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WATER BULLETIN NUMBER 40

Flow of the Rio Grande and Related Data

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

1970

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

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FOREWORD

This bulletin presents the fortieth 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 1970.

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 1970 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, 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 Amistad Dam, Below Maverick Dam, Eagle Pass, Palafox, Laredo, Below Anzalduas Dam, and Progreso. The station at Falcon Dam was operated jointly by the two Sections. Each Section operated the gaging stations on tributary streams, floodways, 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 10,666,700 acre-feet, in addition to the international Amistad and Falcon Reservoirs, which have a combined conservation capacity of 6,262,000 acre-feet. In the Rio Grande Basin, a rounded total of 2,276,000 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 1954-1970, this flow has averaged 518,500 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 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 El Paso Department of Water and Sewerage; the Maverick County Water Control and Improvement District No. 1; 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; Federal Power Commission 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 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.

Beginning with Water Bulletin No. 39, the period averages for gaging stations from the Río Conchos to Falcon Reservoir have been revised to include only records since 1968, the year Amistad Dam and Luis L. León Dam began impounding water.

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 begin in 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. For the same reason, evaporation and rainfall data, when totaled, may not be equivalent to the direct conversion from metric to English units. 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 1970

Along and Adjacent to the International Portion of the Rio Grande

During the year 1970, temperatures were about 98% normal on the watershed of the Rio Grande below El Paso, Texas. Evaporation averaged 94% of normal. Precipitation was 96% of normal from El Paso to Amistad Dam, 88% of normal from Amistad Dam to Falcon Dam, normal from Falcon Dam to Rio Grande City, and 117% 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, near normal from the confluence of the Río Conchos to Amistad Reservoir, and below normal from Amistad Dam to the Gulf of Mexico. In the reach between El Paso and the confluence of the Río Conchos the flow averaged 69% of normal, ranging from 93% of normal at El Paso Station to 23% of normal at the County Line station; in the reach between the confluence of the Río Conchos and Amistad Reservoir, where flows were partly regulated by releases from Luis L. León Reservoir (El Granero) on the Río Conchos, the flow averaged 98% of the 1948-1968 normal; and in the reach between Amistad Dam and Falcon Reservoir, where Rio Grande flows were partly regulated by releases from Amistad Reservoir, the flow averaged 59% of the 1948-1968 normal. Flows passing Rio Grande stations below Falcon Dam were partly regulated by releases from Falcon Reservoir. Such releases in 1970 amounted to 1,143,806 acre-feet, or 54% of the average for the seventeen years of operation, 1954 through 1970. The volume of flow wasted to the Gulf of Mexico was 151,922 acre-feet or 29% of the average for this seventeen year period.

The total annual flow of all measured tributaries below Fort Quitman was 59% of normal. The total flow of these tributaries in the United States was 319,868 acre-feet or 48% of normal. For Mexico, the measured tributary flow excluding Río Alamo and Río San Juan was 839,407 acre-feet or 78% of normal. The flow of the Río Alamo and Río San Juan was 27% and 33% of their respective normals.

Return flow to the Rio Grande at Maverick Power Plant near Eagle Pass was 435,863 acre-feet or 76% of the twenty-two year average. Return flow to the Rio Grande through various drains in the Maverick County irrigation district excluding storm inflow amounted to 144,503 acre-feet, or 69% of the twelve year average.

There were no floods of consequence on the Rio Grande during 1970. The highest peak flow recorded was 33,300 second-feet at the Below Maverick Dam Station.

For all reservoirs in the Rio Grande basin having capacity greater than 15,000 acre-feet, excepting Amistad and Falcon International Reservoirs, the average amount of water in storage in 1970 was 3,617,700 acre-feet or 91% of the normal 3,989,200 acre-feet. In the United States, stored water in these reservoirs averaged 59% of normal while in Mexico the average was 104% of normal. In International Amistad Reservoir there was a net increase in storage during the year of 185,900 acre-feet. Storage ranged from a low of 945,600 acre-feet on July 29 to a high of 1,484,200 acre-feet on December 31, and averaged 1,188,900 acre-feet during the year. In International Falcon Reservoir there was a net decrease in storage during the year of 22,100 acre-feet. The storage varied from a high of 1,817,000 acre-feet on March 11 to a low of 1,239,100 acre-feet on May 23 and averaged 1,542,200 acre-feet during the year or 86% of the average for the seventeen years of operation, 1954 through 1970.

Diversions from the Rio Grande in the United States were, on the average, 79% of normal. Diversions into the American Canal were 104% of normal; into Maverick Canal 80% of normal; and in the United States below Falcon Dam 70% of the average for the fourteen years, 1957-1970. In Mexico, diversions averaged 71% of normal. Diversions into the Acequia Madre were 128% of normal while diversions through the Anzaldúas Canal for irrigation in Mexico were 67% of the seventeen year average.

In 1970, the total reported irrigated acreage from the Rio Grande and its tributaries below El Paso, Texas showed a decrease of 4% from the previous year. On the United States side, there was a decrease of 8% above and no appreciable change below Falcon Dam for an overall average change of 1%. On the Mexican side, there were decreases of 8% above and 4% below Falcon Dam for an overall average decrease of 6%.

The 1970 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 59% of the 1935-1970 normal. The volume of suspended silt transported by the Rio Grande in 1970 was 44% of average for sampling stations above Amistad Dam, 3% of average for sampling stations in the reach Amistad Dam to Falcon Reservoir, and 12% of average for sampling stations below Falcon Dam.

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 20 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 1970.

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 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	11.0	6.5	1,350	1,360	1,410	1,880	2,070	2,000	667	ñ 9.5	7.5	10.0
2	11.0	ñ 6.6	1,350	1,350	1,420	ñ 1,890	2,070	1,990	641	9.0	7.0	11.0
3	11.0	9.0	ñ1,350	1,360	1,450	1,890	2,070	1,960	644	9.0	7.0	ñ 13.0
4	11.0	10.0	1,350	1,350	1,450	1,900	2,070	1,950	638	8.6	8.5	13.0
5	ñ 9.5	62.0	1,350	1,350	1,460	1,910	2,070	1,940	636	8.0	ñ 10.0	13.0
6	8.5	13.0	1,350	1,340	1,450	1,910	2,080	1,920	636	7.5	9.0	13.0
7	8.5	13.0	1,340	1,330	1,450	1,920	2,080	1,900	635	7.5	9.5	13.0
8	8.5	1,250	1,340	1,320	1,430	1,930	2,090	1,890	633	7.0	8.0	13.0
9	8.5	1,340	1,350	1,310	1,410	1,940	2,100	1,870	633	6.5	7.5	14.0
10	8.9	1,320	1,350	1,320	1,400	1,940	2,100	1,850	638	6.5	8.0	14.0
11	9.0	1,360	1,350	1,330	1,390	1,950	2,100	1,840	631	6.0	8.0	13.0
12	8.9	1,390 ñ	1,340	1,330	1,380	1,960	2,100	1,830	629	5.5	8.0	13.0
13	8.7	1,390	1,350	ñ 1,320	1,370	1,970	2,090	1,830	629	5.1	7.0	13.0
14	8.7	1,390	1,340	1,340	1,360	1,980	2,090	1,820	ñ 629	7.0	7.0	13.0
15	8.5	1,390	1,340	1,340	ñ1,360	1,990	2,080	1,820	648	12.0	7.5	12.0
16	8.5	1,380	1,340	1,320	1,380	ñ 1,990	ñ 2,080	1,810	42.0	10.0	7.5	14.0
17	8.4	1,380	ñ1,350	1,300	1,400	1,990	2,090	1,800	15.0	10.0	7.0	16.0
18	8.7	1,350	1,340	1,290	1,410	2,000	2,080	ñ 1,790	14.0	10.0	7.0	17.0
19	8.5	1,380	1,350	1,280	1,410	2,000	2,080	1,810	13.0	10.0	7.5	15.0
20	8.5	1,390	1,360	1,260	1,410	2,000	2,080	1,830	12.0	10.0	7.5	15.0
21	9.0	1,380	1,360	1,270	1,410	2,000	2,070	1,420	11.0	9.5	10.0	16.0
22	9.5	1,380	1,370	1,270	1,390	2,000	2,060	1,840	11.0	9.5	11.0	17.0
23	9.0	1,380	1,370	1,260	1,390	2,010	2,050	1,860	11.0	9.5	10.0	15.0
24	9.0	1,380	1,370	1,280	1,380	2,020	2,030	1,880	11.0	9.5	8.5	14.0
25	8.5	1,370	1,370	1,290	1,370	2,030	2,030	1,900	10.0	9.0	11.0	14.0
26	8.0	1,370	1,370	1,320	1,350	2,040	2,030	1,910	9.5	9.0	12.0	14.0
27	8.0	1,370	1,370	1,330	1,340	2,040	2,010	1,930	9.5	8.0	12.0	14.0
28	7.0	1,350	1,370	1,330	1,320	2,050	2,020	1,950	9.5	8.0	12.0	13.0
29	6.5		1,380	1,340	1,310	2,050	2,000	1,970	9.5	7.5	12.0	13.0
30	6.5		ñ1,380	ñ 1,360	1,310	ñ 2,060	2,000	1,990	14.0	7.5	13.0	13.0
31	7.0		1,370		1,320		ñ 2,010	ñ 2,010		7.5		13.0
Sum	28,810.1		39,550		59,240		58,110		259.2			424.0
	270.8		42,020		43,090		63,980		9,769		267.5	

Month	Current Year 1970 Extreme Gage Feet		Ø Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Period 1938-1970 Acre-Feet		
			High		Low						
	High	Low	Day		Day				Average	Maximum	Minimum
Jan.			† 1	11.0	† 29	6.5	8.7	537	28,584	86,500	200
Feb.			†12	1,390	1	6.5	1,030	57,145	41,900	88,861	188
Mar.			†29	1,380	† 7	1,340	1,360	83,347	68,869	119,000	1,520
Apr.			† 1	1,360	† 20	1,260	1,320	78,447	78,683	162,000	24,000
May			5	1,460	† 29	1,310	1,390	85,469	78,905	467,000	512
June			30	2,060	1	1,880	1,970	117,502	90,316	363,000	16,913
July			† 9	2,100	† 29	2,000	2,060	126,904	92,798	211,000	41,352
Aug.			31	2,010	18	1,790	1,870	115,261	78,147	134,000	9,530
Sept.			1	667	† 26	9.5	326	19,377	34,954	129,000	163
Oct.			15	12.0	13	5.1	8.4	514	20,534	72,100	166
Nov.			30	13.0	† 2	7.0	8.9	531	20,291	158,000	152
Dec.			† 18	17.0	1	10.0	13.7	841	21,109	87,300	179
Yearly				2,100		5.1	947	685,875	655,090	1,818,800	183,415

ñ 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 53 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 1970.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station. In addition to the outflow from Caballo Dam listed below, 959 acre-feet of water were diverted in 1970 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 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	✱ 1.3	1.2	1,090	1,800	1,040	1,260	✱ 2,260	1,330	1,680	2.8	2.2	1.2
2	1.3	1.3	1,150	1,840	1,030	1,400	2,170	1,330	✱ 1,660	2.5	2.0	1.2
3	1.3	1.4	✱ 1,320	1,680	1,040	✱ 1,540	1,940	1,310	1,620	2.2	1.8	1.1
4	1.3	1.4	1,450	1,490	1,040	1,480	1,760	1,540	1,550	1.8	1.6	1.1
5	1.3	✱ 1.5	1,450	1,460	1,010	1,400	1,730	1,530	1,480	✱ 1.5	✱ 1.4	1.1
6	1.3	1.4	1,410	1,460	✱ 985	1,300	1,700	✱ 1,350	1,390	1.6	1.4	1.0
7	1.3	1.4	1,260	1,360	977	1,260	1,930	1,280	1,290	1.7	1.4	✱ 1.0
8	1.3	1.3	426	1,320	1,070	1,110	✱ 2,150	1,200	1,240	1.8	1.4	1.0
9	✱ 1.3	1.2	757	✱ 1,240	1,160	1,060	2,140	1,100	✱ 1,280	1.9	1.4	1.0
10	1.3	1.2	✱ 1,620	1,130	1,200	✱ 1,200	2,090	1,020	1,260	2.0	1.4	1.0
11	1.3	1.1	1,610	1,020	1,220	1,190	2,050	1,210	1,240	2.1	1.4	1.0
12	1.4	✱ 1.1	1,610	988	1,260	1,290	2,040	✱ 1,570	1,200	✱ 2.2	1.4	1.0
13	1.4	1.2	1,810	969	✱ 1,380	1,380	2,050	1,730	1,160	2.1	✱ 1.3	1.0
14	1.4	1.2	1,940	1,050	1,460	1,430	2,250	1,840	1,140	1.9	1.2	✱ 1.0
15	✱ 1.4	1.2	1,930	✱ 1,110	1,490	1,440	✱ 2,380	2,220	1,370	1.8	1.1	1.0
16	1.4	1.2	✱ 1,920	1,140	1,550	1,610	2,300	2,490	✱ 1,640	1.7	✱ 1.1	1.0
17	1.4	1.2	2,230	1,240	1,520	✱ 1,880	2,410	2,570	1,270	1.6	1.1	1.0
18	1.4	✱ 1.2	2,340	1,270	1,480	1,880	2,570	2,600	719	1.4	1.1	1.0
19	1.5	1.2	2,340	1,160	1,570	1,980	2,630	✱ 2,580	356	✱ 1.3	1.1	1.0
20	1.5	1.2	2,320	1,070	✱ 1,660	2,110	2,560	2,570	8.5	1.4	1.2	1.0
21	1.5	1.2	2,310	1,080	1,640	2,100	2,480	✱ 2,590	8.0	1.5	1.2	✱ 1.0
22	✱ 1.5	1.2	2,300	✱ 1,090	1,500	2,020	✱ 2,460	2,650	7.0	1.6	1.2	1.0
23	1.5	318	2,300	1,080	1,370	2,060	2,450	2,690	5.0	1.7	✱ 1.2	1.0
24	1.5	939	✱ 2,250	1,010	1,370	✱ 2,100	2,260	2,620	3.0	1.8	1.2	1.0
25	1.5	944	2,220	957	1,370	2,070	1,870	2,180	3.0	1.9	1.2	1.0
26	1.5	✱ 953	2,210	890	1,290	2,070	1,720	✱ 1,900	3.0	2.0	1.2	1.0
27	1.5	968	2,200	892	✱ 1,220	2,060	1,700	1,900	3.0	2.1	1.2	1.0
28	1.5	934	2,180	943	1,230	2,130	1,460	1,850	✱ 2.8	2.2	1.2	✱ 1.0
29	✱ 1.5		2,160	✱ 1,000	1,240	2,110	1,240	1,870	2.8	2.3	1.2	1.0
30	1.5		2,150	1,040	1,250	2,200	✱ 1,200	1,910	2.8	✱ 2.4	✱ 1.2	1.0
31	1.5		✱ 1,940		1,260		1,260	1,770		2.4		1.0
Sum	43.6	5,083.5	56,203	35,779	39,902	50,120	63,210	58,300	24,593.9	59.2	40.0	31.7

Current Year 1970 — Period 1938-1970

Month	Extreme Gage Feet High	Extreme Gage Feet Low	Ø Extreme Second-Feet High Day	High	Low Day	Low	Average Second-Feet	Total Acre-Feet	Acre-Feet Average	Acre-Feet Maximum	Acre-Feet Minimum
Jan.			† 19	1.5	† 1	1.3	1.4	86.5	521	4,850	19.2
Feb.			27	968	† 11	1.1	182	10,083	8,160	64,300	13.0
Mar.			† 18	2,340	8	426	1,810	111,479	83,626	135,000	24,900
Apr.			2	1,840	26	890	1,190	70,968	83,516	212,000	25,470
May			20	1,660	6	985	1,290	79,146	76,727	412,000	75.2
June			30	2,200	9	1,060	1,670	99,413	106,931	354,000	36,268
July			19	2,630	30	1,200	2,040	125,377	114,655	234,000	28,200
Aug.			23	2,690	10	1,020	1,880	115,638	108,980	179,000	20,500
Sept.			1	1,680	† 28	2.8	820	48,782	50,123	181,000	7,730
Oct.			1	2.8	19	1.3	1.9	117	5,069	35,400	15.5
Nov.			1	2.2	† 15	1.1	1.3	79.3	2,712	14,400	7.0
Dec.			† 1	1.2	† 6	1.0	1.0	62.9	2,811	19,100	6.0
Yearly				2,690		1.0	913	661,231.7	643,831	1,795,670	206,084.6

✱ Discharge measurement made on this day Ø 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 1970 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 1970.

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 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	111	76.2	482	825	430	729	949	829	1,020	236	124	91.4
2	108	77.3	402	684	477	709	963	745	889	234	120	98.1
3	101	77.1	385	719	499	696	1,030	766	781	230	122	96.9
4	102	77.0	480	728	531	684	951	760	667	230	116	95.7
5	102	75.5	534	741	604	700	1,060	661	608	372	116	94.6
6	112	73.1	754	768	516	679	973	684	657	536	121	92.3
7	102	71.6	759	754	508	690	885	773	719	306	119	93.6
8	99.8	69.5	825	763	478	704	790	577	714	234	117	93.8
9	92.0	65.7	840	681	461	709	778	661	676	202	117	92.8
10	84.4	68.7	499	656	498	647	916	689	491	192	116	89.7
11	86.2	70.8	212	675	596	511	925	653	512	184	118	86.8
12	88.1	69.9	616	577	609	562	948	429	541	174	116	86.1
13	90.0	68.6	757	598	627	584	1,100	329	589	172	117	86.4
14	88.2	68.2	768	565	627	621	1,080	362	580	168	109	86.8
15	88.3	65.4	987	527	661	726	1,010	590	538	156	111	91.3
16	86.5	62.8	1,000	516	701	827	1,050	644	468	148	112	89.7
17	84.7	64.0	953	539	748	772	1,050	945	471	154	116	91.1
18	84.8	63.5	909	581	861	795	990	1,210	509	158	127	86.7
19	84.9	58.9	904	679	871	821	1,180	1,280	571	164	118	85.3
20	86.8	53.3	861	796	759	836	1,480	1,170	488	162	112	82.2
21	85.0	54.4	882	764	797	960	1,540	1,130	803	158	112	84.6
22	65.7	54.7	805	645	873	1,110	1,280	1,240	436	156	107	90.8
23	94.8	56.3	830	601	859	1,030	1,160	1,340	382	156	102	89.5
24	96.0	66.5	849	591	855	1,140	1,190	1,450	340	142	99.6	86.6
25	123	59.3	741	604	798	1,020	1,810	1,470	290	140	108	86.4
26	92.2	165	707	638	769	900	1,100	1,240	260	140	107	88.0
27	82.9	430	762	593	802	831	1,260	967	250	134	107	88.7
28	81.5	546	876	529	768	817	1,240	892	250	136	105	94.6
29	75.9		911	479	648	853	1,080	884	254	132	104	92.8
30	75.5		1,150	459	657	919	1,270	954	256	130	102	90.4
31	77.4		946		683		872	1,010		132		90.5
Sum	2,822.6	2,809.3	23,386	19,275	20,571	23,582	33,910	27,334	16,010	5,968	3,397.6	2,794.2

Current Year 1970 — Period 1938 - 1970

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.	3.15	2.75	6	200	30	73.3	91.1	5,599	6,430	15,100	220
Feb.	3.94	2.64	28	573	20	50.4	100	5,572	7,832	52,200	136
Mar.	5.21	3.03	26	1,420	11	180	754	46,386	34,000	62,500	1,790
Apr.	4.70	3.74	1	891	30	446	642	38,232	43,838	139,000	6,820
May	4.95	3.72	19	911	1	399	664	40,803	47,172	357,000	522
June	5.77	4.05	24	1,360	11	487	786	46,775	55,064	304,000	6,020
July	6.44	4.17	25	4,420	26	722	1,090	67,260	61,052	198,000	9,652
Aug.	5.80	3.43	25	1,590	13	299	882	54,217	58,944	158,000	4,870
Sept.	5.12	3.10	1	1,050	27	238	534	31,756	41,109	171,000	2,430
Oct.	4.35	2.76	6	712	27	127	193	11,838	14,655	57,900	151
Nov.	2.78	2.66	18	146	26	91.7	113	6,739	8,762	21,300	229
Dec.			1	105	20	81.0	90.1	5,542	8,489	25,600	206
Yearly	6.44			4,420		50.4	498	360,719	387,347	1,559,200	57,481

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 46 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 1970.

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 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	111	75.6	478	621	277	ft 535	739	621	ft 828	235	123	ft 90.4
2	108	76.7	ft 399	478	323	515	757	531	687	232	119	97.1
3	101	ft 76.5	382	519	355	512	824	585	577	229	ft 121	95.9
4	102	76.4	477	536	391	496	748	ft 554	631	229	115	94.7
5	102	74.9	531	552	ft 465	511	860	460	603	371	115	93.6
6	ft 112	72.7	750	574	374	495	ft 769	486	655	ft 534	120	91.3
7	102	71.2	755	ft 546	359	495	681	576	718	305	118	92.6
8	99.4	69.1	821	555	323	ft 507	587	383	713	233	116	92.8
9	60.5	63.2	836	477	307	512	578	468	675	200	116	91.8
10	0	ft 63.7	ft 495	458	343	450	718	499	490	190	ft 115	88.7
11	0	66.4	210	476	438	316	727	455	511	182	117	85.8
12	0	65.7	614	374	ft 458	364	748	226	540	172	115	85.1
13	ft 0	64.4	755	397	477	388	896	126	588	ft 171	116	85.4
14	0	64.4	766	ft 362	484	424	ft 876	ft 151	579	167	108	85.8
15	0	61.8	984	319	513	528	809	376	537	154	110	90.3
16	0	59.2	999	309	556	ft 629	855	431	ft 467	147	111	88.7
17	0	ft 60.5	ft 950	334	605	573	852	731	417	153	ft 115	90.1
18	0	60.1	906	377	ft 718	594	791	995	508	157	126	85.7
19	0	55.3	902	479	733	622	984	1,060	570	163	117	84.3
20	ft 0	50.1	858	596	620	630	1,150	952	487	ft 160	111	81.2
21	0	51.4	879	ft 563	654	756	ft 1,160	907	802	153	111	83.6
22	0	51.6	803	441	674	907	1,080	1,020	ft 435	153	106	89.8
23	73.6	53.1	828	396	660	ft 823	963	1,110	381	154	101	88.5
24	84.5	ft 63.1	ft 847	391	657	718	993	1,180	336	140	ft 98.6	85.6
25	122	56.0	676	410	600	640	817	ft 1,140	292	139	107	85.4
26	91.0	162	514	443	ft 574	697	902	1,030	257	139	106	87.0
27	ft 81.9	427	562	397	604	624	1,060	767	246	ft 132	106	87.7
28	80.7	542	678	ft 327	573	605	ft 1,020	690	249	134	104	93.6
29	75.2		712	276	452	639	872	685	ft 250	131	103	91.8
30	74.8		947	253	463	ft 707	834	755	250	129	101	89.4
31	76.7		ft 746		491		666	815		131		89.5
Sum	1,658.3	2,734.1	22,060	13,236	15,521	17,212	26,316	20,715	15,279	5,919	3,367.6	2,763.2

Current Year 1970 — Period 1939 - 1970

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.	4.87		6	200	† 9	0	53.5	3,289	1,416	8,110	0
Feb.	7.16	3.20	28	569	20	47.2	97.6	5,423	4,853	19,500	0
Mar.	9.49	4.72	26	1,180	12	177	712	43,756	30,102	50,100	1,700
Apr.	7.61	5.09	1	687	30	240	441	26,254	33,110	70,900	4,560
May	8.01	5.15	19	776	1	247	501	30,786	27,854	69,000	392
June	8.62	5.47	22	941	11	292	574	34,140	37,201	65,700	5,990
July	9.60	5.74	20	1,230	25	327	849	52,198	44,638	70,700	8,673
Aug.	9.67	4.05	24	1,230	13	96.0	668	41,088	43,949	74,600	4,840
Sept.	8.69	5.03	21	952	27	237	509	30,306	29,199	63,100	2,230
Oct.	7.72	4.11	6	710	†27	126	191	11,740	12,195	39,000	0
Nov.	4.61	4.02	18	145	26	90.7	112	6,680	7,284	21,000	0
Dec.	4.58	3.73	1	104	20	80.0	89.1	5,481	7,230	25,500	0
Yearly	9.67			1,230		0	402	291,141	279,031	541,610	47,397.4

ft 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 80 discharge measurements during the year and a continuous record of gage heights. Computations by shifting control methods. Records available: June 1938 through 1970.

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 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.4	0.6	3.7	204	153	ñ 194	210	208	ñ 196	1.5	1.5	ñ 1.0
2	.4	.6	3.2	ñ 206	ñ 154	194	ñ 206	214	202	1.5	1.5	1.0
3	.4	ñ .6	ñ 2.8	200	144	184	204	231	204	1.5	ñ 1.5	1.0
4	.4	.6	2.7	192	ñ 140	ñ 188	203	ñ 206	36.2	1.5	1.5	1.0
5	.4	.6	2.9	189	139	189	202	201	5.0	1.5	1.4	1.0
6	ñ .4	.4	4.0	ñ 194	142	184	ñ 204	ñ 198	2.0	ñ 1.5	1.3	1.0
7	.4	.4	4.2	ñ 208	ñ 149	195	204	197	1.0	1.5	1.2	1.0
8	.4	.4	4.0	208	155	ñ 197	203	194	.8	1.5	1.1	ñ 1.0
9	31.5	2.5	3.6	204	154	197	200	193	.8	1.5	1.0	1.0
10	84.4	ñ 5.0	ñ 3.2	ñ 198	155	197	ñ 198	ñ 190	.8	1.5	ñ 1.0	1.0
11	86.2	4.4	2.4	199	ñ 158	ñ 195	198	198	.8	1.5	1.0	1.0
12	88.1	4.2	2.3	203	151	198	200	203	.8	1.5	1.0	1.0
13	ñ 90.0	4.2	2.4	ñ 201	150	196	ñ 202	203	.8	ñ 1.5	1.0	1.0
14	88.2	3.8	2.5	203	ñ 143	197	201	ñ 211	.8	1.5	1.0	1.0
15	88.3	3.6	3.3	208	148	ñ 198	198	214	.8	1.5	1.0	ñ 1.0
16	86.5	3.6	3.4	ñ 207	145	198	ñ 199	213	ñ .8	1.5	1.0	1.0
17	84.7	ñ 3.5	ñ 2.9	205	143	199	199	214	1.0	1.5	ñ 1.0	1.0
18	84.8	3.4	2.6	204	ñ 143	ñ 201	199	ñ 217	1.1	1.5	1.0	1.0
19	84.9	3.6	2.4	200	138	199	199	220	1.2	1.5	1.0	1.0
20	ñ 86.8	3.2	2.7	ñ 200	139	206	331	222	1.3	ñ 1.5	1.0	1.0
21	85.0	3.0	2.5	201	ñ 143	204	379	219	1.4	5.0	1.0	1.0
22	65.7	3.1	2.4	204	ñ 199	204	196	222	ñ 1.5	3.0	1.0	ñ 1.0
23	21.2	3.2	2.4	ñ 205	199	ñ 204	ñ 198	225	1.5	1.5	1.0	1.0
24	1.5	ñ 3.4	ñ 2.4	200	198	425	198	272	1.5	1.5	ñ 1.0	1.0
25	1.4	3.3	64.8	194	ñ 198	ñ 379	ñ 989	ñ 334	1.5	1.5	1.0	1.0
26	1.2	3.2	ñ 193	195	195	ñ 203	194	ñ 205	1.5	1.5	1.0	1.0
27	ñ 1.0	3.4	200	ñ 196	198	207	ñ 205	200	1.5	ñ 1.5	1.0	1.0
28	.8	3.8	ñ 198	202	ñ 195	212	222	202	1.5	1.5	1.0	1.0
29	.7		199	203	196	ñ 214	205	199	ñ 1.5	1.5	1.0	ñ 1.0
30	.7		ñ 199	ñ 206	194	212	ñ 438	199	1.5	1.5	1.0	1.0
31	.7		ñ 200		192		ñ 206	199		1.5		1.0
Sum	1,167.5	75.6	1,324.7	6,039	5,050	6,370	7,590	6,623	672.9	51.5	33.0	31.0

Current Year 1970 — **Period** 1939 - 1970

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.	3.55	2.46	12	100	† 1	0.4	37.7	2,316	4,880	12,000	31.1
Feb.	2.67	2.40	9	5.6	† 6	.4	2.7	150	2,691	32,800	31.3
Mar.	4.20	2.38	26	239	†12	2.3	42.7	2,628	3,586	22,801	81.9
Apr.	4.14	4.04	28	213	5	186	201	11,978	10,031	74,500	2,230
May	4.17	3.80	14	232	15	126	163	10,017	18,565	300,000	25.2
June	5.66	4.10	24	832	1	183	212	12,635	17,128	250,000	35.5
July	8.18	4.20	25	3,500	26	187	245	15,055	15,868	155,000	967
Aug.	5.31	4.26	25	449	10	190	214	13,137	14,672	114,000	37.5
Sept.	4.58		3	207	† 8	Ø .8	22.4	1,335	11,310	124,000	53.8
Oct.	3.85		21	Ø 5.0	† 1	Ø 1.5	1.7	102	2,065	19,000	18.0
Nov.			† 1	Ø 1.5	† 9	Ø 1.0	1.1	65.5	1,229	8,700	11.9
Dec.			† 1	Ø 1.0	† 1	Ø 1.0	1.0	61.5	1,038	7,760	13.1
Yearly	8.18			3,500		0.4	96.0	69,480	103,063	1,093,553	10,001.1

ñ 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 116 discharge measurements during the year, 70 by the Mexican Section and 46 by the United States Section of this Commission, and a continuous record of gage heights. Computations by shifting control methods. Records available: 1938 through 1970. 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 1970 all of the 60,065 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 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	0	# 198	162	# 183	# 201	186	# 201	0	0	0
2	0	0	0	# 197	# 155	186	# 204	191	195	0	0	0
3	0	0	0	# 193	146	# 181	# 195	# 190	196	0	0	0
4	0	0	0	189	# 145	# 184	191	200	32.5	0	0	0
5	0	0	0	186	144	# 197	# 190	# 190	0	0	0	0
6	0	0	0	# 189	# 146	200	# 198	# 189	0	0	0	0
7	0	0	0	195	153	198	201	# 182	0	0	0	0
8	0	0	0	# 201	# 156	# 198	# 197	181	0	0	0	0
9	0	0	0	# 199	155	201	196	186	0	0	0	0
10	0	0	0	# 194	153	# 200	# 196	# 190	0	0	0	0
11	0	0	0	195	# 152	# 200	195	197	0	0	0	0
12	0	0	0	195	147	# 200	191	# 203	0	0	0	0
13	0	0	0	# 197	# 147	196	# 195	194	0	0	0	0
14	0	0	0	201	# 143	194	196	# 199	0	0	0	0
15	0	0	0	# 197	# 130	# 198	# 194	196	0	0	0	0
16	0	0	0	# 197	131	200	# 193	196	0	0	0	0
17	0	0	0	# 195	132	# 202	# 195	# 197	0	0	0	0
18	0	0	0	195	# 133	# 201	195	# 190	0	0	0	0
19	0	0	0	194	126	# 196	198	# 195	0	0	0	0
20	0	0	0	# 195	# 129	197	# 214	196	0	0	0	0
21	0	0	0	196	# 132	198	216	# 195	0	0	0	0
22	0	0	0	# 196	# 184	# 198	# 196	190	0	0	0	0
23	0	0	0	# 197	185	# 198	# 202	184	0	0	0	0
24	0	0	0	# 194	185	# 198	# 196	# 186	0	0	0	0
25	0	0	0	190	# 186	192	163	# 190	0	0	0	0
26	0	0	# 115	191	183	# 192	181	# 194	0	0	0	0
27	0	0	# 200	# 194	# 185	190	# 186	185	0	0	0	0
28	0	0	# 203	199	# 185	194	186	# 193	0	0	0	0
29	0		198	202	# 185	# 190	# 189	192	0	0	0	0
30	0		# 192	# 202	184	192	198	192	0	0	0	0
31	0		197		184		# 183	# 196		0		0
Sum	0	0	1,105	5,863	4,863	5,854	6,031	5,945	624.5	0	0	0

Current Year 1970 — **Period 1938-1970**

Month	Average Rainfall Inches ** 1938-1970	Average Rainfall Inches ** 1970	Extreme Second-Feet High Day	High	Low Day	Low	Average Second-Feet	Total Acre-Feet	Acre-Feet Average	Acre-Feet Maximum	Acre-Feet Minimum
Jan.	0.38	0		0		0	0	0	0	0	0
Feb.	.34	0.67		0		0	0	0	0	0	0
Mar.	.29	.36	28	203	† 1	0	35.7	2,189	1,198	6,482	0
Apr.	.18	0	14	212	5	184	195	11,627	7,304	12,383	2,020
May	.33	.06	25	188	19	126	157	9,649	9,579	17,380	0
June	.71	.83	†17	205	1	180	195	11,606	8,323	15,700	0
July	1.59	1.82	†21	220	25	96.1	195	11,964	8,456	15,170	0
Aug.	1.31	1.34	†12	203	8	181	192	11,793	8,250	12,620	0
Sept.	1.00	.67	1	205	† 5	0	20.1	1,237	4,833	12,380	0
Oct.	.72	.74		0		0	0	0	47.0	328	0
Nov.	.33	0		0		0	0	0	0	0	0
Dec.	.47	.04		0		0	0	0	0	0	0
Yearly	7.65	6.53		220		0	83.0	60,065	47,990	83,930	6,653

** Average for valley floor from El Paso to Island Station in U.S. and Mexico
† And other days
# Discharge measurement made on this day

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 50 discharge measurements during the year and a continuous record of gage heights. Computations by shifting control methods. Records available: August 17, 1938 through 1970.

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 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	16.8	20.2	9.3	⋔ 9.4	12.0	7.5	⋔ 12.5	163	6.5	10.8	7.0	7.7
2	16.5	18.5	8.6	8.6	8.8	7.6	10.9	105	⋔ 15.6	10.8	7.1	⋔ 8.0
3	16.4	20.5	7.8	11.6	9.3	⋔ 8.2	10.2	61.8	15.6	14.2	6.9	8.4
4	15.9	⋔ 20.8	⋔ 6.3	18.9	9.3	7.8	9.0	28.3	15.6	14.3	⋔ 6.6	8.7
5	13.8	25.4	6.3	8.0	7.6	7.5	11.3	⋔ 24.3	15.6	13.8	7.0	8.6
6	14.1	24.6	7.3	7.7	⋔ 12.4	6.0	49.2	20.0	140	208	6.8	8.6
7	⋔ 13.2	25.7	8.8	8.1	9.6	7.0	30.9	15.6	36.4	⋔ 101	6.8	8.5
8	15.7	24.2	8.8	⋔ 7.2	9.0	6.9	⋔ 9.2	14.4	15.0	25.6	6.8	8.4
9	17.0	22.6	9.2	8.3	10.2	4.7	8.6	12.6	10.0	22.6	6.8	⋔ 8.3
10	42.0	25.2	8.1	8.5	9.7	3.6	7.6	11.4	8.0	19.3	6.8	9.0
11	63.7	⋔ 28.0	⋔ 8.0	8.1	9.6	⋔ 3.0	7.0	10.8	6.0	15.3	6.8	9.7
12	57.0	28.1	7.3	7.8	9.5	3.4	7.3	9.6	4.0	12.7	⋔ 6.8	10.4
13	16.2	29.0	6.9	8.2	⋔ 7.0	3.9	7.4	9.0	2.0	10.1	6.8	11.1
14	⋔ 11.4	27.5	6.0	8.7	6.6	4.6	7.8	7.7	1.5	⋔ 8.5	6.8	11.8
15	11.2	26.1	7.9	⋔ 8.9	6.0	5.6	⋔ 6.5	7.1	1.5	9.8	6.8	11.6
16	9.8	24.2	9.2	8.4	7.2	6.0	7.9	7.1	⋔ 1.5	9.4	6.8	⋔ 25.7
17	10.0	26.4	8.5	8.4	7.7	⋔ 5.7	7.2	6.5	1.5	8.9	6.8	21.2
18	9.5	⋔ 24.5	⋔ 8.5	8.9	7.0	5.5	6.2	22.0	1.5	8.8	⋔ 6.8	16.3
19	8.9	23.5	7.8	9.1	5.4	5.8	7.2	⋔ 51.6	1.5	8.8	6.8	23.0
20	8.7	26.6	8.4	9.1	⋔ 5.4	7.6	9.3	23.8	1.5	9.7	6.8	20.6
21	⋔ 8.5	36.4	20.4	8.8	5.9	7.7	53.7	20.3	176	⋔ 8.8	6.7	27.8
22	8.9	31.9	8.6	⋔ 8.6	6.7	⋔ 25.3	⋔ 90.2	20.3	84.3	8.4	6.7	36.2
23	9.3	27.7	7.0	7.4	7.0	15.6	36.4	26.7	34.5	8.0	6.3	⋔ 39.6
24	9.4	42.4	7.0	8.1	8.2	11.8	31.9	36.8	⋔ 29.0	8.3	6.3	92.4
25	10.4	⋔ 30.0	⋔ 7.4	7.6	8.2	⋔ 144	713	17.7	19.1	7.9	⋔ 6.3	136
26	10.1	45.8	27.4	8.1	9.0	21.3	477	⋔ 1.8	14.5	7.9	7.0	127
27	11.5	11.4	10.0	7.2	⋔ 9.1	16.8	605	1.6	16.5	7.8	7.3	140
28	⋔ 19.0	10.1	8.9	6.5	8.7	13.2	398	1.4	16.5	⋔ 7.4	7.6	116
29	18.4		8.9	⋔ 4.9	8.6	13.2	⋔ 720	1.1	12.9	7.1	8.0	114
30	20.2		102	4.2	7.8	13.2	494	.9	⋔ 10.2	7.3	7.9	84.3
31	21.2		93.6		8.3		308	.7		6.9		82.2
Sum	534.7	727.3	460.2	253.3	256.8	400.0	4,160.4	740.9	714.3	628.2	206.7	1,241.1

Current Year 1970 — Period 1939 - 1970

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.	7.92	6.72	12	77.5	1	7.3	17.2	1,061	4,722	11,900	0
Feb.	7.65	6.83	26	75.5	28	10.1	26.0	1,443	3,124	37,000	0
Mar.	9.03	6.65	31	287	14	5.3	14.8	913	2,297	21,000	0
Apr.	8.00	6.63	3	112	30	3.8	8.4	502	3,734	70,500	0
May	8.07	6.64	1	122	1	4.2	8.3	509	10,701	299,800	0
June	8.82	6.64	25	313	11	2.4	13.3	793	9,312	241,000	0
July	12.90	6.75	25	1,700	13	5.0	134	8,252	8,734	118,500	0
Aug.	7.65		1	188	31	.7	23.9	1,470	7,853	99,400	0
Sept.	9.40		6	699	1	.5	23.8	1,417	8,727	119,200	0
Oct.	8.72	6.32	6	391	30	6.8	20.3	1,246	4,046	42,800	0
Nov.			29	Ø 8.0	† 23	Ø 6.3	6.9	410	1,199	7,270	0
Dec.	8.25	7.36	27	171	1	7.7	40.0	2,462	2,221	12,900	0
Yearly	12.90			1,700		0.5	28.3	20,478	66,670	1,079,340	238.1

⋔ Discharge measurement made on this day Ø Mean daily † 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 50 discharge measurements during the year and a continuous record of gage heights. Computations by shifting control methods. Records available: 1938 through 1970.

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 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	0.9	ñ 35.6	0	0	ñ 13.8	273	0	38.1	1.7	0
2	0	0	0	4.6	0	0	23.8	218	ñ 0	36.9	1.4	ñ 0
3	0	0	0	.6	0	ñ 0	8.0	178	0	25.0	1.4	0
4	.6	ñ .3	ñ 0	.7	.4	0	86.2	138	1.3	34.7	ñ 5.5	0
5	1.7	0	0	5.1	0	0	97.4	ñ 161	4.3	62.9	8.8	0
6	.4	4.3	0	21.4	ñ 1.9	0	253	274	41.6	206	8.8	0
7	ñ 0	3.5	0	6.2	.1	0	18.1	308	57.4	ñ 233	8.8	0
8	0	3.8	0	ñ 6.9	0	34.5	ñ 1.4	411	73.3	168	10.1	0
9	1.1	3.5	2.9	11.4	0	ñ 8.2	0	141	72.0	98.2	11.1	ñ 1.0
10	3.0	.9	.6	6.3	0	0	0	190	59.9	70.1	11.1	0
11	29.6	ñ 5.3	ñ 0	.3	0	0	0	167	29.0	57.4	12.1	0
12	33.9	10.8	0	0	0	0	0	148	22.8	16.9	ñ 10.0	1.0
13	18.4	9.1	0	2.1	ñ 0	0	0	110	21.7	16.6	9.0	.5
14	ñ 1.5	7.4	0	.1	0	0	0	78.4	58.7	ñ 17.4	9.8	0
15	.5	8.2	0	ñ 0	0	0	ñ 0	58.1	24.7	18.0	9.5	0
16	0	7.1	0	0	0	0	0	43.8	ñ 28.8	16.6	9.1	ñ 0
17	0	7.5	0	0	0	ñ 0	0	31.9	12.9	15.0	9.3	6.3
18	0	ñ 8.5	ñ 0	0	0	0	0	21.1	11.0	14.5	ñ 7.0	3.9
19	0	6.4	0	0	0	0	0	ñ 12.0	9.6	9.8	5.8	.6
20	0	7.5	0	0	ñ 0	0	0	8.6	42.2	7.4	2.6	3.1
21	ñ 0	11.1	5.4	3.9	0	0	0	5.7	162	ñ 7.6	1.4	2.4
22	0	17.2	17.6	ñ 1.8	0	27.1	ñ 23.5	2.6	276	9.1	1.0	7.9
23	0	16.1	7.5	0	0	156	9.8	29.3	ñ 126	9.4	0	ñ 12.8
24	0	16.0	0	0	0	76.3	21.5	33.0	83.5	9.6	ñ 0	19.4
25	0	ñ 21.0	ñ 2.8	0	8.0	ñ 104	273	33.0	42.1	9.9	0	78.1
26	0	15.7	2.8	4.7	.2	104	661	33.4	23.1	8.1	0	86.4
27	0	21.4	10.8	34.7	ñ 0	13.9	520	7.8	17.1	7.1	0	84.0
28	ñ 0	3.4	24.3	.6	0	6.8	392	2.6	18.8	ñ 4.7	0	91.1
29	0		17.1	ñ 0	0	30.2	ñ 821	0	75.6	2.6	0	59.1
30	0		98.4	0	0	47.9	551	0	ñ 44.0	2.3	0	ñ 38.8
31	0		133		0		578	0		2.2		23.4
Sum	90.7	216.0	324.1	147.0	10.6	608.9	4,352.5	3,118.3	1,439.4	1,235.1	155.3	519.8

Current Year 1970 — **Period** 1938 - 1970

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.	1.97		†11	37.8	† 1	0	2.9	180	6,225	20,000	0
Feb.	1.73		27	36.5	† 1	0	7.7	428	5,233	47,900	0
Mar.	2.88		31	214	† 2	0	10.5	643	4,577	38,900	0
Apr.	2.27		1	82.3	† 4	0	4.9	292	6,958	84,200	0
May	1.79		25	22.2	† 1	0	.4	21.0	13,263	303,000	0
June	2.58		25	249	† 1	0	20.3	1,208	11,909	239,000	0
July	5.47		26	1,770	† 8	0	140	8,633	12,025	140,000	0
Aug.	3.45		8	524	†28	0	101	6,185	11,053	123,000	0
Sept.	3.25		22	454	† 1	0	48.0	2,855	13,614	140,000	0
Oct.	2.68	1.15	6	383	31	2.2	39.8	2,450	8,525	61,400	0
Nov.	1.38		11	18.4	†23	0	5.2	308	5,594	20,400	0
Dec.	1.90		27	103	† 1	0	16.8	1,031	6,280	29,700	0
Yearly	5.47			1,770		0	33.5	24,234.0	105,256	1,247,500	0

ñ 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 southeast 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 52 discharge measurements during the year and a continuous record of gage heights. Computations by shifting control methods. Records available: 1889 through 1970.

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

EXTREME FLOWS FROM RECORDS‡: Momentary: Max. 10,600 second-feet 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 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	106	46.8	19.9	⋔ 87.2	41.8	42.7	⋔ 131	579	80.8	267	165	138
2	116	40.8	17.2	56.7	53.2	52.7	151	517	⋔ 42.9	297	162	⋔ 109
3	99.4	35.1	15.5	58.4	55.8	⋔ 41.8	119	497	49.8	263	161	111
4	100	⋔ 33.6	⋔ 15.8	50.6	35.4	37.9	96.9	468	57.4	253	⋔ 151	117
5	108	29.7	15.9	30.0	27.4	43.7	174	1,940 ⋔	50.3	370	136	114
6	107	31.4	18.7	43.7	⋔ 55.9	43.2	229	620	70.6	317	133	160
7	⋔ 95.0	20.2	24.2	37.0	51.9	653	137	509	75.5	⋔ 492	140	177
8	75.0	23.0	23.5	⋔ 36.7	33.2	* 275	⋔ 73.6	450	81.3	363	138	186
9	67.7	19.2	25.8	44.5	29.0	⋔ 134	58.8	409	170	277	131	⋔ 186
10	62.1	17.8	23.9	60.2	53.2	85.5	57.1	378	209	233	131	165
11	72.1	⋔ 20.8	⋔ 17.7	53.1	39.7	59.1	56.0	348	187	203	126	168
12	68.2	20.4	35.6	50.5	18.4	30.1	47.9	309	144	214	⋔ 133	153
13	71.3	20.1	37.1	43.3	⋔ 18.4	13.0	40.0	243	205	200	132	154
14	⋔ 51.4	18.4	23.4	58.5	18.6	12.7	34.5	222	251	⋔ 186	137	159
15	37.5	16.5	21.4	⋔ 54.4	13.1	34.1	⋔ 29.1	202	301	196	132	152
16	38.5	16.1	17.3	59.5	13.3	27.1	34.6	188	⋔ 635	188	156	⋔ 108
17	68.1	16.3	16.7	54.0	18.4	⋔ 20.4	35.7	167	484	188	167	109
18	67.4	⋔ 15.4	⋔ 16.1	29.3	17.3	21.3	35.6	152	444	204	⋔ 150	110
19	66.7	16.1	16.0	40.0	22.1	20.7	30.0	137 ⋔	446	204	130	111
20	64.5	16.4	16.3	37.6	⋔ 23.6	39.5	25.2	121	399	213	132	113
21	⋔ 69.6	17.1	16.2	46.3	31.2	92.3	20.1	95.7	403	⋔ 220	135	114
22	51.8	18.6	25.9	⋔ 56.9	23.9	⋔ 770	⋔ 16.1	86.9	588	192	128	115
23	47.2	18.8	57.6	46.0	27.1	* 190	21.7	88.8	⋔ 324	181	125	⋔ 116
24	50.0	21.8	42.5	23.8	40.6	106	18.0	76.8	259	191	113	113
25	40.4	⋔ 22.0	⋔ 39.8	18.8	51.3	⋔ 124	69.0	72.7	245	171	⋔ 113	110
26	45.9	19.7	44.9	19.4	38.3	146	⋔ 831	60.8 ⋔	260	156	91.0	107
27	34.2	19.5	24.4	22.8	⋔ 32.8	166	445	53.7	280	148	79.0	105
28	⋔ 61.5	19.3	34.1	35.8	26.4	142	459	53.3	299	⋔ 127	112	102
29	52.0		39.2	⋔ 48.2	33.6	120	⋔ 761	42.1	284	136	131	98.9
30	55.2		41.2	52.7	43.2	185	717	41.6	⋔ 260	156	140	⋔ 96.1
31	52.2		149		49.2		778	45.1		159		90.0
Sum	2,101.9	630.9	932.8	1,355.9	1,037.3	3,728.8	5,731.9	9,173.5	7,585.6	6,965	4,010.0	3,967.0

Current Year 1970									Period 1938 - 1970		
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.	4.38	3.73	2	118	15	24.4	67.8	4,169	6,580	20,900	0
Feb.	3.95	3.55	1	51.8	† 15	15.4	22.5	1,251	5,781	50,100	0
Mar.	4.75	3.55	31	204	5	14.9	30.1	1,850	4,516	38,900	0
Apr.	4.45	3.69	1	111	25	18.8	45.2	2,689	5,687	77,000	0
May	4.15	3.45	2	75.7	15	9.8	33.5	2,057	13,598	309,000	0
June	10.34	3.47	22	4,200	14	10.2	124	7,396	12,394	240,000	0
July	6.42	3.64	26	1,470	22	15.5	185	11,369	13,185	140,000	3.8
Aug.	11.19	4.16	5	4,870	31	34.1	296	18,196	12,632	127,000	16.7
Sept.	7.20	4.23	16	1,500	2	41.5	253	15,046	16,502	147,000	0
Oct.	6.04	4.72	5	778	28	117	225	13,815	12,506	66,500	0
Nov.	5.06	4.42	† 1	170	26	57.9	134	7,954	7,631	24,500	0
Dec.	4.96		9	199	31	Ø 90.0	128	7,869	7,831	31,000	0
Yearly	11.19	3.45		4,870		9.8	129	93,661	118,843	1,270,400	1,662.3

⋔ Discharge measurement made on this day ‡ Period 1924 - 1970 * Partly estimated † And other days
Ø Mean daily

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 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 96 discharge measurements during the year and a continuous record of gage heights. Computations by shifting control methods. Records available: 1889 through 1970.

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 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	20.6	0	0	0	ñ 0	ñ 0	ñ 50.8	0	138	223	123	ñ79.4
2	ñ18.7	ñ0	ñ 0	ñ 0	0	0	ñ 28.1	0	ñ 112	ñ 209	ñ 115	80.0
3	20.5	0	0	0	0	0	11.2	0	96.1	210	118	83.3
4	24.8	0	0	0	ñ 0	ñ 0	12.7	ñ 0	81.6	221	106	ñ82.7
5	ñ25.5	ñ0	ñ 0	0	0	0	18.3	ñ 0	67.5	317	94.8	81.1
6	26.0	0	0	ñ 0	0	0	ñ 18.8	ñ 0	53.3	ñ 419	ñ 96.7	82.3
7	25.8	0	0	0	0	.7	9.2	0	84.5	362	96.7	81.8
8	24.6	0	0	0	0	ñ 0	3.5	7.3	ñ 108	ñ 244	93.0	83.0
9	26.4	ñ0	ñ 0	0	0	0	2.5	13.2	77.1	224	90.6	ñ81.9
10	25.2	0	0	0	0	0	ñ .1	13.2	60.7	278	ñ 90.0	78.1
11	25.0	0	0	0	ñ 0	ñ 0	0	ñ 20.2	ñ 52.5	370	91.1	ñ75.4
12	ñ24.2	0	ñ 0	0	0	0	0	31.5	47.1	412	92.8	76.4
13	24.6	0	0	ñ 0	0	0	0	35.7	39.0	ñ 437	ñ 91.6	80.7
14	22.1	0	0	0	ñ 0	0	ñ 0	ñ 44.1	36.5	424	84.9	80.6
15	ñ23.9	0	0	0	0	ñ 0	0	85.3	ñ 25.6	358	79.8	ñ82.2
16	23.3	ñ0	ñ 0	ñ 0	0	0	0	123	36.7	283	83.4	76.5
17	18.6	0	0	0	0	0	ñ 0	ñ 185	77.4	266	ñ 82.5	78.2
18	13.5	0	0	0	0	0	0	242	ñ 98.2	254	81.1	ñ75.9
19	ñ11.1	ñ0	ñ 0	0	0	ñ 0	0	257	142	ñ 251	78.5	75.6
20	8.2	0	0	ñ 0	0	0	ñ 0	286	186	244	ñ 68.0	78.0
21	4.3	0	0	0	0	111	0	ñ 309	ñ 173	236	69.0	78.7
22	ñ 3.0	0	0	0	ñ 0	249	0	311	121	231	75.6	ñ77.7
23	1.8	0	ñ 0	0	0	ñ 147	0	342	117	241	71.5	74.2
24	1.6	ñ .5	0	ñ 0	0	11.6	ñ 0	ñ 325	132	264	ñ 69.6	78.0
25	.8	0	0	0	ñ 0	9.9	0	275	167	263	71.1	71.0
26	ñ .4	0	ñ 0	0	0	ñ 0	0	238	209	239	76.3	68.0
27	.4	ñ0	0	ñ 0	0	2.9	ñ 0	ñ 221	249	ñ 196	79.5	67.8
28	.1	0	0	0	ñ 0	1.2	9.1	250	311	169	78.0	66.0
29	0		0	0	0	0	6.0	290	ñ 308	153	78.2	65.2
30	ñ 0		ñ 0	0	0	ñ 2.7	2.4	261	257	140	80.8	ñ66.0
31	0		0		0		ñ .8	ñ 196		129		61.2
Sum	445.0	0.5	0	0	0	536.0	173.5	4,361.5	3,663.8	8,267	2,607.1	2,366.9

Current Year 1970 — **Period** 1938 - 1970

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.	9.14		10	27.8	†28	0	14.4	88.3	5,993	24,400	0
Feb.	8.81		24	4.6	† 1	0	0	1.0	5,033	40,800	0
Mar.				0		0	0	0	3,736	39,100	0
Apr.				0		0	0	0	2,781	41,600	0
May				0		0	0	0	9,887	240,000	0
June	12.38		21	659	† 1	0	17.9	1,063	10,446	216,000	0
July	10.41		1	104	†10	0	5.6	344	13,699	156,000	0
Aug.	13.25		23	590	† 1	0	141	8,651	13,146	133,000	0
Sept.	12.06	9.21	29	332	15	20.4	122	7,267	16,513	151,000	0
Oct.	12.37	10.77	13	441	31	126	267	16,398	14,379	105,000	0
Nov.	10.79	9.82	1	126	20	64.1	86.9	5,171	5,890	34,500	0
Dec.	10.57	9.54	24	114	31	50.9	76.4	4,695	6,209	30,900	0
Yearly	13.25			659		0	61.4	44,473	107,712	1,176,700	951.8

ñ Discharge measurement made on this day † And other days

‡ Period June 1900 - March 1914; September 1919 - March 1920; and 1924 - 1970

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 Rfo 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 128 discharge measurements during the year, 126 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 Rfo Conchos" Gaging Station. Computations by shifting control methods. Records available: 1896 through 1970. 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 Rfo 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 Rfo San Pedro, a tributary which enters the Rfo 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 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	367	406	306	✱ 259	225	✱ 230	✱ 1,330	310	1,170	1,820	1,670	1,160
2	✱ 371	✱ 399	✱ 315	✱ 226	192	232	533	275	1,150	✱ 3,040	✱ 1,650	✱ 1,140
3	381	385	321	228	199	224	✱ 456	✱ 263	✱ 1,140	✱ 7,910	1,630	1,140
4	396	367	321	224	✱ 185	224	265	230	1,120	4,800	✱ 1,620	✱ 1,120
5	✱ 403	✱ 353	311	231	176	229	252	294	1,110	✱ 7,700	1,620	1,110
6	403	357	340	✱ 235	170	201	✱ 239	✱ 604	1,110	2,460	✱ 1,600	1,090
7	403	364	314	214	✱ 164	1,490	234	590	✱ 2,490	✱ 2,100	1,570	✱ 1,060
8	✱ 406	371	315	202	162	✱ 417	206	245	1,560	2,050	1,550	1,030
9	417	✱ 385	✱ 318	✱ 188	156	233	✱ 197	228	✱ 1,210	✱ 2,030	✱ 1,530	✱ 1,020
10	431	403	307	174	160	214	195	✱ 569	999	2,020	1,530	957
11	441	427	291	164	✱ 175	✱ 206	191	766	✱ 498	2,400	✱ 1,500	✱ 890
12	✱ 456	✱ 456	✱ 284	155	179	206	192	396	396	✱ 2,440	1,470	830
13	459	459	275	✱ 174	177	191	✱ 185	✱ 254	353	2,070	✱ 1,450	791
14	463	466	277	186	✱ 189	629	174	200	✱ 611	✱ 1,940	1,440	✱ 773
15	✱ 463	470	273	183	196	✱ 943	161	176	523	1,900	1,430	759
16	463	✱ 473	✱ 269	✱ 189	206	237	✱ 160	192	1,550	✱ 1,850	✱ 1,410	✱ 731
17	463	466	273	187	223	247	164	✱ 565	✱ 1,790	1,870	1,410	625
18	463	456	257	206	208	424	172	809	✱ 4,520	1,900	✱ 1,380	✱ 459
19	✱ 456	✱ 431	✱ 242	226	204	201	173	✱ 929	✱ 2,440	✱ 1,910	1,350	438
20	445	392	410	✱ 208	197	188	✱ 177	1,170	1,860	1,860	✱ 1,320	657
21	438	357	537	199	✱ 210	288	165	✱ 1,310	✱ 1,920	✱ 1,850	1,320	✱ 650
22	✱ 427	348	295	178	221	✱ 685	156	1,120	1,880	1,840	1,300	629
23	427	✱ 334	✱ 279	✱ 169	452	201	✱ 161	1,230	✱ 1,820	✱ 1,830	✱ 1,190	✱ 607
24	431	689	268	166	298	179	161	✱ 1,020	1,730	1,800	724	583
25	431	427	254	172	✱ 242	171	162	978	✱ 1,720	1,780	✱ 1,120	✱ 565
26	✱ 431	✱ 350	✱ 245	202	246	158	1,040	✱ 1,070	1,810	✱ 1,770	1,210	565
27	420	330	253	✱ 214	224	252	✱ 1,350	1,230	3,520	1,750	✱ 1,200	565
28	410	305	268	211	✱ 225	105	✱ 1,960	1,210	✱ 2,870	✱ 1,730	1,200	✱ 565
29	✱ 403		256	209	209	1,020	✱ 516	1,210	1,850	1,720	1,200	547
30	406		✱ 261	✱ 207	199	4,240	367	✱ 1,210	✱ 1,810	✱ 1,710	✱ 1,180	✱ 537
31	406		247		211		✱ 322	✱ 1,190		1,680		526
Sum	13,180	11,426	9,182	5,986	6,480	14,465	12,016	21,843	48,530	75,530	41,774	24,119

Current Year 1970 — Period 1968-1970

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.	6.36	6.20	† 14	466	† 1	367	424	26,134	59,102	131,293	19,879
Feb.	8.73	6.10	24	2,030	28	293	410	22,659	50,127	124,386	3,336
Mar.	7.19	5.97	20	999	20	221	296	18,214	50,895	130,298	4,171
Apr.	6.04	5.81	1	261	12	150	200	11,876	32,489	76,357	9,235
May	6.76	5.77	23	795	9	155	209	12,852	16,838	26,730	10,932
June	15.45	5.68	30	9,010	† 28	91.8	480	28,680	27,263	47,101	6,008
July	12.43	5.71	26	5,510	† 22	152	388	23,833	64,988	93,705	23,833
Aug.	8.07	5.81	21	2,130	† 15	173	706	43,332	63,659	115,918	31,728
Sept.	16.96	6.10	18	11,200	14	327	1,620	96,299	203,980	468,680	46,959
Oct.	16.50	8.27	3	10,200	31	1,670	2,440	149,785	128,386	189,837	45,537
Nov.	8.27	6.66	1	1,680	24	639	1,390	82,927	80,632	125,311	33,659
Dec.	7.59	6.36	1	1,180	19	353	777	47,841	37,655	47,841	30,071
Yearly	16.96	5.68		11,200		91.8	780	564,432	816,014	1,082,065	564,432

‡ Period June 1900-March 1914; September 1914-March 1920; and 1924-1970

† And other days

✱ Discharge measurement made on this day

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 97 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 1970.

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 Rfo 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. Ø 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 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1.0	1.4	1.6	1.8	✟ 1.4	✟ 0.5	✟ 68.0	0.6	1.8	6.2	1.1	✟ 1.4
2	✟ 1.0	✟ 1.4	✟ 1.6	✟ 1.8	1.3	.5	1.0	.6	✟ 2.5	✟ 879	✟ 1.0	1.4
3	1.0	1.5	1.5	1.8	1.3	.5	.9	.6	2.2	80.2	1.0	1.4
4	1.0	1.5	1.4	1.7	1.2	✟ .4	.9	✟ .7	2.0	49.1	1.0	✟ 1.4
5	✟ 1.0	✟ 1.6	✟ 1.3	1.6	1.1	.4	.9	✟ 410	1.7	1,050 ✟	1.0	1.4
6	1.0	1.6	3.9	✟ 1.6	1.0	.4	✟ .9	32.0	1.4	✟ 66.8	✟ 1.0	1.4
7	1.1	1.6	1.3	1.6	1.0	.4	.9	✟ 1.5	1.2	14.5	1.1	1.3
8	1.1	1.6	1.3	1.5	✟ .9	✟ 40.7	.9	1.4	✟ .9	4.6	1.2	✟ 1.3
9	1.2	✟ 1.6	✟ 1.3	1.4	.9	47.4	.9	1.2	.9	✟ 4.0	1.3	1.3
10	1.2	1.6	1.3	1.4	1.0	.6	.9	1.1	1.0	3.4	✟ 1.4	1.3
11	1.3	1.6	1.3	1.3	✟ 1.0	✟ .5	.9	✟ 1.0	✟ 1.0	2.9	1.4	✟ 1.3
12	✟ 1.3	✟ 1.6	✟ 1.3	1.3	1.0	.5	.9	1.1	1.0	2.3	1.5	1.4
13	1.3	1.5	1.3	✟ 1.2	1.0	.5	127	1.3	1.0	✟ 1.7	✟ 1.5	1.4
14	1.3	1.4	1.4	1.2	1.0	.5	✟ 60.3	✟ 1.4	8.5	1.8	1.5	1.4
15	✟ 1.3	1.4	1.4	1.2	✟ 1.0	✟ 47.9	1.0	1.4	✟ 53.6	1.8	1.4	✟ 1.5
16	1.4	✟ 1.3	✟ 1.4	✟ 1.2	1.0	.8	1.0	34.0	7.6	1.8	1.4	1.5
17	1.4	1.3	1.3	1.3	.9	.8	✟ 1.0	✟ 2.6	50.8	1.9	✟ 1.4	1.4
18	1.4	1.4	1.3	1.4	✟ .9	.8	.9	1.3	✟ 37.5	2.0	1.4	✟ 1.4
19	✟ 1.5	✟ 1.4	✟ 1.2	1.5	.9	✟ .8	.8	1.5	2.0	✟ 2.0	1.4	1.4
20	1.5	1.5	6.0	✟ 1.6	.9	.8	✟ .7	1.8	1.2	1.9	✟ 1.4	1.4
21	1.5	1.5	1.4	1.5	27.9	44.3	.8	✟ 90.5	✟ .9	1.9	1.4	1.4
22	✟ 1.5	1.6	1.4	1.4	✟ 14.5	852	.8	27.5	.9	1.8	1.3	✟ 1.4
23	1.5	1.6	✟ 1.4	1.4	16.9	✟ 3.8	.8	108	.9	1.8	1.2	1.4
24	1.4	✟ 1.7	1.4	✟ 1.3	.8	1.1	✟ .9	✟ 14.9	.9	1.7	✟ 1.2	1.4
25	1.4	1.6	1.4	1.2	✟ .8	19.4	.9	1.0	.9	1.6	1.2	1.4
26	✟ 1.4	1.6	✟ 1.4	1.2	.8	✟ 1.1	258	1.0	1.6	1.6	1.3	1.4
27	1.4	✟ 1.5	1.5	✟ 1.1	.7	.9	✟ 574	1.0	71.3	✟ 1.5	1.3	1.4
28	1.4	1.5	1.6	1.2	.7	1.5	11.5	1.0	72.4	1.4	1.3	1.4
29	1.4		1.7	1.2	.6	12.9	.7	1.0	✟ 21.0	1.3	1.3	1.4
30	✟ 1.4		✟ 1.8	1.3	.6	✟ 597	.7	1.0	10.0	1.2	1.4	✟ 1.4
31	1.4		1.8		.5		✟ 4.0	✟ 1.0		1.2		1.4
Sum	40.0	42.4	51.2	42.2	85.5	1,679.7	1,123.8	745.0	360.6	2,194.9	38.3	43.1

Current Year 1970 — **Period 1932-1970**

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.			† 19	Ø 1.5	† 1	Ø 1.0	1.3	79.3	149	273	46.4
Feb.	6.18		24	15.0	† 16	Ø 1.3	1.5	84.1	213	3,120	41.5
Mar.	6.22		20	16.4	19	Ø 1.2	1.7	102	152	270	46.4
Apr.			† 1	Ø 1.8	27	Ø 1.1	1.4	83.7	214	1,070	57.9
May	6.85		21	485	31	Ø .5	2.8	170	1,086	8,520	34.7
June	7.90		22	5,130	† 4	Ø .4	55.6	3,332	2,187	12,653	49.2
July	7.45		27	3,130	† 20	Ø .7	36.2	2,229	3,369	18,500	46.8
Aug.	7.61		5	1,670	† 1	Ø .6	24.0	1,478	2,929	16,330	56.9
Sept.	6.78		17	348	† 8	Ø .9	12.0	715	3,713	24,900	128
Oct.	8.48		2	4,910	† 30	Ø 1.2	70.8	4,354	1,682	19,200	36.9
Nov.			† 12	Ø 1.5	† 2	Ø 1.0	1.3	76.0	228	2,554	35.7
Dec.			† 15	Ø 1.5	† 7	Ø 1.3	1.4	85.5	155	408	39.3
Yearly	8.48			5,130		Ø 0.4	17.7	12,788.6	16,077	40,444	3,109.2

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

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 80 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: 1955 through 1970. Records are also available from 1896 through June 13, 1932 for a station located about 12.1 river miles downstream from the Río Conchos and 1.3 miles upstream from Alamito Creek; and from June 14, 1932 through 1954 for a station about 2.0 river miles downstream from the Río Conchos and 11.4 river miles upstream from Alamito Creek.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station. 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.	17,000	Oct. 1958	Min.	3.6	May 1955
Yearly:	Max.	2,590	1958	Min.	283	1956

Mean Daily Discharge in Second-Feet 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	417	401	350	196	⋔ 217	⋔ 235	1,800	287	1,250	1,870	1,780	⋔1,290
2	⋔ 418	407	⋔ 332	⋔ 185	202	220	⋔ 509	267	1,140	⋔4,460	1,770	1,250
3	415	390	313	185	220	215	492	258	1,040	6,580	1,760	1,270
4	426	371	303	178	226	⋔ 205	320	⋔ 237	1,010	3,410	1,770	⋔1,240
5	⋔ 446	⋔ 366	⋔ 284	191	201	201	288	824	1,000	⋔6,390	1,730	1,210
6	442	359	304	195	181	191	⋔ 280	275	1,100	4,720	⋔1,710	1,190
7	451	359	356	194	165	1,020	262	⋔ 484	1,760	2,570	1,660	1,160
8	448	379	293	184	⋔ 170	⋔ 480	238	250	⋔ 1,590	⋔2,430	1,680	⋔1,150
9	430	⋔ 392	⋔ 298	⋔ 171	174	315	209	247	1,150	2,280	1,650	1,110
10	449	393	287	157	192	222	193	298	1,030	2,290	⋔ 1,620	1,040
11	467	403	258	154	⋔ 190	⋔ 209	166	⋔ 703	⋔ 637	2,340	1,620	945
12	⋔ 483	⋔ 444	⋔ 252	158	166	214	162	449	469	2,380	1,620	883
13	494	436	243	⋔ 181	174	207	211	276	429	⋔2,440	⋔ 1,630	837
14	516	436	239	197	191	212	⋔ 242	⋔ 259	1,200	2,460	1,600	810
15	⋔ 493	450	246	186	175	1,080	142	226	⋔ 825	2,420	1,600	⋔ 814
16	493	⋔ 464	⋔ 227	174	185	251	128	306	1,430	2,380	1,600	751
17	479	454	224	165	213	232	⋔ 130	⋔ 504	2,370	2,320	⋔ 1,550	656
18	486	424	221	181	⋔ 228	317	146	824	⋔ 4,960	2,290	1,480	⋔ 490
19	⋔ 478	⋔ 410	⋔ 206	208	207	⋔ 204	169	917	3,490	⋔2,230	1,450	445
20	447	327	266	⋔ 196	199	173	⋔ 163	1,020	1,780	2,230	⋔ 1,390	721
21	436	328	547	186	216	369	149	⋔ 1,310	⋔ 1,720	2,190	1,400	729
22	⋔ 428	358	306	174	233	1,200	116	1,060	1,670	2,160	1,400	⋔ 699
23	419	360	⋔ 279	168	376	444	112	1,520	1,640	2,140	1,350	670
24	411	889	267	⋔ 163	304	284	⋔ 137	1,190	1,570	2,150	⋔ 841	635
25	420	485	246	156	⋔ 264	233	135	1,110	1,560	2,190	1,040	635
26	⋔ 426	402	⋔ 218	178	254	⋔ 173	773	1,100	1,680	2,160	1,320	614
27	425	⋔ 366	216	⋔ 209	245	261	⋔ 1,440	1,230	3,650	⋔2,070	1,320	634
28	418	350	222	205	234	177	2,090	1,240	4,230	1,930	1,330	635
29	391		225	213	224	231	602	1,300	⋔ 2,130	1,890	1,330	608
30	⋔ 396		⋔ 227	211	217	⋔ 2,890	362	1,370	1,940	1,870	1,320	⋔ 593
31	398		199		229		319	1,320		1,830		591
Sum	13,746	11,603	8,454	5,499	6,672	12,665	12,485	22,661	51,450	83,070	45,321	26,305

Current Year 1970 — **Period** 1968 - 1970

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.	2.44	2.19	14	528	29	377	443	27,265	55,060	116,947	20,968
Feb.	3.60	2.05	24	1,850	20	303	414	23,015	46,232	110,937	4,745
Mar.	2.82	1.79	21	797	31	188	273	16,768	45,901	116,352	4,583
Apr.	1.90	1.67	†29	231	17	145	183	10,907	31,326	72,088	10,907
May	2.49	1.69	23	560	7	152	215	13,234	17,845	28,154	12,147
June	6.20	1.66	30	10,000	20	141	422	25,121	27,187	50,514	5,927
July	5.15	1.50	1	5,820	22	91.1	403	24,764	73,065	107,399	24,764
Aug.	3.91	1.85	23	2,520	15	210	731	44,948	64,173	117,205	30,365
Sept.	5.42	2.25	18	6,770	†13	411	1,720	102,051	205,989	469,832	46,085
Oct.	5.94	3.59	5	8,870	31	1,830	2,680	164,769	125,222	170,280	40,618
Nov.	3.61	2.60	1	1,870	†24	635	1,510	89,894	78,686	113,407	32,758
Dec.	3.28	2.24	1	1,290	19	406	849	52,176	39,040	52,176	31,918
Yearly	6.20	1.50		10,000		91.1	822	594,912	809,726	1,070,504	594,912

⋔ Dischargement measurement made on this day † And other days

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", 2.6 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 95 discharge measurements during the year and a continuous record of gage heights. Computations by shifting control methods. Records available: 1932 through 1970.

REMARKS: Irrigation diversions modify the flow of this spring-fed creek at this station. On February 1969 the station was moved 458 feet downstream. The zero of the gage was not changed.

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. 0.1 several days in June and July 1950.

Average Flow in Second-Feet

Daily:	Max.	17,200	June 1,	1937	Min.	0.1	Several days in June and July 1950
Monthly:	Max.	921	June	1937	Min.	0.8	October 1934
Yearly:	Max.	146		1937	Min.	5.5	1943

Mean Daily Discharge in Second-Feet 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	3.2	2.8	3.4	3.1	ñ 3.2	ñ 2.7	82.0	2.8	3.0	ñ 24.1	3.5	ñ 3.7
2	ñ 3.2	ñ 2.8	ñ 3.5	ñ 3.2	3.3	2.7	ñ 26.3	2.5	2.7	1,000	ñ 3.5	3.7
3	3.1	2.8	3.6	3.2	3.3	2.6	8.1	ñ 2.3	ñ 2.5	224	3.5	3.7
4	3.0	2.8	3.7	3.2	ñ 3.4	ñ 2.6	2.1	490	2.5	36.4	3.5	3.6
5	3.0	2.8	3.8	3.2	3.3	3.2	1.7	1,670	2.5	ñ1,260	3.5	3.6
6	ñ 2.9	ñ 2.8	ñ15.7	ñ 3.2	3.2	11.0	ñ 2.0	ñ 124	2.7	835	3.6	3.6
7	2.9	2.8	6.7	3.2	3.2	19.3	1.9	16.2	150	151	3.6	ñ 3.6
8	2.9	2.8	3.8	3.2	ñ 3.1	ñ 130	2.0	5.3	ñ 71.4	ñ 43.1	3.6	3.6
9	2.9	2.7	3.8	3.3	3.1	121	2.2	2.6	21.8	21.3	ñ 3.6	3.6
10	3.0	ñ 2.7	ñ 3.8	ñ 3.3	3.2	27.7	ñ 2.4	ñ 2.3	6.8	12.5	3.6	3.5
11	3.0	2.6	3.6	3.4	ñ 3.2	ñ 7.6	2.4	306	5.6	7.3	3.6	3.5
12	3.0	2.5	3.3	3.5	3.2	3.5	2.5	166	4.3	ñ 4.8	ñ 3.6	3.5
13	ñ 3.0	ñ 2.4	ñ 3.1	ñ 3.6	3.2	926	ñ 2.5	77.0	3.4	4.6	3.6	3.4
14	2.9	2.4	3.1	3.6	3.2	315	* 13.3	11.1	ñ 2.7	4.5	3.6	3.4
15	2.9	2.3	3.1	3.5	ñ 22.9	178	* 7.5	ñ 4.4	2.7	ñ 4.3	3.6	ñ 3.4
16	ñ 2.8	ñ 2.3	ñ 3.1	ñ 3.5	7.7	ñ 9.8	ñ 37.4	267	* 392	4.2	ñ 3.6	3.4
17	2.8	2.3	3.3	3.6	3.3	3.0	24.2	64.6	*7,320	4.1	3.6	3.5
18	2.8	2.3	3.4	3.6	ñ 2.8	ñ 2.9	1.9	5.8	* 262	4.0	3.6	3.5
19	2.9	2.3	3.6	3.7	2.8	2.7	1.9	* 6.5	ñ 40.3	3.9	3.6	3.5
20	ñ 2.9	ñ 2.3	ñ 3.8	ñ 3.8	2.8	60.3	ñ 1.9	ñ 166	15.1	ñ 7.2	3.5	3.6
21	2.9	2.3	3.6	3.7	21.5	48.2	1.9	40.9	ñ 6.5	4.4	3.5	ñ 3.6
22	2.8	19.2	3.5	3.6	ñ 3.2	ñ 99.3	1.8	30.6	4.5	4.2	3.5	3.6
23	ñ 2.8	3.5	3.4	3.4	500	11.0	1.8	1,450	3.6	4.0	3.5	3.6
24	2.8	ñ12.2	ñ 3.2	ñ 3.3	61.3	4.5	ñ 1.8	ñ 248	ñ 3.6	3.8	ñ 3.5	3.6
25	2.8	3.5	3.1	3.4	18.1	ñ 14.0	1.8	* 55.1	3.6	3.6	3.6	3.6
26	2.8	3.5	ñ 3.0	3.5	ñ 3.6	5.5	154	21.4	20.0	ñ 3.4	3.6	3.6
27	ñ 2.8	ñ 3.2	3.0	3.6	3.4	2.7	ñ 389	ñ 6.9	2,520	3.4	3.6	3.6
28	2.8	3.3	3.0	ñ 3.7	3.3	2.8	55.5	5.4	ñ2,650	3.4	3.6	3.6
29	2.8		3.0	3.5	3.2	ñ 28.8	ñ 10.3	4.7	300	3.4	3.6	ñ 3.6
30	ñ 2.8		3.0	3.4	3.0	ñ 548	4.2	4.0	67.5	3.5	3.7	3.6
31	2.8		ñ 3.0		2.8		ñ 3.0	ñ 3.2		3.5		3.6
Sum	90.0	102.2	120.0	103.0	710.8	2,596.4	851.3	5,262.6	13,893.3	3,696.9	107.1	110.5

Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Period 1932 - 1970 Acre-Feet		
			High		Low						
	High	Low	Day		Day				Average	Maximum	Minimum
Jan.			† 1	Ø 3.2	† 16	Ø 2.8	2.9	179	192	875	82.7
Feb.	2.73		22	40.0	† 15	Ø 2.3	3.6	203	251	4,400	73.4
Mar.	3.11		6	131	† 26	Ø 3.0	3.9	238	235	2,410	72.4
Apr.			20	Ø 3.8	1	Ø 3.1	3.4	204	1,050	15,500	55.1
May	4.28		23	2,080	† 18	Ø 2.8	22.9	1,410	3,778	26,000	81.3
June	6.88	2.42	13	9,200	† 3	Ø 2.6	86.5	5,150	7,061	54,800	59.5
July	4.36		26	2,860	5	Ø 1.7	27.5	1,689	8,427	28,700	518
Aug.	4.98	2.08	23	3,750	† 1	2.3	170	10,438	5,386	33,617	123
Sept.	8.30		17	13,200	† 3	Ø 2.5	* 463	* 27,557	7,252	42,200	123
Oct.	5.12		5	4,630	† 26	Ø 3.4	119	7,333	2,906	17,243	50.8
Nov.			†30	Ø 3.7	† 1	Ø 3.5	3.6	212	371	2,980	64.9
Dec.			† 1	Ø 3.7	† 13	Ø 3.4	3.6	219	287	3,080	90.0
Yearly	8.30			13,200		Ø 1.7	* 75.7	* 54,832	37,196	105,807	3,958

Current Year 1970

ñ Discharge measurement made on this day * Partly estimated Ø Mean daily † And other days

RIO GRANDE AT JOHNSON RANCH NEAR CASTOLON, TEXAS

DESCRIPTION: Cableway, gravity well, and digital 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 downstream 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 91 discharge measurements during the year and a continuous record of gage heights. Computations by shifting control methods. Records available: April 1936 through 1970.

