.78
Oct.	1.30	1.04	4.13	1.76	6.61	1.89	6.69	2.36	3.78	1.42
Nov.	1.85	1.01	1.30	1.02	1.57	1.28	1.89	1.15	.91	.98
Dec.	.12	.87	0	.72	0	.79	0	.91	T	.91
Yearly	21.30	16.13	26.47	17.65	24.80	23.02	23.92	18.94	21.67	16.64

T Trace

RAINFALL ON THE RIO GRANDE WATERSHED IN MEXICO

In Inches

Month	Nuevo Laredo (IB&WC), Tamps.		Jarita, Nuevo León		Nuevo Laredo Km. 26 SSW, Tamps.		† Nuevo Laredo Km. 52 SSW, N. León		San Ignacio, Tamaulipas	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	1.26	0.59	0.71	0.27	0.51	0.59	0.39	0.34	0.87	0.58
Feb.	2.01	.94	1.14	.86	3.35	1.05	2.76	.89	2.17	1.05
Mar.	1.42	.44	.83	.58	.20	.44	.20	.47	.79	.66
Apr.	2.28	1.07	1.77	1.28	1.57	1.78	3.98	1.67	3.15	2.24
May	1.30	2.07	1.85	2.23	1.18	1.64	3.98	2.03	2.56	3.59
June	2.01	1.74	2.05	1.32	3.15	1.25	.79	1.42	1.57	.85
July	2.83	1.04	4.69	.70	2.80	.70	6.30	1.02	2.36	.64
Aug.	.75	1.89	.67	2.16	.71	1.99	.83	1.87	.47	2.31
Sept.	5.59	2.85	5.47	4.30	7.83	3.76	7.24	4.84	6.93	5.09
Oct.	3.98	1.36	4.09	1.42	3.50	1.51	1.57	1.97	1.77	1.67
Nov.	.20	.97	1.18	1.15	1.18	1.16	.98	.86	.75	1.04
Dec.	.83	.74	0	.72	0	.85	0	.86	0	.82
Yearly	24.46	15.70	24.45	16.99	25.98	16.72	29.02	18.24	23.39	20.54

Month	Rancho San Juan de la Palma, Tamps.		Santo Domingo, Coahuila		La Babia, Coahuila		San Gerónimo, Coahuila			
	1968	Average	1968	Average	1968	Average	1967	1968	Average	
Jan.	0.98	0.78	1.89	0.72	0.39	0.33	0.39	1.10	0.39	
Feb.	1.73	.98	T	.64	.98	.24	.20	.51	.49	
Mar.	.63	.61	.67	.25	.39	.39	1.30	1.61	.46	
Apr.	2.80	2.10	1.22	.94	1.10	.79	.98	1.89	1.40	
May	.75	2.01	3.46	2.32	.31	1.40	.51	1.89	2.60	
June	3.15	1.78	.63	4.13	1.22	1.86	4.21	1.18	3.00	
July	.67	.77	3.31	2.96	4.41	1.91	2.91	12.72	2.36	
Aug.	.79	1.71	4.09	3.54	4.49	1.46	2.52	3.11	3.07	
Sept.	8.23	3.94	3.39	3.96	1.54	2.92	8.58	4.61	4.53	
Oct.	1.61	1.42	.08	1.96	.39	1.06	1.10	2.01	2.46	
Nov.	.16	1.13	.67	.58	.16	.14	.31	1.81	.32	
Dec.	.55	.85	.08	.60	0	.24	.47	0	.37	
Yearly	22.05	18.08	19.49	22.60	15.38	12.74	23.48	32.44	21.45	

Month	El Treinta, Coahuila		Conchos, Coahuila		Nueva Rosita, Coahuila		Villa Juárez, Coahuila		Cuatro Ciénegas, Coahuila	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	0.79	0.48	0.59	0.32	0.43	0.62	0.51	0.59	0.59	0.33
Feb.	.71	.25	2.05	.67	1.42	.51	.91	.48	1.02	.35
Mar.	.98	.72	1.34	.33	1.50	.39	1.61	.29	1.73	.14
Apr.	2.72	1.62	0	1.67	2.36	1.32	2.48	1.27	.75	.30
May	1.61	1.86	1.85	2.38	1.42	2.60	3.07	2.02	.04	.79
June	2.13	2.38	1.89	1.84	1.02	2.04	.28	1.01	.91	.61
July	6.89	1.79	5.91	1.98	4.92	1.51	.79	.82	.47	.79
Aug.	5.98	2.24	1.57	2.14	3.15	1.86	.79	1.51	1.81	.96
Sept.	3.27	3.99	2.91	3.25	2.64	2.74	2.95	3.19	1.34	1.45
Oct.	1.57	1.57	0	2.03	.51	1.60	.79	1.72	0	.76
Nov.	1.57	.45	0	.54	.83	.54	.79	.52	1.26	.38
Dec.	0	.28	0	.55	.24	.65	0	.38	.67	.44
Yearly	28.22	17.63	18.11	17.70	20.44	16.38	14.97	13.80	10.59	7.30

Month	Ocampo, Coahuila		San Buenaventura, Coahuila		Monclova, Coahuila		Progreso, Coahuila		Don Martín, Coahuila	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	0.79	0.50	0.67	0.64	0.91	0.49	0.47	0.47	0.98	0.75
Feb.	.59	.16	1.26	.50	.71	.48	1.54	.52	1.30	.66
Mar.	.87	.18	1.30	.32	1.18	.32	1.85	.37	1.22	.48
Apr.	.94	.94	1.54	.75	1.30	.61	2.36	1.34	2.05	1.25
May	1.10	1.02	.59	1.52	.31	1.48	1.73	2.26	.83	2.18
June	1.34	1.33	.98	1.48	.16	1.19	.31	1.22	.79	1.56
July	2.44	2.38	5.12	1.55	5.08	1.48	1.10	.75	1.69	.96
Aug.	1.34	1.72	3.79	1.77	3.31	1.61	1.50	1.98	3.39	2.04
Sept.	3.31	2.62	5.51	2.47	4.88	3.04	4.65	3.09	3.98	2.91
Oct.	.83	1.13	2.76	1.34	.16	1.21	1.30	1.79	2.13	1.67
Nov.	.35	.18	1.61	.55	.75	.57	.87	.50	.55	.58
Dec.	.04	.43	.63	.62	.39	.54	.08	.55	.04	.67
Yearly	13.94	12.59	25.76	13.51	19.14	13.02	17.76	14.84	18.95	15.71

T Trace † Formerly published as Nuevo Laredo Km. 50 SSW, Tamaulipas

RAINFALL ON THE RIO GRANDE WATERSHED
IN MEXICO
In Inches

Month	Laguna de Salinillas, Nuevo León		El Cuervo, Nuevo León		Lampazos, Nuevo León		Anáhuac, Nuevo León		Rancho Pascualitos, Nuevo León	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	0.79	0.65	0.98	0.50	0.79	0.66	0.87	0.73	0	
Feb.	1.57	.65	1.89	.72	1.30	.94	1.57	.64	1.18	
Mar.	1.22	.51	2.01	1.40	1.22	.69	.94	.52	1.06	
Apr.	2.28	1.09	0	1.21	.87	1.39	4.17	1.23	2.05	
May	.31	2.35	1.50	3.48	.98	2.51	.35	2.44	.75	
June	1.18	1.40		.83	2.28	2.01	.55	1.37	6.77	
July	1.46	.70		0	5.79	1.64	3.78	1.24	6.85	
Aug.	.31	2.36		2.08	1.85	1.95	1.10	2.10	4.80	
Sept.	6.46	3.21		5.74	5.83	5.25	4.65	3.23	3.31	
Oct.	1.42	1.70		.37	.16	1.41	2.05	1.53	1.38	
Nov.	.59	.59		.15	1.10	.60	.94	.59	0	
Dec.	.79	.60		.05	.04	.45	.04	.75	0	
Yearly	18.38	15.81		16.53	22.21	19.50	21.01	16.37	28.15	

Month	La Gloria, Nuevo León		Nueva Hacienda Golondrinas, N. León		Bustamante, Nuevo León		Rancho Palo Blanco, Nuevo León		Rancho Santa Ana, Nuevo León	
	1968	Average	1968	Average	1968	Average	1968	Average	1961	1962
Jan.	0.47	0.44	0		0.75	0.62	0		0	0
Feb.	1.54	.81	.63		1.54	.80	.43		1.50	0
Mar.	.83	.30	1.97		1.85	.70	1.22		0	.31
Apr.	2.01	1.46	1.22		1.50	1.28	3.98		2.01	2.99
May	.79	2.64	.71		.59	1.56	.91		3.50	.51
June	1.50	1.73	2.56		3.66	2.45	5.04		3.50	2.01
July	3.98	1.79	6.42		5.31	1.28	6.30		.51	0
Aug.	.83	1.77	2.95		5.35	3.58	2.95		2.52	2.01
Sept.	3.66	5.13	2.13		3.74	6.20	4.29		.98	3.50
Oct.	1.77	1.49	0		1.85	1.77	.75		3.50	0
Nov.	.79	.77	.67		.91	.92	.59		.51	0
Dec.	0	.77	0		0	.65	0		0	.98
Yearly	18.17	19.10	19.26		27.05	21.81	26.46		18.53	12.31

Month	Rancho Santa Ana, Nuevo León							Sabinas Hidalgo, Nuevo León		
	1963	1964	1965	1966	1967	1968	Average	1968	Average	
Jan.	0	2.01	0	2.52	0	0.75	0.66	0.75	0.53	
Feb.	.20	0	.51	2.99	0	1.73	.87	1.26	1.14	
Mar.	.51	.51	.75	0	.98	1.50	.57	1.26	.82	
Apr.	0	1.50	.51	1.50	1.50	1.26	1.41	1.46	1.44	
May	.98	4.49	4.76	5.51	0	1.73	2.68	.67	2.34	
June	2.52	2.32	0	5.51	2.01	5.98	2.98	7.40	3.25	
July	.31	2.20	.98	.51	0	9.02	1.69	8.62	2.35	
Aug.	0	2.99	2.52	0	0	2.52	1.57	.91	2.82	
Sept.	7.99	7.01	4.49	1.50	20.00	7.48	6.62	3.70	7.66	
Oct.	4.02	2.01	2.01	0	0	3.50	1.88	1.14	2.93	
Nov.	.51	1.50	.98	0	0	.51	.50	.08	1.19	
Dec.	0	0	2.99	0	0	0	.50	.04	.78	
Yearly	17.04	26.54	20.50	20.04	24.49	35.98	21.93	27.29	27.25	

Month	Vallecillo, Nuevo León		Las Tortillas, Tamaulipas		Rancho San Rafael Bustamante, Tamps.			Río Salado Ribereña, Tamaulipas		
	1968	Average	1968	Average	1967	1968	Average	1968	Average	
Jan.	0.87	0.47	0.79	0.43		1.06		0.67	0.56	
Feb.	.71	.94	1.57	.99		2.17		1.61	1.19	
Mar.	1.18	.50	.87	.64		.79		.79	.71	
Apr.	.98	1.12	.71	1.77		1.97		.39	2.00	
May	.79	1.71	2.95	3.29		2.32		1.14	3.61	
June	1.10	1.99	1.97	1.75		1.97		2.80	1.78	
July	4.02	1.23	1.81	.75		3.15		.98	.47	
Aug.	1.89	1.72	.98	.90		.95		1.18	3.19	
Sept.	1.97	5.23	9.96	4.43		10.00		10.24	5.74	
Oct.	3.86	2.47	.43	1.04		1.10		.79	1.54	
Nov.	.24	.70	.98	1.22	3.15	1.14	2.14	.83	1.12	
Dec.	.04	.72	0	.94	.79	0	.40	0	1.15	
Yearly	17.65	18.80	23.02	18.15		26.62		21.42	23.06	

RAINFALL ON THE RIO GRANDE WATERSHED IN MEXICO

In Inches

Month	Aniego 166, Tamaulipas		La Bandera, Tamaulipas		Nueva Cd. Guerrero, Tamaulipas		Hacienda El Alamo, Nuevo León		San Javier, Nuevo León	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	0.47	0.73	1.38	0.75	1.14	1.06	0.79		1.57	0.83
Feb.	.79	1.05	1.18	.83	1.77	.91	1.34		1.77	.97
Mar.	.47	.69	.98	1.01	.63	.60	.59		.79	1.10
Apr.	0	1.06	.59	1.45	1.73	1.50	1.22		4.13	2.30
May	1.18	4.09	.39	3.57	.83	2.09	1.81		5.12	4.61
June	3.15	1.35	3.74	2.96	3.15	2.29	.87		3.35	3.01
July	.79	.35	2.56	.81	2.68	.81	6.26		5.91	1.08
Aug.	.39	3.12	.79	2.86	.43	1.88	1.06		.98	3.07
Sept.	12.60	8.71	5.31	5.94	4.49	3.86	4.49		4.45	6.11
Oct.	.98	1.09	.79	1.41	.31	2.24	2.48		1.18	1.80
Nov.	1.97	1.36	.98	1.02	.47	.98			.20	1.32
Dec.	.20	.78	.20	.84	.08	.59			.31	.95
Yearly	22.99	24.38	18.89	23.45	17.71	18.81			29.76	27.15

Month	Cd. Mier Km. 8 SW, Tamaulipas		Cd. Mier, Tamaulipas		Miguel Alemán, Tamaulipas		Parras, Coahuila		Gral. Cepeda, Coahuila	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	1.18	0.81	1.50	1.20	1.06	0.92	0.63	0.46	0.08	0.51
Feb.	1.57	1.12	1.89	1.26	1.54	1.24	1.10	.43	.98	.51
Mar.	.59	1.11	.59	.87	.71	.25	2.20	.56	.47	.34
Apr.	2.56	1.58	1.89	1.60	5.83	2.69	.28	.30	.87	.43
May	3.19	4.11	1.38	3.40	.79	3.28	.43	1.01	.63	.85
June	2.76	2.33	2.01	2.05	1.77	1.73	1.61	1.88	1.50	2.15
July	5.79	1.07	3.78	.60	1.50	.94	3.23	2.58	3.11	3.27
Aug.	1.18	3.32	3.66	3.03	1.10	2.75	6.57	3.17	6.85	3.05
Sept.	3.94	5.88	4.65	4.70	2.91	7.87	5.71	2.86	5.94	2.90
Oct.	.98	1.93	2.24	2.40	1.57	1.27	.12	1.24	.04	1.30
Nov.	1.46	1.18	.20	1.24	.35	1.28	.39	.46	.28	.50
Dec.	.39	1.01	.28	.77	.04	.81	1.34	1.03	.20	.55
Yearly	25.59	25.45	24.07	23.12	19.17	25.03	23.61	15.98	20.95	16.36

Month	Reata, Coahuila		San Antonio de las Alazanas, Coahuila		Salzillo, Coahuila		Ramos Arizpe, Coahuila		Hedionda Grande, Coahuila	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	0	0.36	0.83	1.00	0.91	0.59	0.87	0.49	0.20	0.65
Feb.	0	.22	.83	.93	.87	.56	.75	.38	.75	.96
Mar.	2.60	.35	2.01	.53	.87	.43	.71	.30	2.20	.67
Apr.	.24	.33	2.01	1.09	.87	.83	.94	.48	1.02	.99
May	1.34	.80	1.26	1.82	.94	1.18	.91	.86	4.41	2.41
June	1.34	.86	3.23	2.37	1.46	2.19	1.30	1.04	.55	1.36
July	2.83	.64	4.88	3.39	2.91	2.58	2.91	1.40	5.98	2.73
Aug.	3.54	1.83	3.07	3.00	2.76	2.43	2.56	1.37	3.74	2.58
Sept.	.63	1.40	3.62	2.55	2.52	2.76	1.42	1.80	2.20	3.22
Oct.	.28	.80	2.44	2.29	.04	1.29	0	.77		2.32
Nov.	.71	.44	.59	1.37	.55	.84	.47	.46		1.02
Dec.	.39	.33	1.26	1.13	.20	.64	.16	.53		.58
Yearly	13.90	8.36	26.03	21.47	14.90	16.32	13.00	9.88		19.49

Month	Carbonera, Nuevo León		Icamole, Nuevo León		Mina, Nuevo León		La Popa, Nuevo León		Ciénega de Flores, Nuevo León	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	0.71	1.03	0.04	0.36	0.55	0.49	0.35	0.53	1.65	1.27
Feb.	1.57	1.09	.55	.33	.47	.48	1.26	.45	2.09	.91
Mar.	2.52	1.01	.43	.16	.75	.18	1.57	.31	1.22	1.13
Apr.	2.95	1.27	.91	.38	1.22	.61	.87	.67	5.55	1.65
May	1.77	2.26	1.10	.80	.94	.59	2.40	1.22	4.17	2.50
June	.98	1.31	1.22	.75	.24	1.05	.67	.84	5.43	2.79
July	3.54	2.84	.67	.50	1.89	.62	3.31	.98	2.76	1.77
Aug.	4.06	3.29	5.00	1.23	2.28	1.53	3.94	2.20	4.09	4.35
Sept.	3.35	3.54	1.73	2.35	1.34	3.22	2.20	3.29	5.55	5.57
Oct.	1.22	1.80	1.65	1.04	1.18	1.35	.87	.96	4.13	2.76
Nov.	0	.97	.47	.48	.47	.69	.35	.64	1.06	1.11
Dec.	.31	1.23	0	.53	.04	.50	.63	.68	.20	1.06
Yearly	22.98	21.64	13.77	8.91	11.37	11.31	18.42	12.77	37.90	26.87

RAINFALL ON THE RIO GRANDE WATERSHED IN MEXICO

In Inches

Month	Topo Chico, Nuevo León		Higueras, Nuevo León		Los Ramones, Nuevo León		Rinconada, Nuevo León		Santa Catarina, Nuevo León	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	0.79	0.40	0.51	0.66	0.24	0.62	0.94	0.30	0.12	0.68
Feb.	.35	.59	.35	.53	.51	.76	.12	.31	.51	.47
Mar.	.51	.50	.79	.62	.71	.64	1.14	.23	.35	.31
Apr.	3.03	1.07	7.24	1.32	2.68	1.89	.31	.53	1.26	.72
May	2.09	1.26	4.69	1.91	3.15	2.38	.94	.52	.63	.84
June	1.69	1.98	2.96	2.31	3.50	2.99	0	.77	1.65	1.86
July	3.07	1.21	2.64	1.92	9.21	1.70	1.69	.35	2.13	1.16
Aug.	2.48	3.05	7.01	3.04	4.02	3.73	1.34	1.26	3.23	3.03
Sept.	4.06	4.22	1.81	4.72	3.82	5.07	1.46	1.69	5.43	3.94
Oct.	3.98	2.56	3.07	1.75	.24	2.97	.79	.93	3.70	1.83
Nov.	.28	.68	.20	.80	.79	.65	.51	.29	1.10	.52
Dec.	0	.43	.16	.65	0	.48	0	.33	0	.57
Yearly	22.33	17.95	31.43	20.23	28.87	23.88	9.24	7.51	20.11	15.93