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 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	418	403	401	185	✝ 185	✝ 207	3,370	325	1,250	✝ 2,040	1,800	✝ 1,260
2	✝ 422	✝ 408	✝ 390	✝ 166	190	219	✝ 1,300	272	1,110	4,930	✝ 1,760	1,210
3	418	421	378	164	190	211	580	✝ 246	✝ 1,000	7,140	1,720	1,190
4	412	433	360	157	✝ 185	✝ 194	449	246	908	6,280	1,690	1,180
5	419	408	346	149	209	190	365	1,740	854	✝ 3,680	1,660	1,160
6	✝ 441	✝ 404	✝ 335	✝ 152	206	305	✝ 287	✝ 841	806	8,330	1,640	1,140
7	438	392	331	167	190	209	275	477	2,890	3,840	1,620	✝ 1,130
8	442	395	382	176	✝ 165	✝ 637	252	364	✝ 1,940	✝ 2,840	1,610	1,100
9	449	394	345	171	146	751	224	321	1,440	2,590	✝ 1,600	1,080
10	440	✝ 421	✝ 333	✝ 168	135	446	✝ 213	✝ 224	1,000	2,490	1,580	1,060
11	447	416	320	157	✝ 145	✝ 309	181	357	904	2,490	1,560	1,020
12	467	418	301	141	168	223	153	637	660	✝ 2,500	✝ 1,550	953
13	✝ 484	✝ 440	✝ 287	✝ 135	184	235	✝ 152	531	492	2,480	1,560	921
14	495	462	279	141	594	983	266	330	✝ 501	2,500	1,520	882
15	499	447	261	152	✝ 183	1,170	253	✝ 235	3,430	✝ 2,500	1,510	✝ 859
16	✝ 488	✝ 457	✝ 253	✝ 163	174	✝ 922	✝ 202	208	1,230	2,450	✝ 1,520	830
17	484	472	254	163	158	370	176	523	9,570	2,360	1,520	805
18	482	470	227	146	✝ 159	✝ 412	111	318	3,500	2,320	1,500	749
19	481	446	210	141	190	228	92.9	608	✝ 5,170	2,270	1,470	630
20	✝ 488	✝ 420	✝ 204	✝ 142	201	271	✝ 95.4	✝ 1,050	2,560	✝ 2,230	1,430	546
21	464	399	219	168	183	290	119	939	✝ 1,830	2,200	1,400	✝ 662
22	449	400	412	155	✝ 226	✝ 348	125	1,600	1,770	2,180	1,400	747
23	✝ 446	397	379	137	553	910	113	1,350	1,680	2,140	✝ 1,380	732
24	437	✝ 423	✝ 309	✝ 126	558	505	✝ 101	✝ 2,070	✝ 1,640	2,120	1,330	713
25	429	679	254	118	356	393	82.1	1,200	2,160	2,120	1,030	693
26	438	614	220	118	✝ 302	259	109	1,050	2,390	✝ 2,130	1,010	682
27	✝ 449	✝ 460	200	127	262	209	✝ 690	✝ 1,050	6,450	2,060	1,260	676
28	432	✝ 424	182	✝ 135	235	167	1,430	1,200	11,000	1,980	1,260	687
29	417		188	165	229	✝ 252	2,010	1,180	4,450	1,900	1,260	✝ 695
30	✝ 401		199	168	217	✝ 1,330	681	1,240	2,350	1,880	1,270	649
31	395		✝ 207		209		✝ 380	✝ 1,320		1,830		616
Sum	13,871	12,323	8,966	4,553	7,287	13,155	14,837.4	24,052	76,935	90,800	44,420	27,257

Current Year 1970									Period 1968 - 1970		
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.	2.20	1.93	15	508	31	384	447	27,513	56,540	118,276	23,830
Feb.	3.07	1.92	25	1,120	21	384	440	24,443	48,018	111,869	7,743
Mar.	2.30	1.38	22	567	28	176	289	17,784	46,523	115,717	6,067
Apr.	1.47	1.16	1	208	25	123	152	9,031	32,092	73,919	9,031
May	3.76	1.19	14	1,700	10	132	235	14,454	20,626	31,918	14,454
June	5.89	1.31	14	4,210	†28	134	438	26,093	30,482	59,513	5,839
July	6.79	.96	1	5,560	26	72.9	479	29,430	78,336	115,914	29,430
Aug.	4.83	1.40	22	2,770	16	192	776	47,707	66,159	120,081	30,689
Sept.	14.25	2.03	17	17,200	14	444	2,560	152,601	223,293	472,093	45,186
Oct.	9.80	3.91	3	9,930	31	1,810	2,930	180,102	137,746	188,986	44,151
Nov.	3.99	2.65	1	1,820	26	832	1,480	88,107	81,047	121,232	33,801
Dec.	3.33	2.20	1	1,280	21	516	878	54,064	40,454	54,064	32,877
Yearly	14.25	0.96		17,200		72.9	927	671,329	861,316	1,125,040	671,329

✝ 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 51 discharge measurements during the year, 42 by the United States Section, and 9 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: September 1961 through 1970.

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 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	644	646	806	413	309	626	⋔ 9,130	1,320	1,660	3,910	2,220	1,480
2	654	⋔ 637	⋔ 702	399	312	581	4,230	861	1,760	2,870	⋔ 2,170	1,440
3	665	632	659	405	320	439	3,860	⋔ 682	1,820	2,780	2,080	1,460
4	665	621	633	405	⋔ 332	400	1,970	604	1,280	6,560	2,040	1,420
5	⋔ 665	622	619	399	334	376	1,210	1,010	1,180	⋔ 6,110	1,980	1,400
6	665	612	605	⋔ 382	347	365	⋔ 913	1,740	1,100	5,040	1,960	1,360
7	665	643	592	366	350	1,080	778	1,230	1,060	6,200	1,940	⋔ 1,340
8	644	643	587	365	⋔ 353	⋔ 708	701	1,220	⋔ 1,180	6,140	1,890	1,340
9	665	⋔ 643	⋔ 580	365	356	8,660	596	963	2,690	3,580	⋔ 1,860	1,350
10	676	623	573	⋔ 367	365	1,540	⋔ 540	722	2,050	3,120	1,840	1,340
11	688	612	569	369	⋔ 352	799	512	546	1,810	2,940	1,830	1,310
12	⋔ 688	612	589	373	338	⋔ 864	479	574	1,390	2,800	1,810	1,280
13	688	612	542	⋔ 368	322	666	⋔ 448	465	1,220	2,780	1,780	1,290
14	688	601	541	357	446	561	432	⋔ 486	1,140	2,740	1,740	⋔ 1,240
15	688	619	535	356	1,270	548	1,240	782	1,250	2,720	1,730	1,180
16	710	⋔ 621	⋔ 527	342	636	1,610	697	716	3,210	2,710	⋔ 1,720	1,140
17	722	631	517	333	657	1,910	591	⋔ 612	3,930	2,670	1,710	1,120
18	722	639	508	328	⋔ 496	1,280	546	530	3,380	2,640	1,700	1,090
19	⋔ 722	643	482	322	399	927	478	694	⋔ 7,100	⋔ 2,590	1,690	1,060
20	722	654	478	⋔ 319	367	640	⋔ 418	1,160	3,940	2,530	1,670	1,040
21	722	654	493	319	351	537	381	1,070	4,350	2,490	1,660	⋔ 977
22	722	699	487	324	340	⋔ 514	340	1,040	2,780	2,480	1,620	899
23	710	699	475	324	347	752	316	3,240	2,210	2,440	⋔ 1,580	⋔ 838
24	699	⋔ 699	461	324	398	656	309	1,720	2,080	2,390	1,560	924
25	676	656	487	330	480	498	314	1,670	1,950	2,360	1,580	950
26	⋔ 676	644	594	347	569	1,420	345	2,090	2,720	⋔ 2,300	1,580	937
27	676	678	517	⋔ 338	920	753	358	1,600	4,400	2,280	⋔ 1,440	924
28	654	816	499	322	829	566	427	1,350	7,630	2,270	1,180	⋔ 917
29	644		472	320	529	⋔ 522	349	1,270	11,600	2,260	1,400	924
30	654		⋔ 453	319	485	974	1,220	1,240	8,800	⋔ 2,230	⋔ 1,480	916
31	644		429		1,270		1,930	⋔ 1,840		2,240		910
Sum	21,123	18,111	17,011	10,600	15,179	31,772	36,058	35,047	92,670	99,170	52,440	35,796

Current Year 1970									Period 1968-1970		
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
			High		Low				Average	Maximum	Minimum
	High	Low	Day	High	Day	Low					
Jan.	2.15	2.06	16	722	31	623	681	41,897	68,218	122,084	40,674
Feb.	2.34	2.05	28	950	14	612	647	35,923	57,886	115,301	22,435
Mar.	2.31	1.86	1	912	31	426	549	33,741	59,933	126,270	19,789
Apr.	1.86	1.72	1	426	21	309	353	21,025	52,578	102,938	21,025
May	3.28	1.72	31	2,700	† 1	309	490	30,108	43,175	57,607	30,108
June	12.31	1.79	9	20,600	† 5	365	1,060	63,020	57,293	86,395	22,463
July	7.88	1.71	1	12,500	† 24	301	1,160	71,521	102,764	140,961	71,521
Aug.	5.44	1.83	23	8,010	14	399	1,130	69,516	85,484	141,463	45,474
Sept.	10.59	2.33	19	17,400	15	937	3,090	183,811	231,084	432,502	76,940
Oct.	5.19	3.02	4	7,550	31	2,190	3,200	196,704	157,595	214,377	61,705
Nov.	3.07	2.48	† 1	2,280	28	1,140	1,750	104,015	93,576	129,741	46,971
Dec.	2.67	2.23	† 1	1,480	23	814	1,150	71,001	55,678	71,001	45,777
Yearly	12.31	1.71		20,600		301	1,270	922,282	1,065,264	1,290,242	922,282

⋔ 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 56 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 1970.

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 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	654	684	942	472	352	ft 799	8,010	1,490	2,260	4,040	2,120	1,500
2	676	678	ft 776	458	355	704	4,710	991	1,590	ft 2,890	ft 2,110	1,490
3	678	672	715	451	354	518	3,910	745	2,140	2,670	2,060	1,500
4	679	665	673	445	ft 366	466	2,160	655	1,410	6,450	2,070	1,460
5	ft 688	673	655	440	363	433	1,320	697	1,300	ft 6,330	ft 2,050	1,440
6	688	681	643	ft 423	376	421	1,030	1,990	1,220	5,420	2,010	1,410
7	673	711	639	415	383	879	884	1,170	1,170	5,420	1,990	ft 1,390
8	674	704	635	417	391	ft 867	800	1,400	ft 1,240	6,620	1,950	1,390
9	696	ft 697	ft 631	420	393	7,900	ft 703	1,090	2,460	ft 3,610	ft 1,890	1,380
10	712	678	616	418	406	2,150	628	ft 878	2,000	3,130	1,860	ft 1,370
11	712	674	603	432	ft 408	837	584	646	1,880	2,950	1,860	1,340
12	720	668	628	428	394	973	541	609	1,470	2,810	ft 1,840	1,300
13	720	679	601	ft 426	385	762	ft 499	583	1,300	2,780	1,820	1,290
14	713	695	600	416	376	654	488	489	1,230	2,760	1,770	ft 1,240
15	720	698	585	420	1,250	ft 563	1,120	767	1,080	2,740	1,760	1,180
16	744	ft 693	ft 578	410	740	1,230	782	815	3,060	2,750	ft 1,740	1,130
17	760	712	565	399	665	2,040	728	ft 687	ft 4,000	2,730	1,740	1,110
18	768	725	552	399	ft 576	1,360	612	540	2,660	2,730	1,710	ft 1,090
19	ft 768	717	538	398	462	1,110	536	543	7,360	ft 2,700	1,720	1,090
20	761	715	531	ft 378	425	760	ft 501	ft 1,080	4,110	2,610	1,690	1,060
21	761	720	544	377	410	626	461	953	4,350	2,540	1,680	ft 1,030
22	754	773	538	372	395	ft 604	423	1,040	2,740	ft 2,470	1,660	959
23	762	764	531	376	395	758	397	3,080	2,130	2,440	ft 1,620	879
24	755	ft 769	515	375	420	766	377	1,610	ft 1,940	2,380	1,580	948
25	740	727	510	394	ft 576	570	376	1,650	1,860	2,350	1,590	1,010
26	ft 725	699	644	399	522	1,320	394	1,910	2,440	2,310	1,590	999
27	719	741	592	ft 393	1,010	943	ft 418	ft 1,650	3,830	2,280	1,480	987
28	711	818	560	376	2,580	638	444	1,310	ft 7,100	2,260	1,250	ft 975
29	689		536	365	661	583	423	1,250	11,700	ft 2,210	1,390	961
30	683		ft 513	368	568	ft 1,040	1,040	1,230	9,820	2,180	ft 1,500	964
31	677		487		1,170		1,850	ft 1,350		2,140		ft 973
Sum	22,180	19,830	18,676	12,260	18,127	33,274	37,149	34,898	92,850	99,700	53,100	36,845

Current Year 1970 — Period 1968 - 1970

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.	1.32	1.17	18	777	1	654	715	43,994	72,090	125,774	43,994
Feb.	1.64	1.14	28	1,040	11	659	708	39,333	62,524	120,815	27,426
Mar.	1.64	.89	1	1,030	31	487	602	37,044	63,948	129,304	25,496
Apr.	.88		1	479	29	Ø 365	409	24,317	57,145	108,537	24,317
May	6.41	.68	28	6,260	1	352	585	35,955	48,174	61,792	35,955
June	15.14	.80	9	18,600	6	416	1,110	65,999	61,178	90,223	27,311
July	10.84	.67	1	12,200	24	368	1,200	73,685	108,940	153,880	73,685
Aug.	7.41	.89	23	7,570	14	472	1,130	69,220	88,625	145,311	51,345
Sept.	11.09	1.63	29	12,500	15	1,020	3,100	184,168	233,711	437,858	79,106
Oct.	7.42	2.85	7	7,800	31	2,110	3,220	197,755	161,685	219,653	67,647
Nov.	2.85	1.88	1	2,130	28	1,190	1,770	105,324	98,048	134,997	53,822
Dec.	2.25	1.46	3	1,510	23	843	1,190	73,062	59,143	73,062	49,488
Yearly	15.14	0.68		18,600		352	1,310	949,856	1,115,211	1,358,670	949,856

‡ Period 1931 - 1970 ft Discharge measurement made on this day Ø Mean daily

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 50 discharge measurements during the year, 47 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 stable control weir rating curves defined by meter measurements. Records available: July 1967 through 1970. 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 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	188	167	177	144	228	✟ 96.6	135	62.7	70.2	229	126	123
2	183	166	✟ 174	141	164	93.1	118	61.6	70.2	✟ 207	✟ 124	123
3	179	168	169	141	155	91.4	108	✟ 61.6	136	196	123	124
4	178	169	168	139	✟ 144	91.4	103	66.2	154	182	123	126
5	✟ 177	170	169	138	137	91.4	106	79.6	124	✟ 173	123	126
6	175	170	169	✟ 138	129	91.0	✟ 90.4	73.9	119	240	✟ 123	126
7	173	169	181	138	124	88.9	83.4	68.0	108	173	123	✟ 123
8	173	169	188	138	123	✟ 88.9	78.2	67.3	✟ 99.8	168	125	123
9	173	✟ 169	✟ 184	140	121	99.4	75.8	65.2	89.9	160	✟ 127	123
10	173	169	176	144	118	109	75.9	✟ 63.0	85.4	156	124	✟ 123
11	177	166	169	145	✟ 115	94.7	73.6	70.7	83.3	154	123	123
12	177	167	166	145	112	89.0	70.6	70.2	79.1	✟ 153	123	123
13	174	165	166	✟ 153	109	86.5	✟ 68.4	69.8	80.1	153	123	123
14	176	165	158	144	110	82.6	66.5	68.5	✟ 86.4	149	122	✟ 123
15	176	163	156	140	110	✟ 81.6	68.0	65.2	86.4	144	118	123
16	177	✟ 163	✟ 155	141	110	81.6	68.7	63.7	84.0	138	✟ 119	123
17	176	163	158	141	109	79.4	69.0	✟ 63.7	82.9	138	122	123
18	173	163	158	140	✟ 107	76.6	72.4	62.7	79.8	138	125	123
19	✟ 169	161	161	136	105	74.7	71.3	61.0	78.2	✟ 141	126	123
20	169	160	160	✟ 132	101	74.3	70.2	59.5	77.0	143	126	123
21	169	162	167	132	98.6	75.3	69.5	59.5	✟ 80.7	139	126	✟ 123
22	169	172	173	129	94.8	✟ 88.3	67.3	59.5	83.3	136	126	123
23	169	182	✟ 172	129	93.9	87.4	65.8	60.8	622	135	✟ 119	129
24	169	✟ 187	168	129	96.3	79.7	64.8	✟ 61.9	206	132	118	126
25	171	184	161	129	99.0	80.4	63.7	71.4	156	132	118	129
26	✟ 173	180	156	129	99.0	97.4	63.7	88.3	581	✟ 132	119	126
27	171	180	150	126	105	89.1	✟ 64.7	84.8	598	128	122	126
28	173	179	147	123	119	85.1	65.2	79.1	✟ 336	123	123	✟ 126
29	170		149	118	101	96.9	63.0	74.0	275	124	123	127
30	166		149	150	98.2	345	61.8	72.4	255	126	✟ 123	129
31	164		147		97.6		63.7	✟ 70.7		126		129
Sum	5,380	4,748	5,101	4,112	3,633.4	2,886.7	2,385.6	2,106.5	5,066.7	4,768	3,685	3,863

Current Year 1970									Period July 1967-1970		
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.	1.99	1.90	1	190	31	160	174	10,671	9,052	10,671	7,732
Feb.	2.00	1.89	24	193	† 15	156	170	9,418	8,148	9,418	7,180
Mar.	2.08	1.86	9	222	† 27	147	165	10,117	8,713	10,117	7,508
Apr.	2.39	1.75	30	372	30	115	137	8,156	14,719	26,406	8,156
May	2.39	1.66	1	372	27	91.4	117	7,207	17,301	28,767	7,207
June	3.10	1.56	30	1,180	28	68.0	96.2	5,726	8,245	10,671	5,726
July	1.91	1.53	1	163	† 29	61.6	77.0	4,732	12,479	27,884	4,732
Aug.	1.66	1.52	26	91.4	† 4	59.5	68.0	4,178	8,698	14,047	4,178
Sept.	3.68	1.56	23	2,230	3	68.0	169	10,050	10,256	14,126	7,674
Oct.	2.44	1.78	6	411	† 27	123	154	9,457	8,304	9,457	7,123
Nov.	1.80	1.76	† 9	129	† 4	118	123	7,309	8,208	11,260	6,589
Dec.	1.80	1.78	† 23	129	† 1	123	125	7,662	8,767	11,280	7,662
Yearly	3.68	1.52		2,230		59.5	131	94,683	122,890	142,414	94,683

✟ Discharge measurements 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 1970.

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 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	10.5	8.2	5.4	3.5	2.3	2.0	1.7	1.6	1.5	1.7	1.4	1.4
2	10.5	8.0	5.3	3.3	2.3	2.0	1.7	1.6	1.5	1.7	1.4	1.4
3	10.4	7.8	5.4	3.3	2.2	2.0	1.7	1.6	1.5	1.7	1.5	1.4
4	10.4	7.8	5.1	3.3	2.2	1.9	1.7	1.6	1.5	1.7	1.4	1.4
5	10.4	7.8	5.1	3.1	2.2	1.9	1.7	1.6	1.5	1.7	1.4	1.4
6	9.9	7.7	5.0	3.0	2.1	1.9	1.7	1.6	1.5	1.7	1.4	1.4
7	9.9	7.7	4.9	3.1	2.1	1.9	1.7	1.6	1.5	1.7	1.4	1.4
8	9.9	7.6	4.7	3.1	2.1	1.9	1.7	1.6	1.5	1.6	1.5	1.4
9	9.8	7.4	4.7	3.1	2.1	1.9	1.7	1.6	1.5	1.6	1.4	1.4
10	9.8	7.3	4.6	3.0	2.1	1.9	1.7	1.6	1.5	1.6	1.4	1.4
11	9.8	7.3	4.6	2.9	2.0	1.9	1.7	1.6	1.5	1.6	1.4	1.4
12	9.8	7.2	4.5	2.8	2.0	1.9	1.7	1.6	1.5	1.5	1.4	1.4
13	9.6	7.2	4.4	2.8	2.0	1.9	1.7	1.6	1.6	1.5	1.4	1.4
14	9.5	7.1	4.4	2.8	2.0	1.9	1.7	1.6	1.5	1.6	1.4	1.4
15	9.5	7.0	4.4	2.7	2.0	1.9	1.7	1.5	1.5	1.5	1.4	1.4
16	9.4	6.5	4.4	2.7	1.9	1.9	1.7	1.5	1.5	1.4	1.4	1.3
17	9.2	6.5	4.2	2.7	1.9	1.8	1.7	1.5	1.5	1.4	1.4	1.4
18	9.1	6.5	4.2	2.6	1.9	1.8	1.7	1.5	1.5	1.4	1.4	1.4
19	9.0	6.4	4.1	2.6	1.9	1.8	1.7	1.5	1.5	1.4	1.4	1.3
20	9.1	6.3	4.0	2.6	2.0	1.8	1.6	1.5	1.5	1.4	1.4	1.3
21	9.0	6.2	4.0	2.6	2.0	1.8	1.6	1.5	1.5	1.4	1.5	1.4
22	9.0	6.1	3.9	2.6	2.0	1.8	1.7	1.5	1.5	1.4	1.4	1.4
23	9.0	6.1	3.8	2.6	2.0	1.8	1.7	1.5	1.5	1.4	1.4	1.4
24	9.0	5.9	3.9	2.6	2.0	1.8	1.6	1.5	1.6	1.4	1.4	1.4
25	8.8	5.8	3.8	2.6	2.0	1.8	1.6	1.5	1.6	1.4	1.4	1.3
26	8.7	5.6	3.7	2.6	2.0	1.7	1.6	1.5	1.6	1.5	1.5	1.3
27	8.7	5.5	3.6	2.6	2.0	1.7	1.6	1.5	1.6	1.5	1.5	1.3
28	8.6	5.4	3.6	2.6	2.1	1.7	1.6	1.5	1.7	1.4	1.5	1.3
29	8.4		3.6	2.6	2.1	1.7	1.6	1.5	1.7	1.4	1.4	1.4
30	8.0		3.6	2.4	2.0	1.7	1.6	1.5	1.7	1.4	1.4	1.4
31	8.0		3.5		2.1		1.6	1.5		1.5		1.4
Sum	290.7	191.9	134.4	84.8	63.6	55.4	51.7	47.9	46.1	47.1	42.6	42.7

Month	Current Year 1970 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 1966-1970 Acre-Feet Average	Maximum	Minimum
Jan.	1.80	1.59	† 1	10.8	†30	7.9	9.4	577	244	577	85.1
Feb.	1.61	1.36	1	8.2	28	5.4	6.9	381	175	381	74.8
Mar.	1.36	1.14	† 1	5.4	31	3.5	4.3	267	145	267	74.0
Apr.	1.14	.97	1	3.5	30	2.3	2.8	168	120	168	74.2
May	.97	.90	† 1	2.3	†15	1.9	2.1	126	195	415	102
June	.91	.86	† 1	2.0	†26	1.7	1.8	110	159	372	87.9
July	.87	.83	† 1	1.7	†20	1.6	1.7	103	156	369	80.9
Aug.	.86	.81	† 1	1.6	†15	1.5	1.5	95.0	153	354	93.8
Sept.	.86	.81	†28	1.7	† 1	1.5	1.5	91.4	171	387	85.5
Oct.	.86	.79	† 1	1.7	†16	1.4	1.5	93.4	215	439	87.9
Nov.	.81	.78	† 2	1.5	† 1	1.4	1.4	84.5	261	591	84.5
Dec.	.80	.77	† 1	1.4	†16	1.3	1.4	84.7	273	685	83.9
Yearly	1.80	0.77		10.8		1.3	3.0	2,181.0	2,267	3,782	1,257.2

† *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 900 second-foot capacity, cableway, 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. The confluence is located 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 41 discharge measurements during the year, 31 by the United States Section and 10 by the Mexican Section of this Commission, a stable rating curve based on meter measurements, and a continuous record of gage heights. Records available: 1960 through 1970. 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. On December 1968, the control wall was raised one-half foot and a cable was installed 550 feet upstream.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 114,000 second-feet on September 21, 1964 with a gage height of 11.35 feet. Min. 48.6 second-feet on August 20, 1969.

Average Flow in Second-Feet

Daily:	Max.	48,300	Sept. 21, 1964	Min.	53.7	Aug. 20, 1969
Monthly:	Max.	4,590	Sept. 1964	Min.	64.3	Aug. 1964
Yearly:	Max.	542	1964	Min.	99.9	1968

Mean Daily Discharge in Second-Feet 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	255	194	178	140	114	114	102	81.7	79.0	113	84.0	81.7
2	253	199	177	133	114	115	101	82.6	81.1	111	85.5	81.7
3	249	202	173	123	114	111	99.1	81.7	80.4	107	87.1	81.4
4	245	200	170	132	114	110	96.5	92.3	78.3	103	84.2	79.0
5	237	199	169	133	113	111	97.7	87.6	76.0	✱ 99.7	81.7	79.0
6	227	200	166	138	109	111	100	84.3	76.5	98.6	81.7	79.0
7	229	199	164	135	108	107	91.9	84.3	76.5	97.7	82.1	79.0
8	229	196	163	128	108	✱ 106	89.9	84.3	✱ 76.5	89.2	81.0	79.0
9	227	✱ 192	✱ 164	136	110	114	89.9	83.5	76.5	88.8	✱ 81.5	79.0
10	224	189	165	133	111	108	89.9	83.4	76.5	88.1	81.0	79.0
11	223	185	164	✱ 132	109	108	88.6	84.3	76.5	86.6	79.0	78.2
12	224	187	164	130	109	110	87.1	82.2	75.7	✱ 87.0	79.9	79.0
13	227	187	166	130	109	106	✱ 88.5	81.7	79.2	87.1	78.2	79.0
14	228	185	166	128	115	105	89.4	81.3	✱ 93.1	87.1	77.4	✱ 80.6
15	224	179	164	131	113	105	92.1	80.3	85.5	86.3	78.6	80.1
16	219	✱ 181	163	131	111	103	88.6	79.0	80.9	87.0	✱ 80.6	81.5
17	217	184	166	134	110	98.7	87.1	✱ 79.0	79.0	87.1	82.1	81.7
18	213	187	162	137	✱ 108	99.6	85.9	79.0	79.0	87.1	84.1	81.7
19	✱ 215	179	161	132	106	99.6	84.3	79.0	79.0	✱ 88.4	84.3	81.7
20	215	181	162	✱ 130	104	97.3	85.5	79.0	78.3	89.9	84.3	81.7
21	215	183	163	129	102	95.6	85.1	80.3	✱ 75.3	89.9	84.3	✱ 81.7
22	214	200	162	125	102	97.8	82.7	81.2	77.0	89.9	85.0	81.7
23	210	201	✱ 162	124	110	95.6	81.2	81.7	109	✱ 87.3	82.8	81.7
24	210	190	162	✱ 124	105	98.9	82.7	✱ 81.7	88.1	87.1	84.3	✱ 81.7
25	210	183	156	124	105	98.6	84.7	81.7	✱ 86.9	87.1	81.9	81.2
26	✱ 210	✱ 180	151	124	104	✱ 102	84.5	81.7	125	✱ 87.1	✱ 83.2	81.7
27	209	181	150	✱ 124	117	102	✱ 79.2	80.9	128	83.3	84.3	81.7
28	205	180	149	123	236	99.6	77.5	✱ 79.0	✱ 135	84.2	83.2	✱ 83.2
29	197		154	121	141	104	90.5	78.3	122	84.3	81.7	84.3
30	196		✱ 149	116	✱ 133	105	82.9	78.1	117	84.3	✱ 81.7	83.2
31	197		146		120		80.6	✱ 79.0		84.3		81.7
Sum	6,853	5,303	5,031	3,880	3,584	3,138.3	2,736.6	2,534.1	2,646.8	2,818.5	2,470.7	2,506.8

Current Year 1970 — **Period 1960-1970**

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.	1.74	1.60	† 1	255	31	187	221	13,593	10,799	16,072	4,647
Feb.	1.65	1.54	22	210	15	162	189	10,519	8,950	13,464	3,999
Mar.	1.58	1.48	† 1	178	28	138	162	9,979	8,576	13,700	4,186
Apr.	1.54	1.40	1	162	30	111	129	7,696	10,443	38,777	4,520
May	2.33	1.33	28	702	12	89.9	116	7,109	10,457	32,716	4,884
June	1.43	1.33	9	121	27	89.9	105	6,225	15,313	54,328	4,259
July	1.43	1.27	† 5	121	† 27	73.9	88.3	5,428	9,564	24,000	4,034
Aug.	1.40	1.27	4	111	4	73.9	81.7	5,026	9,168	17,400	3,955
Sept.	1.53	1.27	23	158	† 4	73.9	88.2	5,250	33,011	273,004	5,000
Oct.	1.41	1.28	1	114	27	76.5	90.9	5,590	16,699	50,845	5,004
Nov.	1.32	1.26	† 1	87.1	† 13	71.5	82.4	4,901	10,964	20,494	4,532
Dec.	1.31	1.26	† 28	84.3	11	71.5	80.9	4,972	10,281	18,433	4,697
Yearly	2.33	1.26		702		71.5	119	86,288	154,225	393,573	72,494

✱ Discharge measurement made on this day † And other days

RIO GRANDE BELOW AMISTAD DAM, NEAR DEL RIO, TEXAS

DESCRIPTION: Cableway, gravity well, concrete control weir, water-stage recorders (graphic and digital), and binary decimal transmitter 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 898.94 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 121 discharge measurements during the year, 56 by the Mexican Section and 65 by the United States 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: September 1954 through 1970. Records are also available from May 1900 through April 1915 for a station 1.9 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 through 1970 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. The zero of the present gage was raised 0.94 foot in July 1969. The transmitter relays gage height data upon interrogation by telephone via private line to the Amistad office.

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 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,110	1,110	6,920	491	724	4,100	4,340	855	865	434	505.0	516
2	ǂ 1,110	1,110	6,890	ǂ 717	724	4,100	ǂ 4,340	848	858	434	501	516
3	1,110	ǂ 1,110	6,820	717	727	4,730	4,380	844	ǂ 858	434	509	516
4	1,120	1,110	6,850	717	ǂ 738	ǂ 5,760	4,380	833	858	434	509	ǂ 516
5	ǂ 1,120	ǂ 784	ǂ 5,930	717	738	ǂ 5,760	4,380	830	858	434	ǂ 509	516
6	1,120	ǂ 341	2,620	ǂ 717	738	4,660	ǂ 4,380	830	858	434	509	516
7	1,120	341	1,210	717	742	3,780	4,380	ǂ 830	858	ǂ 239	509	516
8	ǂ 1,120	341	1,210	717	ǂ 745	3,780	4,380	830	858	ǂ 122	509	516
9	1,120	ǂ 335	ǂ 953	ǂ 717	749	ǂ 3,780	4,410	830	858	320	509	519
10	1,120	331	329	717	749	ǂ 3,810	ǂ 4,410	830	ǂ 858	323	509	ǂ 516
11	1,120	ǂ 327	326	717	ǂ 756	3,780	4,410	830	858	323	509	523
12	ǂ 1,120	324	326	717	756	3,810	4,410	830	858	323	ǂ 509	519
13	1,120	331	326	717	749	3,810	ǂ 2,340	ǂ 830	865	326	509	519
14	1,120	331	326	ǂ 717	ǂ 745	3,810	869	837	862	329	509	ǂ 519
15	ǂ 1,130	327	326	717	ǂ 738	ǂ 3,810	869	837	770	ǂ 329	509	519
16	1,130	ǂ 327	ǂ 326	ǂ 720	738	4,100	ǂ 869	837	692	329	509	519
17	1,130	3,410	326	720	735	4,310	879	812	ǂ 696	329	ǂ 509	ǂ 516
18	1,130	ǂ 7,060	326	727	ǂ 731	ǂ 2,520	890	ǂ 763	696	329	ǂ 509	523
19	1,130	6,990	320	720	731	6,040	890	816	696	332	512	523
20	1,130	6,850	322	ǂ 727	731	2,360	890	876	699	332	509	523
21	1,120	6,780	319	869	ǂ 1,760	6,040	897	879	ǂ 699	332	512	523
22	ǂ 1,110	6,710	319	ǂ 1,160	ǂ 3,150	ǂ 6,070	901	879	766	ǂ 332	512	523
23	1,110	ǂ 6,670	ǂ 576	742	ǂ 3,880	6,070	ǂ 901	879	812	330	505	ǂ 523
24	1,110	6,820	319	742	3,880	4,630	901	876	ǂ 738	329	512	523
25	1,100	6,890	319	742	3,960	ǂ 4,130	890	876	742	332	ǂ 516	523
26	ǂ 1,110	ǂ 6,850	316	745	ǂ 4,030	4,130	872	876	911	332	516	523
27	1,110	ǂ 6,890	322	ǂ 745	ǂ 4,030	4,270	858	ǂ 876	766	326	516	526
28	1,110	6,850	319	745	3,110	4,450	840	876	749	327	516	526
29	1,110		319	745	4,030	ǂ 4,450	812	876	749	ǂ 332	516	523
30	1,110		ǂ 322	ǂ 752	ǂ 2,580	4,450	ǂ 816	876	576	329	516	526
31	1,110		326		4,030		812	869		399		ǂ 537
Sum	34,640	87,650	46,758	22,130	53,224	131,300	70,596	26,266	23,787	10,589	15,308	16,142

Current Year 1970									Period 1968-1970		
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.	1.15	1.15	† 15	1,130	25	1,100	1,120	68,764	76,632	91,162	68,764
Feb.	3.02	0.59	18	7,060	12	324	3,130	173,876	97,866	173,876	53,949
Mar.	2.95	.56	† 1	6,920	† 26	301	1,510	92,735	74,352	92,735	64,243
Apr.	1.35	.59	22	1,460	1	329	738	43,890	64,128	93,899	43,890
May	2.33	.46	27	4,270	30	223	1,720	105,530	89,699	107,307	56,260
June	2.72	.46	† 22	6,070	20	227	4,380	260,436	128,108	260,436	50,313
July	2.36	.98	† 9	4,410	† 29	809	2,280	140,070	93,345	140,070	64,049
Aug.	1.08	.85	31	982	4	632	848	52,093	68,994	90,368	52,093
Sept.	1.28	.69	26	1,320	30	451	795	47,183	65,295	89,218	47,183
Oct.	0.75	.16	31	501	8	37.8	342	21,011	57,454	87,274	21,011
Nov.	.75	.75	† 25	516	2	501	509	30,343	64,093	99,274	30,343
Dec.	.79	.75	31	537	† 1	516	519	32,004	65,573	98,025	32,004
Yearly	3.02			7,060		37.8	1,480	1,067,935	945,539	1,067,935	730,807

ǂ Discharge measurements made on this day ** See explanation in REMARKS above † And other days

CARMINA SPRINGS AT AMISTAD DAM NEAR CD. ACUNA, COAHUILA

DESCRIPTION: Cipoletti weir of 70.6 second-foot capacity and staff gage located on a creek that runs almost parallel to Amistad Dam at latitude 29° 26' 50", longitude 101° 03' 35", about 130 feet from the confluence with the Rio Grande, and about 11.0 miles northwest of Cd. Acuña, Coahuila. This creek enters the Rio Grande from the Mexican side at river mile 567.3, 0.2 river mile downstream from Amistad Dam, 12.6 river miles upstream from the international highway bridge between Del Rio, Texas and Cd. Acuña, Coahuila, and 680.9 river miles downstream from American Dam at El Paso, Texas. The elevation of the zero of the gage has not been determined.

RECORDS: Based on monthly staff gage readings and the weir discharge table. Mean daily discharges determined by prorating between readings. Records available: 1969 through 1970.

REMARKS: At least six separate springs have emerged on the watershed of this small creek since operation of Amistad Dam began in May 1968. Prior to this time, flow in this creek was exclusively from storm runoff. All storm water from surface runoff passing this station is deducted and is not included in the tabulation below.

Mean Daily Discharge in Second-Feet 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	17.3	19.8	18.7	12.7	12.0	11.7	8.5	9.2	8.8	12.4	15.9	17.0
2	17.3	19.8	18.4	ft 12.4	12.0	11.7	8.5	9.2	9.2	12.7	15.9	17.0
3	17.3	19.8	18.4	12.4	12.0	11.7	8.5	9.2	9.2	12.7	15.9	17.0
4	17.0	20.1	18.1	12.4	12.0	11.7	8.5	9.2	9.2	13.1	16.2	17.0
5	17.0	20.1	18.1	12.4	12.0	11.7	8.5	9.2	9.2	13.4	16.2	17.0
6	17.0	20.1	18.1	12.4	12.0	11.7	8.8	9.2	9.2	13.4	16.2	17.0
7	17.0	20.1	17.7	12.4	12.0	11.3	8.8	9.2	9.2	13.8	16.2	17.3
8	17.0	20.5	17.7	12.4	12.0	11.3	8.8	9.2	9.2	13.8	16.2	17.3
9	17.3	20.5	17.7	12.4	12.0	10.9	8.8	9.2	9.2	14.1	16.2	17.3
10	17.3	20.5	17.3	12.4	12.0	10.9	8.8	9.2	9.2	14.1	16.6	17.3
11	17.3	20.8	17.3	12.4	12.0	10.6	9.2	8.8	9.2	14.1	16.6	17.3
12	17.7	20.5	17.3	12.4	12.0	10.6	9.2	8.8	9.5	14.5	16.6	17.3
13	17.7	20.5	17.0	12.4	12.0	10.2	9.2	8.8	9.5	14.5	16.6	17.3
14	17.7	20.5	17.0	12.4	12.0	10.2	9.2	8.8	9.5	14.5	16.6	17.7
15	18.0	20.1	16.6	12.4	11.7	9.9	9.2	8.8	9.5	14.5	16.6	17.7
16	18.0	20.1	16.2	12.4	11.7	9.9	9.5	8.8	9.5	14.8	17.0	17.7
17	18.0	20.1	16.2	12.4	11.7	9.5	9.5	8.8	9.5	14.8	17.0	17.7
18	18.0	19.8	15.9	ft 12.4	11.7	9.5	9.5	8.5	9.5	14.8	17.0	17.7
19	18.4	19.8	15.9	12.4	11.7	9.2	9.5	8.5	9.9	14.8	17.0	17.7
20	18.4	19.8	15.5	12.4	11.7	9.2	9.5	8.5	9.9	14.8	17.0	17.7
21	18.4	19.4	15.2	12.4	11.7	9.2	9.5	8.5	10.2	15.2	17.0	17.7
22	18.7	19.4	15.2	12.4	11.7	9.2	9.5	8.5	10.2	15.2	17.0	17.7
23	18.7	19.4	14.8	12.4	ft 11.7	8.8	9.5	8.5	10.6	15.2	17.0	17.7
24	18.7	19.1	14.5	12.4	11.7	8.8	9.5	8.5	10.9	15.2	17.0	17.7
25	19.1	19.1	14.5	12.4	11.7	8.8	9.5	8.5	10.9	15.5	17.0	18.0
26	19.1	19.1	14.1	12.4	11.7	8.8	9.5	8.5	11.3	15.5	17.0	18.0
27	19.1	18.7	13.8	12.0	11.7	8.8	9.5	8.5	11.7	15.5	17.0	18.0
28	19.1	18.7	13.8	12.0	11.7	8.8	9.2	8.5	11.7	15.5	17.0	18.0
29	19.4		13.4	12.0	11.7	8.5	9.2	8.5	12.0	15.9	17.0	18.0
30	19.4		13.1	12.0	11.7	8.5	9.2	8.5	12.0	15.9	17.0	18.0
31	19.4		13.1		11.7		9.2	8.5		15.9		18.0
Sum	559.8	556.2	500.6	370.7	366.9	301.6	283.3	272.6	298.6	450.1	499.5	543.8

Current Year 1970 — **Period** 1969-1970

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.			†29	19.4	† 4	17.0	18.0	1,110	737	1,110	364
Feb.			11	20.8	†27	18.7	19.8	1,103	738	1,103	373
Mar.			1	18.7	†30	13.1	16.2	991	758	991	525
Apr.			1	12.7	†27	12.0	12.4	734	682	734	629
May			† 1	12.0	†15	11.7	11.7	726	758	791	726
June			† 1	11.7	†29	8.5	9.9	598	715	832	598
July			†16	9.5	† 1	8.5	9.2	563	726	889	563
Aug.			† 1	9.2	†18	8.5	8.8	540	733	925	540
Sept.			†29	12.0	1	8.8	9.9	593	731	869	593
Oct.			†29	15.9	1	12.4	14.5	893	862	893	830
Nov.			†16	17.0	† 1	15.9	16.6	990	977	990	964
Dec.			†25	18.0	† 1	17.0	17.7	1,077	1,083	1,089	1,077
Yearly				20.8		8.5	13.7	9,918	9,500	9,918	9,080

ft Discharge measurement made on this day Ø Mean daily † And other days

ARROYO JABONCILLOS NEAR CD. ACUNA, COAHUILA

DESCRIPTION: Cipoletti weir of 70.6 second-foot capacity and staff gage located at latitude 29° 24' 25", longitude 101° 02' 25", about 660 feet from the confluence with the Rio Grande, and about 8.6 miles northwest of Cd. Acuna, Coahuila. This creek enters the Rio Grande from the Mexican side at river mile 564.5, 9.8 river miles upstream from the international highway bridge between Del Rio, Texas and Cd. Acuna, Coahuila, and 683.7 river miles downstream from American Dam at El Paso, Texas. The elevation of the zero of the gage has not been determined.

RECORDS: Based on monthly staff gage readings and the weir discharge table. Mean daily discharges determined by prorating between readings. Records available: 1969 through 1970.

REMARKS: At least 9 separate springs have emerged along this creek since operation of Amistad Dam began in May 1968. Prior to this time, flow in this creek was exclusively from storm runoff. All storm water from surface runoff passing this station is deducted and is not included in the tabulation below.

Mean Daily Discharge in Second-Feet 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	20.5	20.5	19.8	17.3	14.8	14.8	14.1	12.7	12.4	15.5	21.5	22.2
2	20.5	20.5	19.8	17.3	14.5	14.8	14.1	12.7	12.4	15.9	21.5	22.2
3	20.5	20.5	19.4	17.3	14.5	14.8	14.1	12.7	12.4	15.9	21.5	22.2
4	20.5	20.5	19.4	17.3	14.5	14.8	14.1	12.7	12.4	16.2	21.5	22.2
5	20.5	20.5	19.4	17.3	14.5	14.8	14.1	12.7	12.4	16.7	21.5	22.2
6	20.8	20.5	19.4	17.3	14.5	14.8	13.8	12.7	12.4	16.6	21.5	22.2
7	20.8	20.5	19.4	17.3	14.5	14.8	13.8	12.7	12.4	17.0	21.5	22.2
8	20.8	20.5	19.4	17.3	14.5	14.8	13.8	12.7	12.4	17.0	21.5	22.2
9	20.8	20.5	19.1	17.3	14.5	14.8	13.8	12.7	12.4	17.3	21.5	22.2
10	20.8	20.5	19.1	17.3	14.5	14.8	13.4	12.7	12.4	17.3	21.5	22.6
11	20.8	20.5	19.1	17.3	14.5	14.8	13.4	12.7	12.4	17.7	21.5	22.6
12	20.8	20.5	18.7	17.3	14.5	14.5	13.4	12.7	12.7	17.7	21.5	22.6
13	20.8	20.1	18.7	17.3	14.5	14.5	13.4	12.7	12.7	17.7	21.5	22.6
14	20.8	20.1	18.7	17.3	14.5	14.5	13.4	12.7	12.7	17.7	21.5	22.6
15	21.2	20.1	18.4	17.3	14.5	14.5	13.1	12.7	12.7	18.0	21.5	22.6
16	21.2	20.1	18.4	17.3	14.5	14.5	13.1	12.7	12.7	18.0	21.5	22.6
17	21.2	20.1	18.4	17.3	14.5	14.5	13.1	12.7	12.7	18.0	21.5	22.6
18	20.8	20.1	18.0	17.3	14.5	14.5	13.1	12.7	12.7	18.0	21.5	22.6
19	20.8	20.1	18.0	17.0	14.5	14.5	13.1	12.7	13.1	18.4	21.5	22.6
20	20.8	20.1	18.0	17.0	14.8	14.5	13.1	12.7	13.1	18.4	21.5	23.0
21	20.8	20.1	18.0	16.6	14.8	14.5	13.1	12.7	13.4	18.4	21.5	23.0
22	20.8	19.8	18.0	16.6	14.8	14.5	13.1	12.7	13.4	18.7	21.5	23.0
23	20.8	19.8	17.7	16.2	14.8	14.5	13.1	12.7	13.8	18.7	21.5	23.0
24	20.8	19.8	17.7	16.2	14.8	14.5	13.1	12.7	14.1	18.7	21.5	23.0
25	20.8	19.8	17.7	15.9	14.8	14.5	13.1	12.7	14.1	18.7	21.5	23.3
26	20.8	19.8	17.7	15.5	14.8	14.1	13.1	12.7	14.5	19.1	21.5	23.3
27	20.5	19.8	17.7	15.5	14.8	14.1	13.1	12.7	14.8	19.1	21.5	23.3
28	20.5	19.8	17.7	15.2	14.8	14.1	12.7	12.7	14.8	19.1	21.5	23.3
29	20.5		17.7	15.2	14.8	14.1	12.7	12.7	15.2	19.1	21.5	23.3
30	20.5		17.7	14.8	14.8	14.1	12.7	12.7	15.2	19.4	21.5	23.3
31	20.5		17.7		14.8		12.7	12.7		19.4		23.7
Sum	643.0	565.5	573.9	503.1	453.4	436.3	413.8	393.7	394.8	553.4	645.0	704.3

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.			†15	21.2	† 1	20.5	20.8	1,276	812	1,276	349
Feb.			† 1	20.5	†22	19.8	20.1	1,121	751	1,121	381
Mar.			† 1	19.8	†23	17.7	18.4	1,137	832	1,137	526
Apr.			† 1	17.3	30	14.8	17.0	998	817	998	636
May			† 1	14.8	† 2	14.5	14.5	899	810	899	721
June			† 1	14.8	†26	14.1	14.5	866	772	866	678
July			† 1	14.1	†28	12.7	13.4	820	794	820	769
Aug.			† 1	12.7	† 1	12.7	12.7	782	819	857	782
Sept.			†29	15.2	† 1	12.4	13.1	782	892	1,001	782
Oct.			†30	19.4	1	15.5	18.0	1,097	1,170	1,243	1,097
Nov.			† 1	21.5	† 1	21.5	21.5	1,282	1,286	1,291	1,282
Dec.			31	23.7	† 1	22.2	22.6	1,398	1,398	1,398	1,398
Yearly				23.7		12.4	17.2	12,458	11,153	12,458	9,850

Current Year 1970 — Period 1969 - 1970

Ø Mean daily † And other days

ARROYO DEL BUEY NEAR CD. ACUNA, COAHUILA

DESCRIPTION: Cipoletti weir of 35.3 second-foot capacity, located 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. Acuna, 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. Acuna, 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 monthly staff gage readings and the weir discharge table. Mean daily discharges determined by prorating between readings. Records available: November 1961 through 1970.

REMARKS: The flow of this stream is not modified by diversions or storage. Prior to 1969 discharges were based on a continuous record of gage height and the weir discharge table. Storm flow is deducted and not included in the tabulation below. This station was established for investigational purposes in connection with Amistad Dam to determine what effect storage in Amistad Reservoir will have on the flow of this stream. At approximately 0.3 creek mile upstream from the weir four springs have emerged since Amistad Reservoir storage began. 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 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	7.4	7.1	6.7	6.0	6.4	5.7	6.4	6.0	5.3	6.7	7.1	7.1
2	7.1	7.1	6.7	6.0	6.4	5.7	6.4	6.0	5.3	6.7	7.1	7.1
3	7.4	7.1	6.7	6.0	6.4	5.7	6.4	6.0	5.3	6.7	7.1	7.1
4	7.1	7.1	6.7	6.0	6.4	5.7	6.4	6.0	5.3	7.1	7.1	7.1
5	7.4	7.1	6.7	6.0	6.4	5.7	6.4	6.0	5.3	7.1	7.1	7.1
6	7.1	7.1	6.7	6.0	6.4	5.7	6.4	6.0	5.3	7.1	7.1	7.1
7	7.1	7.1	6.7	6.0	6.4	5.7	6.0	6.0	5.3	7.1	7.1	7.1
8	7.1	7.1	6.7	6.0	6.4	5.7	6.0	6.0	5.3	7.4	7.1	7.1
9	7.1	7.1	6.7	6.0	6.4	6.0	6.0	6.0	5.3	7.4	7.1	7.1
10	7.1	7.1	6.7	6.4	6.4	6.0	6.0	6.0	5.3	7.4	7.1	7.1
11	7.1	7.1	6.7	6.4	6.0	6.0	6.0	6.0	5.3	7.4	7.1	6.7
12	7.1	7.1	6.7	6.4	6.0	6.0	6.0	6.0	5.3	7.4	7.1	6.7
13	7.1	7.1	6.4	6.4	6.0	6.0	6.0	6.0	5.3	7.4	7.1	6.7
14	7.1	7.1	6.4	6.4	6.0	6.0	5.7	5.7	5.3	7.4	7.1	6.7
15	7.1	7.1	6.4	6.4	6.0	6.0	5.7	5.7	5.3	7.4	7.1	6.7
16	7.1	7.1	6.4	6.4	6.0	6.4	5.7	5.7	5.3	7.4	7.1	6.7
17	7.1	7.1	6.4	6.4	6.0	6.4	5.7	5.7	5.3	7.4	7.1	6.7
18	7.1	7.1	6.4	6.4	6.0	6.4	5.7	5.7	5.3	7.4	7.1	6.7
19	7.1	7.1	6.4	6.4	6.0	6.4	5.7	5.7	5.3	7.4	7.1	6.7
20	7.1	7.1	6.4	6.4	6.0	6.4	5.7	5.7	5.7	7.4	7.1	6.7
21	7.1	6.7	6.4	6.4	6.0	6.4	5.7	5.7	5.7	7.1	7.1	6.7
22	7.1	6.7	6.4	6.4	6.0	6.4	5.7	5.7	5.7	7.1	7.1	6.7
23	7.1	6.7	6.4	6.4	6.0	6.4	5.7	5.7	5.7	7.1	7.1	6.7
24	7.1	6.7	6.4	6.4	6.0	6.4	5.7	5.7	5.7	7.1	7.1	6.7
25	7.1	6.7	6.4	6.4	6.0	6.4	5.7	6.0	5.7	7.1	7.1	7.1
26	7.1	6.7	6.4	6.4	6.0	6.4	5.7	6.0	5.7	7.1	7.1	7.1
27	7.1	6.7	6.0	6.4	6.0	6.4	5.7	6.0	6.4	7.1	7.1	7.1
28	7.1	6.7	6.0	6.4	5.7	6.4	6.0	6.0	6.4	7.1	7.1	7.1
29	7.1		6.0	6.4	5.7	6.4	6.0	6.0	6.4	7.1	7.1	7.1
30	7.1		6.0	6.4	5.7	6.4	6.0	6.0	6.4	7.1	7.1	7.1
31	7.1		6.0		5.7		6.0	6.0		7.1		7.1
Sum	221.0	195.6	200.0	188.4	188.8	183.6	184.2	182.7	166.2	222.8	213.0	214.5

Current Year 1970 — **Period # Nov. 1961-1970**

Month	Extreme Gage Feet		ØExtreme Second-Feet				Average Second-Feet	Total Acre-Feet	**Acre-Feet		
			High		Low						
	High	Low	Day		Day				Average	Maximum	Minimum
Jan.	0.72	0.72	1	7.4	† 2	7.1	7.1	435	118	528	6.8
Feb.	.72	.69	† 1	7.1	† 21	6.7	7.1	387	105	477	5.4
Mar.	.69	.66	† 1	6.7	† 27	6.0	6.4	396	112	520	9.3
Apr.	.66	.66	†10	6.4	† 1	6.0	6.4	372	184	540	6.3
May	.66	.62	† 1	6.4	† 28	5.7	6.0	373	176		10.9
June	.66	.62	†16	6.4	† 1	5.7	6.0	362	148		6.3
July	.66	.66	† 1	6.4	† 14	5.7	6.0	363	116	503	6.5
Aug.	.66	.62	† 1	6.0	† 14	5.7	6.0	362	134		6.7
Sept.	.69	.62	†27	6.4	† 1	5.3	5.7	331	169	493	6.6
Oct.	.75		† 8	7.4	† 1	6.7	7.1	441	185	513	6.5
Nov.	.75	.75	† 1	7.1	† 1	7.1	7.1	420	149	463	6.3
Dec.	.75	.72	† 1	7.1	† 11	6.7	7.1	425	155	538	6.5
Yearly	0.75	.62		7.4		5.3	6.4	4,667.0	1,751	6,031	216.8

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

ERNESTINA AND MARIS SPRINGS NEAR CD. ACUNA, COAHUILA

In order to determine what effect storage in 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. Acuna, 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. Acuna, 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 0.071 to 0.106 second-foot, or 32 to 48 gallons per minute, and the monthly average was 0.106 second-foot, or 48 gallons per minute. The total volume for the year amounted to 66.9 acre-feet. Waters from this spring have a high sulphur content. Records available: November 7, 1961 through 1970.

MARIS SPRING (Tabulated below)

DESCRIPTION: Cipolletti weir of 106 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. Acuna, 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. Acuna, 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 monthly 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 1970.

REMARKS: Prior to May 1969 the weir had an 11.1 second-foot capacity.

Mean Daily Discharge in Second-Feet 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	15.9	14.5	14.5	14.1	13.1	12.0	12.0	13.1	11.7	18.0	15.9	13.8
2	15.9	14.5	14.5	13.8	13.1	11.7	12.0	13.1	11.7	18.4	15.5	13.8
3	15.5	14.5	14.5	13.8	13.1	11.7	12.0	13.1	11.7	18.7	15.5	13.8
4	15.5	14.5	14.5	13.8	13.1	11.7	12.0	13.1	11.7	19.4	15.5	13.8
5	15.5	14.5	14.5	13.8	13.1	11.7	12.0	13.4	11.7	19.8	15.2	13.8
6	15.5	14.5	14.5	13.8	13.1	11.7	12.0	13.4	11.7	20.5	15.2	13.8
7	15.5	14.5	14.5	13.8	13.1	11.7	12.0	13.4	11.7	20.8	15.2	13.4
8	15.2	14.5	14.8	13.8	12.7	11.7	12.0	13.4	11.7	21.5	14.8	13.4
9	15.2	14.5	14.8	13.8	12.7	11.7	12.0	13.1	11.7	21.9	14.8	13.4
10	15.2	14.5	14.8	13.8	12.7	11.7	12.0	13.1	11.7	21.5	14.8	13.4
11	15.2	14.5	14.8	13.4	12.7	11.7	12.0	13.1	11.7	21.2	14.8	13.4
12	15.2	14.5	14.8	13.4	12.7	12.0	12.0	13.1	11.3	21.2	14.5	13.4
13	14.8	14.5	14.8	13.4	12.7	12.0	12.0	12.7	11.3	20.8	14.5	13.4
14	14.8	14.5	14.8	13.4	12.7	12.0	12.0	12.7	11.3	20.5	14.5	13.1
15	14.8	14.5	14.8	13.4	12.7	12.0	12.0	12.7	11.3	20.1	14.1	13.1
16	14.8	14.5	14.8	13.4	12.4	12.0	12.0	12.4	11.3	20.1	14.1	13.1
17	14.8	14.5	14.8	13.4	12.4	12.0	12.0	12.4	11.3	19.8	14.1	13.1
18	14.8	14.5	14.8	13.4	12.4	12.0	12.0	12.4	11.3	19.4	13.8	13.1
19	14.8	14.5	14.8	13.4	12.4	12.0	12.0	12.4	11.7	19.1	13.8	13.1
20	14.5	14.5	14.8	13.4	12.4	12.0	12.4	12.0	12.4	19.1	13.8	13.1
21	14.5	14.5	14.8	13.4	12.4	12.0	12.4	12.0	12.7	18.7	13.8	13.1
22	14.5	14.5	14.8	13.4	12.4	12.0	12.4	12.0	13.4	18.4	13.8	13.1
23	14.5	14.5	14.5	13.4	12.4	12.0	12.4	12.0	13.8	18.0	13.8	13.1
24	14.5	14.5	14.5	13.4	12.4	12.0	12.4	12.0	14.5	17.7	13.8	13.1
25	14.5	14.5	14.5	13.1	12.0	12.0	12.7	11.7	14.8	17.7	13.8	13.1
26	14.5	14.5	14.5	13.1	12.0	12.0	12.7	11.7	15.2	17.3	13.8	13.1
27	14.5	14.5	14.5	13.1	12.0	12.0	12.7	11.7	15.9	17.0	13.8	13.1
28	14.5	14.5	14.1	13.1	12.0	12.0	12.7	11.7	16.2	16.6	13.8	13.1
29	14.5		14.1	13.1	12.0	12.0	12.7	11.7	17.0	16.6	13.8	13.1
30	14.5		14.1	13.1	12.0	12.0	12.7	11.7	17.3	16.2	13.8	13.1
31	14.5		14.1		12.0		13.1	11.7		15.9		13.1
Sum	462.9	406	452.4	404.5	388.9	357.0	379.3	388.0	382.7	591.9	432.4	412.4

Current Year 1970									Period # Dec. 1961-1970		
Month	Extreme Gage Feet		Ø Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
	High	Low	High		Low				**Average	Maximum	Minimum
			Day		Day						
Jan.	0.82	0.79	† 1	15.9	† 20	14.5	14.8	919	183	919	4.4
Feb.	.79	.79	† 1	14.5	† 1	14.5	14.5	804	163	804	4.1
Mar.	.79	.75	† 8	14.8	† 28	14.1	14.5	898	182	898	4.9
Apr.	.75	.72	1	14.1	† 25	13.1	13.4	802	202	802	4.2
May	.72	.69	† 1	13.1	† 25	12.0	12.4	770	284	976	8.7
June	.69	.66	† 1	12.0	† 2	11.7	12.0	708	207	748	6.0
July	.72	.69	31	13.1	† 1	12.0	12.4	752	189	752	7.9
Aug.	.75	.69	† 5	13.4	† 25	11.7	12.4	769	198	796	6.2
Sept.	.89	.66	30	17.3	† 12	11.3	12.7	758	345	1,071	5.4
Oct.	1.02	.82	9	21.9	31	15.9	19.1	1,174	384	1,420	4.6
Nov.	.82	.75	1	15.9	† 18	13.8	14.5	858	329	1,338	4.2
Dec.	.75	.72	† 1	13.8	† 14	13.1	13.4	816	269	1,187	4.4
Yearly	1.02	0.66		21.9		11.3	13.8	10,028	2,935	10,855	146.2

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

EIGHT MILE CREEK AND MCKEE SPRING NEAR DEL RIO, TEXAS

In order to determine what effect storage in Amistad Reservoir will have on the flow of various springs in the United States in the vicinity of Amistad Dam, gaging stations were established at Eight Mile Creek in March 1961 and at McKee Spring in December 1961.

EIGHT MILE CREEK

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 at river mile 562.9, 4.6 river miles downstream from Amistad Dam, 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. 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. Storm water from surface runoff is excluded. The daily seepage flow throughout the year ranged from zero to 1.0 second-foot, and the monthly average ranged from zero to 0.1 second-foot. The total volume for the year amounted to 20.8 acre-feet. Records available: March 1961 through 1970.

MCKEE SPRING (Tabulated below)

DESCRIPTION: Cipolletti weir of 3.5 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, and 685.5 river miles downstream from the American Dam at El Paso, Texas. The zero of the gage is 894.59 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on a continuous record of gage heights, 22 discharge measurements prior to the date the weir was installed, and the weir discharge table thereafter. Mean daily discharges and annual and period summary are tabulated below. Records available: November 1961 through 1970.

REMARKS: The flow of this spring is uniform during periods of dry weather and is not modified by diversions or storage. 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. On June 24, 1970, a Cipolletti weir was installed. Prior to this date the zero of the gage was 893.54 feet above mean sea level, U. S. C. & G. S. datum.

Mean Daily Discharge in Second-Feet 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	5.5	5.7	5.5	6.1	6.4	7.1	5.9	5.2	5.3	8.0	5.9	5.9
2	5.7	5.7	5.5	6.1	6.4	7.0	5.9	5.2	5.3	7.7	5.9	5.9
3	5.8	5.7	5.5	6.0	6.5	ǂ 6.9	5.9	5.2	5.5	7.5	5.9	6.0
4	5.9	ǂ 5.7	ǂ 5.5	6.0	6.5	6.8	5.9	5.9	5.5	7.4	5.9	6.0
5	6.0	5.6	5.5	5.9	6.6	6.7	5.9	5.8	5.5	7.2	5.9	6.0
6	6.2	5.5	5.4	5.8	ǂ 6.6	6.6	5.9	5.5	5.5	7.0	5.9	6.2
7	ǂ 6.3	5.4	5.4	5.8	6.7	6.5	5.9	5.6	5.5	6.9	5.9	6.3
8	6.2	5.4	5.4	ǂ 5.7	6.8	6.4	5.9	5.6	5.5	6.6	5.9	6.5
9	6.1	5.3	5.4	5.8	6.9	6.3	5.9	5.5	5.3	6.6	5.9	6.5
10	6.0	5.2	5.3	5.9	6.9	6.2	5.9	5.5	5.3	6.6	5.9	6.3
11	6.0	ǂ 5.1	5.3	6.0	7.0	6.1	5.9	5.5	5.3	6.6	5.9	6.3
12	5.9	5.1	5.4	6.0	7.1	6.0	5.9	5.5	5.3	6.5	5.9	6.2
13	5.8	5.2	5.5	6.1	ǂ 7.2	5.9	5.8	5.5	5.5	6.5	5.9	6.2
14	ǂ 5.7	5.2	5.6	6.2	7.2	5.8	5.6	5.5	5.6	6.5	5.9	6.0
15	5.7	5.3	5.7	ǂ 6.3	7.3	5.7	5.6	5.5	5.6	6.3	5.9	6.0
16	5.7	5.3	5.8	6.3	7.3	5.6	5.6	5.5	5.5	6.3	5.9	6.0
17	5.7	5.4	5.9	6.4	7.4	ǂ 5.5	5.6	5.5	5.5	6.3	5.9	6.0
18	5.8	ǂ 5.4	ǂ 6.0	6.4	7.4	5.6	5.6	5.5	5.5	6.3	5.9	6.0
19	5.8	5.4	6.0	6.4	7.4	5.7	5.6	5.5	5.5	6.3	5.9	6.0
20	5.8	5.4	5.9	6.4	7.5	5.8	5.6	5.5	5.5	6.3	5.9	6.0
21	5.8	5.4	5.9	6.5	7.5	5.9	5.6	5.5	5.3	6.3	5.9	6.0
22	ǂ 5.8	5.5	5.9	ǂ 6.5	7.5	6.0	5.6	5.5	5.3	6.3	5.9	6.0
23	5.8	5.5	5.9	6.5	7.6	6.1	5.6	5.5	5.8	6.3	5.9	6.0
24	5.8	5.5	5.8	6.4	7.6	6.2	5.6	5.2	5.9	6.3	5.9	6.0
25	5.8	ǂ 5.5	ǂ 5.8	6.4	7.7	6.2	5.6	5.2	6.2	6.2	5.9	6.0
26	5.8	5.5	5.8	6.4	ǂ 7.7	6.2	5.6	5.2	6.9	6.2	5.9	6.0
27	5.8	5.5	5.9	6.4	7.6	6.2	5.6	5.2	7.7	6.2	5.9	5.9
28	ǂ 5.8	5.5	5.9	6.3	7.5	6.2	5.6	5.2	8.1	6.0	5.9	5.9
29	5.8		6.0	6.3	7.4	6.2	5.6	5.2	8.6	6.0	5.9	5.9
30	5.8		6.0	6.3	7.3	6.2	5.6	5.2	8.3	6.0	5.9	5.9
31	5.8		6.0		7.2		5.6	5.2		6.0		5.9
Sum	181.4	151.9	176.4	185.6	221.7	185.6	177.4	168.1	177.1	203.2	177.0	187.8

Month	Current Year 1970 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 1961-1970 Acre-Feet Average	Maximum	Minimum
Jan.	0.71	0.63	7	6.3	1	5.5	5.9	360	100	360	0
Feb.	.69	.45	† 1	5.7	† 11	5.1	5.4	301	89.0	301	0
Mar.	.46	.39	† 18	6.0	† 10	5.3	5.7	350	104	350	0
Apr.	.40	.33	† 21	6.5	8	5.7	6.2	368	122	368	0
May			† 25	7.7	† 1	6.4	7.2	440	157	440	.7
June			1	7.1	17	5.5	6.2	368	110	368	0
July	.63	.61	† 1	5.9	† 14	5.6	5.7	352	98.8	352	0
Aug.	.65	.59	4	6.2	† 23	5.2	5.4	333	96.9	333	0
Sept.	.89	.59	29	8.6	† 1	5.2	5.9	351	111	351	0
Oct.	.77	.64	1	8.0	† 28	6.0	6.6	403	129	403	0
Nov.	.63	.63	† 1	5.9	† 1	5.9	5.9	351	134	351	0
Dec.	.67	.63	† 8	5.9	† 1	5.9	6.1	373	134	381	0
Yearly				8.6		5.1	6.0	4,350	1,385.7	4,350	0.7

ǂ Discharge measurement made on this day Ø Mean daily † And other days

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

DESCRIPTION: Cipolletti weir of 35.3 second-foot capacity, located 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 monthly staff gage readings and the weir discharge table. Mean daily discharges determined by* prorating between readings. Records available: May 1961 through 1970.

REMARKS: The flow of this stream is very uniform during periods of dry weather and is not modified by diversions or storage. Prior to 1969 discharges were based on a continuous record of gage height and the weir discharge table. Storm flow is deducted and not included in tabulation below. This station was established for investigational purposes in connection with Amistad Dam to determine what effect 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 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	3.9	3.9	3.5	3.9	3.9	3.5	3.5	3.5	3.5	3.9	3.5	3.5
2	3.9	3.9	3.5	3.9	3.9	3.5	3.5	3.5	3.9	3.9	3.5	3.5
3	3.9	3.9	3.5	3.9	3.9	3.5	3.5	3.5	3.9	3.9	3.5	3.5
4	3.9	3.9	3.5	3.9	3.9	3.5	3.5	3.5	3.9	3.9	3.5	3.5
5	3.9	3.9	3.5	3.9	3.9	3.5	3.5	3.5	3.9	3.9	3.5	3.5
6	3.9	3.9	3.5	3.9	3.9	3.5	3.5	3.5	3.9	4.2	3.5	3.5
7	3.9	3.9	3.5	3.9	3.9	3.5	3.5	3.5	3.9	4.2	3.5	3.5
8	3.9	3.9	3.5	3.9	3.9	3.5	3.5	3.5	3.9	4.2	3.5	3.5
9	3.9	3.9	3.5	3.9	3.9	3.5	3.5	3.5	3.5	4.2	3.5	3.5
10	3.9	3.9	3.9	3.9	3.9	3.5	3.5	3.5	3.5	4.2	3.5	3.5
11	3.9	3.9	3.9	3.9	3.9	3.5	3.5	3.5	3.5	4.2	3.5	3.5
12	3.9	3.9	3.9	3.9	3.9	3.5	3.5	3.5	3.5	4.2	3.5	3.5
13	3.9	3.9	3.9	3.9	3.9	3.5	3.5	3.5	3.5	4.2	3.5	3.5
14	3.9	3.9	3.9	3.9	3.9	3.5	3.5	3.2	3.5	4.2	3.5	3.5
15	3.9	3.9	3.9	3.9	3.9	3.5	3.5	3.2	3.2	3.9	3.5	3.5
16	3.9	3.9	3.9	3.9	3.9	3.5	3.5	3.2	3.2	3.9	3.5	3.5
17	3.9	3.9	3.9	3.9	3.9	3.5	3.5	3.2	3.2	3.9	3.5	3.5
18	3.9	3.9	3.9	3.9	3.9	3.5	3.5	3.2	3.2	3.9	3.5	3.5
19	3.9	3.9	3.9	3.9	3.9	3.5	3.5	3.2	3.2	3.9	3.5	3.5
20	3.9	3.9	3.9	3.9	3.5	3.5	3.5	3.2	3.2	3.9	3.5	3.5
21	3.9	3.9	3.9	3.9	3.5	3.5	3.5	3.2	3.2	3.9	3.5	3.5
22	3.9	3.9	3.9	3.9	3.5	3.5	3.5	3.2	3.5	3.9	3.5	3.5
23	3.9	3.9	3.9	3.9	3.5	3.5	3.5	3.2	3.5	3.9	3.5	3.5
24	3.5	3.9	3.9	3.9	3.5	3.5	3.5	3.2	3.5	3.9	3.5	3.5
25	3.5	3.9	3.9	3.9	3.5	3.5	3.5	3.5	3.5	3.9	3.5	3.5
26	3.5	3.9	3.9	3.9	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.2
27	3.5	3.9	3.9	3.9	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.2
28	3.5	3.5	3.9	3.9	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.2
29	3.5		3.9	3.9	3.5	3.5	3.5	3.5	3.9	3.5	3.5	3.2
30	3.5		3.9	3.9	3.5	3.5	3.5	3.5	3.9	3.5	3.5	3.2
31	3.5		3.9		3.5		3.5	3.5		3.5		3.2
Sum	117.7	108.8	117.3	117.0	116.1	105.0	108.5	105.2	106.5	121.2	105.0	106.7

Current Year 1970 — **Period # May 1961-1970**

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.	0.49	0.46	† 1	3.9	† 24	3.5	3.9	235	64.8	235	15.2
Feb.	.46	.46	† 1	3.9	28	3.5	3.9	215	60.1	215	13.9
Mar.	.46	.46	† 10	3.9	† 1	3.5	3.9	233	64.8	233	14.2
Apr.	.49	.49	† 1	3.9	† 1	3.9	3.9	231	102	231	10.5
May	.49	.46	† 1	3.9	† 20	3.5	3.9	230	75.1	230	5.9
June	.46	.46	† 1	3.5	† 1	3.5	3.5	210	57.6	210	4.2
July	.46	.46	† 1	3.5	† 1	3.5	3.5	217	53.6	217	0
Aug.	.46	.43	† 1	3.5	† 14	3.2	3.2	209	57.6	209	0
Sept.	.49	.46	† 2	3.9	† 15	3.2	3.5	212	98.1	219	13.1
Oct.	.52	.49	† 6	4.2	† 26	3.5	3.9	241	106	269	12.1
Nov.	.46	.46	† 1	3.5	† 1	3.5	3.5	210	85.9	250	14.2
Dec.	.46	.46	† 1	3.5	† 26	3.2	3.5	213	84.3	266	15.2
Yearly	0.52	0.43		4.2		3.2	3.5	2,656	909.9	2,656	250.4

Some months missing

† And other days

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 monthly staff gage readings and the weir discharge table. Mean daily discharges determined by prorating between readings. Records available: November 17, 1961 through 1970.

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 storage in Amistad Reservoir will have on the flow of this spring.

Mean Daily Discharge in Second-Feet 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1
2	.1	.1	.1	.1	.1	.1	.1	.1	.1	.2	.1	.1
3	.1	.1	.1	.1	.1	.1	.1	.1	.1	.2	.1	.1
4	.1	.1	.1	.1	.1	.1	.1	.1	.1	.2	.1	.1
5	.1	.1	.1	.1	.1	.1	.1	.1	.1	.2	.1	.1
6	.1	.1	.1	.1	.1	.1	.1	.1	.1	.2	.1	.1
7	.1	.1	.1	.1	.1	.1	.1	.1	.1	.3	.1	.1
8	.1	.1	.1	.1	.1	.1	.1	.1	.1	.3	.1	.1
9	.1	.1	.1	.1	.1	.1	.1	.1	.1	.3	.1	.1
10	.1	.1	.1	.1	.1	.1	.1	.1	.1	.3	.1	.1
11	.1	.1	.1	.1	.1	.1	.1	.1	.1	.3	.1	.1
12	.1	.1	.1	.1	.1	.1	.1	.1	.1	.2	.1	.1
13	.1	.1	.1	.1	.1	.1	.1	.1	.1	.2	.1	.1
14	.1	.1	.1	.1	.1	.1	.1	.1	.1	.2	.1	.1
15	.1	.1	.1	.1	.1	.1	.1	.1	.1	.2	.1	.1
16	.1	.1	.1	.1	.1	.1	.1	.1	.1	.2	.1	.1
17	.1	.1	.1	.1	.1	.1	.1	.1	.1	.2	.1	.1
18	.1	.1	.1	.1	.1	.1	.1	.1	.1	.2	.1	.1
19	.1	.1	.1	.1	.1	.1	.1	.1	.1	.2	.1	.1
20	.1	.1	.1	.1	.1	.1	.1	.1	.1	.2	.1	.1
21	.1	.1	.1	.1	.1	.1	.1	.1	.1	.2	.1	.1
22	.1	.1	.1	.1	.1	.1	.1	.1	.1	.2	.1	.1
23	.1	.1	.1	.1	.1	.1	.1	.1	.1	.2	.1	.1
24	.1	.1	.1	.1	.1	.1	.1	.1	.1	.2	.1	.1
25	.1	.1	.1	.1	.1	.1	.1	.1	.2	.2	.1	.1
26	.1	.1	.1	.1	.1	.1	.1	.1	.2	.2	.1	.1
27	.1	.1	.1	.1	.1	.1	.1	.1	.2	.2	.1	.1
28	.1	.1	.1	.1	.1	.1	.1	.1	.2	.2	.1	.1
29	.1		.1	.1	.1	.1	.1	.1	.2	.1	.1	.1
30	.1		.1	.1	.1	.1	.1	.1	.2	.1	.1	.1
31	.1		.1		.1		.1	.1		.1		.1
Sum	3.1	2.8	3.1	3.0	3.1	3.0	3.1	3.1	3.6	6.4	3.0	3.1

Month	Current Year 1970							Period # Dec. 1961-1970		
	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.			† 1	0.1	† 1	0.1	0.1	6.7	10.8	15.2	6.5
Feb.			† 1	.1	† 1	.1	.1	7.9	9.6	13.7	5.9
Mar.			† 1	.1	† 1	.1	.1	7.9	10.5	15.2	6.5
Apr.			† 1	.1	† 1	.1	.1	6.3	10.8	14.7	6.3
May			† 1	.1	† 1	.1	.1	6.5	13.1		6.5
June			† 1	.1	† 1	.1	.1	6.3	11.5	17.3	6.3
July			† 1	.1	† 1	.1	.1	6.8	11.2	16.2	6.5
Aug.			† 1	.1	† 1	.1	.1	8.7	10.6	13.6	8.4
Sept.			† 25	.2	† 1	.1	.1	8.4	12.0		6.3
Oct.			† 7	.3	† 29	.1	.2	13.6	12.8	18.1	5.5
Nov.			† 1	.1	† 1	.1	.1	8.1	10.6	16.6	4.9
Dec.			† 1	.1	† 1	.1	.1	7.6	12.2	19.5	6.5
Yearly				0.3		0.1	0.1	94.8	135.7		94.8

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

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 48 discharge measurements during the year and a continuous record of gage heights. Records available: March 1961 through 1970.

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 storage in Amistad Reservoir will have on the flow of this spring.

Mean Daily Discharge in Second-Feet 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	4.9	5.2	6.7	⋔ 5.9	5.8	5.7	⋔ 3.2	3.1	5.0	6.3	4.2	4.0
2	4.8	5.2	6.8	6.1	5.7	5.8	3.1	3.1	⋔ 5.1	6.0	4.2	⋔ 4.1
3	4.8	5.3	6.9	6.2	5.7	⋔ 5.8	3.1	3.1	4.8	5.7	4.1	4.0
4	4.8	⋔ 5.3	⋔ 7.0	6.4	5.6	5.6	3.0	3.1	4.5	5.4	⋔ 4.1	3.9
5	4.8	5.5	6.9	6.6	5.6	5.4	3.0	3.1	4.2	5.0	4.1	3.8
6	4.7	5.6	6.8	6.8	5.5	5.2	2.9	3.1	3.8	4.7	4.1	3.7
7	⋔ 4.7	5.8	6.7	6.9	5.4	4.9	2.9	3.1	3.5	4.4	4.1	3.6
8	4.8	6.0	6.7	⋔ 7.1	⋔ 5.4	4.7	⋔ 2.8	3.1	3.2	⋔ 4.1	4.1	3.5
9	5.0	6.2	6.6	7.0	5.3	4.5	2.9	3.1	⋔ 2.9	4.3	4.1	⋔ 3.4
10	5.1	6.3	6.5	7.0	5.3	⋔ 4.3	2.9	3.1	3.1	4.4	⋔ 4.1	3.4
11	5.3	⋔ 6.5	⋔ 6.4	6.9	5.2	4.2	3.0	3.1	3.4	4.6	4.0	3.5
12	5.4	6.4	6.4	6.9	5.2	4.0	3.1	⋔ 3.1	3.6	4.8	4.0	3.5
13	5.6	6.4	6.4	6.8	⋔ 5.1	3.9	3.2	3.2	3.8	4.9	4.0	3.6
14	⋔ 5.7	6.3	6.4	6.8	5.1	3.8	3.2	3.4	4.0	⋔ 5.1	3.9	3.6
15	5.6	6.3	6.5	⋔ 6.7	5.2	3.7	⋔ 3.3	3.5	4.3	5.0	3.8	3.7
16	5.6	6.2	6.5	6.6	5.2	3.5	3.3	3.7	⋔ 4.5	4.9	3.8	⋔ 3.7
17	5.5	6.2	6.5	6.5	5.2	⋔ 3.4	3.4	3.8	4.6	4.8	3.8	3.7
18	5.5	⋔ 6.1	⋔ 6.5	6.4	5.3	3.4	3.4	4.0	4.8	4.8	⋔ 3.7	3.6
19	5.4	6.1	6.4	6.2	5.3	3.3	3.4	⋔ 4.1	5.0	4.7	3.7	3.6
20	5.4	6.1	6.3	6.1	5.3	3.3	3.4	4.2	5.1	4.6	3.7	3.5
21	⋔ 5.3	6.1	6.2	6.0	5.4	3.3	3.5	4.2	5.2	⋔ 4.5	3.7	3.5
22	5.3	6.2	6.0	⋔ 5.9	5.4	3.3	⋔ 3.5	4.3	5.4	4.5	3.6	3.4
23	5.2	6.2	5.9	5.9	5.4	3.2	3.4	4.3	5.6	4.4	3.6	⋔ 3.4
24	5.2	6.2	5.8	5.9	5.5	⋔ 3.2	3.4	4.4	5.7	4.4	3.6	3.5
25	5.2	⋔ 6.2	⋔ 5.7	5.9	5.5	3.2	3.3	4.4	5.8	4.4	⋔ 3.6	3.6
26	5.2	6.3	5.7	5.9	5.5	3.2	3.3	⋔ 4.5	6.0	4.4	3.7	3.7
27	5.1	6.4	5.8	5.9	5.6	3.2	3.2	4.6	6.2	4.3	3.7	3.9
28	⋔ 5.1	6.5	5.8	5.9	5.6	3.2	3.2	4.7	6.3	⋔ 4.3	3.8	4.0
29	5.1		5.8	5.9	5.6	3.2	⋔ 3.1	4.8	6.4	4.3	3.9	4.1
30	5.2		5.8	5.8	5.7	3.2	3.1	4.8	⋔ 6.6	4.2	4.0	⋔ 4.2
31	5.2		5.9		5.7		3.1	4.9		4.2		4.1
Sum	160.5	169.1	196.3	190.9	168.3	120.6	98.6	117.0	142.4	146.4	116.8	114.8

Current Year 1970 — **Period Mar. 1961 - 1970**

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.	2.52	2.48	14	5.7	† 6	4.7	5.2	318	117	318	0
Feb.	2.58	2.30	†11	6.5	† 1	5.2	6.0	335	101	335	0
Mar.	2.66	2.39	4	7.0	†25	5.7	6.3	389	110	389	0
Apr.	2.81	2.67	8	7.1	30	5.8	6.4	379	110	379	0
May	3.65	2.72	1	5.8	†13	5.1	5.4	334	111	334	0
June	2.86	2.74	† 2	5.8	†23	3.2	4.0	239	102	239	0
July	2.74	2.69	†21	3.5	8	2.8	3.2	196	91.7	196	0
Aug.	3.65	2.67	31	4.9	† 1	3.1	3.8	232	97.8	232	0
Sept.	2.70	2.28	30	6.6	9	2.9	4.7	282	111	282	0
Oct.	2.45	2.27	1	6.3	8	4.1	4.7	290	132	290	0
Nov.	2.30	2.27	† 1	4.2	†22	3.6	3.9	232	121	273	0
Dec.	2.30	2.28	30	4.2	† 9	3.4	3.7	228	132	322	0
Yearly	3.65	2.27		7.1		2.8	4.8	3,454	1,336.5	3,454	0

⋔ Discharge measurement made on this day Ø Mean daily † And other days

CIENEGAS CREEK NEAR DEL RIO, TEXAS

DESCRIPTION: Gravity wells and water-stage recorders located, one each, on the downstream side of the left abutment of the Cienegas Creek Road bridge at latitude 29° 21' 35", longitude 100° 56' 20", 1.1 creek miles from the confluence with the Rio Grande; and, for the Briggs Farm Ditch, 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. Acuna, Coahuila, and 691.6 river miles downstream from the American Dam at El Paso, Texas. The elevation of the zero of the gages has not been determined.