Month	Monterrey, Nuevo León		Apodaca, Nuevo León		A. Blanca Canoas, Nuevo León		Pajonal, Nuevo León		Cadereyta, Nuevo León	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	0.94	0.63	0.47	1.02	0	0.80	0.98	0.67	0.98	0.76
Feb.	.75	.65	.91	1.04	0	.76	1.10	.81	.71	.96
Mar.	.63	.77	.04	.97	0	.26	.59	.28	.87	1.17
Apr.	1.26	1.18	1.57	1.13	.39	.61	1.57	.78	3.90	2.11
May	1.46	1.58	3.11	2.31	.63	1.94	.31	1.71	2.99	2.29
June	1.42	2.66	2.52	2.38	1.54	1.81	1.30	2.18	13.98	3.45
July	5.83	2.31	3.78	1.10	1.22	1.35	2.52	2.63	5.67	2.39
Aug.	4.09	3.19	2.17	5.08	.59	2.67	2.48	4.19	5.00	3.55
Sept.	6.89	5.88	4.53	7.20	6.89	5.03	5.31	5.71	5.31	4.93
Oct.	6.54	3.23	4.49	2.12	3.35	2.43	2.99	2.63		3.19
Nov.	.43	1.26	.94	1.06	.71	.80	0	.66		1.16
Dec.	0	.71	0	.83	.12	.50	.39	.64		.73
Yearly	30.24	24.05	24.53	26.24	15.44	18.96	19.54	22.89		26.69

Month	La Cruz, Nuevo León		Túnel San Francisco, Nuevo León		Las Comitas, Nuevo León		Villa de Santiago, Nuevo León		Villa Allende, Nuevo León	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	0	0.69	1.93	0.65	0.51	0.35	0.83	0.91	0.94	0.88
Feb.	0	.68	.98	1.30	.31	.38	.67	1.04	1.38	1.19
Mar.	0	.26	1.89	1.85	.12	.29	1.34	1.17	1.73	1.29
Apr.	.28	.46	2.68	2.29	.16	.79	2.60	1.71	6.14	2.58
May	.28	1.58	2.68	2.72	.55	1.02	2.68	2.66	1.34	3.32
June	1.06	1.89	5.35	5.93	1.02	2.36	7.99	5.33	9.21	4.65
July	.98	2.21	6.54	3.16	1.69	1.72	6.85	3.19	5.79	2.78
Aug.	.51	3.39	4.84	7.22	2.13	3.50	9.02	6.17	6.54	5.44
Sept.	5.55	4.57	9.09	10.55	3.31	4.49	8.50	9.03	11.50	7.75
Oct.	3.15	2.45	6.77	5.79	2.17	2.05	3.35	5.08	6.22	5.67
Nov.	.55	.73	.91	1.77	0	.49	.91	1.44	1.57	1.59
Dec.	.08	.29	0	.95	0	.38	0	.91	0	.98
Yearly	12.44	19.20	43.66	44.18	11.97	17.82	44.74	38.64	52.36	38.12

Month	San Juan, Nuevo León		Laguna de Sánchez, Nuevo León		Casillas, Nuevo León		Ciénega del Toro, Nuevo León		Potrero Redondo, Nuevo León	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	0.31	0.44	0.63	0.54	0.63	0.47	0.24	1.44	0.83	0.65
Feb.	.43	.74	.79	.63	1.38	.99	.43	.94	3.11	1.98
Mar.	0	.76	.94	.50	0	.52	3.07	1.11	3.07	1.33
Apr.	7.17	2.20	1.73	1.22	.91	.96	1.06	1.23	7.72	2.86
May	3.70	2.12	1.14	1.95	1.34	1.91	.59	2.73	5.28	3.26
June	6.02	2.37	1.50	3.24	2.28	3.49	1.06	2.02	13.94	8.13
July	18.11	1.63	2.83	2.55	1.85	1.87	1.69	2.23	5.87	4.58
Aug.	2.09	3.70	1.81	4.36	1.81	2.96	1.18	2.98	3.98	5.89
Sept.	3.19	4.87	4.69	5.45	2.01	3.65	3.35	4.55	22.68	13.35
Oct.	4.49	3.07	1.89	3.04	1.50	3.01	2.09	3.61	2.44	5.95
Nov.	1.42	.95	.35	.55	0	.59	.08	.82	.08	1.20
Dec.	.12	.50	.31	.58	.28	.89	1.30	1.18	0	.82
Yearly	47.05	23.35	18.61	24.61	13.99	21.31	16.14	24.84	69.00	50.00

RAINFALL ON THE RIO GRANDE WATERSHED IN MEXICO

In Inches

Month	Mimbres, Nuevo León		Rayones, Nuevo León		Rusio, Nuevo León		Potosí, Nuevo León			
	1968	Average	1968	Average	1968	Average	1967	1968	Average	
Jan.	0.98	0.98	0	0.31	0.31	0.80	0	0.47	1.08	
Feb.	.08	1.22	1.57	.35	.98	.81	0	.67	.96	
Mar.	1.22	1.22	1.42	.32	1.77	.87	.51	1.89	.50	
Apr.	.39	1.37	3.15	1.04	2.91	1.46	1.69	3.11	1.75	
May	.87	2.17	1.10	1.33	3.50	2.24	1.06	2.17	1.27	
June	1.73	2.34	1.50	2.02	.98	1.36		1.54	.91	
July	2.44	2.29	0	.89	.51	.99		2.72	.97	
Aug.	2.28	3.39	2.80	2.84	1.54	1.27		.83	1.94	
Sept.	4.33	3.01	2.13	3.02	1.06	1.84		1.22	1.36	
Oct.	5.39	2.08	.24	1.53	1.38	1.60		1.10	1.58	
Nov.	.91	.79	.63	.36	.47	.74	1.14	.55	1.77	
Dec.	.94	1.52	1.54	.30	.39	1.10	.04	.63	2.64	
Yearly	21.56	22.38	16.08	14.31	15.80	15.08		16.90	16.73	

Month	Galeana, Nuevo León		Iturbide, Nuevo León		Cabezones, Nuevo León		Linares, Nuevo León		Montemorelos, Nuevo León	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	0	0.21	0.35	0.54	1.42	0.94	0.91	0.91	1.34	0.80
Feb.	1.34	.48	1.26	.65	.91	.82	1.10	.90	1.14	.99
Mar.	1.46	.42	1.10	.54	1.18	1.20	1.02	1.14	1.50	1.18
Apr.	3.19	1.03	3.90	1.17	5.91	2.92	5.51	2.35	4.25	2.34
May	.51	1.03	2.20	1.90	2.13	3.23	5.31	3.60	5.04	3.10
June	.28	1.95	1.34	3.23	5.87	4.11	6.54	3.57	6.54	3.61
July	1.02	1.36	1.73	2.32	2.91	2.15	1.42	2.48	2.83	1.90
Aug.	.91	2.76	2.68	4.04	6.26	5.94	4.69	3.70	8.46	4.28
Sept.	2.83	2.88	4.76	5.36	3.82	7.18	3.15	6.21	4.25	5.54
Oct.	2.56	1.53	3.39	2.72	5.67	3.09	1.57	3.35	4.41	3.71
Nov.	0	.21	.47	.56	.71	1.24	.87	1.19	1.10	1.68
Dec.	0	.46	.51	.51	0	.80	.20	.91	0	.90
Yearly	14.10	14.32	23.69	23.54	36.79	33.62	32.29	30.31	40.86	30.03

Month	Gral. Teran(Expermt. Station), Nuevo León		San Rafael, Nuevo León		El Cuchillo, Nuevo León		Gral. Bravo, Nuevo León		Las Enramadas, Nuevo León	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	1.22	0.66	1.77	1.23	0.55	0.64	0.87	0.76	1.30	0.91
Feb.	.87	.92	4.65	1.58	.75	.54	.91	.51	.87	.72
Mar.	1.14	1.55	1.50	.74	.47	.53	.39	.57	1.02	.75
Apr.	2.95	1.63	1.34	.87	.83	1.38	1.14	1.54	5.35	1.89
May	2.48	2.92	1.02	1.87	1.89	2.12	1.42	2.86	2.80	3.03
June	4.92	3.13	2.40	1.97	2.68	2.35	2.60	2.48	6.69	3.35
July	2.44	1.54	2.09	2.78	2.72	1.54	6.97	2.11	7.09	2.12
Aug.	4.37	3.36	2.60	1.74	2.36	2.72	4.29	2.62	6.54	3.68
Sept.	7.83	6.36	2.13	2.62	1.50	4.00	3.78	4.16	5.83	6.10
Oct.	7.17	4.79	2.95	1.42	.55	2.12	.51	2.08	3.39	2.61
Nov.	.71	1.36	.51	.73	.28	.54	.39	.89	.24	.73
Dec.	0	.68	.67	1.12	T	.49	0	.76	0	.75
Yearly	36.10	28.90	23.63	18.67	14.58	18.97	23.27	21.34	41.12	26.64

Month	Cerralvo, Nuevo León		Comales, Tamaulipas		Camargo, Tamaulipas		Valadeces, Tamaulipas		Reynosa Km. 40 SW, Nuevo León	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	0.59	0.66	1.38	0.82	1.57	1.00	1.57	1.33	0.43	0.74
Feb.	.75	.63	1.38	.71	.71	.94	.98	1.05	.87	.84
Mar.	.59	.61	.59	.64	.55	.55	.63	.66	0	.34
Apr.	6.38	2.11	3.94	1.64	4.80	1.99	3.39	2.22	2.48	1.54
May	7.87	2.92	2.99	2.21	2.60	2.16	1.57	4.08	2.91	3.01
June	2.56	2.44	2.24	1.87	2.40	1.83	2.56	2.50	.79	1.48
July	3.19	1.36	5.00	1.06	5.16	1.13	3.66	1.58	2.05	1.02
Aug.	4.65	3.76	1.93	2.51	2.05	1.74	1.22	1.44	3.19	2.48
Sept.	7.60	5.13	3.03	4.03	5.12	4.24	1.10	5.52	3.46	6.17
Oct.	2.40	2.69	1.34	2.31	.39	1.78	1.73	2.46	.39	1.95
Nov.	.51	.72	.24	.73	.39	1.27	.24	1.36	0	.57
Dec.	.04	.47	.04	.74	.12	.79	0	1.16	0	1.19
Yearly	37.13	23.50	24.10	19.27	25.86	19.42	18.65	25.36	16.57	21.33

T Trace

RAINFALL ON THE RIO GRANDE WATERSHED IN MEXICO

In Inches

Month	Bajo Río San Juan, Tamaulipas No. 2-29		¶ Cd. Díaz Ordáz, Tamaulipas		Reynosa Km. 22 SW, Tamaulipas		Bajo Río San Juan, Tamaulipas No. 2-38		Bajo Río San Juan, Tamaulipas No. 2-33	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	1.57	1.09	1.57	0.70	1.57	1.03	1.65	1.20	1.57	1.19
Feb.	.71	.99	.79	.86	1.18	.61	1.02	.90	.71	.89
Mar.	.71	.51	.94	.50	0	.30	1.14	.53	.79	.48
Apr.	2.17	1.76	2.32	1.83	2.68	1.21	1.89	1.60	1.73	1.75
May	2.76	4.50	3.78	2.19	1.77	3.19	5.31	4.75	2.01	3.87
June	2.48	2.25	2.68	1.77	3.54	2.75	1.10	3.17	1.50	3.24
July	2.05	.82	1.18	.71	3.54	1.26	3.07	1.10	2.20	.56
Aug.	4.33	2.45	5.20	1.85	1.38	2.58	2.52	3.12	1.50	2.28
Sept.	2.60	6.13	2.28	3.88	1.97	5.69	3.07	5.01	3.46	6.80
Oct.	2.05	1.94	3.15	2.48	1.97	2.19	1.18	1.86	.83	2.35
Nov.	.31	1.38	.39	1.10	T	.96	.35	1.73	.39	1.42
Dec.	0	1.08	.08	.88	0	1.43	0	1.32	.08	1.82
Yearly	21.74	24.90	24.36	18.75	19.60	23.20	22.30	26.29	16.77	26.65

Month	Argüelles, Tamaulipas		Presa Anzaldúas, Tamaulipas		Reynosa, Tamaulipas		Méndez, Tamaulipas		Bajo Río San Juan, Tamaulipas No. 3-55	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	1.97	1.11	0.71	0.67	2.36	0.99	0.63	0.92	2.52	1.76
Feb.	1.38	1.10	.28	.38	.83	.83	.59	.88	1.06	1.23
Mar.	.20	.63	.39	.31	.63	.70	.87	.87	.94	.65
Apr.	1.57	1.13	1.77	1.57	1.34	1.17	2.83	1.78	2.36	1.36
May	2.76	3.03	1.22	2.56	.63	2.26	5.55	2.60	1.38	3.65
June	1.69	2.54	2.28	2.11	2.24	2.03	.79	2.54	4.25	2.03
July	1.97	.65	1.46	.62	2.72	.98	4.92	1.04	6.42	1.92
Aug.	1.57	1.59	.71	1.53	.20	1.41	.31	3.06	0	1.72
Sept.	1.57	5.20	2.60	3.64	3.82	3.13	3.46	4.52	.39	3.92
Oct.	1.18	1.16	2.60	2.29	1.46	2.10	1.42	2.30	1.69	4.19
Nov.	.79	.99	T	.86	0	.99	1.18	.71	.12	.77
Dec.	0	1.71	0	.93	0	.87	.31	.49	0	1.19
Yearly	16.65	20.84	14.02	17.47	16.23	17.46	22.86	21.71	21.13	24.39

Month	Bajo Río San Juan, Tamaulipas No. 3-58		Bajo Río San Juan, Tamaulipas No. 3-60		Bajo Río San Juan, Tamaulipas No. 3-47		Bajo Río San Juan, Tamaulipas No. 3-63		Río Bravo, Tamaulipas	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	2.36	1.67	1.81	1.39	2.60	1.80	1.65	1.42	2.95	0.96
Feb.	.91	1.04	.79	.94	1.22	1.20	1.02	1.39	1.06	1.14
Mar.	.79	.55	.71	.44	.79	.69	.87	.54	1.06	.65
Apr.	2.99	1.66	1.50	1.51	1.18	1.66	2.87	1.09	1.38	1.52
May	3.31	3.87	1.93	3.61	2.20	4.98	.63	3.06	2.91	2.32
June	2.17	1.90	2.56	2.32	2.99	2.98	1.97	2.40	5.16	2.47
July	9.53	2.21	4.21	1.25	5.75	1.62	4.49	1.32	7.36	1.45
Aug.	.08	1.70	.08	1.50	0	2.25	.39	2.69	.79	2.23
Sept.	2.87	5.53	2.05	4.98	.08	4.43	1.02	5.82	2.72	4.29
Oct.	2.72	4.12	3.78	4.10	1.22	2.94	0	2.28	2.20	2.61
Nov.	0	1.48	.31	1.48	0	1.60	1.14	1.28	0	1.20
Dec.	0	1.25	.08	1.09	0	1.55	0	1.24	0	1.00
Yearly	27.73	26.98	19.81	24.61	18.03	27.70	16.05	24.53	27.59	21.84

Month	Retamal, Tamaulipas		Bajo Río Bravo, Tamaulipas No. 3-15		Bajo Río Bravo, Tamaulipas No. 4-16		Bajo Río Bravo, Tamaulipas No. 3-14		Bajo Río Bravo, Tamaulipas No. 3-17	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	2.28	0.86	2.32	1.48	3.82	1.97	2.05	1.51	3.31	1.72
Feb.	1.18	.93	1.14	1.02	1.22	1.23	.47	.50	1.10	1.25
Mar.	.79	.65	.91	.74	.75	.87	.79	.50	.91	.82
Apr.	.98	1.31	2.01	1.31	3.03	1.21	1.73	1.14	3.27	1.24
May	4.61	2.46	2.09	3.58	1.42	3.20	.83	3.80	1.65	4.11
June	4.49	2.23	9.61	3.81	6.10	3.55	2.24	2.55	3.07	3.13
July	6.06	1.00	3.58	1.91	3.31	1.44	4.17	1.59	7.09	2.13
Aug.	.47	2.15	.16	2.75	0	2.55	.39	1.11	1.34	1.93
Sept.	1.69	2.76	.87	3.46	2.40	4.79	2.05	3.23	2.09	4.30
Oct.	2.60	2.44	2.20	2.76	.55	2.53	.63	1.95	.98	1.83
Nov.	.16	1.31	.28	1.52	.71	2.58	.08	1.13	.55	1.85
Dec.	0	.96	.28	1.42	.20	1.31	.16	1.28	.47	1.50
Yearly	25.31	19.06	25.45	25.76	23.51	27.23	15.59	20.29	25.83	25.81

T Trace ¶ Formerly published as San Miguel de Camargo, Tamaulipas

RAINFALL ON THE RIO GRANDE WATERSHED IN MEXICO

In Inches

Month	Bajo Río Bravo, Tamaulipas No. 2-8		Bajo Río Bravo, Tamaulipas No. 2-6		Bajo Río Bravo, Tamaulipas No. 2-10		Valle Hermoso, Tamaulipas		Control, Tamaulipas	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	2.95	1.66	4.33	2.17	3.07	1.74	3.35	0.97	4.33	1.27
Feb.	.91	1.24	.79	1.13	1.10	2.87	.98	1.24	1.10	.96
Mar.	.87	1.14	.91	1.53	.71	1.37	.71	.55	.71	.66
Apr.	2.52	1.39	1.30	1.06	2.20	1.01	2.01	1.46	1.89	1.48
May	.71	3.32	.71	3.06	.51	2.42	.55	2.42	1.89	2.73
June	3.90	2.02	4.37	2.19	5.47	2.31	4.76	2.84	5.24	2.83
July	5.63	2.22	1.97	1.30	3.39	1.16	4.88	1.46	1.14	1.24
Aug.	.79	3.13	1.22	2.53	.67	2.02	.98	1.61	1.61	2.68
Sept.	3.07	4.87	2.83	4.38	2.17	4.45	1.14	5.14	2.99	4.77
Oct.	1.69	2.54	1.73	2.23	1.34	1.81	1.50	2.32	2.48	2.41
Nov.	.87	3.37	.98	2.08	2.64	2.08	3.39	1.69	.63	1.29
Dec.	.24	1.31	.43	1.72	.31	1.17	1.02	.95	.28	1.00
Yearly	24.15	28.21	21.57	25.38	23.58	24.41	25.27	22.65	24.29	23.32