RECORDS: Based on 50 discharge measurements at each station during the year and a continuous record of gage heights. Mean daily discharge computations determined by prorating between weekly measurements at each station and combining the two records for the total yield of the springs. Records available: March 1965 through 1970. 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 35. The flow of this stream is modified by irrigation diversions through the Briggs Farm ditch and, occasionally, by other smaller diversions upstream. During 1970 there were no appreciable diversions from the creek, other than through the Briggs Farm ditch which amounted to 2,044 acre-feet for the year and are included in the tabulation below. All storm flow passing this station is deducted and is not included in the tabulation. These stations were established for investigational purposes in connection with Amistad Dam to determine what effect storage in Amistad Reservoir will have on the flow of these springs. The recorders were installed in March 1965.

Mean Daily Discharge in Second-Feet 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	12.5	12.3	16.7	✟ 12.6	12.3	9.8	✟ 10.7	10.3	10.4	20.7	10.1	10.9
2	13.0	12.5	16.8	12.6	11.7	9.7	10.8	10.6	✟ 10.9	20.0	9.8	✟ 10.8
3	13.4	12.8	17.0	12.4	11.0	✟ 9.6	10.9	11.1	10.2	19.3	9.3	10.7
4	13.8	✟ 13.0	✟ 17.1	12.4	10.4	9.6	11.0	11.4	9.4	18.5	✟ 9.0	10.4
5	14.2	12.0	16.8	12.2	9.7	9.7	11.1	11.8	8.7	17.7	9.1	10.3
6	14.7	10.9	16.4	12.2	✟ 9.1	9.7	11.2	✟ 12.1	9.0	17.0	9.3	10.1
7	✟ 15.1	9.9	16.1	12.0	9.0	9.8	11.3	12.0	8.6	16.3	9.4	10.0
8	15.0	8.8	15.6	✟ 12.0	9.1	9.8	✟ 11.4	11.8	8.0	✟ 15.5	9.6	9.7
9	14.9	7.8	15.3	12.3	9.0	9.9	11.3	11.7	✟ 7.6	15.1	9.8	✟ 9.6
10	14.8	8.0	14.9	12.6	9.1	✟ 9.9	11.2	11.7	7.8	14.8	✟ 9.9	9.5
11	14.8	✟ 12.4	✟ 14.6	12.9	9.0	9.7	11.1	11.5	7.9	14.4	9.5	9.4
12	14.7	12.3	14.7	13.2	9.1	9.4	11.0	✟ 11.4	8.1	14.1	10.9	9.3
13	14.6	12.3	14.7	13.5	✟ 9.0	9.2	10.9	10.9	8.3	13.8	11.6	9.1
14	✟ 14.5	12.2	14.8	13.8	9.0	8.8	10.8	10.4	8.5	✟ 13.4	11.7	9.0
15	14.0	12.1	14.8	✟ 14.1	9.0	8.6	✟ 10.7	9.9	8.6	13.1	11.3	8.9
16	13.4	12.0	14.9	13.8	9.0	8.3	10.2	9.5	✟ 8.8	12.9	10.8	✟ 8.8
17	12.9	12.0	14.9	13.4	9.0	✟ 8.1	9.8	9.0	9.7	12.6	10.3	8.8
18	12.3	✟ 11.9	✟ 15.0	13.0	9.0	8.1	9.3	8.5	10.7	12.4	✟ 9.9	8.9
19	11.8	12.5	14.9	12.5	9.0	8.0	9.0	✟ 8.0	11.5	12.1	10.0	8.9
20	11.2	13.1	14.9	12.1	8.9	8.0	8.5	7.9	12.4	11.9	10.3	9.0
21	✟ 10.7	13.7	14.8	11.7	8.9	7.8	8.1	7.9	13.3	✟ 11.6	10.4	9.0
22	10.8	14.4	14.8	✟ 11.3	8.9	7.8	✟ 7.6	7.8	14.3	11.6	10.6	9.1
23	10.9	15.0	14.7	11.6	9.6	7.7	7.9	7.8	15.2	11.6	10.7	✟ 9.1
24	11.0	15.6	14.7	11.9	✟ 10.4	✟ 7.7	8.1	7.7	16.0	11.6	11.0	9.1
25	11.0	✟ 16.2	✟ 14.6	12.2	10.4	8.1	8.4	7.7	17.0	11.5	✟ 11.1	9.1
26	11.1	16.3	14.3	12.7	10.4	8.6	8.5	✟ 7.6	17.9	11.5	11.0	9.1
27	11.2	16.5	14.1	13.0	10.3	9.0	8.8	8.1	18.8	11.5	11.0	9.2
28	✟ 11.3	16.6	13.8	13.3	10.2	9.4	9.0	8.6	19.6	✟ 11.5	10.9	9.2
29	11.5		13.4	✟ 13.6	10.1	9.8	✟ 9.3	9.1	20.6	11.2	11.0	✟ 9.2
30	11.8		13.1	13.0	10.0	10.3	9.6	9.4	✟ 21.5	10.7	10.9	9.2
31	12.0		12.9		9.9		10.0	9.9		10.4		9.1
Sum	398.9	355.1	466.1	379.9	299.5	269.9	307.5	303.1	359.3	430.3	310.2	292.5

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
	Current Year 1970								**Period** Mar. 1965-1970		
Jan.			7	15.1	21	10.7	12.9	791	377	791	134
Feb.			28	16.6	9	7.8	12.7	704	326	704	98.0
Mar.			4	17.1	31	12.9	15.0	925	380	925	102
Apr.			15	14.1	22	11.3	12.7	754	334	754	100
May			1	12.3	†20	8.9	9.7	594	313	594	109
June			30	10.3	†23	7.7	9.0	535	253	535	86.3
July			8	11.4	22	7.6	9.9	610	243	610	85.5
Aug.			6	12.1	26	7.6	9.8	601	237	601	48.4
Sept.			30	21.5	9	7.6	12.0	713	310	713	84.1
Oct.			1	20.7	31	10.4	13.9	854	443	914	150
Nov.			14	11.7	4	9.0	10.3	615	389	678	152
Dec.			1	10.9	†16	8.8	9.4	580	415	852	133
Yearly				21.5		7.6	11.4	8,276	4,020	8,276	1,530.9

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

RIO GRANDE AT DEL RIO, TEXAS

DESCRIPTION: Cableway, 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 101 discharge measurements during the year, 57 by the United States Section and 44 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 through 1970. 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 1970 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. The concrete control weir was placed in operation on February 8 and the cable on June 7, 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 176 second-feet which occurred July 13, 1968, with a gage height of 1.31 feet.

Mean Daily Discharge in Second-Feet 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,150	1,160	6,630	514	757	‡ 3,980	4,200	901	1,010	‡ 582	600	608
2	1,160	1,160	‡6,630	‡ 796	761	3,970	4,210	905	968	575	592	608
3	1,160	1,160	6,510	810	763	‡ 4,400	4,220	901	‡ 972	561	597	608
4	1,160	1,160	‡6,570	810	‡ 763	‡ 5,480	4,210	951	965	554	‡ 595	‡ 610
5	1,160	‡ 999	‡5,910	810	794	‡ 5,520	4,200	917	965	555	601	608
6	1,140	‡ 433	‡3,060	‡ 810	798	‡ 4,660	‡ 4,220	914	970	557	608	608
7	1,140	419	1,310	810	794	3,710	4,220	‡ 914	971	444	608	603
8	1,140	419	1,290	810	‡ 792	3,690	4,220	911	973	169	608	600
9	1,140	‡ 419	‡1,210	‡ 813	801	‡ 3,680	4,220	908	970	410	605	597
10	1,160	419	446	810	794	‡ 3,710	‡ 4,210	903	‡ 971	426	603	‡ 600
11	1,150	‡ 419	433	810	801	3,700	4,210	898	971	430	608	597
12	1,150	419	‡ 419	810	‡ 800	3,710	4,200	897	973	433	‡ 603	592
13	1,170	419	419	810	812	3,710	‡ 2,720	‡ 898	984	‡ 433	600	592
14	1,160	419	419	‡ 810	‡ 813	3,710	954	891	1,010	434	590	‡ 608
15	‡ 1,160	419	419	816	806	‡ 3,700	941	883	920	‡ 430	592	608
16	1,160	‡ 419	‡ 419	‡ 813	798	3,880	‡ 939	897	810	428	603	608
17	1,160	2,230	419	810	799	4,190	927	888	‡ 799	422	‡ 608	‡ 603
18	1,150	‡6,630	405	809	‡ 800	2,190	921	‡ 828	792	422	603	608
19	1,140	6,570	405	798	792	5,660	920	858	792	427	‡ 608	608
20	1,140	‡6,510	419	‡ 810	792	2,210	917	936	795	417	603	608
21	1,140	6,400	433	835	‡ 1,550	5,730	917	939	‡ 807	417	608	608
22	‡ 1,150	6,400	419	‡ 1,290	‡ 2,980	‡ 5,740	910	939	845	‡ 420	608	608
23	1,150	6,280	‡ 664	810	‡ 3,830	5,760	‡ 914	944	1,080	415	577	608
24	1,150	‡6,400	433	810	3,870	4,670	905	950	‡ 871	417	608	‡ 605
25	1,160	6,680	419	807	‡ 3,940	‡ 4,020	908	949	867	417	‡ 608	604
26	1,140	‡6,680	‡ 405	800	‡ 4,000	4,010	917	955	3,650	417	608	598
27	1,140	6,630	419	‡ 792	‡ 4,040	4,130	908	‡ 958	1,120	413	608	605
28	‡ 1,140	6,630	419	792	‡ 3,150	4,260	908	958	953	415	608	608
29	1,130		419	792	3,980	4,220	907	956	921	‡ 417	608	599
30	1,130		‡ 419	‡ 782	2,620	4,200	‡ 908	955	796	417	608	600
31	1,130		405		3,970		901	965		453		‡ 595
Sum	35,610	84,302	48,596	24,399	53,760	126,200	69,782	28,467	30,491	13,727	18,084	18,720

Current Year 1970 — **Period = 1968 - 1970**

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.	1.98	1.94	† 11	1,180	31	1,090	1,150	70,632	77,072	89,436	70,632
Feb.	3.43	1.51	25	7,030	15	391	3,010	167,213	95,754	167,213	55,248
Mar.	3.36	1.50	† 1	6,630	23	377	1,570	96,390	74,698	96,390	63,801
Apr.	2.10	1.53	22	1,460	1	419	813	48,395	67,104	93,320	48,395
May	2.89	1.49	27	4,200	30	364	1,730	106,633	90,496	106,633	58,680
June	3.21	1.43	† 21	5,790	18	291	4,210	250,318	124,128	250,318	49,574
July	2.91	1.81	† 6	4,290	† 24	864	2,250	138,413	92,212	138,413	62,552
Aug.	1.94	1.67	31	1,120	4	624	918	56,464	70,353	89,515	56,464
Sept.	3.76	1.65	26	9,130	30	592	1,020	60,479	69,968	88,127	60,479
Oct.	1.65	1.27	† 1	592	8	142	443	27,228	67,873	89,039	27,228
Nov.	1.67	1.57	13	624	23	472	603	35,870	67,382	99,830	35,870
Dec.	1.67	1.64	† 4	624	† 7	576	604	37,131	68,470	97,072	37,131
Yearly	3.76	1.27		9,130		142	1,510	1,095,166	965,520	1,095,166	773,775

‡ Discharge measurement made on this day ± Values for January 1968 are Rio Grande near Del Rio discharge less Arroyo Las Vacas flow † And other days

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 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. During 1970 the capacity of the weir was exceeded only on September 26. Records available: Occasional estimates from June 1935 to March 19, 1938 and a continuous record from March 20, 1938 through 1970.

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 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	11.7	10.2	6.0	4.2	2.1	2.8	1.1	0.7	10.9	12.0	3.5	5.3
2	11.7	10.2	6.0	4.2	1.8	2.8	1.1	0.7	1.1	10.2	3.5	5.3
3	10.9	10.2	6.0	4.2	1.8	2.8	1.1	0.7	1.1	8.8	3.5	5.3
4	10.9	8.5	6.0	4.2	1.4	2.1	.7	35.7	.7	8.5	3.5	5.7
5	10.9	7.4	6.0	4.6	1.1	1.4	.4	16.2	.7	8.5	3.5	5.7
6	10.2	5.7	6.0	4.6	1.1	1.8	.4	1.4	.7	8.1	3.5	4.2
7	10.2	5.3	6.0	4.2	1.1	1.8	.7	1.4	.7	7.1	3.5	4.2
8	10.2	4.6	7.4	4.2	1.1	1.4	.7	1.1	.7	6.7	3.5	4.6
9	10.2	4.2	8.5	4.2	1.1	2.1	.7	1.1	.7	6.0	3.5	4.6
10	10.2	4.2	8.5	4.2	1.1	1.8	.7	1.1	.4	6.0	3.5	4.6
11	10.2	4.2	8.1	4.2	1.1	1.4	.7	1.1	.4	6.0	3.5	4.6
12	10.2	4.2	7.1	4.2	1.1	1.4	.7	0.7	.4	6.0	3.5	4.2
13	10.2	4.6	8.5	4.2	1.4	1.1	.7	0.7	.7	5.7	3.5	5.3
14	10.2	4.6	7.8	4.2	2.1	1.1	.7	1.4	15.5	5.7	3.5	5.3
15	10.2	4.6	6.0	4.2	1.8	.7	.7	0.7	1.8	5.7	3.5	5.3
16	10.2	4.2	6.0	4.2	1.4	.4	.7	1.4	1.4	5.7	3.5	4.6
17	10.2	4.2	6.0	4.2	1.1	.4	.7	0.7	1.1	5.3	3.5	7.1
18	10.2	4.2	6.0	4.2	.7	1.1	.7	0.7	1.1	4.6	3.5	8.5
19	10.2	4.2	6.0	3.9	1.1	1.1	.7	1.8	1.1	4.2	3.5	8.5
20	10.2	4.2	6.0	3.9	1.1	1.1	.7	2.5	1.1	4.2	3.5	7.4
21	10.2	4.2	7.1	3.5	2.1	1.1	.7	1.1	.7	4.2	3.5	8.5
22	10.2	6.0	7.1	3.5	2.1	1.1	.7	1.1	1.1	4.2	3.5	7.1
23	10.2	7.1	7.8	3.5	2.1	1.1	.7	1.1	2.1	3.9	3.5	6.0
24	10.2	6.7	6.7	3.9	2.1	1.1	.7	1.1	1.1	3.9	4.2	5.7
25	10.2	5.7	5.7	3.5	2.1	.7	.7	1.1	1.1	3.9	4.2	4.9
26	9.2	5.7	5.3	3.2	2.1	.7	.7	0.7	4,380	3.9	4.2	5.3
27	9.2	7.4	5.3	2.8	2.1	.7	.7	1.1	166	3.5	4.2	5.3
28	9.2	6.7	5.3	2.8	2.1	.7	.7	0.4	53.0	3.2	4.2	5.7
29	8.5		4.6	2.8	2.5	.7	.7	0.4	30.4	3.2	4.2	7.4
30	9.2		4.6	2.5	2.8	1.1	.7	0.4	18.0	3.2	4.6	7.4
31	10.2		4.6		2.8		.7	2.8		3.2		6.7
Sum	315.6	163.2	198.0	116.2	51.5	39.6	22.3	83.1	4,695.8	175.3	110.3	180.3

Current Year 1970 — **Period 1938-1970**

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.	0.59	0.56	† 1	11.7	29	8.5	10.2	623	337	910	31.5
Feb.	.56	.39	† 1	10.2	† 9	4.2	6.0	324	508	5,950	33.3
Mar.	.52	.43	† 9	8.5	† 29	4.6	6.4	392	576	2,600	59.2
Apr.	.43	.30	5	5.3	30	2.1	3.9	232	1,522	16,610	75.4
May	.33	.13	† 30	2.8	18	0.4	1.8	101	1,464	9,080	90.0
June	.33	.13	† 1	2.8	† 16	.4	1.4	77.8	2,942	62,520	43.8
July	.23	.13	† 1	1.1	† 5	.4	0.7	43.8	938	8,230	26.8
Aug.	1.31	.16	4	84.4	† 28	.4	2.8	164	760	5,433	42.2
Sept.	9.58	.16	26	11,700	† 10	.4	156	9,310	3,075	49,566	37.3
Oct.	.66	.36	1	14.1	† 28	3.2	5.7	348	1,741	20,444	22.6
Nov.	.43	.36	30	4.6	† 1	3.5	3.9	221	346	1,670	21.0
Dec.	0.56	.39	24	9.2	† 6	4.2	5.7	358	311	780	22.0
Yearly	9.58	0.13		11,700		0.4	17.0	12,194.6	14,520	70,026.3	2,066.7

‡ Period 1938-1970 † And other days

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 51 and 51 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 1970.

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 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	115	111	104	108	106	106	106	101	99.8	95.2	102	91.8
2	115	109	107	108	108	107	104	103	92.8	95.4	98.0	92.9
3	116	110	112	108	110	106	104	100	91.1	96.3	96.2	93.1
4	116	111	112	108	109	107	105	102	91.5	96.5	94.5	90.4
5	114	112	113	106	109	106	107	104	91.9	96.0	93.8	92.8
6	113	110	113	105	107	107	107	104	94.4	102	94.2	91.9
7	114	112	112	104	107	107	108	102	96.5	103	91.3	91.4
8	114	113	115	105	107	107	109	102	94.2	99.0	94.9	90.6
9	115	113	112	105	108	106	108	99.1	96.9	97.1	93.5	91.7
10	116	112	116	107	107	106	104	102	95.5	98.4	95.3	95.3
11	116	114	118	107	106	106	103	99.9	94.6	99.4	94.7	92.6
12	117	113	122	106	111	103	105	95.6	95.8	95.8	96.7	94.1
13	120	116	118	106	106	107	106	92.5	98.8	94.9	95.9	94.3
14	119	117	110	107	106	107	104	91.7	96.3	91.2	95.1	93.6
15	119	117	113	109	106	106	104	93.5	93.6	93.7	95.9	92.5
16	116	116	110	109	105	106	107	95.2	89.5	91.4	92.9	92.3
17	115	115	113	110	106	106	105	96.7	92.0	90.7	91.6	90.1
18	113	116	114	110	110	107	105	98.4	92.9	90.1	91.8	89.9
19	111	115	112	110	108	106	104	99.5	92.7	89.8	94.0	89.1
20	111	114	113	110	106	104	105	99.7	92.8	94.9	96.1	92.6
21	111	112	113	111	107	107	106	99.0	92.4	97.5	94.3	91.7
22	111	116	113	107	106	107	103	99.5	92.4	97.0	94.3	90.0
23	112	112	110	110	105	106	105	101	79.5	97.1	93.0	89.0
24	112	111	112	112	105	106	103	101	69.6	95.1	93.0	88.7
25	112	111	112	112	103	106	103	101	69.5	96.2	93.4	85.8
26	113	109	115	111	102	102	104	98.2	104	94.5	93.0	87.6
27	111	110	114	109	106	106	103	98.3	129	93.5	93.6	85.7
28	112	107	108	108	104	105	101	94.2	109	97.7	91.1	89.4
29	111		108	107	105	105	101	95.1	97.9	102	93.7	91.3
30	110		110	108	105	104	103	96.4	95.2	102	90.8	90.8
31	111		113		104		101	94.1		99.1		93.8
Sum	3,531	3,154	3,487	3,243	3,300	3,177	3,243	3,059.6	2,822.1	2,982.5	2,828.6	2,826.8

Current Year 1970 — **Period** Feb. 1961 - 1970

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.			13	120	30	110	114	7,004	5,011	7,004	2,274
Feb.			†14	117	28	107	113	6,256	4,563	6,256	2,119
Mar.			12	122	1	104	112	6,916	4,938	6,916	2,365
Apr.			†24	112	7	104	108	6,432	4,694	6,432	2,291
May			12	111	26	102	106	6,546	5,027	6,546	2,842
June			† 2	107	26	102	106	6,302	4,873	6,302	2,481
July			8	109	†28	101	105	6,432	4,887	6,432	2,214
Aug.			† 5	104	14	91.7	98.7	6,069	4,734	6,810	2,114
Sept.			27	129	25	69.5	94.1	5,598	4,658	6,400	2,555
Oct.			7	103	19	89.8	96.2	5,916	5,152	6,680	2,508
Nov.			1	102	30	90.8	94.3	5,611	4,965	6,208	2,384
Dec.			10	95.3	27	85.7	91.2	5,607	5,180	7,000	2,390
Yearly				129		69.5	103	74,689	58,682	74,689	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 right 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 46 discharge measurements during the year and a continuous record of gage heights. Computations by shifting control methods. Records available: September 1931 through 1970.

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 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	115	109	108	82.6	86.2	99.6	84.5	58.9	ñ 86.9	93.7	93.2	ñ 68.9
2	114	109	114	83.6	86.3	ñ 92.5	83.0	62.2	85.5	85.3	88.5	65.0
3	116	ñ 112	ñ 115	79.1	84.5	85.7	83.2	59.9	74.6	83.2	ñ 83.2	65.0
4	116	114	112	82.2	80.7	79.6	86.8	127	72.3	81.1	83.0	65.8
5	119	110	111	83.9	ñ 79.8	77.9	87.5	101	69.5	88.1	84.1	66.7
6	117	112	109	79.2	84.4	80.5	84.8	103	71.6	ñ 92.0	83.6	67.2
7	116	116	108	ñ 81.7	85.1	82.0	ñ 78.1	101	69.7	91.0	82.7	66.1
8	113	115	108	81.1	74.4	80.4	75.9	96.2	63.4	87.0	84.3	ñ 66.2
9	111	115	105	85.1	68.8	ñ 76.5	77.2	93.1	ñ 64.3	86.7	84.3	67.5
10	114	114	103	88.1	69.4	72.7	77.1	95.4	64.8	88.6	ñ 84.4	72.9
11	115	114	106	89.5	77.2	71.6	77.6	ñ 88.1	65.7	89.7	82.6	78.2
12	113	113	108	88.2	ñ 86.3	68.2	80.5	80.5	67.1	89.5	83.0	80.8
13	ñ 114	113	104	86.1	156	73.0	76.5	73.4	75.6	ñ 89.2	81.6	80.9
14	116	116	97.3	86.6	146	72.8	ñ 75.8	70.6	80	86.3	81.9	81.6
15	116	113	96.1	93.3	89.9	70.0	75.8	71.2	ñ 79.1	87.5	82.3	ñ 81.9
16	116	110	93.6	83.2	94.5	ñ 67.7	76.7	70.7	70.9	86.8	82.6	80.9
17	117	ñ 109	ñ 94.2	76.2	98.3	66.8	78.0	67.9	65.2	88.5	ñ 81.4	79.5
18	117	111	93.2	77.2	89.4	66.7	76.1	ñ 67.5	65.4	88.1	81.5	78.5
19	115	108	92.1	79.5	ñ 80.9	65.4	74.3	67.0	64.8	87.0	83.1	78.3
20	ñ 114	111	93.9	76.8	82.0	68.6	68.5	66.2	65.0	ñ 87.6	83.9	78.4
21	110	111	93.1	76.6	79.1	71.7	ñ 59.6	65.8	63.6	90.0	84.0	79.5
22	106	113	95.3	79.2	82.3	74.9	62.1	66.8	ñ 70	92.2	83.1	ñ 79.7
23	107	111	93.0	80.0	82.4	ñ 78.7	63.9	72.0	201	90.2	81.4	80.7
24	110	ñ 112	89.6	93.4	83.6	76.5	63.7	61.7	90.1	88.9	ñ 81.9	81.1
25	109	116	87.4	105	82.7	74.4	64.8	ñ 63.8	99.1	88.8	80.9	80.5
26	110	115	87.2	103	ñ 83.7	74.7	66.0	70.2	730	87.6	81.0	82.3
27	ñ 110	117	85.2	99.7	101	82.2	64.0	70.6	178	ñ 86.3	78.6	81.1
28	111	112	84.4	97.3	104	84.8	ñ 60.4	68.3	114	87.9	72.5	81.2
29	109		84.2	93.5	107	89.5	61.7	69.5	ñ 104	91.8	72.8	ñ 81.7
30	108		81.0	91.9	108	ñ 83.9	62.3	72.5	101	91.5	71.8	80.9
31	107		81.9		108		60.4	67.9		91.7		83.7
Sum	3,501	3,151	3,033.7	2,582.8	2,821.9	2,309.5	2,266.8	2,369.9	3,172.2	2,743.8	2,463.2	2,362.7

Current Year 1970 — **Period** 1932 - 1970

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.	1.90	1.77	† 3	124	†23	102	113	6,944	4,202	7,450	934
Feb.	1.91	1.73	†14	123	28	99.4	113	6,250	3,347	8,630	487
Mar.	1.91	1.60	2	122	30	70.9	97.9	6,017	3,119	6,510	689
Apr.	1.80	1.50	†24	110	20	71.8	86.1	5,123	3,688	10,407	566
May	4.99	1.38	13	776	9	62.9	91.0	5,597	4,614	17,600	739
June			1	Ø 99.6	18	56.5	77.0	4,581	4,915	47,900	301
July	1.61	1.16	5	97.6	28	49.3	73.1	4,496	3,325	8,800	285
Aug.	5.19		4	827	1	Ø 58.9	76.4	4,701	3,128	7,150	350
Sept.	8.16	1.16	26	2,320	19	53.3	106	6,292	4,911	28,678	872
Oct.	1.84	1.43	5	110	1	75.7	88.5	5,442	4,565	14,229	1,000
Nov.	1.54	1.36	2	95.1	30	70.1	82.1	4,886	3,646	7,000	526
Dec.	1.50	1.29	31	88.9	† 1	61.7	76.2	4,686	3,725	7,069	496
Yearly	8.16			2,320		49.3	89.8	65.015	47,185	98,137	18,201

ñ Discharge measurement made on this day Ø Mean daily † 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 recorders (graphic and digital) 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 50 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 1970.

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 31.8 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 1970, a total of 36,522 acres of land were irrigated from this canal and its extension. Of this total, 9,891 acres were between this point and the power plant and 26,631 acres were irrigated from the Maverick Canal Extension. A total of 580,366 acre-feet of water returned to the Rio Grande at the power plant and through the irrigation system (see pages 46 , 48 , and 51).

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 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,290	1,310	1,500	476	860	1,520	1,560	932	1,010	865	612	‡ 644
2	1,290	1,290	1,520	‡ 693	867	‡ 1,520	1,560	940	1,030	725	‡ 696	653
3	1,280	1,280	1,530	846	879	1,530	1,550	‡ 943	977	703	685	679
4	1,280	‡ 1,290	‡ 1,550	858	896	1,530	1,550	1,040	965	690	687	703
5	1,290	1,290	1,570	880	‡ 893	1,520	1,550	1,130	963	‡ 474	708	703
6	‡ 1,290	897	1,550	873	878	1,520	‡ 1,540	1,010	964	‡ 48.3	719	703
7	1,280	558	1,450	864	880	1,540	1,520	993	966	226	711	689
8	1,290	566	1,410	‡ 867	883	1,520	1,520	978	‡ 966	451	724	‡ 676
9	1,290	558	1,400	874	867	‡ 1,530	1,510	981	955	320	‡ 713	678
10	1,290	‡ 546	1,080	879	869	1,530	1,500	976	953	508	693	686
11	1,300	507	‡ 614	872	868	1,540	1,500	983	964	536	691	661
12	1,290	509	590	899	‡ 890	1,530	1,490	982	965	‡ 540	692	637
13	1,290	514	595	892	893	1,530	‡ 1,470	972	979	527	693	633
14	‡ 1,330	497	583	883	1,090	1,530	1,180	967	‡ 1,030	525	689	636
15	1,310	501	564	‡ 872	958	1,530	990	973	1,020	523	694	‡ 640
16	1,310	490	550	875	897	‡ 1,540	970	989	910	526	‡ 704	649
17	1,300	500	545	867	889	1,550	980	‡ 983	850	530	709	626
18	1,300	‡ 1,380	‡ 519	876	877	1,420	971	945	850	530	698	632
19	1,300	1,490	511	874	‡ 840	1,390	970	899	846	‡ 535	698	642
20	1,300	1,500	498	861	835	1,470	‡ 958	944	846	526	697	649
21	‡ 1,300	1,500	515	‡ 870	852	1,320	942	986	‡ 839	527	700	663
22	1,310	1,510	523	1,090	1,430	‡ 1,560	942	985	828	531	716	‡ 649
23	1,310	1,510	531	1,130	1,500	1,560	939	999	1,130	537	‡ 720	651
24	1,310	1,510	656	881	1,520	1,550	954	‡ 1,000	1,070	524	663	640
25	1,310	1,520	‡ 511	860	1,520	1,550	961	991	956	529	697	646
26	1,300	‡ 1,510	492	862	‡ 1,530	1,570	968	991	1,210	‡ 529	717	682
27	1,300	1,510	497	853	1,530	1,560	‡ 968	998	1,400	527	714	668
28	1,300	1,500	511	‡ 846	1,540	1,570	960	984	1,370	511	699	688
29	1,290		480	864	1,500	‡ 1,560	951	970	1,170	516	680	719
30	1,290		482	868	1,500	1,560	946	970	‡ 1,100	521	657	705
31	1,290		480		1,410		933	‡ 972		546		698
Sum	40,210	29,543	25,807	26,005	33,641	45,650	37,303	30,406	30,082	16,106.3	20,876	20,628

Current Year 1970 — Period 1950-1970

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.	8.40	8.20	14	1,330	7	1,270	1,300	79,757	76,579	89,500	61,900
Feb.	9.17	4.66	† 24	1,520	17	476	1,060	58,599	67,907	82,500	52,700
Mar.	9.44	4.73	5	1,590	31	473	882	51,188	70,845	90,700	51,188
Apr.	8.55	4.65	23	1,400	† 1	461	867	51,581	65,326	81,000	45,400
May	9.25	6.25	28	1,540	21	824	1,090	66,727	70,998	84,973	39,400
June	9.30	6.29	† 28	1,590	21	839	1,520	90,547	73,833	90,547	34,400
July	9.20	6.75	† 1	1,570	31	926	1,200	73,991	73,512	93,900	19,600
Aug.	8.14	6.54	† 4	1,270	20	893	981	60,310	77,198	91,459	53,000
Sept.	8.77	6.19	28	1,460	22	824	1,000	59,668	76,013	89,039	47,000
Oct.	7.21	.90	1	1,060	7	47.1	520	31,947	77,189	91,578	31,947
Nov.	6.85	4.83	9	734	1	520	696	41,407	74,592	89,991	41,407
Dec.	6.93	5.54	29	747	12	619	665	40,916	76,259	89,158	40,916
Yearly	9.44	0.90		1,590		47.1	976	706,638	880,251	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 50 discharge measurements during the year and a continuous record of gage heights. Records available: September 1955 through 1970 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 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	5.9	10.8	14.1	12.8	5.0	1.1	3.8	0.1	0.1	10.5	3.4	ǂ 2.5
2	5.8	11.2	15.5	ǂ 11.6	1.4	ǂ .9	2.8	.1	0	9.4	ǂ 3.7	2.4
3	5.8	11.3	17.3	11.1	1.1	.9	2.8	ǂ .1	0	8.2	3.7	2.3
4	5.7	ǂ 11.2	ǂ 17.3	10.5	1.0	.9	2.1	14.0	0	6.9	3.7	2.1
5	5.9	10.8	16.4	9.9	ǂ .9	.8	1.8	11.5	0	ǂ 6.1	3.8	2.0
6	ǂ 5.8	10.4	15.8	9.5	.9	.8	ǂ 1.5	2.6	0	6.1	4.1	1.8
7	5.2	10.1	15.2	9.2	.9	.8	1.3	1.3	0	5.8	4.1	1.7
8	5.4	9.7	14.6	ǂ 8.9	1.0	.9	1.2	.8	ǂ 0	5.0	4.1	ǂ 1.5
9	5.6	9.0	14.1	9.1	1.0	ǂ .9	1.0	.8	0	3.8	ǂ 4.1	1.5
10	5.4	ǂ 8.1	13.9	9.0	1.0	1.1	1.0	.7	0	3.9	4.0	1.5
11	5.3	7.8	ǂ 13.2	8.7	1.1	1.6	1.1	.5	0	4.0	3.9	1.5
12	5.2	8.1	13.3	8.6	ǂ .9	1.8	1.1	.4	0	ǂ 4.2	3.6	1.6
13	6.3	8.5	13.9	8.4	1.2	2.1	ǂ 1.0	.3	0	4.2	3.5	1.6
14	ǂ 9.2	8.7	14.7	8.6	114	2.8	.9	.3	ǂ 0	4.5	3.4	1.6
15	9.3	8.8	15.5	ǂ 9.1	19.1	2.7	.8	.2	2.7	5.5	3.1	ǂ 1.6
16	9.4	8.0	16.5	9.4	5.6	ǂ 2.6	2.5	.2	1.9	4.0	ǂ 2.9	1.6
17	9.5	8.3	18.1	9.5	2.0	2.2	.8	ǂ .2	1.3	3.9	2.6	1.7
18	9.6	ǂ 8.5	ǂ 18.5	9.6	1.6	1.9	.6	.2	1.1	4.0	2.4	1.7
19	9.7	8.7	17.4	7.9	ǂ 1.2	1.8	.4	.2	1.1	ǂ 4.1	2.0	1.7
20	9.9	10.3	16.0	7.4	1.4	1.8	ǂ .3	.2	1.0	4.0	1.7	1.7
21	ǂ 10.4	10.7	16.8	ǂ 8.2	1.3	1.7	.2	.2	ǂ .9	4.2	1.4	1.8
22	10.7	13.4	16.6	8.6	1.2	ǂ 2.0	.2	.2	.6	4.2	1.2	ǂ 1.8
23	11.2	16.0	16.1	9.0	1.2	2.7	.2	.2	90.7	4.2	ǂ 1.1	1.8
24	11.3	17.7	15.5	9.5	1.3	2.6	.1	ǂ .2	11.7	3.9	1.2	1.8
25	11.5	15.2	ǂ 14.9	9.7	1.3	2.7	.1	.2	5.1	3.7	1.4	1.8
26	11.6	ǂ 12.8	13.5	9.8	ǂ 1.1	2.6	.1	.2	858	ǂ 3.6	1.5	1.8
27	11.6	12.4	13.7	9.8	1.1	2.7	ǂ .1	.2	200	3.8	1.7	1.8
28	11.8	12.8	13.9	ǂ 8.7	1.3	4.5	.1	.2	40.4	3.6	1.9	ǂ 1.8
29	11.5		13.7	8.2	1.3	ǂ 9.1	.1	.1	18.3	3.3	2.1	1.8
30	10.7		13.7	6.8	1.3	5.6	.1	.1	ǂ 12.6	3.2	2.3	1.8
31	10.7		13.3		1.5		.1	ǂ .1		3.3		1.7
Sum	262.9	299.3	473.0	277.1	176.2	66.6	29.6	36.6	1,247.5	149.1	83.6	55.3

Month	Current Year 1970 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 1929-1970 Acre-Feet Average	Maximum	Minimum
Jan.	1.17	0.94	† 28	11.9	† 7	5.1	8.5	521	472	2,270	0
Feb.	1.46	1.03	24	18.7	10	7.6	10.7	594	563	5,760	0
Mar.	1.40	1.25	18	18.7	† 10	12.8	15.3	938	507	2,500	0
Apr.	1.27	.94	1	13.4	30	6.0	9.2	550	1,484	27,100	0
May	3.31	.63	14	483	† 5	.8	5.7	349	2,383	29,400	0
June	1.14		29	13.2	† 5	Ø .8	2.2	132	4,226	56,700	0
July	.82	.37	1	4.3	† 24	.1	1.0	58.7	1,651	30,000	0
Aug.	1.79	.32	4	37.0	† 1	.1	1.2	72.6	1,534	48,700	0
Sept.	6.10		26	2,690	† 2	0	41.6	2,474	2,641	48,965	0
Oct.	1.14	.83	1	11.5	† 29	3.1	4.8	296	992	8,940	0
Nov.	.87		† 4	4.1	23	Ø 1.1	2.8	166	394	2,590	0
Dec.	.80	.76	1	2.6	† 8	1.5	1.8	110	476	2,470	0
Yearly	6.10			2,690		0	8.6	6,261.3	17,323	76,259.3	1,325.3

ǂ Discharge measurement made on this day Ø 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, 11.0 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 16 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. During 1970, the capacity of the weir was exceeded only during the period of September 26 through October 5. Records available: 1922 through 1970. 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 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	104	80.2	86.9	81.6	57.6	56.5	56.2	79.5	385	936	360	247
2	104	80.2	86.9	81.6	57.6	56.5	62.2	72.7	388	908	360	229
3	104	93.6	80.2	81.6	57.6	56.5	80.2	66.4	274	865	360	229
4	104	86.9	93.6	81.2	57.6	56.5	87.6	310	258	830	360	229
5	104	86.9	93.6	75.2	57.2	56.5	98.5	213	248	795	341	229
6	104	86.9	85.5	69.6	50.1	56.5	108	144	242	742	341	219
7	104	86.9	79.8	66.4	51.6	56.5	115	163	238	710	341	212
8	104	86.9	86.2	66.7	53.7	56.5	123	192	229	643	341	206
9	97.1	80.2	86.2	65.3	51.6	56.5	123	207	216	614	340	212
10	97.1	80.2	86.2	65.0	51.6	56.5	114	200	204	579	340	212
11	91.5	80.2	86.2	64.3	51.6	56.5	108	207	201	554	332	212
12	93.6	80.2	86.2	55.8	51.6	56.5	108	207	195	523	320	212
13	93.6	80.2	85.8	48.0	53.7	56.5	108	210	204	509	320	212
14	101	80.2	80.5	54.4	81.9	56.5	108	208	259	491	320	212
15	108	80.2	81.9	57.9	68.9	55.4	108	207	216	480	320	195
16	108	80.2	108	58.3	68.5	55.1	108	215	204	477	320	190
17	101	80.2	112	58.3	64.6	55.1	108	224	195	477	320	183
18	93.6	80.2	87.2	58.3	56.9	50.1	108	215	190	459	300	184
19	93.6	78.8	82.3	58.3	56.5	45.2	109	206	190	448	299	179
20	93.6	80.2	82.3	57.9	56.2	44.1	107	198	189	427	290	162
21	93.6	80.2	82.6	63.6	56.2	44.5	107	187	189	413	271	161
22	93.6	93.6	77.7	65.0	56.2	44.5	107	187	186	406	259	161
23	93.6	101	73.5	63.6	56.2	45.2	98.5	187	195	403	259	167
24	93.6	101	70.3	63.6	56.2	45.2	93.2	186	181	392	259	175
25	93.6	93.6	70.3	63.6	56.2	45.2	86.9	170	189	385	258	175
26	93.6	93.6	70.3	63.6	56.2	45.2	86.9	170	2,540	385	258	171
27	93.6	86.9	70.3	63.6	56.5	45.6	80.2	161	1,500	385	258	162
28	93.6	86.9	70.3	63.6	56.9	55.4	80.2	146	1,060	374	258	153
29	86.9		82.3	63.2	56.9	55.8	80.2	142	992	374	254	162
30	86.9		82.3	57.6	56.9	56.2	80.2	135	968	374	247	154
31	86.9		82.3		56.9		80.2	138		374		162
Sum	3,013.2	2,386.3	2,589.7	1,936.7	1,777.9	1,578.8	3,028.2	5,553.6	12,725	16,732	9,206	5,968

Month	Current Year 1970 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 1933-1970 Acre-Feet Average	Maximum	Minimum
Jan.	0.36	0.33	†15	108	†29	86.9	97.1	5,972	6,813	36,430	1,860
Feb.	.36	.30	†23	101	19	78.8	85.1	4,730	5,493	25,760	1,060
Mar.	.79	.23	16	360	†24	69.9	83.7	5,137	4,902	27,040	1,340
Apr.	.26	.16	† 1	81.6	13	47.7	64.6	3,840	5,981	40,270	1,110
May	.62	.20	14	245	6	45.9	57.2	3,525	11,627	120,200	861
June	.23	.20	† 1	56.5	20	44.1	52.6	3,132	10,956	108,300	543
July	.39	.23	† 8	123	1	56.2	97.8	6,005	7,858	37,890	490
Aug.	.72	.26	4	310	† 3	66.0	179	11,027	6,774	32,180	738
Sept.	3.08	.52	26	2,540	24	176	424	25,239	15,732	94,667	1,183
Oct.	1.48	.82	1	939	†28	349	540	33,187	15,089	71,830	1,698
Nov.	.85	.66	† 1	360	30	247	307	18,255	10,111	64,060	803
Dec.	0.66	.49	1	247	30	154	193	11,867	6,882	45,320	1,130
Yearly	3.08	0.16		2,540		44.1	182	131,916	108,218	381,720	17,430

‡ Period October 1932-1970 † And other days

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 recorder located on the right bank at latitude 29° 03' 00", longitude 100° 40' 00", and river mile 523.3, 1.5 miles south-southeast of Jiménez, Coahuila, 1.9 river miles downstream from Río 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 724.9 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 17 discharge measurements during the year, 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 1970. 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 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	99.9	108	5,790	84.0	82.6	2,730	2,920	81.9	185	1,050	413	244
2	96.8	105	5,790	83.0	83.3	ñ 2,710	2,960	81.2	216	1,020	406	233
3	95.0	108	5,720 ñ	83.3	82.6	2,680	2,960	80.9	270	964	399	233
4	101	103	5,720 ñ	84.0	82.6	2,630	2,960	371	267	932	381	233
5	117	99.6	5,440	84.0	82.6	2,630	3,000	302	255	1,170	381	229
6	113	99.6	3,310	84.0	81.2	2,610	3,000	177	244	ñ 1,540	371	211
7	113	92.2	364	84.0	81.2	2,550	3,040	180	233	1,300	371	211
8	115	84.8	170	84.0	80.5	2,540	3,040	210	211	745	357	211
9	111	84.8	148	84.0	79.8	2,490	3,030	222	211	699	357	201
10	108	84.8	130	84.8	80.5	ñ 2,480	3,020	233	190	660	357	201
11	116	92.2	103	84.4	81.2	2,490	3,010	225	186	643	357	201
12	108	92.2	92.2	84.0	81.2	2,490	3,020	222	ñ 180	621	328	190
13	120	92.2	84.8	83.0	81.2	2,480	2,840	222	195	597	328	190
14	135	92.2	84.8	83.3	283	2,500	413	201	254	565	328	180
15	124	92.2	84.8	84.0	120	2,480	136	198	233	565	316	180
16	124	84.8	92.9	84.0	84.0	ñ 2,490	116	207	218	547	316	180
17	116	84.8	153	84.0	82.6	2,850	116	211	200	530	303	176
18	116	4,870	108	84.0	81.2	1,680	116	201	190	516	303	170
19	108	5,650 ñ	107	83.3	80.5	2,950	99.6	190	180	509	303	170
20	108	5,650 ñ	99.6	82.6	79.8	2,680	99.6	200	180	501	279	160
21	116	5,440	97.8	82.6	79.8	2,430	96.1	190	180	487	279	160
22	116	5,540	99.6	83.3	ñ 773	4,310	84.8	190	180	470	279	151
23	116	5,470	99.6	107	2,460	ñ 4,270	84.8	190	473	459	255	160
24	116	5,580	140	84.8	2,550	3,850	83.3	184	278	441	244	149
25	116	5,790 ñ	113	84.0	ñ2,550	2,630	82.6	183	200	441	244	144
26	116	5,690	84.8	84.0	2,670	2,640	83.3	170	17,100	441	255	145
27	116	5,790	84.8	84.0	2,700	2,700	82.6	170	3,920	431	255	151
28	116	5,720	84.8	83.7	ñ2,810	2,920	82.6	170	1,500	413	255	151
29	113		84.4	83.3	1,920	3,020	82.6	170	1,210	413	244	151
30	99.9		84.4	81.9	2,600	2,930	82.6	170	1,090	413	244	142
31	102		84.4		1,640		81.9	180		413		142
Sum	3,487.6	62,790.4	34,649.7	2,534.3	24,624.4	82,840	40,823.4	5,983.0	30,429	20,496	9,508	5,650

Current Year 1970									Period 1968-1970		
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.	0.43	0.36	14	135	† 3	91.8	112	6,909	11,669	22,863	5,236
Feb.	3.31	.33	25	5,860	† 8	84.8	2,240	124,559	46,101	124,559	5,788
Mar.	3.31	.30	2	5,860	†29	84.0	1,120	68,727	27,361	68,727	5,874
Apr.	0.39	.23	23	116	30	81.2	84.4	5,030	21,753	32,447	5,030
May	2.43	.20	28	2,960	† 9	79.8	795	48,848	30,231	48,848	6,574
June	2.92	.39	22	4,380	21	116	2,760	164,298	56,673	164,298	1,671
July	2.49	.26	7	3,130	31	81.9	1,320	80,943	34,198	80,943	2,322
Aug.	1.25	.20	4	851	3	80.5	193	11,855	15,315	21,991	11,855
Sept.	10.20	.52	26	33,300	†12	180	1,010	60,335	29,998	60,335	13,678
Oct.	1.80	.82	5	1,630	†28	413	660	40,668	54,664	109,924	13,399
Nov.	.82	.62	1	413	†30	244	317	18,859	17,011	18,859	13,343
Dec.	.62	.46	1	244	†30	142	182	11,197	12,322	18,282	7,486
Yearly	10.20	0.20		33,300		79.8	886	642,228	357,296	642,228	207,998

ñ Discharge measurement made on this day † And other days

RIO SAN RODRIGO NEAR MOUTH AT EL MORAL, COAHUILA

DESCRIPTION: Cableway, gravity well, concrete control wier of 4,600 second-foot capacity, 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 751.61 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 46 discharge measurements made during the year and a continuous record of gage heights. Records available: 1962 through 1970.

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. On November 25, 1969, a concrete control weir was finished and placed in operation. Prior to this date the zero of the gage was 746.82 feet above mean sea level, U. S. C. & G. S. datum.

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 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	19.1	16.2	14.5	ñ 8.8	3.2	0.7	79.8	6.7	15.5	1,560	120	106
2	19.1	15.5	15.5	8.1	3.2	.4	46.6	6.7	ñ 24.7	1,190	120	106
3	18.7	15.5	56.9	8.1	3.2	ñ 2.8	34.3	6.7	61.4	918	120	106
4	19.1	ñ 15.5	ñ 32.5	8.1	2.8	2.1	24.0	214	44.5	745	120	106
5	19.1	15.5	32.5	8.1	2.8	1.8	19.1	ñ 80.2	32.1	632	120	106
6	18.4	15.5	18.7	8.1	ñ 2.8	1.8	15.9	53.0	26.1	554	120	104
7	ñ 18.4	15.5	17.3	7.8	2.8	1.1	13.8	41.0	22.2	ñ 494	120	102
8	18.4	15.5	15.5	7.8	2.5	ñ 1.1	ñ 13.1	35.3	19.8	438	ñ 120	ñ 98.9
9	18.4	15.5	14.8	7.8	2.5	1.1	12.7	31.8	17.7	388	120	98.9
10	18.4	14.1	14.5	7.8	2.5	1.1	12.0	29.0	ñ 16.6	357	115	98.9
11	18.4	ñ 14.1	14.5	7.1	2.5	.7	11.7	ñ 28.3	16.6	332	113	98.9
12	17.7	14.1	ñ 14.1	7.1	2.5	.4	10.9	27.5	15.9	306	113	95.3
13	19.1	14.1	13.8	7.1	ñ 2.8	.4	9.9	26.1	16.6	278	113	95.3
14	ñ 19.1	14.1	13.4	7.1	3.5	.4	ñ 9.5	24.7	ñ 22.6	256	109	95.3
15	18.4	14.1	13.1	6.4	3.5	.4	9.5	23.3	32.5	ñ 238	106	98.9
16	19.4	14.1	13.4	ñ 6.4	2.8	0	9.5	22.2	29.3	217	106	96.8
17	18.7	14.1	12.4	6.4	2.8	0	9.5	21.2	26.5	197	106	93.9
18	19.4	14.1	ñ 12.4	6.4	2.5	0	9.2	ñ 20.1	25.8	184	106	91.8
19	19.1	14.1	12.4	6.0	2.5	0	9.2	19.4	24.7	174	106	91.8
20	18.7	15.5	12.4	5.3	ñ 2.1	0	8.5	18.7	23.7	166	106	95.3
21	ñ 19.1	ñ 15.5	12.4	5.3	2.1	0	8.1	19.1	23.7	ñ 155	106	95.3
22	19.1	15.5	11.7	5.3	1.8	0	ñ 8.5	23.0	23.7	154	102	98.8
23	18.4	15.9	11.7	ñ 4.9	1.8	0	8.8	23.3	ñ 24.4	151	102	96.8
24	18.4	16.2	11.7	4.9	2.1	0	8.8	24.4	22.2	147	102	93.2
25	18.4	15.5	ñ 11.7	4.9	1.8	0	8.8	24.7	25.1	144	102	91.8
26	17.7	15.5	10.9	4.6	1.4	0	8.8	ñ 21.5	1,020	143	106	91.8
27	17.7	ñ 15.5	10.6	4.6	ñ 1.1	0	8.8	18.4	3,170	138	106	91.8
28	ñ 17.0	15.5	10.6	4.6	3.2	0	8.8	17.0	ñ 4,380	136	106	91.8
29	16.2		9.9	ñ 4.2	1.4	20.8	ñ 8.5	15.5	ñ 3,040	131	106	91.8
30	15.9		9.9	3.9	1.1	ñ 160	8.1	14.5	ñ 2,080	122	106	91.1
31	18.7		9.5		1.1		8.1	15.2		120		89.7
Sum	571.7	421.8	485.2	193.0	74.7	197.1	462.8	952.5	14,323.9	11,165	3,323	3,009.9

Current Year 1970 — Period # 1962-1970

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.	0.62	0.49	13	21.2	31	14.8	18.4	1,125	1,118	2,881	0
Feb.	.52	.46	1	16.6	†10	14.1	15.2	838	753	1,874	0
Mar.	1.51	.39	3	95.3	31	9.5	15.2	940	680		0
Apr.	.39	.23	1	8.8	30	3.9	6.4	383	3,509	21,692	122
May	.36	.13	28	7.4	27	0.7	2.5	148	2,739		17.0
June	3.35	- .49	29	427	†16	0	6.7	391	951	2,640	0
July	1.44	.49	1	115	†21	8.1	14.8	919	3,548	28,394	0
Aug.	3.22	.49	† 4	830	† 1	6.7	30.7	1,889	2,255	11,570	0
Sept.	5.74	.66	28	4,630	† 1	14.5	477	28,386	9,479		0
Oct.	3.90	1.38	1	1,780	31	120	360	22,143	5,946	22,143	0
Nov.	1.38	1.31	† 1	120	†22	102	111	6,599	2,625	6,599	0
Dec.	1.31	1.21	† 1	106	31	89.3	97.1	5,970	1,981	5,970	0
Yearly	5.74	-0.49		4,630		0	96.4	69,731	35,584		3,850.7

ñ Discharge measurement made on this day ‡ Period 1961-1970 # Some months missing † And other days

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 51 discharge measurements made during the year. Records available: 1949 through 1970.

REMARKS: This power plant began operating April 16, 1932 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 when shortage of water prevented operation and from June 30 through July 19, during flood of 1954, and while the canal was being repaired. The plant's operation is now governed by the amount of water released from Amistad Reservoir which began operations on May 31, 1968.

Average Flow in Second-Feet

Daily:	Max.	1,460	Aug. 29, 1969	Min.	0	Occasionally
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 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,130	1,140	1,390	✟ 70	381	1,410	1,170	351	507	867	100	✟ 223
2	✟ 1,130	1,130	1,390	129	386	1,390	1,120	421	580	640	✟ 179	237
3	1,120	✟ 1,110	✟ 1,420	363	438	✟ 1,270	1,040	✟ 368	518	603	186	254
4	1,050	1,030	1,420	413	416	1,200	1,030	777	496	589	193	288
5	1,030	992	1,400	459	376	1,140	1,070	1,180	491	✟ 557	198	290
6	1,040	797	1,320	430	✟ 363	1,110	✟ 993	1,050	547	106	195	309
7	✟ 1,030	258	1,260	✟ 402	342	1,180	946	899	515	76.1	194	✟ 295
8	1,030	262	1,240	389	336	1,050	947	827	✟ 503	174	258	275
9	1,020	242	1,230	350	367	1,040	925	820	447	✟ 76.1	✟ 229	312
10	1,030	233	✟ 1,080	330	417	✟ 1,050	912	✟ 801	429	146	194	330
11	1,040	✟ 208	517	347	372	1,020	943	794	458	317	180	312
12	1,030	197	302	409	370	1,010	996	762	507	✟ 268	195	283
13	✟ 1,060	231	290	357	✟ 352	918	✟ 921	705	642	135	244	289
14	1,170	203	295	✟ 311	848	919	709	533	706	162	243	✟ 282
15	1,160	204	227	334	983	859	383	423	730	133	307	260
16	1,160	200	183	351	884	842	365	496	627	167	✟ 262	267
17	1,160	✟ 241	✟ 169	342	871	✟ 819	443	✟ 451	470	184	269	250
18	1,160	744	150	313	745	798	439	420	460	163	249	284
19	1,150	1,100	172	397	418	579	498	377	444	✟ 174	260	307
20	✟ 1,160	1,160	178	310	✟ 424	829	✟ 408	409	485	154	262	331
21	1,160	1,180	237	303	438	671	397	483	✟ 420	70.7	258	✟ 330
22	1,160	1,240	260	✟ 396	829	✟ 896	419	506	389	69.8	332	318
23	1,160	1,350	217	686	1,130	912	429	576	630	69.8	✟ 275	314
24	1,140	1,370	✟ 283	374	1,250	937	443	514	886	69.8	230	354
25	1,150	✟ 1,380	208	364	1,310	935	456	524	758	69.8	248	378
26	1,150	1,390	135	411	1,300	965	500	521	961	69.8	310	396
27	1,150	1,390	✟ 96	367	✟ 1,210	987	✟ 437	524	1,240	✟ 59.8	302	413
28	1,150	1,390	70	371	1,320	1,040	387	490	1,270	69.8	294	389
29	1,150		70	✟ 385	1,350	✟ 1,080	371	474	✟ 1,100	69.8	319	352
30	1,130		70	382	1,340	1,110	377	530	1,020	69.8	282	349
31	1,120		70		1,280		352	✟ 484		69.8		337
Sum	34,490	22,372	17,349	10,845	22,846	29,976	20,826	18,490	19,236	6,459.9	7,247	9,608

Current Year 1970 — Period 1949 - 1970

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.			14	1,170	9	1,020	1,110	68,411	54,575	72,800	34,400
Feb.			†26	1,390	12	197	799	44,375	47,260	68,500	24,900
Mar.			† 3	1,420	†28	70	560	34,412	43,991	65,400	18,900
Apr.			23	686	1	70	362	21,511	37,851	58,600	6,080
May			29	1,350	8	336	737	45,315	46,751	69,188	2,280
June			1	1,410	19	579	999	59,457	42,143	68,900	841
July			1	1,170	31	352	672	41,308	39,553	63,000	2,880
Aug.			5	1,180	1	351	596	36,675	47,407	69,000	22,600
Sept.			28	1,270	22	389	641	38,155	53,789	75,591	18,500
Oct.			1	867	†22	69.8	208	12,813	54,466	70,870	12,813
Nov.			22	332	1	100	242	14,374	51.761	67,400	14,374
Dec.			27	413	1	223	310	19,057	55,146	73,130	19,057
Yearly				1,420		69.8	602	435,863	574,693	740,000	320,701

✟ Discharge measurement made on this day Ø 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 49 discharge measurements during the year and a continuous record of gage heights. Computations by shifting control methods. Records available: 1939 through 1970.

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 1970, 26,631 acres of land north and south of Eagle Pass were irrigated. A total of 104,729 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 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	108	66.5	48.1	ñ 325	301	24.9	272	363	325	63.1	341	ñ 305
2	ñ 107	66.1	48.1	324	303	44.2	275	371	327	62.1	ñ 357	301
3	109	ñ 66.4	ñ 47.3	303	304	ñ 160	314	ñ 368	329	61.6	347	295
4	153	141	49.5	292	307	185	345	134	331	61.0	338	290
5	187	188	82.5	289	327	187	351	19.3	333	ñ 61.4	332	284
6	171	186	160	301	ñ 339	189	ñ 353	18.6	337	61.8	325	278
7	ñ 163	181	154	ñ 303	340	191	355	117	338	42.0	319	ñ 273
8	164	181	140	329	340	232	357	157	ñ 339	88.2	325	275
9	164	181	143	365	326	235	404	153	338	168	ñ 328	264
10	165	181	ñ147	400	319	ñ 219	410	149	337	187	338	255
11	164	ñ181	140	368	319	238	412	151	337	196	341	256
12	167	167	141	368	320	251	415	154	337	ñ 204	338	257
13	ñ 144	152	151	376	ñ320	311	ñ 412	174	304	212	320	259
14	78.9	164	163	ñ 378	139	355	406	290	272	236	301	ñ 259
15	76.6	175	220	378	20.1	353	399	350	272	246	300	256
16	74.9	179	253	379	19.3	355	395	356	271	244	ñ 299	253
17	73	ñ179	ñ253	376	19.1	ñ 388	361	ñ 329	270	228	298	249
18	71.3	202	252	369	133	407	360	304	269	235	299	232
19	69.7	224	242	371	328	402	360	303	268	ñ 245	300	219
20	ñ 68.6	209	226	375	ñ298	410	ñ 359	304	268	252	300	216
21	68.5	192	202	366	278	408	346	304	ñ 280	256	300	ñ 214
22	68.3	160	185	ñ 366	268	ñ 414	333	305	285	259	301	215
23	68.2	78.4	214	362	245	398	334	304	243	260	ñ 301	204
24	68.2	51.0	ñ236	360	203	372	334	304	208	241	301	189
25	68.0	ñ 51.0	220	328	148	352	334	304	200	292	302	190
26	67.9	50.3	226	319	154	331	348	304	128	335	303	190
27	67.4	49.4	262	322	ñ 178	327	ñ 353	310	79.3	ñ 320	303	190
28	67.3	48.8	294	298	95.3	323	342	322	72.1	303	305	191
29	66.8		317	ñ 297	23.5	ñ 287	341	322	ñ 65.5	302	306	191
30	67.0		274	298	24.4	269	340	322	63.7	304	307	193
31	67.4		304		25.0		347	322		311		209
Sum	3,224.0	3,950.9	5,794.5	10,285	6,763.7	8,618.1	11,067	7,987.9	7,826.6	6,337.2	9,475	7,452

Month	Average Rainfall Inches **		Current Year 1970 Extreme Second-Feet High		Low		Average Second-Feet	Total Acre-Feet	Period 1939 - 1970 Acre-Feet		
	1939-1970	1970	Day		Day				Average	Maximum	Minimum
Jan.	0.81	1.27	† 4	189	31	66.6	104	6,395	12,363	19,800	2,140
Feb.	.98	1.35	18	235	28	48.4	141	7,837	11,610	18,200	2,120
Mar.	.73	.40	31	364	4	15.8	187	11,493	14,760	23,310	1,150
Apr.	1.79	.05	10	407	1	268	343	20,400	14,946	24,802	3,430
May	3.17	4.97	19	406	17	18.8	218	13,416	12,839	27,664	2,840
June	1.58	.72	22	422	1	24.8	287	17,094	16,312	30,173	3,750
July	1.37	.22	12	418	1	270	357	21,951	18,044	32,276	4,510
Aug.	2.08	3.18	4	384	6	16.0	258	15,844	16,034	29,812	3,480
Sept.	3.01	5.66	9	342	30	63.7	261	15,524	12,367	22,640	4,600
Oct.	1.97	.06	†25	335	7	27.1	204	12,570	13,112	21,800	5,130
Nov.	.70	0	† 1	359	17	296	316	18,794	13,089	20,117	4,170
Dec.	.67	.03	1	307	24	188	240	14,781	12,806	20,200	4,233
Yearly	18.86	17.91		422		15.8	243	176,099	168,282	250,801	44,950

ñ Discharge measurement made on this day ** On the United States side from Maverick Power Plant to Cuervo Creek † And other days

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 8B 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 1970.

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 46).

Mean Daily Discharge in Second-Feet 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	56.2	76.1	67.8	59.6	74.8	45.1	70.2	75.6	74.6	46.5	64.3	72.7
2	54.5	74.0	63.5	56.1	80.4	44.8	96.5	66.0	70.7	43.4	56.9	73.6
3	56.7	69.4	65.3	66.2	76.6	42.9	98.4	75.7	61.1	39.7	53.4	68.9
4	59.6	75.7	61.0	68.6	61.7	62.0	102	73.5	60.8	39.4	61.6	66.2
5	64.1	78.2	64.8	70.6	90.9	88.5	78.9	48.5	55.1	39.8	72.6	66.2
6	61.8	78.5	67.5	58.2	96.9	99.7	77.5	31.9	45.7	40.1	76.8	60.2
7	58.6	57.6	66.5	67.3	97.0	81.0	87.4	28.4	54.9	36.8	89.6	58.0
8	62.4	61.2	69.5	66.7	106	85.6	90.6	31.0	62.4	35.5	77.1	62.7
9	75.0	65.5	69.6	79.0	96.9	77.1	83.1	28.4	56.6	38.4	78.1	56.7
10	75.4	70.8	65.0	80.4	89.0	90.5	88.0	35.5	66.0	52.7	77.3	57.2
11	70.8	82.9	49.6	85.7	90.0	94.5	70.1	48.7	76.3	43.1	85.8	61.2
12	70.6	86.6	52.8	67.0	87.3	87.5	78.3	49.3	72.9	43.3	83.9	55.6
13	76.6	82.7	60.9	67.5	107	88.9	86.8	63.5	67.1	55.3	75.1	58.1
14	73.1	81.3	61.5	90.7	91.8	92.6	93.2	78.5	57.3	54.7	60.2	52.8
15	62.7	70.2	67.0	83.0	49.4	104	89.4	70.1	51.9	56.2	54.3	68.9
16	62.5	59.9	70.1	73.0	53.2	110	95.3	55.2	52.3	53.0	59.4	66.7
17	62.0	67.2	73.1	69.0	36.1	104	87.7	54.4	56.6	53.6	55.6	64
18	59.3	83.2	78.0	70.9	34.6	106	66.7	59.9	52.9	58.5	61.1	59.7
19	60.2	105	79.1	46.1	40.4	99.8	58.5	54.5	55.5	69.5	66.4	65.8
20	56.1	108	75.8	66.6	55.1	112	74.9	50.7	47.6	69.4	62.2	57.2
21	60.2	96.6	93.6	76.2	53.1	106	72.0	71.0	54.5	67.3	76.3	56.3
22	60.4	110	82.6	74.8	76.5	105	69.4	75.6	53.1	70.0	61.8	53.7
23	56.0	112	83.9	74.4	84.7	108	67.6	51.1	59.0	67.3	61.5	56.9
24	58.9	103	93.1	67.5	72.0	101	67.4	77.1	40.8	67.6	75.2	53.5
25	60.1	79.1	90.1	76.4	53.9	106	67.0	63.8	41.1	58.0	87.2	46.1
26	60.8	66.7	76.2	76.9	48.8	106	45.7	64.9	40.7	71.8	65.9	51.0
27	57.2	66.9	91.8	79.9	62.4	103	59.9	53.2	37.5	74.7	64.9	44.3
28	59.9	68.0	91.9	65.6	51.3	93.8	66.0	49.9	37.7	74.3	74.8	44.0
29	64.0		48.3	73.6	49.5	105	72.7	69.1	46.4	63.9	64.1	54.3
30	62.4		59.3	81.6	56.2	74.4	68.1	62.9	49.7	62.3	57.2	56.0
31	67.3		67.9		54.3		74.5	57.9		73.3		47.5
Sum	1,945.4	2,236.3 2,207.1	2,139.1	2,167.8		2,724.7	2,403.8	1,775.8	1,658.8	1,719.4	2,060.6	1,816.0

Month	Current Year 1970 Extreme Gage Feet High	Low	Ø Extreme Second-Feet High Day	High	Low Day	Low	Average Second-Feet	Total Acre-Feet	Period Apr. 1959 - 1970 Acre-Feet Average	Maximum	Minimum
Jan.			13	76.6	2	54.5	62.8	3,859	7,455	13,430	3,859
Feb.			23	112	7	57.6	79.9	4,436	6,196	7,652	4,436
Mar.			21	93.6	29	48.3	71.2	4,378	6,969	8,952	4,378
Apr.			14	90.7	19	46.1	71.3	4,243	6,879	7,795	4,243
May			13	107	18	34.6	69.9	4,300	6,682	8,777	4,300
June			20	112	3	42.9	90.8	5,404	7,558	9,219	5,404
July			4	102	26	45.7	77.5	4,768	7,969	9,858	4,768
Aug.			14	78.5	† 7	28.4	57.3	3,522	7,671	9,666	3,522
Sept.			11	76.3	27	37.5	55.3	3,290	6,618	9,477	3,290
Oct.			27	74.7	8	35.5	55.5	3,410	6,628	8,583	3,410
Nov.			7	89.6	3	53.4	68.7	4,087	6,838	8,696	4,087
Dec.			2	73.6	28	44.0	58.6	3,602	6,710	8,821	3,507
Yearly				112		28.4	68.1	49,299	84,173	104,997	49,299

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 91 discharge measurements during the year, 55 by the Mexican Section and 36 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 1970.

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 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,430	1,420	6,820	275	569	3,850	ñ 3,920	537	763	3,530	752	738
2	1,420	1,440	6,850	ñ 336	572	ñ 3,780	3,810	579	1,140	2,940	844	ñ 749
3	1,410	ñ1,410	ñ6,960	572	632	3,740	3,710	547	ñ 992	2,590	819	735
4	1,380	1,340	6,710	629	597	ñ 5,330	3,710	ñ 2,300	865	2,330	ñ 809	756
5	1,340	1,280	6,600	678	ñ 562	5,370	3,740	1,950	844	2,160	ñ 848	759
6	ñ 1,360	1,170	ñ5,470	650	565	4,940	3,640	1,380	851	ñ 2,120	837	773
7	ñ 1,340	646	2,920	ñ 611	547	3,350	ñ 3,600	1,160	837	2,030	830	752
8	1,340	572	1,630	ñ 611	519	3,110	3,600	1,080	ñ 823	ñ 1,560	893	ñ 738
9	1,340	569	1,510	604	540	3,120	ñ 3,600	1,080	759	1,190	869	752
10	1,340	ñ 551	1,390	576	576	ñ 3,100	ñ 3,570	1,060	727	1,240	826	766
11	1,360	ñ 547	ñ 883	597	554	ñ 2,850	3,570	1,070	745	1,310	ñ 805	749
12	1,360	523	636	632	ñ 554	3,000	3,670	ñ 1,010	805	1,240	819	713
13	ñ 1,390	554	590	579	569	2,920	3,600	964	932	1,110	819	710
14	ñ 1,540	540	593	547	1,120	2,870	2,170	819	1,070	ñ 1,060	816	717
15	ñ 1,520	530	544	ñ 590	1,460	2,910	ñ 791	749	ñ 1,060	999	858	696
16	1,500	491	470	604	1,040	ñ 3,070	643	812	953	1,010	816	ñ 685
17	1,490	ñ 523	ñ 480	586	946	3,180	689	ñ 749	805	1,020	826	ñ 682
18	1,490	ñ2,990	ñ 512	551	833	ñ 3,430	657	742	766	985	ñ 801	689
19	1,480	ñ6,570	477	607	ñ 583	5,930	678	692	752	935	805	713
20	ñ 1,480	ñ6,530	473	530	562	4,910	625	689	784	ñ 915	809	671
21	ñ 1,480	ñ6,570	540	ñ 526	ñ 579	5,580	ñ 593	777	738	862	795	671
22	1,490	6,600	583	572	901	5,400	597	812	ñ 689	ñ 809	844	ñ 696
23	1,480	6,780	547	ñ 883	2,630	ñ 5,370	ñ 611	872	1,030	795	791	678
24	1,480	6,780	ñ 565	653	3,600	5,300	607	816	1,420	766	770	724
25	1,480	ñ6,890	ñ 614	586	ñ 3,670	3,570	614	ñ 837	1,050	752	ñ 766	742
26	1,490	6,820	484	636	3,740	3,240	643	812	8,370	745	819	742
27	ñ 1,500	6,820	388	590	3,740	3,340	590	805	ñ16,400	745	809	763
28	1,490	6,850	329	ñ 583	ñ 4,130	3,600	ñ 551	756	7,910	727	787	738
29	1,490		351	583	3,290	4,240	533	724	5,760	ñ 742	823	ñ 724
30	1,480		279	600	3,920	ñ 4,410	ñ 540	773	4,380	742	ñ 777	703
31	1,480		280		2,850		519	724		738		699
Sum	44,650	84,306	57,478	17,577	46,950	118,810	60,391	28,677	65,020	40,697	24,482	22,423

Current Year 1970 — Period 1968-1970

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.	3.05	2.85	14	1,550	† 5	1,340	1,440	88,615	82,932	93,805	66,375
Feb.	5.84	1.80	25	6,890	7	452	3,010	167,212	95,451	167,212	54,243
Mar.	6.10	1.31	3	7,310	30	240	1,850	114,018	74,021	114,018	42,616
Apr.	2.56	1.31	23	1,000	2	244	586	34,861	70,696	89,308	34,861
May	4.76	1.71	28	4,380	8	431	1,510	93,153	93,097	123,518	62,621
June	5.71	4.00	19	7,840	11	2,740	3,960	235,660	100,323	235,660	19,254
July	4.49	1.80	1	3,920	31	459	1,950	119,791	82,478	119,791	35,646
Aug.	4.40	1.80	4	3,880	3	477	925	56,856	76,392	98,764	56,856
Sept.	11.35	2.03	27	22,200	22	611	2,170	128,939	100,832	128,939	80,699
Oct.	4.46	2.20	1	3,920	28	717	1,310	80,699	118,019	173,664	80,699
Nov.	2.43	2.17	8	911	24	696	816	48,562	78,614	94,575	48,562
Dec.	2.30	2.07	27	788	29	629	724	44,471	80,799	105,033	44,471
Yearly	11.35	1.31		22,200		240	1,670	1,212,837	1,053,654	1,212,837	908,789

‡ Period 1924-1970 ñ Discharge measurement made on this day † And other days

RIO ESCONDIDO AT VILLA DE FUENTE, COAHUILA

DESCRIPTION: Cableway, gravity well, concrete control weir of 1,750 second-foot capacity, 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 718.37 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 available: 1922 through 1970. 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. On November 25, 1969, the concrete control weir was finished and placed in operation.

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 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	7.4	13.8	19.4	ñ 10.9	3.2	19.4	2.5	1.4	2.1	31.4	5.7	15.2
2	7.4	14.5	14.5	10.9	3.2	24.0	2.1	1.4	ñ 2.1	31.4	ñ 5.3	ñ 15.2
3	7.4	12.0	11.3	19.4	3.2	ñ 22.2	1.8	1.4	2.1	31.4	5.3	15.9
4	7.4	10.2	ñ 10.6	24.4	3.2	19.8	1.8	274	1.8	31.4	5.3	17.3
5	8.8	10.2	9.9	21.9	3.2	17.0	1.8	43.4	1.8	31.4	5.3	17.3
6	8.8	11.3	9.2	21.9	ñ 3.2	6.4	1.8	8.1	1.8	31.4	5.3	17.3
7	ñ 8.8	11.3	9.9	21.9	3.2	6.7	1.8	4.2	1.4	ñ 30.7	5.3	19.4
8	8.8	11.3	9.9	ñ 21.9	3.2	ñ 332	ñ 1.4	4.6	1.4	29.0	5.3	20.5
9	8.8	11.3	9.2	20.1	3.2	62.2	1.4	4.2	1.4	28.6	5.3	21.5
10	8.8	11.3	9.9	20.1	3.2	29.0	1.4	3.5	1.4	28.6	5.3	26.1
11	8.1	ñ 10.9	9.9	16.2	3.2	20.8	1.4	ñ 3.5	1.4	29.7	5.3	31.4
12	8.1	11.3	ñ 9.9	2.8	3.2	19.1	1.4	3.5	17.0	30.0	5.3	31.4
13	20.8	12.0	9.9	1.4	ñ 3.2	17.7	1.4	3.5	81.6	31.4	5.3	31.4
14	ñ27.9	12.0	9.9	1.4	164	16.6	ñ 1.1	2.8	ñ 53.0	31.4	4.6	31.4
15	21.9	11.3	9.9	ñ 1.4	31.4	15.9	1.4	2.8	23.7	ñ 31.4	4.6	31.4
16	20.8	10.2	10.9	1.4	17.0	ñ 13.9	1.4	2.8	17.0	30.0	4.6	30.0
17	19.4	10.2	10.9	1.4	11.3	9.5	3.5	2.8	15.2	31.4	5.3	30.0
18	18.4	9.5	ñ 12.7	1.4	9.2	9.2	2.5	2.8	ñ 14.1	31.4	7.8	30.0
19	18.4	7.8	10.9	1.1	7.1	8.1	1.4	ñ 2.8	13.4	31.4	13.4	31.4
20	15.9	8.8	10.9	1.1	ñ 6.7	7.8	1.4	2.5	10.9	33.9	13.4	31.4
21	ñ 7.1	ñ 8.8	11.7	1.1	7.8	7.8	1.4	2.5	8.8	ñ 33.2	13.4	31.4
22	8.8	16.2	11.7	ñ 2.1	7.8	8.8	ñ 1.4	2.5	7.8	31.4	13.4	31.4
23	8.8	24.4	11.7	3.9	7.8	12.7	1.4	2.5	7.8	31.4	13.4	31.4
24	8.8	26.8	11.7	3.9	7.8	ñ 3.9	1.4	2.8	7.8	31.4	13.4	31.4
25	8.8	23.0	ñ 11.7	3.9	7.8	2.8	1.4	4.2	7.4	22.2	13.8	31.4
26	8.8	21.5	11.7	3.9	7.8	2.5	1.4	ñ 2.5	ñ 254	6.4	14.5	31.4
27	8.8	20.8	11.7	3.9	ñ 13.8	2.5	1.4	3.5	302	6.4	15.2	31.4
28	ñ 9.5	20.1	11.7	3.9	274	2.8	1.4	2.8	209	7.1	15.2	31.4
29	9.5		11.7	ñ 3.5	70.6	3.5	ñ 1.4	2.8	53.0	6.0	15.2	33.2
30	9.5		11.7	3.2	32.1	ñ 2.5	1.4	2.8	ñ 39.2	6.0	15.2	35.3
31	12.4		11.7		23.0		1.4	2.8		6.0		35.3
Sum	362.9	382.8	348.3	256.3	748.6	727.1	50.1	407.7	1,161.4	804.8	265.7	850.5

Current Year 1970 — **Period** 1933-1970

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.	0.75	0.43	13	66.4	21	6.0	11.7	721	1,840	15,990	43.8
Feb.	.89	.46	24	29.0	19	7.4	13.8	760	1,301	9,990	38.9
Mar.	.79	.59	1	20.1	9	8.5	11.3	692	1,136	6,910	92.4
Apr.	1.12	.30	3	58.3	†19	1.1	8.5	508	1,826	21,950	81.1
May	3.15	.43	28	671	† 1	3.2	24.0	1,484	3,715	25,470	154
June	3.61	.39	8	953	†26	2.5	24.4	1,442	2,255	19,730	60.3
July	.52	.33	17	6.7	14	1.1	1.8	99.7	1,567	9,740	57.6
Aug.	4.10	.30	4	1,330	† 1	1.4	13.1	811	2,234	20,830	34.9
Sept.	3.71	.33	26	1,020	† 7	1.4	38.8	2,302	3,835	49,182	17.8
Oct.	1.02	.52	†20	34.3	27	5.3	26.1	1,597	2,348	20,530	43.8
Nov.	.75	.49	†27	15.2	†14	4.6	8.8	527	1,536	25,730	43.8
Dec.	1.05	.75	†30	37.4	† 1	15.2	27.5	1,688	1,385	3,580	67.3
Yearly	4.10	0.30		1,330		1.1	17.3	12,631.7	24,978	83,164	1,755.3

‡ Period 1932-1970 ñ Discharge measurement made on this day † And other days

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 1970.