Month	Bajo Río Bravo, Tamaulipas No. 2-5		Bajo Río Bravo, Tamaulipas No. 2-11		Bajo Río Bravo, Tamaulipas No. 1-2		Bajo Río Bravo, Tamaulipas No. 2-7		Bajo Río Bravo, Tamaulipas No. 1-4	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	5.79	2.37	2.99	1.62	6.46	2.20	3.54	1.89	4.72	2.23
Feb.	.98	1.29	1.02	.91	1.42	1.14	1.81	1.22	.94	1.12
Mar.	.83	.85	.63	.81	.79	.62	.98	.92	.51	.66
Apr.	2.20	1.16	2.13	1.09	1.81	.96	2.64	1.08	3.78	1.34
May	.98	3.27	4.49	4.17	1.42	3.69	1.46	3.02	1.30	3.84
June	4.65	2.28	3.78	3.00	5.08	3.01	5.08	2.91	5.04	2.62
July	.98	.77	3.31	1.71	.98	1.13	2.17	1.29	.51	.54
Aug.	2.87	2.46	1.10	3.06	1.93	3.22	3.23	3.32	1.22	2.06
Sept.	3.03	5.06	3.11	2.25	2.80	4.94	1.26	4.11	1.46	5.43
Oct.	1.34	2.00	3.54	1.94	.87	2.62	3.15	1.89	.59	2.09
Nov.	1.30	1.94	2.20	1.79	.35	1.61	2.05	2.42	.20	1.26
Dec.	.75	1.51	.43	1.59	.39	1.33	.39	1.53	.20	1.54
Yearly	25.70	24.96	28.73	23.94	24.30	26.47	27.76	25.60	20.47	24.73

Month	Bajo Río Bravo, Tamaulipas No. 1-18		Bajo Río Bravo, Tamaulipas No. 1-3		Bajo Río Bravo, Tamaulipas No. 1-13		Bajo Río Bravo, Tamaulipas No. 1-12		Matamoros, Tamaulipas	
	1968	Average	1968	Average	1968	Average	1968	Average	1968	Average
Jan.	2.83	1.85	3.94	2.03	3.82	1.96	5.04	2.17	3.39	1.87
Feb.	.87	1.13	1.34	1.29	1.14	1.14	1.14	1.02	1.02	1.83
Mar.	1.02	.41	.71	.63	.75	.80	.71	.46	1.06	.55
Apr.	1.22	.73	3.50	1.19	1.10	.66	1.93	.89	3.46	1.52
May	2.28	2.73	2.28	3.80	1.89	2.10	3.19	3.13	3.15	2.28
June	2.68	2.41	7.87	2.70	3.98	2.25	5.39	2.50	2.83	2.63
July	.83	.88	.94	1.07	1.06	.95	1.61	1.24	1.38	1.27
Aug.	2.20	2.22	.47	2.00	2.24	2.37	2.36	1.35	2.99	2.25
Sept.	1.93	2.14	4.17	4.47	2.05	4.51	3.43	4.88	3.23	6.30
Oct.	1.54	2.14	2.20	2.28	1.65	1.92	3.03	3.19	2.68	3.11
Nov.	1.18	1.23	.31	2.46	1.26	2.09	.55	1.50	.79	1.40
Dec.	.08	1.87	.87	1.58	.31	1.39	.83	1.54	.39	1.99
Yearly	18.66	19.74	28.60	25.50	21.25	22.14	29.21	23.86	26.37	27.00

AVERAGE RAINFALL ON SUBDIVISIONS OF THE RIO GRANDE WATERSHED

With Averages for the 98 Years 1871 - 1968, Inclusive

In Inches

The precipitation records of all stations on or adjacent to the watershed subdivisions listed below have been used, with proper weighting for area, in calculating the average rainfalls shown here. The drainage area for each subdivision is shown in parentheses. The hundreds of individual records are delineated in the various "Indexes to Precipitation Records" shown in Water Bulletins Nos. 10, 14, 22, and 26.

Month	El Paso to Fort Quitman (2,677 Square Miles)		Fort Quitman to Above Río Conchos (3,022 Square Miles)		* Above Río Conchos to Johnson Ranch (3,815 Square Miles)		Johnson Ranch to Langtry (13,669 Square Miles)	
	1968	Period Average	1968	Period Average	1968	Period Average	1968	Period Average
Jan.	0.48	0.44	0.39	0.40	0.34	0.36	0.58	0.51
Feb.	.92	.37	.48	.26	.54	.28	.81	.37
Mar.	.84	.34	.63	.25	.74	.20	.80	.42
Apr.	.20	.28	.55	.36	1.37	.41	1.19	.83
May	.15	.40	.15	.60	.53	.77	.93	1.52
June	.09	.81	.44	1.20	.28	1.10	.57	1.75
July	4.68	2.31	4.56	3.05	4.53	1.83	2.53	1.91
Aug.	3.41	1.95	2.82	2.42	3.09	1.86	2.47	2.13
Sept.	.22	1.35	1.45	1.86	1.67	1.46	2.33	2.18
Oct.	.36	.91	.76	1.01	.29	.84	.46	1.21
Nov.	1.67	.44	1.45	.41	.85	.34	1.25	.60
Dec.	.24	.60	.25	.54	.13	.41	.12	.56
Total	13.26	10.20	13.93	12.36	14.36	9.86	14.04	13.99

Month	Pecos River below Sheffield (3,390 Square Miles)		# Langtry to Amistad Dam (2,091 Square Miles)		Devils River (4,305 Square Miles)		‡ Amistad Dam to Eagle Pass (1,625 Square Miles)	
	1968	Period Average	1968	Period Average	1968	Period Average	1968	Period Average
Jan.	1.05	0.73	0.81	0.53	1.66	0.70	1.63	0.76
Feb.	.97	.89	1.58	.64	1.58	.71	1.39	.92
Mar.	1.46	.78	.68	.79	1.36	1.08	1.45	1.03
Apr.	1.55	1.90	2.46	1.34	2.37	1.77	1.59	1.70
May	1.77	1.79	1.79	1.96	2.84	2.58	2.75	2.94
June	.76	2.52	1.24	2.25	1.38	2.72	1.52	2.47
July	3.29	1.87	2.70	1.19	3.11	1.73	1.58	1.84
Aug.	1.77	1.95	1.43	1.59	1.33	2.02	.45	1.86
Sept.	1.89	2.34	1.63	2.31	1.87	2.94	2.07	3.13
Oct.	.21	1.79	.56	1.42	.40	2.14	1.45	1.98
Nov.	2.11	.94	1.14	.76	1.98	1.57	1.72	1.03
Dec.	.07	.76	.12	.64	.24	1.02	.24	.89
Total	16.90	18.26	16.14	15.42	20.12	20.98	17.84	20.55

Month	⊕ Eagle Pass to Laredo (3,795 Square Miles)		ð Laredo to Falcon Dam (3,369 Square Miles)		† Falcon Dam to Rio Grande City (458 Square Miles)		United States Side below Rio Grande City (986 Square Miles)	
	1968	Period Average	1968	Period Average	1968	Period Average	1968	Period Average
Jan.	0.90	0.74	1.09	0.76	1.24	0.91	2.86	1.24
Feb.	1.62	.82	1.79	.78	1.40	.82	1.06	1.07
Mar.	1.66	.96	.70	.82	.68	.99	.90	1.07
Apr.	2.31	1.63	1.39	1.42	2.20	1.22	1.69	1.36
May	2.80	3.15	1.85	3.21	2.30	2.45	3.23	2.83
June	1.18	2.37	2.50	1.84	2.79	2.03	3.65	2.46
July	2.55	1.43	2.80	2.11	2.64	1.90	2.37	1.70
Aug.	.96	2.27	.89	1.82	.96	2.17	1.55	2.25
Sept.	3.67	3.03	6.16	2.97	4.93	3.44	2.18	4.31
Oct.	2.14	1.80	2.27	1.56	1.67	1.95	2.53	2.52
Nov.	1.49	.97	.45	1.59	.28	.78	.34	1.40
Dec.	.28	1.01	.56	.84	.48	.69	.24	1.29
Total	21.56	20.18	22.45	19.72	21.57	19.35	22.60	23.50

* Excluding Río Conchos, Alamito, and Terlingua Creeks # Excluding Pecos and Devils Rivers
‡ Excluding Arroyo Las Vacas, San Felipe Creek, Pinto Creek, Río San Diego, and Río San Rodrigo
⊕ Excluding Río Escondido ð Excluding Río Salado above Old Cd. Guerrero
† Excluding Río Alamo and Río San Juan

LOCATION OF RAINFALL STATIONS ON THE RIO GRANDE WATERSHED

The precipitation records of stations listed below began on the date shown and extend through 1968. For detailed information regarding sources of data, specific periods of record, and other pertinent matters relative to these and additional rainfall stations on the Rio Grande watershed see "Index to Precipitation Records" in Water Bulletins Nos. 10, 14, 22, and 26. All United States precipitation stations listed below are in Texas, while those in Mexico are in the indicated state as shown.

In United States

NAME OF STATION	TYPE GAGE	LATITUDE	LONGITUDE	ELEV. (FT.)	RECORD BEGAN	WATERSHED SUBDIVISION	OBSERVER
Adobes Ranch	S	29° 46'	104° 34'	2,550	1950	Fort Quitman - Above Rio Conchos	T. C. Davis
American Dam	S	31° 47'	106° 32'	3,730	1938	El Paso - Fort Quitman	I. B. & W. C.
Amistad Dam	R	29° 28'	101° 02'	1,150	July 1962	Langtry - Below Amistad Dam	I. B. & W. C.
Amistad Raft	C	29° 27'	101° 03'	‡‡	Dec. 1968	Langtry - Amistad Dam	I. B. & W. C.
Apache Ranch	C	27° 56'	99° 56'	500	# 1953	Eagle Pass - Laredo	Leroy Tibiletti
Arledge, W. A. Ranch	S	29° 58'	101° 38'	1,950	June 1933	Johnson Ranch - Langtry	W. A. Arledge
Arroyo Tigre Chiquito	C	26° 41'	99° 07'	314	Apr. 1954	Laredo - Falcon Dam	I. B. & W. C.
Arthur, C. L. Ranch	S	30° 23'	103° 45'	4,900	# 1946	Pecos River Above Sheffield	C. L. Arthur
Baggett, J. M. Ranch	R	30° 21'	101° 03'	2,050	July 1962	Devils River	J. M. Baggett, Jr.
Baker, A. A. Ranch	R	29° 44'	101° 09'	1,720	July 1962	Devils River	I. B. & W. C.
Baker, A. O. Ranch	R	29° 33'	100° 58'	1,150	May 1965	Devils River	I. B. & W. C.
Bakers Crossing	S	29° 58'	101° 09'	1,520	#Apr. 1955	Devils River	James Baker
Below Amistad Dam Station	C	29° 25'	101° 02'	980	Oct. 1954	Below Amistad Dam - Eagle Pass	I. B. & W. C.
Bennett, Moody Ranch	S	30° 37'	104° 52'	3,240	July 1956	Fort Quitman - Above Rio Conchos	Moody Bennett
Big Bend Chevron Station	S	29° 19'	103° 32'	2,550	Aug. 1967	Terlingua Creek	Howard Gibson
Big Satan Creek Station	C	29° 40'	100° 58'	1,150	Nov. 1968	Devils River	I. B. & W. C.
Billings Ranch	S	30° 02'	101° 38'	1,970	Mar. 1966	Johnson Ranch - Langtry	Newman Billings
Black Gap Game Refuge	S	29° 35'	103° 21'	2,250	# 1952	Johnson Ranch - Langtry	Ben Martin
Bloys Camp	V	30° 33'	104° 07'	5,650	# 1941	Alamito Creek	George Knight
Bricker Ranch	S	29° 59'	101° 52'	1,680	May 1952	Johnson Ranch - Langtry	Lena Mae Bricker
Brite, J. G. Ranch	R	29° 33'	101° 01'	1,150	Sept. 1962	Devils River	I. B. & W. C.
Brotherton Ranch	V	29° 42'	101° 19'	1,400	1961	Langtry - Below Amistad Dam	Perry Calk
Buttrill Ranch	S	30° 00'	103° 16'	3,500	Mar. 1952	Johnson Ranch - Langtry	Tom B. Leary
Cañon Diablo	C	28° 39'	100° 27'	700	1964	Eagle Pass - Laredo	I. B. & W. C.
Casa Piedra	V	29° 44'	104° 04'	3,490	# 1960	Alamito Creek	C. L. Vasquez
Cash Ranch	S	30° 05'	101° 35'	1,910	Mar. 1965	Pecos River	Roy Cash
Castolon	S	29° 08'	103° 30'	2,124	#Mar. 1953	Above Rio Conchos - Johnson Ranch	National Park Service
CCWID #11 (Bayview Dist. Off.) Avg. 18 Gages	S	26° 08'	97° 21'	25	1952	Lower Rio Grande Valley	CCWID #11
CCWCID #19 (Adams Gardens)	S	26° 10'	97° 47'	50	1952	Lower Rio Grande Valley	CCWCID #19
Chittim Ranch	C	28° 44'	100° 28'	810	Mar. 1959	Below Amistad Dam - Eagle Pass	I. B. & W. C.
Coal Mine	R	28° 48'	100° 28'	770	Mar. 1959	Below Amistad Dam - Eagle Pass	I. B. & W. C.
Comstock	S	29° 41'	101° 10'	1,530	May 1939	Langtry - Below Amistad Dam	George Humphries
Continental Ranch	S	29° 51'	101° 18'	1,560	Mar. 1965	Pecos River Below Sheffield	Julio Crowder
Cooper Ranch	C	28° 50'	100° 27'	800	Mar. 1959	Below Amistad Dam - Eagle Pass	I. B. & W. C.
Corralitos Ranch	C	27° 07'	99° 25'	346	1953	Laredo - Falcon Dam	I. B. & W. C.
County Line Station	R	31° 23'	105° 59'	3,550	1938	El Paso - Fort Quitman	I. B. & W. C.
Cow Creek near Comstock	R	29° 36'	101° 12'	1,210	Apr. 1965	Langtry - Below Amistad Dam	I. B. & W. C.
Cow Creek near Mouth	C	29° 32'	101° 13'	1,080	Apr. 1965	Langtry - Below Amistad Dam	I. B. & W. C.
Crane, Ed. Ranch	S	29° 51'	101° 05'	1,630	1955	Devils River	Ed. Crane
Cuervo Creek Station	C	28° 21'	100° 19'	620	1954	Eagle Pass - Laredo	I. B. & W. C.
Dale, O. C. Farm	S	26° 15'	98° 16'	130	1952	Lower Rio Grande Valley	O. C. Dale
Dead Mans Canyon near Comstock	C	29° 45'	101° 19'	1,320	Sept. 1967	Pecos River below Sheffield	I. B. & W. C.
Dolan Springs	C	29° 54'	100° 59'	1,360	Feb. 1966	Devils River	I. B. & W. C.
Dove Mountain Ranch	S	29° 49'	102° 53'	2,770	#Mar. 1952	Johnson Ranch - Langtry	Sam Caviness
Drydan	S	30° 03'	102° 07'	2,130	# 1931	Johnson Ranch - Langtry	Lewis Cash
Dunbar, Allen Ranch	V	29° 57'	100° 32'	2,200	1955	Devils River	Allen Dunbar

S Standard R Recording C Cumulative V Visual ‡‡ Reservoir Surface
Some months or years missing

LOCATION OF RAINFALL STATIONS ON THE RIO GRANDE WATERSHED

In United States

NAME OF STATION	TYPE GAGE	LATITUDE	LONGITUDE	ELEV. (FT.)	RECORD BEGAN	WATERSHED SUBDIVISION	OBSERVER
Eagle Pass	S	28° 42'	100° 30'	815	1964	Eagle Pass - Laredo	I. B. & W. C.
Edinburg Filtration Plant	S	26° 18'	98° 10'	100	1952	Lower Rio Grande Valley	City of Edinburg
El Indio	S	28° 31'	100° 19'	725 #	1941	Eagle Pass - Laredo	Glen Stidham
Elm Creek Station	C	28° 46'	100° 30'	720	1959	Below Amistad Dam - Eagle Pass	I. B. & W. C.
El Peyote Ranch	C	27° 07'	98° 58'	650	1966	Laredo - Falcon Dam	F. J. Saldana
Erekson Ranch	S	29° 56'	100° 34'	2,330	1955	Devils River	Bob Erekson
Falcon Dam	S	26° 33'	99° 08'	323	Apr. 1950	Laredo - Falcon Dam	I. B. & W. C.
Farias Ranch	R	28° 36'	100° 20'	720	Mar. 1959	Eagle Pass - Laredo	I. B. & W. C.
Fawcett, H. K. Ranch	S	29° 32'	100° 54'	1,550 #	1941	Devils River	H. K. Fawcett
Feely	C	29° 34'	101° 07'	1,250	Apr. 1965	Langtry - Below Amistad Dam	I. B. & W. C.
Fletcher, H. T. Ranch	S	30° 12'	104° 16'	5,100 #	1939	Alamito Creek	Hayes Mitchell, Jr.
Fort Hancock Bridge	S	31° 16'	105° 51'	3,500	Apr. 1940	El Paso - Fort Quitman	I. B. & W. C.
Fort McIntosh (Laredo)	V	27° 30'	99° 31'	410 #	1890	Eagle Pass - Laredo	I. B. & W. C.
Fort Quitman	R	31° 06'	105° 36'	3,430 #	1937	Fort Quitman - Above Rio Conchos	I. B. & W. C.
Foster, Ross Ranch	C	29° 47'	101° 45'	1,230	May 1961	Johnson Ranch - Langtry	I. B. & W. C.
Garciasville	R	26° 20'	98° 41'	200	Apr. 1957	Lower Rio Grande Valley	I. B. & W. C.
Gillis Headquarters Ranch	S	29° 37'	100° 47'	1,410	1968	Amistad Dam - Eagle Pass	Jake Schiller
Gillis Ranch	S	29° 41'	101° 03'	1,440	Apr. 1965	Devils River	Walter Gillis
Goldwire Ranch	C	29° 44'	57° 26'	1,685	Nov. 1968	Devils River	Jake Schiller
Goodenough Spring Raft	C	29° 32'	101° 16'	‡‡	Aug. 1958	Langtry - Amistad Dam	I. B. & W. C.
Greenwood, H. M. (Ciénega Ranch)	S	29° 48'	104° 13'	4,000	Mar. 1941	Alamito Creek	H. M. Greenwood
Guayuco Arroyo	R	31° 10'	105° 40'	3,600	#May 1940	El Paso - Fort Quitman	I. B. & W. C.
Haby Ranch	S	29° 43'	101° 14'	1,660	1965	Langtry - Below Amistad Dam	R. R. Williams
Hammond, Earl Ranch	S	29° 41'	103° 51'	3,700	Apr. 1968	Terlingua Creek	Earl Hammond
Hardgrave, E. W. Ranch	S	30° 18'	102° 09'	2,650	Apr. 1952	Johnson Ranch - Langtry	Jack Hardgrave
HCWCID #6 Goodwin Pump No. 3	S	26° 16'	98° 24'	175 #	1953	Lower Rio Grande Valley	HCWCID #6
HCWCID #6 Goodwin Pump No. 3A	S	26° 14'	98° 22'	130 #	1953	Lower Rio Grande Valley	HCWCID #6
HCWCID #6 Goodwin Pump No. 4	S	26° 16'	98° 21'	185	1958	Lower Rio Grande Valley	HCWCID #6
HCWCID #6 Goodwin Pump No. 4B	S	26° 18'	98° 23'	210 #	1953	Lower Rio Grande Valley	HCWCID #6
HCWCID #6 Goodwin Pump No. 5	S	26° 22'	98° 21'	225 #	1953	Lower Rio Grande Valley	HCWCID #6
HCWCID #15 (Edinburg Office)	S	26° 23'	98° 09'	85	1952	Lower Rio Grande Valley	HCWCID #15
Heath Crossing	S	29° 28'	102° 50'	1,775	July 1966	Johnson Ranch - Langtry	Dow Chemical Co.
Hinds "AT" Ranch	S	29° 46'	101° 03'	1,690	Sept. 1954	Devils River	Lucious Hinds
Hoffman Ranch	S	30° 38'	103° 51'	4,650	June 1955	Pecos River Above Sheffield	Dr. A. J. Hoffman
Huisache Ranch	C	26° 57'	99° 21'	383	Aug. 1953	Laredo - Falcon Dam	I. B. & W. C.
Hutto Ranch No. 1	R	29° 30'	100° 50'	1,240	Jan. 1964	Devils River	I. B. & W. C.
Hutto Ranch No. 2	R	29° 29'	100° 54'	1,210	Jan. 1964	Devils River	I. B. & W. C.
Indio Ranch	S	28° 31'	100° 22'	700	1959	Eagle Pass - Laredo	Earnest Scales
Island Station	R	31° 32'	106° 14'	3,630	1939	El Paso - Fort Quitman	I. B. & W. C.
James, Lewis Ranch	S	30° 11'	102° 07'	2,275	1966	Johnson Ranch - Langtry	Lewis James
Johnson Ranch	C	29° 01'	103° 23'	2,050	#July 1933	Johnson Ranch - Langtry	I. B. & W. C.
Keisling Farm	S	28° 29'	100° 17'	740	Dec. 1958	Eagle Pass - Laredo	Robert Smith
Kelly, P. W. Ranch	S	29° 46'	101° 12'	1,750	1965	Langtry - Below Amistad Dam	Bobby Kelly
King, Martin Ranch	R	29° 44'	101° 22'	1,460	Nov. 1954	Langtry - Below Amistad Dam	I. B. & W. C.
Kokernot Ranch - Hqtrs.	S	29° 58'	103° 34'	4,120 #	1952	Johnson Ranch - Langtry	David Kokernot
La Feria Materials Yard	V	26° 10'	97° 50'	60	1960	Lower Rio Grande Valley	CCWCID #3
La Feria Pumping Plant	S	26° 09'	97° 50'	60	1952	Lower Rio Grande Valley	CCWCID #3
Lajitas	S	29° 16'	103° 48'	2,320	June 1967	Above Rio Conchos - Johnson Ranch	Texas Hwy. Dept.
La Joya	R	26° 15'	98° 29'	150	Apr. 1957	Lower Rio Grande Valley	I. B. & W. C.
La Mesa Ranch	C	27° 54'	99° 44'	790	1967	Eagle Pass - Laredo	Joe Nieto
La Nutria Station	C	30° 15'	104° 44'	2,880	Mar. 1967	Fort Quitman - Above Rio Conchos	I. B. & W. C.
Laredo Water Plant	S	27° 33'	99° 31'	410 #	1930	Eagle Pass - Laredo	Laredo Water Plant
Las Moras Creek	S	29° 00'	100° 38'	800	1958	Below Amistad Dam - Eagle Pass	Lou McGee
Lateral No. 2 Spill	C	28° 56'	100° 38'	760	Mar. 1959	Below Amistad Dam - Eagle Pass	I. B. & W. C.
Lateral No. 12 Headgate	C	28° 54'	100° 34'	800	1959	Below Amistad Dam - Eagle Pass	I. B. & W. C.
Lateral No. 15 Spill	C	28° 51'	100° 34'	740	1959	Below Amistad Dam - Eagle Pass	I. B. & W. C.

S Standard V Visual C Cumulative R Recording # Some months or years missing
‡‡ Reservoir Surface

LOCATION OF RAINFALL STATIONS ON THE RIO GRANDE WATERSHED

In United States

NAME OF STATION	TYPE GAGE	LATITUDE	LONGITUDE	ELEV. (FT.)	RECORD BEGAN	WATERSHED SUBDIVISION	OBSERVER
Latham Ranch ‡	S	30° 13'	101° 22'	2,120	1965	Pecos River Below Sheffield	John & Bob Latham
Laughlin Air Force Base	S	29° 22'	100° 47'	1,080	Dec.1958	Below Amistad Dam - Eagle Pass	U. S. A. F.
Lewis, Billie C. Jr. Ranch	S	29° 33'	100° 40'	1,400	1967	Below Amistad Dam - Eagle Pass	Billie C. Lewis, Jr.
Livingston Ranch	S	29° 49'	104° 22'	4,150	# 1951	Above Río Conchos - Johnson Ranch	J. S. Livingston
Lock Store	S	30° 40'	100° 57'	2,400	Oct. 1962	Devils River	Claud Ward
Loma Alta	S	29° 55'	100° 46'	2,050	Feb.1967	Devils River	Luther Wilson
Loma Vista Ranch	S	30° 13'	103° 47'	5,450	# 1941	Alamito Creek	Hayes Mitchell
Los Ebanos	C	26° 16'	98° 33'	150	Apr.1957	Lower Rio Grande Valley	I. B. & W. C.
Los Fresnos Pumping Plant	S	25° 57'	97° 34'	30	1952	Lower Rio Grande Valley	CCWCID #6
Los Isauros Ranch	V	27° 24'	99° 24'	490	1964	Laredo - Falcon Dam	I. Martinez
Lowry, Cliff Ranch	R	29° 39'	100° 52'	1,490	June 1962	Devils River	I. B. & W. C.
Lowry Ranch No. 2	R	29° 37'	100° 56'	1,160	May 1965	Devils River	I. B. & W. C.
Maverick County Canal Headgate	S	29° 10'	100° 46'	870	Mar.1948	Below Amistad Dam - Eagle Pass	MCWCID #1
Maverick Power Plant	S	28° 50'	100° 33'	800	June 1952	Below Amistad Dam - Eagle Pass	C. P. & L. Co.
McGonagill Ranch - East Mill	V	30° 20'	102° 55'	4,050	#May 1952	Johnson Ranch - Langtry	W. E. McGonagill
McGonagill Ranch - Headquarters	S	30° 20'	102° 58'	4,150	Apr.1952	Johnson Ranch - Langtry	W. E. McGonagill
Miers, H. T. Ranch - Headquarters	C	29° 44'	100° 51'	1,760	1957	Devils River	I. B. & W. C.
Miers, H. T. Ranch No. 2	R	29° 44'	100° 53'	1,600	Apr.1964	Devils River	I. B. & W. C.
Mitchell, Kerr Ranch	S	30° 13'	104° 00'	4,450	# 1941	Alamito Creek	Mrs. K. Mitchell
Mouth of Maravillas Creek	S	29° 34'	102° 47'	1,810	Apr.1965	Johnson Ranch - Langtry	Black Gap Game Refuge
Neely Ranch	S	30° 59'	105° 32'	3,350	Aug.1941	Fort Quitman - Above Río Conchos	Mrs. Tom Neely
New Mission Pumping Plant	S	26° 11'	98° 24'		Aug.1961	Lower Rio Grande Valley	HCWCID #14
Normandy	S	28° 55'	100° 36'	780	Dec.1958	Below Amistad Dam - Eagle Pass	Fannin G. Lowe
02 Ranch	S	29° 51'	103° 45'	3,780	# 1914	Terlingua Creek	Cavin Woodward
Owens Ranch	S	30° 45'	101° 40'	2,170	July 1963	Pecos River Below Sheffield	Jeff Owens
Pafford Crossing	C	29° 41'	101° 00'	1,180	Feb.1960	Devils River	I. B. & W. C.
Pecos River near Langtry Station	C	29° 48'	101° 27'	1,260	July 1967	Pecos River Below Sheffield	I. B. & W. C.
Penitas (Edinburg Pumping Plant)	S	26° 14'	98° 27'	100	July 1957	Lower Rio Grande Valley	B. Leadbetter
Persimmon Gap Ranger Station	S	29° 40'	103° 10'	2,900	# 1948	Johnson Ranch - Langtry	Park Ranger
Pierce, J. S. Ranch	S	30° 22'	101° 14'	2,020	July 1966	Devils River	Joe Pierce IV
Pinto Creek Station	C	29° 09'	100° 48'	870	Dec.1958	Below Amistad Dam - Eagle Pass	I. B. & W. C.
Presidio (IB&WC Gage)	C	29° 34'	104° 23'	2,550	Oct. 1949	Above Río Conchos - Johnson Ranch	I. B. & W. C.
Prosser Ranch No. 1	C	29° 54'	101° 14'	1,710	Mar.1965	Pecos River Below Sheffield	I. B. & W. C.
Prosser Ranch No. 2	C	29° 59'	101° 16'	1,850	Mar.1965	Devils River	I. B. & W. C.
Prosser Ranch No. 3	C	30° 02'	101° 16'	2,020	Mar.1965	Pecos River Below Sheffield	I. B. & W. C.
Quebec Ranch	V	30° 31'	104° 24'	4,600	1949	Adjacent to Alamito Creek	George Jones
Redford	C	29° 29'	104° 13'	2,500	July 1954	Above Río Conchos - Johnson Ranch	I. B. & W. C.
Roma (Internat'l Bridge)	S	26° 24'	99° 01'	230	1941	Falcon Dam - Rio Grande City	Starr County Bridge Co.
Rosita Creek Siphon	C	28° 41'	100° 24'	760	# 1959	Eagle Pass - Laredo	I. B. & W. C.
Rosita Creek Station	C	28° 36'	100° 24'	700	# 1959	Eagle Pass - Laredo	I. B. & W. C.
San Benito Pump	S	26° 03'	97° 45'	50	Oct. 1933	Lower Rio Grande Valley	I. B. & W. C.
Sawyer, W. E. Ranch	S	30° 28'	100° 47'	2,100	July 1966	Devils River	Geo. Powell
Sellers Ranch	C	29° 34'	101° 02'	1,190	#Feb.1960	Devils River	I. B. & W. C.
Shafter	V	29° 49'	104° 19'	3,800	July 1968	Above Río Conchos - Johnson Ranch	Rosa Munoz
Shannon, Bill Ranch	C	29° 58'	104° 41'	2,750	# 1956	Fort Quitman - Above Río Conchos	Bill Shannon
Sheep Pasture	S	29° 33'	102° 55'	2,210	May 1965	Johnson Ranch - Langtry	Black Gap Game Refuge
Slaughter Ranch	V	29° 57'	102° 41'	2,560	1965	Johnson Ranch - Langtry	Mrs. J. Garner
Stewart Ranch	R	29° 35'	100° 52'	1,330	Feb.1960	Devils River	I. B. & W. C.
Stillwell Crossing	S	29° 24'	102° 50'	1,820	# 1960	Johnson Ranch - Langtry	Ulice Adams

S Standard C Cumulative V Visual R Recording # Some months or years missing
‡ Formerly Oberkampf Ranch

LOCATION OF RAINFALL STATIONS ON THE RIO GRANDE WATERSHED

In United States

NAME OF STATION	TYPE GAGE	LATITUDE	LONGITUDE	ELEV. (FT.)	RECORD BEGAN	WATERSHED SUBDIVISION	OBSERVER
Sub-Station 14	R	30° 16'	100° 35'	2,300	# 1922	Devils River	Texas A&M Experiment Station
Sultenfuss Ranch	S	29° 21'	100° 37'	1,110	1965	Pinto Creek	Udo Sultenfuss
Terlingua Creek Station	C	29° 12'	103° 36'	2,260	Mar.1952	Above Rio Conchos - Johnson Ranch	I. B. & W. C.
Terrell Plant (El Paso Nat. Gas Co.)	R	30° 22'	101° 50'	2,510	July 1962	Pecos River Below Sheffield	Bob Norred
Todd Field	S	30° 51'	101° 27'	2,650	Sept.1964	Pecos River Below Sheffield	R. B. Stephens
Trees Farm	R	28° 38'	100° 25'	720	Mar.1959	Eagle Pass - Laredo	I. B. & W. C.
Van Dalsem Farm	C	28° 27'	100° 19'	700	1959	Eagle Pass - Laredo	I. B. & W. C.
Van Eman, L. T. Ranch	S	29° 52'	103° 59'	3,890	# 1947	Alamito Creek	L. T. Van Eman
Vinegarone	C	29° 57'	100° 46'	1,780	May 1966	Devils River	I. B. & W. C.
Wardlaw Ranch	R	29° 28'	100° 58'	1,110	Aug. 1955	Devils River	I. B. & W. C.
Weyrich Farm	C	28° 40'	100° 24'	760	Sept.1962	Eagle Pass - Laredo	I. B. & W. C.
Whipple Farm	S	26° 04'	97° 29'	25	1952	Lower Rio Grande Valley	Harry Whipple
Whitehead Bros. Ranch	S	30° 02'	100° 52'	1,900	May 1966	Devils River	I. B. & W. C.
Whitehead, Tuffy Ranch	R	29° 38'	101° 07'	1,420	July 1962	Devils River	I. B. & W. C.
Wills Ranch	S	30° 26'	101° 36'	2,450	Sept.1964	Pecos River Below Sheffield	Sam Wills
Wipff Ranch	C	29° 00'	100° 35'	840	Mar.1959	Below Amistad Dam - Eagle Pass	I. B. & W. C.
Woodward, J. F. Ranch	S	30° 08'	103° 36'	4,750	1954	Johnson Ranch - Langtry	J. F. Woodward
Wuensche Farm	S	28° 24'	100° 19'	670	# 1952	Eagle Pass - Laredo	I. B. & W. C.
Yarborough Ranch	S	30° 06'	103° 36'	4,550	1966	Johnson Ranch - Langtry	Venancio Victorino
Zapata Water Plant	S	26° 54'	99° 16'	380	May 1953	Laredo - Falcon Dam	Zapata Water Plant

R Recording S Standard C Cumulative # Some months or years missing

LOCATION OF RAINFALL STATIONS ON THE RIO GRANDE WATERSHED

In Mexico

NAME OF STATION	TYPE GAGE	LATITUDE	LONGITUDE	ELEV. (FT.)	RECORD BEGAN	WATERSHED SUBDIVISION	OBSERVER
A. Blanca Canoas, Nuevo León	S	25° 32'	100° 30'	†	# 1958	Río San Juan	Hydr. Resources
Allende, Coahuila	S	28° 21'	100° 51'	1,230	# 1947	Eagle Pass - Laredo	Hydr. Resources
Anáhuac, Nuevo León	S	27° 15'	100° 08'	656	#June 1933	Río Salado	Hydr. Resources
Aniego 166, Tamaulipas	C	26° 46'	99° 15'	508	Jan. 1964	Laredo - Falcon Dam	I. B. & W. C.
Apodaca, Nuevo León	S	25° 46'	100° 11'	1,330	Feb. 1964	Río San Juan	Hydr. Resources
Argüelles, Tamaulipas	C	26° 11'	98° 28'	†	1962	Lower Rio Grande Valley	I. B. & W. C.
Bachiniva, Chihuahua	S	28° 46'	107° 15'	6,250	# 1952	Adjacent to Río Conchos	Meteor. Service of Mexico
Bajo Río Bravo, Tamaulipas							
No. 1-2	S	25° 56'	97° 46'	†	1964	Lower Rio Grande Valley	Hydr. Resources
No. 1-3	S	25° 50'	97° 42'	†	1964	Lower Rio Grande Valley	Hydr. Resources
No. 1-4	S	25° 51'	97° 45'	†	1964	Lower Rio Grande Valley	Hydr. Resources
No. 1-12	S	25° 56'	97° 38'	†	1964	Lower Rio Grande Valley	Hydr. Resources
No. 1-13	S	25° 44'	97° 40'	†	1964	Lower Rio Grande Valley	Hydr. Resources
No. 1-18	S	25° 49'	97° 42'	†	1964	Lower Rio Grande Valley	Hydr. Resources
No. 2-5	S	25° 48'	97° 49'	†	1964	Lower Rio Grande Valley	Hydr. Resources
No. 2-6	S	25° 44'	97° 53'	†	1964	Lower Rio Grande Valley	Hydr. Resources
No. 2-7	S	25° 39'	97° 42'	†	1964	Lower Rio Grande Valley	Hydr. Resources
No. 2-8	S	25° 40'	97° 55'	†	1964	Lower Rio Grande Valley	Hydr. Resources
No. 2-10	S	25° 36'	97° 52'	†	1964	Lower Rio Grande Valley	Hydr. Resources
No. 2-11	S	25° 35'	97° 46'	†	1964	Lower Rio Grande Valley	Hydr. Resources
No. 3-14	S	25° 56'	97° 59'	†	1964	Lower Rio Grande Valley	Hydr. Resources
No. 3-15	S	25° 46'	98° 01'	†	1964	Lower Rio Grande Valley	Hydr. Resources
No. 3-17	S	25° 49'	97° 58'	†	1964	Lower Rio Grande Valley	Hydr. Resources
No. 4-16	S	25° 35'	98° 00'	†	1964	Lower Rio Grande Valley	Hydr. Resources
Bajo Río San Juan, Tamaulipas							
No. 2-29	S	26° 10'	98° 38'	†	1964	Lower Rio Grande Valley	Hydr. Resources
No. 2-33	S	26° 10'	98° 28'	†	1964	Lower Rio Grande Valley	Hydr. Resources
No. 2-38	S	26° 06'	98° 34'	†	1964	Lower Rio Grande Valley	Hydr. Resources
No. 3-47	S	25° 58'	98° 07'	†	1964	Lower Rio Grande Valley	Hydr. Resources
No. 3-55	S	25° 52'	98° 12'	†	1964	Lower Rio Grande Valley	Hydr. Resources
No. 3-58	S	25° 50'	98° 11'	†	1964	Lower Rio Grande Valley	Hydr. Resources
No. 3-60	S	25° 46'	98° 10'	†	1964	Lower Rio Grande Valley	Hydr. Resources
No. 3-63	S	25° 41'	98° 06'	†	1964	Lower Rio Grande Valley	Hydr. Resources
Balleza, Chihuahua	S	26° 57'	106° 21'	5,870	# 1903	Río Conchos	Meteor. Service of Mexico
Banderas, Chihuahua	S	31° 00'	105° 39'	†	1963	Fort Quitman - Above Río Conchos	Hydr. Resources
Bustamante, Nuevo León	S	26° 32'	100° 31'	1,450	# 1958	Río Salado	Hydr. Resources
Cabezones, Nuevo León	S	24° 59'	99° 45'	†	1962	Adjacent to Río San Juan	Hydr. Resources
Cadereyta, Nuevo León	S	25° 35'	100° 00'	1,180	#Sept. 1904	Río San Juan	Hydr. Resources
Camargo, Chihuahua	S	27° 42'	105° 10'	5,420	Oct. 1956	Río Conchos	Hydr. Resources
Camargo, Tamaulipas	S	26° 19'	98° 50'	223	# 1953	Falcon Dam - Rio Grande City	Hydr. Resources
Carbonera, Nuevo León	S	24° 49'	100° 47'	†	# 1958	Río San Juan	Hydr. Resources
Carichic, Chihuahua	S	27° 55'	107° 04'		May 1961	Río Conchos	Meteor. Service of Chihuahua
Casillas, Nuevo León	S	25° 12'	100° 12'	4,060	# 1958	Río San Juan	Hydr. Resources
Cd. Acuña, Coahuila	S	29° 20'	100° 57'	900	1951	Below Amistad Dam - Eagle Pass	I. B. & W. C.
Cd. Acuña Km. 22, SE., Coahuila	C	29° 08'	100° 50'	1,100	# 1962	Below Amistad Dam - Eagle Pass	I. B. & W. C.
Cd. Díaz Ordáz	S	26° 14'	98° 36'	130	# 1953	Lower Rio Grande Valley	Hydr. Resources
Cd. Guerrero, Chihuahua	S	28° 33'	107° 29'	6,560	#May 1903	Adjacent to Río Conchos	Meteor. Service of Mexico
Cd. Mier, Tamaulipas	S	26° 26'	99° 09'	260	Oct. 1955	Falcon Dam - Rio Grande City	I. B. & W. C.
Cd. Mier Km. 8, SW., Tamaulipas	C	26° 23'	99° 14'	†	1962	Río Alamo	I. B. & W. C.
Cerralvo, Nuevo León	R	26° 05'	99° 37'	1,130	#Nov. 1938	Río San Juan	Hydr. Resources
Cerros Prietos, Chihuahua	S	29° 13'	106° 04'	4,270	Oct. 1962	Adjacent to Río Conchos	Meteor. Service of Mexico
Chihuahua, Chihuahua	S	28° 38'	106° 04'	4,690	# 1900	Río Conchos	Meteor. Service of Mexico
Chupadero, Coahuila	S	29° 05'	100° 51'	980	1961	Río San Diego	F. Jakubesch
Ciénega de Flores, Nuevo León	R	25° 57'	100° 10'	1,770	Apr. 1938	Río San Juan	Hydr. Resources
Ciénega del Toro, Nuevo León	S	25° 05'	100° 20'	7,010	# 1958	Río San Juan	Hydr. Resources
Colombia, Nuevo León	C	27° 42'	99° 46'	†	Jan. 1964	Eagle Pass - Laredo	I. B. & W. C.
Colonia Anáhuac Chihuahua	S	28° 29'	106° 44'	6,550	1961	Río Conchos	Celulosa de Chihuahua, S. A.
Comales, Tamaulipas	R	26° 11'	98° 55'	260	#Mar. 1938	Río San Juan	Hydr. Resources
Conchos, Coahuila	S	28° 01'	101° 20'	†	#Oct. 1950	Río Salado	Hydr. Resources
Control, Tamaulipas	S	25° 58'	97° 49'	59	#June 1942	Lower Rio Grande Valley	Hydr. Resources