Mean Daily Discharge in Second-Feet 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	76.5	55.6	49.4	137	98.1	53.1	174	158	174	49.6	168	170
2	99.8	46.9	45.9	141	109	35.2	152	170	181	47.7	164	173
3	90.3	49.3	45.9	144	142	21.9	131	168	168	42.4	176	180
4	76.6	57.9	43.4	148	142	25.4	137	190	170	47.2	173	175
5	92.9	56.2	47.0	154	131	61.4	178	194	165	45.6	171	187
6	97.6	87.4	44.8	131	132	117	185	110	159	45.5	170	184
7	136	120	68.3	124	109	110	182	47.2	158	38.7	178	183
8	128	128	109	129	122	118	164	30.5	162	33.6	190	196
9	96.6	114	106	115	147	118	160	39.3	152	32.3	176	204
10	102	112	85.6	123	161	128	155	86.4	141	37.5	165	194
11	113	117	99.8	167	148	112	158	111	136	63.9	162	166
12	115	90.4	93.0	201	143	90.6	180	107	135	111	166	168
13	150	92.8	82.2	208	115	107	190	81.7	143	118	190	162
14	143	110	86.2	210	92.9	110	193	76.6	176	122	180	167
15	121	89.7	88.9	199	94.0	146	186	95.9	171	129	177	149
16	92.1	90.9	102	169	69.0	160	175	152	152	128	163	140
17	68.2	108	117	163	40.5	144	178	228	149	147	165	149
18	69.0	95.7	136	196	19.8	126	184	241	135	166	148	139
19	64.2	82.1	147	198	21.2	137	185	187	139	162	138	144
20	61.8	128	133	171	104	159	189	166	153	138	143	163
21	59.9	169	138	190	212	179	180	158	160	128	178	162
22	60.6	189	146	164	223	178	158	140	137	118	179	169
23	63.2	203	110	153	192	203	139	166	112	134	162	130
24	60.6	176	97.8	151	184	208	126	159	113	148	156	136
25	60.9	96.6	105	172	188	197	128	142	106	172	167	137
26	61.4	52.8	97.4	171	124	168	154	126	98.3	199	200	132
27	62.9	39.0	94.7	174	106	157	161	120	74.9	190	184	138
28	63.7	46.3	103	155	113	204	170	120	64.9	177	176	147
29	54.2		134	140	113	185	179	137	52.9	170	184	143
30	49.7		154	117	94.8	173	158	148	47.8	160	181	137
31	52.1		174		58.3		144	168		160		115
Sum	2,642.8	2,803.6	3,084.3	4,815	3,748.6	3,931.6	5,133	4,223.6	4,085.8	3,461.0	5,130	4,939

Current Year 1970 — Period Apr. 1959 - 1970

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.			13	150	30	49.7	85.3	5,242	9,874	12,435	5,242
Feb.			23	203	27	39.0	100	5,561	9,456	13,117	5,561
Mar.			31	174	4	43.4	99.5	6,118	10,897	13,498	6,118
Apr.			14	210	9	115	160	9,551	10,937	13,030	9,380
May			22	223	18	19.8	121	7,435	10,021	13,926	6,205
June			24	208	3	21.9	131	7,798	11,450	14,430	7,798
July			14	193	24	126	166	10,181	12,441	15,219	9,940
Aug.			18	241	8	30.5	136	8,378	11,413	14,299	8,378
Sept.			2	181	30	47.8	136	8,104	9,622	13,974	4,541
Oct.			26	199	9	32.3	112	6,865	9,734	12,248	6,865
Nov.			26	200	19	138	171	10,175	9,750	11,843	5,067
Dec.			9	204	31	115	159	9,796	9,350	12,157	3,354
Yearly				241		19.8	132	95,204	124,945	149,031	95,204

Ø Mean daily

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 58 discharge measurements during the year, 51 by the United States Section and 7 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 29, 1953; September 23, 1953 through June 14, 1954; and May 27, 1955 through 1970 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 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,480	1,440	6,840	ñ 450	668	ñ 3,060	4,140	670	920	3,880	897	958
2	1,490	1,420	6,840	431	659	3,820	ñ 3,960	680	ñ 1,020	3,170	901	ñ 916
3	1,480	1,400	7,110	495	703	3,740	3,880	731	1,260	2,710	990	916
4	1,460	ñ1,390	ñ6,830	703	ñ 770	3,790	3,800	2,580	1,080	2,450	ñ 992	916
5	1,440	1,300	6,830	771	714	4,880	3,870	2,990	1,030	2,310	1,010	942
6	ñ 1,420	1,300	6,210	801	674	4,980	3,880	ñ 1,700	988	2,190	1,010	956
7	1,460	1,130	4,250	ñ 745	660	4,570	3,800	1,310	1,020	ñ 2,070	1,000	956
8	1,470	726	1,960	724	641	ñ 3,840	ñ 3,770	1,120	997	1,690	1,020	956
9	1,450	676	1,650	724	652	3,500	3,750	1,090	970	1,350	1,070	ñ 957
10	1,450	ñ 645	ñ1,570	709	681	3,410	3,720	1,130	ñ 892	1,280	1,000	962
11	1,450	646	1,320	726	ñ 716	3,380	3,690	1,160	873	1,420	977	944
12	1,450	610	890	782	670	3,270	3,780	1,160	898	1,400	ñ 972	921
13	ñ 1,460	581	709	824	662	3,250	3,800	1,070	1,030	1,310	990	904
14	1,630	614	686	ñ 773	1,540	3,190	3,400	996	1,360	ñ 1,200	986	913
15	1,610	585	682	749	1,690	ñ 3,270	ñ 1,500	860	1,250	1,210	983	891
16	1,550	570	653	749	1,390	3,210	976	867	ñ 1,210	1,170	1,030	ñ 858
17	1,520	ñ 572	ñ 597	762	1,040	3,240	937	981	1,080	1,190	992	870
18	1,520	588	621	737	ñ 959	3,490	941	970	945	1,200	ñ 971	864
19	1,540	5,920	646	725	827	2,390	866	ñ 912	915	1,190	949	870
20	ñ 1,510	ñ6,530	608	ñ 762	635	3,890	906	829	952	1,150	951	920
21	1,520	6,660	604	687	781	3,090	814	838	980	ñ 1,110	971	936
22	1,520	6,670	652	663	843	3,680	ñ 777	896	912	1,030	992	931
23	1,520	6,970	667	747	1,500	4,940	758	939	912	1,010	1,020	ñ 872
24	1,510	6,990	ñ 635	958	3,580	5,030	746	983	ñ 1,380	1,010	950	859
25	1,510	6,870	677	762	ñ 3,740	ñ 4,390	753	922	1,330	1,000	ñ 931	901
26	1,510	ñ6,840	692	725	3,720	3,550	761	ñ 896	3,410	1,010	977	903
27	1,510	6,740	564	ñ 762	3,890	3,560	808	893	17,000	997	1,020	909
28	1,490	6,870	511	721	5,070	3,690	748	877	8,680	ñ 947	992	929
29	1,460		471	696	4,060	4,040	ñ 715	860	ñ 6,270	941	984	907
30	1,450		523	681	3,260	4,580	697	858	4,670	932	1,000	878
31	1,430		490		3,710		690	921		926		849
Sum	46,270	83,253	63,988	21,544	51,105	112,720	67,633	33,689	66,234	46,453	29,528	28,264

Current Year 1970 — **Period 1968 - 1970**

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.	6.54	6.38	14	1,650	6	1,400	1,490	91,777	91,142	108,121	73,528
Feb.	8.16	5.78	24	7,130	15	523	2,970	165,132	101,415	165,132	59,890
Mar.	8.21	5.72	3	7,450	28	447	2,060	126,920	87,057	126,920	55,853
Apr.	6.23	5.69	24	1,080	† 1	418	719	42,733	83,715	105,586	42,733
May	7.99	5.80	28	5,550	20	545	1,650	101,367	112,620	155,903	80,590
June	7.83	6.33	† 6	5,120	20	1,260	3,760	223,580	104,616	223,580	29,808
July	7.63	5.87	1	4,290	†30	651	2,180	134,150	94,715	134,150	44,496
Aug.	7.74	5.85	4	4,670	1	628	1,090	66,822	93,494	131,663	66,822
Sept.	9.57	5.99	27	19,600	†11	824	2,210	131,375	104,097	131,375	83,327
Oct.	7.58	6.05	1	4,210	†30	926	1,500	92,140	126,523	182,462	92,140
Nov.	6.19	6.03	† 8	1,080	2	867	984	58,569	84,126	97,251	58,569
Dec.	6.14	6.00	11	996	†23	813	912	56,062	85,518	104,173	56,062
Yearly	9.57	5.69		19,600		418	1,780	1,290,627	1,169,038	1,290,627	1,040,079

ñ Discharge measurement made on this day ‡ Period 1956 - 1970 † 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 63 discharge measurements during the year, 50 by the Mexican Section and 13 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 1970.

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. 332 second-feet on June 28, 1969 with a gage height of -0.49 foot.

Average Flow in Second-Feet ‡

Daily:	Max.	163,000	Sept. 26, 1964	Min.	349	June 28, 1969
Monthly:	Max.	30,400	Sept. 1964	Min.	434	June 1969
Yearly:	Max.	4,420	1964	Min.	1,550	1969

Mean Daily Discharge in Second-Feet 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,550	1,480	6,920	512	650	3,530	4,450	636	ft 953	4,450	855	999
2	1,530	1,500	6,920	441	629	3,810	4,100	632	968	3,670	844	ft 943
3	1,530	ft 1,480	ft 7,030	392	636	ft 3,990	ft 4,030	632	1,070	3,110	844	904
4	1,510	1,480	7,060	470	660	3,880	3,960	1,760	1,290	2,680	ft 971	915
5	1,550	1,480	6,890	717	717	4,450	3,960	3,850	1,100	2,490	992	915
6	1,490	1,360	6,750	812	ft 678	5,120	3,990	ft 2,550	1,050	ft 2,350	992	925
7	ft 1,460	1,360	5,440	ft 840	650	5,160	ft 3,960	1,690	1,020	2,280	1,000	925
8	1,510	1,130	3,250	795	650	4,170	3,880	1,300	ft 1,040	2,200	1,000	ft 961
9	1,500	795	2,020	788	636	ft 3,990	3,880	1,090	1,020	1,860	1,010	961
10	1,500	720	ft 1,840	788	636	3,670	3,850	1,080	996	1,460	1,070	943
11	1,500	ft 703	1,740	773	650	3,640	3,810	ft 1,130	932	1,340	1,000	982
12	1,500	703	1,360	766	ft 685	3,520	3,810	1,150	915	1,530	961	943
13	1,500	685	915	812	660	3,470	3,880	1,130	953	1,530	961	925
14	1,600	650	752	848	1,580	3,420	ft 4,380	1,040	1,190	ft 1,420	971	886
15	1,730	671	710	ft 809	2,370	3,470	3,140	964	ft 1,440	1,260	971	ft 904
16	1,700	664	717	795	2,010	3,420	1,620	823	1,300	1,220	929	876
17	1,620	ft 632	ft 685	788	1,470	3,370	1,380	840	1,240	1,190	992	830
18	1,600	639	611	788	1,100	ft 3,520	953	ft 946	1,180	1,240	939	851
19	1,550	2,060	643	766	ft 975	3,570	936	946	1,010	1,240	ft 918	932
20	ft 1,550	ft 6,250	671	735	823	2,370	897	883	968	ft 1,210	929	851
21	1,550	6,600	632	ft 766	650	4,590	915	784	1,010	1,150	929	915
22	1,550	6,570	636	720	699	2,750	ft 805	784	996	1,110	961	ft 925
23	1,550	6,820	678	706	777	ft 5,120	738	869	1,230	999	961	925
24	1,550	6,960	ft 710	745	2,540	5,160	699	1,210	992	964	982	830
25	1,550	6,890	671	975	3,920	5,050	699	ft 1,710	1,530	953	897	802
26	1,550	ft 6,920	657	802	ft 3,880	3,990	770	911	2,440	953	897	869
27	1,550	6,850	710	759	4,100	3,740	724	883	13,600	964	ft 950	886
28	ft 1,550	6,890	607	ft 780	6,460	3,960	ft 738	876	16,200	929	1,010	893
29	1,530		512	742	5,300	4,240	699	840	7,660	893	982	ft 925
30	1,480		452	699	5,580	4,480	664	809	5,690	893	982	893
31	1,480		ft 505		6,000		657	809		876		851
Sum	47,870	80,942	69,694	22,129	58,771	118,620	72,974	35,557	72,983	50,414	28,700	28,085

Current Year 1970 — Period 1968-1970

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.	2.07	1.64	15	1,750	7	1,430	1,540	94,933	92,897	107,275	76,482
Feb.	5.45	0.07	24	7,030	17	625	2,890	160,495	100,597	160,495	61,241
Mar.	5.64	- .33	3	7,450	30	445	2,250	138,207	91,258	138,207	54,362
Apr.	1.15	- .52	25	1,110	3	364	738	43,890	82,315	105,285	43,890
May	5.91	.03	28	8,050	†21	590	1,900	116,556	123,731	160,901	93,734
June	4.46	1.80	† 7	5,230	20	1,580	3,960	235,310	107,060	235,310	25,768
July	5.18	.20	14	6,570	31	604	2,340	144,734	96,950	144,734	43,113
Aug.	4.23	.13	5	4,520	3	590	1,150	70,515	106,130	167,653	70,515
Sept.	11.68	.52	28	23,900	12	879	2,440	144,903	116,315	144,903	93,812
Oct.	4.30	.72	1	4,980	31	858	1,630	100,018	139,659	201,548	100,018
Nov.	1.12	.69	10	1,090	3	812	957	56,954	87,295	104,269	56,954
Dec.	1.02	.52	1	1,020	24	742	904	55,707	89,749	111,036	55,707
Yearly	11.68	-0.52		23,900		364	1,880	1,362,222	1,233,956	1,362,222	1,122,256

ft Discharge measurement made on this day ‡ Period Aug. 1959-1970 † And other days

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 sewage 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 85 discharge measurements during the year, 69 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: 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 1970. 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 1.7 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 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,620	1,550	6,890	* 424	600	5,510	4,590	636	749	* 5,090	837	1,060
2	1,600	* 1,530	* 6,890	445	579	3,500	4,240	706	805	4,170	837	1,060
3	1,580	1,530	6,920	424	590	4,310	4,060	* 607	759	* 3,450	* 837	1,020
4	1,610	1,550	* 7,270	410	* 590	* 4,170	3,960	618	918	2,980	865	* 1,010
5	* 1,620	1,530	6,960	448	600	4,100	3,880	* 2,910	1,050	* 2,670	971	1,010
6	1,600	1,560	* 6,890	* 650	678	5,190	* 3,920	3,640	929	2,430	* 971	1,010
7	1,550	1,500	6,360	763	675	5,330	3,920	2,210	* 893	2,260	971	* 1,040
8	* 1,540	1,480	4,910	798	* 622	* 5,010	3,850	1,460	862	2,210	989	1,040
9	1,580	* 1,130	* 2,780	* 763	611	4,170	3,810	1,190	862	2,120	971	1,040
10	1,570	* 778	1,920	738	600	3,850	* 3,810	* 1,030	862	1,710	* 989	1,020
11	1,550	678	1,750	763	* 579	* 3,600	3,810	975	826	1,370	1,010	1,020
12	1,540	653	* 1,650	710	537	3,570	3,810	1,070	773	1,330	989	1,020
13	1,570	660	1,370	* 682	590	3,510	* 3,850	1,060	795	* 1,520	971	1,010
14	1,610	636	* 897	717	664	3,470	3,920	999	* 837	1,450	971	* 989
15	1,700	614	724	798	* 2,080	* 3,400	* 4,480	939	1,060	1,330	971	946
16	* 1,780	* 629	* 650	742	* 2,240	* 3,440	2,420	869	1,190	* 1,240	989	918
17	1,740	614	636	717	1,960	3,400	* 1,510	* 713	1,110	1,220	1,010	918
18	1,680	590	590	706	* 1,330	* 3,400	1,130	717	* 1,040	1,240	1,020	812
19	* 1,650	600	519	706	* 1,070	* 3,600	908	812	953	* 1,240	1,010	840
20	1,640	* 4,240	554	* 703	953	3,080	* 869	798	897	1,240	1,010	840
21	1,620	* 6,530	590	706	763	3,470	819	717	* 1,030	1,190	971	* 893
22	1,620	6,710	565	692	590	3,960	833	622	893	1,140	989	971
23	1,620	6,890	* 554	632	664	3,640	735	653	1,330	1,080	1,010	989
24	1,640	* 7,100	572	600	897	5,190	664	* 766	1,210	1,000	1,020	1,010
25	1,620	* 7,060	590	699	* 3,740	* 5,260	614	1,560	975	950	1,020	893
26	* 1,620	6,890	565	890	4,100	4,730	622	* 1,090	1,560	* 950	* 989	865
27	1,610	6,890	572	* 717	4,310	3,850	* 685	788	6,460	950	971	946
28	1,610	6,850	590	636	5,160	3,960	646	* 756	*19,100	932	1,020	* 989
29	1,610		554	657	* 6,850	* 4,130	650	756	* 9,920	918	1,060	1,010
30	1,610		* 480	607	4,940	4,480	646	756	* 6,710	869	* 1,060	1,020
31	1,580		424		5,400		604	* 696		869		1,010
Sum	50,090	78,972	73,186	19,943	55,562	122,280	74,265	33,119	67,358	53,118	29,299	30,219

Current Year 1970 — **Period** 1968-1970

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.	2.99	2.69	16	1,800	† 7	1,510	1,620	99,416	94,407	109,488	74,318
Feb.	6.89	1.48	25	7,170	18	579	2,820	156,621	98,343	156,621	60,197
Mar.	7.02	1.28	4	7,420	31	403	2,360	145,127	91,939	145,127	50,846
Apr.	2.07	1.48	26	971	4	410	664	39,555	87,276	118,874	39,555
May	7.32	1.35	29	8,190	23	491	1,790	110,223	120,495	161,335	89,917
June	6.73	2.82	1	7,130	21	1,740	4,060	242,546	111,670	242,546	29,685
July	6.04	1.54	15	5,620	31	540	2,390	147,326	94,440	147,326	36,179
Aug.	4.43	1.51	6	3,640	3	533	1,070	65,681	97,567	149,848	65,681
Sept.	13.35	1.71	28	21,400	1	706	2,250	133,577	113,396	133,577	94,988
Oct.	5.97	1.90	1	5,760	30	837	1,710	105,334	145,615	203,041	105,334
Nov.	2.17	1.94	† 28	1,070	† 1	837	975	58,095	85,581	102,252	58,095
Dec.	2.17	1.97	2	1,070	18	784	975	59,910	92,434	115,063	59,910
Yearly	13.35	1.28		21,400		403	1,880	1,363,411	1,233,163	1,363,411	1,112,474

‡ Period 1924-1970 * Discharge measurement made on this day † And other days

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 2 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 1970. 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 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	46.6	46.6	12.0	29.7	11.3	11.3	11.3	4.2	8.5	1,310	18.7	1.4
2	43.1	53.3	12.0	21.5	10.6	8.5	8.5	1.4	125	1,080 ñ	14.1	1.4
3	39.9	50.1	12.0	16.6	9.2	15.5	7.1	1.4	147	727	12.7	1.4
4	43.1	29.7	12.0	12.7	8.5	19.1	4.2	1.4	39.9	558	12.7	1.4
5	60.0	22.6	10.6	12.0	7.1	12.7	1.4	1.4	14.1	357	11.3	1.4
6	70.6	21.5	9.9	12.0	5.7	28.3	0	1.4	9.9	252	9.9	1.4
7	81.2	20.5	9.9	13.4	5.7	19.1	0	1.4	5.7	192	8.5	1.4
8	65.3	20.5	9.9	13.4	5.7	14.1	0	1.4	2.8	164	7.8	1.4
9	60.0	24.0	9.9	14.1	4.2	19.1	0	1.4	2.8	132	7.8	1.4
10	65.3	20.5	9.9	16.6	3.5	9.9	0	1.4	2.8	119	7.8	1.4
11	60.0	17.7	9.9	16.6	3.5	8.5	0	1.4	2.8	113	7.1	1.4
12 ñ	60.0	14.5	9.9	19.1	2.8	4.2	0	1.4	2.8	108	6.4	1.4
13	56.5	14.5	9.9	66.0	2.8	2.1	0	1.4	80.2	104	5.7	1.4
14	60.0	13.4	9.9	39.9	2.8	0	0	1.4	928	99.6	5.7	1.4
15	70.6	12.7	9.9	34.6	2.8	0	7.8	1.4	1,010	95.0	4.2	1.4
16	70.6	12.7	9.9	34.6	505.0	0	15.5	1.4	742	90.4	4.2	1.4
17	65.3	12.0	9.9	24.0	431.0	0	256	1.4	164	86.2	4.2	1.4
18	65.3	12.0	9.9	19.1	151.0	0	399	1.4	60.0	81.6	3.5	1.4
19	65.3	11.3	9.9	14.1	65.3	0	317	1.4	33.2	77.0	3.5	1.4
20	60.0	11.3	9.9	14.1	46.6	0	138	1.4	24.0	72.4	3.5	1.4
21	56.5	12.0	9.9	15.2	33.2	0	46.6	1.4	19.1	68.2	3.5	1.4
22	53.3	12.0	9.9	13.4	21.5	0	19.1	1.4	14.1	63.6	2.8	1.4
23	56.5	12.7	9.9	16.6	25.4	0	14.1	1.4	18.0	59.0	2.8	1.4
24	60.3	12.7	9.9	16.6	62.2	4.6	12.0	1.4	63.9	54.4	2.1	1.4
25	53.3	12.7	9.9	14.1	46.6	5.7	7.1	1.4	20.5	50.1	2.1	1.4
26	50.1	12.7	14.1	14.1	24.0	1.4	5.7	1.4	780	45.6	2.1	1.4
27	46.6	12.7	21.5	14.1	16.6	10.2	10.2	1.4	2,060	41.0	2.1	1.4
28	46.6	12.0	25.4	16.6	14.1	16.2	16.6	11.3	1,700	36.7	2.1	1.4
29	50.1		29.7	16.6	13.4	69.6	14.1	19.1	2,180	32.1	2.1	1.4
30	50.1		29.7	14.1	12.7	19.1	9.9	12.7	1,030	27.5	2.1	1.4
31	46.6		29.7		12.7		7.1	7.1		23.0		1.4
Sum	1,778.7	540.9	406.7	595.5	1,567.5	299.2	1,328.3	90.8	11,291.1	6,319.4	183.1	43.4

Month	Current Year 1970						Period 1954-1970		
	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet
			High		Low				Average / Maximum / Minimum
	High	Low	Day		Day				
Jan.	0.72	0.52	7	81.2	3	33.2	57.2	3,529	5,592 / 57,070 / 0
Feb.	.66	.26	2	60.0	†19	11.3	19.4	1,077	5,125 / 66,880 / 0
Mar.	.52	.23	†29	29.7	† 6	9.9	13.1	809	2,640 / 29,690 / 0
Apr.	.79	.26	13	102	6	11.3	19.8	1,182	5,089 / 19,300 / 0
May	2.20	.07	16	1,020	†12	2.8	50.5	3,109	20,953 / 100,919 / 302
June	.98	0	29	177	†14	0	9.9	593	10,658 / 27,410 / 0
July	1.71	0	17	583	† 6	0	42.7	2,635	4,742 / 20,820 / 0
Aug.	.46	.03	28	24.0	† 2	1.4	2.8	181	10,254 / 52,110 / 0
Sept.	3.22	.07	26	2,460	† 8	2.8	378	22,406	80,311 / 491,452 / 2,860
Oct.	2.46		1	1,340	31	Ø 23.0	204	12,531	46,506 / 522,800 / 110
Nov.		.03	1	Ø 18.7	†24	2.1	6.0	363	23,828 / 338,000 / 0
Dec.	.03	.03	† 1	1.4	† 1	1.4	1.4	86.7	12,706 / 176,100 / 0
Yearly	3.22	0		2,460		0	67.1	48,501.7	228,404 / 1,463,797 / 41,238.2

‡ Period September 1953-1970 ñ Discharge measurement made on this day † And other days
Ø Mean daily

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, and one discharge measurement by the Mexican Section of this Commission. Records available: 1958 through 1970. 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.	1,580	1970

Mean Daily Discharge in Second-Feet 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	460	253	310	1,550	12,200	609	493	1,080	1,340	18.0	710	1,000
2	268	257	515	3,800	8,980	18.0	580	1,580	761	18.0	935	1,510
3	779	297	512	3,100	7,680	18.0	712	1,420	527	18.0	620	1,510
4	1,540	299	529	2,780	10,900	18.0	809	2,900	522	18.0	322	1,120
5	1,040	406	526	3,820	10,500	161	1,190	2,220	1,010	18.0	18.0	1,230
6	204	505	527	4,100	9,230	331	1,250	1,810	1,180	18.0	18.0	1,660
7	18.0	503	598	5,000	ñ 9,510	882	1,240	1,510	1,220	18.0	18.0	1,520
8	166	805	754	5,960	9,590	1,220	1,200	2,640	1,230	18.0	18.0	1,510
9	300	656	802	5,660	10,400	1,200	1,210	3,070	684	18.0	18.0	1,240
10	405	512	991	3,820	11,200	1,210	1,400	2,870	865	18.0	521	1,220
11	325	517	1,040	1,640	10,100	605	1,660	2,730	466	18.0	523	1,230
12	430	466	1,010	510	9,320	898	2,350	3,280	769	18.0	527	1,220
13	505	830	797	512	8,470	1,230	2,670	2,510	760	18.0	3,010	1,520
14	505	811	662	1,260	6,440	1,220	3,000	2,000	18.0	18.0	2,010	1,520
15	214	518	519	1,530	4,600	1,190	1,820	1,010	18.0	740	2,030	1,380
16	18.0	524	512	1,040	3,020	2,570	522	1,330	263	967	1,540	1,040
17	18.0	534	814	2,420	3,250	3,060	18.0	1,480	650	1,240	902	856
18	18.0	532	1,100	1,220	3,750	3,520	18.0	1,710	927	1,230	651	962
19	18.0	531	1,210	1,780	4,400	3,760	18.0	3,760	1,200	1,030	512	1,160
20	18.0	528	1,200	2,320	2,820	3,860	18.0	3,550	679	765	514	1,760
21	321	531	1,210	3,050	2,280	3,480	574	2,050	18.0	528	512	1,710
22	303	530	1,260	3,620	1,730	1,270	985	1,920	18.0	518	1,030	1,760
23	173	517	1,310	4,150	1,340	1,300	1,040	2,420	18.0	575	1,310	2,070
24	18.0	405	1,380	5,040	1,280	541	504	2,650	18.0	908	1,030	2,120
25	18.0	306	1,530	6,090	543	18.0	545	2,080	18.0	1,040	817	2,220
26	18.0	309	1,320	6,740	320	18.0	629	1,250	18.0	1,370	814	2,240
27	18.0	314	1,270	7,370	679	18.0	522	294	18.0	2,010	1,030	2,660
28	18.0	308	1,310	8,020	771	18.0	519	18.0	18.0	807	1,200	2,450
29	18.0		1,610	9,700	947	18.0	524	1,050	18.0	571	1,210	2,910
30	18.0		1,910	11,000	1,280	256	526	1,520	18.0	515	1,000	3,690
31	18.0		2,210		1,270		1,340	1,430		599		4,470
Sum	8,190.0	13,504	31,248	118,602	168,800	34,517.0	29,886	61,142	15,269.0	15,665.0	25,370.0	54,468

Current Year 1970 — Period # 1954 - 1970

Month	Extreme Gage Feet High	Extreme Gage Feet Low	Ø Extreme Second-Feet High Day	High	Low Day	Low	Average Second-Feet	Total Acre-Feet	Acre-Feet Average	Acre-Feet Maximum	Acre-Feet Minimum
Jan.			4	1,540	† 7	18.0	264	16,245	199,175	412,727	16,245
Feb.			13	830	1	253	482	26,785	168,958	367,384	16,600
Mar.			31	2,210	1	310	1,010	61,980	132,282	347,000	2,390
Apr.			30	11,000	12	510	3,950	235,247	226,036	461,541	19,530
May			1	12,200	26	320	5,450	334,815	297,869	526,000	48,754
June			20	3,860	† 2	18.0	1,150	68,464	275,624	551,000	68,464
July			14	3,000	†17	18.0	964	59,279	116,360	229,828	18,300
Aug.			19	3,760	28	18.0	1,970	121,275	128,724	206,000	25,900
Sept.			1	1,340	†14	18.0	509	30,286	127,428	674,219	1,428
Oct.			27	2,010	† 1	18.0	505	31,072	206,781	1,997,000	27,100
Nov.			13	3,010	† 5	18.0	846	50,321	121,018	1,128,000	9,376
Dec.			31	4,470	17	856	1,760	108,037	117,506	465,000	32,569
Yearly				12,200		18.0	1,580	1,143,806	2,117,761	5,016,800	1,143,806

‡ Period 1954 - 1970 ñ Discharge measurement made on this date
# Values prior to 1958 are Chapeño discharges less arroyo inflow Ø Mean daily † 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 at mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 7 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 1970.

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. Prior to January 1, 1969, the zero of the gage was 188.35 feet above mean sea level, U. S. C. & G. S. datum.

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 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	24.7	21.5	17.3	7.1	0.7	13.1	15.5	0	1.8	35.3	6.0	4.9
2	24.7	21.5	21.5	6.0	.7	8.1	6.4	0	0	26.1	6.0	4.9
3	24.7	20.1	20.1	6.0	1.1	4.2	3.5	0	0	21.5	6.0	4.9
4	24.7	20.1	18.7	6.0	1.1	4.2	1.4	0	0	205	6.0	4.9
5	31.1	21.5	18.7	6.0	1.1	2.5	.7	0	0	480	6.0	6.0
6	33.9	21.5	17.3	6.0	1.1	1.1	0	0	0	133	6.0	6.0
7	33.9	21.5	17.3	6.0	1.1	.7	0	0	0	39.2	6.0	6.0
8	26.1	23.3	15.9	6.0	1.1	0	0	0	0	23.3	6.0	4.9
9	26.1	24.7	15.9	8.1	1.1	0	0	0	0	16.2	6.0	4.2
10	27.9	24.7	15.9	9.2	1.1	0	0	0	1.1	13.1	8.1	4.2
11	31.1	20.1	15.9	68.2	.4	0	0	0	0	12.0	8.1	4.2
12	31.1	18.7	15.9	126	0	0	0	0	ft 254	12.0	8.1	3.5
13	27.9	18.7	15.9	35.3	0	0	0	0	ft 883	12.0	9.2	3.5
14	35.3	18.7	15.9	13.4	0	0	0	0	ft 717	12.0	7.1	3.5
15	33.9	18.7	14.5	10.2	0	0	0	22.6	223	12.0	4.9	3.5
16	31.1	15.9	14.5	6.0	0	0	ft 316	36.3	51.9	10.6	4.2	3.5
17	27.9	12.0	12.0	6.0	0	0	ft 406	8.1	37.4	9.2	2.5	3.5
18	31.1	12.0	12.0	4.9	0	0	205	3.5	26.1	9.2	3.5	3.5
19	31.1	12.0	12.0	4.2	0	0	58.3	1.1	15.2	9.2	4.2	3.5
20	27.9	12.0	9.2	3.5	0	344	26.8	0	11.7	9.2	6.0	3.5
21	27.9	12.0	9.2	2.5	0	844	15.9	0	9.5	9.2	6.0	3.5
22	31.1	12.0	8.1	2.5	0	31.1	10.6	0	7.4	8.1	4.9	3.5
23	31.1	15.9	8.1	1.8	0	710	7.1	0	17.0	8.1	4.2	3.5
24	27.9	17.3	8.1	1.1	0	ft3,270	5.7	0	24.0	6.0	4.2	3.5
25	27.9	20.1	8.1	1.1	0	185	6.7	240	17.0	6.0	4.2	3.5
26	31.1	18.7	7.1	1.1	0	558	13.8	65.7	413	4.9	4.2	2.5
27	31.1	17.3	7.1	1.1	26.5	1,120	42.7	15.5	682	4.2	4.2	2.5
28	31.1	15.9	6.0	.7	44.1	480	45.2	4.2	491	3.5	4.9	2.5
29	27.9		6.0	0	7.4	350	13.1	2.1	96.1	2.5	6.0	3.5
30	26.1		4.9	0	2.5	55.4	6.4	1.1	48.7	4.2	7.1	3.5
31	24.7		6.0		1.1		2.5	2.5		6.0		3.5
Sum	904.1	508.4	395.1	356.0	92.2	7,981.4	1,209.3	402.7	4,027.9	1,162.8	169.8	122.1

Current Year 1970 — **Period 1924-1970**

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.	188.78	188.71	14	35.3	† 1	24.7	29.3	1,793	3,219	34,920	0
Feb.	188.71	188.58	9	24.7	† 17	12.0	18.0	1,009	2,428	25,550	0
Mar.	188.68	188.45	2	21.5	30	4.9	12.7	784	2,390	19,830	0
Apr.	189.76	188.35	12	226	† 29	0	11.7	703	6,334	36,210	0
May	189.21	188.35	28	94.3	† 12	0	2.8	184	13,146	137,000	0
June	194.98	188.35	24	6,430	† 7	0	266	15,824	11,679	83,240	0
July	190.39	188.35	16	558	† 6	0	38.8	2,398	5,906	37,590	0
Aug.	191.47	188.35	25	1,410	† 1	0	13.1	799	16,945	205,700	0
Sept.	191.27	188.35	26	1,430	† 2	0	134	7,987	40,400	434,387	135
Oct.	190.55	188.42	4	784	29	2.5	37.4	2,308	18,253	193,700	0
Nov.	188.52	188.42	13	9.2	17	2.5	5.7	337	3,663	25,165	0
Dec.	188.48	188.42	† 5	6.0	† 26	2.5	3.7	244	3,092	15,982	0
Yearly	194.98	188.35		6,430		0	47.3	34,370	127,455	605,678.4	11,898.7

‡ Period 1924-1970 ft Discharge measurement made on this day † And other days

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, Ranchería Drain, and Los Fresnos Drain; and between this station and Anzalduas 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 62 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 51 current meter measurements made during the year. There was no drainage flow through Los Fresnos Drain in 1970. All storm water measured at these two drains was deducted and is not included in the tabulation below. Records available: 1953 through 1970.

REMARKS: In 1970 there were 175,147 irrigable acres in the Lower Río San Juan Irrigation District.

Mean Daily Discharge in Second-Feet 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	205	217	52.6	28.6	25.4	27.5	14.1	6.0	7.8	271	264	66.4
2	197	271	51.2	27.5	24.7	29.7	13.8	5.3	7.1	268	304	66.0
3	190	335	51.2	26.5	24.0	31.4	13.4	4.2	6.0	129	208	65.7
4	182	161	51.2	25.4	23.3	30.4	13.4	3.9	5.3	82.6	173	65.0
5	174	126	51.2	24.4	22.6	29.0	13.1	4.2	5.3	217	174	65.0
6	180	108	44.8	23.7	21.9	27.9	12.7	11.7	5.6	207	126	65.0
7	188	101	147	22.6	21.9	26.8	12.7	13.4	5.3	434	107	64.3
8	194	96.8	175	21.5	21.2	25.8	12.4	15.2	5.6	685	95.7	63.6
9	202	94.6	76.3	21.5	21.2	24.4	13.1	17.0	5.6	809	103	63.6
10	208	83.3	55.1	21.5	20.8	23.3	14.1	19.1	5.6	795	95.0	65.0
11	215	76.6	103	21.5	20.8	23.3	14.8	20.8	5.6	915	71.0	67.1
12	222	76.6	93.9	22.2	20.5	24.0	15.9	22.6	152	1,090	68.2	68.5
13	229	66.0	63.9	22.2	20.1	24.0	16.2	24.4	448	1,060	63.2	70.3
14	236	63.2	49.4	22.2	20.5	24.4	17.3	494	94.3	1,060	193	71.7
15	211	86.2	46.3	22.2	20.5	24.4	18.4	985	27.9	1,050	133	73.8
16	274	202	43.8	22.2	20.8	25.1	19.1	149	21.5	1,030	83.3	75.2
17	288	115	55.4	22.6	20.8	25.1	17.0	43.1	20.5	1,030	61.4	72.0
18	324	68.2	51.6	22.6	20.8	25.1	15.2	78.0	20.5	1,070	61.4	68.9
19	399	62.2	42.4	23.0	20.8	24.7	12.7	5.7	20.1	1,010	59.7	65.7
20	297	102	46.6	23.0	21.2	24.7	10.6	6.7	20.1	897	56.2	61.8
21	300	140	49.8	23.3	20.8	24.4	8.5	7.8	20.5	840	56.2	58.6
22	340	87.9	45.9	23.3	20.1	24.4	6.4	8.8	20.1	865	54.0	55.4
23	307	74.9	38.5	23.7	19.8	24.0	6.4	9.5	20.1	911	68.9	52.3
24	316	71.3	37.4	24.0	19.8	47.0	6.0	10.6	20.1	862	76.3	51.6
25	323	70.6	36.4	24.4	19.4	738	103	9.2	20.1	735	70.3	51.2
26	342	60.0	33.9	24.7	18.7	399	261	14.5	161	678	68.5	50.5
27	337	90.4	32.5	24.7	18.4	876	47.3	12.0	198	727	68.9	49.8
28	333	89.3	32.5	25.1	20.1	317	14.1	10.9	248	657	65.7	49.1
29	434		34.6	25.4	22.2	104	4.9	10.2	257	381	60.7	48.7
30	335		32.5	25.4	24.0	34.6	5.7	9.2	258	303	60.7	48.0
31	218		31.8		25.8		6.7	8.8		282		48.0
Sum	3,196.1		710.9		3,109.4		2,040.8		21,350.6		1,907.8	
	8,200		1,757.7		662.9		760.0		2,112.6		3,150.3	

Month	Extreme Gage Feet		Current Year 1970 Ø Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Period 1954-1970 Acre-Feet		
			High		Low						
	High	Low	Day		Day				Average	Maximum	Minimum
Jan.			29	434	5	174	265	16,264	9,534	77,184	126
Feb.			3	335	26	60.0	114	6,340	4,889	40,778	246
Mar.			8	175	31	31.8	56.5	3,485	3,366	24,706	250
Apr.			1	28.6	† 8	21.5	23.7	1,411	4,098	36,208	196
May			31	25.8	27	18.4	21.5	1,316	4,769	29,121	555
June			27	876	†10	23.3	103	6,166	5,758	33,142	476
July			26	261	29	4.9	24.4	1,507	12,238	122,305	312
Aug.			15	985	4	3.9	65.7	4,049	18,652	274,079	202
Sept.			13	448	† 4	5.3	70.6	4,192	124,227	1,878,782	298
Oct.			12	1,090	4	82.6	689	42,352	89,210	901,800	229
Nov.			2	304	22	54.0	105	6,250	26,578	230,400	154
Dec.			16	75.2	†30	48.0	61.4	3,784	12,180	98,974	200
Yearly				1,090		3.9	134	97,116	315,499	2,896,004	11,025

Ø 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.

RECORDS: Based on 47 discharge measurements during the year and a continuous record of gage heights. Computations by shifting control methods. Discharge prorated between measurements during times of extremely low flow. Records available: January 1954 through 1970.

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 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	204	216	51.6	ft 27.9	ft 21.9	11.3	ft 5.7	2.5	3.9	268	263	65.0
2	196	270	50.1	26.8	21.2	12.4	5.3	1.8	3.5	266	303	64.3
3	188	334	50.1	25.8	20.1	ft 13.4	4.9	1.1	2.8	127	207	ft 63.9
4	180	160	ft 50.1	24.7	19.4	12.4	4.9	.7	ft 2.5	80.2	172	63.6
5	ft 173	125	50.1	23.7	18.7	11.3	4.6	1.1	2.5	214	173	63.6
6	179	ft 107	43.8	22.6	18.0	10.2	4.2	ft 8.5	2.8	204	125	63.6
7	186	99.6	145	21.5	17.3	9.5	4.2	8.5	2.8	431 ft	106	63.2
8	193	95.7	174	ft 20.5	16.2	8.5	3.9	8.5	3.2	682 ft	93.9	62.9
9	200	93.6	75.2	20.5	15.5	7.4	ft 3.5	8.5	ft 3.2	805 ft	101	ft 62.9
10	207	82.3	54.0	20.5	14.8	ft 6.4	3.5	8.8	3.2	791	93.2	64.3
11	214	ft 75.6	ft 102	20.5	14.1	7.4	3.2	8.8	3.2	911	ft 69.2	66.0
12	221	75.6	92.9	20.8	13.4	8.8	3.2	8.8	150	1,080	66.4	67.5
13	228	65.0	62.9	20.8	12.4	9.9	2.8	ft 8.8	445	1,060	61.4	69.2
14	ft 234	62.2	48.4	20.8	11.7	10.9	2.8	480	92.2	1,060 ft	191	70.6
15	210	85.1	44.5	ft 20.8	10.9	12.0	2.8	975	25.8	1,050	132	72.4
16	272	201	42.7	20.8	10.2	13.4	2.5	140	19.4	1,030	81.9	73.8
17	286	114	54.7	21.2	9.5	ft 14.5	2.5	36.4	ft 18.4	1,030	60.0	70.6
18	323	ft 67.1	ft 50.9	21.2	8.5	14.5	2.5	73.5	18.4	1,070	ft 60.0	67.5
19	399	61.1	41.7	21.5	7.8	14.5	2.1	ft 3.2	18.0	1,010 ft	58.3	64.3
20	295	101	45.9	21.5	ft 7.1	14.5	2.1	3.9	18.0	893	54.7	60.7
21	298	138	49.1	21.9	7.1	14.5	1.8	4.2	18.0	837	54.7	57.6
22	339	86.5	45.2	ft 21.9	6.7	14.5	ft 1.8	4.9	17.7	862	53.0	54.4
23	306	73.5	37.8	21.9	6.7	14.5	1.8	5.3	ft 17.7	908 ft	67.8	ft 51.2
24	314	69.9	36.7	21.9	6.7	37.4	1.8	6.0	17.7	858	75.2	50.5
25	321	ft 69.2	ft 35.7	21.9	6.7	731	98.9	3.9	17.7	735	ft 69.2	50.1
26	ft 341	58.6	33.2	21.9	6.4	388	257	ft 8.8	159	678	67.5	49.4
27	335	89.0	31.8	21.9	ft 6.4	865	43.4	6.7	196	727	67.5	48.7
28	332	87.9	31.8	21.9	7.4	308	10.6	6.0	245	657	64.3	48.0
29	434		33.9	21.9	8.5	95.0	ft 1.4	5.6	254	381 ft	59.3	47.7
30	334		31.8	21.9	9.5	26.1	2.1	4.9	256	302	59.3	47.0
31	217		31.1		10.2		3.2	4.6		281		47.0
Sum	8,159	3,163.5	1,728.7	663.4	371.0	2,717.2	495.0	1,849.3	2,037.6	21,288.2	3,109.8	1,871.5

Current Year 1970									Period 1954-1970		
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.	137.10	135.30	29	643	5	173	263	16,193	9,437	76,938	88.4
Feb.	136.48	134.28	3	441	26	42.7	113	6,276	4,758	40,536	203
Mar.	135.76	134.09	7	261	31	31.1	55.8	3,431	3,245	24,513	212
Apr.	134.06	134.02	1	27.9	† 8	20.5	22.2	1,316	3,944	35,876	177
May	133.86	132.51	1	21.9	† 26	6.4	12.0	736	4,433	28,709	245
June	138.98	131.96	26	1,620	10	6.4	90.8	5,390	5,416	32,689	274
July	137.20	133.33	25	657	29	1.4	15.9	982	12,063	122,020	182
Aug.	140.49		14	2,860	4	0.7	59.7	3,668	18,526	273,904	161
Sept.	137.30		† 12	706	† 4	2.5	67.8	4,040	124,086	1,878,406	226
Oct.	138.42	134.35	12	1,150	4	47.7	685	42,227	89,095	901,500	193
Nov.	135.86	133.92	2	360	22	45.2	103	6,165	26,464	230,100	126
Dec.	134.09	133.92	16	73.8	† 30	47.0	60.4	3,711	12,082	98,547	163
Yearly	140.49			2,860		0.7	130	94,135	313,549	2,891,093	10,534

ft Discharge measurement made on this day † And other days

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 1970, 9,216 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 1970 in this river reach was 6,287 acre-feet, or 1.0% 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 39% 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 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	5.4	6.8	3.4	19.1	21.4	10.0	1.3	11.2	5.2	1.7	3.7	5.4
2	5.3	6.7	3.4	19.1	21.5	10.0	5.1	10.7	5.2	1.7	3.7	5.4
3	5.2	13.4	3.5	19.2	22.7	10.0	1.4	10.7	5.3	1.7	7.7	5.4
4	1.6	13.3	6.7	19.3	22.9	10.0	2.5	10.6	5.3	2.9	7.7	5.5
5	3.2	13.4	3.3	19.7	22.9	10.2	9.7	10.7	5.3	2.9	7.7	5.6
6	1.7	13.4	3.3	14.4	22.9	10.2	11.3	10.7	4.1	2.9	7.8	7.0
7	2.2	13.5	3.2	14.3	22.9	23.2	10.5	10.7	9.7	2.9	7.8	7.0
8	2.5	7.1	1.6	14.3	22.9	23.2	9.7	10.7	9.7	2.9	6.7	7.0
9	2.7	12.2	1.6	14.4	22.9	23.3	9.6	9.8	9.8	2.9	6.7	7.2
10	3.9	11.8	5.1	14.4	13.4	23.4	9.8	9.9	9.7	2.9	6.5	7.0
11	3.1	16.9	5.7	14.4	13.4	23.4	9.7	9.6	9.7	4.5	6.7	7.0
12	3.8	16.8	1.5	5.7	13.3	23.3	6.8	9.6	9.6	4.6	6.5	7.0
13	3.1	16.9	1.5	5.6	13.2	23.2	6.9	9.6	2.9	4.7	6.7	7.1
14	3.2	16.9	1.5	5.6	13.2	25.7	6.9	9.6	2.9	5.7	6.7	7.1
15	1.7	11.8	8.8	5.6	13.2	25.8	6.9	9.5	2.8	5.7	7.9	7.1
16	3.5	11.8	8.7	5.6	13.2	25.9	6.9	8.0	6.7	5.3	7.9	7.1
17	2.3	11.8	8.8	4.7	8.9	25.9	6.9	8.0	6.7	4.5	7.9	7.2
18	2.7	11.8	8.8	5.7	9.0	25.8	6.8	7.9	6.7	8.2	8.0	7.2
19	2.9	11.7	8.7	11.6	9.0	25.8	7.0	8.1	2.9	9.6	7.8	7.1
20	2.9	11.8	8.8	11.6	9.0	25.8	6.9	7.9	2.2	9.7	7.9	9.1
21	2.9	11.8	8.8	11.6	9.0	8.1	7.0	8.0	2.3	9.6	7.9	9.0
22	2.9	1.6	4.2	11.6	8.9	8.1	7.0	9.8	2.2	9.7	2.8	9.0
23	2.9	1.7	15.4	11.6	9.1	8.1	7.0	3.0	2.2	9.6	4.1	9.1
24	2.8	1.7	15.3	11.6	6.6	8.1	7.0	3.0	2.2	9.5	4.1	9.1
25	2.2	1.8	15.3	11.6	6.5	8.0	6.9	3.0	2.3	5.0	4.2	9.2
26	2.3	2.3	15.4	21.5	6.5	8.1	4.9	3.0	2.2	9.7	4.0	9.1
27	2.3	3.3	15.8	21.5	6.5	8.0	11.3	3.0	1.8	9.0	4.0	10.5
28	5.5	2.6	15.3	21.5	6.5	1.4	11.4	3.0	1.8	8.7	8.7	10.5
29	5.5		19.0	21.4	6.5	1.7	11.4	2.9	1.8	5.1	5.4	10.5
30	5.5		19.0	21.4	6.5	1.8	11.4	5.3	1.7	9.7	5.4	10.5
31	5.8		19.0		10.0		11.2	5.3		9.7		10.5
Sum	103.5	276.6	260.4	409.6	414.4	465.5	239.1	242.8	142.9	183.2	190.6	242.5

Month	Average Rainfall Inches **		Current Year 1970 Ø Extreme Second-Feet High		Low		Average Second-Feet	Total Acre-Feet	Period 1957-1970 Acre-Feet		
	1957-1970	1970	Day		Day				Average	Maximum	Minimum
Jan.	1.19	1.94	31	5.8	4	1.6	3.3	205	593	1,291	159
Feb.	1.21	1.48	† 11	16.9	22	1.6	9.9	549	646	1,480	223
Mar.	.62	.16	† 29	19.0	†12	1.5	8.4	516	948	1,845	158
Apr.	1.59	.83	† 26	21.5	17	4.7	13.7	812	991	1,890	357
May	2.60	2.18	† 4	22.9	†25	6.5	13.4	822	1,161	2,624	251
June	2.40	3.59	† 16	25.9	28	1.4	15.5	922	1,258	2,610	449
July	.88	1.24	† 28	11.4	1	1.3	7.7	474	800	1,620	278
Aug.	2.28	1.00	1	11.2	29	2.9	7.8	482	693	935	481
Sept.	4.74	5.03	9	9.8	30	1.7	4.8	283	559	1,230	178
Oct.	2.21	1.07	† 20	9.7	† 1	1.7	5.9	363	687	1,220	131
Nov.	1.31	.02	28	8.7	22	2.8	6.4	378	531	1,170	216
Dec.	.79	.10	† 27	10.5	† 1	5.4	7.8	481	613	1,580	145
Yearly	21.82	18.64		25.9		1.3	8.7	6,287	9,480	14,754	4,989

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

RIO GRANDE AT FORT RINGGOLD, RIO GRANDE CITY, TEXAS

DESCRIPTION: Cableway, bubbler gage, 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 16 discharge measurements during the year and a continuous record of gage heights. Computations by shifting control methods. Records available: January 1955 through 1970. 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.	1,750	1970

Mean Daily Discharge in Second-Feet 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	606	282	397	2,190	ñ 11,900	1,270	253	1,210	1,420	431	812	1,020
2	554	291	408	1,630	12,400	644	406	1,060	1,360	418	920	989
3	462	581	532	3,680	8,090	360	529	1,460	782	310	1,050	1,450
4	743	506	558	2,980	8,560	161	635	1,380	562	300	758	ñ 1,500
5	1,630	461	586	3,150	11,400	109	716	2,640	494	801	550	1,130
6	1,240	504	602	3,420	11,100	87.3	1,030	2,230	897	669	387	1,210
7	578	599	638	4,190	9,790	98.7	1,150	1,830	1,070	520	234	1,610
8	339	639	772	ñ 5,430	10,000	642	1,140	1,490	1,130	640	191	1,540
9	270	ñ 956	827	6,260	10,100	1,070	1,110	2,800	1,130	742	161	1,560
10	420	841	851	4,620	11,000	1,100	1,110	2,810	652	716	161	1,280
11	506	630	1,010	3,990	11,700	1,120	1,310	2,790	745	757	239	1,200
12	486	616	1,080	2,000	10,900	623	1,540	2,790	539	824	514	1,230
13	534	605	ñ 1,040	769	9,890	762	2,230	3,170	2,080	789	529	1,190
14	704	893	842	599	8,060	1,100	ñ 2,600	ñ 2,650	1,840	817	2,800	1,510
15	697	892	743	1,310	5,640	1,120	2,950	2,930	856	801	2,050	1,510
16	531	740	598	ñ 1,680	3,620	1,100	2,080	1,180	327	1,140	2,000	1,380
17	484	641	545	1,130	3,260	2,400	1,180	1,390	194	1,730	1,580	1,040
18	365	590	801	2,490	3,460	3,070	597	1,490	504	2,060	950	848
19	437	546	1,060	1,330	ñ 3,880	ñ 3,520	309	ñ 1,770	798	2,070	688	925
20	364	580	1,140	1,870	4,230	3,890	184	3,670	1,180	ñ 1,760	560	1,130
21	331	639	1,170	2,460	2,810	4,710	131	3,540	768	1,520	545	1,670
22	433	602	1,210	3,160	2,360	3,660	197	2,140	374	1,300	540	1,680
23	588	626	1,260	3,720	1,840	1,480	780	2,030	176	1,280	916	1,700
24	542	597	ñ 1,330	4,280	1,520	ñ 4,890	946	2,370	190	1,310	1,280	1,990
25	487	491	1,350	5,370	1,360	3,450	557	2,730	173	1,530	1,070	2,050
26	414	423	1,480	7,180	620	885	767	2,960	375	1,680	859	2,160
27	399	385	1,330	7,520	394	3,400	648	1,400	2,260	1,890	827	2,280
28	394	399	1,270	ñ 7,720	573	1,580	587	483	1,140	2,410	989	2,530
29	376		1,350	8,990	728	938	556	315	780	ñ 1,190	1,190	2,390
30	435		1,610	10,100	883	480	530	676	479	822	1,230	ñ 2,810
31	310		1,910		1,240		540	1,440		763		3,670
Sum	16,659	16,555	30,300	115,218	183,308	49,720.0	29,298	62,824	25,275	33,990	26,580	50,182

Current Year 1970 — **Period # 1954-1970**

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.	28.15	25.60	5	2,930	9	255	537	33,043	206,456	414,016	33,043
Feb.	27.08	25.48	9	1,480	2	216	591	32,837	179,872	376,607	25,500
Mar.	28.48	25.74	31	3,350	1	331	977	60,100	136,284	378,000	14,400
Apr.	32.54	25.88	30	10,500	14	405	3,840	228,535	233,850	447,815	75,100
May	33.68	25.70	† 2	12,600	27	311	5,910	363,591	318,494	521,000	80,891
June	30.94	25.00	24	7,270	7	77.5	1,660	98,620	296,032	560,000	98,620
July	29.23	25.10	15	4,550	22	99.5	945	58,113	135,721	303,952	22,300
Aug.	29.99	25.40	20	5,850	30	187	2,030	124,611	157,658	522,593	25,000
Sept.	28.20	25.28	13	3,020	23	148	842	50,133	321,488	2,712,754	42,423
Oct.	28.72	25.44	28	3,760	4	202	1,100	67,419	315,903	3,047,000	30,000
Nov.	29.35	25.26	14	4,740	11	142	886	52,721	155,582	1,442,000	29,274
Dec.	29.96	25.97	31	5,800	† 18	458	1,620	99,536	128,931	540,000	36,100
Yearly	33.68	25.00		12,600		77.5	1,750	1,269,259	2,586,271	6,619,700	1,269,259

‡ Period 1955-1970 ñ Discharge measurement made on this day # 1954 Values are Rio Grande City less Arroyo inflow † And other days

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 58 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 1970, 50, 52, 51, and 11 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 1970, 22% 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 1970.

REMARKS: In 1970 there were 175,147 irrigable acres in the Lower Río San Juan Irrigation District. Since July 9, 1969 some water has been diverted from Morillo Drain directly to the Gulf via the Morillo Drain Diversion Canal to reduce the salinity of Rio Grande waters. In 1970, 29,743 acre-feet were diverted.

Mean Daily Discharge in Second-Feet 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	13.4	9.5	13.1	21.5	99.6	44.5	32.1	15.2	11.3	13.8	9.2	9.9
2	13.4	9.9	13.1	27.9	155	42.7	30.7	15.2	10.6	14.1	8.5	9.2
3	13.8	9.9	13.1	25.4	155	42.0	29.3	15.2	10.2	14.5	8.5	9.2
4	14.1	9.9	13.1	23.7	144	40.6	28.6	14.8	9.9	14.5	33.2	9.2
5	14.1	9.9	12.7	22.6	146	39.6	26.8	14.8	9.9	14.8	150	9.5
6	14.5	9.9	12.7	21.9	147	37.8	25.4	14.8	10.2	15.2	150	9.5
7	14.8	10.2	12.7	22.2	150	37.1	24.0	14.8	9.9	15.5	150	9.2
8	14.8	10.6	12.4	21.9	153	35.7	23.0	14.8	10.2	15.2	97.1	9.5
9	15.2	10.9	12.4	24.4	123	35.3	23.3	14.8	10.2	14.5	145	9.5
10	15.2	11.3	12.4	25.4	63.6	34.3	23.0	14.8	10.2	14.1	252	9.5
11	15.2	11.3	12.4	26.8	58.6	33.9	23.3	14.8	10.2	13.8	252	9.2
12	14.8	11.7	12.4	29.7	73.1	33.5	23.7	14.8	10.2	12.7	252	9.2
13	14.5	12.0	12.4	32.5	65.3	33.2	23.3	14.8	10.2	12.4	128	8.8
14	14.1	12.0	12.4	35.0	64.3	32.8	23.7	14.5	15.5	11.7	57.6	8.8
15	13.8	12.0	12.7	37.8	81.2	32.5	23.3	14.8	19.8	11.3	39.6	8.5
16	13.4	12.4	12.7	36.7	131	32.1	23.7	14.5	19.1	11.7	21.9	8.5
17	19.1	12.4	12.7	35.3	106	31.8	22.6	14.8	18.4	12.0	21.2	9.2
18	21.2	12.4	13.4	34.3	58.2	31.8	21.9	14.8	18.4	12.4	19.1	9.5
19	20.1	12.7	13.4	33.9	48.4	31.4	21.5	14.8	18.0	12.4	18.0	10.2
20	19.1	12.7	13.1	32.8	55.4	31.4	20.5	14.8	17.3	12.4	17.7	10.6
21	18.0	12.7	12.4	31.4	51.9	31.8	19.4	14.5	17.0	12.7	14.5	11.3
22	17.0	13.1	12.4	30.4	53.3	31.8	18.7	14.5	16.6	13.1	10.6	11.7
23	15.5	13.1	12.0	31.1	51.6	31.8	18.4	13.8	16.2	13.4	10.6	12.4
24	14.5	13.1	11.7	31.4	51.6	31.4	17.7	13.8	15.9	12.7	10.6	12.4
25	13.8	13.4	11.3	32.1	49.4	31.4	17.3	13.4	15.2	12.4	10.6	12.0
26	13.1	13.4	11.7	33.2	48.7	31.1	17.0	13.4	15.2	11.7	10.6	12.0
27	12.7	13.8	12.7	33.9	48.0	30.4	16.6	13.1	15.2	10.9	10.6	11.7
28	12.4	13.4	13.1	34.3	47.7	29.7	15.9	12.7	15.9	10.2	9.9	11.7
29	11.7		13.4	35.0	45.9	29.7	15.5	12.0	16.2	9.9	9.9	16.2
30	9.9		13.8	35.7	45.2	29.0	15.5	11.7	16.2	9.2	9.9	19.8
31	9.5		14.8		44.8		15.5	11.7		9.2		18.4
Sum	456.7	329.6	394.6	900.2	2,615.8	1,022.1	681.2	441.2	419.3	394.4	1,938.4	336.3

Current Year 1970 — **Period 1954-1970**

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.			18	21.2	31	9.5	14.8	906	2,075	4,745	561
Feb.			27	13.8	1	9.5	11.7	653	3,351	7,059	653
Mar.			31	14.8	25	11.3	12.7	782	2,782	5,291	782
Apr.			15	37.8	1	21.5	30.0	1,785	3,091	6,111	899
May			† 2	155	31	44.8	84.4	5,189	5,802	9,166	1,557
June			1	44.5	30	29.0	33.9	2,027	5,455	8,210	2,027
July			1	32.1	†29	15.5	21.9	1,351	3,152	4,760	1,351
Aug.			† 1	15.2	†30	11.7	14.1	876	2,166	3,948	876
Sept.			15	19.8	† 4	9.9	14.1	832	1,992	4,150	665
Oct.			7	15.5	†30	9.2	12.7	782	2,518	9,831	623
Nov.			†10	252	† 2	8.5	64.6	3,844	2,327	10,461	562
Dec.			30	19.8	†15	8.5	10.9	667	3,751	34,043	592
Yearly				252		8.5	27.2	19,694	38,462	77,670	13,462

ø 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 1970, 186,579 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 24.0% of the total irrigable acres below Falcon Dam.

The total diversion during 1970 in this river reach was 155,115 acre-feet, or 24.4% 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 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	128	30.6	11.0	586	695	43.7	43.7	154	378	48.5	105	378
2	138	65.3	67.2	646	361	39.2	84.1	70.2	375	96.8	173	383
3	75.2	95.6	63.5	572	238	110	35.9	263	402	79.4	267	361
4	2.6	265	73.8	364	419	39.2	0	384	348	25.1	291	328
5	34.9	184	209	251	512	39.2	26.8	384	247	61.5	261	234
6	57.7	189	168	636	541	45.4	61.1	397	211	56.8	229	140
7	115	89.0	106	620	514	20.5	72.8	367	211	109	141	416
8	34.7	111	81.8	658	530	59.7	241	232	429	139	111	426
9	2.6	151	171	611	321	50.2	144	137	427	123	263	459
10	15.0	195	184	547	228	132	62.4	476	465	83.4	223	417
11	0	282	211	275	576	74.7	106	541	171	115	150	349
12	41.1	172	195	141	609	53.3	38.9	618	61.3	118	101	243
13	36.1	146	196	377	622	136	220	558	5.5	185	38.1	133
14	70.0	144	95.9	371	194	93.8	273	505	89.6	206	30.9	348
15	0	133	63.5	311	94.6	209	236	272	91.4	176	49.4	351
16	24.2	228	271	371	34.4	211	93.0	128	160	183	364	396
17	34.4	196	280	348	12.8	337	38.4	473	86.7	120	440	386
18	0	207	327	203	55.7	294	58.0	548	92.8	105	458	338
19	38.4	300	295	137	13.3	311	8.8	493	46.5	224	431	206
20	37.5	228	247	438	98.2	225	66.5	472	8.9	212	388	122
21	138	137	180	496	9.2	147	71.1	469	45.5	264	251	425
22	59.9	86.3	118	490	102	408	139	339	55.0	260	133	443
23	35.6	33.2	407	463	77.1	301	91.9	211	93.0	289	419	356
24	36.0	33.9	421	472	1.0	303	82.1	449	83.5	217	437	143
25	3.3	60.0	406	412	39.3	147	62.7	434	12.7	143	329	36.5
26	38.0	78.1	387	295	40.4	120	53.5	318	8.9	292	117	67.7
27	37.7	31.7	302	746	59.2	23.6	155	313	7.1	266	271	77.0
28	104	58.6	181	768	31.7	0	185	275	7.1	282	210	378
29	37.5		77.3	753	56.7	.8	283	149	34.1	254	153	434
30	38.3		510	771	20.6	35.4	208	128	38.0	206	406	412
31	39.8		555		3.8		163	225		182		283
Sum	1,453.5	3,930.3	6,861.0	14,129	7,110	4,009.7	3,404.7	10,782.2	4,691.6	5,121.5	7,240.4	9,469.2

Current Year 1970 — **Period** 1957 - 1970

Month	Average Rainfall Inches **		ø Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
			High		Low						
	1957-1970	1970	Day		Day				Average	Maximum	Minimum
Jan.	1.34	2.44	† 2	138	†11	0	46.9	2,883	10,408	28,747	2,010
Feb.	1.13	.92	19	300	27	31.7	140	7,796	10,438	38,599	1,640
Mar.	.65	.36	31	555	1	11.0	221	13,609	16,359	41,200	637
Apr.	1.35	.73	30	771	19	137	471	28,025	23,900	36,074	5,760
May	2.32	4.78	1	695	24	1.0	229	14,103	23,401	48,400	3,996
June	2.44	3.86	22	408	28	0	134	7,953	27,332	59,900	7,953
July	.82	1.59	29	283	4	0	110	6,753	22,197	45,400	6,753
Aug.	1.62	1.32	12	618	2	70.2	348	21,386	20,700	30,000	15,479
Sept.	3.86	5.49	10	465	13	5.5	156	9,306	14,988	35,000	4,136
Oct.	2.53	1.44	26	292	4	25.1	165	10,158	15,189	30,400	2,830
Nov.	1.17	.01	18	458	14	30.9	241	14,361	12,307	21,932	2,930
Dec.	1.02	.04	9	459	25	36.5	305	18,782	10,390	18,782	2,506
Yearly	20.25	22.98		771		0	214	155,115	207,609	302,180	136,460

ø Mean daily ** United States side-average of several stations in the reach † 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 Anzaldúas 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 54 discharge measurements during the year, 53 by the Mexican Section and 1 by the United States Section of this Commission, and a continuous record of gage heights. Computations by shifting control methods. Records available: 1952 through 1970.

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 1970, 449,499 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 1970 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 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	21.2	21.2	21.2	21.2	5,300	897	✱1,060	21.2	21.2	706	530	21.2
2	251	21.2	21.2	21.2	✱6,820	756	21.2	173	21.2	✱ 706	441	21.2
3	357	21.2	21.2	106	✱7,420	✱ 618	191	364	21.2	720	371	21.2
4	367	21.2	21.2	✱ 262	✱6,360	✱ 463	✱ 371	✱ 357	21.2	703	290	21.2
5	452	21.2	21.2	374	✱5,440	✱ 392	21.2	434	21.2	21.2	212	21.2
6	✱544	21.2	21.2	795	✱5,760	823	21.2	614	21.2	21.2	214	21.2
7	540	21.2	21.2	✱1,370	✱6,040	883	21.2	876	21.2	173	217	21.2
8	445	21.2	21.2	1,770	✱6,500	21.2	21.2	✱1,060	21.2	586	213	21.2
9	364	21.2	21.2	✱2,350	6,570	21.2	21.2	1,170	21.2	879	194	21.2
10	353	21.2	21.2	2,560	✱6,920	21.2	21.2	✱1,200	177	1,060	✱174	21.2
11	364	21.2	21.2	2,650	✱7,170	21.2	21.2	1,310	364	1,030	187	21.2
12	21.2	21.2	21.2	2,220	7,350	21.2	21.2	1,100	364	1,050	0	21.2
13	21.2	21.2	21.2	1,420	6,920	21.2	21.2	512	360	1,060	0	21.2
14	21.2	21.2	21.2	893	✱6,360	21.2	21.2	✱ 353	537	879	0	21.2
15	21.2	21.2	21.2	406	5,650	21.2	21.2	374	826	✱ 706	0	21.2
16	21.2	21.2	208	21.2	4,800	21.2	21.2	346	491	547	0	21.2
17	21.2	21.2	456	353	2,970	21.2	21.2	360	360	✱ 664	21.2	152
18	21.2	21.2	537	367	✱2,560	21.2	21.2	364	703	784	21.2	544
19	21.2	21.2	530	696	2,920	21.2	21.2	551	✱ 523	922	21.2	544
20	21.2	21.2	✱526	✱ 710	✱3,450	21.2	230	✱ 826	364	1,000	21.2	537
21	21.2	21.2	21.2	946	3,150	21.2	452	✱ 936	21.2	989	21.2	600
22	21.2	21.2	21.2	1,360	2,230	357	459	1,430	21.2	982	21.2	671 ✱
23	21.2	21.2	21.2	✱1,780	1,770	565	466	1,520	21.2	985	21.2	713
24	21.2	21.2	21.2	2,280	999	840	463	✱1,420	21.2	✱ 992	21.2	883
25	21.2	21.2	21.2	✱2,950	✱ 999	✱2,190	21.2	1,260	21.2	992	21.2	1,200
26	21.2	21.2	21.2	3,280	999	1,980	21.2	✱1,390	252	848	21.2	1,190 ✱
27	21.2	21.2	21.2	3,850	749	✱1,480	21.2	1,440	699	660	21.2	1,180
28	21.2	21.2	21.2	✱4,170	357	2,120	21.2	1,090	1,310	660	21.2	1,230
29	21.2		21.2	4,340	512	✱1,360	21.2	✱ 473	✱1,180	653	21.2	1,240
30	21.2		21.2	✱4,800	✱ 653	1,060	21.2	325	727	650	21.2	1,240
31	21.2		21.2		826		21.2	21.2		✱ 583		1,480 ✱
Sum	4,482.2	593.6	2,808.2	49,121.6	126,524	17,080.8	4,179.6	23,670.4	9,533.8	23,211.4	3,339.8	13,743.2

Month	Average Rainfall Inches **		Current Year 1970 Extreme Second-Feet High		Low		Average Second-Feet	Total Acre-Feet	Period 1954-1970 Acre-Feet		
	1954-1970	1970	Day		Day				Average	Maximum	Minimum
Jan.	1.24	3.11	6	544	† 1	21.2	144	8,889	92,298	197,745	1,520
Feb.	1.44	.91	† 1	21.2	† 1	21.2	21.2	1,177	103,451	251,519	1,086
Mar.	.66	.31	18	537	† 1	21.2	90.4	5,569	42,246	147,900	1,128
Apr.	1.69	2.44	30	4,800	† 1	21.2	1,640	97,449	117,909	265,969	23,381
May	2.36	3.58	3	7,420	28	357	4,100	250,930	187,323	285,477	29,169
June	2.32	2.32	25	2,190	† 8	21.2	569	33,867	127,520	270,700	15,256
July	1.23	3.15	1	1,060	† 2	21.2	135	8,279	42,583	162,400	5,730
Aug.	2.09	1.89	23	1,520	† 1	21.2	763	46,952	76,077	186,909	6,709
Sept.	4.81	8.03	28	1,310	† 1	21.2	318	18,907	65,480	165,800	8,708
Oct.	2.68	3.27	†10	1,060	† 5	21.2	749	46,055	43,024	162,400	0
Nov.	1.49	.04	1	530	†12	0	111	6,624	14,893	83,690	0
Dec.	1.09	.12	31	1,480	† 1	21.2	441	27,248	35,569	166,700	883
Yearly	23.10	29.17		7,420		0	763	551,946	948,373	1,434,920	551,946

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

RIO GRANDE BELOW ANZALDUAS DAM, TEXAS

DESCRIPTION: Cableway, gravity well, water-stage recorder, and selsyn-type transmitter, 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 Anzaldúas 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.

RECORDS: Based on 62 discharge measurements during the year, 57 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 1970.

REMARKS: Except during local storms, flow at this station is controlled largely by releases from Falcon Reservoir and by diversions into Anzaldúas 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. The transmitter relays gage height data to the Anzaldúas Dam control room.

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 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	692	487	438	1,610	3,060	196	↟ 378	348	763	127	410	1,080
2	466	325	696	1,650	↟ 3,570	↟ 155	↟ 579	558	724	126	509	1,110
3	346	228	↟ 763	1,420	3,390	155	565	819	↟ 724	↟ 127	562	957
4	961	↟ 326	639	1,560	2,320	152	413	826	572	132	466	819
5	↟ 625	388	523	1,770	2,720	150	473	↟ 1,120	456	126	371	618
6	303	364	519	↟ 2,080	3,410	152	798	925	533	170	262	869
7	312	417	477	2,080	↟ 3,640	360	↟ 1,150	491	↟ 837	219	↟ 196	↟1,070
8	360	583	516	2,080	2,580	558	1,050	586	1,010	216	671	1,180
9	360	650	713	2,080	2,420	↟ 696	1,040	999	890	187	770	1,190
10	302	593	989	↟ 1,860	2,750	604	1,140	1,090	671	126	816	1,070
11	300	↟ 331	883	1,550	2,760	685	1,330	↟ 1,180	466	125	795	699
12	↟ 470	491	823	862	2,750	657	1,540	1,360	340	125	840	685
13	646	357	738	↟ 547	↟ 2,830	622	↟ 1,890	1,420	374	263	1,030	791
14	290	593	↟ 544	558	2,420	840	1,930	↟ 1,450	332	225	1,040	975
15	211	802	456	558	1,950	922	1,870	1,150	505	278	1,350	1,020
16	477	533	653	374	1,510	↟ 1,490	780	1,830	448	↟ 326	420	978
17	509	459	611	323	738	1,800	↟ 1,790	982	↟ 523	278	417	897
18	551	364	607	318	851	2,170	1,170	↟ 1,190	431	378	484	558
19	303	352	618	293	922	2,420	622	1,330	466	650	692	357
20	371	352	618	↟ 607	↟ 643	↟ 2,540	347	1,140	341	798	607	374
21	639	275	572	756	↟ 579	3,010	↟ 267	629	↟ 252	↟ 720	↟ 261	↟ 653
22	763	279	629	759	406	2,900	307	823	166	600	268	703
23	↟ 763	↟ 470	↟ 876	953	313	2,160	353	562	289	445	706	639
24	770	352	1,080	↟ 1,050	326	1,330	304	738	171	463	678	330
25	766	312	1,060	1,100	593	2,610	305	696	135	657	604	544
26	759	385	↟ 911	1,390	406	1,170	357	540	130	706	597	604
27	1,060	410	833	↟ 2,140	↟ 228	↟ 583	↟ 530	657	286	↟ 798	↟ 604	710
28	823	↟ 360	819	2,490	288	992	501	↟ 293	752	745	498	1,090
29	494		975	↟ 3,010	267	290	473	240	122	562	809	1,100
30	484		1,230	3,050	309	302	459	420	126	371	↟ 985	1,060
31	445		↟1,390		254		406	↟ 862		316		1,050
Sum	16,621	11,838	23,199	40,878	51,203	32,671	25,117	27,254	13,835	11,385	18,718	25,780

Current Year 1970 — **Period 1954-1970**

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.	83.01	80.31	†27	1,080	5	81.2	537	32,959	92,843	220,916	1,090
Feb.	83.01	80.41	15	1,080	5	102	424	23,480	71,810	241,900	830
Mar.	83.92	81.10	31	1,590	1	284	749	46,020	75,779	235,500	339
Apr.	86.02	80.64	30	3,100	19	160	1,360	81,095	87,904	155,700	3,160
May	87.57	80.84	2	4,380	27	213	1,650	101,532	113,644	202,400	35,360
June	86.71	80.31	25	3,670	8	107	1,090	64,815	150,225	226,345	7,850
July	84.84	80.84	14	2,170	20	213	809	49,827	78,752	253,970	2,000
Aug.	85.56	80.84	16	2,720	†27	229	879	54,044	59,334	257,297	943
Sept.	83.33	80.05	28	1,290	29	84.8	463	27,440	196,858	1,862,856	3,920
Oct.	82.58	80.18	27	904	3	112	367	22,583	245,009	2,326,000	1,730
Nov.	85.10	80.54	15	2,590	6	182	625	37,113	135,688	1,438,000	1,430
Dec.	83.20	80.54	† 1	1,220	19	182	833	51,136	85,694	540,100	1,500
Yearly	87.57	80.05		4,380		81.2	819	592,044	1,393,540	4,640,968	114,749

↟ Discharge measurement made on this day † And other days

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 1970 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 1970 no flood flows were diverted into this floodway system. There were no diversions for irrigation purposes through Retamal Canal in 1970.

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 1970, 145.070 irrigable acres and several towns and rural homes were served water diverted from the Rio Grande between Anzaldúas 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 1970 in this river reach was 121,008 acre-feet, or 19.0% of the total water diverted from the Rio Grande below Falcon Dam. About 95% 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 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	39.8	4.8	0	430	689	99.1	50.1	47.1	168	0	54.3	250
2	59.7	15.8	102	459	428	108	173	37.2	172	0	171	251
3	57.9	107	157	535	245	110	124	133	164	0	166	247
4	30.3	177	27.5	451	464	111	43.4	158	135	1.1	176	206
5	25.4	200	104	187	362	101	46.2	213	14.8	.4	205	66.7
6	3.0	110	220	575	381	5.3	121	219	9.3	0	198	53.1
7	58.7	54.4	174	577	394	9.8	209	202	179	88.2	106	272
8	120	21.4	65.9	579	481	154	261	135	205	118	70.6	294
9	77.2	27.6	172	571	308	215	263	42.1	232	79.9	205	294
10	30.5	15.6	226	502	127	224	256	206	243	0	278	246
11	0	16.2	215	207	492	325	266	292	190	.5	268	82.4
12	0	131	245	132	581	338	178	303	69.7	.5	261	75.2
13	0	188	232	260	583	374	363	235	45.4	33.9	194	65.1
14	91.5	66.0	174	166	384	224	471	272	31.3	54.4	70.3	190
15	16.6	5.1	63.0	156	204	270	454	161	43.1	104	50.8	178
16	0	120	150	166	198	371	161	4.3	53.3	165	180	195
17	0	182	241	171	186	575	161	218	165	103	220	184
18	0	219	251	81.0	0	607	252	266	128	43.8	196	123
19	0	242	254	1.8	0	642	6.0	261	0	155	189	34.0
20	17.2	212	251	137	1.0	622	35.3	256	0	192	179	8.5
21	12.5	55.6	235	176	85.0	361	38.1	242	57.0	187	56.8	187
22	0	51.0	46.7	252	120	475	119	191	31.3	188	41.6	228
23	0	157	230	302	15.6	524	196	4.9	32.8	151	212	231
24	0	89.6	265	311.0	6.7	365	149	210	105	84.0	218	178
25	0	58.9	249	349	13.1	273	155	224	0	79.4	93.4	8.5
26	10.9	41.2	265	128	61.5	236	70.1	81.5	0	229	75.3	8.5
27	25.3	114	288	522	63.2	61.7	157	71.3	0	283	101	17.1
28	129	93.3	216	549	110	3.6	190	100	14.3	277	91.8	202
29	144		87.1	610	102	36.5	155	70.9	8.0	232	70.7	259
30	133		322	685	79.8	34.4	182	3.4	0	174	257	248
31	41.9		392		82.4		176	116		107		235
Sum	1,124.4	2,775.5	5,920.2	10,227.8	7,247.3	7,855.4	5,481.2	4,975.7	2,496.3	3,131.1	4,655.6	5,117.1

Current Year 1970 — **Period** 1957 - 1970

Month	Average Rainfall Inches **		Ø Extreme Second-Feet High			Low	Average Second-Feet	Total Acre-Feet	Acre-Feet Average	Maximum	Minimum
	1957-1970	1970	Day		Day						
Jan.	1.45	2.63	29	144	†11	0	36.3	2,230	10,563	34,959	723
Feb.	1.30	.95	19	242	1	4.8	99.1	5,505	8,482	28,535	1,140
Mar.	.70	.46	31	392	1	0	191	11,743	13,335	36,100	1,050
Apr.	1.36	.96	30	685	19	1.8	341	20,287	18,410	26,074	3,630
May	2.78	5.43	1	689	†18	0	234	14,375	19,431	35,500	3,091
June	2.48	4.20	19	642	28	3.6	262	15,581	29,210	44,541	14,658
July	.92	1.86	14	471	19	6.0	177	10,872	23,716	41,100	10,872
Aug.	1.74	2.23	12	303	30	3.4	161	9,869	15,690	25,800	7,922
Sept.	3.95	6.31	10	243	†19	0	83.2	4,951	12,506	28,000	3,214
Oct.	2.84	2.38	27	283	† 1	0	101	6,211	14,316	29,215	2,059
Nov.	1.42	.07	10	278	22	41.6	155	9,234	10,079	22,818	1,015
Dec.	1.21	.07	† 8	294	†20	8.5	165	10,150	9,494	17,500	1,978
Yearly	22.15	27.55		689		0	167	121,008	185,232	241,270	121,008

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

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 at mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 62 discharge measurements during the year, 55 by the Mexican Section and 7 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 1970.

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. Prior to January 1, 1969, the zero of the gage was 52.56 feet above mean sea level, U. S. C. & G. S. datum.