S Standard C Cumulative R Recording † Not available # Some months or years missing

LOCATION OF RAINFALL STATIONS ON THE RIO GRANDE WATERSHED

In Mexico

NAME OF STATION	TYPE GAGE	LATITUDE	LONGITUDE	ELEV. (FT.)	RECORD BEGAN	WATERSHED SUBDIVISION	OBSERVER
Coyame, Chihuahua	S	29° 28'	105° 06'	†	Nov.1961	Río Conchos	Meteor. Service of Chihuahua
Cuatro Ciénegas, Coahuila	S	26° 59'	102° 04'	2,430	# 1923	Río Salado	Hydr. Resources
Cuauhtémoc, Chihuahua	S	28° 24'	106° 52'	7,250	#June 1923	Adjacent to Río Conchos	Meteor. Service of Mexico
Cuchillo Parado, Chihuahua	S	29° 26'	104° 53'	2,982	# 1951	Río Conchos	Hydr. Resources
Delicias, Chihuahua	S	28° 11'	105° 28'	3,710	#Aug. 1933	Río Conchos	Hydr. Resources
Don Martín, Coahuila	S	27° 31'	100° 37'	790	#June 1927	Río Salado	Hydr. Resources
El Anteojo, Chihuahua	S	28° 29'	104° 48'	4,130	1963	Adjacent to Río Conchos	Meteor. Service of Mexico
El Cedrito, Coahuila	S	29° 13'	101° 53'	†	Aug. 1961	Langtry - Below Amistad Dam	I. B. & W. C.
El Cuarenta, Chihuahua	S	30° 33'	105° 50'	†	1965	Adjacent to Ft. Quitman Above Río Conchos	Meteor. Service of Mexico
El Cuchillo, Nuevo León	S	25° 43'	99° 16'	590	June 1938	Río San Juan	Hydr. Resources
El Cuervo, Chihuahua	S	30° 15'	105° 08'	3,840	# 1961	Adjacent to Ft. Quitman Above Río Conchos	Hydr. Resources
El Cuervo, Nuevo León	S	27° 35'	100° 18'	†	1964	Río Salado	Mr. Reniu
El Llano, Chihuahua	S	30° 02'	105° 05'	4,000	1965	Adjacent to Ft. Quitman Above Río Conchos	I. B. & W. C.
El Maguey, Chihuahua	S	27° 37'	106° 09'	4,380	July 1955	Río Conchos	Meteor. Service of Chihuahua
El Moral, Coahuila	C	28° 54'	100° 38'	774	# 1962	Below Amistad Dam - Eagle Pass	I. B. & W. C.
El Moral Km. 17, SW, Coahuila	C	28° 50'	100° 46'	900	# 1962	Below Amistad Dam - Eagle Pass	I. B. & W. C.
El Paisano, Coahuila	C	29° 20'	101° 09'	1,250	1962	Below Amistad Dam - Eagle Pass	I. B. & W. C.
El Remolino, Coahuila	S	28° 45'	101° 05'	1,310	June 1958	Río San Rodrigo	I. B. & W. C.
El Sitio, Chihuahua	S	27° 31'	106° 16'	†	July 1955	Río Conchos	Meteor. Service of Chihuahua
El Sueco, Chihuahua	S	29° 54'	106° 24'	5,090	1958	Adjacent to Río Conchos	Meteor. Service of Chihuahua
El Treinta, Coahuila	S	28° 20'	101° 24'	†	1961	Río Salado	I. B. & W. C.
El Vergel, Chihuahua	S	26° 22'	106° 30'	7,350	# 1957	Río Conchos	Meteor. Service of Mexico
Escalón, Chihuahua	S	26° 45'	104° 21'	4,144	# 1957	Adjacent to Río Conchos	Meteor. Service of Mexico
Escuela Ganadería, Chihuahua	S	28° 42'	106° 04'	4,680	1961	Río Conchos	Meteor. Service of Chihuahua
Estación Rosario, Durango	S	26° 30'	105° 38'	†	July 1962	Río Conchos	Hydr. Resources
Galeana, Nuevo León	S	24° 50'	100° 04'	5,430	# 1958	Adjacent to Río San Juan	Hydr. Resources
Gallego, Chihuahua	S	29° 50'	106° 23'	5,100	1958	Adjacent to Río Conchos	Meteor. Service of Chihuahua
Garita Km. 28, Chihuahua	S	31° 33'	106° 28'	3,990	May 1958	El Paso - Ft. Quitman	I. B. & W. C.
Gral. Bravo, Nuevo León	S	25° 48'	99° 11'	590	#Sept. 1906	Río San Juan	Hydr. Resources
Gral. Cepeda, Coahuila	S	25° 23'	101° 29'	4,920	#Aug. 1926	Río San Juan	Hydr. Resources
Gral. Teran (Experiment Station) Nuevo León	S	25° 16'	99° 38'	1,090	# 1958	Río San Juan	Agriculture and Livestock Dept.
Guadalupe, Chihuahua	S	31° 23'	106° 06'	3,650	1958	El Paso - Ft. Quitman	I. B. & W. C.
Hacienda El Alamo, Nuevo León	S	26° 29'	99° 47'	†	1968	Río Alamo	I. B. & W. C.
Hacienda San Miguel, Coahuila	S	29° 13'	101° 30'	†	1961	Langtry - Below Amistad Dam	I. B. & W. C.
Hedionda Grande, Coahuila	S	25° 06'	100° 51'	†	# 1958	Adjacent to Río San Juan	Hydr. Resources
Higueras, Nuevo León	S	25° 58'	100° 01'	1,640	#Sept. 1906	Río San Juan	Meteor. Service of Mexico
Icamole, Nuevo León	S	25° 55'	100° 43'	4,900	# 1958	Río San Juan	Hydr. Resources
I. D. 8, Coahuila	R	29° 35'	101° 23'	1,430	Nov. 1965	Langtry - Below Amistad Dam	I. B. & W. C.
I. D. 12, Coahuila	R	29° 27'	101° 14'	1,230	Nov. 1965	Langtry - Below Amistad Dam	I. B. & W. C.
Iturbide, Nuevo León	S	24° 44'	99° 54'	†	1941	Adjacent to Río San Juan	Hydr. Resources
Jarita, Nuevo León	C	27° 26'	99° 48'	680	#Mar. 1961	Laredo - Falcon Dam	I. B. & W. C.
Jiménez, Chihuahua	S	27° 08'	104° 55'	4,490	# 1951	Río Conchos	Hydr. Resources
Jiménez, Coahuila	S	29° 04'	100° 40'	810	# 1951	Below Amistad Dam - Eagle Pass	I. B. & W. C.
Juárez, Chihuahua	S	31° 44'	106° 29'	3,740	# 1903	El Paso - Ft. Quitman	Hydr. Resources
Km. 99, Chihuahua	S	28° 08'	105° 35'	†	# 1962	Río Conchos	Hydr. Resources
Km. 135, Chihuahua	S	28° 13'	105° 37'	†	# 1962	Río Conchos	Hydr. Resources
La Bahía, Coahuila	S	28° 33'	102° 04'	†	1961	Río Salado	I. B. & W. C.
La Bandera, Tamaulipas	C	26° 42'	99° 22'	†	1962	Laredo - Falcon Dam	I. B. & W. C.
La Boquilla, Chihuahua	S	27° 32'	105° 25'	4,330	# 1910	Río Conchos	Electric Industry of Mexico

Some months or years missing S Standard C Cumulative R Recording † Not available

LOCATION OF RAINFALL STATIONS ON THE RIO GRANDE WATERSHED

In Mexico

NAME OF STATION	TYPE GAGE	LATITUDE	LONGITUDE	ELEV. (FT.)	RECORD BEGAN	WATERSHED SUBDIVISION	OBSERVER
La Campana, Chihuahua	S	29° 20'	106° 20'	4,820	1958	Adjacent to Río Conchos	Meteor. Service of Mexico
La Cieneguilla, Chihuahua	S	27° 40'	106° 21'	†	# 1963	Río Conchos	Meteor. Service of Mexico
La Cruz, Nuevo León	S	25° 28'	100° 26'	†	1958	Río San Juan	Hydr. Resources
La Gloria, Nuevo León	S	26° 53'	99° 49'	390	#May 1958	Río Salado	I. B. & W. C.
La Popa, Nuevo León	S	26° 10'	100° 50'	3,230	# 1958	Río San Juan	Hydr. Resources
La Trasquila, Chihuahua	S	29° 08'	107° 08'	†	# 1962	Río Conchos	Hydr. Resources
Laguna de Salinillas, Nuevo León	S	27° 26'	100° 23'	750	# 1940	Río Salado	Hydr. Resources
Laguna de Sánchez, Nuevo León	R	25° 22'	100° 17'	6,500	Apr. 1941	Río San Juan	Hydr. Resources
Lampazos, Nuevo León	S	27° 02'	100° 30'	1,120	# 1958	Río Salado	Meteor. Service of Mexico
Las Burras, Chihuahua	S	28° 31'	105° 26'	3,590	July 1949	Río Conchos	Hydr. Resources
Las Cheyas, Chihuahua	S	29° 38'	106° 02'	4,340	# 1955	Adjacent to Río Conchos	Meteor. Service of Chihuahua
Las Comitas, Nuevo León	S	25° 26'	100° 09'	1,670	# 1940	Río San Juan	Hydr. Resources
Las Enramadas, Nuevo León	S	25° 30'	99° 31'	730	#Sept. 1926	Río San Juan	Hydr. Resources
Las Norias, Coahuila	S	29° 14'	102° 22'	†	#May 1959	Johnson Ranch - Langtry	I. B. & W. C.
Las Tortillas, Tamaulipas	C	26° 50'	99° 34'	360	May 1961	Laredo - Falcon Dam	I. B. & W. C.
Las Varas, Chihuahua	S	29° 48'	106° 42'	†	1958	Adjacent to Río Conchos	Meteor. Service of Mexico
Las Vírgenes, Chihuahua	S	28° 10'	105° 38'	4,070	# 1943	Río Conchos	Hydr. Resources
Lázaro Cárdenas, Chihuahua	S	28° 23'	105° 37'	3,940	1961	Río Conchos	Meteor. Service of Mexico
Linares, Nuevo León	R	24° 52'	99° 34'	1,180	# 1900	Adjacent to Río San Juan	Hydr. Resources
Los Barriles, Chihuahua	S	30° 55'	105° 45'	4,860	July 1958	El Paso - Ft. Quitman	I. B. & W. C.
Los Ojos, Chihuahua	S	29° 10'	106° 21'	4,990	1957	Adjacent to Río Conchos	Meteor. Service of Chihuahua
Los Pozos, Chihuahua	S	28° 53'	106° 02'	3,940	# 1956	Río Conchos	Meteor. Service of Chihuahua
Los Ramones, Nuevo León	R	25° 42'	99° 38'	260	#Sept. 1939	Río San Juan	Hydr. Resources
Luis L. León, Chihuahua	S	31° 05'	105° 38'	3,460	Apr. 1958	El Paso - Ft. Quitman	I. B. & W. C.
Matjoma, Chihuahua	S	28° 55'	104° 21'	4,270	Aug. 1955	Río Conchos	Meteor. Service of Chihuahua
Majaica, Chihuahua	S	28° 53'	106° 21'	6,860	June 1963	Río Conchos	Meteor. Service of Mexico
Manantial María, Coahuila	C	29° 24'	101° 02'	910	1962	Below Amistad Dam - Eagle Pass	I. B. & W. C.
Manuel Benavides, Chihuahua	S	29° 06'	103° 54'	†	Oct. 1961	Above Río Conchos - Johnson Ranch	Meteor. Service of Mexico
Matamoros, Tamaulipas	S	25° 52'	97° 30'	33	# 1958	Lower Rio Grande Valley	Hydr. Resources
Méndez, Tamaulipas	S	25° 07'	98° 35'	430	#Sept. 1939	Adjacent to Lower Rio Grande Valley	Hydr. Resources
Meoqui, Chihuahua	S	28° 16'	105° 29'	3,790	1961	Río Conchos	Meteor. Service of Mexico
Miguel Alemán, Tamaulipas	S	26° 24'	99° 02'	180	1964	Falcon Dam - Rio Grande City	Hydr. Resources
Mimbres, Nuevo León	S	24° 58'	100° 16'	†	# 1958	Río Salado	Hydr. Resources
Mina, Nuevo León	S	26° 00'	100° 32'	†	# 1958	Río San Juan	Hydr. Resources
Mina La Borrada, Coahuila	S	29° 21'	102° 36'	†	Aug. 1961	Johnson Ranch - Langtry	I. B. & W. C.
Monclova, Coahuila	S	26° 54'	101° 25'	1,920	# 1897	Río Salado	Hydr. Resources
Montemorelos, Nuevo León	S	25° 12'	99° 50'	1,420	#Aug. 1904	Río San Juan	Hydr. Resources
Monterrey, Nuevo León	S	25° 40'	100° 18'	1,740	# 1896	Río San Juan	Hydr. Resources
Nonoava, Chihuahua	S	27° 29'	106° 44'	†	# 1963	Río Conchos	Meteor. Service of Chihuahua
Nueva Cd. Guerrero, Tamaulipas	S	26° 34'	99° 14'	350	#May 1954	Laredo - Falcon Dam	I. B. & W. C.
Nueva Hacienda Golondrinas, Nuevo León	S	26° 43'	100° 30'	†	1968	Río Salado	I. B. & W. C.
Nueva Rosita, Coahuila	S	27° 56'	101° 13'	1,410	#Aug. 1925	Río Salado	Meteor. Service of Mexico
Nuevo Laredo, Tamaulipas	V	27° 30'	99° 30'	430	1950	Laredo - Falcon Dam	I. B. & W. C.
Nuevo Laredo, Tamaulipas	S	27° 30'	99° 30'	430	# 1909	Laredo - Falcon Dam	Meteor. Service of Mexico
Nuevo Laredo Km. 26, SSW, Tamaulipas	C	27° 17'	99° 37'	†	Apr. 1961	Laredo - Falcon Dam	I. B. & W. C.
Nuevo Laredo Km. 52, SSW, Nuevo León θ	C	27° 04'	99° 44'	†	Apr. 1961	Laredo - Falcon Dam	I. B. & W. C.
Ocampo, Coahuila	S	27° 19'	102° 24'	3,770	# 1960	Adjacent to Río Salado	Hydr. Resources
Ojinaga, Chihuahua	S	29° 34'	104° 24'	2,590	#Apr. 1954	Río Conchos	I. B. & W. C.
Ojinaga, Chihuahua	S	29° 34'	104° 25'	2,620	#Nov. 1906	Río Conchos	Meteor. Service of Mexico
Ojo Caliente, Chihuahua	S	27° 41'	105° 12'	4,010	1942	Río Conchos	Hydr. Resources

\# Some months or years missing S Standard C Cumulative R Recording V Visual
† Not Available θ Data for this station previously published under "Nuevo Laredo, Km. 50, SSW, Tamaulipas"