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 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	745	466	317	978	2,020	332	357	312	650	168	249	696
2	ñ 699	551	388	1,160	2,260	246	424	364	ñ 692	158	274	ñ 766
3	554	ñ 448	ñ 523	1,170	2,990	164	392	ñ 445	643	156	ñ 392	837
4	445	326	ñ 572	946	ñ 2,590	ñ 149	456	646	597	184	438	742
5	720	172	685	1,220	1,960	145	463	590	516	246	424	671
6	ñ 830	272	491	1,500	2,220	143	ñ 448	848	459	ñ 201	302	639
7	434	300	332	ñ 1,540	ñ 2,640	ñ 161	576	766	410	161	210	ñ 724
8	357	371	306	1,530	2,730	179	897	417	ñ 562	169	176	812
9	302	ñ 572	445	1,540	2,040	340	879	385	675	143	ñ 367	883
10	399	653	498	1,590	2,070	473	844	ñ 851	ñ 660	138	569	890
11	352	671	ñ 660	1,570	2,390	403	862	904	523	166	586	876
12	374	ñ 473	699	1,440	ñ 2,190	ñ 335	1,110	851	420	147	590	784
13	ñ 403	520	622	1,030	2,050	313	1,450	932	406	ñ 141	625	653
14	622	273	625	ñ 516	2,150	304	ñ 1,560	1,070	410	133	855	ñ 766
15	ñ 551	413	466	438	2,110	438	1,600	1,210	ñ 357	208	1,140	805
16	284	ñ 713	452	ñ 445	1,930	632	1,730	1,240	392	177	1,310	844
17	364	696	ñ 452	403	1,610	904	1,120	ñ 1,640	392	162	ñ 590	819
18	583	417	396	238	1,150	1,180	1,590	939	381	177	310	809
19	554	245	367	211	ñ 1,070	ñ 1,490	1,300	971	357	246	308	731
20	ñ 523	182	353	294	1,150	1,700	ñ 961	1,130	505	ñ 381	470	572
21	448	181	353	ñ 417	911	1,920	565	953	484	547	569	ñ 340
22	551	280	353	463	742	2,390	357	593	ñ 262	540	498	445
23	805	237	413	459	ñ 477	ñ 2,310	311	675	196	438	263	530
24	844	ñ 298	ñ 604	547	427	1,700	273	540	260	378	ñ 378	470
25	858	371	720	682	424	1,190	224	ñ 597	245	367	547	392
26	833	340	830	858	ñ 643	ñ 2,120	209	558	179	ñ 491	590	459
27	ñ 791	360	685	1,170	509	1,420	311	572	170	487	586	629
28	992	406	622	ñ 1,440	303	830	ñ 367	696	181	498	579	745
29	922		618	1,740	240	1,050	396	317	689	523	530	809
30	569		ñ 858	2,000	252	685	392	294	ñ 357	441	675	ñ 876
31	420		897		285		371	325		315		862
Sum	18,128	11,207	16,602	29,535	46,533	25,646	22,795	22,631	13,030	8,687	15,400	21,876

Current Year 1970 — **Period** 1954-1970

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.	56.27	54.13	28	1,080	16	275	586	35,959	93,692	241,800	17,340
Feb.	55.71	53.58	16	837	5	147	396	22,033	73,831	371,900	12,620
Mar.	55.74	54.13	31	908	1	280	537	32,931	70,614	379,400	4,990
Apr.	57.78	53.87	30	4,030	19	192	985	58,527	80,159	144,000	32,060
May	59.65	54.00	3	3,270	29	215	1,500	92,291	103,603	153,028	33,164
June	58.53	53.61	22	2,480	† 6	143	855	50,884	122,975	176,300	50,884
July	57.55	53.77	16	1,870	26	162	735	45,193	74,922	235,822	16,970
Aug.	57.61	54.13	17	1,910	29	247	731	44,910	54,990	189,578	10,400
Sept.	55.61	53.77	29	805	28	162	434	25,837	130,922	837,532	21,650
Oct.	55.12	53.48	† 21	583	14	124	280	17,236	149,215	1,028,000	14,030
Nov.	56.92	54.61	16	1,510	8	167	512	30,543	88,615	735,000	18,000
Dec.	55.84	54.17	9	908	21	259	706	43,389	78,294	487,200	7,370
Yearly	59.65	53.48		4,030		124	689	499,733	1,121,832	2,869,204	482,410

ñ Discharge measurement made on this day † And other days

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 1970, 313,447 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 1970 in this river reach was 273,130 acre-feet or 42.9% 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 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	265	32.5	34.8	655	1,610	94.4	128	216	337	69.0	48.4	678
2	393	85.3	240	801	1,480	22.7	157	85.8	364	60.8	179	704
3	309	66.8	430	845	1,540	21.9	170	326	384	15.3	313	626
4	166	197	487	764	2,080	62.5	207	575	505	0	257	584
5	192	169	449	675	1,390	37.9	62.0	495	477	27.0	260	526
6	186	98.3	317	932	1,490	22.8	246	539	391	7.2	165	412
7	184	47.7	281	1,020	1,690	25.3	298	537	311	39.6	57.3	482
8	208	33.7	208	1,020	1,990	114	340	282	414	29.4	10.9	727
9	274	52.9	327	989	1,890	220	339	127	518	43.9	223	752
10	232	51.4	482	943	1,540	289	497	275	409	9.5	421	760
11	180	215	525	810	1,360	227	502	637	207	0	531	775
12	324	236	472	500	1,430	223	439	751	236	45.7	563	554
13	316	260	373	380	1,530	78.9	652	790	142	8.8	534	534
14	185	117	437	380	1,490	187	911	844	167	39.4	528	559
15	271	42.0	297	449	1,440	339	900	880	182	10.1	388	688
16	262	38.6	182	123	736	392	216	936	360	81.1	321	709
17	238	51.1	256	50.0	296	695	260	760	380	79.0	270	814
18	214	242	188	92.5	257	753	237	685	308	55.1	286	519
19	260	200	159	67.8	208	765	85.4	748	282	164	202	346
20	117	125	125	90.2	175	832	193	780	125	310	325	276
21	66.3	58.6	141	221	236	833	290	724	79.2	388	366	242
22	46.9	37.0	127	348	152	1,130	75.2	372	76.6	356	157	303
23	72.1	75.5	269	403	76.3	1,080	117	327	207	356	261	335
24	50.2	182	499	388	129	936	61.2	190	142	245	411	295
25	30.8	236	554	392	39.0	742	78.0	252	137	209	374	82.3
26	197	237	526	396	31.2	638	16.5	282	113	464	386	301
27	230	132	422	691	31.1	529	162	274	71.7	395	476	229
28	128	53.9	355	1,210	60.1	402	254	266	72.1	381	299	469
29	55.6		281	1,410	59.9	310	242	268	20.9	340	216	512
30	63.5		523	1,520	73.8	154	251	154	147	284	555	563
31	47.6		676		7.6		233	152		127		587
Sum	3,373.3		18,565.5		12,156.4		14,529.8		4,639.9		15,943.3	
	5,764.0		10,642.8		26,518.0		8,619.3		7,565.5		9,383.6	

Month	Average Rainfall Inches **		Ø Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Period 1957-1970 Acre-Feet		
			High		Low						
	1957-1970	1970	Day		Day				Average	Maximum	Minimum
			Current Year 1970								
Jan.	1.59	3.36	2	393	25	30.8	186	11,433	35,476	97,130	4,872
Feb.	1.60	.74	13	260	1	32.5	120	6,691	18,580	45,337	4,807
Mar.	.79	.97	31	676	1	34.8	343	21,110	21,512	54,200	3,280
Apr.	1.46	1.85	30	1,520	17	50.0	619	36,825	42,735	74,653	12,900
May	3.31	6.07	4	2,080	31	7.6	855	52,598	49,104	74,629	10,366
June	2.72	3.67	22	1,130	3	21.9	405	24,112	75,183	123,000	24,112
July	1.27	3.20	14	911	26	16.5	278	17,096	41,252	77,132	13,077
Aug.	2.22	2.25	16	936	2	85.8	469	28,820	27,642	45,900	13,538
Sept.	4.76	7.73	9	518	29	20.9	252	15,006	24,199	59,400	4,308
Oct.	3.04	3.40	26	464	† 4	0	150	9,203	23,468	58,164	5,146
Nov.	1.71	.09	12	563	8	10.9	313	18,612	19,392	44,359	4,853
Dec.	1.38	.10	17	814	25	82.3	514	31,624	22,284	37,500	6,663
Yearly	25.85	33.43		2,080		0	377	273,130	400,827	525,771	266,680

** United States side-average of several stations in this reach Ø 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 24 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 1970.

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 Harlingen 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 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	214	381	299	224	364	281	ft 389	166	155	275	244	158
2	454	416	260	305	460	276	271	170	226	190	219	100
3	325	428	178	325	992	ft 246	285	239	ft 262	178	171	ft 116
4	309	356	ft 158	264	922	198	276	175	249	209	ft 151	173
5	392	204	151	264	365	166	336	ft 150	179	236	168	199
6	673	154	193	478	ft 769	161	374	ft 166	150	267	192	213
7	513	137	183	ft 427	711	156	285	304	156	ft 241	183	198
8	298	219	167	405	776	144	397	245	163	195	184	184
9	214	329	149	418	443	123	550	235	165	184	183	171
10	154	ft 459	117	468	316	148	493	322	169	177	165	141
11	176	510	96.2	596	818	173	412	480	252	177	153	127
12	191	373	127	695	781	200	500	286	284	181	131	154
13	162	274	162	709	601	193	707	198	230	175	115	195
14	176	190	194	353	555	233	706	195	263	174	118	161
15	347	274	180	193	703	194	634	287	268	172	192	154
16	258	535	187	144	899	163	1,160	285	ft 187	184	739	ft 147.4
17	162	645	227	220	1,040	ft 193	ft 1,090	631	137	181	600	107
18	173	ft 424	213	251	900	215	1,010	494	135	180	ft 236	79.4
19	294	248	ft 207	186	695	469	1,060	ft 218	125	183	164	197
20	320	186	229	173	ft 885	665	861	208	155	174	139	233
21	388	152	243	172	743	775	445	289	370	ft 149	131	265
22	369	156	238	ft 163	647	998	302	249	340	164	196	211
23	521	195	252	126	566	988	271	266	216	188	226	153
24	657	202	210	99.3	455	969	238	305	155	178	123	166
25	705	193	149	104	406	482	219	351	161	198	70.2	232
26	669	177	195	151	483	782	208	301	185	186	120	226
27	536	160	249	251	553	1,110	196	298	183	154	136	178
28	ft 597	204	266	199	439	536	160	339	185	137	134	245
29	825		255	141	293	388	158	317	264	149	214	177
30	614		295	300	263	560	172	182	518	180	230	193
31	423		238		270		187	159		227		192
Sum	12,109	8,181	6,267.2	8,804.3	19,113	12,185	14,352	8,510	6,487	5,843	6,027.2	5,445.4

Month	Current Year 1970 Extreme Gage Feet High	Extreme Gage Feet Low	Extreme Second-Feet High	Day	Extreme Second-Feet Low	Day	Average Second-Feet	Total Acre-Feet	Period 1954 - 1970 Acre-Feet Average	Maximum	Minimum
Jan.	35.76	34.40	862	29	104	13	391	24,018	47,200	227,000	2,920
Feb.	35.44	34.44	664	17	142	21	292	16,227	48,566	363,000	3,380
Mar.	34.89	34.25	316	30	71.7	11	202	12,431	43,041	360,000	2,560
Apr.	35.71	34.32	843	13	91.8	24	293	17,463	35,299	118,000	11,500
May	36.40	34.56	1,180	4	250	31	617	37,911	47,081	128,576	16,873
June	37.05	34.40	1,370	27	115	9	406	24,169	45,789	81,119	16,100
July	36.53	34.52	1,330	16	155	†28	463	28,467	37,561	197,219	4,690
Aug.	35.67	34.49	822	14	146	5	275	16,880	27,085	136,690	3,100
Sept.	35.39	34.40	608	30	103	18	216	12,867	91,544	599,652	7,710
Oct.	35.01	34.45	376	1	128	27	188	11,590	116,420	826,802	3,840
Nov.	35.72	34.20	862	16	60.6	25	201	11,955	64,954	662,000	5,640
Dec.	34.84	34.26	290	26	71.7	2	176	10,801	55,628	479,000	2,430
Yearly	37.05	34.20	1,370		60.6		310	224,779	660,168	2,152,943	145,520

ft Discharge measurement made on this day ‡ Period 1954 - 1970 † 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 1970, 116,807 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 15.0% of the total irrigable acres below Falcon Dam.

The total diversion during 1970 in this river reach was 79,557 acre-feet or 12.5% 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 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	29.0	8.2	20.0	224	196	45.5	194	29.1	97.9	40.9	38.6	209
2	120	5.7	184	216	293	25.8	255	44.1	50.9	31.8	65.9	109
3	128	15.7	247	251	396	33.9	190	61.1	126	24.5	97.1	56.9
4	27.4	6.2	216	232	483	41.9	169	73.7	125	13.5	63.5	55.0
5	107	52.7	189	149	402	25.2	149	136	105	6.2	65.8	57.1
6	78.6	9.2	162	235	295	25.2	263	120	104	11.0	65.6	62.0
7	82.6	5.7	73.1	305	345	24.0	257	95.2	103	14.9	42.9	144
8	121	8.7	113	321	369	36.0	201	78.1	114	6.6	62.7	152
9	8.4	14.9	99.0	282	390	85.1	305	79.1	97.4	20.5	95.5	108
10	9.9	23.0	121	208	332	15.6	316	133	120	24.1	125	114
11	8.4	57.2	141	120	344	30.7	284	172	46.8	4.2	92.5	74.8
12	8.4	23.0	67.0	8.4	485	16.2	240	187	32.8	19.1	72.9	70.9
13	5.4	23.4	84.5	3.1	485	20.2	273	160	48.4	31.5	35.2	54.0
14	5.4	22.6	114	5.4	420	53.9	348	127	149	40.0	32.4	54.1
15	7.4	22.6	120	13.6	322	122	354	112	179	35.2	28.2	111
16	6.6	75.9	170	47.2	306	180	298	80.0	178	34.2	59.0	142
17	5.4	76.8	186	46.6	172	157	132	137	133	36.5	37.3	134
18	7.2	42.3	158	7.2	206	212	47.2	281	96.3	40.6	39.8	91.2
19	5.2	38.3	161	19.5	221	129	27.1	260	80.9	39.6	86.1	71.9
20	7.8	25.9	153	122	191	312	80.9	150	24.5	40.9	107	60.4
21	7.8	20.3	109	103	122	391	67.5	150	100	41.4	74.2	118
22	56.7	22.9	138	71.1	160	384	53.9	70.5	148	36.3	57.9	76.3
23	10.3	22.9	174	122	137	373	97.3	68.3	114	33.3	44.1	158
24	10.1	20.8	185	110	108	371	114	134	15.4	38.8	47.8	121
25	6.9	31.9	199	35.3	140	291	56.9	166	11.0	38.5	56.7	76.1
26	7.3	23.1	143	63.5	128	194	28.2	170	17.6	63.0	31.6	94.5
27	15.9	60.4	123	126	116	119	35.1	172	10.8	62.2	36.6	87.3
28	35.2	19.6	92.3	243	120	60.0	47.3	192	6.0	57.3	35.4	144
29	63.5		89.8	168	121	136	101	104	12.5	50.1	37.6	190
30	14.8		173	168	102	188	62.6	80.2	17.1	42.5	156	216
31	35.4		212		37.1		34.2	141		42.7		165
Sum	1,043.0	779.9	4,416.7	4,025.9	7,944.1	4,098.2	5,081.2	3,963.4	2,464.3	1,021.9	1,890.9	3,377.5

Month	Average Rainfall Inches **		Ø Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
			High		Low						
	1957-1970	1970	Day		Day				Average	Maximum	Minimum
			Current Year 1970						Period 1957-1970		
Jan.	1.85	4.46	3	128	19	5.2	33.6	2,069	10,148	24,568	1,290
Feb.	1.96	.39	17	76.8	† 2	5.7	27.9	1,547	5,885	12,284	1,028
Mar.	.71	.48	3	247	1	20.0	142	8,761	5,928	15,200	705
Apr.	1.50	2.15	8	321	13	3.1	134	7,989	11,013	21,828	2,180
May	3.12	4.98	†12	485	31	37.1	256	15,757	14,465	27,670	2,561
June	2.71	3.27	21	391	10	15.6	137	8,129	19,248	32,279	8,129
July	1.24	3.27	15	354	19	27.1	164	10,079	12,242	23,145	3,687
Aug.	2.41	1.24	18	281	1	29.1	128	7,861	8,057	10,700	4,291
Sept.	5.64	8.00	15	179	28	6.0	82.1	4,888	5,880	12,600	876
Oct.	3.20	4.39	26	63.0	11	4.2	33.0	2,027	5,902	11,300	1,591
Nov.	1.57	.07	30	156	15	28.2	63.0	3,751	4,983	9,021	2,320
Dec.	1.59	.18	30	216	13	54.0	109	6,699	6,406	11,200	2,163
Yearly	27.50	32.88		485		3.1	110	79,557	110,157	161,503	73,788

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

RIO GRANDE NEAR BROWNSVILLE, TEXAS

DESCRIPTION: Cableway, bubbler gage, and water-stage recorders (graphic and digital), 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 1970.

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 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	193	466	172	61.9	ñ 23.5	317	378	174	102	422	163	113
2	167	422	202	42.3	99.7	310	273	154	113	309	188	78.4
3	274	413	109	42.6	145	ñ 295	126	117	ñ 120	220	162	ñ 68.4
4	298	402	ñ 55.3	29.1	452	267	124	165	129	246	ñ 133	73.4
5	356	ñ 346	48.6	55.3	387	229	122	ñ 151	122	328	110	71.2
6	320	280	48.5	60.5	ñ 85.6	200	133	94.7	106	267	111	63.0
7	511	222	56.9	98.0	250	182	100	81.7	77.9	ñ 268	126	62.8
8	410	201	86.9	ñ 67.5	268	165	56.2	157	68.4	259	135	61.9
9	310	237	98.7	38.6	269	128	58.6	191	64.8	231	162	60.3
10	263	328	95.0	140	104	144	104	148	69.9	194	114	68.4
11	200	417	57.5	348	35.6	139	102	118	93.3	193	105	94.2
12	191	504	49.7	541	152	162	74.8	164	202	198	96.9	89.1
13	211	400	58.1	708	164	187	112	106	246	177	95.1	83.9
14	219	306	58.8	689	78.9	192	208	102	169	164	95.8	113
15	191	241	84.6	417	90.5	174	ñ 166	106	102	158	91.4	128
16	309	196	85.7	254	283	125	209	177	ñ 92.4	145	164	ñ 81.2
17	293	289	70.6	164	558	ñ 53.5	774	185	77.1	146	584	42.5
18	198	ñ 573	68.9	155	802	35.6	881	291	64.8	146	563	35.0
19	180	446	ñ 82.8	253	645	37.7	939	192	82.0	146	259	52.7
20	258	284	64.0	155	ñ 477	116	946	ñ 81.8	145	147	ñ 141	91.2
21	337	214	86.8	102	644	164	754	85.2	145	ñ 142	115	156
22	329	176	89.4	ñ 131	563	272	458	135	201	135	113	131
23	364	172	72.2	110	483	540	321	182	246	133	138	132
24	480	188	67.0	62.6	439	659	221	176	238	152	178	70.2
25	598	196	56.4	63.9	335	583	199	150	216	145	135	80.6
26	638	179	41.6	84.7	273	354	250	181	192	149	91.8	94.0
27	610	123	31.7	68.0	326	734	233	161	248	145	86.7	183
28	502	149	67.8	78.4	378	989	201	137	214	137	102	117
29	529		114	52.5	322	526	144	173	197	110	110	104
30	684		128	27.3	225	296	130	244	229	107	137	55.0
31	550		94.9		291		168	157		125		42.2
Sum	10,973	8,370	2,503.4	5,100.2	9,648.8	8,575.8	8,965.6	4,737.4	4,372.6	5,844	4,805.7	2,696.6

Month	Current Year 1970 Extreme Gage Feet High	Low	Extreme Second-Feet High Day	High	Low Day	Low	Average Second-Feet	Total Acre-Feet	Period 1954 - 1970 Acre-Feet Average	Maximum	Minimum
Jan.	7.81	4.60	30	701	2	160	354	21,765	34,831	224,000	283
Feb.	6.84	3.90	18	605	27	75.5	299	16,602	42,936	362,000	1,060
Mar.	5.18	3.35	2	258	27	26.5	80.8	4,965	37,103	361,000	2,050
Apr.	7.73	3.07	14	780	4	8.6	170	10,116	23,614	127,000	875
May	7.92	3.07	18	847	1	9.2	311	19,138	30,120	127,595	4,140
June	9.34	3.14	28	1,200	18	22.3	286	17,010	25,556	60,836	2,430
July	8.74	3.38	19	1,040	† 8	46.9	289	17,783	28,991	190,638	1,120
Aug.	5.80	3.80	18	373	20	72.5	153	9,397	17,999	97,786	218
Sept.	5.72	3.64	30	370	9	61.6	146	8,673	78,193	516,325	950
Oct.	6.15	4.01	1	452	30	103	189	11,592	93,506	738,596	756
Nov.	7.28	3.84	†17	690	27	82.5	160	9,532	55,397	528,000	1,290
Dec.	4.79	3.27	27	203	30	32.1	87.0	5,349	50,226	480,000	524
Yearly	9.34	3.07		1,200		8.6	210	151,922	518,472	1,863,269	30,596

ñ Discharge measurement made on this day † And other days

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 1970, 6,272 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 1970 in this river reach was 1,704 acre-feet, or 0.3% of the total water diverted from the Rio Grande below Falcon Dam. All the records of diversions in this river reach were furnsihed 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 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	3.1	1.4	0.4	0	6.6	0	1.8	0	0	3.0
2	0	0	3.1	1.4	0	0	6.6	2.2	1.8	0	0	3.0
3	0	0	3.1	1.4	11.0	0	6.6	2.2	1.8	0	2.0	3.0
4	0	0	3.1	1.4	11.0	0	7.0	2.2	1.8	0	2.0	3.0
5	0	0	6.3	0	11.0	0	.5	2.2	1.8	0	2.0	3.0
6	0	0	3.1	0	11.0	0	9.7	2.2	3.8	0	2.0	2.6
7	0	0	3.1	1.2	11.0	1.2	9.1	2.2	3.8	0	2.0	2.6
8	0	0	0	3.8	11.0	0	14.1	2.2	3.8	0	2.7	2.6
9	0	3.6	0	3.8	11.0	0	14.1	3.0	3.8	0	2.7	0
10	0	3.6	0	3.8	16.7	0	14.1	.4	3.8	0	2.7	0
11	0	3.6	2.1	0	16.7	0	14.2	.5	0	0	2.7	2.6
12	0	3.6	2.1	0	16.7	0	4.8	0	0	0	2.7	2.6
13	0	3.6	2.1	0	16.7	2.4	7.9	0	0	0	2.7	0
14	0	3.6	2.1	0	16.7	1.0	14.9	0	2.5	0	2.7	0
15	0	2.1	1.7	.5	16.7	0	8.1	0	2.5	0	3.0	0
16	0	2.1	1.7	.5	16.7	0	4.8	2.4	3.2	0	3.0	0
17	0	2.1	1.7	0	4.9	1.5	0	2.4	.6	.1	3.0	2.0
18	0	2.1	1.7	0	8.6	2.0	0	2.4	0	0	3.0	3.5
19	0	2.1	1.7	0	8.6	.7	0	2.4	0	0	3.0	3.5
20	0	2.1	1.7	0	8.6	0	3.8	6.4	0	0	3.0	0
21	0	2.1	1.7	0	8.6	0	3.8	6.6	0	0	3.0	0
22	0	0	0	0	8.6	0	3.8	6.4	0	0	3.0	0
23	0	0	0	0	8.6	0	3.8	5.6	0	1.1	3.0	0
24	0	0	0	0	12.6	0	3.8	5.6	0	0	3.3	0
25	0	0	.2	0	9.3	0	3.8	5.6	0	0	3.0	0
26	0	0	1.2	0	9.3	0	0	3.5	0	.8	0	0
27	0	0	0	0	9.3	0	0	5.6	0	0	0	0
28	0	0	1.3	.6	11.8	0	0	5.6	0	0	0	4.7
29	0		1.4	0	11.6	0	0	5.6	0	0	0	4.7
30	0		1.4	0	9.3	0	.4	1.8	0	1.3	0	4.7
31	0		1.4		1.8		0	1.8		3.0		4.7
Sum	0	36.3	52.1	19.8	325.8	8.8	166.3	89.0	36.8	6.3	62.2	55.8

Current Year 1970 — **Period 1957 - 1970**

Month	Average Rainfall Inches **		Ø Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
			High		Low				Average	Maximum	Minimum
	1957-1970	1970	Day		Day						
Jan.	1.99	4.20		0		0	0	0	435	1,275	0
Feb.	2.06	.23	† 9	3.6	† 1	0	1.3	72.0	190	668	0
Mar.	.74	.18	5	6.3	† 8	0	1.7	103	120	305	0
Apr.	1.55	3.03	† 8	3.8	† 5	0	.7	39.3	220	633	0
May	2.87	4.76	† 10	16.7	2	0	10.5	646	386	1,356	0
June	2.44	2.90	13	2.4	† 1	0	.3	17.5	538	1,393	17.5
July	1.06	3.02	14	14.9	† 17	0	5.4	330	256	778	43.6
Aug.	2.29	1.59	21	6.6	† 1	0	2.9	177	150	317	13.7
Sept.	5.76	8.34	† 6	3.8	† 11	0	1.2	73.0	70.6	190	0
Oct.	3.02	4.04	31	3.0	† 1	0	.2	12.5	68.3	218	0
Nov.	1.64	.06	24	3.3	† 1	0	2.1	123	88.9	252	0
Dec.	1.66	.14	† 28	4.7	† 9	0	1.8	111	108	335	0
Yearly	27.08	32.49		16.7		0	2.4	1,704.3	2,630.8	5,036.3	1,204.7

Ø Mean daily ** United States side-average of several stations in the reach † 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 1970 show that, in this area, 777,391 irrigable acres, several towns and many rural homes were served Rio Grande water under the jurisdiction of this Court.

The total diversion in 1970 was 636,835 acre-feet, most of which was made by pumping from the river. About 94% 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 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	467	82.9	72.3	1,920	3,210	293	424	457	988	160	250	1,520
2	716	179	600	2,140	2,580	206	681	250	969	191	593	1,460
3	575	298	904	2,220	2,450	286	528	796	1,080	121	853	1,300
4	228	658	814	1,830	3,480	265	429	1,200	1,120	42.6	78	1,180
5	362	619	961	1,280	2,700	214	294	1,240	851	98.0	802	892
6	327	420	873	2,390	2,740	109	712	1,290	723	77.9	667	677
7	442	210	640	2,540	2,980	104	856	1,210	818	255	357	1,320
8	486	182	470	2,600	3,400	387	1,070	740	1,180	296	265	1,610
9	365	262	771	2,470	2,940	594	1,070	398	1,290	270	796	1,620
10	291	300	1,020	2,220	2,260	684	1,160	1,100	1,250	120	1,060	1,540
11	192	591	1,100	1,430	2,800	681	1,180	1,650	624	124	1,050	1,290
12	377	582	983	787	3,140	654	908	1,870	409	188	1,010	953
13	361	638	889	1,030	3,250	635	1,520	1,750	244	264	811	793
14	355	370	824	928	2,520	585	2,020	1,760	442	346	671	1,160
15	297	217	554	936	2,090	966	1,960	1,430	501	331	527	1,340
16	296	476	783	713	1,300	1,180	780	1,160	761	469	935	1,450
17	280	520	974	620	681	1,790	598	1,600	772	343	978	1,530
18	224	724	934	389	536	1,890	601	1,790	632	253	991	1,080
19	306	794	879	238	460	1,870	134	1,770	412	592	919	668
20	182	605	786	799	483	2,020	386	1,670	161	765	1,010	476
21	228	285	676	1,010	470	1,740	478	1,600	284	890	759	981
22	166	199	434	1,170	552	2,410	398	989	313	850	395	1,060
23	121	290	1,100	1,300	324	2,290	513	620	449	840	943	1,090
24	99.1	328	1,390	1,290	264	1,980	417	992	348	594	1,120	746
25	43.2	389	1,420	1,200	247	1,460	363	1,080	163	475	860	213
26	256	382	1,340	904	277	1,200	173	858	142	1,060	614	481
27	311	341	1,150	2,110	285	741	520	839	91.4	1,020	889	421
28	402	228	861	2,790	340	467	688	842	101	1,010	645	1,210
29	306		556	2,960	358	485	792	600	77.3	881	483	1,410
30	255		1,550	3,170	292	414	715	373	204	718	1,380	1,450
31	170		1,860		143		617	641		471		1,290
Sum	11,169.9		47,384		28,600		34,565		14,115.5			34,211
	9,486.3		28,168.3		49,552		22,985		17,399.7		23,430	

Month	Current Year 1970 Average Rainfall Inches **		Ø Extreme Second-Feet High		Low		Average Second-Feet	Total Acre-Feet	Period 1957-1970 Acre-Feet		
	1957-1970	1970	Day		Day				Average	Maximum	Minimum
Jan.	1.49	2.87	2	716	25	43.2	306	18,816	67,623	182,403	9,717
Feb.	1.44	.88	19	794	1	82.9	399	22,155	44,221	126,230	11,785
Mar.	.69	.40	31	1,860	1	72.3	909	55,872	58,223	149,000	6,280
Apr.	1.44	1.20	30	3,170	19	238	1,580	93,986	97,267	157,807	25,100
May	2.73	4.70	4	3,480	31	143	1,600	98,286	107,986	171,000	20,436
June	2.56	3.66	22	2,410	7	104	953	56,728	152,843	259,000	56,728
July	.98	2.08	14	2,020	19	134	741	45,591	100,486	178,000	41,158
Aug.	2.02	1.63	12	1,870	2	250	1,120	68,560	72,922	113,000	48,709
Sept.	4.52	6.28	9	1,290	29	77.3	580	34,512	58,167	136,000	12,709
Oct.	2.78	2.30	26	1,060	4	42.6	455	27,998	59,649	124,598	12,991
Nov.	1.41	.04	30	1,380	1	250	781	46,473	47,374	97,969	12,674
Dec.	1.20	.09	9	1,620	25	213	1,100	67,858	49,307	84,500	14,034
Yearly	23.26	26.13		3,480		42.6	880	636,835	916,068	1,153,049	636,835

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

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
1970	1,646	1,499	1,606	1,616	1,846	1,786	2,042	2,145	2,045	1,756	1,580	1,793	21,360
* Average	1,665	1,558	1,717	1,656	1,825	1,798	1,914	1,951	1,826	1,822	1,676	1,694	21,102

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
1970	54.0	41.1	43.0	37.3	36.9	37.5	38.7	43.0	42.2	42.2	71.4	69.2	556.5
# Average	58.2	55.5	51.7	46.6	46.6	40.4	40.0	48.1	52.2	56.6	59.0	60.1	615.0

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
1970	423	452	492	589	590	534	599	598	515	474	625	559	6,450
* Average	367	384	456	449	499	471	484	463	384	389	438	396	5,180

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.

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Yearly
1970	233	293	387	393	393	427	471	448	436	457	468	469	4,875
* Average	293	298	348	310	331	349	355	359	364	361	329	307	4,004

* Period averages are for past 10 years # Period 1962-1970

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 April through September 1970, 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 5,416 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 60, 63, 67, 69, 71, 73, and 74 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. 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. Starting May 1, 1970, Matamoros, Tamaulipas stopped pumping water from the Rio Grande and is now using water from Solisena Canal.

Population data for all cities are from the 1970 official census, except for Falcon Village which was estimated by the International Boundary and Water Commission, Del Mar and Escobares which were estimated from the number of meter connections, San Ygnacio which was based on a local census, and Zapata and Rio Grande City which were estimated based on the 1970 Texas Almanac.

In United States

Month	EL PASO (Pop. 322,261)				DEL RIO Ø (Pop. 20,928)			
	1970	Period 1961-1970			1970	Period 1961-1970		
		Average	Maximum	Minimum		Average	Maximum	Minimum
Jan.	0	0	0	0	332.3	318.9	407.0	212.4
Feb.	0	0	0	0	328.5	319.0	411.5	240.7
Mar.	402	363.8	831	37.9	397.8	476.2	599.2	350.1
Apr.	1,644	1,248.3	2,096	671.4	546.3	530.6	611.1	424.0
May	2,398	1,469.9	2,540	3.0	593.3	554.9	768.8	376.5
June	2,460	1,766.2	2,498	637.0	731.0	708.2	907.6	571.7
July	2,183	1,759.5	2,565	830.8	970.4	905.6	1,093.2	588.4
Aug.	2,601	1,815.6	2,800	881.5	869.9	866.5	1,147.4	588.4
Sept.	1,533	1,236.6	1,958	343.9	540.6	567.5	731.7	431.0
Oct.	415	355.9	1,016	0	376.8	416.4	521.1	282.1
Nov.	339	171.5	397	0	375.9	335.1	413.5	220.4
Dec.	69	94.8	677.1	0	366.3	303.4	372.0	229.0
Yearly	14,044	10,282.1	15,517.0	3,805.3	6,429.1	6,302.3	6,969.4	5,134.6

Month	EAGLE PASS (Pop. 15,277)				DEL MAR (Pop. 1,430)			
	1970	Period 1961-1970			1970	Period 1962-1970		
		Average	Maximum	Minimum		Average	Maximum	Minimum
Jan.	171.5	141.4	178.8	100.3	10.9	8.5	22.6	0.3
Feb.	167.2	139.7	172.2	118.7	12.8	9.2	21.0	.6
Mar.	192.1	175.3	220.3	147.7	16.6	8.8	21.9	0
Apr.	232.6	180.6	232.6	155.2	29.0	16.1	35.3	0
May	212.0	191.0	254.9	144.3	36.2	15.6	36.2	0
June	281.5	240.0	298.8	188.2	30.9	17.6	35.3	0
July	334.6	276.5	365.0	205.9	39.9	19.7	40.9	0
Aug.	325.0	265.4	346.9	191.7	44.3	28.4	51.3	1.9
Sept.	279.2	199.6	279.2	164.8	43.4	20.1	43.4	1.7
Oct.	228.1	179.4	228.1	139.1	22.0	14.3	31.7	1.7
Nov.	197.9	157.1	197.9	103.7	24.9	16.5	32.1	1.5
Dec.	198.6	148.7	198.6	106.5	22.2	14.5	31.8	1.5
Yearly	2,820.3	2,294.7	2,825.3	1,810.7	333.1	189.3	346.7	15.0

Ø Includes Laughlin Air Force Base

MUNICIPAL AND INDUSTRIAL WATER USES

In Acre-Feet

In United States

Month	LAREDO (Pop. 65,491)				LAREDO POWER STATION			
	1970,	Period 1961-1970			1970	Period 1961-1970		
		Average	Maximum	Minimum		Average	Maximum	Minimum
Jan.	769.9	667.9	843.8	479.3	59.3	35.6	59.3	15.9
Feb.	792.6	672.7	825.7	529.6	37.6	31.1	72.7	13.5
Mar.	947.0	877.8	1,077.3	775.0	41.9	37.4	79.3	10.7
Apr.	1,281.3	976.6	1,281.3	745.0	63.3	51.1	76.4	26.0
May	1,282.9	1,086.2	1,449.0	822.6	51.5	54.1	74.4	35.6
June	1,334.7	1,177.7	1,429.3	952.7	85.1	67.2	85.1	46.9
July	1,712.3	1,381.6	1,712.3	972.7	98.5	87.2	102.9	63.4
Aug.	1,708.1	1,347.1	1,708.1	1,078.0	93.8	92.8	109.1	75.6
Sept.	1,320.7	984.4	1,320.7	742.1	87.8	73.2	87.8	49.8
Oct.	1,155.7	948.8	1,326.2	815.5	66.9	51.6	87.8	29.7
Nov.	1,158.1	810.5	1,158.1	565.6	66.5	50.1	71.3	21.8
Dec.	1,016.9	720.3	1,016.1	572.0	52.8	48.4	71.3	32.2
Yearly	14,480.2	11,651.6	14,480.2	9,489.3	805.0	679.8	864.7	475.6

Month	SAN YGNACIO (Pop. 1,018)				NEW ZAPATA (Pop. 2,300)			
	1970	Period 1965-1970			1970	Period 1961-1970		
		Average	Maximum	Minimum		Average	Maximum	Minimum
Jan.	1.6	1.6	2.6	0.8	21.3	24.5	43.0	14.6
Feb.	2.2	2.0	2.5	1.1	22.4	25.5	40.2	17.4
Mar.	3.2	2.7	3.4	2.1	37.1	31.8	41.2	25.0
Apr.	4.2	3.6	4.6	2.4	44.1	35.6	46.0	27.0
May	3.6	2.5	3.6	1.5	39.7	34.5	46.4	18.3
June	4.8	3.0	4.8	1.4	35.7	39.2	49.2	27.7
July	4.7	3.2	4.7	.8	41.9	46.1	57.6	34.4
Aug.	4.4	3.7	4.5	1.4	43.6	43.6	52.7	31.7
Sept.	3.3	2.3	3.3	1.5	27.2	31.7	50.4	21.1
Oct.	2.5	2.3	2.9	1.5	25.1	31.5	47.6	24.2
Nov.	2.8	2.2	2.8	1.4	26.8	25.9	44.3	17.7
Dec.	2.9	1.9	2.9	1.1	25.0	25.2	43.1	16.7
Yearly	40.2	31.0	40.2	21.3	389.9	395.1	483.8	332.9

Month	FALCON VILLAGE (Pop. 159)				ROMA * (Pop. 2,500)			
	1970	Period 1961-1970			1970	Period 1961-1970		
		Average	Maximum	Minimum		Average	Maximum	Minimum
Jan.	5.5	5.7	6.9	4.2	18.0	27.1	38.6	14.4
Feb.	6.2	5.8	7.2	4.4	17.2	26.3	36.0	14.4
Mar.	8.6	7.8	9.8	6.5	23.1	33.3	45.3	18.2
Apr.	10.3	8.9	10.3	6.5	28.0	36.0	48.7	17.0
May	9.1	9.0	11.5	6.5	27.0	37.7	49.7	19.9
June	10.4	9.7	12.8	7.8	28.9	38.6	50.1	21.1
July	11.4	12.0	14.7	9.5	31.0	42.5	54.9	21.9
Aug.	12.4	11.3	13.2	9.7	34.2	40.6	51.8	25.7
Sept.	8.8	8.2	11.0	5.8	28.1	33.5	49.5	18.6
Oct.	7.9	7.6	8.9	6.4	25.7	32.7	44.5	19.5
Nov.	7.4	6.4	7.9	5.1	27.3	29.4	44.0	15.7
Dec.	7.5	5.9	7.7	3.8	26.4	27.7	43.2	15.4
Yearly	105.5	98.3	105.9	88.1	314.9	405.4	528.0	228.2

Month	RIO GRANDE CITY (Pop. 7,000)				BROWNSVILLE (Pop. 51,080)			
	1970	Period 1961-1970			1970	Period 1961-1970		
		Average	Maximum	Minimum		Average	Maximum	Minimum
Jan.	76.4	60.2	76.4	49.4	620.4	678.5	899.7	547.0
Feb.	75.5	57.6	75.5	50.3	602.4	631.4	791.4	540.9
Mar.	67.5	69.0	83.2	59.8	845.1	783.6	870.3	641.6
Apr.	67.5	73.7	92.1	61.4	914.6	802.9	914.6	663.1
May	62.9	74.0	88.1	61.4	795.3	789.0	952.5	644.2
June	59.2	80.5	105.3	59.2	752.5	872.4	1,047.4	727.3
July	69.4	87.5	107.7	59.2	936.1	1,042.4	1,264.0	860.4
Aug.	83.9	89.3	99.7	77.6	1,031.9	989.9	1,177.1	790.2
Sept.	79.8	74.0	92.1	62.9	847.4	783.1	927.7	665.4
Oct.	106.7	69.9	106.7	58.0	810.3	769.4	902.5	657.2
Nov.	89.0	64.3	89.0	46.0	815.5	721.4	848.1	573.9
Dec.	81.1	63.5	81.1	50.9	793.2	724.9	896.5	577.6
Yearly	918.9	863.5	939.2	768.2	9,764.7	9,588.9	10,846.3	8,907.7

* Includes Los Saenz and Escobares, Texas

MUNICIPAL AND INDUSTRIAL WATER USES

In Acre-Feet

In Mexico

Month	PIEDRAS NEGRAS (Pop. 62,502)				NUEVO LAREDO (Pop. 149,957)			
	1970	Period 1965-1970			1970	Period 1961-1970		
		Average	Maximum	Minimum		Average	Maximum	Minimum
Jan.	198.2	191.0	212.2	163.8	1,220.4	874.6	1,220.4	567.7
Feb.	184.6	172.0	184.6	160.3	1,179.3	834.9	1,179.3	582.6
Mar.	223.6	207.4	229.7	184.6	1,352.3	1,018.3	1,352.3	885.2
Apr.	267.9	229.5	267.9	194.2	1,531.8	1,098.9	1,531.8	900.5
May	316.5	254.8	316.5	198.5	1,588.1	1,189.3	1,588.1	956.3
June	333.4	292.3	336.8	241.8	1,775.6	1,255.8	1,775.6	915.0
July	360.8	325.9	375.4	297.2	1,935.6	1,364.4	1,935.6	997.7
Aug.	353.2	310.6	353.2	248.2	1,804.6	1,370.7	1,856.3	957.4
Sept.	321.1	254.0	321.1	222.1	1,687.8	1,169.1	1,687.8	913.2
Oct.	302.6	243.2	302.6	208.5	1,555.7	1,151.9	1,555.7	943.8
Nov.	282.5	217.1	282.5	176.4	1,494.0	996.8	1,494.0	760.9
Dec.	262.3	202.4	262.3	171.1	1,508.7	965.2	1,508.7	708.1
Yearly	3,406.7	2,900.2	3,406.7	2,599.5	18,633.9	13,289.9	18,633.9	10,667.1

Month	NUEVA CD. GUERRERO (Pop. 3,351)				CD. MIER (Pop. 5,757)			
	1970	Period 1961-1970			1970	Period 1961-1970		
		Average	Maximum	Minimum		Average	Maximum	Minimum
Jan.	24.6	32.1	48.7	19.8	29.8	29.8	38.9	21.8
Feb.	23.5	29.2	44.3	19.1	24.4	29.5	41.3	20.1
Mar.	33.2	36.4	48.0	25.4	36.9	36.4	47.0	26.6
Apr.	35.1	37.0	52.5	19.9	37.5	37.3	46.2	25.5
May	37.1	41.5	53.8	35.2	39.3	39.6	50.3	34.5
June	28.3	37.5	52.9	21.2	35.0	36.5	49.7	24.8
July	26.6	37.7	49.3	26.2	33.1	38.5	50.3	28.9
Aug.	28.0	37.2	49.0	26.8	37.9	38.0	49.7	29.2
Sept.	27.2	35.5	46.4	22.2	31.6	36.1	47.2	24.7
Oct.	27.2	35.0	49.1	24.0	29.8	36.2	46.9	25.6
Nov.	26.3	33.5	46.2	24.6	31.3	33.8	41.3	25.4
Dec.	26.5	32.0	48.6	24.6	29.5	31.5	38.9	25.0
Yearly	343.6	424.6	552.8	325.4	396.1	423.2	533.5	340.7

Month	CD. MIGUEL ALEMAN (Pop. 11,762)				MATAMOROS (Pop. 142,185)			
	1970	Period 1967-1970			1970	Period May 1961-April 1970		
		Average	Maximum	Minimum		Average	Maximum	Minimum
Jan.	37.0	33.7	37.0	29.0	744.8	546.5	744.8	314.0
Feb.	31.2	30.8	32.0	29.0	728.2	491.9	728.2	294.3
Mar.	45.3	38.7	45.3	32.4	852.7	561.9	852.7	383.7
Apr.	44.7	38.8	44.7	31.0	868.5	618.7	868.5	416.9
May	45.7	41.3	45.7	36.5		590.2	881.9	335.7
June	47.7	43.7	47.7	37.8		599.1	834.2	382.6
July	49.8	47.5	51.9	40.9		637.9	869.9	364.3
Aug.	54.4	36.8	54.4	9.7		658.8	868.3	428.1
Sept.	44.2	37.0	44.2	26.0		582.6	830.2	406.8
Oct.	39.3	33.7	41.3	19.9		588.3	821.6	416.8
Nov.	46.5	39.1	46.5	29.3		545.9	751.2	357.0
Dec.	43.7	37.4	43.7	28.9		560.0	778.2	315.7
Yearly	529.5	458.5	531.5	422.6		6,981.8	8,914.5	4,846.7

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 the Federal Power Commission of Mexico; Francisco I. Madero, Chihuahua, 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 the 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)	
	1970	#Average 1927-1970	1970	#Average 1928-1970	1970	#Average 1928-1970	1970	#Average 1925-1970	1970	#Average 1924-1970
Jan.	26.7	13.1	5.5	4.8	5.9	6.6	11.2	3.5	3.9	3.7
Feb.	27.7	14.3	6.0	5.1	6.3	7.0	10.2	3.7	4.1	4.1
Mar.	28.8	15.6	6.7	5.5	6.8	7.9	9.9	4.1	4.3	4.4
Apr.	29.4	16.0	6.9	6.2	7.0	9.3	9.7	5.1	4.8	5.0
May	47.4	21.6	14.2	8.0	10.4	13.1	14.0	7.1	7.1	6.9
June	35.4	22.7	13.0	8.2	9.5	14.8	12.9	8.4	7.2	6.9
July	10.7	12.8	3.8	5.6	6.3	9.7	6.1	5.5	4.5	4.9
Aug.	6.0	6.4	2.0	3.6	4.8	5.0	0	3.4	2.9	3.2
Sept.	29.2	6.9	4.4	3.7	7.6	4.9	0	3.0	2.3	2.8
Oct.	33.9	8.1	5.5	3.6	8.4	5.1	0	3.1	2.9	2.8
Nov.	33.6	10.8	6.5	4.0	9.1	5.7	0	3.0	3.1	3.1
Dec.	38.2	12.4	7.2	4.5	9.4	6.2	0	3.3	3.1	3.4
Avg.	29.2	13.4	6.8	5.2	7.6	7.9	6.2	4.4	4.2	4.3
Max.	47.4	52.1	14.2	26.7	10.4	42.1	14.0	17.7	7.2	16.4
Min.	6.0	0	2.0	0	4.8	0	0	0	2.3	0

Month	SANCHEZ (Capacity 103.2)		PLATORO (Capacity 60.0)		COSTILLA (Capacity 15.7)		EL VADO (Capacity 196.5)		ABIQUIU (Capacity 1,224.8)	
	1970	#Average 1927-1970	1970	Average 1952-1970	1970	#Average 1922-1970	1970	Average 1935-1970	1970	Average 1965-1970
Jan.	18.9	11.0	3.0	6.2	8.8	4.4	1.1	31.0	2.1	0.7
Feb.	18.9	11.2	3.0	6.2	9.2	4.8	1.1	28.1	1.7	.8
Mar.	18.9	11.8	3.0	6.2	9.7	5.3	1.1	27.5	2.0	2.2
Apr.	19.0	13.3	4.0	7.2	11.0	6.5	11.8	66.8	2.3	5.2
May	19.7	17.2	4.0	9.9	13.2	8.5	21.3	114.2	44.6	27.4
June	17.5	16.3	4.0	16.3	11.6	7.9	21.4	103.4	2.0	16.0
July	16.7	11.8	4.0	13.3	7.6	5.2	21.2	83.1	3.4	15.4
Aug.	13.2	9.5	4.0	12.1	4.8	3.6	21.1	60.8	3.9	22.6
Sept.	14.1	9.8	9.4	12.4	4.2	3.1	21.3	49.3	2.4	23.8
Oct.	15.4	10.4	9.4	12.1	4.7	3.4	21.2	45.4	2.3	23.6
Nov.	15.9	10.5	2.9	6.4	5.1	3.7	1.1	34.6	2.1	11.1
Dec.	16.6	10.9	2.9	6.4	5.4	4.0	1.1	29.6	2.2	1.2
Avg.	17.0	12.0	4.5	9.6	7.9	5.0	12.1	56.2	5.9	12.5
Max.	19.7	62.4	9.4	54.0	13.2	15.1	21.4	203.5	44.6	99.0
Min.	13.2	0	2.9	0	4.2	0	1.1	0	1.7	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)	
	1970	#Average 1927-1970	1970	Average 1915-1970	1970	#Average 1938-1970	1970	#Average 1939-1970	1970	#Average 1937 1970
Jan.	6.5	5.8	531.7	772.5	44.4	105.2	9.6	8.2	79.8	68.0
Feb.	6.3	6.5	531.1	773.6	83.5	130.9	10.0	8.0	84.2	71.9
Mar.	6.2	10.1	487.3	753.2	47.8	113.0	10.0	8.8	84.6	60.9
Apr.	6.4	13.0	436.0	749.9	52.6	106.0	10.7	9.2	83.8	54.3
May	6.1	11.2	442.8	849.0	51.3	105.3	8.6	9.9	65.8	58.0
June	5.7	9.1	396.9	881.8	60.8	86.0	7.5	8.6	48.3	51.4
July	5.5	7.8	290.4	823.6	49.8	64.4	6.4	8.7	44.6	49.6
Aug.	5.5	6.9	188.7	765.9	48.8	38.1	6.0	9.6	37.1	53.1
Sept.	5.2	6.6	179.1	737.6	21.4	27.8	5.8	9.0	39.9	54.3
Oct.	5.0	6.2	199.4	735.3	24.5	44.1	5.4	8.5	40.0	58.5
Nov.	4.9	6.1	271.0	748.3	26.0	60.7	5.1	8.8	44.8	59.7
Dec.	4.8	5.8	324.5	765.0	27.8	78.0	4.1	7.8	50.6	64.3
Avg.	5.7	7.9	356.6	779.6	44.9	80.0	7.4	8.8	58.6	58.7
Max.	6.5	47.1	Ø 544.2	2,302.8 Ø	Ø 84.2	Ø 346.6	10.7	26.3	84.6	156.3
Min.	4.8	0	Ø 167.4	3.3 Ø	Ø 20.5	Ø 0.1	4.1	0	37.1	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, 866.5)	
	1970	#Average 1908-1970	1970	#Average 1936-1970	1970	Average 1962-1970	1970	#Average 1939-1970	1970	Estimated ‡ Average
Jan.	38.3	26.8	102.9	99.3	15.9	10.7	17.0	14.5	933.2	1,196.0
Feb.	37.8	26.9	102.8	101.0	15.7	10.4	14.5	13.7	974.1	1,228.2
Mar.	32.9	26.5	105.6	97.9	15.6	10.1	14.5	13.0	895.7	1,184.0
Apr.	12.3	17.4	99.5	83.5	15.1	10.5	13.2	13.2	835.5	1,197.6
May	8.2	19.9	87.6	87.4	14.9	11.0	19.9	14.2	901.1	1,399.8
June	18.3	19.5	84.9	89.5	14.0	11.3	19.2	14.3	790.1	1,392.4
July	16.0	18.3	74.3	79.1	12.9	10.8	15.8	13.9	600.0	1,243.5
Aug.	18.6	17.2	65.5	75.2	11.9	10.4	17.2	12.7	462.0	1,119.3
Sept.	22.2	18.4	58.3	76.0	14.6	13.1	17.0	14.4	458.4	1,076.9
Oct.	20.0	20.6	59.9	86.7	13.8	12.0	16.4	14.7	488.1	1,104.2
Nov.	20.4	22.0	61.0	89.6	13.4	11.8	14.5	14.6	540.5	1,114.5
Dec.	21.0	25.2	63.2	94.1	12.9	11.6	18.6	14.3	613.6	1,148.0
Avg.	22.2	21.6	80.5	88.3	14.2	11.1	16.5	14.0	707.7	1,200.4
Max.	38.3	85.5	105.6	327.5	15.9	28.2	19.9	22.6	974.1	
Min.	8.2	0	58.3	10.0	11.9	3.5	13.2	0	458.4	

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)			
	1970	#Average 1914-1970	1970	Average 1940-1970	1970	Average 1940-1970	1970	#Average 1948-1970		
Jan.	1,633.3	1,426.3	18.6	17.8	14.8	12.4	121.3	204.9		
Feb.	1,568.6	1,394.4	18.7	18.2	14.2	13.1	124.0	203.0		
Mar.	1,478.1	1,341.8	19.3	18.1	14.5	12.7	116.8	196.2		
Apr.	1,367.0	1,271.4	19.6	18.6	12.2	12.1	88.8	168.1		
May	1,250.9	1,212.4	18.9	18.5	13.8	11.8	51.3	145.2		
June	1,159.5	1,131.9	19.8	18.4	14.3	12.2	49.5	130.6		
July	1,097.4	1,169.3	18.7	18.6	14.3	11.5	69.0	144.3		
Aug.	1,135.8	1,333.9	18.9	18.1	13.6	12.6	96.7	165.2		
Sept.	1,490.8	1,495.3	17.8	17.9	14.5	13.1	163.8	199.8		
Oct.	1,554.2	1,501.0	17.8	17.7	14.8	13.0	206.0	206.3		
Nov.	1,536.1	1,469.3	11.9	16.8	14.3	12.3	208.6	206.1		
Dec.	1,521.9	1,445.4	16.7	17.9	14.6	13.3	211.8	206.2		
Avg.	1,399.5	1,349.4	18.1	18.0	14.2	12.5	125.6	181.3		
Max.	1,633.3	2,544.7	19.8	20.5	14.8	19.4	211.8	366.6		
Min.	1,097.4	16.9	11.9	11.9	12.2	0.4	49.5	1.4		

Month	CHIHUAHUA (Capacity 25.9)										
	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	Average 1961-1970
Jan.	2.4	2.1	1.0	7.5	3.4	1.3	6.9	6.2	9.5	7.4	4.8
Feb.	2.3	2.2	.9	7.4	3.2	1.2	6.7	6.0	9.6	7.5	4.7
Mar.	2.3	2.2	.9	7.1	2.8	1.1	6.6	5.8	9.6	7.5	4.6
Apr.	2.1	2.2	.7	6.8	2.5	.8	6.3	5.7	9.6	7.3	4.4
May	1.9	2.0	.6	6.4	2.2	.5	5.9	5.4	9.4	7.1	4.1
June	1.8	1.8	.4	6.1	1.3	.2	5.5	4.9	8.7	6.7	3.7
July	1.7	1.5	1.2	5.7	1.2	5.6	5.5	4.4	8.1	6.2	4.1
Aug.	1.8	1.5	3.7	5.3	1.0	5.7	5.6	9.7	8.2	6.6	4.9
Sept.	2.0	1.3	6.7	4.8	1.4	7.1	5.6	10.5	8.3	7.1	5.5
Oct.	2.2	1.1	7.6	4.8	1.7	7.5	6.9	9.6	8.0	7.1	5.6
Nov.	2.1	1.1	7.9	4.3	1.5	7.2	6.6	9.6	7.6	7.8	5.6
Dec.	2.1	1.0	7.7	3.7	1.4	7.1	6.4	9.6	7.5	7.4	5.4
Avg.	2.1	1.7	3.3	5.8	2.0	3.8	6.2	7.3	8.7	7.1	4.8
Max.	2.4	2.2	7.9	7.5	3.4	7.5	6.9	10.5	9.6	7.8	10.5
Min.	1.7	1.0	0.4	3.7	1.0	0.2	5.5	4.4	7.5	6.2	0.2

Month	LUIS L. LEON (Capacity 689.1)		CENTENARIO & SAN MIGUEL (Capacity 19.9)		VENUSTIANO CARRANZA (Capacity 1,122.8)		LA BOCA (Capacity 33.2)		MARTE R. GOMEZ (Capacity 898.3)	
	1970	Average 1968-1970	1970	Average 1934-1970	1970	Average 1930-1970	1970	Average 1963-1970	1970	#Average 1943-1970
Jan.	275.6	258.6	14.8	13.1	144.1	346.3	32.4	22.3	908.8	566.2
Feb.	285.4	247.7	13.9	12.9	122.7	327.1	32.4	22.4	898.4	514.7
Mar.	296.7	227.9	13.3	9.7	108.1	307.2	32.5	22.0	877.5	481.6
Apr.	295.1	215.2	10.4	8.2	100.5	297.5	32.3	21.5	759.1	457.8
May	295.1	219.5	6.2	9.0	77.8	285.0	30.4	21.3	651.1	429.4
June	303.2	225.8	4.2	7.7	43.8	270.0	30.8	21.0	679.9	404.2
July	330.0	282.6	5.7	7.2	60.5	261.2	31.7	21.9	711.0	383.4
Aug.	317.8	291.8	7.9	7.8	60.6	263.2	30.8	23.2	681.1	448.0
Sept.	323.5	407.1	11.6	10.0	145.4	318.2	31.0	24.4	870.1	554.9
Oct.	328.3	397.0	13.9	12.3	273.8	350.2	33.0	25.2	907.3	614.3
Nov.	290.2	369.8	16.3	12.5	314.5	356.8	32.9	25.5	885.0	614.1
Dec.	276.5	368.1	17.3	12.9	330.9	356.4	32.9	25.6	849.1	611.6
Avg.	301.4	292.6	11.3	10.3	148.6	311.6	31.9	23.0	806.5	506.7
Max.	Ø 370.5	Ø 615.9	17.3	20.7	Ø 330.9	1,163.4	33.0	33.6	Ø 922.3	1,465.4
Min.	Ø 275.6	Ø 3.8	4.2	0	Ø 43.3	* 1.0	30.4	0	Ø 628.4	** 17.8

Some months missing * Minimum since full reservoir in 1932 ** Minimum since full reservoir in 1947

Ø Daily extremes

STORED WATER IN LARGE RESERVOIRS OF THE RIO GRANDE BASIN

In Thousands of Acre-Feet

In Mexico

Month	CULEBRON & VILLA CARDENAS (Capacity 90.0)		PALITO BLANCO (Capacity 124.0)						TOTAL IN MEXICAN RESERVOIRS (Capacity 5800.2)	
	1970	#Average 1939-1970	1970	Average 1942-1970					1970	Estimated ‡Average
Jan.	19.1	39.4	58.2	40.2					3,248.4	2,952.3
Feb.	16.8	36.3	28.1	34.8					3,130.7	2,829.3
Mar.	13.5	34.1	22.4	34.9					3,000.2	2,690.8
Apr.	8.9	35.8	24.1	31.6					2,725.3	2,542.2
May	6.2	38.4	19.9	31.2					2,428.7	2,425.8
June	5.8	40.0	35.8	32.9					2,353.3	2,298.4
July	4.5	35.2	30.6	31.7					2,379.6	2,371.0
Aug.	10.6	35.2	17.7	29.4					2,398.1	2,633.3
Sept.	8.8	44.6	25.5	40.7					3,109.9	3,131.5
Oct.	23.2	47.4	44.6	47.3					3,424.0	3,237.3
Nov.	30.7	40.8	37.7	46.2					3,386.0	3,175.8
Dec.	27.9	45.2	28.8	45.7					3,335.8	3,153.7
Avg.	14.7	39.4	31.1	37.2					2,910.0	2,786.8
Max.	30.7	116.8	58.2	140.1					3,424.0	
Min.	4.5	0	17.7	0					2,353.3	

Some months missing ‡ Total 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 Elevation	
		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	2,764,578	Silt and Conservation
301.2	Top of Conservation Storage	2,767,394	87,207	513,289	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		

Storage in Thousands of Acre-Feet at 24:00 Hours 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,529.2	1,605.2	1,725.5	1,768.0	1,523.4	1,321.6	1,462.2	1,508.9	1,408.9	1,553.8	1,605.2	1,578.1
2	1,533.8	1,607.6	1,738.7	1,762.3	1,505.4	1,326.8	1,468.4	1,507.2	1,406.8	1,563.9	1,604.6	1,577.5
3	1,535.0	1,607.6	1,753.3	1,755.3	1,488.8	1,334.1	1,474.0	1,502.6	1,404.6	1,574.0	1,603.3	1,576.3
4	1,537.4	1,609.4	1,766.1	1,749.5	1,466.1	1,341.9	1,479.1	1,496.8	1,402.9	1,584.1	1,602.7	1,575.7
5	1,540.3	1,612.4	1,775.1	1,742.5	1,444.3	1,347.7	1,484.3	1,493.4	1,401.3	1,589.5	1,602.7	1,574.6
6	1,539.7	1,613.6	1,792.4	1,734.9	1,424.9	1,353.5	1,487.1	1,492.8	1,399.1	1,594.9	1,602.7	1,573.4
7	1,539.7	1,615.4	1,802.8	1,726.1	1,405.1	1,359.9	1,491.7	1,494.0	1,398.6	1,597.9	1,603.3	1,571.0
8	1,542.6	1,617.3	1,805.4	1,713.5	1,385.1	1,366.3	1,494.0	1,490.5	1,396.4	1,602.1	1,604.0	1,569.8
9	1,545.6	1,618.5	1,809.2	1,702.2	1,363.6	1,371.6	1,496.8	1,486.0	1,394.8	1,604.6	1,607.6	1,568.6
10	1,546.7	1,618.5	1,815.1	1,699.1	1,340.4	1,375.9	1,499.7	1,482.5	1,395.3	1,606.4	1,605.2	1,567.4
11	1,548.5	1,619.1	1,817.0	1,696.6	1,320.5	1,381.8	1,501.4	1,476.9	1,395.3	1,610.6	1,607.0	1,566.2
12	1,550.3	1,619.1	1,815.1	1,696.0	1,301.9	1,385.1	1,503.7	1,472.3	1,397.0	1,612.4	1,607.0	1,563.9
13	1,553.2	1,618.5	1,813.1	1,696.0	1,286.6	1,387.8	1,503.7	1,467.8	1,398.0	1,613.0	1,600.3	1,561.5
14	1,555.0	1,617.9	1,811.2	1,696.0	1,274.9	1,390.5	1,504.3	1,464.4	1,399.7	1,614.2	1,596.1	1,560.3
15	1,558.5	1,617.9	1,809.2	1,695.4	1,269.8	1,393.2	1,510.0	1,461.6	1,402.4	1,616.0	1,592.5	1,559.1
16	1,562.7	1,616.7	1,809.2	1,694.1	1,265.3	1,393.7	1,518.1	1,459.9	1,405.7	1,616.0	1,589.5	1,557.9
17	1,565.6	1,615.4	1,809.2	1,689.1	1,262.7	1,393.2	1,519.9	1,457.7	1,407.3	1,615.4	1,589.5	1,556.8
18	1,571.0	1,616.0	1,807.9	1,685.4	1,258.7	1,390.5	1,521.0	1,453.2	1,408.9	1,614.8	1,588.3	1,555.6
19	1,571.6	1,616.7	1,805.4	1,682.9	1,251.6	1,386.1	1,522.8	1,446.5	1,409.5	1,613.0	1,589.5	1,554.4
20	1,573.4	1,617.3	1,803.4	1,678.0	1,246.1	1,385.1	1,522.8	1,438.1	1,409.5	1,612.4	1,589.5	1,553.2
21	1,578.7	1,623.3	1,800.8	1,673.0	1,243.1	1,387.2	1,523.9	1,433.1	1,409.5	1,612.4	1,589.5	1,551.4
22	1,580.5	1,636.7	1,797.6	1,666.2	1,240.1	1,391.5	1,522.8	1,430.9	1,410.6	1,613.0	1,590.1	1,549.7
23	1,583.5	1,652.0	1,795.0	1,660.0	1,239.1	1,398.0	1,521.0	1,427.1	1,418.3	1,614.2	1,587.1	1,547.3
24	1,585.9	1,665.6	1,791.8	1,650.2	1,243.6	1,407.8	1,519.9	1,422.7	1,423.2	1,613.6	1,584.7	1,544.4
25	1,590.1	1,677.3	1,789.2	1,637.3	1,245.1	1,417.7	1,520.5	1,419.4	1,428.7	1,613.6	1,583.5	1,540.9
26	1,592.5	1,688.5	1,786.6	1,622.7	1,250.1	1,427.6	1,520.5	1,417.7	1,451.0	1,613.0	1,582.3	1,536.2
27	1,594.9	1,701.0	1,784.7	1,608.8	1,256.2	1,437.6	1,518.7	1,416.1	1,461.6	1,609.4	1,581.1	1,531.0
28	1,598.5	1,712.9	1,782.8	1,591.3	1,265.3	1,441.5	1,517.0	1,415.5	1,489.4	1,608.2	1,579.9	1,526.8
29	1,601.5		1,780.2	1,571.6	1,274.4	1,447.6	1,515.2	1,414.4	1,520.5	1,607.6	1,578.7	1,521.6
30	1,602.1		1,776.3	1,548.5	1,285.6	1,454.9	1,514.1	1,412.8	1,537.9	1,606.4	1,577.5	1,515.2
31	1,603.3		1,770.6		1,299.9		1,511.2	1,410.6		1,605.2		1,507.7

Month	1970							Period 1954-1970		
	MOMENTARY MAXIMUM			MOMENTARY MINIMUM			Average Storage	Mean Monthly Storage		
	Elevation	Storage	Day	Elevation	Storage	Day		Average	Maximum	Minimum
Jan.	285.24	1,603.3	31	283.99	1,529.2	1	1,564.9	1,992.1	2,963.3	218.7
Feb.	287.02	1,712.9	28	285.24	1,603.3	1	1,630.6	1,874.5	2,962.5	156.2
Mar.	288.65	1,817.0	11	287.02	1,712.9	1	1,791.6	1,827.7	2,959.5	226.7
Apr.	287.93	1,770.6	1	284.32	1,548.5	30	1,683.1	1,724.1	2,954.6	325.6
May	284.32	1,548.5	1	278.60	1,239.1	23	1,320.2	1,630.0	2,869.9	490.1
June	282.69	1,454.9	30	279.80	1,299.9	1	1,386.6	1,528.7	2,623.8	273.7
July	283.90	1,523.9	†21	282.69	1,454.9	1	1,505.5	1,586.5	2,614.1	209.9
Aug.	283.68	1,511.2	1	281.89	1,410.6	31	1,457.2	1,565.4	2,564.9	208.0
Sept.	284.14	1,537.9	30	281.60	1,394.8	9	1,419.8	1,696.1	2,600.9	256.2
Oct.	285.45	1,616.0	†15	284.14	1,537.9	1	1,604.1	1,997.1	3,250.2	308.3
Nov.	285.31	1,607.6	9	284.81	1,577.5	31	1,594.2	2,049.0	2,964.4	390.9
Dec.	284.82	1,578.1	1	283.62	1,507.7	31	1,554.6	2,066.7	2,960.2	343.4
Yearly	288.65	1,817.0		278.60	1,239.1		1,542.2	1,794.7	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.

Storage Capacities

(1961 Survey)

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		
				8,029	Silt and Dead
930.0	Lowest Outlet (United States Penstocks)	8,029	712		
				3,497,410	Silt and Conservation
1,117.0	Top of Conservation Storage	3,505,439	64,860		
				1,744,222	Ordinary Flood
1,140.4	Top of Spillway Gates	5,249,661	84,358		
				407,116	Super Flood
1,145.1	Maximum Water Surface	5,656,777	88,984		

Storage in Thousands of Acre-Feet at 24:00 Hours 1970 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,298.3	1,303.6	1,195.8	1,185.1	1,186.9	1,137.9	995.5	949.8	985.2	1,168.6	1,352.1	1,431.9
2	1,298.3	1,302.9	1,186.6	1,184.6	1,186.6	1,131.3	1,000.9	951.0	986.7	1,174.9	1,354.7	1,434.6
3	1,298.0	1,302.9	1,176.3	1,184.3	1,186.3	1,124.2	1,001.1	951.7	989.4	1,180.3	1,357.6	1,437.3
4	1,298.0	1,302.6	1,166.1	1,185.4	1,185.7	1,114.4	998.6	954.7	990.8	1,191.7	1,360.8	1,439.4
5	1,298.6	1,303.6	1,156.5	1,185.1	1,185.1	1,105.2	994.2	954.9	992.0	1,204.4	1,363.4	1,442.4
6	1,298.0	1,305.1	1,156.0	1,185.1	1,184.3	1,098.5	988.6	957.1	992.8	1,215.8	1,366.9	1,443.4
7	1,297.4	1,307.0	1,155.1	1,184.9	1,183.7	1,092.9	982.8	958.0	994.0	1,225.8	1,370.2	1,445.5
8	1,297.1	1,309.2	1,154.9	1,185.4	1,183.7	1,089.2	976.8	959.7	995.0	1,240.0	1,374.1	1,448.2
9	1,297.1	1,310.7	1,155.4	1,186.0	1,183.7	1,093.2	969.9	960.6	997.7	1,246.3	1,376.7	1,450.5
10	1,298.0	1,311.7	1,157.7	1,186.0	1,183.7	1,095.9	963.9	961.3	1,000.6	1,252.0	1,378.6	1,453.3
11	1,298.3	1,313.8	1,159.1	1,186.3	1,183.7	1,091.3	957.3	961.8	1,003.1	1,258.3	1,381.9	1,455.0
12	1,298.3	1,314.8	1,160.2	1,186.6	1,183.1	1,086.8	950.7	961.8	1,004.5	1,262.5	1,385.1	1,456.7
13	1,299.2	1,316.7	1,161.0	1,186.3	1,183.7	1,081.5	948.1	961.8	1,007.3	1,267.7	1,388.1	1,458.4
14	1,299.2	1,318.5	1,162.4	1,186.3	1,184.3	1,076.5	948.1	961.3	1,009.0	1,272.8	1,389.7	1,459.8
15	1,299.8	1,320.1	1,163.6	1,186.9	1,185.1	1,071.0	949.5	961.3	1,009.7	1,278.0	1,391.7	1,462.2
16	1,300.5	1,321.1	1,166.1	1,187.1	1,185.4	1,065.3	950.5	961.3	1,014.4	1,282.6	1,394.7	1,463.2
17	1,300.8	1,316.0	1,167.2	1,187.7	1,185.7	1,061.9	951.0	961.3	1,020.9	1,286.9	1,398.0	1,464.6
18	1,301.4	1,306.1	1,168.6	1,188.0	1,185.7	1,060.9	951.0	961.3	1,024.7	1,292.4	1,399.9	1,467.0
19	1,301.1	1,294.0	1,170.6	1,187.7	1,185.4	1,053.2	950.5	961.1	1,037.8	1,297.1	1,402.9	1,469.0
20	1,301.4	1,283.8	1,172.3	1,187.4	1,184.9	1,050.8	950.5	961.6	1,043.4	1,301.4	1,404.9	1,469.7
21	1,301.7	1,273.4	1,173.2	1,186.9	1,182.3	1,042.4	950.0	962.5	1,051.4	1,306.7	1,408.2	1,472.5
22	1,302.0	1,265.8	1,174.3	1,186.6	1,177.2	1,033.5	949.3	963.7	1,057.3	1,311.4	1,411.5	1,473.8
23	1,302.0	1,256.2	1,175.4	1,186.9	1,170.9	1,024.7	948.6	968.4	1,064.3	1,316.4	1,412.5	1,475.2
24	1,302.6	1,246.3	1,177.2	1,187.1	1,165.3	1,019.2	947.9	970.3	1,066.9	1,320.1	1,413.9	1,475.9
25	1,303.6	1,236.1	1,178.3	1,187.1	1,159.4	1,013.0	947.4	972.3	1,071.8	1,324.8	1,416.5	1,476.3
26	1,303.6	1,225.2	1,178.9	1,187.4	1,153.5	1,008.5	947.2	974.9	1,092.7	1,329.6	1,419.2	1,478.0
27	1,303.6	1,215.2	1,180.3	1,187.7	1,154.0	1,003.6	946.5	977.0	1,103.1	1,333.4	1,421.9	1,479.7
28	1,304.5	1,204.7	1,181.4	1,188.0	1,155.4	998.6	946.0	978.3	1,116.3	1,336.8	1,423.9	1,481.1
29	1,303.9		1,182.0	1,188.0	1,150.7	993.5	945.6	979.2	1,138.2	1,340.6	1,426.6	1,482.1
30	1,303.3		1,183.1	1,187.7	1,147.6	989.9	945.8	980.2	1,159.6	1,344.1	1,429.2	1,483.5
31	1,303.9		1,184.3		1,142.9		947.7	982.1		1,348.0		1,484.2

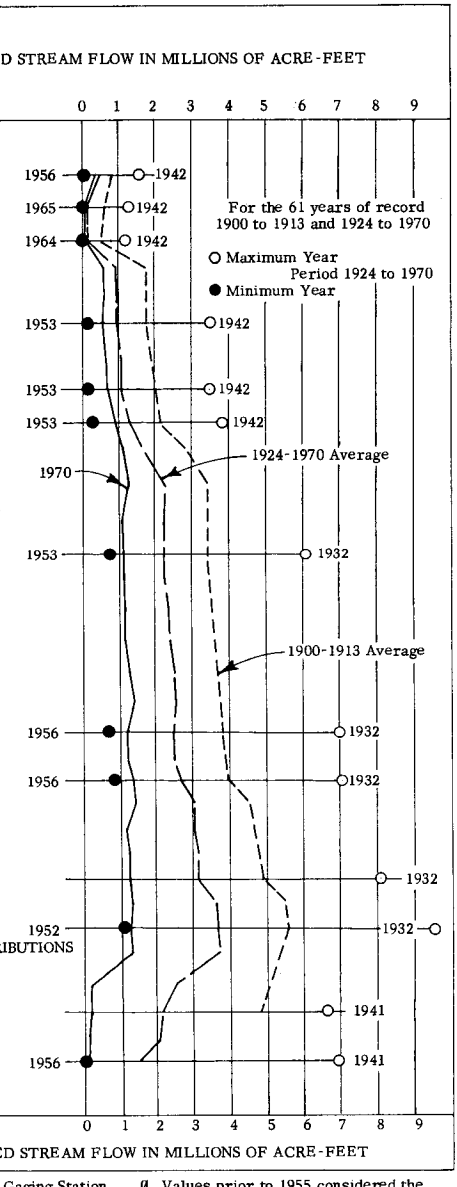
Month	1970							Period June 1968-1970		
	MOMENTARY MAXIMUM			MOMENTARY MINIMUM			Average Storage	Mean Monthly Storage		
	Elevation	Storage	Day	Elevation	Storage	Day		Average	Maximum	Minimum
Jan.	1,070.80	1,304.5	28	1,070.56	1,297.1	† 8	1,300.4	1,011.5	1,300.4	722.6
Feb.	1,071.33	1,321.1	16	1,067.48	1,204.7	28	1,288.8	1,038.2	1,288.8	787.7
Mar.	1,067.48	1,204.7	1	1,065.73	1,154.9	8	1,170.3	1,016.0	1,170.3	861.7
Apr.	1,066.90	1,188.0	†18	1,066.77	1,184.3	† 1	1,186.5	1,074.6	1,186.5	962.8
May	1,066.89	1,187.7	1	1,065.30	1,142.9	31	1,176.0	1,107.3	1,176.0	1,038.6
June	1,065.30	1,142.9	1	1,059.41	989.9	30	1,063.6	717.1	1,084.8	3.0
July	1,059.87	1,001.1	† 3	1,057.55	945.6	29	961.3	715.1	1,101.1	83.0
Aug.	1,059.09	982.1	31	1,057.64	947.7	1	963.9	749.8	1,109.4	176.2
Sept.	1,065.90	1,159.6	30	1,059.09	982.1	1	1,034.0	838.2	1,124.8	355.7
Oct.	1,072.18	1,348.0	31	1,065.90	1,159.6	1	1,274.6	1,047.6	1,274.6	661.0
Nov.	1,074.66	1,429.2	30	1,072.18	1,348.0	1	1,392.5	1,119.5	1,392.5	702.9
Dec.	1,076.27	1,484.2	31	1,074.66	1,429.2	1	1,461.8	1,152.8	1,461.8	706.1
Yearly	1,076.27	1,484.2		1,057.55	945.6		1,188.9	965.4	1,188.9	1,047.6

† 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 about 17,000,000 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	1924-1970	1924-1970	
29.7	14.4	15.1	EL PASO
19.6	3.9	4.6	FORT QUITMAN
16.4	3.3	3.9	ABOVE RIO CONCHOS
42.6	31.7	31.8	RIO CONCHOS
			ALAMITO CREEK
			BELOW RIO CONCHOS
19.8	17.9	17.9	TERLINGUA CREEK
			JOHNSON RANCH
25.9	16.1	16.4	FOSTER RANCH
12.4	8.8	8.7	PECOS RIVER
104.3	102.2	102.2	DEVILS RIVER
			AMISTAD RESERVOIR
26.9	19.0	18.9	AMISTAD DAM
26.9	19.0	18.9	DEL RIO
			LAS VACAS
			SAN FELIPE CREEK
110.8	51.5	51.4	PINTO CREEK
			RIO SAN DIEGO
			RIO SAN RODRIGO
29.2	20.0	19.9	EAGLE PASS
32.4	34.3	34.3	RIO ESCONDIDO
29.3	20.5	20.5	LAREDO
23.1	13.6	13.3	RIO SALADO
			FALCON RESERVOIR
			FALCON DAM [u]
			RIO ALAMO
			ROMA
** 48.4	** 48.8	** 47.4	RIO SAN JUAN
			FORT RINGGOLD Ø
			RIO SAN JUAN CONTRIBUTIONS
			DIVERSIONS
			MATAMOROS
			DIVERSIONS
			NEAR BROWNSVILLE



[u] 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	1970							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. 1947-1970

Jan.	7,609,000	256	21	0.003360			0.18	0.20	1.4	0
Feb.	7,573,000	291	19	.003840			.20	.26	2.2	.01
Mar.	63,041,000	26,800	26	.04252			18.5	19.7	52.7	.89
Apr.	51,959,000	6,750	30	.01300			4.6	11.2	45.2	3.0
May	55,453,000	8,010	29	.01444			5.5	8.4	63.3	.03
June	63,570,000	12,400	30	.01956			8.5	21.9	152	2.4
July	91,410,000	24,400	32	.02672			16.8	35.0	124	1.1
Aug.	73,684,000	17,500	26	.02380			12.1	37.0	112	2.0
Sept.	43,158,000	5,440	29	.01260			3.7	23.7	123	1.1
Oct.	16,088,000	1,200	26	.007440			.83	4.8	51.0	.01
Nov.	9,159,000	216	21	.002360			.15	.31	1.5	.01
Dec.	7,532,000	190	22	.002520			.13	.30	2.1	.01
Yearly	490,236,000	103,453	311	0.02110			71.19	162.77	436.87	34.37

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

Río Conchos near Ojinaga, Chihuahua

Period: 1956-1970

Jan.	35,517,000	0	9	0	0	0	0	0	0	0
Feb.	30,795,000	0	8	0	0	0	0	.30	4.5	0
Mar.	24,754,000	0	8	0	0	0	0	0	0	0
Apr.	16,140,000	0	9	0	0	0	0	.39	5.8	0
May	17,467,000	0	8	0	0	0	0	31.2	145	0
June	38,978,000	414,000	9	1.0613	2.9170	0	285	194	688	0
July	32,390,000	163,000	12	.5024	2.8388	0	112	314	1,450	0
Aug.	58,890,000	95,900	11	.1629	.6418	0	66.0	559	2,650	8.1
Sept.	130,875,000	328,000	13	.2508	1.5661	0	226	1,323	9,330	14.4
Oct.	203,566,000	35,200	14	.0173	.0860	0	24.2	931	12,400	0
Nov.	112,702,000	0	13	0	0	0	0	7.5	70.2	0
Dec.	65,018,000	0	13	0	0	0	0	1.4	14.0	0
Yearly	767,092,000	1,036,100	127	0.1351	2.9170	0	713.2	3,361.79	21,903.3	284.7

Samples and Analyses by Mexican Section, Method B

Rio Grande below Rio Conchos near Presidio, Texas

Period: 1955-1970

Jan.	37,055,000	1,090	8	0.002932			0.75	3.4	14.4	0.70
Feb.	31,279,000	27,900	9	.08924			19.2	4.7	22.2	.14
Mar.	22,789,000	2,770	8	.01217			1.9	6.4	70.9	.15
Apr.	14,823,000	196	8	.001325			.13	6.6	95.7	.12
May	17,986,000	1,890	8	.01052			1.3	27.9	161	.21
June	34,141,000	143,000	9	.4177			98.5	141	465	.29
July	33,656,000	185,000	10	.5508			127	313	1,420	2.0
Aug.	61,087,000	125,000	10	.2043			86.1	389	1,360	2.9
Sept.	138,693,000	478,000	9	.3444			329	628	3,610	14.9
Oct.	223,930,000	612,000	8	.2731			421	409	4,770	2.6
Nov.	122,171,000	7,770	7	.006360			5.4	10.7	45.2	1.3
Dec.	70,910,000	3,330	8	.004701			2.3	3.4	13.7	.86
Yearly	808,520,000	1,587,946	102	0.1964			1,092.58	1,943.1	8,793.44	172.78

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

SUSPENDED SILT IN THE RIO GRANDE AND TRIBUTARIES

Rio Grande at Johnson Ranch near Castolon, Texas

Period: Oct. 1951-1970

Month	1970 Tons Water	1970 Tons Silt	1970 No. of Samples	1970 Gravimetric Percentages Average	Maximum Sample	Minimum Sample	1970 Acre-Feet at 1,452 Tons Per Acre Foot	Period of Record Average	Maximum	Minimum
Jan.	37,392,000	1,300	8	0.003480			0.90	3.5	14.4	0.72
Feb.	33,219,000	6,580	8	.01980			4.5	16.3	253	.21
Mar.	24,169,000	7,950	9	.03288			5.5	2.9	9.4	.14
Apr.	12,274,000	270	7	.002200			.19	54.9	692	.01
May	19,644,000	7,680	7	.03912			5.3	128	426	0
June	35,462,000	107,000	9	.3010			73.7	431	1,570	2.3
July	39,997,000	170,000	9	.4247			117	806	4,030	51.6
Aug.	64,836,000	266,000	8	.4097			183	890	3,840	2.8
Sept.	207,393,000	1,163,000	7	.5609			801	1,017 *	8,990 *	98.5
Oct.	244,768,000	322,000	7	.1314			222	842	13,500 u	2.4
Nov.	119,742,000	10,900	5	.009120			7.5	15.3	151	.28
Dec.	73,476,000	4,090	5	.005560			2.8	6.6	48.3	.41
Yearly	912,372,000	2,066,770	89	0.2265			1,423.39	4,213.5	23,869.62	803.27