LOCATION OF RAINFALL STATIONS ON THE RIO GRANDE WATERSHED

In Mexico

NAME OF STATION	TYPE GAGE	LATITUDE	LONGITUDE	ELEV. (FT.)	RECORD BEGAN	WATERSHED SUBDIVISION	OBSERVER
Pajonal, Nuevo León	S	25° 29'	100° 23'	†	1958	Río San Juan	Hydr. Resources
Palestina, Coahuila	S	29° 09'	100° 59'	1,080	# 1931	Río San Diego	Hydr. Resources
Parral, Chihuahua	S	26° 56'	105° 39'	5,450	# 1903	Río Conchos	Meteor. Service of Mexico
Parras, Coahuila	S	25° 27'	102° 10'	5,510	1958	Adjacent to Río San Juan	Hydr. Resources
Parrita, Chihuahua	S	29° 25'	106° 29'	†	#Sept. 1958	Adjacent to Río Conchos	Hydr. Resources
Piedras Negras, Coahuila	S	28° 43'	100° 31'	820	# 1951	Below Amistad Dam - Eagle Pass	Meteor. Service of Mexico
Piedras Negras Km. 22, SW, Coahuila	C	28° 33'	100° 38'	†	# 1962	Eagle Pass - Laredo	I. B. & W. C.
Planta Zootécnica, Chihuahua	S	28° 41'	106° 04'	4,770	# 1957	Río Conchos	Meteor. Service of Mexico
Porvenir, Chihuahua	S	31° 14'	105° 52'	3,530	1958	El Paso - Ft. Quitman	I. B. & W. C.
Potosí, Nuevo León	S	24° 51'	100° 19'	6,260	# 1958	Adjacent to Río San Juan	Hydr. Resources
Potrero del Llano, Chihuahua	S	29° 13'	104° 26'	3,540	June 1964	Above Río Conchos - Johnson Ranch	I. B. & W. C.
Potrero Redondo, Nuevo León	S	25° 16'	100° 10'	†	# 1958	Río San Juan	Hydr. Resources
Praxedis G. Guerrero, Chihuahua	S	31° 22'	106° 00'	3,560	1958	El Paso - Ft. Quitman	I. B. & W. C.
Presa Amistad, Coahuila	R	29° 26'	101° 04'	1,040	1962	Langtry - Below Amistad Dam	I. B. & W. C.
Presa Anzaldúas, Tamaulipas	V	26° 08'	98° 20'	105	Apr. 1960	Lower Río Grande Valley	I. B. & W. C.
Presa Cabeceras, Coahuila	S	29° 02'	101° 05'	†	1964	Below Amistad Dam - Eagle Pass	Hydr. Resources
Presa Centenario, Coahuila	S	29° 13'	100° 57'	†	1964	Arroyo Las Vacas	Hydr. Resources
Presa Chihuahua, Chihuahua	S	28° 34'	106° 10'	5,230	Oct. 1961	Río Conchos	Hydr. Resources
Presa El Granero, Chihuahua	S	28° 57'	105° 17'	†	Oct. 1964	Río Conchos	Hydr. Resources
Presa San Miguel, Coahuila	S	29° 02'	100° 57'	1,000	1964	Río San Diego	Hydr. Resources
Progreso, Coahuila	S	27° 25'	101° 00'	1,210	#Feb. 1943	Río Salado	Hydr. Resources
Ramos Arispe, Coahuila	S	25° 32'	100° 57'	4,590	#Apr. 1907	Río San Juan	Meteor. Service of Mexico
Rancho Los Vidrios, Tamaulipas	C	27° 35'	99° 37'	450	Sept. 1956	Eagle Pass - Laredo	I. B. & W. C.
Rancho Mercedes, Coahuila	S	28° 02'	100° 01'	540	May 1959	Eagle Pass - Laredo	I. B. & W. C.
Rancho Palo Blanco, Nuevo León	S	26° 39'	100° 12'	1,020	1968	Río Salado	I. B. & W. C.
Rancho Pascualito, Nuevo León	S	26° 50'	100° 15'	980	1968	Río Salado	I. B. & W. C.
Rancho San Diego, Coahuila	S	27° 59'	100° 35'	†	May 1959	Eagle Pass - Laredo	I. B. & W. C.
Rancho San Juan de la Palma, Tamaulipas	S	26° 54'	99° 20'	350	Apr. 1955	Laredo - Falcon Dam	I. B. & W. C.
Rancho San Rafael Bustamante, Tamps.	C	26° 54'	99° 30'	†	Nov. 1967	Río Salado	I. B. & W. C.
Rancho Santa Ana, Nuevo León	S	26° 34'	100° 10'	970	1961	Río Salado	Manuel Ancira
Rayones, Nuevo León	S	25° 01'	100° 05'	1,970	#Oct. 1926	Río San Juan	Hydr. Resources
Reata, Coahuila	S	26° 07'	101° 04'	3,070	#July 1944	Río San Juan	Hydr. Resources
Retamal, Tamaulipas	S	26° 02'	98° 03'	82	Oct. 1949	Lower Río Grande Valley	I. B. & W. C.
Reynosa, Tamaulipas	R	26° 06'	98° 17'	130	# 1941	Lower Río Grande Valley	Hydr. Resources
Reynosa Km. 22, SW, Tamaulipas	C	26° 00'	98° 30'	†	# 1962	Lower Río Grande Valley	I. B. & W. C.
Reynosa Km. 40, SW, Nuevo León	S	25° 56'	98° 39'	492	#Feb. 1959	Lower Río Grande Valley	I. B. & W. C.
Rinconada, Nuevo León	S	25° 41'	100° 42'	4,790	#Apr. 1944	Río San Juan	Hydr. Resources
Río Bravo, Tamaulipas	S	25° 59'	98° 06'	85	#Sept. 1950	Lower Río Grande Valley	Hydr. Resources
Río Salado Ribereña, Tamaulipas	S	26° 48'	99° 24'	330	July 1964	Laredo - Falcon Dam	I. B. & W. C.
Rosetilla, Chihuahua	S	28° 15'	105° 18'	3,780	1940	Río Conchos	Electric Industry of Mexico
Rusio, Nuevo León	S	24° 42'	100° 26'	6,570	#June 1956	Adjacent to Río San Juan	Hydr. Resources
Sabinas Hidalgo, Nuevo León	S	26° 30'	100° 10'	1,030	May 1958	Río Salado	I. B. & W. C.
Saltillo, Coahuila	S	25° 26'	101° 00'	5,280	# 1886	Río San Juan	Hydr. Resources
Samalayuca, Chihuahua	S	31° 21'	106° 28'	4,180	1958	El Paso - Ft. Quitman	Meteor. Service of Mexico
San Agustín, Chihuahua	S	31° 31'	106° 15'	3,650	1958	El Paso - Ft. Quitman	I. B. & W. C.
San Antonio de las Alazanas, Coahuila	S	25° 16'	100° 35'	†	1958	Río San Juan	Hydr. Resources
San Antonio, Chihuahua	S	31° 01'	106° 00'	4,490	July 1958	El Paso - Ft. Quitman	I. B. & W. C.
San Antonio, Durango	S	26° 25'	105° 21'	5,430	# 1943	Río Conchos	Hydr. Resources

Some months or years missing S Standard C Cumulative R Recording V Visual
† Not available

LOCATION OF RAINFALL STATIONS ON THE RIO GRANDE WATERSHED

In Mexico

NAME OF STATION	TYPE GAGE	LATITUDE	LONGITUDE	ELEV. (FT.)	RECORD BEGAN	WATERSHED SUBDIVISION	OBSERVER
San Buenaventura, Coahuila	S	27° 04'	101° 33'	2,300	#Dec. 1926	Río Salado	Meteor. Service of Mexico
San Fernando, Coahuila	S	29° 25'	101° 43'	†	Aug. 1961	Langtry - Below Amistad Dam	I. B. & W. C.
San Gerónimo, Coahuila	C	28° 29'	101° 49'	†	1951	Río Salado	I. B. & W. C.
San Gregorio, Coahuila	C	29° 22'	101° 20'	†	1962	Langtry - Below Amistad Dam	I. B. & W. C.
San Ignacio, Tamaulipas	C	27° 04'	99° 28'	†	1964	Laredo - Falcon Dam	I. B. & W. C.
San Javier, Nuevo León	C	26° 16'	99° 25'	†	1962	Río Alamo	I. B. & W. C.
San Juan, Nuevo León	S	25° 33'	99° 50'	880	#Nov. 1943	Río San Juan	Hydr. Resources
San Rafael, Nuevo León	S	25° 02'	100° 33'	†	# 1958	Adjacent to Río San Juan	Hydr. Resources
Santa Bárbara, Chihuahua	S	26° 48'	105° 49'	6,460	1964	Río Conchos	Hydr. Resources
Santa Catarina, Nuevo León	R	25° 40'	100° 29'	2,230	Oct. 1937	Río San Juan	Hydr. Resources
Santa Rita, Chihuahua	S	27° 49'	104° 31'	3,950	1956	Adjacent to Río Conchos	Meteor. Service of Chihuahua
Santa Rosa, Coahuila	V	29° 38'	101° 28'	†	# 1958	Langtry - Below Amistad Dam	Ind. Co-operator
Santo Domingo, Coahuila	S	28° 57'	102° 24'	†	July 1960	Río Salado	I. B. & W. C.
Sierra Mojada, Coahuila	S	27° 17'	103° 42'	4,120	# 1897	Adjacent to Johnson Ranch - Langtry	Hydr. Resources
Siquifichic, Chihuahua	S	27° 16'	107° 13'	7,610	July 1956	Adjacent to Río Conchos	Meteor. Service of Mexico
Tacubaya, Chihuahua	S	28° 08'	104° 23'	5,150	July 1962	Adjacent to Río Conchos	Meteor. Service of Mexico
Tinajas, Chihuahua	S	31° 08'	106° 05'	4,320	1958	El Paso - Ft. Quitman	I. B. & W. C.
Topo Chico, Nuevo León	R	25° 44'	100° 20'	1,540	#Aug. 1939	Río San Juan	Hydr. Resources
Tres Hermanos, Chihuahua	S	27° 46'	106° 08'	4,300	1961	Río Conchos	Meteor. Service of Chihuahua
Túnel San Francisco, Nuevo León	S	25° 25'	100° 10'	4,300	# 1958	Río San Juan	Hydr. Resources
Vado de Cedillos, Chihuahua	S	31° 13'	105° 48'	3,500	Apr. 1958	El Paso - Ft. Quitman	I. B. & W. C.
Valadeces, Tamaulipas	S	26° 14'	98° 40'	†	1964	Lower Rio Grande Valley	Hydr. Resources
Vallecillo, Nuevo León	S	26° 40'	99° 59'	900	#June 1938	Río Salado	Hydr. Resources
Valle Allende, Chihuahua	S	26° 56'	105° 23'	†	Mar. 1962	Río Conchos	Meteor. Service of Chihuahua
Valle Hermoso, Tamaulipas	S	25° 41'	97° 48'	52	#June 1949	Lower Rio Grande Valley	Hydr. Resources
Victoria, Chihuahua	S	27° 58'	104° 33'	4,810	June 1963	Adjacent to Río Conchos	Meteor. Service of Mexico
Villa Aldama, Chihuahua	S	28° 50'	105° 55'	4,140	1961	Río Conchos	Meteor. Service of Mexico
Villa Allende, Nuevo León	S	25° 17'	100° 01'	2,210	#Nov. 1938	Río San Juan	Hydr. Resources
Villa Coronado, Chihuahua	S	26° 44'	105° 08'	4,790	Aug. 1964	Río Conchos	Hydr. Resources
Villa de Santiago, Nuevo León	S	25° 25'	100° 09'	1,460	# 1923	Río San Juan	Hydr. Resources
Villa Guerrero, Coahuila	S	28° 19'	100° 23'	690	#June 1958	Eagle Pass - Laredo	I. B. & W. C.
Villa Hidalgo, Coahuila	S	27° 47'	99° 52'	660	1951	Eagle Pass - Laredo	I. B. & W. C.
Villa Juárez, Coahuila	S	27° 37'	100° 44'	1,000	# 1943	Río Salado	Hydr. Resources
Villalba, Chihuahua	S	28° 10'	105° 46'	3,940	Oct. 1940	Río Conchos	Hydr. Resources
Zaragoza, Chihuahua	S	31° 39'	106° 21'	3,750	Feb. 1958	El Paso - Ft. Quitman	Hydr. Resources

\# Some months or years missing S Standard C Cumulative R Recording V Visual
† Not available

EVAPORATION IN THE RIO GRANDE BASIN IN THE UNITED STATES

In Inches

Tabulated below are records of evaporation observed at eight stations in Texas operated by the United States Section of this Commission from Presidio to Brownsville. At all stations, the exposure to wind was uniform and relatively unimpeded. The sites were kept cleared of all high brush and trees within 150 feet, and all brush, tall weeds, and other obstructions within 100 feet of the fenced enclosures. Within the enclosures, all vegetation has been eradicated or kept trimmed to within 3 inches of the ground surface. For specific location of these stations refer to data opposite same station name shown in "Location of Rainfall Stations on the Rio Grande Watershed," pages 136 through 139 in this bulletin.

Records were obtained by means of:

1. U. S. Weather Bureau Standard Pan. A circular pan, 4 feet in diameter and 10 inches deep, made of 22-gage galvanized iron, is set on a wooden platform with the rim of the pan 16 inches above the ground. The water level is maintained between 2 and 3 inches below the rim of the pan and is measured with a micrometer gage. This type of pan was in operation at Amistad Dam and Falcon Dam.

2. A circular pan, 2 feet in diameter and 36 inches deep, made of 22-gage galvanized iron, is set in the ground with the rim of the pan 3 inches above the ground surface and the top covered with a circular screen of No. 4 (1/4" mesh) galvanized hardware cloth. The water level is maintained between 2.5 and 3.5 inches below the rim of the pan. This type of pan was in operation at Falcon Dam. This same type of pan, equipped with an automatic feed tank that maintains the water at a level 3 inches below the rim of the pan, was in operation at Martin King Ranch, Wardlaw Ranch, and Eagle Pass.

3. An evaporometer, developed by the United States Section of this Commission and calibrated against a 2-foot pan described above, was in operation at Presidio, Johnson Ranch, and at a site 7 miles east of Brownsville.

Month	Presidio		Johnson Ranch		Martin King Ranch		Wardlaw Ranch	
	1968	Average 1950-1968	1968	Average 1950-1968	1968	#Average 1956-1968	1968	#Average 1955-1968
Jan.	2.87	3.63	2.61	3.60	1.66	3.11	1.66	3.04
Feb.	5.68	5.21	4.10	5.18	2.74	3.66	2.54	3.63
Mar.	5.18	8.34	5.63	8.49	4.11	6.19	3.41	5.95
Apr.	9.18	10.24	9.16	10.73	4.86	7.37	5.39	6.76
May	10.62	12.33	11.36	12.40	6.17	8.57	6.08	7.96
June	13.42	13.34	11.53	12.89	9.07	10.69	9.02	10.54
July	8.80	12.57	10.33	13.09	8.84	11.70	9.33	12.06
Aug.	8.89	11.84	9.69	11.84	10.90	11.01	11.42	10.75
Sept.	7.33	9.99	5.64	9.60	6.24	7.78	6.24	7.98
Oct.	7.44	7.79	6.88	7.57	5.56	5.95	5.37	5.69
Nov.	4.75	4.95	4.17	4.88	4.21	3.99	4.01	3.91
Dec.	4.90	3.43	3.54	3.45	3.39	3.21	2.97	2.94
Total	89.06	103.66	84.64	103.72	67.75	83.23	67.44	81.21

Month	Amistad Dam		Eagle Pass		Falcon Dam				Brownsville	
					2-Foot Pan		4-Foot Pan			
	1968	Average March 1963-1968	1968	#Average 1964-1968	1968	#Average 1950-1968	1968	#Average 1956-1968	1968	#Average 1958-1968
Jan.	2.26	4.19	2.11	3.00	2.42	3.51	2.84	4.07	2.46	2.28
Feb.	3.53	4.49	2.92	3.32	2.85	4.50	3.70	5.40	3.00	3.01
Mar.	5.32	8.55	3.59	5.06	5.33	6.60	6.72	8.48	6.09	4.32
Apr.	8.67	10.25	5.53	6.75	4.34	7.91	7.49	10.66	3.43	5.24
May	8.96	10.98	4.90	6.27	6.78	9.71	9.78	12.69	5.35	5.66
June	12.46	13.89	10.13	10.42	9.72	11.20	12.47	13.90	6.05	6.16
July	13.44	17.23	9.53	11.98	9.02	13.38	11.49	16.55	5.76	7.06
Aug.	15.82	15.22	9.07	10.28	10.22	11.96	13.22	15.32	6.16	6.58
Sept.	9.47	10.33	6.05	6.24	5.19	8.32	7.27	10.38	4.09	5.02
Oct.	7.77	8.16	4.72	5.96	5.40	6.70	6.50	7.85	5.51	4.29
Nov.	5.47	5.15	4.33	3.70	4.25	4.75	5.25	5.50	4.43	3.71
Dec.	4.31	3.76	3.91	3.85	4.02	3.77	4.76	4.01	4.69	2.95
Total	97.48	112.20	66.79	76.83	69.54	92.31	91.49	114.81	57.02	56.28

Some months missing

EVAPORATION IN THE RIO GRANDE BASIN IN MEXICO

In Inches

Tabulated below are records of evaporation observed at nine stations operated and maintained by the Mexican Section of this Commission. Eight stations are along the Rio Grande from Cd. Acuña, Coahuila to Retamal, Tamaulipas and one is located on the Río Conchos near Ojinaga, Chihuahua. At all stations, except Ojinaga, the sites were kept cleared of all high brush and trees within 150 feet, and of all brush and tall weeds within 100 feet of the fenced enclosures. There are several large trees at the Ojinaga station. The corrugated iron gage well, 42 inches in diameter, and one A-frame of the cableway of the Río Conchos stream gaging station are in the north end of the enclosure. Inside the enclosures, all vegetation had been eradicated or was kept trimmed to within 3 inches of the ground surface. Except for a water barrel and a thermometer shelter in the northeast and northwest corners of the enclosures, the exposure to wind was uniform and relatively unimpeded. For specific location of these stations refer to data opposite same station name shown in "Location of Rainfall Stations on the Rio Grande Watershed," pages 140 through 144 in this bulletin.

The type of pan used at all these stations was a U. S. Weather Bureau Standard Pan, 4 feet in diameter and 10 inches deep, made of 22-gage galvanized iron, set on a wooden platform with the rim of the pan 16 inches above the ground. The water level was maintained between 2 and 3 inches below the rim of the pan and was measured with a micrometer gage.

Data for other evaporation stations in the Rio Grande Basin in Mexico, which were operated by various Mexican agencies, are available in Water Bulletin Number 38 published by the Mexican Section of this Commission.