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

Rio Grande at Foster Ranch near Langtry, Texas

Period: 1969-1970

Month	1970 Tons Water	1970 Tons Silt	1970 No. of Samples	1970 Gravimetric Percentages Average	Maximum Sample	Minimum Sample	1970 Acre-Feet at 1,452 Tons Per Acre Foot	Period of Record Average	Maximum	Minimum
Jan.	56,940,000	1,800	4	0.003160			1.2	8.2	15.1	1.2
Feb.	48,821,000	1,170	4	.002400			.81	6.9	13.0	.81
Mar.	45,856,000	10,900	4	.02368			7.5	8.4	9.4	7.5
Apr.	28,574,000	320	4	.001120			.22	6.5	12.7	.22
May	40,918,000	18,600	4	.04553			12.8	30.5	48.2	12.8
June	85,647,000	109,000	5	.1278			75.1	247	419	75.1
July	97,201,000	708,000	4	.7288			488	583	678	488
Aug.	94,476,000	410,000	5	.4338			282	152	282	21.8
Sept.	249,809,000	1,840,000	4	.7367			1,270	778	1,270	285
Oct.	267,331,000	691,000	4	.2585			476	348	476	221
Nov.	141,362,000	8,370	4	.005920			5.8	9.6	13.4	5.8
Dec.	96,494,000	4,710	4	.004880			3.2	3.0	3.2	2.7
Yearly	1,253,429,000	3,803,870	50	0.3035			2,622.63	2,181.1	2,622.63	1,739.3

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

Pecos River near Langtry, Texas

Period: Nov. 1954-1970

Month	1970 Tons Water	1970 Tons Silt	1970 No. of Samples	1970 Gravimetric Percentages Average	Maximum Sample	Minimum Sample	1970 Acre-Feet at 1,452 Tons Per Acre Foot	Period of Record Average	Maximum	Minimum
Jan.	14,502,000	348	4	0.002400			0.24	0.25	0.62	0.05
Feb.	12,800,000	215	3	.001680			.15	.23	.70	.05
Mar.	13,750,000	209	4	.001520			.14	.27	.79	.05
Apr.	11,084,000	262	4	.002360			.18	12.6	167	.06
May	9,795,000	266	4	.002712			.18	25.9	407	.07
June	7,782,000	131	4	.001680			.09	3.1	41.7	.09
July	6,431,000	159	4	.002480			.11	2.2	22.2	.05
Aug.	5,678,000	132	4	.002320			.09	1.9	23.8	.04
Sept.	13,658,000	393	4	.002880			.27	31.3	359	.09
Oct.	12,853,000	195	4	.001520			.13	8.6	59.8	.07
Nov.	9,933,000	219	4	.002200			.15	.32	1.1	.03
Dec.	10,413,000	208	3	.002000			.14	.20	.55	.05
Yearly	128,679,000	2,737	46	0.002127			1.87	86.87	577.44	1.87

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

Rio Grande below Amistad Dam near Del Rio, Texas

Period: July 1968-1970

Month	1970 Tons Water	1970 Tons Silt	1970 No. of Samples	1970 Gravimetric Percentages Average	Maximum Sample	Minimum Sample	1970 Acre-Feet at 1,452 Tons Per Acre Foot	Period of Record Average	Maximum	Minimum
Jan.	93,454,000	897	11	0.0009600			0.62	0.91	1.2	0.62
Feb.	236,307,000	3,400	11	.001440			2.3	1.6	2.3	.83
Mar.	126,032,000	807	10	.0006400			.56	.83	1.1	.56
Apr.	59,649,000	525	12	.0008800			.36	.78	1.2	.36
May	143,421,000	1,850	10	.001290			1.3	1.2	1.3	1.2
June	353,946,000	1,270	11	.0003600			.87	.98	1.1	.87
July	190,362,000	1,900	13	.001000			1.3	6.5	16.4	1.3
Aug.	70,797,000	1,220	13	.001720			.84	1.9	2.9	.84
Sept.	64,124,000	923	12	.001440			.64	1.1	1.5	.64
Oct.	28,555,000	286	11	.001000			.20	1.1	1.6	.20
Nov.	41,238,000	346	9	.0008400			.24	1.1	1.9	.24
Dec.	43,495,000	1,300	12	.003000			.90	1.3	1.7	.90
Yearly	1,451,380,000	14,724	135	0.001014			10.13	19.30	* 26.0	10.13

Samples and Analyses by U. S. Section, Method A
* July through December 1968

SUSPENDED SILT IN THE RIO GRANDE AND TRIBUTARIES

Rio Grande at Laredo, Texas

Period: # 1953-1970

Month	1970 Tons Water	1970 Tons Silt	1970 No. of Samples	1970 Gravimetric Percentages Average	Maximum Sample	Minimum Sample	1970 Acre-Feet at 1,452 Tons Per Acre Foot	Period of Record Average	Maximum	Minimum
Jan.	135,112,000	4,700	31	0.003480			3.2	10.2	28.0	2.2
Feb.	212,856,000	32,000	28	.01504			22.0	17.1	95.7	1.7
Mar.	197,235,000	34,600	31	.01752			23.8	12.4	26.8	.78
Apr.	53,757,000	4,540	30	.008440			3.1	191	1,920	.47
May	149,799,000	59,400	31	.03964			40.9	356	3,540	2.3
June	329,633,000	78,100	30	.02370			53.8	1,055	12,400	.62
July	200,224,000	24,000	31	.01200			16.5	645	3,440	3.9
Aug.	89,264,000	8,710	30	.009760			6.0	527	1,960	4.2
Sept.	181,538,000	153,000	30	.08452			105	1,176	5,010	22.3
Oct.	143,154,000	11,100	31	.007760			7.6	881	7,520	7.6
Nov.	78,954,000	9,030	30	.01144			6.2	105	1,190	6.1
Dec.	81,421,000	7,100	31	.008720			4.9	13.1	67.6	2.8
Yearly	1,852,947,000	426,280	364	0.02301			293.0	4,988.8	19,257.72	293.0

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

Ø Rio Grande below Falcon Dam, Texas - U. S. Tailrace

Period: July 1955-1970

Month	1970 Tons Water	1970 Tons Silt	1970 No. of Samples	1970 Gravimetric Percentages Average	Maximum Sample	Minimum Sample	1970 Acre-Feet at 1,452 Tons Per Acre Foot	Period of Record Average	Maximum	Minimum
Jan.	22,078,000	203	3	0.0009200			0.14	1.7	5.4	0.14
Feb.	36,402,000	262	9	.0007200			.18	2.2	9.1	.06
Mar.	84,234,000	741	9	.0008800			.51	1.2	4.3	.15
Apr.	319,713,000	2,430	11	.0007600			1.7	3.2	12.2	.25
May	455,031,000	4,240	12	.0009313			2.9	3.4	8.1	.19
June	93,046,000	1,970	6	.002120			1.4	3.8	18.7	.42
July	80,563,000	1,030	11	.001280			.71	1.0	2.3	.41
Aug.	164,819,000	2,900	7	.001760			2.0	1.2	2.8	.22
Sept.	41,160,000	379	2	.0009200			.26	1.2	5.7	0
Oct.	42,228,000	270	3	.0006400			.19	3.3	37.5	.18
Nov.	68,389,000	465	11	.0006800			.32	1.0	5.5	.02
Dec.	146,828,000	1,470	12	.001000			1.0	1.8	14.7	.11
Yearly	1,554,491,000	16,360	96	0.001052			11.31	25.0	92.15	7.24

Samples and Analyses by U. S. Section, Method A
Ø Discharge based on record of total releases from Falcon Reservoir

Río Alamo at Cd. Mier, Tamaulipas

Period: 1934-1970

Month	1970 Tons Water	1970 Tons Silt	1970 No. of Samples	1970 Gravimetric Percentages Average	Maximum Sample	Minimum Sample	1970 Acre-Feet at 1,452 Tons Per Acre Foot	Period of Record Average	Maximum	Minimum
Jan.	2,437,000	0	0	¤ 0			0	1.8	21.8	0
Feb.	1,371,000	0	0	¤ 0			0	3.0	48.6	0
Mar.	1,065,000	0	0	¤ 0			0	6.5	91.2	0
Apr.	955,000	0	0	¤ 0			0	29.1	229	0
May	250,000	0	0	¤ 0			0	46.7	281	0
June	21,506,000	79,800	6	.371	0.5747	0	55.0	53.9	471	0
July	3,259,000	8,730	10	.268	.5329	0	6.0	17.3	143	0
Aug.	1,086,000	1,410	5	.130	.1773	0	.97	130	1,610	0
Sept.	10,855,000	30,200	9	.278	.4500	0	20.8	224	2,920	0
Oct.	3,137,000	5,990	6	.191	.2929	0	4.1	83.8	753	0
Nov.	458,000	0	0	¤ 0			0	2.2	40.7	0
Dec.	332,000	0	0	¤ 0			0	1.5	33.7	0
Yearly	46,711,000	126,130	36	0.270	0.5747	0	86.87	599.8	3,156.57	54.09

Samples and Analyses by Mexican Section, Method B
¤ Estimated

Rio Grande at Fort Ringgold, Rio Grande City, Texas

Period: May 1959-1970

Month	1970 Tons Water	1970 Tons Silt	1970 No. of Samples	1970 Gravimetric Percentages Average	Maximum Sample	Minimum Sample	1970 Acre-Feet at 1,452 Tons Per Acre Foot	Period of Record Average	Maximum	Minimum
Jan.	44,907,000	629	9	0.001400			0.43	11.7	32.6	0.43
Feb.	44,627,000	714	8	.001600			.49	6.0	13.7	.35
Mar.	81,679,000	2,160	8	.002640			1.5	5.5	26.7	.39
Apr.	310,591,000	12,900	7	.004160			8.9	20.3	51.0	6.0
May	494,139,000	17,500	7	.003548			12.1	55.4	259	4.0
June	134,030,000	27,300	6	.02035			18.8	38.1	94.4	4.7
July	78,979,000	8,880	9	.01124			6.1	20.8	90.9	2.1
Aug.	169,353,000	7,790	8	.004600			5.4	66.3	510	1.2
Sept.	68,133,000	6,920	5	.01016			4.8	126	798	4.8
Oct.	91,626,000	10,500	9	.01148			7.2	38.0	184	2.6
Nov.	71,651,000	2,780	6	.003880			1.9	3.5	9.2	1.3
Dec.	135,275,000	6,600	7	.004880			4.5	3.9	12.1	.96
Yearly	1,724,990,000	104,673	89	0.006068			72.12	395.5	1,691.1	72.12

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

SUSPENDED SILT IN THE RIO GRANDE AND TRIBUTARIES

Month	1970							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 near Los Ebanos, Texas								Period: May 1956-1970		
Jan.	44,907,000	719	13	0.001600			0.50	20.7	107	0.50
Feb.	44,627,000	1,290	11	.002892			.89	7.2	16.0	.74
Mar.	81,679,000	2,160	13	.002640			1.5	8.1	40.2	.65
Apr.	310,591,000	26,800	13	.008629			18.5	68.8	635	3.0
May	494,139,000	41,500	13	.008400			28.6	85.3	289	5.3
June	134,030,000	33,100	13	.02472			22.8	61.0	209	3.2
July	78,979,000	2,840	13	.003600			2.0	13.0	79.9	.74
Aug.	169,353,000	8,230	14	.004858			5.7	96.3	1,150	2.0
Sept.	68,133,000	6,540	13	.009600			4.5	105	459	3.5
Oct.	91,626,000	6,720	13	.007331			4.6	45.4	314	3.2
Nov.	71,651,000	1,980	13	.002760			1.4	8.2	75.1	.62
Dec.	135,275,000	6,570	13	.004859			4.5	4.7	16.3	1.0
Yearly	1,724,990,000	138,449	155	0.008026			95.49	523.7	1,788.7	80.0
ŏ Rio Grande below Anzalduas Dam, Texas								Period: May 1956-1970		
Jan.	44,793,000	770	11	0.001720			0.53	9.2	49.0	0.53
Feb.	31,911,000	345	10	.001080			.24	3.1	11.9	.24
Mar.	62,544,000	1,130	12	.001807			.78	3.8	27.3	.25
Apr.	110,212,000	2,910	11	.002640			2.0	43.8	279	2.0
May	137,987,000	27,800	12	.02012			19.1	32.3	79.9	1.4
June	88,087,000	1,800	12	.002040			1.2	47.5	414	1.2
July	67,717,000	1,300	10	.001920			.90	30.9	333	.90
Aug.	73,449,000	1,690	10	.002298			1.2	38.6	502	.73
Sept.	37,292,000	854	8	.002289			.59	156	1,480	.59
Oct.	30,691,000	491	6	.001600			.34	96.3	676	.34
Nov.	50,438,000	1,350	4	.002669			.93	20.4	274	.51
Dec.	69,496,000	806	3	.001160			.56	11.5	135	.41
Yearly	804,617,000	41,246	109	0.005126			28.37	493.4	2,541.0	28.37
Rio Grande near San Benito, Texas								Period: April 1955-1970		
Jan.	32,642,000	611	4	0.001873			0.42	13.3	121	0.13
Feb.	22,053,000	762	6	.003454			.52	9.6	97.8	.15
Mar.	16,894,000	480	7	.002840			.33	4.8	50.6	.11
Apr.	23,733,000	465	5	.001960			.32	5.5	17.9	.11
May	51,523,000	4,970	6	.009639			3.4	27.9	265	2.2
June	32,847,000	1,050	5	.003200			.72	11.0	34.1	.72
July	38,688,000	2,970	5	.007689			2.0	9.3	91.6	.11
Aug.	22,941,000	1,200	5	.005240			.83	7.6	48.5	.07
Sept.	17,487,000	515	6	.002944			.35	47.3	218	.30
Oct.	15,751,000	364	6	.002311			.25	62.9	636	.25
Nov.	16,247,000	252	4	.001554			.17	18.2	247	.17
Dec.	14,679,000	335	6	.002280			.23	12.2	163	.06
Yearly	305,485,000	13,974	65	0.004574			9.54	229.6	894.82	9.54
Rio Grande near Brownsville, Texas								Period: April 1955-1970		
Jan.	29,580,000	13,100	4	0.04412			9.0	6.8	67.4	0.02
Feb.	22,563,000	1,040	6	.004600			.72	11.5	80.6	.04
Mar.	6,748,000	154	7	.002280			.11	5.9	70.2	.08
Apr.	13,748,000	770	6	.005600			.53	3.8	27.7	.04
May	26,010,000	2,140	5	.008214			1.5	9.2	58.5	.38
June	23,117,000	1,820	4	.007880			1.3	8.6	58.4	.29
July	24,168,000	1,350	4	.005600			.93	28.0	292	.08
Aug.	12,771,000	577	6	.004516			.40	5.7	45.0	.01
Sept.	11,787,000	391	5	.003320			.27	45.6	255	0
Oct.	15,754,000	592	6	.003760			.41	32.6	242	.03
Nov.	12,954,000	686	4	.005299			.47	21.3	283	.12
Dec.	7,270,000	289	6	.003976			.20	10.8	142	.02
Yearly	206,470,000	22,909	63	0.01110			15.84	189.8	1,072.26	1.97

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

‡ Discharge based on record of flow at Fort Ringgold

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

ŏ Discharge based on record of flow at "Below Anzalduas Dam" plus flow at "Poniente Drain." There was no flow through this drain in 1970

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

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

CHEMICAL ANALYSES OF WATER SAMPLES FROM THE RIO GRANDE AND TRIBUTARIES - 1970

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 for the first two months of the year were made by the U. S. Department of Agricultural Research Service, U. S. Salinity Laboratory, Riverside, California, and U. S. Geological Survey, Water Resources Division, Austin, Texas. 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, 20.04; Mg, 12.16; Na, 22.99; (CO_3 plus HCO_3) expressed as CO_3, 30.00; SO_4, 48.03; Cl, 35.45; NO_3, 62.00. 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.	21	2.12	11,900	2,330	0.03	7.5	60	32	7.30	2.26	14.21	5.21	11.28	7.85	0.01
Feb.	19	1.82	10,100	2,020	.26	7.1	61	32	6.39	1.63	12.59	4.82	9.41	6.71	.02
Mar.	26	.93	43,100	1,020	.14	7.4	46	24	4.24	1.32	4.78	3.21	4.77	2.54	.01
Apr.	30	1.07	40,900	1,170	.32	7.3	50	24	4.54	1.32	5.96	3.61	5.62	2.85	.01
May	29	.99	40,400	1,160	.20	7.7	49	23	4.79	1.40	5.87	3.67	5.62	2.85	0
June	30	1.03	48,200	1,140	.20	7.5	48	23	4.79	1.40	5.70	3.70	5.43	2.79	0
July	31	.93	62,600	1,040	.15	7.6	47	24	4.39	1.32	5.05	3.61	4.79	2.71	0
Aug.	26	1.01	54,800	1,130	.16	7.6	49	24	4.54	1.32	5.61	3.74	5.12	2.76	.01
Sept.	29	1.29	41,000	1,410	.20	7.9	52	26	5.39	1.65	7.57	4.20	6.79	3.95	.01
Oct.	26	1.93	22,800	2,040	.37	7.9	58	31	6.69	2.30	12.62	4.79	10.33	6.71	.01
Nov.	18	2.14	14,400	2,270	.34	7.8	61	32	6.89	2.47	14.44	5.05	11.70	7.76	0
Dec.	22	2.20	12,200	2,400	.34	7.7	63	35	6.59	2.71	15.66	4.59	11.87	9.03	.01
Mean ⊕	Ø307	1.12	Ø402,400	1,240	.20	7.6	51	26	4.83	1.46	6.44	3.77	5.87	3.31	0.01
Period Avg.		1.10	456,000	1,220			52	29	4.40	1.58	6.56	3.52	5.47	3.67	
Tons of Constituents, 1970									47,500	8,710	72,700	55,500	138,000	57,600	
Avg. Tons, Period 1930-1970									49,600	10,800	85,000	59,500	148,000	73,200	

Rio Grande at Fort Quitman, Texas

Sampling by U. S. Section

Jan.	4	4.34	18,100	4,740	0.45	7.5	63	55	13.64	5.01	31.15	5.41	17.21	27.26	0.07
Feb.	4	7.39	9,240	8,240	.75	7.3	67	65	25.93	2.60	57.63	3.77	25.53	55.30	.02
Mar.	4	6.66	12,300	7,310	.66	7.3	65	63	18.21	8.23	50.02	4.65	24.15	49.37	0
Apr.	5	5.48	14,700	5,940	.57	7.2	64	60	15.47	6.42	39.50	5.02	19.74	37.80	0
May	4	5.97	12,300	6,730	.69	7.5	65	61	17.71	7.73	46.98	4.85	23.11	43.44	0
June	7	3.11	23,000	3,460	.39	7.3	62	55	10.28	3.70	22.36	4.49	11.99	19.75	0
July	6	2.99	34,000	3,100	.34	7.6	61	52	9.18	3.29	19.23	4.36	11.16	16.78	.02
Aug.	4	2.12	38,600	2,430	.31	7.5	61	51	7.19	2.39	14.83	3.70	8.33	12.55	.08
Sept.	5	3.11	46,800	3,430	.39	7.3	62	54	10.23	3.62	22.66	4.52	12.41	19.75	.02
Oct.	5	4.19	57,900	4,400	.52	7.5	61	53	13.22	4.77	28.10	5.51	16.49	24.54	.10
Nov.	4	4.32	34,400	4,560	.54	7.6	63	54	13.37	4.85	30.80	5.44	17.57	26.80	.20
Dec.	5	4.28	33,700	4,650	.47	7.9	63	54	13.57	5.35	31.76	5.47	17.49	27.08	.19
Mean ⊕	Ø 57	3.58	Ø 335,040	3,880	.43	7.5	62	54	11.34	4.07	25.36	4.70	13.97	22.34	0.07
Period Avg.		2.43	316,000	2,750			61	55	7.79	3.16	17.19	3.64	9.00	15.62	
Tons of Constituents, 1970									29,000	6,300	74,300	18,000	85,500	101,000	
Avg. Tons, Period 1930-1970									27,600	6,790	69,900	19,300	76,400	97,900	

Ø Total ⊕ Weighted Mean ** Percent of total cations *** Percent of total anions

CHEMICAL ANALYSES OF WATER SAMPLES FROM THE RIO GRANDE AND TRIBUTARIES - 1970

Month	No. of Samples	Dissolved Solids: Tons Per Acre-Foot	Dissolved Solids: Total Tons	ECx10⁶ @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 above Rio Conchos near Presidio, Texas															
Sampling by U. S. Section															
Jan.	7	3.73	3,290	4,150	0.55	7.3	66	53	10.36	3.84	28.10	3.64	16.23	22.84	0.02
Feb. ᵘ	0		4												
Mar.	0	No	Flow												
Apr.	0	No	Flow												
May	0	No	Flow												
June	2	.55	585	596		7.2	32		# 3.84		ᵘ 1.80	1.87		.82	
July	4	.78	268	844		7.5	36		# 4.96		ᵘ 2.80	2.03		1.33	
Aug.	8	1.51	13,100	1,730		7.4	57		# 7.12		ᵘ 9.40	3.02		7.90	
Sept.	7	1.62	11,800	1,880	.22	7.3	58	49	6.29	1.48	11.22	2.69	7.00	9.25	.01
Oct.	6	2.12	34,800	2,380		7.4	60		# 9.68		ᵘ 14.40	3.02		12.13	
Nov.	7	4.54	23,500	4,790		7.7	63		#18.60		ᵘ31.70	3.87		46.55	
Dec.	8	4.56	21,400	5,050		7.7	64		#18.60		ᵘ33.20	4.33		29.34	
Mean ⊖	Ø 49	2.45	Ø 108,743	2,710		7.4	61		#10.76		16.79	3.18		16.51	
Period Avg.		1.90	211,000	2,140			59		# 8.83		12.70	3.11		10.93	
Tons of Constituents, 1970											23,400	5,770		35,400	
Avg. Tons, Period 1935-1970											44,100	14,100		58,500	
Rio Conchos near Ojinaga, Chihuahua															
Sampling by Mexican Section															
Jan.	9	1.21	31,600	1,270	0.25	7.3	54	17	4.90	1.10	6.93	3.04	7.93	2.19	0.04
Feb.	8	1.22	27,600	1,270			55		# 5.85		7.13	2.84		2.30	
Mar.	8	1.27	23,100	1,320	.36	7.5	56	19	4.34	1.40	7.53	2.46	8.58	2.62	.03
Apr.	9	1.31	15,600	1,400		7.3	51		# 7.12		ᵘ 7.55	3.21		2.65	
May	8	1.29	16,600	1,370		7.8	56		# 5.68		ᵘ 7.25	3.02		2.68	
June	9	1.30	37,300	1,320		7.4	51		# 7.36		ᵘ 7.53	3.05		2.14	
July	12	1.18	26,900	1,170		7.7	45		# 6.92		ᵘ 5.75	2.82		1.78	
Aug.	11	1.23	53,300	1,260		7.5	50		# 6.52		ᵘ 6.60	2.88		1.92	
Sept.	13	1.19	115,000	1,210	.30	7.6	46	12	5.79	1.07	5.92	2.88	8.54	1.52	0.05
Oct.	14	1.08	162,000	1,090		7.8	45		6.48		ᵘ 5.30	2.64		1.33	
Nov.	12	1.15	95,400	1,160		7.8	49		# 5.92		ᵘ 5.80	3.05		1.69	
Dec.	13	1.15	55,000	1,200		7.7	51		# 5.76		ᵘ 6.05	2.62		1.95	
Mean ⊖	Ø126	1.17	Ø 659,400	1,190			49		# 6.39		6.09	2.83		1.75	
Period Avg.		0.73	548,000	774			41		# 4.67		3.24	2.70		1.14	
Tons of Constituents, 1970											108,000	65,200		47,600	
Avg. Tons, Period 1935-1970											76,000	82,500		41,100	
Rio Grande at Johnson Ranch near Castolon, Texas															
Sampling by U. S. Section															
Jan.	8	1.38	38,000	1,450	0.46	7.4	53	20	5.83	1.12	7.95	3.32	8.76	2.99	0.02
Feb.	8	1.33	32,500	1,400			52		# 6.76		7.46	3.24		2.52	
Mar.	9	1.40	24,900	1,430	.36	7.4	52	18	5.69	1.48	7.87	2.95	9.66	2.76	.02
Apr.	7	1.58	14,300	1,690		7.1	54		# 8.20		ᵘ 9.50	2.79		3.55	
May	7	1.41	20,400	1,520		7.5	56		# 6.56		ᵘ 8.40	2.75		3.24	
June	9	1.21	31,600	1,260		7.2	47		# 7.36		ᵘ 6.50	3.05		1.97	
July	9	1.03	30,300	1,050		7.5	41		# 6.96		ᵘ 4.75	3.02		1.24	
Aug.	8	1.15	54,900	1,210		7.5	48		# 6.60		ᵘ 6.00	3.44		2.29	
Sept.	7	1.13	172,000	1,170	.24	7.5	42	13	6.19	.99	5.22	3.25	7.41	1.66	.07
Oct.	7	1.23	222,000	1,270		7.4	47		# 7.40		ᵘ 6.60	2.95		2.65	
Nov.	5	1.39	122,000	1,400		7.5	51		# 7.12		ᵘ 7.53	3.15		3.22	
Dec.	5	1.54	83,300	1,620		7.5	49		# 9.30		ᵘ 9.00	3.54		4.26	
Mean ⊖	Ø 89	1.26	Ø846,200	1,310			48		# 7.33		ᵘ 6.67	3.15		2.55	
Period Avg.		0.92	619,000	968			44		# 5.61		ᵘ 4.37	2.86		1.64	
Tons of Constituents, 1970											140,000	86,300		82,600	
Avg. Tons, Period 1948-1970											91,800	78,200		53,200	

⊖ Weighted Mean Ø Total # Sum of Calcium and Magnesium ᵘ Estimated **Percent of total cations
*** Percent of total anions

CHEMICAL ANALYSES OF WATER SAMPLES FROM THE RIO GRANDE AND TRIBUTARIES - 1970

Month	No. of Samples	Dissolved Solids: Tons Per Acre-Foot	Dissolved Solids: Total Tons	EC x 10^6 @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 Foster Ranch near Langtry, Texas

Sampling by U. S. Section

Jan.	4	1.13	47,300	1,220	0.32	7.1	49	20	4.81	1.47	6.11	3.23	6.79	2.56	0.03
Feb.	4	1.06	38,100	1,140	.17	7.2	49	17	4.50	1.35	5.67	3.09	6.49	2.03	.02
Mar.	4	1.04	35,100	1,110	.26	7.5	46	17	4.39	1.65	5.18	2.82	6.91	1.97	.03
Apr.	4	.93	19,600	1,040	.35	7.2	46	18	3.74	1.73	4.74	2.82	5.87	1.97	.02
May	4	.86	25,900	982	.22	7.5	45	18	4.19	1.48	4.57	3.08	5.33	1.83	.02
June	5	.90	56,700	962	.21	7.1	42	13	4.94	.90	4.26	3.21	5.50	1.27	.03
July	4	.77	55,100	842	.15	7.6	30	9	5.34	.90	2.70	3.41	4.66	.79	.07
Aug.	5	.85	59,100	897	.15	7.3	36	12	5.14	.81	3.39	3.34	4.52	1.13	.07
Sept.	4	.93	171,000	967	.20	7.5	42	13	5.09	.77	4.26	3.28	5.50	1.35	.11
Oct.	4	1.24	244,000	1,270	.28	7.5	46	19	6.09	1.07	6.05	3.70	7.27	2.51	.03
Nov.	4	1.27	132,000	1,310	.28	7.5	50	21	5.39	1.40	6.87	3.28	7.75	2.91	.03
Dec.	4	1.28	90,900	1,380	.35	7.6	51	23	5.44	1.65	7.48	3.28	7.72	3.39	.04
Mean ⊕ Ø	50	1.06	Ø974,900	1,110	.24	7.4	45	17	5.25	1.13	5.19	3.34	6.31	2.00	.05
Period Avg.		0.87	928,000	920			41	14	4.65	0.95	3.90	3.18	5.03	1.34	
Tons of Constituents, 1970									132,000	17,200	150,000	126,000	380,000	88,900	
Avg. Tons, Period 1968-1970									135,000	16,700	130,000	138,000	350,000	68,800	

Pecos River near Langtry, Texas

Sampling by U. S. Section

Jan.	4	2.74	29,200	3,290	0.06	7.3	59	63	8.40	4.67	18.76	3.24	8.58	20.27	0.04
Feb.	3	3.09	29,100	3,590	.26	7.2	61	64	8.47	5.44	21.68	3.21	9.49	23.02	.04
Mar.	4	3.71	37,500	4,060	.25	7.3	62	66	8.58	7.07	25.71	2.92	11.58	27.65	.04
Apr.	4	3.39	27,600	3,890	.33	7.0	62	66	8.33	6.58	23.92	2.85	10.58	25.67	.01
May	4	2.35	16,900	2,770	.20	7.3	60	63	6.49	4.61	16.53	2.75	7.33	17.49	.04
June	4	2.81	13,200	2,680	.21	7.2	60	64	6.14	4.61	15.96	2.59	7.00	16.93	.01
July	4	2.01	9,510	2,370	.17	7.5	59	63	5.49	3.95	13.75	2.66	5.98	14.73	0
Aug.	4	1.99	8,300	2,250	.20	7.3	60	63	5.09	3.78	13.31	2.59	5.68	13.82	.02
Sept.	4	1.66	16,700	1,910	.15	7.5	57	59	5.04	3.04	10.74	2.82	4.79	11.06	.06
Oct.	4	1.96	18,500	2,160	.23	7.7	58	60	5.44	3.54	12.48	2.98	5.50	12.98	.04
Nov.	4	2.41	17,600	2,600	.19	7.4	58	62	6.29	4.36	15.05	3.02	6.85	16.22	.04
Dec.	3	2.49	19,100	2,890	.25	7.4	58	62	7.09	5.02	16.70	3.08	7.83	18.05	.04
Mean ⊕ Ø	46	2.57	Ø243,210	2,940	.21	7.3	60	63	6.93	4.80	17.48	2.93	7.81	18.62	.03
Period Avg.		2.00	374,569	2,350			57	62	5.98	3.98	13.27	2.69	6.32	14.42	
Tons of Constituents, 1970									17,900	7,520	51,800	11,300	48,300	85,000	
Avg. Tons, Period 1955-1970									30,500	12,300	77,600	20,500	77,200	130,000	

Rio Grande below Amistad Dam near Del Rio, Texas

Sampling by U. S. Section

Jan.	11	0.76	52,300	872	0.12	7.2	43	24	3.99	0.94	3.65	2.90	3.67	2.12	0
Feb.	11	.82	143,000	930	.15	7.0	45	26	4.15	.95	4.14	2.95	3.98	2.48	.02
Mar.	10	.85	78,800	951	.14	7.4	45	27	3.84	1.32	4.22	2.75	4.27	2.62	.02
Apr.	12	.83	36,400	938	.19	7.3	44	27	3.89	1.32	4.13	3.02	3.93	2.60	.01
May	10	.79	83,400	935	.16	7.5	44	27	4.09	1.32	4.18	3.02	3.96	2.57	.01
June	11	.85	221,000	971	.17	7.3	45	29	3.99	1.48	4.39	2.95	4.10	2.82	0
July	13	.86	120,000	983	.15	7.5	44	29	4.09	1.48	4.44	2.95	4.10	2.88	0
Aug.	13	.83	43,200	958	.15	7.5	46	30	3.79	1.40	4.35	2.88	3.62	2.82	.01
Sept.	12	.79	37,300	907	.16	7.5	45	29	3.59	1.32	4.09	2.66	3.79	2.65	0
Oct.	11	.82	17,200	898	.23	7.7	44	25	3.99	1.07	3.92	2.72	4.12	2.26	.03
Nov.	9	.80	24,300	913	.16	7.8	45	26	3.79	1.23	4.09	2.69	4.23	2.45	.02
Dec.	12	.90	28,800	1,030	.24	7.7	46	25	4.29	1.32	4.74	2.79	5.04	2.65	.03
Mean ⊕ Ø	135	0.83	Ø885,700	948	.16	7.4	44	28	4.00	1.99	4.24	2.91	4.04	2.64	.01
Period Avg.		0.79	712,000	901			43	25	3.94	1.16	3.91	2.94	3.85	2.29	
Tons of Constituents, 1970									116,000	22,800	142,000	127,000	282,000	136,000	
Avg. Tons, Period 1969-1970									96,600	17,200	110,000	108,000	226,000	99,200	

Ø Total ⊕ Weighted Mean ** Percent of total anions *** Percent of total anions

CHEMICAL ANALYSES OF WATER SAMPLES FROM THE RIO GRANDE AND TRIBUTARIES - 1970

Month	No. of Samples	Dissolved Solids: Tons Per Acre-Foot	Dissolved Solids: Total Tons	ECx10⁶ @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	0.80	79,500	906	0.42	7.4	43	26	4.09	1.06	3.81	2.81	3.92	2.37	0.04
Feb.	28	.85	133,000	950			44		# 5.28		4.13	2.92		2.51	
Mar.	31	.88	128,000	971	.18	7.2	45	27	3.94	1.40	4.31	2.82	4.46	2.71	.03
Apr.	30	.93	36,800	1,080		7.3	46		# 6.12		ᵘ 5.25	2.66		3.24	
May	31	.76	83,800	936		7.4	43		# 5.60		ᵘ 4.25	2.75		2.68	
June	30	.86	209,000	955		7.2	45		# 5.32		ᵘ 4.38	2.79		2.76	
July	31	.82	121,000	932		7.6	48		# 4.60		ᵘ 4.22	2.39		2.79	
Aug.	30	.76	49,900	858		7.7	44		# 4.64		ᵘ 3.70	2.33		2.54	
Sept.	30	.57	76,100	630	.12	7.5	38	25	2.94	.90	2.35	2.29	2.39	1.55	.04
Oct.	31	.50	52,700	562		7.6	30		# 3.96		ᵘ 1.70	2.82		1.13	
Nov.	30	.64	37,200	714		7.7	43		# 3.64		ᵘ 2.70	2.52		1.81	
Dec.	31	.71	42,500	830		7.6	45		# 4.24		ᵘ 3.40	2.49		2.17	
Mean ⊕	Ø364	.77	Ø 1,049,500	870			44		# 4.87		3.75	2.67		2.39	
Period Avg.		0.67	1,403,000	759			40		# 4.49		3.04	2.53		2.07	
Tons of Constituents, 1970											160,000	149,000		157,000	
Avg. Tons, Period 1956-1970											200,000	217,000		210,000	
Río Salado at Las Tortillas, Tamaulipas															
Sampling by Mexican Section															
Jan.	1	4.55	16,100	4,200	1.56	7.4	47	31	20.72	5.00	23.21	2.74	31.24	15.14	0.41
Feb.	1	4.29	4,620	3,960			49		# 23.24		21.89	2.50		8.46	
Mar.	2	3.67	2,970	3,490	1.1	7.1	49	38	10.73	9.21	19.14	1.88	22.90	14.95	.18
Apr.	2	7.75	8,260	6,730		7.0	51		# 41.60		ᵘ 42.50	2.85		26.24	
May	2	7.53	15,500	6,770		7.1	49		# 44.40		ᵘ 42.80	1.90		25.39	
June	1	2.58	2,190	2,690		7.4	52		# 12.80		ᵘ 13.65	2.85		11.28	
July	1	1.10	5,810	1,190		7.6	49		# 5.56		ᵘ 5.30	1.84		4.37	
Aug.	1	1.50	398	1,620		7.8	48		# 8.40		ᵘ 7.70	2.03		6.77	
Sept.	2	.69	40,300	764	.21	7.4	41	21	3.39	1.07	3.13	1.70	4.37	1.58	.04
Oct.	2	.82	13,500	848		7.8	43		# 4.84		ᵘ 3.70	2.31		2.06	
Nov.	1	1.34	614	1,380		7.8	43		# 8.36		ᵘ 6.30	2.82		4.32	
Dec.	2	1.40	121	1,510		7.6	46		# 8.48		ᵘ 7.20	2.49		5.61	
Mean ⊕	Ø 18	1.22	Ø 110,383	1,230			45		# 7.25		6.01	1.91		3.52	
Period Avg.		0.77	184,000	830			34		# 5.73		2.96	2.54		2.08	
Tons of Constituents, 1970											17,000	7,040		15,300	
Avg. Tons, Period 1955-1970											22,200	24,900		24,100	
‡ Rio Grande below Falcon Dam, Texas, U. S. Tailrace															
Sampling by U. S. Section															
Jan.	3	0.79	12,800	916	0.17	7.4	47	28	3.52	1.09	4.12	2.21	4.25	2.55	T
Feb.	9	.80	21,400	916	.10	7.3	47	28	3.73	1.00	4.14	2.32	4.22	2.56	0.01
Mar.	9	.83	51,400	943	.22	7.3	46	28	3.49	1.48	4.26	2.33	4.46	2.68	0
Apr.	11	.83	195,000	958	.21	7.2	46	28	3.54	1.40	4.22	2.43	4.35	2.65	.01
May	12	.79	265,000	947	.22	7.4	46	29	3.64	1.48	4.44	2.34	4.46	2.79	0
June	6	.90	61,600	975	.22	7.3	47	29	3.64	1.56	4.61	2.29	4.62	2.88	.01
July	11	.81	48,000	975	.22	7.5	46	30	3.64	1.56	4.48	2.31	4.56	2.88	0
Aug.	7	.87	106,000	974	.23	7.3	48	30	3.44	1.48	4.57	2.18	4.50	2.93	0
Sept.	2	.87	26,300	983	.21	7.5	50	31	3.39	1.48	4.87	2.10	4.66	3.05	0
Oct.	3	.88	27,300	979	.24	7.7	49	31	3.39	1.48	4.70	2.10	4.58	3.05	.01
Nov.	11	.89	44,800	973	.22	7.4	49	31	3.39	1.48	4.74	2.13	4.71	3.05	0
Dec.	12	.84	90,800	970	.27	7.5	48	31	3.39	1.48	4.57	2.16	4.52	2.99	.01
Mean ⊕	Ø 96	.83	Ø950,400	959	.22	7.4	47	29	3.54	1.46	4.44	2.30	4.47	2.82	0
Period Avg.		0.68	1,419,000	795			43	29	3.27	1.18	3.33	2.29	3.27	2.31	
Tons of Constituents, 1970									110,000	27,600	159,000	107,000	334,000	156,000	
Avg. Tons, Period 1956-1970									185,000	40,600	216,000	194,000	444,000	231,000	

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

CHEMICAL ANALYSES OF WATER SAMPLES FROM THE RIO GRANDE AND TRIBUTARIES - 1970

Rio Grande at Fort Ringgold, Rio Grande City, Texas

Sampling by U. S. Section

Month	No. of Samples	Dissolved Solids: Tons Per Acre-Foot	Dissolved Solids: Total Tons	EC x 10^6 @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.	9	1.06	35,000	1,220	0.28	7.2	51	38	4.47	1.38	6.02	2.44	5.06	4.59	0.05
Feb.	8	1.06	34,800	1,230	.30	7.4	52	36	4.62	1.08	6.21	2.48	5.13	4.37	.04
Mar.	8	0.95	57,100	1,070	.28	7.3	49	32	3.79	1.56	5.09	2.43	4.85	3.44	.01
Apr.	7	.82	187,000	992	.33	7.1	45	28	3.64	1.48	4.26	2.49	4.39	2.74	.04
May	7	.84	305,000	1,000	.29	7.4	47	30	3.79	1.56	4.78	2.49	4.54	3.05	0
June	6	.96	94,700	1,100	.29	7.1	50	33	3.89	1.65	5.57	2.47	4.96	3.61	0
July	9	1.05	61,000	1,130	.31	7.7	51	35	3.94	1.65	5.74	2.36	4.96	3.92	0
Aug.	8	.90	112,000	1,020	.24	7.4	49	31	3.59	1.48	4.96	2.33	4.64	3.19	0
Sept.	5	.85	42,600	1,000	.30	7.5	54	38	3.34	1.15	5.26	2.16	3.93	3.72	0
Oct.	9	.93	62,700	1,050	.28	7.7	49	34	3.69	1.56	4.96	2.25	4.66	3.50	.01
Nov.	6	.98	51,700	1,090	.26	7.5	51	33	3.64	1.56	5.44	2.28	5.08	3.64	0
Dec.	7	.87	86,600	1,010	.28	7.4	49	32	3.49	1.56	4.78	2.28	4.62	3.22	0
Mean ⊕	Ø 89	0.89	Ø1,130,200	1,040	.29	7.4	48	32	3.74	1.52	4.95	2.41	4.63	3.27	0.01
Period Avg.		.71	1,717,000	831			44	30	3.37	1.17	3.58	2.36	3.38	2.51	
Tons of Constituents,				1970					129,000	31,900	197,000	125,000	324,000	200,000	
Avg. Tons, Period				1959-1970					222,000	46,600	269,000	231,000	531,000	291,000	

Morillo Drain in Mexico, 8.4 River Miles above Anzaldúas Dam

Sampling by Mexican Section

Month	No. of Samples	Dissolved Solids: Tons Per Acre-Foot	Dissolved Solids: Total Tons	EC x 10^6 @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.	3	9.59	* 1,060	10,400	4.81	7.2	75	68	19.22	8.74	83.01	3.20	32.20	75.59	0.03
Feb.	4	3.99	* 0	4,560	1.84	7.3	69	61	11.57	2.42	31.26	2.99	14.57	27.94	.01
Mar.	4	5.28	* 0	5,890	2.9	7.2	72	63	9.73	6.91	43.50	2.49	19.82	37.80	.04
Apr.	5	8.49	* 942	8,970	4.0	7.1	73	65	14.97	10.20	69.16	2.10	31.02	62.06	.05
May	8	9.49	* 45,000	10,400	6.1	7.3	73	65	18.06	11.93	82.65	2.95	35.81	72.78	.07
June	4	10.4	* 9,910	11,300	5.8	7.2	76	69	17.46	12.75	93.52	2.16	35.39	84.63	.08
July	5	13.3	* 367	13,400	6.6	7.8	75	69	19.96	16.37	108.75	2.62	42.89	100.99	.07
Aug.	4	10.4	* 0	11,100	5.6	7.6	76	68	16.72	11.93	90.92	2.79	34.35	80.40	.07
Sept.	4	9.86	* 2,890	10,500	5.3	7.6	73	68	17.96	12.83	84.39	3.84	33.10	77.58	.06
Oct.	4	9.96	* 0	10,900	5.4	7.9	75	67	17.22	12.50	87.00	3.51	34.56	77.58	.07
Nov.	5	6.76	* 7,630	7,460	3.6	7.5	74	65	12.72	8.39	58.72	3.31	24.78	52.19	.06
Dec.	5	10.8	* 437	11,300	5.6	7.6	74	68	18.06	14.15	92.66	3.67	36.44	84.63	.10
Mean ⊕	Ø 55	9.22	Ø‡* 68,236	9,410	4.8	7.4	74	66	15.95	10.45	74.56	2.84	30.92	66.82	.06
Period Avg.															
Tons of Constituents,				1970 *					3,220	1,280	17,300	858	15,000	23,900	
Avg. Tons, Period															

Rio Grande below Anzaldúas Dam, Texas

Sampling by U. S. Section

Month	No. of Samples	Dissolved Solids: Tons Per Acre-Foot	Dissolved Solids: Total Tons	EC x 10^6 @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.	30	1.31	43,200	1,520	0.69	7.5	53	42	5.06	1.90	7.89	2.63	5.95	6.32	0.03
Feb.	28	1.39	32,600	1,630	.49	7.7	52	44	5.42	2.25	8.29	2.92	6.31	7.11	.03
Mar.	31	1.23	56,600	1,390	.43	7.4	53	41	4.34	2.06	7.22	2.33	5.91	5.64	.03
Apr.	30	.92	74,600	1,070	.31	7.1	49	34	3.54	1.65	5.05	2.20	4.77	3.53	.01
May	31	.94	95,400	1,110	.29	7.4	49	34	4.04	1.65	5.48	2.49	4.89	3.78	.01
June	30	1.21	78,400	1,320	.40	7.4	53	38	4.39	1.89	6.96	2.49	5.70	5.11	.01
July	31	1.06	52,800	1,240	.34	7.4	52	39	4.19	1.65	6.31	2.36	5.06	4.80	.01
Aug.	31	1.05	56,700	1,200	.32	7.3	52	37	3.99	1.65	6.05	2.36	5.20	4.37	0
Sept.	30	1.08	29,600	1,240	.34	7.4	53	39	4.04	1.65	6.48	2.36	5.23	4.77	.01
Oct.	31	1.07	24,200	1,200	.33	7.6	51	39	3.99	1.73	5.92	2.21	5.04	4.68	.01
Nov.	30	1.25	46,400	1,370	.38	7.6	52	40	4.54	1.97	7.13	2.52	5.77	5.56	.02
Dec.	31	.99	50,600	1,160	.29	7.4	51	36	3.89	1.73	5.74	2.36	5.12	4.15	0
Mean ⊕	Ø364	1.08	Ø 641,100	1,240	.36	7.4	51	38	4.17	1.78	6.27	2.41	5.30	4.67	.01
Period Avg.		0.95	1,338,000	1,120			51	41	3.82	1.47	5.55	2.41	4.08	4.48	
Tons of Constituents,				1970					67,300	17,400	116,000	58,200	205,000	133,000	
Avg. Tons, Period				1959-1970					147,000	34,400	245,000	139,000	376,000	305,000	

Ø Total ⊕ Weighted Mean ** Percent of total cations *** Percent of total anions * To Rio Grande

‡ An additional 255,500 tons pumped to Gulf

ELECTRICAL CONDUCTIVITY OF WATER SAMPLES
1970

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	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 El Paso, 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	
2	2,250	26	2,440	11	1,120	22	1,060	30	1,060	11	1,240	20	1,510	3	2,280
5	2,240	27	1,240	12	1,210	23	1,050	July		12	1,520	21	1,170	4	2,280
6	2,300	March		13	1,160	24	1,050	1	1,050	13	1,620	22	1,450	5	2,270
7	2,260	2	1,100	14	1,240	25	1,100	2	1,050	14	1,840	23	1,670	6	2,280
8	2,280	3	1,190	15	1,330	26	1,140	3	1,010	15	1,420	24	1,840	9	2,290
9	2,270	4	1,090	16	1,330	27	1,090	4	1,060	16	1,300	25	1,990	10	2,280
12	2,290	5	1,120	17	1,300	28	1,100	5	989	17	1,160	26	2,080	12	2,290
13	2,260	6	1,050	18	1,290	29	1,210	6	1,060	18	988	27	2,070	13	2,290
14	2,270	7	990	19	1,170	30	1,180	7	1,070	19	978	28	2,040	16	2,200
15	2,280	9	1,000	20	1,120	31	1,170	8	1,150	20	994	29	2,100	18	2,340
16	2,290	10	1,070	21	1,090	June		9	1,210	21	980	30	2,050	19	2,320
19	2,310	11	1,400	22	1,190	1	1,160	10	1,120	22	997	October		20	2,280
20	2,310	12	1,160	23	1,230	2	1,150	11	1,070	23	969	1	2,090	23	2,360
21	2,310	13	1,030	24	1,270	3	1,170	12	1,050	24	947	2	2,090	24	2,350
22	2,300	15	982	25	1,210	4	1,160	13	1,030	25	941	3	2,060	25	2,330
23	2,290	16	969	26	1,190	5	1,140	14	1,040	26	961	4	2,050	27	2,330
26	2,350	17	957	27	1,150	6	1,140	15	1,030	27	1,020	5	1,960	30	2,280
27	2,340	18	976	28	1,270	7	1,150	16	1,090	28	1,140	6	1,290	December	
28	2,370	19	956	29	1,350	8	1,130	17	1,050	29	1,120	7	1,470	1	2,380
29	2,380	20	989	30	1,380	9	1,110	18	1,050	30	1,090	8	1,840	2	2,400
30	2,370	23	1,020	May		10	1,090	19	1,000	31	1,080	9	2,040	3	2,400
February		24	1,020	1	1,380	11	1,290	20	951	September		10	2,130	4	2,500
2	2,380	25	1,000	2	1,350	12	1,310	21	944	1	1,040	11	2,090	7	2,550
3	2,400	26	1,080	3	1,290	13	1,250	22	963	2	1,060	12	2,180	8	2,550
4	2,370	27	1,080	4	1,220	14	1,240	23	1,020	3	1,180	13	2,210	9	2,460
5	2,370	28	998	5	1,220	15	1,180	24	1,010	5	1,370	14	2,170	10	2,380
6	2,340	29	1,020	6	1,260	16	1,090	25	930	6	1,300	15	2,210	11	2,490
9	2,390	30	970	7	1,280	17	1,060	25	949	7	1,240	16	2,230	14	2,520
10	2,380	31	961	8	1,330	18	1,090	26	1,100	8	1,260	19	2,190	15	2,470
11	2,350	April		9	1,370	19	1,060	27	979	9	1,260	20	2,150	16	2,430
12	2,410	1	1,040	10	1,380	20	1,060	28	1,080	10	1,510	21	2,140	17	2,580
13	2,370	2	1,070	11	1,300	21	1,030	29	1,040	11	1,530	22	2,130	18	2,440
16	2,440	3	1,110	12	1,220	22	979	30	1,050	12	1,460	23	2,190	21	2,520
17	2,420	4	1,090	13	1,210	23	992	31	1,040	13	1,400	26	2,230	22	2,250
18	2,430	5	1,060	14	1,190	24	919	August		14	1,360	27	2,270	23	2,240
19	2,460	6	1,060	15	1,180	25	1,020	1	1,190	15	1,430	28	2,220	24	2,350
20	2,520	7	1,970	16	1,140	26	1,050	2	1,240	16	1,530	29	2,240	28	2,320
24	2,340	8	1,090	17	1,090	27	1,080	3	1,210	17	1,660	30	2,250	29	2,270
25	2,390	9	1,120	20	1,080	28	1,120	4	1,210	18	1,570	November		30	2,330
		10	1,150	21	1,100	29	1,060	5	1,290	19	1,400	2	2,210	31	2,270

Sampling by U. S. Section

ELECTRICAL CONDUCTIVITY OF WATER SAMPLES

1970

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 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	Date	ECx10⁶ @25°C
January		March		April		June		July		August		October		November	
7	4,140	4	8,800	29	6,240	9	4,220	22	9,270	26	6,540	1	4,730	18	4,390
14	5,130	11	8,500	May		17	8,350	25	639	September		7	3,350	25	4,650
21	5,010	18	9,230	6	6,150	21	652	26	1,450	2	8,190	7	3,260	December	
28	5,260	25	5,740	13	8,570	21	645	29	2,130	16	1,420	14	4,800	2	4,660
February		April		20	8,700	25	4,080	August		16	1,260	21	4,500	9	4,260
4	6,980	1	3,910	27	5,310	July		5	622	23	3,950	28	5,370	16	5,300
11	8,450	8	6,540	June		1	4,310	5	533	23	3,830	November		23	4,750
18	9,090	15	6,350	3	5,820	8	5,800	12	3,510	30	4,300	4	4,940	30	5,110
25	8,070	22	6,060	9	4,350	15	8,730	19	5,800			12	4,570		

Sampling by U. S. Section

Rio Grande above Rio Conchos near Presidio, 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		June		July		August		September		October		November		December	
2	4,240	23	602	1	820	14	1,020	2	2,810	2	2,380	2	4,450	1	4,880
5	4,150	23	624	2	761	14	1,010	8	1,770	6	1,670	6	4,810	4	4,880
12	4,020	23	601	2	762	17	1,060	11	2,230	8	2,770	10	5,030	8	5,060
15	4,090	23	597	6	884	21	1,540	15	4,460	13	1,700	13	4,920	11	4,870
19	4,220	July		31	951	24	1,650	18	1,810	19	3,120	17	5,060	15	4,930
22	4,250	1	834	August		25	1,660	21	1,540	27	3,120	20	5,170	18	4,930
26	4,370	1	847	11	1,200	27	2,390	29	1,450	November		24	5,120	22	4,900
		1	842	11	1,220	31	2,120			2	4,440			30	5,390

Sampling by U. S. Section

Rio Conchos near Ojinaga, Chihuahua

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		June		July		September		October		November	
2	1,340	26	1,300	23	1,410	15	1,320	31	1,220	11	1,310	14	1,210	20	1,180
5	1,280	March		27	1,400	18	1,320	August		14	1,420	16	1,140	23	1,160
8	1,310	2	1,360	30	1,400	22	1,250	3	1,380	17	1,190	19	1,170	25	1,310
12	1,290	9	1,370	May		24	1,380	6	1,380	18	1,240	21	1,170	27	1,170
15	1,280	12	1,380	4	1,440	30	952	10	1,080	19	1,200	23	1,170	December	
19	1,290	16	1,390	7	1,410	July		14	1,090	21	1,280	24	1,160	2	1,200
22	1,290	19	1,390	11	1,410	1	775	17	1,430	23	1,260	28	1,160	3	1,190
26	1,290	23	1,400	14	1,390	3	1,280	19	1,360	25	1,260	30	1,130	4	1,200
29	1,300	26	1,380	18	1,390	6	1,220	21	1,290	28	1,020	November		7	1,220
February		30	1,410	21	1,380	9	1,410	24	1,110	30	1,240	2	1,150	9	1,220
2	1,290	April		25	1,380	13	1,400	26	1,280	October		4	1,150	11	1,240
5	1,330	2	1,450	28	1,370	16	1,390	28	1,280	2	1,110	6	1,160	14	1,260
9	1,320	6	1,390	June		20	1,400	31	1,280	3	774	9	1,140	16	1,300
12	1,310	9	1,410	1	1,380	23	1,410	September		5	1,000	11	1,150	21	1,410
16	1,300	13	1,410	4	1,370	27	1,280	3	1,270	7	1,250	13	1,150	24	1,280
19	1,310	16	1,400	8	1,240	28	874	7	1,230	9	1,250	16	1,170	25	1,300
23	1,370	20	1,410	11	1,370	29	904	9	1,150	12	1,180	18	1,160	28	1,290
														30	1,300

Sampling by Mexican Section

Rio Grande below Rio Conchos near Presidio, 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		September		November	
2	1,480	19	1,350	6	1,470	22	1,500	2	745	14	1,250	28	768	10	1,400
5	1,490	24	1,550	9	1,600	25	1,440	6	1,270	17	1,340	29	1,110	13	1,390
12	1,430	24	1,440	13	1,670	June		10	1,540	21	1,020	October		17	1,380
15	1,400	27	1,360	16	1,510	1	1,480	14	1,340	24	1,090	2	678	20	1,400
19	1,350	March		20	1,490	4	1,460	17	1,640	27	1,420	5	732	24	1,490
22	1,350	2	1,420	24	1,620	8	1,000	20	1,550	31	1,400	5	567	December	
26	1,330	5	1,460	27	1,550	11	1,510	24	1,630	September		6	978	1	1,460
30	1,350	9	1,470	May		15	1,130	27	586	2	1,390	8	1,410	4	1,480
February		12	1,510	1	1,760	19	1,380	31	1,130	8	1,210	13	1,320	8	1,500
2	1,370	19	1,490	4	1,510	23	876	August		11	1,310	19	1,400	11	1,530
5	1,400	23	1,390	8	1,510	26	1,520	4	1,480	15	1,040	27	1,380	15	1,650
9	1,370	26	1,470	11	1,510	30	1,140	5	678	18	909	November		18	1,930
12	1,340	30	1,530	15	1,470	July		7	1,330	19	980	2	1,390	22	1,690
16	1,310	April		18	1,430	1	845	11	1,340	21	1,280	6	1,360	30	1,780
		2	1,610												

Sampling by U. S. Section

ELECTRICAL CONDUCTIVITY OF WATER SAMPLES

1970

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		October	
2	1,590	13	1,400	24	1,520	4	1,630	18	1,310	27	1,660	8	973	26	1,490
6	1,510	16	1,370	26	1,200	8	1,590	22	1,140	31	896	14	1,340	November	
13	1,450	20	1,350	31	1,540	11	1,580	29	1,010	August		19	1,110	2	1,390
16	1,440	24	1,360	April		15	810	30	572	3	1,160	21	1,260	9	1,400
20	1,440	27	1,400	2	1,590	18	1,600	July		6	836	24	1,340	12	1,410
23	1,410	March		6	1,600	22	1,640	2	936	10	957	30	1,170	16	1,420
27	1,390	2	1,280	10	1,640	June		6	843	15	1,280	October		23	1,410
30	1,370	6	1,420	13	1,610	1	1,500	10	1,260	20	1,200	1	1,170	December	
February		10	1,470	16	1,630	5	1,520	13	1,380	24	1,160	5	1,080	1	1,450
2	1,410	13	1,480	20	1,700	8	1,300	16	1,280	27	1,420	8	1,230	7	1,510
6	1,390	16	1,510	24	1,670	11	1,170	20	1,560	31	1,500	12	1,470	15	1,610
10	1,420	20	1,540	May		16	1,520	24	1,610	September		15	1,320	21	1,810
				1	1,690					3	1,410	20	1,400	29	1,760

Sampling by U. S. Section

Rio Grande at Foster Ranch 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	
5	1,250	16	1,130	6	1,020	18	548	6	905	17	961	5	1,250	23	1,300
12	1,250	24	1,120	13	1,050	25	1,080	13	810	24	551	12	1,230	30	1,300
19	1,220	March		20	1,040	June		20	529	31	1,220	19	1,250	December	
26	1,180	2	1,130	27	1,020	1	411	27	758	September		26	1,370	7	1,320
February		9	1,030	May		8	476	August		8	1,310	November		14	1,340
2	1,170	16	1,130	4	1,050	15	1,040	3	858	14	1,200	6	1,310	21	1,360
9	1,140	30	1,170	11	1,110	22	1,020	10	1,060	21	831	16	1,310	28	1,580
						29	1,050			28	903				

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	
5	3,050	24	3,570	6	4,240	18	2,970	6	2,230	24	2,270	5	1,880	16	2,660
12	3,170	March		13	3,920	25	2,930	13	2,460	31	2,270	12	2,200	23	2,730
19	3,260	2	3,700	20	3,780	June		20	2,410	September		19	2,200	December	
26	3,360	9	3,790	27	3,450	1	2,750	27	2,390	8	2,560	26	2,470	7	2,840
February		23	4,360	May		8	2,770	August		14	2,190	November		14	2,940
2	3,490	30	4,530	4	2,340	15	2,610	3	2,380	21	2,260	2	2,490	21	3,000
16	3,560			11	3,010	22	2,620	10	2,250	29	1,580	9	2,560		

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		June		July		August		October		November	
5	383	26	401	13	397	1	366	20	331	31	360	12	376	23	385
12	422	March		20	375	8	365	27	345	September		19	377	30	378
19	339	9	415	27	378	15	339	August		8	401	26	362	December	
26	409	16	393	May		29	349	3	349	14	357	November		7	378
February		23	393	4	385	July		10	349	21	375	2	378	14	383
9	400	30	387	11	361	6	359	17	349	28	372	9	381	21	382
16	395	April		25	357	13	349	24	350	October		16	386	28	389
		6	386							5	377				

Sampling by U. S. Section

ELECTRICAL CONDUCTIVITY OF WATER SAMPLES
1970

Rio Grande below Amistad Dam near Del Rio, 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		September		November	
5	849	18	945	6	952	15	954	6	955	17	980	30	895	16	905
7	837	20	945	8	940	18	936	8	965	19	920	October		18	912
9	842	23	955	10	946	20	950	10	965	21	914	5	888	20	916
12	842	25	938	13	921	28	942	13	968	24	912	9	942	23	926
14	846	27	940	15	928	June		15	1,020	26	912	12	938	30	924
16	863	March		17	934	1	947	17	1,010	28	910	14	919	December	
19	822	2	984	20	937	5	944	20	1,010	31	918	16	887	2	939
21	860	4	943	22	918	8	962	22	1,000	September		19	870	4	957
23	870	6	979	24	931	10	956	24	1,000	4	908	21	856	7	980
26	891	9	961	27	936	12	967	27	1,000	7	899	23	857	9	994
28	898	11	973	29	920	15	991	29	1,010	9	910	26	861	11	1,060
February		13	965	May		17	978	31	1,010	11	907	28	870	14	1,110
4	883	16	977	1	939	22	962	August		14	904	30	874	16	1,060
7	884	25	979	4	938	24	976	3	991	16	908	November		18	1,070
9	923	27	971	6	934	26	956	5	1,020	18	908	2	895	21	1,050
11	951	30	981	8	947	29	975	7	1,010	21	906	6	898	25	1,040
13	987	April		11	956	July		10	1,000	23	848	9	910	28	1,030
16	974	2	965	13	951	1	976	12	984	25	907	13	908	30	1,030
								14	992	28	892				

Sampling by U. S. Section

Rio Grande below Maverick Dam near Del Rio, Texas

January		February		April		May		July		August		October		November	
1	826	15	860	1	893	16	901	1	989	16	956	1	862	16	876
2	819	16	895	2	893	17	908	2	971	17	956	2	847	17	879
3	844	17	888	3	920	18	903	3	953	18	964	3	832	18	877
4	833	18	941	4	907	19	895	4	959	19	917	4	825	19	880
5	846	19	945	5	919	20	893	5	955	20	893	5	831	20	879
6	831	20	924	6	905	21	901	6	959	21	893	6	822	21	885
7	801	21	948	7	892	22	944	7	962	22	893	7	822	22	878
8	818	22	958	8	893	23	956	8	960	23	889	8	816	23	883
9	805	23	959	9	893	24	945	9	967	24	888	9	820	24	885
10	839	24	959	10	893	25	944	10	968	25	880	10	776	25	894
11	807	25	903	11	891	26	946	11	956	26	892	11	830	26	881
12	825	26	918	12	905	27	941	12	964	27	892	12	853	27	874
13	842	27	928	13	903	28	917	13	968	28	882	13	862	28	883
14	848	28	959	14	924	29	948	14	957	29	882	14	860	29	880
15	845	March		15	877	30	953	15	939	30	886	15	848	30	889
16	858	1	978	16	899	31	948	16	948	31	884	16	828	December	
17	842	2	964	17	900	June		17	944	September		17	837	1	897
18	827	3	988	18	908	1	964	18	946	1	881	18	838	2	902
19	871	4	975	19	907	2	948	19	934	2	866	19	857	3	906
20	841	5	953	20	917	3	939	20	932	3	881	20	854	4	912
21	846	6	974	21	912	4	944	21	936	4	889	21	823	5	918
22	863	7	965	22	899	5	932	22	948	5	890	22	816	6	921
23	881	8	964	23	903	6	960	23	952	6	894	23	807	7	931
24	868	9	899	24	893	7	990	24	951	7	890	24	804	8	942
25	866	10	916	25	900	8	973	25	948	8	890	25	800	9	952
26	871	11	914	26	888	9	972	26	958	9	894	26	807	10	939
27	869	12	910	27	901	10	968	27	954	10	895	27	808	11	948
28	876	13	912	28	887	11	981	28	962	11	902	28	816	12	969
29	885	14	892	29	899	12	983	29	962	12	897	29	816	13	994
30	897	15	901	30	895	13	966	30	964	13	896	30	815	14	979
31	878	16	871	May		14	970	31	964	14	874	31	821	15	1,010
February		17	894	1	901	15	995	August		15	856	November		16	1,040
1	887	18	878	2	902	16	1,010	1	992	16	878	1	857	17	1,060
2	898	19	886	3	911	17	985	2	980	17	883	2	851	18	1,000
3	847	20	897	4	899	18	994	3	968	18	881	3	848	19	987
4	818	21	877	5	893	19	1,000	4	955	19	877	4	860	20	996
5	830	22	871	6	901	20	977	5	805	20	875	5	866	21	979
6	849	23	868	7	897	21	964	6	946	21	875	6	862	22	978
7	846	24	856	8	899	22	976	7	969	22	880	7	868	23	981
8	821	25	883	9	904	23	952	8	966	23	848	8	871	24	975
9	849	26	862	10	908	24	973	9	952	24	773	9	866	25	992
10	834	27	892	11	919	25	995	10	968	25	856	10	876	26	976
11	828	28	865	12	923	26	986	11	955	26	792	11	877	27	967
12	835	29	872	13	911	27	954	12	956	27	380	12	880	28	970
13	867	30	878	14	859	28	962	13	944	28	697	13	869	29	972
14	847	31	870	15	857	29	957	14	949	29	832	14	883	30	965
						30	982	15	949	30	860	15	881	31	968

Sampling by Maverick County Water Control and Improvement District No. 1
** Samples collected at the Maverick Canal headgate

ELECTRICAL CONDUCTIVITY OF WATER SAMPLES
1970

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 San Antonio Crossing near El Indio, 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		September		November	
6	892	26	963	7	1,010	18	924	2	928	19	902	29	452	18	703
13	827	March		14	1,020	25	982	8	930	26	835	October		25	721
20	935	4	947	20	1,020	June		16	998	September		7	562	December	
February		10	1,030	27	994	1	1,010	22	1,010	2	865	14	560	2	764
4	921	17	1,100	May		8	995	29	992	10	860	28	692	9	882
10	950	29	1,020	4	1,000	15	997	August		16	931	November		16	933
17	981	April		11	1,010	25	980	6	765	24	905	4	628	23	911
		1	1,100									12	722		

Sampling by U. S. Section

Rio Grande at Laredo, 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	
1	941	15	953	1	1,100	16	933	1	909	17	908	1	396	16	740
2	895	16	988	2	1,120	17	1,010	2	914	18	909	2	442	17	736
3	913	17	1,000	3	1,110	18	953	3	861	19	901	3	517	18	768
4	928	18	1,010	4	1,080	19	1,050	4	897	20	908	4	545	19	727
5	981	19	1,050	5	1,130	20	1,020	5	915	21	903	5	562	20	769
6	977	20	1,050	6	1,080	21	997	6	932	22	902	6	557	21	740
7	922	21	953	7	1,140	22	965	7	912	23	916	7	550	22	779
8	857	22	950	8	1,120	23	975	8	909	24	927	8	554	23	705
9	897	3	928	9	1,150	24	967	9	909	25	921	9	492	24	734
10	917	24	936	10	1,170	25	952	10	942	26	933	10	569	25	707
11	918	25	963	11	1,140	26	970	11	911	27	751	11	526	26	741
12	914	26	988	12	1,060	27	928	12	935	28	740	12	488	27	707
13	889	27	945	13	1,070	28	969	13	962	29	711	13	566	28	759
14	893	28	952	14	1,010	29	825	14	980	30	798	14	603	29	783
15	898	March		15	1,050	30	836	15	908	31	877	15	619	30	783
16	886	1	907	16	1,050	31	889	16	825	September		16	586	December	
17	890	2	952	17	1,060	June		17	911	1	885	17	550	1	770
18	926	3	956	18	1,070	1	834	18	957	2	886	18	606	2	791
19	925	4	972	19	1,080	2	752	19	911	3	891	19	606	3	749
20	933	5	959	20	1,070	3	863	20	851	4	885	20	616	4	749
21	855	6	970	21	1,060	4	943	21	861	5	888	21	615	5	766
22	853	7	973	22	1,030	5	1,040	22	953	6	913	22	580	6	759
23	854	8	957	23	1,020	6	957	23	1,000	7	910	23	648	7	821
24	863	9	962	24	1,060	7	943	24	1,040	8	912	24	640	8	748
25	874	10	970	25	1,080	8	960	25	1,050	9	924	25	624	9	815
26	902	11	984	26	1,090	9	897	26	1,050	10	900	26	642	10	804
27	915	12	1,030	27	1,060	10	930	27	1,050	11	862	27	638	11	813
28	885	13	1,050	28	1,050	11	900	28	1,050	12	828	28	623	12	813
29	918	14	1,070	29	1,020	12	957	29	1,020	13	821	29	656	13	815
30	922	15	1,050	30	1,060	13	977	30	1,020	14	832	30	659	14	853
31	927	16	1,070	May		14	932	31	1,030	15	825	31	649	15	811
February		17	1,080	1	1,040	15	971	August		16	835	November		16	821
1	918	18	1,070	2	1,080	16	966	2	1,030	17	839	1	665	17	844
2	924	19	1,070	3	1,020	17	947	3	1,040	18	824	2	668	18	810
3	912	20	1,080	4	1,050	18	970	4	1,030	19	839	3	663	19	853
4	909	21	1,110	5	1,060	19	925	5	1,010	20	857	4	659	20	849
5	924	22	1,110	6	1,040	20	996	6	731	21	843	5	649	21	844
6	922	23	1,120	7	1,050	21	964	7	831	22	786	6	667	22	870
7	915	24	1,110	8	1,060	22	882	8	824	23	792	7	664	23	864
8	917	25	1,110	9	1,080	23	1,000	9	710	24	810	8	624	24	889
9	923	26	1,130	10	1,060	24	971	10	730	25	813	9	667	25	878
10	952	27	1,150	11	1,070	25	971	11	691	26	779	10	687	26	862
11	974	28	1,150	12	1,070	26	951	12	740	27	744	11	704	27	846
12	971	29	1,130	13	1,030	27	901	13	784	28	504	12	669	28	878
13	954	30	1,120	14	1,040	28	949	14	816	29	341	13	668	29	874
14	979	31	1,130	15	1,030	29	976	15	878	30	367	14	682	30	912
						30	945	16	907			15	719	31	930

Sampling by Laredo Water Plant

ELECTRICAL CONDUCTIVITY OF WATER SAMPLES
1970

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

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		September		October		December	
12	4,190	5	1,820	7	6,740	6	2,680	1	1,630	8	5,500	2	590	4	1,520
February		April		June		July		1	1,640	8	5,510	November			
2	4,050	4	6,500	6	2,710	2	1,170					2	1,380		

Sampling by Mexican Section

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

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		May		June		July		October		November	
2	923	2	921	8	934	11	969	19	979	31	973	22	973	30	969
5	915	4	915	10	933	13	960	22	982	August		23	973	December	
21	910	6	913	15	941	15	960	July		3	983	November		4	970
February		13	922	17	936	18	960	2	965	7	964	2	977	7	964
2	914	20	921	20	939	20	957	6	967	10	973	4	977	9	958
4	908	23	921	24	940	22	961	8	969	12	969	11	987	11	963
6	914	25	926	27	945	27	960	10	982	14	970	13	973	14	967
10	910	27	923	29	936	29	964	13	971	17	972	16	986	16	963
13	906	30	926	May		June		15	979	24	976	18	984	18	963
16	907	April		1	977	2	968	22	968	September		20	986	21	968
20	911	1	935	4	960	8	970	24	968	10	978	23	980	23	968
25	908	3	934	6	954	12	989	27	969	October		25	982	25	974
27	915	6	935	8	956	15	980	30	969	16	973	27	984	28	964
										20	952			30	961

Sampling by U. S. Section

Rancherías Drain in Mexico, 69.3 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	Date	ECx10⁶ @25°C
January		February		April		May		July		August		October		November	
8	7,750	18	7,600	1	7,850	13	4,450	1	7,340	19	7,040	7	5,800	18	6,810
14	7,220	25	9,390	8	7,390	20	5,840	8	7,730	26	6,700	14	6,770	25	7,090
22	7,170	March		15	6,870	27	4,970	16	4,610	September		23	6,600	December	
31	7,640	4	7,300	22	6,970	June		22	6,820	4	6,880	29	7,230	3	6,950
February		11	6,810	29	3,900	3	5,430	29	7,430	9	6,670	November		9	7,120
6	7,190	18	7,330	May		10	5,370	August		17	7,030	4	6,950	16	6,340
11	7,760	25	7,500	6	5,080	17	7,270	6	7,530	23	7,710	11	7,030	30	7,110
								13	4,560	30	6,080				

Sampling by Mexican Section

* Río San Juan at Camargo, Tamaulipas

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		July		August		October		November	
5	1,210	11	1,130	25	1,340	20	2,570	1	2,270	26	1,820	7	1,010	18	1,040
14	1,090	18	1,160	April		27	2,530	22	2,480	September		8	1,050	25	1,080
22	1,040	25	1,130	1	1,400	June		29	2,210	4	2,220	14	956	December	
26	997	March		8	1,500	3	2,120	August		9	2,170	23	994	3	1,100
31	1,140	4	1,240	15	1,610	10	2,310	6	1,230	17	1,570	29	1,000	9	1,090
February		11	1,120	22	1,540	17	1,960	13	2,370	23	1,500	November		16	1,070
6	1,130	18	1,280	29	2,100			19	2,110	October		11	1,080	30	1,170
										7	1,090				

Sampling by Mexican Section

* Samples collected below Marte R. Gómez Dam except October 14, 23, 29 which were collected at Camargo

ELECTRICAL CONDUCTIVITY OF WATER SAMPLES
1970

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 Fort Ringgold, Rio Grande City, Texas

January		February		April		May		July		August		October		November	
7	1,170	17	1,180	3	962	19	977	9	1,120	18	1,090	5	1,210	13	1,420
9	1,310	20	1,160	8	942	22	1,010	10	1,140	21	989	8	1,050	16	1,030
12	1,350	25	1,220	14	1,190	25	1,060	13	1,010	25	1,020	12	1,010	20	1,150
16	1,190	27	1,240	17	1,100	28	1,360	17	1,230	28	1,130	16	1,020	30	1,010
19	1,220	March		24	957	June		22	1,840	September		19	1,000	December	
21	1,260	4	1,270	29	950	4	1,550	24	1,210	4	1,200	23	1,020	4	1,030
26	1,280	6	1,230	29	953	9	1,390	28	1,300	17	1,000	26	1,030	7	1,020
28	1,240	11	1,140	30	949	12	1,360	31	1,120	21	1,100	29	1,060	11	992
30	1,200	13	1,010	30	952	19	1,030	August		24	1,530	November		17	1,090
February		18	1,180	May		24	1,010	4	1,040	28	620	2	1,170	21	1,020
3	1,470	20	1,020	6	961	24	970	7	1,000	28	615	9	1,510	28	989
6	1,290	24	1,040	8	960	July		12	999	October		9	1,520	30	996
11	1,120	31	1,984	13	967	3	1,110	14	998	2	1,090				
13	1,180														

Sampling by U. S. Section

Puertecitos Drain in Mexico, 46.8 River Miles above Anzaldúas Dam

January		February		April		May		July		August		October		November	
10	5,300	27	6,800	8	6,100	27	5,200	8	5,700	26	5,720	15	5,840	26	5,180
15	5,690	March		15	5,070	June		16	5,620	September		23	5,720	December	
22	5,630	5	6,830	22	5,370	3	5,470	22	5,540	4	5,460	30	5,650	3	5,280
31	5,620	12	6,900	29	5,650	10	5,340	29	5,190	9	4,880	November		9	4,680
February		19	7,260	May		17	5,510	August		18	5,280	5	5,540	16	5,260
6	5,550	25	7,410	6	5,020	25	5,740	6	5,670	October		11	1,070	23	5,150
13	5,990	April		13	4,940	July		13	5,480	1	5,880	18	5,070	30	5,850
19	6,450	1	3,960	20	5,240	1	5,780	19	5,640	7	5,850				

Sampling by Mexican Section

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

January		February		April		May		July		August		October		November	
10	3,840	27	3,940	8	4,060	27	4,060	8	3,790	26	3,660	7	3,540	26	3,590
15	3,740	March		15	2,230	June		16	3,540	September		15	3,600	December	
22	3,850	5	3,880	22	3,910	3	3,680	22	3,790	4	3,530	23	3,650	3	3,610
31	3,770	12	3,900	29	3,620	10	3,680	29	3,790	9	3,640	30	3,560	9	3,590
February		19	3,920	May		17	3,960	August		18	3,470	November		16	3,530
6	3,800	25	3,920	6	3,780	25	3,020	6	3,710	23	3,340	5	3,540	23	3,550
13	3,850	April		13	3,690	July		13	3,630	October		11	3,630	30	3,520
19	3,930	1	6,240	20	3,880	1	3,670	19	3,730	1	3,530	18	3,620		

Sampling by Mexican Section

Huizache Drain in Mexico, 41.8 River Miles above Anzaldúas Dam

January		February		April		May		July		August		October		November	
10	3,660	27	4,230	8	3,830	20	4,670	1	5,060	19	4,220	7	3,330	26	4,580
15	3,710	March		15	3,720	21	4,580	8	5,000	26	4,040	15	4,500	December	
22	3,920	5	4,660	22	4,130	June		16	3,970	September		23	4,580	3	4,350
31	4,060	12	4,700	29	4,230	3	4,270	22	4,890	4	4,850	30	4,510	9	4,360
February		19	4,580	May		10	5,130	29	4,970	9	4,620	November		16	4,390
6	4,180	25	4,540	6	5,810	17	5,130	August		18	4,600	5	3,850	23	4,340
13	4,400	April		13	4,220	25	3,730	6	4,810	October		11	3,970	30	4,370
19	4,260	1	4,240					13	4,950	1	4,520	18	4,450		

Sampling by Mexican Section

ELECTRICAL CONDUCTIVITY OF WATER SAMPLES
1970

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		February		April		May		July		August		October		November	
2	1,310	20	1,420	3	1,050	18	1,140	1	1,120	18	1,150	2	1,280	18	1,050
5	1,360	23	1,370	6	988	20	1,110	3	1,510	19	1,090	5	1,490	20	1,290
7	1,090	25	1,410	9	965	22	1,190	6	1,390	21	1,010	7	1,080	23	1,420
9	1,550	27	1,480	10	968	25	1,300	8	1,260	24	1,080	8	1,340	25	1,160
12	1,620	March		13	1,080	27	1,460	10	1,240	26	1,040	12	1,180	27	1,230
14	1,560	2	1,700	16	1,320	29	1,750	13	1,120	28	1,100	14	1,150	30	1,190
16	1,400	4	1,660	18	1,230	June		15	1,060	31	1,510	16	1,170	December	
19	1,570	6	1,500	20	1,170	2	1,400	17	1,160	September		19	1,050	2	1,220
21	1,580	9	2,080	23	1,060	4	1,460	20	1,590	2	1,140	21	1,060	4	1,150
24	1,610	11	1,310	24	1,010	5	1,900	22	1,960	4	1,230	23	1,090	7	1,160
27	1,610	14	1,300	27	974	8	2,450	25	1,240	8	1,230	26	1,120	9	1,060
29	1,620	16	1,260	30	965	10	1,700	27	1,340	9	1,240	28	1,100	11	1,140
31	1,600	18	1,500	May		12	1,390	29	1,650	11	1,370	30	1,090	14	1,170
February		20	1,260	1	1,010	15	1,380	August		14	1,330	November		15	1,070
2	1,800	22	1,190	4	1,020	17	1,250	1	1,470	16	919	2	1,270	18	1,220
4	1,610	26	1,100	6	1,010	19	1,050	3	1,210	18	1,570	4	1,190	21	1,240
6	1,750	28	1,150	8	1,030	22	965	5	1,170	21	1,200	6	1,360	23	1,050
9	1,380	30	1,090	11	1,020	24	1,140	7	1,090	23	1,170	9	1,410	25	1,060
11	1,240	April		13	1,030	26	1,280	10	1,040	25	1,190	11	1,540	28	1,050
13	1,380	1	1,050	15	1,090	27	751	12	1,050	28	903	13	1,670	30	1,050
16	1,270							14	1,060	30	834	16	1,080		