Month	Ojinaga, Chihuahua		Cd. Acuña, Coahuila		Jiménez, Coahuila		Hidalgo, Coahuila	
	1968	#Average April 1954-1968	1968	#Average 1951-1968	1968	#Average 1951-1968	1968	Average Feb. 1951-1968
Jan.	3.50	3.51	1.97	3.52	2.17	3.44	2.68	4.15
Feb.	5.98	5.09	3.27	4.77	3.23	4.33	3.50	5.39
Mar.	7.24	8.41	4.57	7.91	4.21	6.67	5.67	8.12
Apr.	11.30	10.89	7.28	9.04	5.43	7.54	6.73	10.60
May	15.24	13.50	7.76	10.17	6.18	8.75	9.09	12.46
June	16.61	13.70	10.59	12.04	8.70	10.53	12.60	14.43
July	11.81	13.30	12.40	13.74	8.86	12.11	12.17	16.28
Aug.	11.46	11.35	13.27	12.51	10.00	10.89	14.80	14.80
Sept.	9.72	9.16	8.15	9.07	5.31	7.59	8.35	10.32
Oct.	9.13	7.30	6.89	6.41	4.33	5.23	5.87	7.56
Nov.	5.20	4.44	4.29	3.95	3.43	3.29	5.43	4.97
Dec.	4.06	3.22	3.43	3.19	3.15	2.88	3.66	3.90
Total	111.25	103.87	83.87	96.32	65.00	83.25	90.55	112.98

Month	Nuevo Laredo, Tamaulipas		Rancho San Juan de la Palma, Tamaulipas		Nueva Cd. Guerrero, Tamaulipas		Cd. Mier, Tamaulipas		Retamal, Tamaulipas	
	1968	Average Aug. 1964-1968	1968	#Average April 1955-1968	1968	#Average June 1954-1968	1968	#Average Oct. 1955-1968	1968	#Average 1951-1968
Jan.	3.19	4.19	2.48	3.77	2.52	3.61	2.83	3.68	2.24	4.03
Feb.	4.21	4.74	4.02	5.03	3.35	4.40	3.50	4.82	3.43	4.74
Mar.	6.77	7.57	5.43	7.56	6.14	7.21	6.54	7.61	5.79	6.62
Apr.	7.56	10.11	6.46	9.87	6.34	9.13	6.10	9.44	6.10	8.18
May	10.55	10.75	9.13	11.93	8.70	10.93	8.46	11.20	8.15	8.86
June	12.44	13.25	10.94	12.72	10.59	11.82	10.98	12.60	8.19	9.21
July	11.57	14.56	11.46	14.34	10.55	14.01	11.14	15.13	7.99	10.11
Aug.	13.66	13.43	10.04	13.87	12.28	12.94	12.99	13.82	6.89	10.02
Sept.	8.07	9.73	7.24	10.07	6.81	9.36	7.13	10.12	6.34	7.45
Oct.	7.68	7.49	5.67	7.57	5.83	6.99	6.18	7.77	5.98	6.15
Nov.	5.51	5.06	5.24	5.15	4.92	4.88	5.16	4.91	4.57	4.37
Dec.	4.45	4.05	3.43	3.71	4.21	3.55	4.41	3.74	4.06	3.71
Total	95.66	104.93	81.54	105.59	82.24	98.83	85.42	104.84	69.73	83.45

Some months missing

TEMPERATURE, HUMIDITY, AND WIND

The maximum and minimum temperatures shown for the stations in Mexico are from daily maximum and minimum thermometer observations. The mean monthly temperatures are averages of these daily maximum and minimum temperatures.

The mean monthly temperatures and relative humidities shown for stations in the United States were integrated from continuous records of hygrothermographs, housed in louvered shelters, with the sensing elements of the instruments 16 inches above the ground and 9 feet southwest of either a 2 or 4-foot diameter evaporation pan. The maximum and minimum temperatures shown below are the extreme temperatures for the month as recorded on the charts except for Falcon Dam and Amistad Dam where the readings are based on daily maximum and minimum thermometer observations.

Monthly mean wind velocities are based on the total miles of wind movement indicated by a standard 3-cup anemometer installed and operated according to specifications for a Class A Weather Bureau evaporation station.

Temperature - Degrees Fahrenheit
In the United States

Month	Amistad Dam, Texas				Eagle Pass, Texas				Falcon Dam, Texas			
	Mean 1968	Average March 1963-1968	1968		Mean 1968	#Average 1964-1968	1968		Mean 1968	Average July 1950-1968	1968	
			Max.	Min.			Max.	Min.			Max.	Min.
Jan.	51.7	50.7	76	30	51.3	51.4	80	28	55.8	56.5	84	31
Feb.	52.1	51.5	79	32	51.3	52.6	74	32	55.8	60.4	81	30
Mar.	59.4	62.4	84	36	57.1	62.2	84	38	64.4	67.6	87	33
Apr.	70.4	73.3	97	46	70.0	73.8	92	48	74.8	75.8	99	47
May	79.2	77.2	101	58	76.7	77.2	96	58	82.8	80.6	98	60
June	84.2	83.2	102	66	82.4	83.7	99	64	84.7	84.8	102	66
July	84.5	86.5	100	70	83.1	87.4	100	71	85.5	86.9	100	69
Aug.	87.4	85.3	105	71	85.9	85.7	104	70	88.1	86.5	105	68
Sept.	79.3	79.4	102	62	76.8	78.5	99	60	81.3	81.7	101	62
Oct.	74.1	70.6	97	54	72.6	69.4	92	48	77.2	74.2	95	51
Nov.	57.5	62.0	86	36	59.1	62.2	86	36	66.3	64.7	89	35
Dec.	50.8	51.1	72	29	52.1	53.3	76	28	61.7	57.9	89	31
Yearly	69.2	69.4	105	29	68.2	69.8	104	28	73.2	73.1	105	30

Temperature - Degrees Fahrenheit
In Mexico

Month	Cd. Juárez, Chihuahua				Ojinaga, Chihuahua				Cd. Acuña, Coahuila			
	Mean 1968	#Average July 1960-1968	1968		Mean 1968	#Average April 1954-1968	1968		Mean 1968	#Average April 1951-1968	1968	
			Max.	Min.			Max.	Min.			Max.	Min.
Jan.	44.6	44.0	70	25	50.0	48.5	79	25	48.2	49.2	75	25
Feb.	51.8	49.4	75	30	57.2	53.5	82	34	50.0	54.7	79	28
Mar.	53.6	56.9	86	28	59.0	60.8	90	30	57.2	63.0	84	28
Apr.	64.4	64.4	86	36	69.8	70.6	97	46	69.8	72.6	97	39
May		75.6			80.6	78.9	106	57	77.0	79.0	102	54
June	80.6	80.6	102	54	86.0	84.9	111	63	82.4	85.4	102	59
July	78.8	83.0	99	63	82.4	85.5	102	64	84.2	87.9	102	68
Aug.	77.0	80.0	95	63	84.2	83.9	104	66	86.0	88.0	104	68
Sept.	73.4	74.9	93	48	77.0	79.4	97	57	78.8	82.1	100	52
Oct.	64.4	65.1	90	41	73.4	69.9	97	46	73.4	72.0	95	43
Nov.	50.0	52.6	77	27	57.2	57.9	88	32	57.2	59.5	91	28
Dec.		46.1			48.2	49.7	75	19	50.0	51.0	77	9
Yearly		64.4			68.8	68.6	111	19	67.8	70.4	104	9

Month	Chupadero, Coahuila				Jiménez, Coahuila				El Remolino, Coahuila			
	Mean 1968	#Average 1961-1968	1968		Mean 1968	#Average March 1951-1968	1968		Mean 1968	Average June 1958-1968	1968	
			Max.	Min.			Max.	Min.			Max.	Min.
Jan.	51.8	49.3	88	25	51.8	51.8	77	27	53.6	54.7	91	27
Feb.	53.6	54.7	86	32	51.8	56.3	75	34	60.8	59.3	90	28
Mar.	60.8	64.0	95	32	57.2	62.9	81	34	60.8	66.3	95	34
Apr.	73.4	74.1	109	41	68.0	72.0	88	43	75.2	75.0	108	45
May	80.6	78.4	111	55	77.0	77.7	95	52	80.6	79.1	109	52
June	87.8	84.0	113	63	84.2	84.0	97	64	84.2	84.4	111	59
July	89.6	87.4	113	70	84.2	86.0	99	72	86.0	86.5	111	64
Aug.	86.0	85.6	104	68	86.0	85.9	102	70	87.8	86.1	115	63
Sept.	77.0	81.0	97	57	78.8	80.5	99	57	86.0	82.6	115	50
Oct.	73.4	71.6	91	46	73.4	71.9	93	45	77.0	73.1	106	41
Nov.	57.2	61.7	82	32	60.8	61.0	90	32	64.4	65.2	97	28
Dec.	48.2	51.5	81	23	51.8	53.4	82	27	64.4	57.9	102	34
Yearly	70.0	70.3	113	23	68.8	70.3	102	27	73.4	72.5	115	27

Some months missing

TEMPERATURE, HUMIDITY, AND WIND

Temperature - Degrees Fahrenheit
In Mexico

Month	Piedras Negras, Coahuila				Rancho Mercedes, Coahuila				Nuevo Laredo, Tampa., C. I. L. A.			
	Mean 1968	#Average April 1951-1968	1968 Max.	1968 Min.	Mean 1968	#Average June 1959-1968	1968 Max.	1968 Min.	Mean 1968	Average August 1964-1968	1968 Max.	1968 Min.
Jan.	51.8	50.6	81	27	55.4	55.9	84	27	53.6	56.3	82	30
Feb.	50.0	55.1	73	27	57.2	59.2	82	28	53.6	56.3	81	36
Mar.	59.0	61.9	84	32	51.8	64.4	86	28	62.6	66.2	90	37
Apr.	69.8	71.4	91	45	62.6	71.7	86	39	73.4	78.4	97	52
May	77.0	77.5	99	55	69.8	75.8	90	43	80.6	81.5	102	61
June	82.4	84.1	100	59	82.4	83.4	100	55	80.6	85.1	102	64
July	84.2	86.7	100	70	80.6	86.0	99	64	86.0	88.2	104	72
Aug.	86.0	86.3	104	70	84.2	85.3	102	64	84.2	87.1	106	72
Sept.	77.0	80.1	99	59	82.4	81.8	100	57	80.6	83.1	106	63
Oct.	73.4	70.2	93	46	69.8	75.2	93	43	77.0	74.1	99	52
Nov.	57.2	58.8	86	32	66.2	66.3	88	34	62.6	68.0	90	37
Dec.	53.6	51.7	79	27	59.0	59.2	84	30	59.0	58.3	86	36
Yearly	68.4	69.5	104	27	68.4	72.0	102	27	71.2	73.6	106	30

Month	Nuevo Laredo, Tampa., M. S. of M.				Rancho San Juan de la Palma, Tampa.				El Treinta, Coahuila			
	Mean 1968	Average 1945-1968	1968 Max.	1968 Min.	Mean 1968	#Average April 1955-1968	1968 Max.	1968 Min.	Mean 1968	Average 1961-1968	1968 Max.	1968 Min.
Jan.	53.6	56.1	81	28	51.8	55.8	77	30	48.2	49.8	82	23
Feb.	60.8	60.5	72	32	55.4	60.4	86	34	50.0	55.0	79	30
Mar.	60.8	67.4	86	36	64.4	66.7	102	37	57.2	64.8	90	30
Apr.	73.4	75.3	93	50	73.4	76.1	93	54	73.4	73.8	97	43
May	80.6	80.9	99	61	80.6	81.5	97	64	77.0	78.6	102	52
June	84.2	84.7	100	66	84.2	85.9	99	68	80.6	82.2	102	55
July	84.2	88.0	100	72	86.0	88.9	99	73	80.6	84.6	100	64
Aug.	87.8	87.7	104	73	86.0	86.3	100	68	82.4	84.2	104	68
Sept.	69.8	82.0	99	63	75.2	83.4	93	55	75.2	79.0	97	54
Oct.	75.2	73.6	93	50	75.2	76.2	95	48	69.8	70.2	99	46
Nov.	60.8	64.7	86	36	62.6	66.9	86	39	57.2	61.2	86	34
Dec.	55.4	56.8	82	32	59.0	58.2	81	37	48.2	52.2	75	23
Yearly	70.6	73.1	104	28	71.2	74.0	102	30	66.6	69.6	104	23

Month	Sabinas Hidalgo, Nuevo León				Nueva Cd. Guerrero, Tamaulipas				Cd. Mier, Tamaulipas			
	Mean 1968	Average October 1961-1968	1968 Max.	1968 Min.	Mean 1968	Average 1958-1968	1968 Max.	1968 Min.	Mean 1968	#Average October 1955-1968	1968 Max.	1968 Min.
Jan.	55.4	56.4	88	32	55.4	53.4	82	30	51.8	54.7	81	25
Feb.	57.2	60.0	88	34	55.4	57.6	81	32	53.6	58.9	82	28
Mar.	59.0	65.7	88	34	62.6	65.7	88	36	60.8	66.5	84	28
Apr.	73.4	77.3	97	48	73.4	75.7	95	52	69.8	75.9	91	45
May	80.6	80.6	104	57	80.6	81.0	99	61	78.8	80.8	95	59
June	82.4	84.5	104	64	84.2	85.0	100	68	82.4	84.7	100	64
July	82.4	86.3	100	64	84.2	86.8	100	59	80.6	86.4	97	50
Aug.	84.2	86.0	106	63	86.0	86.5	104	72	82.4	86.2	100	68
Sept.	77.0	81.4	100	54	80.6	82.1	102	64	78.8	82.0	102	57
Oct.	77.0	74.8	102	54	77.0	74.0	97	50	73.4	74.4	91	45
Nov.	64.4	66.2	100	37	64.4	65.2	90	36	62.6	64.8	90	30
Dec.	59.0	59.2	93	32	60.8	56.4	93	30	59.0	57.5	86	28
Yearly	71.0	73.2	106	32	72.0	72.4	104	30	69.5	72.7	102	25

Month	Reynosa Km. 40, SW., Nuevo León				Retamal, Tamaulipas							
	Mean 1968	Average March 1959-1968	1968 Max.	1968 Min.	Mean 1968	#Average 1951-1968	1968 Max.	1968 Min.				
Jan.	59.0	57.9	91	21	50.0	60.3	81	30				
Feb.	64.4	62.1	90	36	59.0	63.1	99	30				
Mar.	64.4	68.0	93	39	62.6	69.7	91	37				
Apr.	73.4	75.6	100	48	75.2	77.3	102	48				
May	84.2	80.7	104	52	80.6	80.8	100	63				
June	80.6	83.5	104	54	80.6	84.4	99	70				
July	80.6	84.6	104	55	82.4	86.2	97	70				
Aug.	80.6	84.4	104	55	84.2	86.9	100	68				
Sept.	77.0	80.8	102	52	82.4	83.6	100	59				
Oct.	77.0	74.6	102	52	80.6	77.0	100	50				
Nov.	68.0	68.3	97	41	68.0	68.7	102	34				
Dec.	73.4	60.6	99	45	64.4	61.8	102	28				
Yearly	73.6	73.4	104	21	72.5	75.0	102	28				

Some months missing

TEMPERATURE, HUMIDITY, AND WIND

Mean Wind Speed - Miles Per Hour
In the United States

Month	Martin King Ranch, Texas		Amistad Dam, Texas		Eagle Pass, Texas		Falcon Dam, Texas	
	1968	Average 1957-1968	1968	#Average March 1963-1968	1968	#Average December 1963-1968	1968	#Average July 1950-1968
Jan.	4.0	4.2	3.5	3.6	2.6	2.7	3.4	3.9
Feb.	4.4	4.9	3.8	4.3	2.9	3.6	3.3	4.7
Mar.	6.3	6.6	4.8	5.2	3.9	3.9	4.8	5.2
Apr.	5.2	6.4	3.9	4.7	3.2	3.7	3.6	5.8
May	6.0	7.1	4.6	5.1	3.5	3.8	4.4	6.0
June	6.2	7.6	5.0	5.6	3.6	4.2	5.0	6.3
July	5.9	7.1	4.7	5.3	3.5	4.0	4.0	6.7
Aug.	6.3	6.3		4.8	3.9	3.6	4.3	5.6
Sept.	3.9	5.3	3.4	3.9	2.3	3.0	1.9	4.2
Oct.	5.0	4.8	3.8	3.8	2.3	2.4	2.1	3.7
Nov.	4.3	4.2	3.6	3.2	2.3	2.3	3.5	4.0
Dec.	3.9	3.8	2.6	3.3	1.9	2.3	3.0	3.6
Yearly	5.1	5.7		4.4	3.0	3.3	3.6	5.0

Mean Relative Humidity-Percent
In the United States

Month	Amistad Dam, Texas		Eagle Pass, Texas		Falcon Dam, Texas	
	1968	Average March 1963-1968	1968	#Average 1964-1968	1968	Average July 1950-1968
Jan.	79.8	57.6	74.8	65.1	80.1	66.1
Feb.	71.8	59.3	66.5	65.6	75.3	64.4
Mar.	74.0	54.7	65.5	63.4	73.0	62.0
Apr.	65.2	57.7	65.9	64.8	74.6	62.6
May	75.7	63.8	70.8	74.2	72.8	65.4
June	66.6	59.1	62.5	64.8	70.0	64.4
July	67.7	53.8	60.8	59.9	72.2	60.1
Aug.	59.3	55.9	51.3	62.0	67.6	61.7
Sept.	67.6	63.7	65.7	72.7	76.1	65.9
Oct.	67.3	60.8	65.8	67.7	74.3	66.9
Nov.	64.0	61.0	57.2	68.0	71.3	67.7
Dec.	60.9	60.4	54.3	63.3	64.5	64.7
Yearly	68.3	59.0	63.4	66.0	72.6	64.3

Some months missing

DRAINAGE BASIN AND IRRIGATED AREAS
Along the Rio Grande and Tributaries – 1968

The total area within the outer rim of the Rio Grande Basin is about 335,500 square miles but it contains large areas, especially along its southwestern boundary, that contribute no surface runoff to the Rio Grande. Such non-contributing areas constitute about 47% of the total area, leaving 176,333 square miles of productive watershed which is the only one included in the list below.

The irrigated areas shown below are listed in accordance with the location of their diversion points and are all within the Rio Grande Basin, except in the Lower Rio Grande Valley where large portions of irrigated lands in both countries lie outside the basin boundary line.

Only areas irrigated in 1968 are shown except that, in the United States below Falcon Dam, the figures shown represent acreages which were subject to irrigation in 1968 but for which data on the portion actually irrigated is not known. On the Mexican side part of the data may have been gathered previous to 1968.