Sampling by U. S. Section

Rio Grande at Penitas, Texas

January		February		April		May		July		August		October		November	
2	1,220	20	1,250	8	1,050	27	1,160	8	1,100	21	1,110	5	910	18	1,080
5	1,500	25	1,870	10	977	29	1,240	10	1,140	24	1,070	7	1,620	20	1,110
7	1,360	27	1,430	17	1,430	June		13	1,380	26	1,100	9	1,510	23	1,270
12	1,240	March		20	1,140	1	1,360	15	1,340	28	1,110	12	1,270	25	1,300
14	1,830	2	1,470	22	1,170	3	1,420	17	1,160	31	1,060	14	1,280	27	1,270
16	1,680	4	1,610	25	1,010	5	1,520	20	1,160	September		16	1,190	30	1,260
19	1,630	6	1,790	27	986	8	1,360	22	1,220	2	1,200	19	1,190	December	
21	1,520	9	1,590	29	984	10	1,870	24	1,290	4	1,210	21	1,120	2	1,200
23	1,580	11	1,590	May		12	1,680	27	1,730	7	1,210	23	1,140	4	1,250
26	1,840	13	1,380	1	971	15	1,420	29	1,520	9	1,410	26	1,200	7	1,130
28	1,680	16	1,290	4	1,000	17	1,360	31	1,420	11	1,250	28	1,190	9	1,190
30	1,770	18	1,260	6	966	19	1,160	August		14	1,440	30	1,130	11	1,160
February		20	1,590	8	972	22	1,080	3	1,640	16	1,440	November		14	1,200
2	1,750	23	1,180	11	972	24	1,080	5	1,190	18	1,390	2	1,300	16	1,180
4	1,730	25	1,200	13	987	26	1,080	7	1,060	21	1,170	4	1,310	18	1,130
9	1,910	30	1,110	15	996	29	977	10	1,610	23	1,240	6	1,280	21	1,250
11	1,500	April		18	1,020	July		12	1,050	25	1,310	9	1,460	23	1,190
13	1,410	1	1,160	20	1,100	1	713	14	1,030	28	1,260	11	5,300	25	1,430
16	1,500	3	1,060	22	1,170	3	1,530	17	1,760	30	1,320	13	7,800	28	1,110
18	1,350	6	1,010	25	1,140	6	789	19	1,240	October		16	1,120	30	1,080
										2	1,330				

Sampling by U. S. Section

Rio Grande above Anzaldúas Dam, South of Abram, Texas

January		February		April		May		July		August		October		November	
2	1,280	20	1,300	8	1,010	29	1,250	10	1,330	24	1,010	5	871	18	1,080
5	1,330	25	1,450	10	970	June		13	1,280	26	1,040	7	1,240	20	1,080
7	1,470	27	1,410	17	1,450	1	1,720	15	1,070	28	1,050	9	1,550	23	1,180
12	1,210	March		20	1,280	3	1,470	17	1,070	31	898	12	1,420	25	1,380
14	1,520	2	1,440	22	1,180	5	1,400	20	1,130	September		14	1,270	27	1,220
16	1,780	4	1,520	25	1,020	8	1,480	22	1,270	2	1,490	16	1,200	30	1,210
19	1,630	6	1,700	29	978	10	2,040	24	1,380	4	1,150	19	1,190	December	
21	1,450	9	1,670	May		12	1,500	27	2,170	7	1,240	21	1,070	2	1,210
23	1,450	11	1,470	1	978	15	1,360	29	1,430	9	1,540	23	1,090	4	1,170
26	1,680	13	1,480	4	987	17	1,380	31	1,470	11	1,200	26	1,170	7	1,150
28	1,630	16	1,260	6	972	19	1,130	August		14	1,310	28	1,150	9	1,190
30	1,740	18	1,310	8	976	22	1,060	3	1,530	16	1,690	30	1,080	11	1,100
February		20	1,470	11	987	24	884	5	1,160	18	991	November		14	1,130
2	1,780	23	1,230	13	977	26	600	7	1,120	21	1,410	2	1,150	16	1,140
4	1,720	25	1,220	15	993	29	1,040	10	1,150	23	1,330	4	1,310	18	1,130
9	1,840	30	1,160	18	1,060	July		12	999	25	1,060	6	1,260	21	1,220
11	1,660	April		20	1,070	1	573	14	1,030	28	1,240	9	1,310	23	1,160
13	1,600	1	1,130	22	1,040	3	728	17	1,040	30	1,390	11	1,680	25	1,100
16	1,410	3	1,120	25	1,100	6	1,530	18	1,220	October		13	1,830	28	1,080
18	1,460	6	997	27	1,210	8	1,530	21	1,110	2	916	16	1,080	30	1,040

Sampling by U. S. Section

ELECTRICAL CONDUCTIVITY OF WATER SAMPLES
1970

Morillo Drain in Mexico, 8.4 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	Date	ECx10⁶ @25°C
January		February		April		May		June		August		October		November	
7 a)	10,050	25 b)	2,540	8 a)	8,250	8 g)	9,900	26 b)	9,020	27 a)	7,550	2 a)	7,500	19 b)	13,220
16 a)	10,240	25 d)	4,360	15 a)	7,420	17 g)	7,850	July		7 b)	17,300	15 a)	10,480	19 e)	2,840
21 a)	10,530	25 c)	883	22 a)	7,860	22 c)	1,060	3 a)	9,450	12 b)	17,000	22 a)	10,560	28 b)	14,110
30 a)	10,640	March		29 a)	8,060	22 e)	2,830	9 a)	10,700	20 b)	14,600	28 a)	10,710	December	
7 b)	7,860	4 a)	10,650	1 b)	11,590	22 b)	11,820	15 a)	10,800	27 b)	13,600	2 b)	16,040	4 a)	10,530
21 b)	11,540	13 a)	10,650	2 e)	3,220	28 b)	12,630	23 a)	10,200	September		15 b)	16,100	11 a)	10,440
30 b)	11,420	18 a)	10,840	8 e)	3,110	28 e)	2,830	30 a)	10,700	3 a)	8,870	22 b)	16,350	17 a)	10,440
February		25 a)	10,650	8 b)	9,160	June		3 b)	15,200	10 a)	10,100	28 b)	16,040	24 a)	9,960
4 a)	10,500	4 b)	2,940	15 b)	9,490	4 a)	10,190	9 b)	16,900	18 a)	8,200	November		31 a)	9,420
12 a)	9,750	4 c)	992	22 b)	10,050	11 a)	10,910	15 b)	17,200	25 a)	9,350	5 a)	9,750	4 b)	15,380
18 a)	9,020	13 b)	2,350	29 b)	9,800	18 a)	11,020	23 b)	17,900	3 b)	13,700	12 a)	9,810	11 b)	16,340
25 a)	9,190	13 c)	998	May		26 a)	5,840	30 b)	17,600	10 b)	14,400	19 a)	9,740	17 b)	15,610
4 b)	12,330	18 b)	6,240	6 a)	8,720	4 e)	2,940	August		18 b)	14,600	28 a)	10,300	24 b)	13,950
12 b)	2,520	18 c)	991	22 a)	10,570	4 b)	15,170	7 a)	11,400	25 b)	13,300	6 b)	1,330	31 b)	10,670
13 d)	4,580	25 b)	10,670	28 a)	10,080	11 b)	16,300	12 a)	10,500	18 e)	3,250	6 f)	2,000	31 e)	2,810
18 b)	2,480	April		6 b)	10,810	18 b)	17,060	20 a)	9,340	25 e)	2,840	12 b)	11,690		
18 d)	2,750	1 a)	9,490	8 g)	10,210										

a) Esterito Drain at Arguellas
b) Morillo Drain below Brecha Arguellas
c) Irrigation Lateral
d) Morillo Drain at Pumping Plant
e) Leakage from Rode Canal
f) Morillo Drain at Highway Bridge
g) Morillo Drain below Pumping Plant
Sampling by Mexican Section

Rio Grande below Anzalduas Dam, Texas

January		February		April		May		July		August		October		November	
1	1,830	17	1,430	2	1,200	17	1,220	1	1,150	16	1,040	1	1,620	16	1,610
2	1,750	18	1,370	3	1,180	18	1,330	2	753	17	1,050	2	1,870	17	1,450
3	1,740	19	1,350	4	1,150	19	1,170	3	556	18	1,080	3	1,750	18	1,210
4	1,650	20	1,360	5	1,140	20	1,120	4	580	19	1,410	4	1,450	19	1,130
5	1,350	21	1,380	6	1,040	21	1,090	5	657	20	1,200	5	1,200	20	1,140
7	1,230	22	1,390	7	1,030	22	1,100	6	748	21	1,200	6	1,190	21	1,130
8	1,320	23	1,430	8	1,020	23	1,060	7	961	22	1,130	7	1,030	22	1,130
9	1,340	24	1,440	9	1,010	24	1,110	8	1,480	23	1,070	8	996	23	1,130
10	1,370	25	1,340	10	987	25	1,120	9	1,520	24	1,040	9	906	24	1,120
11	1,420	26	1,360	11	977	26	1,440	10	1,480	25	1,040	10	1,040	25	1,130
12	1,350	27	1,320	12	974	27	1,370	11	1,430	26	1,080	11	1,310	26	1,140
13	1,280	28	1,330	13	983	28	1,310	12	1,380	27	1,090	12	1,480	27	1,220
14	1,220	March		14	1,040	29	1,260	13	1,300	28	1,090	13	1,280	28	1,290
15	1,160	1	1,380	15	1,020	30	1,220	14	1,310	29	1,070	14	1,390	29	1,390
16	1,160	2	1,420	16	1,070	31	1,330	15	1,230	30	1,050	15	1,310	30	1,350
17	1,190	3	1,420	17	1,100	June		16	1,150	31	1,060	16	1,270	December	
18	1,220	4	1,390	18	1,190	1	1,380	17	1,100	September		17	1,270	1	1,230
19	1,360	5	1,390	19	1,260	2	1,410	18	1,070	1	1,060	18	1,240	2	1,220
20	1,570	6	1,400	20	1,480	3	1,490	19	1,070	2	1,020	19	1,230	3	1,270
21	1,730	7	1,420	21	1,330	4	1,670	20	1,070	3	973	20	1,200	4	1,250
22	1,720	8	1,440	22	1,210	5	1,710	21	1,090	4	1,070	21	1,220	5	1,220
23	1,650	9	1,490	23	1,180	6	1,660	22	1,080	5	1,150	22	1,110	6	1,200
24	1,550	10	1,610	24	1,100	7	1,570	23	1,090	6	1,320	23	1,060	7	1,220
25	1,480	11	1,710	25	1,030	8	1,440	24	1,120	7	1,490	24	1,080	8	1,220
26	1,460	12	1,680	26	1,030	9	1,410	25	1,190	8	1,290	25	1,110	9	1,100
27	1,540	13	1,560	27	997	10	1,420	26	1,330	9	1,190	26	1,140	10	1,150
28	1,640	14	1,500	28	1,010	11	1,540	27	1,450	10	1,200	27	1,160	11	1,170
29	1,710	15	1,490	29	976	12	1,730	28	1,460	11	1,310	28	1,180	12	1,160
30	1,710	16	1,730	30	977	13	2,110	29	1,590	12	1,460	29	1,170	13	1,140
31	1,640	17	1,570	May		14	2,470	30	1,860	13	1,360	30	1,160	14	1,130
February		18	1,350	1	1,040	15	2,050	31	2,090	14	1,260	31	1,120	15	1,120
1	1,630	19	1,260	2	1,100	16	1,500	August		15	1,230	November		16	1,150
2	1,650	20	1,260	3	1,070	17	1,490	1	1,940	16	1,290	1	1,110	17	1,180
3	1,670	21	1,290	4	1,120	18	1,460	2	1,700	17	1,320	2	1,080	18	1,170
4	1,720	22	1,360	5	1,140	19	1,310	3	1,530	18	1,320	3	1,100	19	1,160
5	1,780	23	1,500	6	1,110	20	1,120	4	1,770	19	1,510	4	1,150	20	1,150
6	1,830	24	1,500	7	1,100	21	1,090	5	1,620	20	1,340	5	1,210	21	1,140
7	1,820	25	1,320	8	1,120	22	1,070	6	1,370	21	1,140	6	1,280	22	1,150
8	1,790	26	1,240	9	1,110	23	1,060	7	1,220	22	1,050	7	1,320	23	1,200
9	1,800	27	1,220	10	1,020	24	1,030	8	1,150	23	1,000	8	1,400	24	1,270
10	1,870	28	1,230	11	1,000	25	1,170	9	1,090	24	945	9	1,480	25	1,220
11	1,860	29	1,220	12	1,010	26	1,390	10	1,100	25	951	10	1,420	26	1,130
12	1,820	30	1,200	13	1,230	27	783	11	1,120	26	949	11	1,350	27	1,110
13	1,810	31	1,200	14	1,060	28	953	12	1,070	27	1,050	12	1,640	28	1,090
14	1,870	April		15	1,100	29	1,190	13	1,070	28	1,370	13	1,760	29	1,090
15	1,740	1	1,240	16	1,290	30	1,310	14	1,070	29	1,260	14	1,870	30	1,080
16	1,530							15	1,070	30	1,230	15	1,730	31	1,070

Sampling by U. S. Section

ELECTRICAL CONDUCTIVITY OF WATER SAMPLES

1970

North Floodway near Sebastian, 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	
19	5,740	25	5,600	6	4,130	25	1,960	6	5,950	17	3,510	12	7,220	23	6,350
26	5,740	March		13	4,040	June		13	5,860	24	3,540	26	6,730	December	
February		2	5,300	27	4,500	8	6,470	20	5,950	September		November		7	5,470
2	5,570	9	5,430	May		15	6,110	30	6,110	14	3,680	2	6,450	14	5,510
9	5,380	16	5,240	4	3,450	22	5,040	August		23	2,690	9	6,550	21	5,610
16	5,670	30	5,000	11	4,310	27	2,680	3	4,740	October		16	6,670	28	6,170
				18	3,710			10	4,060	2	5,230				

Sampling by U. S. Section

Arroyo Colorado South of Harlingen, 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		June		July		August	
26	5,580	16	5,710	9	5,500	6	5,380	4	5,180	8	5,060	13	4,520	24	5,450
February		March		16	5,600	13	4,560	11	5,050	15	5,810	20	4,410	September	
2	5,900	2	5,620	30	5,520	27	5,470	11	5,530	22	1,640	August		14	5,130
9	5,860									29	3,510	12	5,590		

Sampling by U. S. Section

Rio Grande at Mercedes, Texas, Pumps

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	
1	1,490	15	1,960	1	1,240	16	1,010	1	981	16	1,080	1	1,310	16	1,920
2	1,770	16	1,940	2	1,240	17	1,080	2	1,030	17	1,100	2	1,450	17	1,930
3	2,000	17	1,910	3	1,170	18	1,220	3	1,190	18	1,090	3	1,510	18	1,900
4	1,930	18	1,850	4	1,210	19	1,400	4	1,380	19	1,080	4	1,600	19	1,830
5	1,820	19	1,750	5	1,220	20	1,420	5	1,290	20	1,110	5	1,360	20	1,820
6	1,730	20	1,720	6	1,180	21	1,410	6	1,240	21	1,110	6	1,310	21	1,530
7	1,650	21	1,660	7	1,120	22	1,290	7	751	22	1,140	7	1,490	22	1,240
8	1,600	22	1,670	8	1,090	23	1,430	8	746	23	1,240	8	1,580	23	1,210
9	1,560	23	1,580	9	1,030	24	1,280	9	811	24	1,330	9	1,400	24	1,260
10	1,620	24	1,500	10	1,020	25	1,360	10	1,010	25	1,260	10	1,760	25	1,380
11	1,550	25	1,530	11	1,000	26	1,300	11	1,490	26	1,140	11	1,640	26	1,210
12	1,500	26	1,480	12	978	27	1,290	12	1,560	27	1,090	12	1,450	27	1,190
13	1,510	27	1,520	13	989	28	1,220	13	1,540	28	1,130	13	1,510	28	1,190
14	1,500	28	1,560	14	994	29	1,290	14	1,370	29	1,140	14	1,280	29	1,180
15	1,530	March		15	1,030	30	1,300	15	1,330	30	1,210	15	1,400	30	1,200
16	1,370	1	1,500	16	1,090	31	1,510	16	1,320	31	1,310	16	1,390	December	
17	1,410	2	1,470	17	1,120	June		17	1,220	September		17	1,500	1	1,320
18	1,500	3	1,480	18	1,170	1	1,480	18	1,180	1	1,310	18	1,410	2	1,420
19	1,250	4	1,450	19	1,250	2	1,380	19	1,120	2	1,200	19	1,410	3	1,360
20	1,290	5	1,460	20	1,270	3	1,380	20	1,120	3	1,130	20	1,360	4	1,340
21	1,290	6	1,460	21	1,390	4	1,370	21	1,120	4	1,140	21	1,330	5	1,240
22	1,350	7	1,460	22	1,330	5	1,390	22	1,140	5	1,150	22	1,210	6	1,310
23	1,500	8	1,500	23	1,350	6	1,450	23	1,200	6	1,080	23	1,220	7	1,300
24	1,740	9	1,510	24	1,490	7	1,560	24	1,270	7	1,150	24	1,190	8	1,260
25	1,760	10	1,510	25	1,310	8	1,720	25	1,310	8	1,220	25	1,210	9	1,230
26	1,700	11	1,490	26	1,220	9	1,770	26	1,290	9	1,310	26	1,140	10	1,250
27	1,630	12	1,540	27	1,130	10	1,850	27	1,270	10	1,540	27	1,110	11	1,220
28	1,540	13	1,660	28	1,050	11	1,590	28	1,310	11	1,340	28	1,090	12	1,190
29	1,490	14	1,780	29	1,030	12	1,480	29	1,280	12	1,270	29	1,100	13	1,210
30	1,560	15	1,750	30	996	13	1,470	30	1,390	13	1,270	30	1,160	14	1,220
31	1,670	16	1,670	May		14	1,480	31	1,510	14	1,180	31	1,180	15	1,200
February		17	1,630	1	1,010	15	1,600	August		15	1,350	November		16	1,160
1	1,730	18	1,580	2	1,010	16	1,920	1	1,520	16	1,470	1	1,330	17	1,170
2	1,790	19	1,580	3	990	17	2,540	2	1,620	17	1,480	2	1,320	18	1,180
3	1,790	20	1,820	4	1,100	18	1,890	3	1,920	18	1,350	3	1,270	19	1,160
4	1,740	21	1,630	5	1,090	19	1,420	4	1,590	19	1,360	4	1,270	20	1,200
5	1,770	22	1,450	6	1,120	20	1,580	5	1,750	20	1,370	5	1,190	21	1,240
6	1,780	23	1,370	7	1,140	21	1,390	6	1,580	21	1,350	6	1,180	22	1,280
7	1,790	24	1,370	8	1,120	22	1,170	7	1,810	22	1,260	7	1,210	23	1,350
8	1,690	25	1,390	9	1,110	23	1,120	8	1,620	23	1,510	8	1,280	24	1,230
9	1,750	26	1,530	10	1,130	24	1,090	9	1,570	24	1,420	9	1,370	25	1,210
10	1,860	27	1,520	11	1,140	25	1,060	10	1,590	25	1,370	10	1,490	26	1,250
11	1,840	28	1,360	12	1,040	26	1,090	11	1,590	26	1,380	11	1,440	27	1,380
12	1,840	29	1,300	13	1,020	27	1,050	12	1,100	27	1,130	12	1,490	28	1,300
13	1,850	30	1,280	14	1,010	28	1,330	13	1,130	28	1,230	13	1,470	29	1,180
14	1,940	31	1,240	15	1,030	29	1,060	14	1,140	29	1,340	14	1,390	30	1,140
						30	1,180	15	1,050	30	1,120	15	1,770	31	1,110

Sampling by U. S. Section

ELECTRICAL CONDUCTIVITY OF WATER SAMPLES
1970

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		February		April		May		July		August		October		November	
15	1,500	24	1,660	2	1,280	19	1,260	1	1,080	21	1,110	7	1,620	18	1,830
20	1,500	27	1,520	7	1,180	20	1,490	7	1,070	25	1,300	13	1,870	24	1,300
27	1,710	March		14	1,010	26	1,350	16	1,290	September		20	1,660	December	
30	1,510	3	1,540	22	1,300	June		21	1,140	3	1,360	21	1,610	1	1,220
February		10	1,490	28	1,190	2	1,350	28	1,320	8	1,130	27	1,310	3	1,280
3	1,750	13	1,520	May		3	1,540	August		10	1,230	29	1,220	8	1,330
13	1,820	17	1,770	2	1,050	9	1,420	5	1,680	15	1,290	November		16	1,250
17	1,900	19	1,660	6	1,110	18	2,030	11	1,450	22	1,360	4	1,330	22	1,230
19	1,900	27	1,450	12	1,160	24	1,130	18	1,120	29	1,350	10	1,240	29	1,360
		31	1,300												

Sampling by U. S. Section

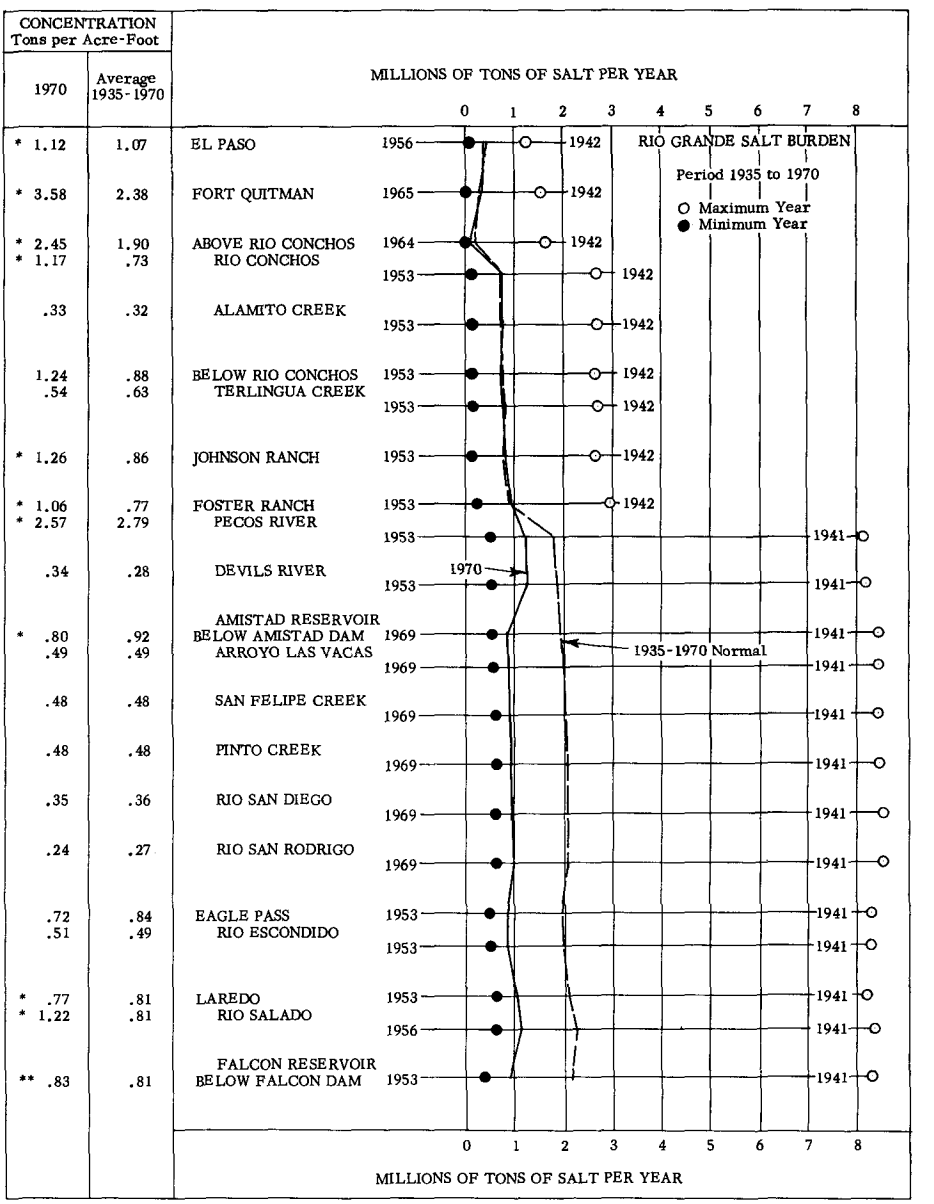
Rio Grande near Brownsville, Texas

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	
13	1,800	27	2,010	2	1,640	19	1,090	15	969	25	1,230	13	1,730	24	2,000
20	1,630	March		7	1,450	20	1,140	21	1,200	September		20	1,970	December	
27	1,620	3	1,790	14	1,010	26	1,430	29	1,250	3	1,280	21	1,910	1	1,780
30	1,720	6	1,870	22	1,550	June		August		8	1,440	27	1,760	3	1,590
February		10	1,770	24	1,370	3	1,340	5	1,450	15	1,290	29	1,710	8	1,410
3	1,550	13	1,720	28	1,540	9	1,670	11	1,810	22	1,390	November		16	1,500
11	1,810	17	1,730	May		17	1,710	14	1,800	29	1,360	4	1,480	22	1,370
17	1,970	27	1,860	6	1,180	24	1,320	18	1,380	October		10	1,490	29	1,440
19	1,930	31	1,590	12	1,390	July		20	1,250	7	1,450	18	1,470		
24	2,010					7	1,140								

Sampling by U. S. Section

RIO GRANDE SALT BURDEN

The term "salt", as used herein, means total dissolved solids. The 1970 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 to 1970 are the weighted means of the values determined for the 36-year period indicated.



* Based on 1970 chemical analyses of samples collected at stations indicated ** Based on 1970 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," Eleventh Edition (1960), 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 1970	D. O. Percent Saturation	B. O. D. Parts Per Million	Coliform Organisms per 100 c. c.	Total Bacteria per c. c. (plate count)	Date 1970	D. O. Percent Saturation	B. O. D. Parts Per Million	Coliform Organisms per 100 c. c.	Total Bacteria per c. c. (plate count)
Jan. 6	134	3.8	6,200	2,760	July 14	124	2.6	16,000	27,000
* 13	127	6.1	36,000	22,950	28	111	1.4	23,000	52,000
* 20	100	9.1	94,000	264,500	Aug. 4	113	1.6	23,000	50,400
27	98.5	1.5	600	3,000	11	112	1.7	62,000	25,700
Feb. 3	129	2.8	3,400	2,730	26	112	1.2	34,000	33,600
10	132	3.3	930	2,410	Sept. 1	119	1.4	6,200	
17			6,200	111,000	9	120	2.7	16,000	42,000
24	130	2.4	11,000	3,560	15	118	.5	11,000	13,900
Mar. 3	102	2.2	36,000	13,800	22	108	2.4	36,000	22,600
10	114	5.4	110,000	52,100	29	145	1.5	1,100	8,300
17	123	5.0	62,000	37,100	Oct. 6	106	6.6	240,000	78,500
24	119	4.6	62,000	56,000	13	126	2.4	6,200	670
31	117	2.5	160,000	29,600	20	137	1.6	2,800	300
Apr. 7	122	5.4	62,000	6,850	27	133	1.8	3,600	5,400
14	122	2.4	36,000	30,800	Nov. 3	144	2.1	12,000	5,900
21	115	2.2	11,000	15,300	10	152	1.6	23,000	1,210
28	119	2.3	11,000	19,000	17	40.5	2.1	5,400	12,000
May 5	124	6.2	36,000	47,400	24	114	2.8		126,600
12	121	1.9	2,300	14,400	Dec. 1	153	3.6	2,800	2,630
19	118	4.4	23,000	13,400	8	109	2.2	3,600	6,870
26	145	2.4	23,000	26,600	15	144	4.3	2,100	2,270
June 2	121	2.1	3,600	10,900	22	146	2.1	2,100	4,300
9	124	3.2	62,000	18,800	29	135	3.0	930	6,900
16	122	4.2	23,000	13,200					
23	122	2.4	13,000	18,900					
30	122	2.1	23,000	46,800	Total	5,964	145.9	1,486,060	1,428,010
July 7	120	2.8	36,000	15,100	Average	122	3.0	30,300	29,100

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

Date 1970	D. O. Percent Saturation	B. O. D. Parts Per Million	Coliform Organisms per 100 c. c.	Total Bacteria per c. c. (plate count)	Date 1970	D. O. Percent Saturation	B. O. D. Parts Per Million	Coliform Organisms per 100 c. c.	Total Bacteria per c. c. (plate count)
Jan. 6	6.7	88.0	22,000,000	5,060,000	July 14	58.1	34.7	1,100,000	1,230,000
13	56.8	27.8	11,000,000	525,500	28	100	4.1	620,000	17,000
20	52.1	43.2	24,000,000	692,000	Aug. 4	83.3	5.1	1,600,000	880,000
27	27.7	67.7	38,000,000	2,560,000	11	63.9	13.4	2,300,000	690,000
Feb. 3	5.8	64.0	2,100,000	2,150,000	25		5.4	360,000	790,000
10	0	57.0	38,000,000	4,120,000	Sept. 1		6.6	620,000	1,160,000
24	0	7.2	70,000,000	4,060,000	8		7.2	1,100,000	2,210,000
Mar. 3	71.5	16.2	11,000,000	570,000	15		4.6	620,000	1,550,000
10	98.1	12.9	620,000	334,000	22	17.0	34.4	930,000	63,000
17	93.4	8.1	1,100,000	290,000	29	0	111.9	6,200,000	1,830,000
24	105	10.1	1,100,000	260,000	Oct. 6	88.0	18.0	230,000	174,000
31	38.2	11.0	1,600,000	8,260,000	13	71.6	17.7	620,000	309,000
Apr. 7	103	12.9	6,200,000	570,000	20	67.1	20.2	2,700,000	1,485,000
14	0	36.0	6,200,000	3,420,000	27	66.1	22.8	2,300,000	4,240,000
21	112	4.8	2,300,000	560,000	Nov. 3	48.5	25.6	3,600,000	12,150,000
28	0	8.4	2,400,000	3,520,000	10	54.4	26.3	3,600,000	1,780,000
May 5	78.0	10.9	1,100,000	1,090,000	17	71.3	16.6	38,000,000	4,480,000
12	69.0	14.5	3,600,000	2,440,000	24	81.2	17.5		3,300,000
19	88.5	12.8	2,100,000	492,500	Dec. 1	68.0	24.1	1,600,000	11,580
26	92.3	10.6	930,000	1,680,000	8	67.3	30.2	6,200,000	4,810,000
June 2	81.5	14.3	6,200,000	1,110,000	15	53.6	20.4	3,600,000	1,170,000
9	74.4	11.6	2,300,000	790,000	22	45.6	40.3	38,000,000	78,000,000
16	77.3	13.7	930,000	440,000	29	62.7	20.1	240,000,000	85,000,000
23	84.0	11.5	1,100,000	690,000					
30	103	4.0	1,100,000	970,000	Total	2,730.8	1,138.6	619,080,000	258,273,580
July 7	44.8	32.2	6,200,000	4,290,000	Average	60.7	23.2	12,898,000	5,271,000

* Samples taken from the Rio Grande at the Water Plant

SANITARY ASPECTS OF WATER QUALITY

Rio Grande at Laredo, Texas, Water Plant

Date 1970	Coliform Organisms per 100 c. c.	Total Bacteria per c. c. (plate count)	Date 1970	Coliform Organisms per 100 c. c.	Total Bacteria per c. c. (plate count)	Date 1970	Coliform Organisms per 100 c. c.	Total Bacteria per c. c. (plate count)
Jan. 5	360	2,000	May 4	60	130	Sept. 14	26	305
12	26	1,500	11	26	110	21	110	130
19	620	1,500	18	38,000	1,650	Oct. 5	6	1,075
26	110	165	June 1	2,300	955	12	0	385
Feb. 2	360	400	8	620	785	19	0	120
9	60	300	15	26	625	26	62	170
16	60	210	29	1,100	500	Nov. 2	16	60
24	2,300	650	July 6	230	405	9	16	105
Mar. 2	6,200	430	13	26	235	16	0	200
9	620	600	20	26	350	23	36	95
16	230	35	27	26	220	30	23	70
23	360	310	Aug. 3	26	175	Dec. 14	23	
30	230	220	10	360	1,380	21	26	35
Apr. 6	230	50	17	60	515	28	26	15
13	26	160	24	26	670	Total	55,246	21,175
20	26	80	31	26	415	Average	1,150	451
27	60	175	Sept. 8	60	505			

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

Jan. 19	62,000	10,000	June 8	110,000	38,000	Oct. 26	110,000	380,000
Feb. 9	62,000	63,500	15	36,000	65,000	Nov. 2	240,000	
16	240,000	65,500	29	36,000	30,500	9	110,000	232,500
Mar. 9	23,000	17,000	July 6	110,000	33,000	16	110,000	285,000
16	110,000	7,500	13	62,000	105,500	23	110,000	170,000
23	240,000	69,000	20	36,000	65,000	30	23,000	115,000
30	110,000	30,500	27	240,000	65,500	Dec. 14	380,000	
Apr. 13	380,000	45,000	Aug. 3	36,000	14,000	21	240,000	119,000
20	2,400,000	142,500	10	240,000	187,500	28	240,000	20,500
27	94,000	80,500	17	2,400,000	217,500			
May 4	240,000	100,500	24	700,000	50,500	Total	10,315,000	3,253,000
11	240,000	20,500	Sept. 14	110,000	95,500	Average	295,000	98,600
18	380,000	21,500	Oct. 19	55,000	290,000			

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

Jan. 5	6	15	May 18	0	5	Sept. 21	2.6	1,125
12	0	10	June 1	0	10	Oct. 5	0	110
19	0	10	8	0	60	12	0	160
Feb. 2	2.6	15	15	6	910	19	11	290
9	2.6	25	29	0	60	26	36	1,020
16	23	30	July 6	0	15	Nov. 2	9.3	210
Mar. 2	0	15	13	2.6	1,125	9	2.6	9,850
9	0	45	20	0	10	16	0	100
23	0	15	27	2.6	15	23	0	15
Apr. 6	0	55	Aug. 3	0	15	30	0	10
13	0	65	10	0	10	Dec. 14	0	
20	23	35	14	0	5	21	0	25
27	0	40	24	36	15	Total	174.5	16,345
May 4	0	405	31	6	45	Average	4.2	399
11	0	20	Sept. 14	2.6	330			

θ Rio Grande at Mercedes, Texas, Pumps

Jan. 26	230		May 18	6,200		Nov. 2	2,700	
Feb. 2	280		July 6	930		16	2,100	
9	230		20	26		30	6,200	
16	1,100		Aug. 3	3,400		Dec. 14	930	
Mar. 23	2,300		17	3,600				
Apr. 6	3,600		Oct. 5	3,600		Total	40,346	
May 4	2,300		19	620		Average	2,240	

Samples and Analyses by U. S. Section ϐ Samples by Mexican Section and Analyses by U. S. Section
θ 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 133 through 136 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	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	T	0.37	0	0.31	0	0.33	0.14	0.35	0.12	0.30
Feb.	.49	.34	.58	.28	.49	.23	1.01	.30	.75	.22
Mar.	.49	.35	.28	.25	.45	.27	.78	.25	.78	.19
Apr.	T	.20	0	.16	0	.21	0	.26	0	.19
May	.15	.22	.02	.30	.10	.35	.01	.50	0	.34
June	.85	.60	1.18	.56	1.79	.61	2.00	.87	1.20	.59
July	.62	1.42	1.29	1.08	1.31	1.20	1.58	1.27	1.83	1.41
Aug.	.45	1.29	.84	1.23	1.35	1.36	4.38	1.75		1.68
Sept.	.61	1.00	.07	.81	1.65	.97	2.59	.97	1.15	1.03
Oct.	.75	.59	.48	.71	1.26	.89	1.17	.99	.81	1.07
Nov.	0	.25	0	.25	0	.28	0	.30	0	.23
Dec.	T	.41	0	.38	0	.33	.02	.41	0	.35
Yearly	4.41	7.04	4.74	6.32	8.40	7.03	13.68	8.22		7.60

Month	Fort Quitman		Neely Ranch		Moody Bennett Ranch		La Nutria Station		Bill Shannon Ranch	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	0.35	0.39	0.28	0.32	1.00	0.38	T	T	0	0.52
Feb.	.66	.25	.75	.21	.83	.35	.80	.27	1.25	.42
Mar.	.74	.25	.80	.20	.60	.18	.92	.40	1.45	.52
Apr.	0	.24	0	.13	0	.15	T	.05	0	.19
May	0	.40	0	.34	0	.48	.05	.04	0	.91
June	1.81	.87	2.22	.82	.95	.85	1.60	1.15	2.00	1.41
July	1.72	1.51	1.07	1.68	.85	1.69	.50	1.18	3.00	2.06
Aug.		1.73	4.84	1.86	2.72	1.95	4.30	2.58	3.50	2.06
Sept.	2.48	.99	2.38	1.29	2.39	1.06	1.85	.95	4.75	1.85
Oct.	1.74	.86	1.32	1.01	1.79	.77	2.45	.68	1.75	1.12
Nov.	0	.29	0	.25	0	.39	0	.52	0	.31
Dec.		.35	.08	.39	0	.23	0	.05	0	.51
Yearly		8.13	13.74	8.50	11.13	8.48	12.47	7.83	17.70	11.88

Month	Adobes Ranch		Shafter		Livingston Ranch		Presidio (IB&WC Gage)		Quebec Ranch	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	0.12	0.36	0	T	0	0.49	0.15	0.30	0	0.53
Feb.	.92	.24	1.40	.85	.20	.36	.90	.23	1.00	.30
Mar.	.86	.23	1.40	.70	0	.22	.85	.18	.80	.32
Apr.	0	.15	0	0	1.15	.53	T	.19	0	.24
May	.38	.59	0	.20	0	.32	.80	.45	0	.92
June	3.84	1.34	3.25	2.93	1.55	1.74	2.10	1.21	1.70	1.90
July	1.20	2.00	2.50	5.80	.55	1.66	1.60	1.26	.80	2.28
Aug.	3.47	1.71	4.10	2.92	0	1.60	1.00	1.14	1.70	2.16
Sept.	4.10	1.80	4.35	3.15	2.60	1.59	3.80	1.16	5.30	1.93
Oct.	.93	.59	2.20	1.33	.40	.83	1.30	.54	1.40	.75
Nov.	0	.28	0	1.27	0	.42	0	.28	0	.34
Dec.	0	.27	0	0	0	.26	0	.22	0	.32
Yearly	15.82	9.56	19.20	19.15	6.45	10.02	12.50	7.16	12.70	11.99

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	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	0.83	0.72	0.10	0.52	0	0.70	0.60	0.79	0.60	0.59
Feb.	1.35	.67	1.13	.39	.90	.34	1.60	.34	1.50	.33
Mar.	2.22	.57	.90	.22	.80	.20	1.30	.40	1.35	.28
Apr.	.25	.46	.18	.45	0	.53	0	.44	T	.50
May	.47	1.46	0	1.09	0	.93	.30	1.07	0	.86
June	2.13	2.57	2.62	1.89	2.60	1.96	2.00	1.66	6.10	2.21
July	2.99	3.42	1.37	1.96	.10	2.13	1.30	2.79	2.70	2.45
Aug.	4.18	3.85	3.60	1.99	7.10	1.99	3.20	2.85	2.80	1.99
Sept.	7.46	2.64	4.66	1.57	3.80	1.50	5.35	1.93	5.60	2.55
Oct.	1.52	1.48	.86	1.27	.65	1.01	2.95	1.42	1.00	.93
Nov.	0	.66	0	.35	0	.26	0	.49	0	.62
Dec.	.22	.60	0	.37	0	.45	0	.41	0	.39
Yearly	23.62	19.10	15.42	12.07	15.95	12.00	18.60	14.59	21.65	13.70

Month	Casa Piedra		H. M. Greenwood (Cienega Ranch)		Redford		Lajitas		02 Ranch	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	0	0.29	0.36	0.64	0.05	0.34	0	0.23	0.06	0.52
Feb.	1.20	.32	1.50	.34	.80	.24	1.22	1.00	1.07	.41
Mar.	1.30	.46	2.10	.35	1.20	.23	.60	.68	1.15	.34
Apr.	0	.32	.20	.53	0	.30	0	.69	.12	.39
May	0	.46	.50	.81	.25	.44	1.04	.56	1.44	1.06
June	2.00	1.74	6.57	2.20	1.90	.93	1.60	1.38	1.88	1.46
July	1.50	1.91	1.45	2.33	.20	1.19	1.05	.96	.58	1.82
Aug.	2.30	2.41	3.70	2.09	.90	1.04	.30	1.93	3.37	2.23
Sept.	5.00	1.44	6.40	2.58	3.75	1.67	7.42	3.12	6.22	1.76
Oct.	1.10	.65	2.00	1.29	.55	.78	.75	.37	1.17	1.42
Nov.	0	.72	0	.48	0	.35	.10	.15	0	.64
Dec.	0	.23	0	.58	0	.16	0	.16	0	.37
Yearly	14.40	10.95	24.78	14.22	9.60	7.67	14.08	11.23	17.06	12.42

Month	Earl Hammond Ranch		Big Bend Chevron Station		Maverick Ranger Station		Terlingua Creek Station		Castolon	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	0.06	0.20	0.10	0.26	0.05	0.43	0.05	0.26	0.02	0.26
Feb.	1.06	.53	1.30	.80	1.48	.34	1.50	.21	1.88	.34
Mar.	1.19	.39	.69	.44	.57	.13	.50	.17	.86	.36
Apr.	.18	.51	.16	.49	.05	.17	.10	.38	.05	.41
May	0	.43	.41	.44	.05	.80	2.05	.60	.20	.88
June	3.60	1.90	3.30	1.21	2.87	1.54	1.90	.98	2.39	1.47
July	.46	1.82	.62	1.43	.50	1.62	.60	.88	1.40	1.46
Aug.	2.85	1.85	2.11	1.72	4.09	1.72	.75	.85	2.02	1.59
Sept.	6.72	1.83	4.80	2.14	4.68	1.51	4.20	1.09	6.64	1.82
Oct.	1.55	1.24	.71	.42	1.05	.94	.50	.57	.69	.55
Nov.	0	.44	0	.31	0	.21	0	.15	0	.13
Dec.	0	.42	0	.10	0	.31	0	.24	0	.24
Yearly	17.67	11.56	14.20	9.76	15.39	9.72	12.15	6.38	16.15	9.51

Month	Johnson Ranch		J. F. Woodward Ranch		Yarborough Ranch		Kokernot Ranch Headquarters		Buttrill Ranch	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	0.10	0.36	0	0.55	0	0.24	0	0.53	0	0.58
Feb.	1.50	.23	1.18	.44	.95	.48	1.01	.33	0	.17
Mar.	.65	.18	.93	.21	1.10	.53	.91	.20	0	.19
Apr.	.10	.42	0	.49	0	.40	.04	.58	0	.54
May	.15	1.04	.42	1.06	.70	.66	.37	.71	1.22	1.00
June	3.40	1.11	5.02	2.05	3.10	2.26	3.30	1.46	2.60	1.45
July	.95	1.02	.73	1.99	2.18	2.55	.23	1.49	.70	1.56
Aug.	.50	.89	3.70	2.60	2.90	3.13	3.63	1.26	3.50	.92
Sept.	5.15	1.32	4.68	1.87	1.71	2.18	4.04	1.24	4.10	1.49
Oct.	.50	.60	1.17	.99	1.29	1.21	1.38	.92	.50	.72
Nov.	0	.19	0	.60	0	1.04	T	.33	0	.30
Dec.	0	.30	.12	.24	.14	.36	0	.37	0	.23
Yearly	13.00	7.66	17.95	13.09	14.07	15.04	14.91	9.42	12.62	9.15

T Trace

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

Month	A. M. Potter Ranch		Black Gap Game Refuge		Stillwell Crossing		Persimmon Gap Ranger Station		Sheep Pasture	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	0	0.35	0.50	0.49	0	0.46		0.51	0	0.27
Feb.	1.59	.56	1.16	.54	.90	.45		.46	1.12	.65
Mar.	.21	.22	1.46	.32	.92	.42		.21	1.00	.59
Apr.	0	.24	.05	.42	0	.25		.50	0	.32
May	.82	1.00	1.85	1.40	.95	.79		.91	1.30	1.11
June	1.60	1.13	2.83	1.36	2.34	1.18		1.19	2.83	1.98
July	.63	1.19	1.28	1.50	.37	1.85	1.01	1.36	.31	.90
Aug.	1.46	1.30	3.32	1.11	1.67	1.08	2.33	.84	2.75	1.21
Sept.	.60	1.47	8.63	1.83	6.18	2.59	4.18	1.17	7.14	2.98
Oct.	.60	.22	.20	.84	.26	.66	2.02	1.20	.20	.95
Nov.	0	.44	0	.33	0	.30	0	.24	0	.67
Dec.	.08	.50	.15	.29	0	.36	0	.31	.14	.25
Yearly	7.59	8.62	21.43	10.43	13.59	10.39		8.90	16.79	11.88

Month	Heath Crossing		Dove Mountain Ranch		Steve Stumberg Ranch		McGonagill Ranch Headquarters		McGonagill Ranch East Mill	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	0.05	0.43	0	0.54	0.10	0.60	0	0.39	0	0.40
Feb.	.95	.60	1.55	.41	.75	.45	.80	.60	.90	.23
Mar.	.85	.46	1.10	.30	1.14	.43	.80	.43	0	.47
Apr.	0	.26	.40	.47	.17	.67	0	.48	0	.64
May	2.51	1.02	2.10	1.05	2.01	1.47	1.00	.96	1.80	1.00
June	2.54	1.39	2.30	1.37	6.46	1.91	5.35	2.12	4.55	1.89
July	.33	1.00	1.18	1.94	.12	1.88	.70	2.15	.40	1.30
Aug.	1.85	1.30	2.58	1.07	3.33	1.42	2.60	1.44	3.30	1.25
Sept.	4.84	2.67	2.03	1.09	6.60	2.33	8.10	2.01	5.40	1.91
Oct.	.10	.74	.60	1.31	.10	1.59	.70	.89	.70	1.06
Nov.	0	.37	0	.33	0	.43	0	.26	0	.21
Dec.	0	.26	.44	.41	0	.53	0	.15	0	.22
Yearly	14.02	10.50	14.28	10.29	20.78	13.71	20.05	11.88	17.05	10.58

Month	E. W. Hardgrave Ranch		Lewis James Ranch		Dryden		Bricker Ranch		Ross Foster Ranch	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	0.14	0.55	0	0.42	0.07	0.54	0	0.43	0.15	0.53
Feb.	1.19	.74	1.35	.88	1.49	.55	.83	.68	.70	.66
Mar.	1.09	.41	.85	.52	.71	.44	.93	.41	.15	.16
Apr.	.49	1.37	.45	.93	.47	.89	.13	.93	.40	.83
May	1.62	1.35	1.80	1.41	2.41	1.75	1.32	1.12	1.30	1.46
June	2.17	1.71	1.75	1.29	2.64	1.12	2.00	1.53	1.85	1.34
July	.15	1.13	.50	1.88	.46	1.05	0	.69	T	.46
Aug.	3.37	1.09	3.60	1.98	1.70	1.25	.76	.85	.75	.76
Sept.	4.90	2.51	7.20	3.60	4.39	1.79	2.59	1.91	2.95	2.31
Oct.	1.27	1.62	1.05	1.12	.61	1.19	.39	1.01	.10	.82
Nov.	0	.58	0	.78	0	.42	0	.42	0	.27
Dec.	.05	.39	0	.41	0	.45	0	.37	.01	.27
Yearly	16.44	13.45	18.55	15.22	14.95	11.44	8.95	10.35	8.36	9.87

Month	W. A. Arledge Ranch		Hoffman Ranch		C. L. Arthur Ranch		Owens Ranch		Todd Field	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	0.33	0.72	0.91	0.43	0	0.70	0.21	0.31	0.23	0.40
Feb.	.85	.52	.78	.48	.47	.40	1.90	.75	1.38	.88
Mar.	.48	.49	1.80	.42	2.70	.47	1.32	1.35	1.80	1.25
Apr.	1.88	1.24	0	.34	0	.28	1.00	1.59	.47	2.11
May	.73	1.86	.95	1.07	1.50	1.16	.21	1.52	.95	1.68
June	1.79	1.71	.96	2.03	1.80	1.91	.85	1.38	.86	2.07
July	.51	1.05	2.27	1.90	.35	2.44	0	.42	0	.46
Aug.	1.10	1.16	1.49	2.18	3.45	2.36	1.24	1.36	.72	1.78
Sept.	4.10	1.98	3.49	1.85	2.20	1.54	2.85	2.29	2.97	2.77
Oct.	.79	1.47	.67	1.15	.14	.98	.65	1.36	.78	1.35
Nov.	0	.49	0	.48	0	.40	0	1.34	0	.76
Dec.	0	.53	0	.38	0	.40	0	0.65	0	.36
Yearly	12.56	13.22	13.32	12.71	12.61	13.04	10.23	14.32	10.16	15.87

T Trace

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Month	Wills Ranch		Terrell Plant (E. P. N. G. Co.)		Latham Ranch		Prosser Ranch No. 3		Ranchita (Continental)	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	0.39	0.40	0.12	0.37	0	0.68	0	0.42	0.20	0.20
Feb.	1.53	1.11	1.48	.74	1.20	1.30	.60	.98	.90	1.00
Mar.	1.43	.74	.96	.78	0	.81	.45	.42	.60	.40
Apr.	.60	1.88	.60	2.13	2.50	2.52	.02	1.33	.20	1.68
May	1.80	2.12	1.37	1.22	3.10	4.13	2.30	2.48	1.80	1.90
June	1.85	1.51	.64	1.76	4.10	2.54	2.20	1.17	3.64	2.32
July	T	.98	0	.79		2.50	0	1.10	.30	.15
Aug.	.92	1.42	1.75	.78	2.70	3.37	1.95	1.68	1.40	1.06
Sept.	3.45	3.04	3.07	2.13	5.00	4.18	4.35	2.96	3.39	2.10
Oct.	.50	1.38	1.36	1.28	.50	1.43	.70	1.47	.40	1.76
Nov.	0	.92	0	.76	0	1.23	0	.72	0	1.85
Dec.	0	.36	0	.41	0	.92	.03	.23	0	.58
Yearly	12.47	15.86	11.35	13.15		25.61	12.60	14.96	12.83	15.00

Month	Pecos River Near Langtry Station		Dead Mans Canyon Near Comstock		Prosser Ranch No. 1		Continental Ranch		Martin King Ranch	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	0.10	0.35	0	0.38	0.10	0.35	0.20	0.71	0.29	0.62
Feb.	.70	.97	.50	.72	.50	.82	1.05	1.07	.67	.82
Mar.	.55	.53	.70	.45	.40	.32	1.00	.54	.71	.25
Apr.	T	1.38	T	1.47	0	1.62	.20	1.54	0	.88
May	1.45	1.66	2.00	1.73	2.30	1.86	3.20	2.42	1.86	1.55
June	4.15	2.25	3.20	2.03	2.10	1.04	3.80	1.67	2.52	1.58
July	0	1.41	.20	1.43	0	1.72	.60	2.00	1.24	1.16
Aug.	.30	.80	.95	1.15	1.25	2.01	1.40	1.47	.68	.98
Sept.	4.25	2.34	4.10	2.29	2.90	2.34	4.20	3.06	4.54	2.65
Oct.	.15	1.12	.60	1.79	.10	1.47	.65	1.81	.45	2.09
Nov.	0	.90	0	.89	0	.78	0	.95	0	.54
Dec.	T	.32	T	.44	T	.36	0	.39	.08	.46
Yearly	11.65	14.03	12.25	14.77	9.65	14.69	16.30	17.63	13.04	13.58

Month	Brotherton Ranch		Walker Ranch		P. W. Kelly Ranch		Comstock		Cow Creek Near Comstock	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	0.28	0.97	0.20		0.25	0.51	0.35	0.64	0.40	0.43
Feb.	.80	1.00	1.10		.70	.92	.77	.88	1.00	.80
Mar.	.41	.32	.30		.94	.80	.56	.58	.30	.33
Apr.	0	.98	0		0	1.22	.14	1.36	0	1.28
May	1.61	1.36	2.10		2.61	2.14	2.62	1.90	1.60	.99
June	1.54	1.97	1.40		1.19	1.75	.68	2.13	T	.94
July	1.54	.79	0		.79	1.35	.52	.95	0	.45
Aug.	.87	1.36	.70	1.30	1.20	1.29	1.07	1.59	.90	1.16
Sept.	4.45	2.70	3.50	2.65	4.48	2.46	4.79	2.17	5.60	2.59
Oct.	.26	1.75	.40	1.70	.15	1.98	.22	1.84	T	1.49
Nov.	0	.59	0	1.30	0	.61	0	.59	0	.62
Dec.	0	.22	.02	.51	0	.37	.09	.70	0	.33
Yearly	11.76	14.01	9.72		12.31	15.40	11.81	15.33	9.80	11.41

Month	* Goodenough Spring Raft		Amistad Reservoir Near Comstock		Feely		Lock Store		W. E. Sawyer Ranch	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	0.32	0.38	0.25		0.30	0.62	1.45	0.62	0.20	0.48
Feb.	1.00	.67	.78		1.50	1.04	1.50	1.02	1.55	1.16
Mar.	.10	.23	.15		.20	.59	.84	.82	.65	1.34
Apr.	0	1.33	0		T	1.50	2.10	1.77	2.20	2.45
May	.70	1.09	1.00		1.75	2.06	.34	2.06	1.80	1.88
June	.75	1.89	.70		.15	1.57	1.13	1.17	.20	.60
July	0	.53	0		0	.72	0	.89	0	1.73
Aug.	1.05	.87	.80		1.50	1.10	1.01	1.34	.30	1.56
Sept.	4.70	3.19	5.25		6.30	2.84	4.14	3.17	3.55	3.02
Oct.	T	2.01	0		.10	2.30	.51	1.02	.96	2.12
Nov.	0	.45	0		0	.47	0	.83	0	1.26
Dec.	.05	.39	0		0	.44	0	.28	0	.70
Yearly	8.67	13.03	8.93		11.80	15.25	13.02	14.99	11.41	18.30

T Trace * Formerly Goodenough Spring

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Month	Sub-Station 14		Whitehead Brothers Ranch		Prosser Ranch No. 2		Bakers Crossing		Allen Dunbar Ranch	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	0	1.04	0.10	0.39	0.10	0.41	0.31	0.90	0	0.79
Feb.	1.51	1.09	.70	1.04	.70	1.19	.64	1.14	1.20	1.42
Mar.	1.12	.98	.50	.48	.70	.51	.84	.67	.90	.80
Apr.	0	1.71	.45	1.22	.01	1.42	.13	1.08	.50	2.38
May	3.67	2.92	3.30	2.50	2.60	2.02	2.44	2.36	3.00	2.69
June	1.38	2.90	.40	1.06	2.60	1.42	2.16	1.86	1.50	3.25
July	0	2.08	0	.76	0	1.55	.27	1.30	0	1.62
Aug.	2.93	1.79	.20	1.38	1.80	1.74	2.28	1.30	.80	1.99
Sept.	3.73	3.09	4.10	3.02	3.40	2.92	4.63	3.10	3.60	3.69
Oct.	.55	2.24	.35	3.31	.30	1.28	.92	1.53	.80	3.05
Nov.	0	.95	.02	1.10	0	.73	0	.69	0	.81
Dec.	0	1.14	T	.36	.04	.34	T	.69	0	.72
Yearly	14.89	21.93	10.12	16.62	12.25	15.53	14.62	16.62	12.30	23.21

Month	Erekson Ranch		Vinegarone		Loma Alta		Dolan Springs		H. K. Fawcett Ranch	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	0.38	0.97	0.15	0.26	0.01	0.53	0.10	0.38		0.80
Feb.	0	1.29	1.18	1.17	.77	1.11	.75	1.01	.80	.87
Mar.	1.85	.80	.55	.51		.81	.42	.74	0	.78
Apr.	.70	2.17	.10	1.33		2.33	0	1.95	.25	1.64
May	2.84	2.57	5.25	2.52		2.11	1.76	1.77	3.92	2.55
June	1.52	3.20	1.18	1.58		1.69	.68	1.10	0	1.62
July	0	1.62	0	.90		1.57	0	.72	0	.65
Aug.	.90	1.53	.30	1.55		1.50	1.15	2.41	.25	1.58
Sept.	2.71	3.29	4.00	2.76		2.73	3.55	3.19	4.15	3.77
Oct.	.71	2.59	.60	2.96	.44	3.04	.50	2.44	T	2.33
Nov.	0	.98	T	1.19	0	.98	.02	.84	0	.69
Dec.	0	.46	.05	.40	.11	.45	T	.38	.03	.45
Yearly	11.61	21.47	13.36	17.13		18.85	8.93	16.93		17.73

Month	Hinds "AT" Ranch		H. T. Miers Ranch Headquarters		H. T. Miers Ranch No. 2		A. A. Baker Ranch		Harlow Ranch	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	0.25	0.63	0.15	0.72	0.34	0.60	0.19	0.42	T	
Feb.	.70	1.08	1.33	1.39	1.41	1.24	.86	.94	.40	
Mar.	.79	.60	.30	.77	.48	.83	.65	.55	.40	0.30
Apr.	.40	1.30	.30	1.84	.28	1.70	.26	1.29	0	1.60
May	3.79	1.87	2.43	2.65	2.14	2.23	2.18	1.79	2.70	2.40
June	1.39	1.99	1.28	3.23	1.56	2.24	1.18	1.15	1.20	.90
July	1.57	1.23	.10	1.35	.15	1.20	2.84	.98	0	.15
Aug.	.72	1.16	1.45	1.44	1.11	1.34	.78	1.11	.90	1.25
Sept.	5.82	2.84	3.90	3.11	4.02	3.65	4.57	3.02	3.80	2.85
Oct.	.22	2.48	.28	3.27	.27	2.24	.20	1.67	.40	2.35
Nov.	0	.68	0	.88	.01	.92	0	.69	0	1.40
Dec.	0	.55	.10	.60	.14	.56	.07	.38	0	.25
Yearly	15.65	16.41	11.62	21.25	11.91	18.75	13.78	13.99	9.80	

Month	Gillis Ranch		Goldwire Ranch		Pafford Crossing		Big Satan Creek Station		Cliff Lowry Ranch	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	0.53	0.48	0.30	0.40	0.15	0.48	0.30	0.28	0.18	0.47
Feb.	.97	1.06	1.27	1.26	1.35	.97	1.22	1.18	1.28	1.26
Mar.	.20	.74	.35	.58	.20	.28	.20	.82	.32	.58
Apr.	0	1.58	.05	1.35	T	1.27	T	1.18	.58	1.78
May	2.71	2.10	2.22	2.60	2.10	1.76	3.83	2.58	3.45	2.66
June	1.05	1.91	.55	.46	.79	2.06	.90	.70	1.76	1.58
July	.33	1.00	.10	1.79	0	1.05	0	.90	.30	.65
Aug.	.83	1.46	.50	1.45	.71	1.10	.20	1.35	2.51	1.41
Sept.		2.51	3.30	2.45	5.50	3.33	5.40	2.92	4.08	4.46
Oct.		2.76	.32	3.24	.13	2.28	.13	3.96	.05	2.32
Nov.		1.06	0	1.18	0	.58	T	1.15	0	.88
Dec.		.64	.10	.30	.05	.48	.04	.48	.04	.52
Yearly		17.30	9.06	17.06	10.98	15.64	12.22	17.50	14.55	18.57

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Month	Lowry Ranch No. 2		Tuffy Whitehead Ranch		Stewart Ranch		Rough Canyon Near Del Rio		Devils Lake	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	0.04	0.40	0.09	0.34	0.22	0.46	0.27		0.27	0.69
Feb.	1.29	1.15	1.03	.94	1.41	1.10	1.00		1.30	.90
Mar.	.31	.86	.26	.50	.38	.43	.20		.36	.58
Apr.	.17	1.99	.06	1.32	.12	1.56	T		.07	1.65
May	2.41	2.28	1.99	1.55	1.82	1.66	3.10		2.32	1.88
June	1.21	1.62	1.43	1.41	1.99	2.18	1.00	0.82	1.09	2.30
July	0	.76	0	.66	.26	1.10	T	1.02	.21	.85
Aug.	.79	.92	1.15	.81	2.51	.91	1.91	1.70	1.41	1.32
Sept.	4.66	3.45	4.58	3.28	4.57	3.48	6.52	4.10	6.42	2.34
Oct.	0	2.01	.17	1.81	.01	2.39	.03	3.41	.11	1.91
Nov.	0	1.12	0	.65	0	.81	0	1.52	0	.68
Dec.	.02	.54	.08	.42	.05	.54	T	.56	.09	.75
Yearly	10.90	17.10	10.84	13.69	13.34	16.62	14.03		13.65	15.85

Month	Sellers Ranch		Evans Creek Near Comstock		J. G. Brite Ranch		Longley Ranch		Hutto Ranch No. 1	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	0.30	0.45	0.23		0.32	0.41	0.05		0.24	0.58
Feb.	1.30	.87	1.30		1.25	1.16	1.30		1.51	1.36
Mar.	.25	.43	.25		.32	.67	.20		.48	.57
Apr.	T	1.48	T		.05	1.93	.0		.18	2.12
May	.12	1.52	.32		2.22	2.45	2.50		2.81	1.55
June	1.40	2.37	1.12		1.28	1.62	.70		2.54	1.73
July	0	.65	0	0.08	.19	.68	0	0.05	0	.73
Aug.	1.00	1.00	2.95	2.75	1.23	1.16	1.40	1.70	3.21	2.14
Sept.	5.65	2.39	9.15	5.20	6.45	3.89	7.20	4.17	6.00	4.38
Oct.	.30	2.09	.20	3.66	.29	2.30	.09	3.07	0	2.40
Nov.	0	.62	0	1.52	0	.81	0	1.56	0	1.00
Dec.	.02	.45	.02	.50	.09	.48	0	.58	.10	.54
Yearly	10.34	14.32	15.54		13.69	17.56	13.44		17.07	19.10

Month	Hutto Ranch No. 2		Middle Fork San Pedro		North Fork San Pedro		Wardlaw Ranch		Buoy No. 11	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	0.35	0.55	0.28		0.23		0.37	0.58	0.22	
Feb.	1.45	1.34	1.35		1.50		1.32	1.04	1.30	
Mar.	.51	.53	.45		.50		.69	.38	.30	
Apr.	.05	2.42	T		T		.05	1.94	0	
May	1.00	1.77	3.85		2.90		3.02	2.08	1.20	
June	1.58	1.82	1.20	1.28	1.23	1.06	1.22	1.95	1.05	
July	.08	.77	0	.85	0	.62	.21	1.28	.24	
Aug.	2.27	1.79	2.95	3.18	2.27	1.98	1.33	1.26	1.65	
Sept.	8.08	5.61			7.19	4.22	6.96	3.38	4.90	
Oct.	.03	1.98		6.20	.09	5.83	.05	2.06	T	
Nov.	0	1.02	0	1.68	0	1.76	0	.68	0	
Dec.	.12	.46	T	.65	T	.59	.07	.45	0	0.15
Yearly	15.52	20.06			15.91		15.29	17.08	10.86	

Month	Amistad Raft		Amistad Dam		Laughlin Air Force Base		Gillis Headquarters Ranch		Lewis Ranch	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	0.15	0.21	0.50	0.48	.50	0.56	0.40	0.71	0.28	0.68
Feb.	.75	.68	1.40	1.04	1.80	1.12	1.61	1.78	1.74	1.25
Mar.	.74	.51	.68	.63	.62	.48	.67	.82	.63	.66
Apr.	.10	1.53	.06	2.08	.03	2.29	.05	2.09	0	2.33
May	2.40	2.54	2.27	2.25	2.53	1.70	3.36	3.11	1.91	2.25
June	1.72	.86	1.64	1.24	1.12	2.76	1.52	1.55	1.72	2.04
July	.24	.24	.31	.58	.01	1.47	.23	1.35	0	.29
Aug.	2.51	2.60	1.96	1.24	1.91	1.77	2.37	2.82	1.31	1.69
Sept.	7.20	4.10	9.21	4.78	7.61	3.51	5.96	2.84	6.30	5.51
Oct.	T	3.60	.15	1.56	.08	2.68	.18	4.11	.15	2.86
Nov.	0	1.25	T	.70	T	.93	0	2.08	0	1.06
Dec.	.05	.42	.17	.52	.06	.57	.15	.49	.13	.67
Yearly	15.86	18.54	18.35	17.10	16.27	19.84	16.50	23.75	14.17	21.29

T Trace

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Month	Maverick County Canal Headgate		Sultenfuss Ranch		Pinto Creek Station		Las Moras Creek		Wipff Ranch	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	0.78	0.56	0.81	0.98	1.10	0.50	1.02	0.78	0.80	0.76
Feb.	1.60	1.12	2.31	1.74	1.55	.96	1.15	1.26	1.30	1.01
Mar.	.45	.65	.60	1.09	.60	.59	1.26	.72	.70	.67
Apr.	.03	1.74	0	3.12	T	1.45	.10	1.44	.05	1.59
May	2.60	2.11	3.03	2.30	1.70	1.74	1.91	2.15	2.60	1.97
June	1.36	2.08	1.31	1.90	1.10	2.55	1.64	2.65	2.15	1.78
July	0	1.41	0	.10	T	.93	.30	1.11	0	1.36
Aug.	1.90	1.39	1.50	2.26	1.20	1.20	3.05	1.84	2.70	1.76
Sept.	7.77	3.20	9.05	5.16	7.95	3.51	7.03	4.25	9.13	3.47
Oct.	.04	1.95	0	2.70	T	2.00	.06	2.59	0	1.84
Nov.	0	.74	0	1.47	0	.91	0	1.20	0	1.19
Dec.	0	.54	0	.87	.05	.54	.08	.67	T	.58
Yearly	16.53	17.49	18.61	23.69	15.25	16.88	17.60	20.66	19.43	17.98

Month	Lateral No. 2 Spill		Normandy		Lateral No. 12 Headgate		Lateral No. 15 Spill		Maverick Power Plant	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	1.10	0.70	1.21	0.83	0.95	0.68	1.20	0.72	1.26	0.78
Feb.	1.15	.91	1.20	.85	1.20	.71	1.20	.78	1.12	.85
Mar.	.85	.67	.97	.91	.60	.65	.65	.55	1.06	.89
Apr.	T	1.71	.06	1.79	T	1.73	.30	1.50	.18	1.83
May	4.05	2.52	2.70	2.53	2.35	2.56	3.25	2.66	4.09	3.00
June	1.60	1.50	.79	1.33	.60	1.33	1.20	1.10	.56	1.78
July	.35	1.62	.40	1.69	0	1.34	.05	1.46	.42	1.33
Aug.	2.90	1.99	2.75	2.03	2.85	1.50	2.45	1.43	2.20	1.78
Sept.	9.35	3.58	8.23	3.74	9.33	3.46	8.35	2.75	6.76	2.89
Oct.	0	1.94	0	2.00	0	2.19	0	2.15	.08	2.17
Nov.	0	1.06	0	1.00	0	.78	0	.70	0	.74
Dec.	0	.54	.12	.79	0	.58	0	.56	.07	.61
Yearly	21.35	18.74	18.43	19.49	17.88	17.51	18.65	16.36	17.80	18.65

Month	Cooper Ranch		Coal Mine		Elm Creek Station		Chittim Ranch		Eagle Pass	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	0.70	0.43	1.05	0.56	1.10	0.48	1.35	0.51	1.53	0.72
Feb.	1.20	.79	1.30	.91	1.20	.77	1.40	.85	1.44	1.06
Mar.	.60	.55	.46	.69	.80	.58	1.05	.69	1.19	1.13
Apr.	T	1.60	.12	1.81	T	1.76	0	1.94	.12	1.81
May	4.50	2.39	3.88	2.91	3.83	3.22	5.48	3.31	6.22	4.54
June	.68	1.30	.70	1.17	.54	.94	.65	.88	1.50	.92
July	0	1.86	.20	2.27	0	1.90	T	1.84	.14	1.13
Aug.	2.95	1.70	3.30	1.40	3.30	1.88	3.80	1.91	3.80	3.06
Sept.	9.55	3.77	8.20	3.91	7.00	2.96	6.90	3.35	6.43	4.70
Oct.	0	2.04	.10	2.17	T	2.16	T	2.39	.04	1.49
Nov.	0	.81	0	.69	0	.63	0	.62	0	.66
Dec.	T	.51	.10	.47	0	.55	0	.59	.10	.92
Yearly	20.18	17.75	19.41	18.96	17.77	17.83	20.63	18.88	22.51	22.14

Month	Cañon Diablo		Rosita Creek Siphon		Weyrich Farm		Trees Farm		Rosita Creek Station	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	1.20	0.58	1.05	0.44	1.10	0.49	1.22	0.48	1.35	0.45
Feb.	1.40	.90	1.50	.88	1.20	1.01	1.59	.91	1.50	.82
Mar.	.10	1.09	.55	.65	.30	.75	.21	.58	.10	.68
Apr.	T	2.58	T	1.87	.10	2.42	.04	2.09	T	2.23
May	6.28	5.47	4.65	3.27	4.10	4.20	5.27	3.38	4.43	2.92
June	.60	.49	.60	.91	.80	.50	.62	.97	.60	.85
July	.10	.63	0	1.87	0	.60	.14	1.79	.10	.95
Aug.	4.00	2.37	3.50	1.62	2.60	1.52	2.88	1.55	2.40	1.57
Sept.	5.70	4.58	6.10	3.22	4.95	3.52	5.30	2.78	3.65	2.74
Oct.	T	1.50	.05	2.20	.30	1.36	0	2.91	T	2.55
Nov.	0	.82	0	.78	0	.81	0	.71	0	.74
Dec.	T	.61	T	.66	0	.68	.02	.58	T	.60
Yearly	19.38	21.62	18.00	18.37	15.45	17.86	17.29	18.73	14.13	17.10

T Trace

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

Month	Farias Ranch		Indio Ranch		El Indio		Van Dalsem Farm		Wuensche Farm	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	1.49	0.57	1.54	0.58	1.40	0.77	1.20	0.46	1.45	0.63
Feb.	1.50	1.22	1.27	.98	1.50	.96	1.30	1.01	1.27	1.09
Mar.	.31	.65	.09	.65	.10	.63	T	.60	.07	.72
Apr.	.03	2.36	.01	2.53	.10	1.73	T	2.30	.04	1.92
May	6.77	3.57	6.16	3.05	6.90	3.45	5.35	3.05	4.20	2.93
June	1.40	1.38	.63	1.08	1.05	1.44	.50	1.06	.34	1.10
July	.22	2.30	.15	2.13	.30	1.09	.65	1.56	.42	1.28
Aug.	3.53	1.88	2.80	1.53	2.96	1.97	3.40	1.26	3.42	1.63
Sept.	6.28	3.99	4.57	3.77	3.85	3.10	3.85	3.55	3.74	3.27
Oct.	0	2.73	0	2.43	0	1.80	.25	2.12	.08	1.88
Nov.	0	.94	0	.92	0	.69	0	.76	0	.76
Dec.	.05	.82	.08	.68	0	.65	T	.64	0	.59
Yearly	21.58	22.41	17.30	20.33	18.16	18.28	16.50	18.37	15.03	17.80

Month	Keisling Farm		Cuervo Creek Station		Apache Ranch		La Mesa Ranch		Laredo Water Plant	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	1.47	0.51	1.35	0.63		0.75	1.00	0.25	1.51	0.79
Feb.	1.32	1.04	1.25	.80	1.60	1.06	1.00	1.50	1.53	.81
Mar.	.09	.86	.05	.52	0	.31		1.17	.49	.55
Apr.	.06	2.28	.05	1.82	.30	1.73		2.57	.24	1.11
May	4.02	2.93	3.35	2.44	4.30	2.34		1.50	2.06	2.27
June	.42	1.03	.70	1.07	0	1.21		1.33	.16	1.92
July	.64	1.44	.40	1.22	2.00	1.51		.67	.63	1.14
Aug.	3.00	1.70	3.35	1.57	4.50	2.39		3.35	1.08	1.60
Sept.	4.04	2.96	5.05	3.20	5.70	3.55		10.30	2.80	2.98
Oct.	.10	2.09	T	2.09	0	2.20		1.33	.04	1.53
Nov.	0	.66	0	.75	0	.81		3.50	0	.87
Dec.	.05	.89	.05	.56	0	.85		0	.21	.89
Yearly	15.21	18.39	15.60	16.67		18.71		27.47	10.75	16.46

Month	Fort McIntosh (Laredo)		Corralitos Ranch		Huisache Ranch		Zapata Water Plant		El Peyote Ranch	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	1.54	0.73	1.20	0.66	1.75	0.82		0.86	2.70	1.54
Feb.	1.15	.87	.70	.71	1.40	.90		.76	1.50	1.19
Mar.	.26	.70	0	.24	0	.36		.45	.50	.46
Apr.	.23	1.28	0	1.08	0	1.38		1.65	.80	1.33
May	2.93	2.55	4.60	1.68	3.85	2.28		2.92	5.00	3.85
June	.28	2.07	1.50	2.09	0	1.77		1.47	3.70	3.27
July	.34	1.39	1.15	.84	.60	.93		.85	.90	1.48
Aug.	.83	1.80	1.40	1.81	T	1.43		1.66	0	1.29
Sept.	5.00	2.83	7.16	3.00	5.10	3.56	5.88	4.06	7.20	6.12
Oct.	.11	1.63	.25	1.44	2.00	1.88	.70	1.35	.75	1.80
Nov.	0	1.14	0	.91	0	.97	0	1.07	0	.92
Dec.	.18	.87	T	.49	T	.68	0	.61	0	.61
Yearly	12.85	17.86	17.96	14.95	14.70	16.96		17.71	23.05	23.86

Month	Arroyo Tigre Chiquito		Falcon Dam		Roma (International Bridge)		Garciasville		Los Ebanos	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	0.50	0.86	1.98	0.88	1.48	0.92	2.11	1.01	1.50	1.13
Feb.	1.10	.92	1.47	.86	1.73	1.04	1.26	.89	.75	.71
Mar.	0	.31	.04	.71	0	.76	.62	.43	T	.41
Apr.	0	1.09	.49	1.21	0	1.39	.79	1.18	.70	1.57
May	3.20	2.49	2.51	2.43	.45	1.89	3.29	2.10	2.35	1.86
June	1.20	1.99	3.09	2.51	4.40	2.06	2.26	2.17	2.83	1.92
July	1.50	.78	1.29	.77	1.03	.76	1.94	1.03	1.60	.63
Aug.	1.80	2.40	.69	2.50	0	2.19	3.52	1.72	.99	2.06
Sept.	5.30	4.46	5.87	4.08	3.92	4.18	5.25	3.92	5.75	2.84
Oct.	1.00	2.03	1.16	2.21	2.00	2.20	.90	1.92	1.60	1.87
Nov.	0	1.17	0	1.23	0	.81	0	1.09	0	.76
Dec.	0	.61	.17	.67	0	.52	.07	.72	.10	.63
Yearly	15.60	19.11	18.76	20.06	15.01	18.72	22.01	18.18	18.17	16.39

T Trace

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

Month	La Joya		HCWCID #6, Goodwin Pump No. 4B		HCWCID #6, Goodwin Pump No. 3		HCWCID #6, Goodwin Pump No. 5		HCWCID #6, Goodwin Pump No. 3A	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	2.20	1.20	2.98	1.15	2.40	1.23	2.87	1.24	2.66	1.18
Feb.	.99	.91	.85	.93	.87	1.07	1.10	1.00	.98	1.10
Mar.	.22	.45	.10	.56	0	.62	1.22	.64	0	.58
Apr.	.49	1.04	.62	1.11	.82	1.26	.96	1.24	.53	1.42
May	3.25	2.03	4.44	2.02	4.47	2.18	6.24	2.80	3.78	2.01
June	4.17	2.46	2.94	2.16	4.98	2.24	1.05	2.01	5.60	2.54
July	1.14	.76	2.08	.75	1.14	.79	1.39	.68	1.13	.70
Aug.	.54	1.91	2.09	1.43	1.10	1.48	1.12	1.98	.81	1.46
Sept.	3.78	3.15	5.52	3.33	3.62	3.02	7.09	3.71	3.14	3.06
Oct.	1.00	1.88	1.74	2.77	1.39	2.94	.83	2.69	2.04	2.91
Nov.	.05	1.10	0	1.10	0	1.03	0	1.06	0	1.10
Dec.	0	.96	.06	.86	.09	1.05	0	1.00	0	.95
Yearly	17.83	17.85	23.42	18.17	20.88	18.91	23.87	20.05	20.67	19.01

Month	HCWCID #6, Goodwin Pump No. 4		Penitas (Edinburg Pumping Plant)		New Mission Pumping Plant		O. C. Dale Farm		HCWCID #15 (Edinburg Office)	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	2.47	1.72	2.50	1.33	2.30	0.82	3.34	1.53	3.04	1.30
Feb.	1.00	1.02	.76	.98	.10	.55	1.03	1.14	1.02	1.04
Mar.	.17	.54	.07	.51	0	.47	.44	.70	1.43	.70
Apr.	.74	1.18	.66	.93	.51	1.18	1.00	1.70	.60	1.38
May	3.70	2.21	4.17	2.16	6.01	3.02	7.54	2.21	7.96	2.36
June	3.18	2.42	3.16	2.69	4.11	2.45	4.62	2.61	5.77	2.34
July	1.48	.86	1.60	.89	1.60	.68	1.89	.95	.85	.85
Aug.	1.81	1.39	1.97	1.67	1.25	1.33	.78	1.80	1.35	1.60
Sept.	5.82	3.96	5.18	3.73	4.51	2.41	8.66	3.68	9.16	3.83
Oct.	1.07	3.10	1.06	2.78	.60	2.25	1.76	3.15	.93	2.61
Nov.	0	1.17	0	1.15	0	.67	T	1.36	0	1.06
Dec.	.06	1.16	0	1.14	0	.86	.05	1.13	0	1.02
Yearly	21.50	20.73	21.13	19.96	20.99	16.69	31.11	21.96	32.11	20.09

Month	Edinburg Filtration Plant		La Feria Pumping Plant		La Feria Materials Yard		CCWCID #19 (Adams Gardens)		San Benito Pump	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	3.07	1.37	3.89	1.60	2.36	1.21	4.04	1.08	4.05	1.31
Feb.	.95	1.07	.32	1.65	2.35	1.25	.62	1.13	.24	.93
Mar.	.65	.77	1.30	0.82		.64	2.06	.71	.19	.84
Apr.	.42	1.48		1.87	2.50	1.35	2.62	1.41	1.20	1.24
May	8.75	2.44		3.32	5.93	3.89	7.60	2.85	4.20	2.43
June	7.07	2.61		2.78	5.25	3.03	3.38	2.41	4.15	2.15
July	1.41	.72	4.35	1.70	2.29	1.20	3.08	.85	5.05	1.56
Aug.	1.02	1.39	2.44	2.89	3.92	2.69	1.31	2.07	1.60	1.91
Sept.	6.29	3.48	9.80	6.37	8.58	4.60	6.74	3.43	8.70	4.14
Oct.	2.98	2.42	4.87	3.89	3.33	2.89	2.62	2.56	4.40	2.33
Nov.	.01	1.25		2.25	0	1.79	.08	1.47	0	1.01
Dec.	.03	1.08		1.51	0	2.05	.05	1.12	0	1.32
Yearly	32.65	20.08		30.65		26.59	34.20	21.09	33.78	21.17