DESIGNATIONS OF AREAS AND GAGING STATIONS	Drainage Basin Square Miles			Irrigated Areas - Acres		
	United States	Mexico	Total	United States	Mexico	Total
Above Elephant Butte Dam	25,923	0	25,923			
Elephant Butte Dam to Caballo Dam	1,295	0	1,295	0	0	0
Above Caballo Dam	27,218	0	27,218	0	0	0
Caballo Dam to El Paso Station	2,049	0	2,049	91,096	0	91,096
Above El Paso Gaging Station	29,267	0	29,267	91,096	0	91,096
El Paso Station to American Dam	4	0	4	13,930	0	13,930
Above American Dam	29,271	0	29,271	105,026	0	105,026
American Dam to Island Station	187	285	472	32,994	17,671	50,665
Above Island Gaging Station	29,458	285	29,743	138,020	17,671	155,691
Island Station to County Line Station	485	259	744	0	0	0
American Dam to County Line Station - Total	672	544	1,216	32,994	17,671	50,665
Above County Line Gaging Station	29,943	544	30,487	138,020	17,671	155,691
County Line Station to Fort Quitman Station	663	794	1,457	9,154	0	9,154
Above Fort Quitman Gaging Station	30,606	1,338	31,944	147,174	17,671	164,845
Fort Quitman Station to Above Presidio Station	1,621	1,401	3,022	2,311	237	2,548
Above Presidio Station above Río Conchos	32,227	2,739	34,966	149,485	17,908	167,393
Río Conchos above Boquilla Dam	0	8,131	8,131	0	a) 5,832	5,832
Río Conchos above Granero Dam	0	22,992	22,992	0		
Río Conchos - Total	0	26,404	26,404	0	326,251	326,251
Alamito Creek above Gaging Station	1,504	0	1,504	10	0	10
Presidio Station above Río Conchos to Presidio Station below Río Conchos - excluding above tributaries	367	98	465	3,446	432	3,878
Presidio Station above Río Conchos to Presidio Station below Río Conchos - Total	1,871	26,502	28,373	3,456	326,683	330,139
Above Presidio Station below Río Conchos	34,098	29,241	63,339	152,941	344,591	497,532
Terlingua Creek above Gaging Station	1,070	0	1,070	b) 2,400	0	2,400
Presidio Station below Río Conchos to Johnson Ranch Station - excluding Terlingua Creek	1,093	2,258	3,351	990	1,016	2,006
Presidio Station below Río Conchos to Johnson Ranch Station - Total	2,163	2,258	4,421	c) 3,390	1,016	4,406
Above Johnson Ranch Gaging Station	36,261	31,499	67,760	156,331	345,607	501,938
Johnson Ranch Station to Foster Ranch Station	6,412	6,570	12,982	d) 1,865	0	1,865
Above Foster Ranch Gaging Station	42,673	38,069	80,742	158,196	345,607	503,803
Foster Ranch Station to Langtry Station	182	505	687	0	0	0
Above Langtry Gaging Station	42,855	38,574	81,429	158,196	345,607	503,803
Pecos River above Girvin	29,562	0	29,562		0	
Pecos River, Girvin to Langtry Station	5,617	0	5,617	0	0	0
Pecos River above Station at Mouth	35,308	0	35,308	0	0	0
Goodenough Spring above Gaging Station	1	0	1	0	0	0
Devils River above Pafford Crossing Station	3,961	0	3,961	0	0	0
Devils River above Station at Old Highway Bridge	4,185	0	4,185	0	0	0
Devils River above Station near Mouth	4,305	0	4,305	0	0	0
Langtry Station to Amistad Dam - excluding above tributaries	216	1,875	2,091	0	0	0
Langtry Station to Amistad Dam - Total	39,830	1,875	41,705	0	0	0

a) Includes area above Madero Reservoir b) Irrigated by spreader dams c) Includes 2,400 acres irrigated by spreader dams
d) Includes 1,650 acres irrigated by spreader dams

DRAINAGE BASIN AND IRRIGATED AREAS
Along the Rio Grande and Tributaries – 1968

DESIGNATIONS OF AREAS AND GAGING STATIONS	*Drainage Basin* Square Miles			Irrigated Areas - Acres		
	United States	Mexico	Total	United States	Mexico	Total
Above Amistad Dam	82,685	40,449	123,134	158,196	345,607	503,803
Amistad Dam to Below Amistad Dam Gaging Station	5	4	9	0	0	0
Above the Below Amistad Dam *Gaging Station*	82,690	40,453	123,143	158,196	345,607	503,803
Below Amistad Dam Station to Del Rio Station	60	100	160	143	0	143
Above Del Rio Gaging Station	82,750	40,553	123,303	158,339	345,607	503,946
Arroyo Las Vacas above Gaging Station	0	350	350	0	521	521
San Felipe Creek above Gaging Station	46	0	46	2,300	0	2,300
Pinto Creek above Gaging Station	249	0	249	100	0	100
Río San Diego above Gaging Station	0	853	853	0	11,263	11,263
Río San Diego - Total	0	859	859	0	13,005	13,005
Del Rio Station to Below Maverick Dam Station near *Quemado - excluding above tributaries*	669	110	779	44,871	806	45,677
Del Rio Station to Below Maverick Dam Station near Quemado - Total	964	1,319	2,283	47,271	14,332	61,603
Above the Below Maverick Dam Gaging Station near Quemado	83,714	41,872	125,586	205,610	359,939	565,549
Río San Rodrigo near Mouth above Gaging Station	0	1,049	1,049	0	6,956	6,956
Río San Rodrigo - Total	0	1,049	1,049	0	6,956	6,956
Below Maverick Dam Station near Quemado to Maverick Power Plant - excluding Río San Rodrigo	287	114	401	22	0	22
Below Maverick Dam Station near Quemado to Maverick Power Plant - Total	287	1,163	1,450	22	6,956	6,978
Above Maverick Power Plant	*84,001*	*43,035*	*127,036*	*205,632*	*366,895*	*572,527*
Maverick Power Plant to Eagle Pass Station	244	32	276	195	2,026	2,221
Above Eagle Pass Gaging Station	84,245	43,067	127,312	205,827	368,921	574,748
Río Escondido above Gaging Station	0	1,459	1,459	0	10,369	10,369
Río Escondido - Total	0	1,471	1,471	0	10,369	10,369
Eagle Pass Station to San Antonio Crossing Station - excluding Río Escondido	237	206	443	250	709	959
Eagle Pass Station to San Antonio Crossing Station - Total	237	1,677	1,914	250	11,078	11,328
Above San Antonio *Crossing Gaging Station*	84,482	44,744	129,226	206,077	379,999	586,076
San Antonio Crossing Station to Palafox Station	629	1,683	2,312	1,259	1,102	2,361
Above Palafox Gaging Station	85,111	46,427	131,538	207,336	381,101	588,437
Palafox Station to Laredo Station	607	433	1,040	4,423	2,118	6,541
Above Laredo Gaging Station	85,718	46,860	132,578	211,759	383,219	594,978
Río Salado above Venustiano Carranza Dam	0	15,831	15,831	0	62,814	62,814
Río Salado above Las Tortillas Gaging Station	0	23,155	23,155	0	99,316	99,316
Río Salado above River Road Crossing	0	23,323	23,323	0	99,316	99,316
Laredo Station to Falcon Dam - excluding Río Salado	2,042	1,327	3,369	e) 8,599	4,344	12,943
Laredo Station to Falcon Dam - Total	2,042	24,650	26,692	8,599	103,660	112,259
Amistad Dam to Falcon Dam - excluding above tributaries	4,780	4,009	8,789	59,762	11,105	70,867
Above Falcon Dam	87,760	71,510	159,270	220,358	486,879	707,237
Río Alamo above Gaging Station	0	1,675	1,675	0	7,660	7,660
Río San Juan above Marte Gómez Dam	0	12,745	12,745	0	102,548	102,548
Río San Juan - Marte Gómez Dam to Camargo *Gaging Station*	0	195	195	0	132,927	132,927
Río San Juan - Total	0	12,949	12,949	0	235,475	235,475
Falcon Dam to Ft. Ringgold Station - excluding above tributaries	222	246	468	9,388	1,350	10,738
Falcon Dam to Ft. Ringgold Station - Total	222	14,870	15,092	9,388	244,485	253,873
Above Fort Ringgold Gaging Station	87,982	86,380	174,362	229,746	731,364	961,110
Fort Ringgold Station to Anzaldúas Dam	952	798	1,750	185,093	369,867	554,960
Above Anzaldúas Dam	88,934	87,178	176,112	414,839	1,101,231	1,516,070
Anzaldúas Dam to Progreso Station	13	163	176	145,718	1,804	147,522
Above Progreso Gaging Station	88,947	87,341	176,288	560,557	1,103,035	1,663,592
Progreso Station to San Benito Station	7	9	16	313,655	652	314,307
Above San Benito Gaging Station	88,954	87,350	176,304	874,212	1,103,687	1,977,899
San Benito Station to Brownsville Station	14	15	29	117,462	124	117,586
Falcon Dam to Brownsville Station - excluding Río Alamo and Río San Juan	1,208	1,231	2,439	771,316	373,797	1,145,113
Above Brownsville Gaging Station	88,968	87,365	176,333	991,674	1,103,811	2,095,485

e) Includes 45 acres irrigated from small reservoirs

DRAINAGE BASIN AND IRRIGATED AREAS
Along the Río Grande and Tributaries – 1968

DESIGNATIONS OF AREAS AND GAGING STATIONS	Drainage Basin Square Miles			Irrigated Areas - Acres		
	United States	Mexico	Total	United States	Mexico	Total
Brownsville Station to Gulf of Mexico				6,100	74	6,174
Falcon Dam to Gulf of Mexico - excluding Río Alamo and Río San Juan				777,416	373,871	1,151,287
Amistad Dam to Gulf of Mexico - excluding above tributaries				837,178	384,976	1,222,154
Above Gulf of Mexico				997,774	1,103,885	2,101,659

SUPPLEMENTARY DATA–INTERNATIONAL FALCON RESERVOIR

Deduced Inflows

Considering that a knowledge of the mean daily inflows reaching the International Falcon Reservoir would serve a useful purpose, such data have been deduced for 1968 showing the flows as close as they can be approximated. These data are based on the daily operation of the International Falcon Reservoir, taking into account: a) record of gage heights at the dam; b) releases as measured at both hydroelectric plants and outlet works; c) elevation-area-capacity tables based on 1956 surveys; and d) rate of evaporation measured at the dam and at Nueva Cd. Guerrero applied to an area one foot higher than the average area of two consecutive days.

Flow contributions from different sources, irrigation diversion between Laredo and Falcon, river channel losses, reservoir evaporation, accuracy of gage height records, displacement due to wind action on the reservoir, and bank storage and return incident to changes in reservoir level, all tend to cause variations in the deduced determinations and the inflows shown below should not necessarily be in agreement with the combined flow of the Rio Grande at Laredo and the Río Salado at Las Tortillas.

In spite of the deficiencies noted above and others that may occur, the data shown below represent a reasonable approximation of the flows entering the International Falcon Reservoir.

Mean Daily Discharge in Second-Feet 1968 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	833	1,980	1,360	1,300	1,380	3,710	1,560	1,590	4,340	2,030	1,350	1,200
2	1,720	2,120	2,470	1,290	618	4,800	2,270	1,860	36,700	706	2,220	1,460
3	1,690	1,170	1,820	1,870	3,080	344	1,240	1,880	1,990	2,180	2,440	1,970
4	2,800	1,340	1,530	2,550	1,220	791	1,230	2,380	1,650	8,830	1,550	1,300
5	1,930	1,940	1,630	353	703	309	1,640	1,050	6,110	10,800	1,710	2,370
6	2,050	1,450	876	1,250	2,600	918	1,650	1,550	4,870	8,120	1,420	2,100
7	2,560	1,080	1,690	2,020	4,730	664	3,600	1,470	5,470	4,730	1,060	1,920
8	2,030	519	1,610	999	3,810	184	3,990	1,450	3,810	3,740	544	717
9	1,820	1,240	2,190	2,560	2,880	1,430	6,110	911	6,140	3,990	798	2,210
10	1,740	3,410	1,990	865	1,830	1,230	2,970	1,180	2,000	2,030	653	1,670
11	1,300	2,170	1,090	848	3,300	2,500	5,440	2,030	2,090	865	123	1,850
12	1,780	2,220	1,170	2,280	2,360	1,300	2,930	1,330	3,190	1,440	102	2,520
13	1,820	3,570	1,030	2,890	12,000	858	2,640	791	2,320	2,390	1,330	2,830
14	798	2,330	1,030	2,590	7,520	207	3,460	53.7	2,390	1,970	2,440	1,130
15	2,410	1,360	1,740	1,070	6,460	284	2,800	1,180	1,530	1,610	2,420	1,620
16	2,460	1,670	1,390	1,500	5,050	1,670	1,800	1,210	2,450	2,630	1,860	1,360
17	2,550	3,130	1,810	2,260	5,900	4,700	1,890	576	4,560	2,330	2,330	2,260
18	2,960	1,170	2,060	2,300	247	1,090	1,470	1,440	682	749	788	2,940
19	3,020	682	2,070	2,160	3,350	1,570	1,860	1,370	629	756	985	1,910
20	1,860	703	2,340	3,520	1,990	999	795	530	1,770	473	830	1,490
21	2,840	2,670	1,540	7,950	261	2,530	738	1,620	2,450	1,080	1,180	1,390
22	2,810	1,950	317	6,780	759	2,420	2,080	1,730	2,450	1,810	1,290	1,790
23	2,670	929	162	2,360	3,030	2,440	1,970	1,020	3,210	1,190	2,470	346
24	1,930	1,200	456	2,450	2,590	1,140	1,600	1,430	2,900	1,690	2,520	1,240
25	1,100	1,640	795	763	908	1,050	964	2,660	6,990	1,480	1,840	1,590
26	1,210	752	1,840	1,280	1,570	6,110	915	1,140	2,710	788	3,380	1,490
27	2,140	431	1,650	2,600	2,270	586	1,220	2,450	2,240	1,540	1,080	2,550
28	1,850	2,110	2,400	2,820	1,040	327	2,800	865	1,760	1,110	98.5	1,920
29	2,440	2,750	2,480	3,510	2,140	413	1,600	1,300	1,470	918	2,220	2,200
30	1,820		2,210	2,660	692	181	1,660	1,310	1,940	865	1,740	2,440
31	1,590		2,540		1,010		1,310	3,460		1,350		1,480
Sum	62,531	49,686	49,286	69,648	87,298	46,755	68,202	44,816.7	122,811	76,190	44,771.5	55,263

Month	Current Year 1968 Extreme Gage Feet High	Extreme Gage Feet Low	Extreme Second-Feet† High Day	High	Low Day	Low	Average Second-Feet	Total Acre-Feet	Period 1957-1968 Acre-Feet Average	Maximum	Minimum
Jan.			19	3,020	14	798	2,020	124,065	136,611	283,000	52,390
Feb.			13	3,570	27	431	1,710	98,547	123,761	261,200	72,210
Mar.			31	2,540	23	162	1,590	97,759	108,145	177,800	64,448
Apr.			21	7,950	5	353	2,320	138,122	155,212	439,100	92,710
May			13	12,000	18	247	2,820	173,285	310,826	1,356,000	46,819
June			26	6,110	30	181	1,560	92,717	254,787	666,700	77,660
July			9	6,110	21	738	2,200	135,265	165,476	333,300	54,820
Aug.			31	3,460	14	53.7	1,450	88,980	183,331	310,758	88,980
Sept.			2	36,700	19	629	4,100	243,673	577,667	1,570,361	174,581
Oct.			5	10,800	20	473	2,460	151,137	454,049	2,516,000	136,035
Nov.			26	3,380	28	98.5	1,490	88,829	197,681	885,100	76,861
Dec.			18	2,940	23	346	1,780	109,628	146,636	442,200	86,453
Yearly				36,700		53.7	2,120	1,542,007	2,814,182	6,683,310	1,542,007

† Mean Daily

CORRECTIONS TO PREVIOUS WATER BULLETINS

Water Bulletin and Page Numbers	Station	Reference	Published As	Correction
37-43	Arroyo Las Vacas at Cd. Acuña, Coahuila	EXTREME FLOWS FROM RECORDS Momentary Min. Year Average Daily Min. Date	 (Omission) (Omission)	 1967 Sept. 1, 1967
35-52 37-56	Río Escondido at Villa de Fuente, Coahuila	EXTREME FLOWS FROM RECORDS Average Daily Min. Second-feet	Several days 1956, 1957 & 1958	Several days 1956-1958 & 1965
37-56	Río Escondido at Villa de Fuente, Coahuila	EXTREME FLOW FROM RECORDS Average Monthly Min. Second-feet	0.6 Aug. and Sept. 1957	0.3 Sept. 1965
37-66	Río San Juan at Camargo, Tamaulipas	EXTREME FLOWS FROM RECORDS Average Daily Max. Date	Sept. 15, 1967	Sept. 25, 1967
37-72	Diversions from the Rio Grande-Anzaldúas Canal near Reynosa, Tamaulipas	EXTREME FLOWS FROM RECORDS Average Monthly Max. Second-feet	4,550 June 1960	4,640 May 1964
37-136	Rainfall on the Rio Grande Watershed	For Apache Ranch, June 1967 July 1967 Aug. 1967	(Omission) (Omission) (Omission)	1.70 0 6.40
37-143	Rainfall on the Rio Grande Watershed	For Presa Cabeceras, Sept. 1967 1967 Yearly Rainfall - Inches	10.33 16.74	9.88 16.27
37-144	Rainfall on the Rio Grande Watershed	For Allende, Coah., Sept. 1967 1967 Yearly Rainfall - Inches	1.34 10.93	4.98 14.57
37-146	Rainfall on the Rio Grande Watershed	For Reata, Coah., Sept. 1967 1967 Yearly Rainfall - Inches	3.27 10.93	3.35 11.01
37-148	Rainfall on the Rio Grande Watershed	For Iturbide, N. L., Sept. 1967 1967 Yearly Rainfall - Inches	8.31 28.90	8.70 29.29
37-149	Rainfall on the Rio Grande Watershed	For San Rafael, N. L., Sept. 1967	4.88	Omit
37-151	Rainfall on the Rio Grande Watershed	For Bajo Río Bravo No. 1-13, Sept. 1967 1967 Yearly Rainfall - Inches	12.87 31.77	15.28 34.18
37-160	Location of Rainfall Stations on the Rio Grande Watershed-In Mexico	Coordinates for Km. 135, Chihuahua	Lat. 28° 13'	Lat. 28° 22'

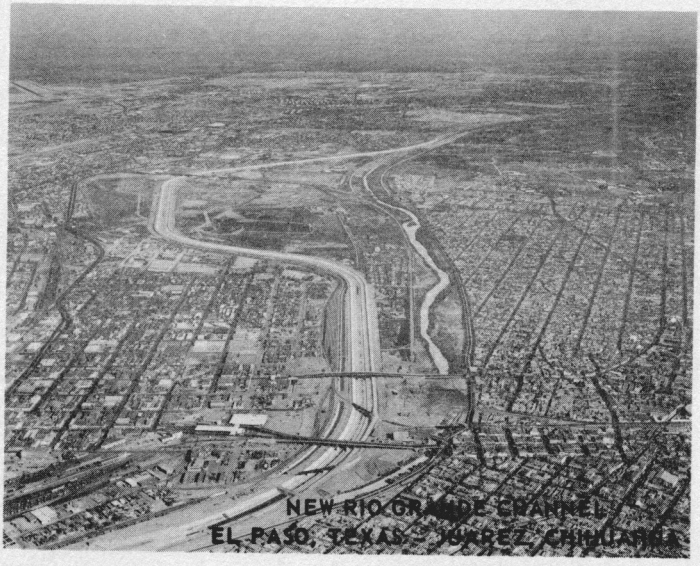
RAINFALL ON THE RIO GRANDE WATERSHED
In Mexico

In Water Bulletin Number 37, pages 147 and 149, the 1967 monthly and yearly rainfall, in inches, for Saltillo, Coahuila and Gral. Teran (Experiment Station), Nuevo León should be as follows:

Month	Saltillo, Coahuila	Gral. Teran (Experiment Station), Nuevo León
Jan.	1.65	0.71
Feb.	1.26	.43
Mar.	1.65	5.20
Apr.	.63	2.80
May	.39	.04
June	1.97	3.54
July	2.28	.98
Aug.	2.44	16.73
Sept.	8.66	15.55
Oct.	2.28	1.81
Nov.	.16	3.07
Dec.	.12	.40
Yearly	23.49	51.26

Flow of the Rio Grande and Related Data

1968



UNITED STATES OF AMERICA
DEPARTMENT OF STATE

INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO

WATER BULLETIN NUMBER 38

"Cover photograph shows the new concrete-lined channel of the Rio Grande where it was relocated in connection with the Chamizal boundary settlement, which reestablished the Rio Grande as the river boundary between the United States and Mexico in the El Paso, Texas —Juárez, Chihuahua area. Downstream view."