Month	Whipple Farm		⊕ CCWCID #11 (Bayview Dist. Office)		Los Fresnos Pumping Plant					
	1970	Average	1970	Average	1970	Average				
Jan.	6.06	1.82		1.41	5.50	1.58				
Feb.	.73	1.98	.22	1.79	.50	1.72				
Mar.	.40	.68	0	.80	0	.54				
Apr.	1.95	1.82	1.80	1.64		1.67				
May	5.45	3.34	4.45	2.91	4.30	2.66				
June	2.80	2.71	2.80	2.05	2.40	3.30				
July	2.50	1.70	2.78	1.32	2.75	1.44				
Aug.	.70	2.55	1.53	2.64	.70	2.35				
Sept.	9.30	6.05	8.51	5.61	5.85	5.04				
Oct.	4.15	3.28	3.75	2.35	5.00	4.10				
Nov.	0	1.51	0	1.44		1.78				
Dec.	.40	1.57	0	1.39	.30	1.35				
Yearly	34.44	29.01		25.35		27.53				

T Trace ⊕ 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 137 through 141 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		Loma Blanca, Chihuahua		Garita Km. 28, Chihuahua		Samalayuca, Chihuahua		San Agustín, Chihuahua	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	T	0.37			0	0.29	0.04	0.31	0	0.32
Feb.	.63	.44			.63	.34	.59	.47	.75	.32
Mar.	.55	.40			.43	.34	.55	.42	.08	.33
Apr.	T	.32			0	.10	0	.14	0	.14
May	.16	.35			.28	.14	.24	.14	0	.21
June	.55	.64			3.74	.90	.47	.78	1.30	.71
July	2.13	1.48	1.57		1.06	1.46	3.43	1.88	2.44	1.54
Aug.	1.02	1.46	1.77		1.46	1.53	.87	1.85	1.89	1.10
Sept.	1.34	1.28	.59		.91	1.33	4.33	1.83	.55	1.08
Oct.	1.06	.96	.47		.79	.63	.71	.55	.83	.58
Nov.	T	.54	0		0	.35	0	.38	0	.32
Dec.	.04	.54	.04		0	.52	0	.47	.08	.54
Yearly	7.48	8.78			9.30	7.93	11.23	9.22	7.92	7.19

Month	Guadalupe, Chihuahua		Tinajas, Chihuahua		Praxedis G. Guerrero Chihuahua		San Antonio, Chihuahua		Porvenir, Chihuahua	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	0.20	0.29	0.24	0.25	0	0.25	0.55	0.32	T	0.28
Feb.	.55	.36	.67	.32	.67	.29	1.42	.34	.98	.38
Mar.	.83	.46	.75	.35	.43	.36	1.18	.36	.87	.30
Apr.	0	.07	0	.08	0	.06	0	.06	0	.11
May	.08	.19	0	.21	.08	.19	0	.15	T	.38
June	2.99	.92	.71	.72	1.61	.82	1.61	1.25	1.42	.93
July	3.35	1.42	2.76	1.74	2.95	1.96	3.31	2.24	2.95	1.58
Aug.	2.87	1.59	.51	1.65	1.06	1.42	3.90	2.44	4.09	1.89
Sept.	1.50	1.14	2.52	1.38	2.28	.94	2.13	1.38	2.24	1.00
Oct.	.83	.91	1.26	.89	1.22	.86	3.39	1.01	1.38	.88
Nov.	0	.43	0	.40	0	.42	0	.50	0	.49
Dec.	0	.35	0	.35	0	.33	0	.43	0	.41
Yearly	13.20	8.13	9.42	8.34	10.30	7.90	17.49	10.48	13.93	8.63

Month	Vado de Cedillos, Chihuahua		Los Barriles, Chihuahua		Banderas, Chihuahua		Luis L. León, Chihuahua		El Cuarenta, Chihuahua	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	0.20	0.26	0.08	0.47	0.08	0.08	0.35	0.31	0.35	0.19
Feb.	1.14	.32	.98	.34	.71	.27	.71	.26	.39	.30
Mar.	1.06	.25	1.54	.34	.98	.32	.79	.24	1.02	.35
Apr.	0	.15	T	.17	0	.10	0	.15	T	.09
May	.16	.30	.55	.40	0	.14	.04	.26	T	.17
June	2.48	1.34	1.02	1.30	1.93	1.12	2.28	1.30	.39	.84
July	1.89	1.60	4.76	2.41	2.05	1.36	1.77	1.72	2.76	1.80
Aug.	2.83	2.06	3.15	2.57	.51	2.59	3.82	2.22	3.39	2.44
Sept.	4.02	1.26	4.33	2.08	2.64	1.28	2.83	1.16	3.15	1.52
Oct.	1.18	.98	2.91	1.40	1.46	.71	2.01	1.07	2.32	.81
Nov.	0	.41	0	.70	0	.39	0	.48	0	.50
Dec.	.04	.45	.08	.45	T	.20	.08	.36	.08	.42
Yearly	15.00	9.38	19.40	12.63	10.36	8.56	14.68	9.53	13.85	9.43

T Trace

RAINFALL ON THE RIO GRANDE WATERSHED IN MEXICO

In Inches

Month	El Cuervo, Chihuahua		Carichic, Chihuahua		Siquírichic, Chihuahua		El Vergel, Chihuahua		Balleza, Chihuahua	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	0.28	0.28	0.08	0.52		1.08	0.47	1.67	T	0.38
Feb.	.51	.29	.51	.66	0.12	.53	1.81	.95	1.18	.36
Mar.	.39	.20	T	.19	.87	.36	.24	.60	T	.13
Apr.	0	.22	.16	.15	0	.25	T	.56	T	.22
May	.12	.31	.24	.32	T	.35	.24	.69	T	.21
June	.55	1.29	.16	1.60	.55	1.65	1.30	2.77	.59	1.49
July	1.46	1.82	4.49	6.33	5.98	5.45	4.80	6.75	1.02	4.57
Aug.	1.50	2.55	5.67	4.80	7.32	5.44	6.10	6.60	5.31	4.76
Sept.	2.72	2.04	6.06	3.18	7.48	3.23	3.54	4.95	5.87	3.37
Oct.	.63	.58	.04	.95	0	.98	.12	1.52	.31	.83
Nov.	0	.14	0	.56	0	.29		.55	0	.47
Dec.	0	.06	.43	.90	.98	1.11	.24	1.70	.12	.53
Yearly	8.16	9.78	17.84	20.16		20.72		29.31	14.40	17.32

Month	El Sitio, Chihuahua		La Boquilla, Chihuahua		San Antonio, Durango		Estación Rosario, Durango		Ojo Caliente, Chihuahua	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	0	0.24	0.20	0.31	0	0.34	0	0.33	0.04	0.19
Feb.	1.10	.42	.94	.17	1.38	.16	1.57	.49	1.06	.21
Mar.	.20	.14	.16	.17	0	.09	0	.23	.16	.17
Apr.	0	.21	T	.19	.47	.26	.24	.27	T	.18
May	0	.46	T	.53	.24	.53	0	.83	T	.50
June	.39	1.70	2.72	1.43	2.72	1.78	3.54	2.55	1.65	1.70
July	3.78	4.11	.91	2.89	3.70	4.34	2.05	4.52	1.93	3.23
Aug.	5.24	4.95	.87	2.89	3.31	3.65	4.45	4.80	1.50	2.62
Sept.	6.61	3.68	5.91	2.94	9.17	4.16	8.39	5.14	7.05	2.64
Oct.	0	.68	.12	.89	2.87	1.08	1.85	1.31	.08	1.12
Nov.	0	.41	0	.31	0	.20	0	.31	0	.13
Dec.	0	.35	T	.38	0	.26	0	.53	0	.27
Yearly	17.32	17.35	11.83	13.10	23.86	16.85	22.09	21.31	13.47	12.96

Month	Villa Coronado, Chihuahua		Santa Bárbara, Chihuahua		Valle Allende, Chihuahua		Escalón, Chihuahua		Jiménez, Chihuahua	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	0.08	0.33	0.04	0.38	T	0.23		0.45		0.25
Feb.	1.57	.38	1.73	.67	.94	.28		.19		.12
Mar.	T	.26	0	.29	.08	.09		.09		.09
Apr.	T	.34	0	.20	T	.24		.34		.14
May	.16	.41	.20	.86	T	.58		.59		.42
June	3.94	2.20	2.13	2.24	.75	1.79		1.51		1.06
July		3.73	1.30	3.64	2.83	3.30	1.18	2.22	1.22	3.27
Aug.	4.02	3.35	2.91	4.32	2.13	4.37	3.23	2.57	1.57	2.10
Sept.	5.28	4.04	11.34	5.78	9.45	4.60	6.42	3.08	1.34	2.19
Oct.	.28	.89	1.69	.77	1.10	1.01	.79	1.02	.16	1.34
Nov.	0	.35	0	.24	T	.09	0	.19	0	.15
Dec.	0	.38	T	.50	T	.26	0	.28	T	.22
Yearly		16.66	21.34	19.89	17.28	16.84		12.53		11.35

Month	Parral, Chihuahua		Camargo, Chihuahua		Santa Rita, Chihuahua		Victoria, Chihuahua		Tacubaya, Chihuahua	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	T	0.21		0.43	0.24	0.44	0.47	0.34	0.28	0.18
Feb.	2.32	.22		.29	.04	.32	3.70	.87	1.61	.55
Mar.	T	.11		.15		.18	.39	.21	.55	.18
Apr.	.67	.22		.22	0	.27	.28	.33	0	.21
May	T	.43		.63	.67	.58	.08	.83	.12	.89
June	1.77	1.76		1.65	1.22	1.62	1.10	2.19	.31	1.57
July	2.52	4.27	1.14	3.08	.43	2.17	1.38	2.59		3.88
Aug.	4.80	4.21	1.93	2.48	2.68	2.51	1.42	2.94	1.42	1.97
Sept.	7.05	4.33	5.67	3.06	6.14	2.35	4.88	2.78	4.76	3.32
Oct.	1.30	1.17	.04	1.00	.20	.75	.51	.46	.08	.56
Nov.	0	.46	T	.31	0	.18	0	.09	0	.15
Dec.	T	.39	T	.40	.12	.38	.08	.26	.08	.56
Yearly	20.43	17.78		13.70		11.75	14.29	13.89		14.02

T Trace

RAINFALL ON THE RIO GRANDE WATERSHED
IN MEXICO
In Inches

Month	Rosetilla, Chihuahua		Nonoava, Chihuahua		La Cieneguilla, Chihuahua		El Maguey, Chihuahua		San Lorenzo, Chihuahua	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	0.12	0.41	0	0.06	0.04	0.01	0	0.27	0	0.22
Feb.	.91	.15	1.06	.51		.27	1.57	.35	0	.16
Mar.	.20	.12	0	.32	.20	.15	.08	.14	0	T
Apr.	.08	.28	0	.24	.39	.13	.08	.14	0	0
May	T	.26	.16	.07	0	.26	0	.40		.27
June	1.26	1.12	1.30	1.21	.43	2.10	.08	1.61	0	1.77
July	.91	2.54	2.76	6.08	1.22	3.51	.63	3.71	2.95	3.60
Aug.	2.99	2.62	3.27	2.92	4.29	3.44	4.09	3.93	4.72	4.17
Sept.	7.36	2.18	6.77	2.65	9.21	3.91	4.21	3.44	3.15	3.35
Oct.	.71	.76	0	.63	.20	.37	0	.74	0	1.00
Nov.	0	.19	0	.25		.18	0	.17		.49
Dec.	.12	.37	.47	.66		.43	0	.34		.68
Yearly	14.66	11.00	15.79	15.60		14.76	10.74	15.24		15.71

Month	Villalba, Chihuahua		Las Vírgenes, Chihuahua		Km. 135, Chihuahua		Km. 99, Chihuahua		Delicias, Chihuahua	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	0.24	0.34	0.04	0.27	0.04	0.08	0.04	0.11	0.16	0.34
Feb.	.55	.15	.55	.12	.55	.20	.51	.26	1.02	.15
Mar.	.20	.58	.31	.05	.55	.14	.31	.12	1.10	.14
Apr.	.16	.18	.28	.22	.08	.33	.31	.26	.47	.28
May	.04	.34	.08	.27	.04	.37	.12	.36	.04	.28
June	2.17	1.12	2.44	1.15	2.20	1.52	3.27	1.81	1.54	1.16
July	2.64	3.40	2.13	2.39	1.22	2.30	2.72	2.77	.63	2.43
Aug.	1.73	2.91	.94	2.41	.67	2.68	1.18	2.37	.91	2.49
Sept.	5.83	2.58	5.28	2.08	4.41	2.62	4.65	2.67	6.06	2.18
Oct.	T	.92	.04	.73	1.97	.67	0	.59	.28	.78
Nov.	0	.24	0	.21	0	.15	0	.18	0	.24
Dec.	.04	.39	.08	.36	.08	.24	.08	.38	.24	.39
Yearly	13.60	13.15	12.17	10.26	11.81	11.30	13.19	11.88	12.45	10.86

Month	Lázaro Cárdenas, Chihuahua		Meoqui, Chihuahua		Las Burras, Chihuahua		Cd. Guerrero, Chihuahua		Bachiniva, Chihuahua	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	0.08	0.26	0.08	0.15	0.08	0.24	0.08	0.60		0.42
Feb.	.51	.22	.79	.22	.51	.18	.67	.43	0.35	.17
Mar.	.51	.14	.55	.13	.63	.15	.31	.21	0	.31
Apr.	.08	.31	.39	.53	.04	.20	.20	.20	.16	.09
May	.12	.44	.16	.38	.08	.31	.31	.27	0	.15
June	1.02	1.69	.94	1.20	.71	1.09	.08	1.51	.08	1.54
July	1.30	2.69	1.26	2.46	1.50	2.56	3.78	4.79		6.30
Aug.	1.10	2.32	.71	2.18	1.54	2.42	5.43	5.25	5.98	4.63
Sept.		2.33	5.59	1.89	5.12	2.10	3.78	3.02	2.68	2.28
Oct.	2.20	.76	1.02	.64	1.77	.57	.12	1.14	.04	1.02
Nov.		.25	0	.09	0	.15	0	.50	0	.30
Dec.		.22	.12	.38	.12	.37	.35	.73	.24	.46
Yearly		11.63	11.61	10.25	12.10	10.34	15.11	18.65		17.67

Month	Cuauhtémoc, Chihuahua		La Trasquila, Chihuahua		Colonia Anáhuac, Chihuahua		Presa Chihuahua, Chihuahua		Chihuahua, Chihuahua	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	T	0.28	0.31	0.16	0.35	0.30	0.24	0.12	0.16	0.27
Feb.	.39	.18	.31	.34	1.06	.43	.67	.23	.28	.20
Mar.	.04	.12	.24	.13	T	.16	.16	.17	.12	.21
Apr.	.08	.21	0	.20	.08	.30	.35	.25	.08	.19
May	0	.33	.08	.28	T	.38	T	.59	.39	.38
June	.47	1.48	1.97	1.37	.67	1.38	.83	2.48	2.09	1.51
July	2.09	4.72	2.48	3.64	2.40	5.14	3.07	4.76	2.83	3.46
Aug.	4.02	4.08	2.91	2.88	6.93	4.92	2.24	4.12	.98	3.33
Sept.	2.87	2.66	2.36	2.69	3.94	3.29	3.90	2.69		2.76
Oct.	.71	1.06	.83	.65	.71	.99	.51	.76	.31	.80
Nov.	0	.27	0	.32	0	.28	0	.22	0	.41
Dec.	.08	.42	0	.28	T	.25	.04	.36	T	.36
Yearly	10.75	15.81	11.49	12.94	16.14	17.82	12.01	16.75		13.88

T Trace

RAINFALL ON THE RIO GRANDE WATERSHED IN MEXICO

In Inches

Month	Majalca, Chihuahua		Planta Zootécnica, Chihuahua		Los Pozos, Chihuahua		Villa Aldama, Chihuahua		La Campana, Chihuahua	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	0.20	0.27	0.16	0.25	0.12	0.31	0.12	0.22	0.24	0.25
Feb.	1.34	.42	.79	.21	.31	.23	.51	.15	.24	.30
Mar.	.12	.31	.08	.17	.35	.16	.16	.25	0	.17
Apr.	.35	.50	.04	.28	0	.23	.08	.20	0	.23
May	.08	.70	.08	.32	0	.46	T	.35	.04	.22
June	.71	2.46	.16	1.62	1.14	1.35	2.09	2.00	1.18	1.68
July	5.08	6.08	2.64	3.78		2.43	1.81	3.42	2.05	3.15
Aug.	5.16	4.99	1.50	3.89		2.34	1.02	2.66	3.74	3.24
Sept.	3.31	3.07	3.31	2.29		2.18	4.57	2.69		2.89
Oct.	.55	.60	.51	.85	1.46	.88	.39	.51	2.48	1.04
Nov.	0	.21	0	.27	0	.39	0	.20		.31
Dec.	.04	.23	T	.36	.08	.22	.04	.30		.32
Yearly	16.94	19.84	9.27	14.29		11.18	10.79	12.95		13.80

Month	Presa El Granero, Chihuahua		El Anteojo, Chihuahua		Parrita, Chihuahua		Maijoma, Chihuahua		Cuchillo Parado, Chihuahua	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	0.04	0.09	0	0.01	0.24	0.08	0.08	0.48	0.08	0.11
Feb.	.35	.22	1.34	.32	.31	.27	1.57	.42	.39	.15
Mar.	.39	.21	0	.05	0	.07	1.42	.23	.16	.13
Apr.	T	.31	T	.35	0	.64	.08	.23	0	.08
May	T	.09	0	.43	0	.27	1.10	.73	.28	.52
June	.63	1.36	.39	1.95	3.15	2.21	2.83	1.53	.63	1.06
July	2.24	1.78	1.02	2.19	2.13	2.43	1.18	2.70	1.18	2.50
Aug.	1.10	2.04	.12	2.08	2.28	3.14	.94	2.99	2.09	2.05
Sept.	4.02	2.55	2.76	1.64	2.44	2.79	5.00	2.66	2.99	1.03
Oct.	1.02	.45	.79	.39	.94	.99	1.26	1.00	1.10	.36
Nov.	0	.15	0	.10	0	.21	0	.34	0	.22
Dec.	.12	.22	.20	.35	.04	.15	.28	.37	0	.20
Yearly	9.91	9.47	6.62	9.86	11.53	13.25	15.74	13.68	8.90	8.41

Month	Coyame, Chihuahua		Las Varas, Chihuahua		Gallego, Chihuahua		El Sueco, Chihuahua		Ojinaga (IB&WC), Chihuahua	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.		0.13	0.47	0.32	0.59	0.24	0.55	0.42	0.08	0.39
Feb.	1.54	.46	.55	.53	.71	.47	1.02	.52	.75	.28
Mar.	1.18	.21	.20	.18	.12	.14	.55	.26	.91	.18
Apr.	.20	.31	0	.20	0	.20	0	.22	0	.25
May	.31	.52	.39	.23	.04	.16	.16	.11	.51	.38
June	.08	1.37	.63	.94	.55	1.02	1.02	.75	1.54	1.29
July		2.17	2.09	3.08	2.13	3.07	2.60	2.76	3.23	1.43
Aug.	1.30	1.58	1.89	3.25	1.73	3.32	3.86	3.72	2.09	1.53
Sept.	3.43	2.54	3.94	2.52	3.35	2.18	4.96	2.45	4.06	1.36
Oct.	.98	.76	2.05	1.32	1.65	1.18	2.05	.97	1.85	.89
Nov.	0	.32	0	.46	0	.28	0	.44	0	.38
Dec.	0	.15	0	.26	T	.21	T	.22	.51	.28
Yearly		10.52	12.21	13.29	10.87	12.47	16.77	12.84	15.53	8.64

Month	Ojinaga (M. S. of Mexico), Chihuahua		Portrero del Llano, Chihuahua		Manuel Benavides, Chihuahua		Sierra Mojada, Coahuila		Mina La Borrada, Coahuila	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	0.20	0.33	0	0.11	0.12	0.15	0.43	0.57	0.28	0.27
Feb.	.87	.23	.98	.37	.71	.25	.87	.29	1.77	.53
Mar.	1.18	.21	1.10	.68	.91	.34	.12	.30	.87	.26
Apr.	T	.26	0	.20	T	.25	.04	.28	0	.34
May	.87	.54	.24	.27	.87	.93	.75	1.03	1.18	.95
June	2.20	1.04	3.07	1.81	2.40	1.55	1.50	2.24	3.39	2.07
July	2.68	1.35	1.69	2.15	3.46	2.41	.35	2.75	1.18	1.01
Aug.	2.60	1.51	.47	2.06	.87	2.32	3.90	2.77	2.44	1.87
Sept.	4.49	1.49	2.05	1.40	12.13	2.86	8.66	3.06	5.35	2.07
Oct.	1.69	.95	.08	.31	.59	.65	0	1.25	0	1.00
Nov.	0	.38	0	.14	0	.14	0	.50	0	.37
Dec.	0	.39	.08	.35	0	.19	0	.60	0	.27
Yearly	16.78	8.68	9.76	9.85	22.06	12.04	16.62	15.64	16.46	11.01

T Trace

RAINFALL ON THE RIO GRANDE WATERSHED

IN MEXICO

In Inches

Month	Las Norias, Coahuila		Santa Rosa, Coahuila		San Fernando, Coahuila		El Cedrito, Coahuila		Hacienda San Miguel, Coahuila	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	0.08	0.37	0.59	0.90	0.87	0.33	0	0.14	0.63	0.29
Feb.	.08	.44	1.02	.83	1.26	.71	.55	.68	.71	.60
Mar.	.16	.24	.83	.55	.31	.23		.13	.83	.72
Apr.	0	.57	0	.99	.04	1.24		1.12	0	1.66
May	.16	1.09	2.40	1.11	1.34	.97		1.22	1.69	2.10
June	.24	1.95	2.01	1.62	4.09	1.01		.92	2.20	2.25
July	.16	1.49	1.30	1.31	.24	.56		1.02	.28	1.12
Aug.	.20	1.55	1.50	1.00	3.19	1.58		1.51	4.02	1.36
Sept.	.28	1.80	4.17	2.38	7.40	3.34		2.94	7.44	3.66
Oct.	.12	1.12	.51	2.19	.04	1.52		1.26	.20	1.67
Nov.	0	.32	0	1.04	0	.50		.36	0	.40
Dec.	0	.39	0	.45	.04	.40		.29	0	.32
Yearly	1.48	11.33	14.33	14.37	18.82	12.39		11.59	18.00	16.15

Month	Rancho La Chuparrosa, Coahuila		Presa Centenario, Coahuila		Amistad Reservoir Near Tlaloc, Coahuila		Cd. Acuña, Coahuila		Presa Cabeceras, Coahuila	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	0		0.59	0.53	0.40		0.47	0.57	0.79	0.51
Feb.	.80		1.34	1.09	.70		1.57	.92	1.30	.88
Mar.	.30		.31	.55	.47		.59	.79	1.06	.68
Apr.	.04		0	1.42	0		.08	1.66	0	1.51
May	.88		2.01	1.53	1.70		2.60	2.47	1.61	2.09
June	1.35		2.76	1.91	1.30		1.46	2.30	2.13	1.12
July	.41		.28	.94	.50		.04	.98	.51	1.34
Aug.	1.26		2.80	2.20	1.85		1.77	1.60	4.92	2.43
Sept.	2.67		11.14	6.38	6.72		11.34	3.60	11.14	6.84
Oct.	0		0	2.18	.05		.28	2.45	.08	2.17
Nov.	0		0	1.10	0		T	.62	0	.86
Dec.	.09		0	.48	.05		.12	.54	0	.38
Yearly	7.80		21.23	20.31	13.74		20.32	18.50	23.54	20.81

Month	Presa San Miguel, Coahuila		Palestina, Coahuila		Chupadero, Coahuila		Jiménez, Coahuila		El Remolino, Coahuila	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	0.12	0.45	1.10	0.94	0.91	0.57	1.06	0.70	0	0.41
Feb.	1.34	1.09	1.46	1.03	1.34	1.05	1.57	1.02	.71	.73
Mar.	.91	.78	.55	.67	1.06	.62	1.34	.84	0	.49
Apr.	.12	1.00	.12	1.64	.12	1.81	0	1.79	0	1.86
May	2.13	1.90	.28	2.44	2.13	1.68	1.22	2.59	3.50	2.35
June	2.13	1.51	.24	2.22	1.34	1.90	.20	2.52	7.09	3.16
July	.75	.75	.31	1.74	.04	.86	.16	1.30	0	1.55
Aug.	3.90	1.81	3.19	2.03	2.68	1.50	2.32	1.65	3.35	1.24
Sept.	7.72	4.77	10.51	3.38	8.15	4.64	7.91	3.52	5.31	4.50
Oct.	.16	1.69	.08	1.87	0	2.04	0	2.27	0	2.51
Nov.	0	.89	0	.76	0	.87	0	.94	0	.65
Dec.	0	.61	0	.82	0	.46	.12	.70	0	.45
Yearly	19.28	17.25	17.84	19.54	17.77	18.00	15.90	19.84	19.96	19.90

Month	Piedras Negras, Coahuila		Villa Guerrero, Coahuila		Rancho San Diego, Coahuila		Rancho Mercedes, Coahuila		Villa Hidalgo, Coahuila	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	1.73	0.71	1.30	0.50	1.77	0.25	3.78	0.66	0.91	0.75
Feb.	1.18	1.00	1.34	.84	1.38	.57	1.14	.86	.87	1.03
Mar.	.43	.72	0	.48	0	.47	0	.77	.39	.57
Apr.	.08	2.14	0	1.79	0	1.57	0	2.31	.24	1.70
May	6.02	3.34	.35	2.56	2.17	2.81	3.70	2.96	2.44	2.44
June	1.34	1.56	2.28	1.34	2.05	1.40	.75	1.16	.63	1.42
July	.67	2.01	1.10	1.21	2.56	1.73	2.13	.84	3.15	1.04
Aug.	3.90	2.31	2.52	1.92	1.89	1.79	3.90	1.94	1.22	2.05
Sept.	7.17	3.44	5.47	4.45	7.76	4.00	5.94	2.68	4.69	3.34
Oct.	.04	2.67	0	2.46	0	1.28	4.13	1.37	.04	1.68
Nov.	T	.73	0	.67	0	.94	0	1.14	0	1.01
Dec.	.08	.67	T	.63	0	.70	0	.72	.08	.81
Yearly	22.64	21.30	14.36	18.85	19.58	17.51	25.47	17.41	14.66	17.84

T Trace

RAINFALL ON THE RIO GRANDE WATERSHED IN MEXICO

In Inches

Month	Colombia, Nuevo León		Rancho Los Vidrios, Tamaulipas		Nuevo Laredo (M. S. of Mexico), Tamps.		Nuevo Laredo, (IB&WC), Tamps.		El Llano, Tamaulipas	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	0.79	0.18	0.67	0.86	1.81	0.78	2.05	0.64	1.97	1.06
Feb.	.59	.69	1.57	1.04	T	.89	1.30	.93	1.14	.67
Mar.	0	.60	0	.35	.31	.65	.31	.42	.24	.18
Apr.	.31	1.62	.20	1.50	.08	1.19	.39	1.13	1.10	.92
May	1.34	2.72	2.56	2.55	3.27	2.26	3.19	2.12	2.80	2.54
June	1.38	1.49	.39	1.68	.20	1.92	.47	1.95	1.69	.88
July	1.50	.97	.75	1.12	.39	1.30	.35	.98	0	0
Aug.	.87	3.54	.43	2.01	.47	1.56	.87	1.87	.47	2.68
Sept.	5.31	5.51	3.54	2.89	4.72	2.78	5.94	2.99	5.75	3.52
Oct.	0	1.66	.20	2.19	.47	1.42	.35	1.41	0	.49
Nov.	0	1.42	0	1.34	0	.98	0	1.01	0	1.10
Dec.	0	.66	0	1.03	0	.90	.24	.74	0	.68
Yearly	12.09	21.06	10.31	18.56	11.72	16.63	15.46	16.19	15.16	14.72

Month	Ejido Progreso, Tamaulipas		Jarita, Nuevo León		Nuevo Laredo Km. 26 SSW, Tamps.		✣ Nuevo Laredo Km. 52 SSW, N. León		San Ignacio, Tamaulipas	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.			1.18	0.36	1.97	.70	1.97	.51	0.79	0.56
Feb.	2.95	1.58	2.36	.95	1.18	1.04	1.57	.94	1.38	1.06
Mar.	0	0	0	.47	0	.35	0	.36	0	.47
Apr.	.39	1.38	.75	1.45	2.56	1.80	.71	1.50	.39	1.71
May	2.95	3.01	3.54	2.44	5.71	2.31	1.42	2.17	4.33	3.75
June	.79	4.33	3.15	1.77	1.65	1.22	1.26	1.29	1.18	.94
July	1.93	1.16	1.02	.70	2.76	.84	.98	.90	.87	.58
Aug.	1.10	2.89	.59	2.14	2.40	2.62	1.69	1.90	1.18	2.72
Sept.			4.76	4.02	6.34	3.72	6.30	4.79	3.54	4.26
Oct.			.16	1.28	.20	1.38	.39	1.73	.59	1.61
Nov.			0	1.49	0	1.04	0	.83	0	1.36
Dec.			0	.64	0	.72	0	.75	0	.78
Yearly			17.51	17.71	24.77	17.74	16.29	17.67	14.25	19.80

Month	Rancho San Juan de la Palma, Tamps.		Santo Domingo, Coahuila		El Treinta, Coahuila		Muzquiz, Coahuila		Conchos, Coahuila	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	2.05	0.81	T	0.67	0	0.44	0.08	0.81	0.20	0.29
Feb.	1.10	.96	.39	.55	.91	.49	1.38	.59	.98	.65
Mar.	0	.52	0	.20	1.14	.69	1.02	.94	.20	.31
Apr.	.71	2.00	0	.76	0	1.35	0	1.04	.16	1.79
May	.83	2.08	3.74	2.58	2.36	2.22	4.80	3.97	2.17	2.49
June	.43	1.61	3.15	3.66	3.74	2.36	3.66	2.91	1.50	1.78
July	.31	.69	0	2.42	2.05	1.74	1.81	2.22	.39	1.88
Aug.	.83	1.69	.31	2.92	.79	2.19	0	2.45	.39	2.01
Sept.	4.92	4.16	4.72	4.00	7.28	4.30	6.06	4.94	5.94	3.31
Oct.	.08	1.49	0	1.70	0	1.49	.39	2.15	0	1.97
Nov.	0	1.16	0	.47	0	.45	0	1.13	0	.54
Dec.	0	.82		.54	0	.23	.31	1.00	0	.50
Yearly	11.26	17.99		20.47	18.27	17.95	19.51	24.15	11.93	17.52

Month	Nueva Rosita, Coahuila		Sabinas, Coahuila		Villa Juárez, Coahuila		Cuatro Ciénegas, Coahuila		Ocampo, Coahuila	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.		0.61	0.39	0.61	0.75	0.57	0.47	0.33	0.16	0.48
Feb.	.87	.51	.16	.77	1.22	.49	.51	.35	.24	.17
Mar.	.16	.37	.55	.42	.31	.28	0	.13	.28	.18
Apr.	.91	1.30	.43	1.27	.20	1.26	.59	.31	1.02	.86
May	1.34	2.57	2.05	2.48	1.50	1.94	.91	.78	1.26	1.13
June	1.22	1.98	1.14	1.97	0	.93	2.64	.66	1.97	1.28
July	.87	1.51	.31	1.19	.79	.82	.51	.79	.83	2.03
Aug.	.79	1.84	.75	2.19	0	1.45	1.89	.96	.87	1.74
Sept.	6.34	2.81	5.35	3.45	8.27	3.32	3.78	1.50	3.86	2.52
Oct.	.28	1.61	.16	1.73	0	1.69	.12	.73	0	.94
Nov.	T	.55	0	.57	0	.54	0	.37	0	.18
Dec.	T	.64	0	.55	0	.37	0	.43	0	.39
Yearly		16.30	11.29	17.20	13.04	13.66	11.42	7.34	10.49	11.90

T Trace ✣ Formerly published as Nuevo Laredo Km. 50 SSW, Tamaulipas

RAINFALL ON THE RIO GRANDE WATERSHED
IN MEXICO
In Inches

Month	Monclova, Coahuila		Progreso, Coahuila		Don Martín, Coahuila		Laguna de Salinillas, Nuevo León		Lampazos, Nuevo León	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	0.43	0.48	0	0.43	1.10	0.74	1.42	0.66	1.06	0.65
Feb.	.83	.49	1.10	.53	1.14	.66	.79	.65	1.02	.89
Mar.	0	.31	.12	.35	.08	.46	.16	.49	.39	.61
Apr.	.51	.62	.20	1.31	.20	1.26	.12	1.07	.24	1.29
May	2.60	1.47	1.97	2.20	1.97	2.14	.12	2.21	2.17	2.37
June	.55	1.18	.98	1.19	1.57	1.54	.71	1.35	1.10	1.88
July	.51	1.46	2.68	.81	.94	.96	1.18	.74	3.74	1.86
Aug.	1.42	1.61	1.73	1.96	1.10	2.03	.12	2.23	.55	1.95
Sept.	3.23	2.99	2.01	3.00	5.20	2.93	4.92	3.18	5.94	5.00
Oct.	.24	1.18	.08	1.74	0	1.65	.04	1.70	.39	1.29
Nov.	0	.58	0	.53	0	.60	0	.68	0	.78
Dec.	0	.54	0	.54	0	.66	.16	.58	.24	.49
Yearly	10.32	12.91	10.87	14.59	13.30	15.63	9.74	15.54	16.84	19.06

Month	Anáhuac, Nuevo León		La Gloria, Nuevo León		Nueva Hacienda Golondrinas, N. León		Bustamante, Nuevo León		Rancho Palo Blanco, Nuevo León	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	1.14	0.73	1.50	0.49	1.97	0.66	1.06	0.61	0.35	0.20
Feb.	.71	.63	1.14	.82	.87	.50	2.48	.91		.32
Mar.	.67	.52	0	.31	0	.66	.12	.60		.61
Apr.	.47	1.18	.31	1.35		.76	.08	1.12	0	1.33
May	1.10	2.38	1.73	2.77	2.72	1.90	1.50	1.56	0	1.03
June	.55	1.37	.59	1.66	1.50	1.43	2.72	2.32		2.58
July	.55	1.26	.51	1.55		3.84	4.41	1.44		5.61
Aug.	.35	2.06	.75	1.63	0	1.51	.94	3.40		1.94
Sept.	2.99	3.17	4.29	4.91		2.94	6.14	5.93		4.41
Oct.	.24	1.47	0	1.26		.28	.55	1.79		1.36
Nov.	0	.64	0	.87		1.12	0	.94		1.38
Dec.	.04	.74	0	.71		.40	0	.66		0
Yearly	8.81	16.15	10.82	18.33		16.00	20.00	21.28		20.77

Month	Sabinas Hidalgo, Nuevo León		Vallecillo, Nuevo León		Las Tortillas, Tamaulipas		Rancho San Rafael Bustamante, Tamps.		Río Salado Ribereña, Tamaulipas	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	0.71	0.50	1.02	0.50	0.71	0.41	0.87	0.71	1.14	0.56
Feb.	0	0.98	0	.87	1.54	1.07	1.54	1.70	1.18	1.12
Mar.	.04	.71	.12	.48	0	.49	0	.26	0	.47
Apr.	1.10	1.34	.43	1.02	.83	1.60	.79	1.17	.98	1.56
May	1.22	2.41	2.20	1.84	1.57	3.42	1.22	3.28	1.18	3.42
June	2.52	3.17	.67	1.87	1.57	1.56	1.18	1.05	2.76	1.78
July	3.70	2.28	2.44	1.23	.79	.68	.98	1.38	1.14	.50
Aug.	.98	2.57	1.22	1.77	1.57	1.21	1.93	2.21	.39	2.76
Sept.	8.78	7.54	1.38	4.73	4.72	4.24	4.33	5.37	4.13	4.90
Oct.	.39	2.58	1.10	2.31	.79	1.18	1.18	2.27	.39	1.66
Nov.	0	1.20	0	.76	0	1.37	0	2.06	0	1.30
Dec.	T	.71	0	.66	T	.91	T	.59	0	1.04
Yearly	19.44	25.99	10.58	18.04	14.09	18.14	14.02	22.05	13.29	21.07

Month	Aniego 166, Tamaulipas		La Bandera, Tamaulipas		Nueva Cd. Guerrero, Tamaulipas		Hacienda El Alamo, Nuevo León		San Javier, Nuevo León	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	2.36	0.89	1.89	0.82	1.77	1.05			1.77	0.84
Feb.	.98	.99	1.38	.87	1.34	.92			1.65	1.05
Mar.	0	.49	0	.81	T	.54	0	0.52	0	.85
Apr.	1.57	1.01	1.38	1.33	.94	1.42	.63	.76	1.18	1.94
May	2.76	3.62	.79	3.25	2.09	2.18	.51	1.82	1.18	4.39
June	3.94	1.55	.98	2.53	1.97	2.32	.39	.66	4.41	3.01
July	0	.25	0	.63	.94	.77	2.95	3.07	2.36	1.10
Aug.	1.18	2.62	1.18	2.62	.63	1.88	2.05	2.40	3.15	3.22
Sept.	3.35	6.98	5.20	5.38	3.39	3.68	4.61	5.64	3.66	5.41
Oct.	.39	1.11	.39	1.27	.31	2.04	.43	1.60	.79	1.93
Nov.	0	1.20	0	1.02	0	1.00	.08	1.56	0	1.26
Dec.	.12	.66	.12	.71	.16	.56	0	.59	.20	.83
Yearly	16.65	21.37	13.31	21.24	13.54	18.36			20.35	25.83

T Trace

RAINFALL ON THE RIO GRANDE WATERSHED
IN MEXICO
In Inches

Month	Cd. Mier, Km. 8 SW, Tamaulipas		Cd. Mier, Tamaulipas		Miguel Alemán, Tamaulipas		Parras, Coahuila		Gral. Cepeda, Coahuila	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	1.97	0.85	1.69	1.16	1.93	1.00	1.69	0.53	0.67	0.51
Feb.	1.97	1.22	1.65	1.27	1.73	1.24	1.10	.46	1.10	.52
Mar.	0	.89	0	.76	.24	.24	.04	.47	0	.32
Apr.	1.38	1.41	.39	1.42	.63	2.06	0	.25	0	.42
May	1.50	3.85	1.06	3.16	1.42	2.77	1.30	.97	.16	.82
June	7.95	2.98	3.46	2.18	3.54	2.12	2.05	1.85	1.81	2.14
July	2.60	1.12	.71	.60	1.50	.89	1.30	2.43	1.89	3.24
Aug.	2.95	3.17	1.81	2.84	.16	2.57	.98	2.80	1.57	3.01
Sept.	3.15	5.11	5.51	4.62	5.04	6.60	3.39	2.74	2.72	2.84
Oct.	.79	1.70	.87	2.26	.94	1.17	.12	1.15	.16	1.26
Nov.	0	1.18	0	1.24	0	1.19	0	.46	0	.51
Dec.	.16	.84	.12	.73	.08	.65	T	.91	0	.55
Yearly	24.42	24.32	17.27	22.24	17.21	22.50	11.97	15.02	10.08	16.14

Month	Reata, Coahuila		San Antonio de las Alazanas, Coahuila		Saltillo, Coahuila		Ramos Arizpe, Coahuila		Carbonera, Nuevo León	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	0	0.32	1.18	0.95	0.87	0.59	0.63	0.49	0.79	0.96
Feb.	0.55	.22	1.69	.99	1.22	.57	1.42	.40	.51	.96
Mar.	0	.31	0	.46	.04	.42	0	.29	0	.81
Apr.	0	.32	.39	.97	T	.82	.08	.47	0	1.03
May	.94	.85	1.02	1.75	.63	1.16	1.02	.85	1.18	1.96
June	.31	.84	3.07	2.28	1.89	2.20	1.26	1.04	2.13	1.43
July	.91	.67	0	3.08	2.20	2.57	2.20	1.41	.39	2.42
Aug.	0	1.69	3.82	2.94	1.46	2.41	1.18	1.34	3.94	3.21
Sept.	1.42	1.37	2.56	2.57	2.44	2.74	.59	1.74	1.34	3.10
Oct.	0	.72	0	1.94	.12	1.27	0	.74	.59	1.55
Nov.	0	.41	0	1.38	0	.84	0	.47	0	.77
Dec.	0	.31	0	1.05	0	.64	0	.53	0	1.00
Yearly	4.13	8.03	13.73	20.36	10.87	16.23	8.38	9.77	10.87	19.20

Month	Icamole, Nuevo León		Mina, Nuevo León		La Popa, Nuevo León		Ciénega de Flores, Nuevo León		Topo Chico, Nuevo León	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	0	0.31	0.87	0.48	0.71	0.51	1.73	1.27	0.08	0.38
Feb.	0.79	.35	.91	.51	1.50	1.09	2.40	.98	.31	.57
Mar.	T	.13	0	.15	0	.27	.24	1.13	0	.47
Apr.	.08	.35	.20	.58	0	.56	1.61	1.66	.39	1.02
May	3.27	.94	.47	.54	1.26	1.13	8.35	2.65	1.06	1.25
June	.94	.75	1.10	1.11	.59	.77	2.09	2.76	1.65	2.03
July	.55	.46	1.65	.66	.71	.99	3.31	1.80	3.23	1.26
Aug.	1.42	1.21	0	1.51	0	2.07	2.91	4.41	.79	3.01
Sept.	1.18	2.11	3.70	3.11	1.06	3.17	5.43	5.67	5.63	4.26
Oct.	.04	.90	.20	1.16	.12	.86	1.54	2.75	1.73	2.56
Nov.	0	.48	0	.66	0	.64	0	1.09	0	.69
Dec.	0	.46	0	.52	0	.70	2.91	1.11	.08	.43
Yearly	8.27	8.45	9.10	10.99	5.95	12.76	32.52	27.28	14.95	17.93

Month	Los Ramones, Nuevo León		Los Herrera (La Tableta), N. León		Rinconada, Nuevo León		Santa Catarina, Nuevo León		Monterrey, Nuevo León	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	0.83	0.61		0.62	0	0.28		0.66	0.55	0.62
Feb.	1.54	.77		.71	0	.28		.46	4.72	.70
Mar.	.20	.65		.60	0	.21	1.10	.33	.12	.75
Apr.	.71	1.82	0	1.46	0	.49	.63	.70	1.10	1.17
May	2.56	2.33	2.36	2.73	0.63	.53	2.44	.88	.98	1.57
June	1.93	2.94	5.63	2.50	1.30	.78	2.28	1.85	1.57	2.66
July	4.37	1.77	1.65	1.09	.71	.38	1.34	1.13	3.54	2.32
Aug.	4.72	3.75	1.93	2.59	0	1.20	.79	2.99	.75	3.19
Sept.	10.75	5.24	4.88	4.46	2.99	1.68	4.02	3.94	7.40	5.90
Oct.	.91	2.93	.47	2.51	0	.86	.24	1.74	1.42	3.21
Nov.	0	.70	0	.66	0	.29	0	.49	0	1.25
Dec.	0	.46	.04	.47	0	.33	0	.53	.20	.70
Yearly	28.52	23.97		20.40	5.63	7.31		15.70	22.35	24.04

T Trace

RAINFALL ON THE RIO GRANDE WATERSHED IN MEXICO

In Inches

Month	Apodaca, Nuevo León		A. Blanca Canoas, Nuevo León		Pajonal, Nuevo León		Cadereyta, Nuevo León		La Cruz, Nuevo León	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	0.71	0.82	0	0.64	0.59	0.61	0.51	0.74	0	0.58
Feb.	2.17	1.15	0.87	.70	.79	.79	0	.93	0.94	.65
Mar.	.08	.78	0	.21	0	.24	0	1.13	0	.22
Apr.	.87	1.05	.51	.54	1.06	.74	0	2.07	.59	.44
May	.83	2.11	.91	1.70	2.20	1.66	4.88	2.36	1.42	1.51
June	1.34	2.20	3.31	2.05	2.52	2.04	1.46	3.42	5.47	2.29
July	2.24	1.30	2.44	1.88	2.72	2.59	4.61	2.39	2.99	2.40
Aug.	1.73	4.40	2.13	2.80	1.54	3.93	1.85	3.57	2.44	3.54
Sept.	6.02	6.47	5.20	4.95	6.18	5.64	5.00	5.02	6.22	4.81
Oct.	2.56	2.41		2.24	0	2.27	2.36	3.24	0	2.15
Nov.	0	.92	0	.78	0	.67	0	1.17	0	.74
Dec.	.08	.70		.47	0	.69	0	.71	0	.27
Yearly	18.63	24.31		18.96	17.60	21.87	20.67	26.75	20.07	19.60

Month	Las Comitas, Nuevo León		Villa de Santiago, Nuevo León		Villa Allende, Nuevo León		San Juan, Nuevo León		Laguna de Sánchez, Nuevo León	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	0	0.33	0.47	0.89	0.67	0.91	0.39	0.43	0.75	0.54
Feb.	1.30	.41	2.01	1.05	3.39	1.26	6.46	.95	1.02	.63
Mar.	0	.27	.16	1.13	0	1.27	.12	.71	.08	.47
Apr.	1.06	.80	1.46	1.72	3.35	2.61	.75	2.06	1.30	1.22
May	.87	1.00	.63	2.58	2.05	3.22	2.60	2.12	1.57	1.89
June	1.81	2.30	3.15	5.21	4.61	4.66	.87	2.46	4.21	3.23
July	2.44	1.73	8.23	3.25	9.13	2.95	7.32	1.79	3.03	2.55
Aug.	1.97	3.47	2.72	6.15	3.23	5.45	1.38	3.91	2.64	4.38
Sept.	3.19	4.54	12.20	9.10	11.46	8.03	11.93	5.43	10.00	5.57
Oct.	0	1.94	4.09	5.16	3.03	5.77	1.06	3.03	0	2.87
Nov.	0	.51	0	1.44	0	1.60	0	.93	0	.58
Dec.	0	.38	.20	.90	0	.94	0	.47	0	.60
Yearly	12.64	17.68	35.32	38.58	40.92	38.67	32.88	24.29	24.60	24.53

Month	Casillas, Nuevo León		Ciénega del Toro, Nuevo León		Mimbres, Nuevo León		Rayones, Nuevo León		Rusio, Nuevo León	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	0.24	0.42	0.16	1.15	0.98	0.90	0	0.29	0.31	0.71
Feb.	1.65	1.04	.31	.74	0	1.04	0.31	.34	.91	.82
Mar.	1.06	.53	.20	.85	.94	1.24	0	.32	0	.72
Apr.	.94	.90	1.57	1.18	.12	1.10	0	1.02	.16	1.31
May	2.99	1.96	.20	2.00	.04	1.83	2.83	1.35	.87	2.06
June	3.62	3.44	.59	1.80	.98	2.14	0	1.95	2.64	1.58
July	4.65	2.22	.47	1.86	3.03	2.30	0	.87	.51	.91
Aug.	1.81	3.20	1.26	2.65	.94	2.90	0	2.82	2.24	1.27
Sept.	8.19	4.03	3.62	4.16	2.64	2.85	6.73	3.11	2.13	1.81
Oct.	.67	2.52	.28	2.73	0	1.74	0	1.45	.12	1.41
Nov.	.63	.61	.47	.75	0	.65	0	.39	T	.77
Dec.	.12	.78	0	.89	0	1.38	0	.30	0	1.01
Yearly	26.57	21.65	9.13	20.76	9.67	20.07	9.87	14.21	9.89	14.38

Month	Potosí, Nuevo León		Iturbide, Nuevo León		Cabezones, Nuevo León		Linares, Nuevo León		Montemorelos, Nuevo León	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	0.51	0.99	0.43	0.55	0.16	0.80	0.08	0.89	0.35	0.78
Feb.	.71	.90	.98	.67	2.83	1.03	0.08	.89	2.05	1.01
Mar.	0	.41	.16	.51	.08	1.19	.16	1.11	.20	1.18
Apr.	0	1.48	.59	1.16	1.57	2.82	.79	2.36	1.81	2.36
May	1.46	1.20	2.80	1.92	3.70	3.14	5.04	3.59	1.30	3.02
June	.94	.93	3.03	3.22	3.46	3.97	1.97	3.54	1.85	3.73
July	.39	.84	4.96	2.40	6.38	2.52	3.35	2.47	4.84	1.95
Aug.	.63	1.78	3.62	4.17	3.86	5.86	4.65	3.74	2.17	4.30
Sept.	1.54	1.38	10.87	5.53	9.49	8.35	8.98	6.31	7.87	5.71
Oct.	.08	1.39	.55	2.61	1.61	3.25	1.22	3.38	2.13	3.81
Nov.	0	1.55	.04	.60	0	1.30	0	1.19	0	1.67
Dec.	0	2.11	.04	.49	0	.68	.04	1.06	0	.88
Yearly	6.26	14.96	28.07	23.83	33.14	34.91	26.36	30.53	24.57	30.40

T Trace

RAINFALL ON THE RIO GRANDE WATERSHED
IN MEXICO
In Inches

Month	Gral. Teran(Experimt. Station), Nuevo León		San Rafael, Nuevo León		El Cuchillo, Nuevo León		Gral. Bravo, Nuevo León		Las Enramadas, Nuevo León	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	0.55	0.60	1.06	1.21	0.12	0.61	1.57	0.77	0.55	0.89
Feb.	1.18	.92	1.77	1.50	.79	.54	.83	.52	1.50	.73
Mar.	.16	1.43	0	.63	.16	.53	.12	.56	.67	.79
Apr.	1.65	1.56	.12	.74	.94	1.34	.59	1.50	2.91	1.94
May	.79	2.69	1.46	1.71	2.87	2.10	1.69	2.83	.16	2.92
June	7.99	3.82	2.87	1.95	4.49	2.42	4.84	2.54	3.86	3.34
July	8.66	2.05	1.30	2.38	3.15	1.55	4.92	2.13	6.65	2.25
Aug.	4.57	3.60	1.97	1.98	2.87	2.73	3.98	2.67	4.33	3.77
Sept.	9.06	6.78	1.38	2.32	5.63	4.13	4.76	4.24	13.39	6.33
Oct.	.79	4.32	0	1.18	.20	2.04	.51	2.08	.39	2.62
Nov.	0	1.28	0	.90	0	.56	0	.89	0	.77
Dec.	0	.69	0	.91	.04	.46	.12	.74	0	.73
Yearly	35.40	29.74	11.93	17.41	21.26	19.01	23.93	21.47	34.41	27.08

Month	Cerralvo, Nuevo León		Comales, Nuevo León		Camargo, Tamaulipas		Valadeces, Tamaulipas		Reynosa Km. 40 SW, Nuevo León	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	1.38	0.66	1.97	0.85	2.56	1.07	2.44	1.32	1.57	0.75
Feb.	1.69	.65	1.30	.74	1.54	.98	1.06	1.01	.91	.82
Mar.	.24	.59	.16	.62	.35	.52	.35	.60	0	.31
Apr.	1.34	2.03	1.14	1.58	1.30	1.88	.79	1.70	0	1.34
May	3.27	2.95	.59	2.11	2.95	2.18	1.30	3.45	1.42	3.14
June	3.15	2.41	4.96	1.98	4.72	2.13	3.62	2.88	2.68	1.52
July	2.99	1.37	2.40	1.07	1.06	1.07	2.36	1.47	1.02	.93
Aug.	.91	3.67	.94	2.51	1.57	1.86	2.44	2.02	3.07	2.56
Sept.	6.30	5.09	6.69	4.04	5.43	4.21	4.80	4.86	6.93	5.90
Oct.	.91	2.66	1.46	2.25	1.65	1.69	.59	2.13	0	1.88
Nov.	0	.70	0	.74	0	1.25	0	1.26	0	.69
Dec.	.08	.45	.04	.70	.08	.72	.08	.90	0	1.02
Yearly	22.26	23.23	21.65	19.19	23.21	19.56	19.83	23.60	17.60	20.86

Month	Bajo Río San Juan, Tamaulipas No. 2-29		♦ Cd. Díaz Ordaz, Tamaulipas		Reynosa Km. 22 SW, Tamaulipas		Bajo Río San Juan, Tamaulipas No. 2-38		Bajo Río San Juan, Tamaulipas No. 2-33	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	2.52	1.15	2.87	0.81	2.36	1.06	2.64	1.30	3.15	1.32
Feb.	.79	.93	.98	.87	.39	.63	.55	.84	.75	.87
Mar.	.08	.45	.20	.49	.39	.37	T	.40	0	.44
Apr.	.63	1.38	1.38	1.74	.98	1.05	.39	1.25	.43	1.37
May	3.62	4.11	4.76	2.34	3.62	3.11	3.15	4.06	4.29	3.62
June	2.28	2.32	4.45	1.98	4.33	2.73	4.09	3.23	4.53	3.09
July	1.30	.77	1.81	.82	1.30	1.15	1.10	.94	1.50	.78
Aug.	.94	2.58	1.57	2.02	1.38	2.21	2.09	3.11	2.28	2.91
Sept.	5.59	5.27	5.47	3.76	5.12	5.27	4.02	4.41	4.41	5.77
Oct.	.79	1.71	1.22	2.34	.39	2.02	.51	1.53	1.38	2.14
Nov.	0	1.29	.12	1.10	0	.93	.16	1.54	.79	1.44
Dec.	.08	.83	.08	.82	0	1.11	.20	1.03	.08	1.33
Yearly	18.62	22.79	24.91	19.09	20.26	21.64	18.90	23.64	23.59	25.08

Month	Argüelles, Tamaulipas		Presa Anzaldúas, Tamaulipas		Reynosa, Tamaulipas		Mendez, Tamaulipas		Bajo Río San Juan, Tamaulipas No. 3-55	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	3.54	1.26	1.30	0.67	2.32	1.00	0.51	0.93	3.23	1.75
Feb.	.79	1.05	.75	.43	1.10	.85	.35	.87	.79	1.25
Mar.	.20	.60	.04	.30	.08	.68	.59	.86	1.38	.79
Apr.	.79	1.01	.43	1.33	1.14	1.14	1.34	1.86	1.57	1.55
May	4.33	2.94	3.31	2.56	4.02	2.29	1.06	2.52	4.06	3.52
June	3.94	2.50	2.44	2.05	2.17	1.99	5.24	2.59	2.48	1.91
July	1.77	.74	2.60	.84	1.61	.96	3.39	1.09	3.86	1.92
Aug.	1.38	1.44	.79	1.57	3.03	1.55	5.35	3.25	.47	2.65
Sept.	5.20	4.84	4.41	3.54	6.46	3.23	7.87	4.58	8.19	4.40
Oct.	1.97	1.50	2.52	2.37	1.06	2.05	.83	2.31	1.85	3.53
Nov.	0	.99	.16	.80	.08	.99	T	.74	.12	.83
Dec.	0	1.33	0	.77	.16	.82	T	.46	.31	.90
Yearly	23.91	20.20	18.75	17.23	23.23	17.55	26.53	22.06	28.31	25.00

T Trace ♦ Formerly published as San Miguel de Camargo, Tamaulipas

RAINFALL ON THE RIO GRANDE WATERSHED
IN MEXICO
In Inches

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	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	2.36	1.57	2.87	1.43	2.91	1.70	4.17	1.61	3.27	1.03
Feb.	.98	1.13	.47	.99	.71	1.25	.35	1.45	.63	1.13
Mar.	.79	.61	.31	.44	.75	.67	.71	.59	1.02	.68
Apr.	1.10	1.34	1.57	1.69	1.77	1.47	3.58	1.35	1.97	1.48
May	1.77	3.28	2.05	3.02	3.03	4.33	1.57	2.47	2.83	2.37
June	2.28	1.73	2.13	2.00	2.95	2.64	2.64	2.16	1.54	2.31
July	2.13	1.89	2.83	1.30	3.03	1.59	3.31	1.42	4.76	1.54
Aug.	1.26	2.57	1.18	2.56	.31	2.48	.39	3.75	.75	2.37
Sept.	7.32	5.31	7.36	4.84	6.73	4.31	8.94	5.81	10.04	4.51
Oct.	1.54	3.41	1.26	3.26	1.50	2.40	3.03	2.18	2.44	2.51
Nov.	.31	1.38	.08	1.32	0	1.35	0	1.26	0	1.16
Dec.	.24	.93	.28	.82	.16	1.13	.24	.92	.20	.91
Yearly	22.08	25.15	22.39	23.67	23.85	25.32	28.93	24.97	29.45	22.00

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	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	2.48	0.93	3.19	1.56	2.64	1.80	2.83	1.55	3.54	1.77
Feb.	1.93	1.02	.20	1.29	.75	1.49	.24	.58	.24	1.40
Mar.	.16	.64	1.22	.86	.16	.77	.16	.46	.31	.77
Apr.	1.50	1.26	2.87	1.44	3.78	1.50	1.54	1.05	1.10	1.06
May	2.72	2.46	3.90	3.60	.91	2.58	3.27	3.66	3.58	3.90
June	1.14	2.11	2.95	3.14	4.21	3.15	1.42	2.06	1.26	2.50
July	1.54	.98	3.54	1.89	1.54	1.25	2.17	1.46	2.48	1.92
Aug.	2.48	2.32	.51	3.01	2.20	3.70	.55	1.81	.59	2.23
Sept.	4.92	2.86	5.79	3.61	12.64	5.88	4.49	3.66	6.81	4.75
Oct.	3.19	2.40	1.22	2.38	2.28	2.52	3.19	1.96	2.09	1.74
Nov.	0	1.28	0	1.31	0	2.00	.20	.99	.24	1.57
Dec.	T	.88	.08	1.06	.28	1.01	0	.95	.12	1.14
Yearly	22.06	19.14	25.47	25.15	31.39	27.65	20.06	20.19	22.36	24.75

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	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	3.46	1.74	3.74	2.13	2.72	1.67	2.95	1.04	3.19	1.31
Feb.	.55	1.53	.35	1.39	1.61	2.60	.55	1.29	.67	1.02
Mar.	.08	.94	.12	1.24	.24	1.15	.16	.54	.08	.64
Apr.	3.46	1.52	2.91	1.25	3.70	1.28	4.92	1.59	1.65	1.43
May	.79	2.85	4.92	3.35	1.73	2.22	5.31	2.61	1.77	2.71
June	1.18	1.64	2.09	2.00	1.65	1.90	3.07	2.73	2.52	2.73
July	2.01	1.94	2.95	1.43	3.03	1.26	3.23	1.50	3.94	1.31
Aug.	1.18	3.74	.24	2.89	1.89	2.75	1.18	1.77	1.69	2.78
Sept.	9.06	5.78	7.40	4.72	10.12	5.24	8.19	5.41	9.09	5.19
Oct.	2.95	2.42	2.28	2.02	4.65	1.99	2.72	2.27	4.49	2.42
Nov.	.04	2.54	0	1.66	0	1.71	0	1.60	T	1.25
Dec.	.08	.99	.08	1.27	.04	.87	0	.87	T	.93
Yearly	24.84	27.63	27.08	25.35	31.38	24.64	32.28	23.22	29.09	23.72

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	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	3.35	2.23	3.31	1.72	2.95	1.99	3.19	1.88	4.06	2.21
Feb.	.87	1.45	.63	1.17	.55	1.37	.55	1.40	.67	1.03
Mar.	0	.71	.12	.79	.24	.64	.24	.85	.43	.67
Apr.	2.52	1.23	3.03	1.24	1.93	.96	5.28	1.56	2.60	1.37
May	3.31	3.03	1.93	3.40	3.82	3.54	4.02	3.61	3.46	3.46
June	2.32	2.06	3.43	2.67	2.99	2.65	2.83	2.52	1.73	2.25
July	2.72	1.00	4.21	1.82	6.85	1.84	2.64	1.46	1.93	.70
Aug.	.16	2.53	1.30	2.99	2.32	3.09	1.26	3.59	1.85	2.53
Sept.	7.20	5.62	11.57	4.11	5.28	5.86	7.24	4.73	5.43	5.44
Oct.	3.43	1.92	4.49	2.82	2.91	2.58	2.95	2.15	4.84	2.40
Nov.	.12	1.62	.47	1.56	.08	1.48	.59	2.13	.28	1.19
Dec.	0	1.13	.08	1.17	0	.97	0	1.13	.20	1.16
Yearly	26.00	24.53	34.57	25.46	29.92	26.97	30.79	27.01	27.48	24.41

T Trace

RAINFALL ON THE RIO GRANDE WATERSHED
IN MEXICO
In Inches

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	
	1970	Average	1970	Average	1970	Average	1970	Average	1970	Average
Jan.	4.13	1.96	3.15	1.98	2.99	1.88	4.29	2.23	4.29	1.92
Feb.	.24	1.25	.24	1.27	.39	1.30	.31	1.35	.24	1.88
Mar.	.31	.46	.20	.55	.31	.77	.35	.53	.20	.57
Apr.	3.78	1.10	2.64	1.27	4.61	1.16	2.36	1.00	5.08	1.72
May	2.56	2.74	4.96	3.61	2.17	2.12	3.66	3.46	6.54	2.61
June	1.81	2.01	1.97	2.23	1.57	1.87	2.24	2.18	4.25	2.57
July	4.57	1.29	2.76	1.20	2.68	1.07	5.12	1.71	3.94	1.40
Aug.	1.57	2.59	1.54	2.39	.63	2.59	1.30	1.58	1.46	2.55
Sept.	9.96	3.78	6.10	5.03	6.61	5.12	4.72	4.67	9.57	6.27
Oct.	4.06	2.64	4.65	2.45	3.94	2.47	5.39	3.54	5.08	3.47
Nov.	.28	1.48	0	2.16	0	1.76	.20	1.45	.04	1.52
Dec.	.08	1.37	0	1.13	.04	1.03	.20	1.16	.31	1.69
Yearly	33.35	22.67	28.21	25.27	25.94	23.14	30.14	24.86	41.00	28.17

AVERAGE RAINFALL ON SUBDIVISIONS OF THE RIO GRANDE WATERSHED

With Averages for the 100 Years 1871 - 1970, 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 Rfo Conchos (3,022 Square Miles)		* Above Rfo Conchos to Johnson Ranch (3,815 Square Miles)		Johnson Ranch to Langtry (13,669 Square Miles)	
	1970	Period Average	1970	Period Average	1970	Period Average	1970	Period Average
Jan.	0.13	0.44	0.39	0.39	0.10	0.36	0.10	0.50
Feb.	.76	.38	.87	.26	1.20	.29	1.11	.38
Mar.	.67	.34	.86	.26	1.08	.20	.66	.42
Apr.	T	.27	.03	.35	.05	.40	.17	.82
May.	.12	.40	.08	.59	.65	.76	1.46	1.52
June	1.72	.82	2.04	1.21	2.70	1.11	2.93	1.75
July	2.18	2.31	1.26	3.02	1.54	1.83	.75	1.88
Aug.	2.35	1.95	3.62	2.42	1.17	1.84	1.79	2.11
Sept.	2.04	1.36	2.95	1.87	6.00	1.50	4.76	2.20
Oct.	1.25	.91	1.63	1.01	.89	.83	.50	1.20
Nov.	0	.44	0	.41	.01	.34	0	.60
Dec.	.02	.59	.03	.54	.07	.41	.06	.56
Total	11.24	10.21	13.76	12.33	15.46	9.87	14.29	13.94

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)	
	1970	Period Average	1970	Period Average	1970	Period Average	1970	Period Average
Jan.	0.19	0.72	0.40	0.52	0.28	0.69	0.74	0.76
Feb.	1.24	.89	.82	.64	1.22	.72	1.56	.92
Mar.	1.10	.79	.53	.78	.92	1.08	.71	1.02
Apr.	.72	1.90	.04	1.34	1.00	1.78	.06	1.70
May	1.26	1.79	1.72	1.96	2.35	2.58	2.98	2.94
June	2.32	2.50	2.68	2.23	1.39	2.69	1.41	2.44
July	.14	1.84	.38	1.18	.10	1.71	.14	1.82
Aug.	1.59	1.94	2.58	1.60	1.09	2.01	2.24	1.89
Sept.	4.12	2.34	6.33	2.35	3.87	2.93	7.50	3.15
Oct.	.76	1.80	.16	1.42	.57	2.17	.12	2.01
Nov.	0	.94	0	.76	T	1.56	T	1.04
Dec.	.02	.75	.03	.64	.02	1.02	.06	.88
Total	13.46	18.20	15.67	15.42	12.81	20.94	17.52	20.57

Month	⊖ Eagle Pass to Laredo (3,795 Square Miles)		ŏ Laredo to Falcon Dam (3,369 Square Miles)		† Falcon Dam to Rio Grande City (468 Square Miles)		United States Side below Rio Grande City (986 Square Miles)	
	1970	Period Average	1970	Period Average	1970	Period Average	1970	Period Average
Jan.	1.63	0.74	1.63	0.76	1.70	0.92	3.01	1.25
Feb.	1.27	.82	1.28	.78	1.43	.83	.80	1.08
Mar.	.10	.95	.24	.81	.23	.97	.46	1.06
Apr.	.12	1.62	.94	1.41	.57	1.21	1.29	1.35
May	2.98	3.14	3.66	3.22	3.05	2.46	5.10	2.84
June	1.19	2.34	1.81	1.84	3.18	2.05	3.69	2.45
July	1.57	1.43	1.13	2.08	1.39	1.88	2.22	1.70
Aug.	2.45	2.30	.96	1.82	1.07	2.16	1.74	2.26
Sept.	5.64	3.04	5.39	2.98	5.63	3.44	6.50	4.33
Oct.	.63	1.81	.60	1.56	1.09	1.93	2.48	2.51
Nov.	T	.99	0	1.58	0	.79	.04	1.39
Dec.	.02	1.01	.07	.84	.05	.68	.08	1.26
Total	17.60	20.19	17.71	19.68	19.39	19.32	27.41	23.48

* Excluding Rfo Conchos, Alamito, and Terlingua Creeks # Excluding Pecos and Devils Rivers
‡ Excluding Arroyo Las Vacas, San Felipe Creek, Pinto Creek, Rfo San Diego, and Rfo San Rodrigo
⊖ Excluding Rfo Escondido ŏ Excluding Rfo Salado above Old Cd. Guerrero T Trace
† Excluding Rfo Alamo and Rfo San Juan

INTERNATIONAL BOUNDARY & WATER COMMISSION
UNITED STATES & MEXICO

ISOHYETAL MAP FOR YEAR 1970

RIO GRANDE DRAINAGE BASIN

EL PASO, TEXAS TO THE GULF OF MEXICO

PRECIPITATION IN INCHES

LEGEND

- Stream Gaging Station
- Watershed Boundary
- Closed Basin

NOTE: Evaporation stations located at or near underlined names

SCALE

0 25 50 75 100 MILES

0 50 100 150 KILOMETERS

LOCATION MAP

UNITED STATES

MEXICO

PACIFIC OCEAN

GULF OF MEXICO

COLO. N. MEX. ARIZONA OKLA. TEXAS

LOCATION OF RAINFALL STATIONS ON THE RIO GRANDE WATERSHED

The precipitation records of stations listed below began on the date shown and extend through 1970. 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 the 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 Río 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.
Amistad Reservoir near Comstock	C	29° 33'	101° 13'	1,130	1970	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
Baker, A. A. Ranch	R	29° 44'	101° 09'	1,720	July 1962	Devils River	I. B. & W. C.
Bakers Crossing	S	29° 58'	101° 09'	1,520	#Apr. 1955	Devils River	James Baker
Bennett, Moody Ranch	S	30° 37'	104° 55'	3,175	July 1956	Fort Quitman - Above Río 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.
Black Gap Game Refuge	S	29° 34'	102° 57'	2,325	# 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
Buoy No. 11	C	29° 31'	101° 10'	‡‡	Dec. 1969	Langtry - Amistad Dam	I. B. & W. C.
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'	3,430	# 1960	Alamito Creek	C. L. Vasquez
Castolon	S	29° 08'	103° 31'	2,100	#Mar. 1953	Above Río 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.
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° 47'	101° 19'	1,320	Sept. 1967	Pecos River below Sheffield	I. B. & W. C.
Devils Lake	R	29° 34'	100° 59'	1,146	May 1939	Devils River	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° 48'	102° 54'	2,880	#Mar. 1952	Johnson Ranch - Langtry	Sam Cavness
Dryden	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
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

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 the United States

NAME OF STATION	TYPE GAGE	LATITUDE	LONGITUDE	ELEV. (FT.)	RECORD BEGAN	WATERSHED SUBDIVISION	OBSERVER
Evans Creek near Comstock	C	29° 32'	101° 06'	1,180	July 1969	Devils River	I. B. & W. C.
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° 52'	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	# 1850	Eagle Pass - Laredo	I. B. & W. C.
Fort Quitman	R	31° 06'	105° 36'	3,430	# 1937	Fort Quitman - Above Río 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'	100° 57'	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.
Hammond, Earl Ranch	S	29° 41'	103° 51'	3,700	Apr. 1963	Terlingua Creek	Earl Hammond
Hardgrave, E. W. Ranch	S	30° 18'	102° 09'	2,650	Apr. 1952	Johnson Ranch - Langtry	Jack Hardgrave
Harlow Ranch	C	29° 50'	101° 11'	1,695	Mar. 1969	Devils River	I. B. & W. C.
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° 27'	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° 23'	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° 59'	103° 34'	4,140	# 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° 03'	97° 50'	60	1952	Lower Rio Grande Valley	CCWCID #3
Lajitas	S	29° 16'	103° 48'	2,320	June 1967	Above Río 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° 14'	104° 43'	2,880	Mar. 1967	Fort Quitman - Above Río 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.
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.

S Standard C Cumulative V Visual R Recording # Some months or years missing
‡ Formerly Oberkampf Ranch ‡‡ Reservoir Surface

LOCATION OF RAINFALL STATIONS ON THE RIO GRANDE WATERSHED

In the United States

NAME OF STATION	TYPE GAGE	LATITUDE	LONGITUDE	ELEV. (FT.)	RECORD BEGAN	WATERSHED SUBDIVISION	OBSERVER
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'	5,050	# 1941	Alamito Creek	Hayes Mitchell
Longley Ranch	C	29° 30'	100° 57'	1,180	July 1969	Devils River	I. B. & W. C.
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
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° 46'	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.
Maverick Ranger Station	S	29° 18'	103° 30'	2,780	1955	Terlingua Creek	Park Ranger
McGonagill Ranch - East Mill	V	30° 21'	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
Middle Fork San Pedro	C	29° 30'	100° 53'	1,170	June 1969	Devils River	I. B. & W. C.
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
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
North Fork San Pedro	C	29° 31'	100° 53'	1,144	June 1969	Devils River	I. B. & W. C.
02 Ranch	S	29° 51'	103° 45'	3,780	# 1914	Terlingua Creek	Calvin 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
Pinto Creek Station	C	29° 09'	100° 43'	870	Dec. 1958	Below Amistad Dam - Eagle Pass	I. B. & W. C.
Potter, A. M. Ranch	S	29° 46'	103° 25'	3,440	1952	Johnson Ranch - Langtry	A. M. Potter
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° 25'	4,600	1949	Adjacent to Alamito Creek	George Jones
Ranchita (Continental)	S	29° 50'	101° 20'	1,540	1969	Pecos River	Julio Crowder
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.
Rough Canyon near Del Rio	C	29° 35'	100° 56'	1,147	June 1969	Devils River	I. B. & W. C.
San Benito Pump	S	26° 03'	97° 45'	50	Oct. 1953	Lower Rio Grande Valley	I. B. & W. C.
Sawyer, W. E. Ranch	S	30° 28'	100° 47'	2,100	June 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° 57'	104° 40'	2,680	# 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
Stewart Ranch	R	29° 35'	100° 52'	1,330	Feb. 1960	Devils River	I. B. & W. C.
Stillwell Crossing	S	29° 24'	102° 50'	1,750	# 1960	Johnson Ranch - Langtry	Ulice Adams
Stumberg, Steve Ranch	C	30° 11'	102° 53'	4,300	1943	Johnson Ranch - Langtry	Mrs. Steve Stumberg
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'	2,215	Mar. 1952	Above Río Conchos - Johnson Ranch	I. B. & W. C.

S Standard C Cumulative V Visual R Recording # Some months or years missing

LOCATION OF RAINFALL STATIONS ON THE RIO GRANDE WATERSHED

In the United States

NAME OF STATION	TYPE GAGE	LATITUDE	LONGITUDE	ELEV. (FT.)	RECORD BEGAN	WATERSHED SUBDIVISION	OBSERVER
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.
Walker Ranch	C	29° 49'	101° 14'	1,530	July 1969	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

S Standard R Recording 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
Amistad Reservoir near Tlaloc, Coahuila	C	29° 26'	101° 07'	1,200	1970	Langtry-Amistad Dam	I. B. & W. C.
Anáhuc, Nuevo León	S	27° 15'	100° 08'	656	#June 1933	Río Salado	Hydr. Resources
Aniego 166, Tamaulipas	C	26° 46'	99° 15'	308	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. Díáz 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
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° 57'	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
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

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
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
Ejido Progreso, Tamaulipas	C	27° 27'	99° 39'	†	1969	Laredo - Falcon Dam	I. B. & W. C.
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 Llano, Tamaulipas	S	27° 24'	99° 31'	†	Nov. 1968	Laredo - Falcon Dam	I. B. & W. C.
El Maguey, Chihuahua	S	27° 37'	106° 09'	4,380	July 1955	Río Conchos	Meteor. Service of Chihuahua
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 Ganaderia, 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
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.
Icamole, Nuevo León	S	25° 55'	100° 43'	4,900	# 1958	Río San Juan	Hydr. Resources
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 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
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 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.

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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
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
Loma Blanca, Chihuahua	S	31° 35'	106° 18'	3,650	1970	El Paso - Ft. Quitman	Hydr. Resources
Los Barriles, Chihuahua	S	30° 55'	105° 45'	4,860	July 1958	El Paso - Ft. Quitman	I. B. & W. C.
Los Herrera (La Tableta), Nuevo León	R	25° 54'	99° 24'	820	#Sept. 1939	Río San Juan	Hydr. Resources
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.
Maijoma, Chihuahua	S	28° 55'	104° 21'	4,270	Aug. 1955	Río Conchos	Meteor. Service of Chihuahua
Majalca, Chihuahua	S	28° 53'	106° 21'	6,860	June 1963	Río Conchos	Meteor. Service of Mexico
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
Muzquiz, Coahuila	S	27° 53'	101° 31'	1,650	# 1923	Río Salado	Meteor. Service of Mexico
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 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
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'	†	# 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
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.
Praxedis G. Guerrero, Chihuahua	S	31° 22'	106° 00'	3,560	1958	El Paso - Ft. Quitman	I. B. & W. C.
Presa Anzaldúas, Tamaulipas	V	26° 08'	98° 20'	105	Apr. 1960	Lower Rio Grande Valley	I. B. & W. C.
Presa Cabeceras, Coahuila	S	29° 02'	101° 05'	†	1964	Below Amistad Dam - Eagle Pass	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
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 Arizpe, Coahuila	S	25° 32'	100° 57'	4,590	#Apr. 1907	Río San Juan	Meteor. Service of Mexico
Rancho La Chuparrosa, Coahuila	R	29° 30'	101° 15'	1,150	1970	Langtry - Amistad Dam	I. B. & W. C.
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 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.
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 Rio Grande Valley	I. B. & W. C.
Reynosa, Tamaulipas	R	26° 06'	98° 17'	130	# 1941	Lower Rio Grande Valley	Hydr. Resources
Reynosa Km. 22, SW, Tamaulipas	C	26° 00'	98° 30'	†	# 1962	Lower Rio Grande Valley	I. B. & W. C.
Reynosa Km. 40, SW, Nuevo León	S	25° 56'	98° 39'	492	#Feb. 1959	Lower Rio 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 Rio 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, Coahuila	S	27° 51'	101° 07'	1,120	#May 1922	Río Salado	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
San Fernando, Coahuila	S	29° 25'	101° 43'	†	Aug. 1961	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 Lorenzo, Chihuahua	S	28° 10'	106° 29'	3,770	# 1961	Río Conchos	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
Siquírichic, 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'	1,640	#Aug. 1939	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

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
Vallecillo, Nuevo León	S	26° 40'	99° 59'	900	#June 1958	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

Some months or years missing S Standard † 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 133 through 136 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	
	1970	Average 1950-1970	1970	Average 1950-1970	1970	#Average 1956-1970	1970	#Average 1955-1970
Jan.	6.38	3.75	2.49	3.47	1.90	3.00	1.75	2.94
Feb.	5.31	5.21	3.47	5.07	3.29	3.62	3.11	3.55
Mar.	7.98	8.31	5.96	8.28	4.92	6.16	3.35	5.82
Apr.	9.56	10.17	9.47	10.60	6.24	7.23	4.79	6.65
May	11.08	12.25	10.23	12.20	8.65	8.58	6.31	7.79
June	11.82	13.22	10.69	12.73	8.33	10.47	7.97	10.30
July	12.48	12.52	11.05	12.88	9.65	11.68	10.20	12.02
Aug.	10.60	11.72	10.51	11.81	9.81	10.97	9.61	10.72
Sept.	8.63	9.93	7.69	9.47	8.05	7.72	7.72	7.86
Oct.	5.17	7.72	4.52	7.40	3.75	5.68	4.66	5.63
Nov.	4.32	4.93	3.68	4.76	4.49	3.95	4.52	3.87
Dec.	3.43	3.57	3.61	3.44	2.88	3.10	2.90	2.85
Total	96.76	103.30	83.37	102.11	71.96	82.16	66.89	80.00

Month	Amistad Dam		Eagle Pass		Falcon Dam				Brownsville	
					2-Foot Pan		4-Foot Pan			
	1970	Average March 1963-1970	1970	#Average 1964-1970	1970	#Average 1950-1970	1970	#Average 1956-1970	1970	#Average 1958-1970
Jan.	2.68	3.90	3.47	3.12	1.64	3.40	2.63	3.96	1.93	2.51
Feb.	3.76	4.42	2.78	3.24	3.82	4.41	4.60	5.25	5.21	3.33
Mar.	6.11	8.30	4.11	4.92	6.03	6.55	8.01	8.43	3.52	4.36
Apr.	7.91	9.98	5.62	6.51	7.77	7.88	10.42	10.58	6.37	5.59
May	12.18	11.03	6.50	6.43	7.98	9.55	10.66	12.50	5.12	5.59
June	11.83	13.72	9.11	10.27	9.09	11.03	13.23	13.80	5.55	6.16
July	14.40	16.92	8.90	11.83	10.01	13.21	13.65	16.41	6.07	7.07
Aug.	13.63	15.14	10.97	10.88	10.28	11.79	13.40	15.04	5.84	6.57
Sept.	10.15	10.20	11.84	7.20	7.35	8.21	10.45	10.29	4.89	4.87
Oct.	6.02	7.62	5.43	5.84	5.68	6.66	6.63	7.78	3.92	4.33
Nov.	5.40	4.97	4.10	3.63	5.50	4.81	6.47	5.55	3.15	3.66
Dec.	3.59	3.63	2.93	3.46	4.18	3.76	5.13	4.06	3.79	2.92
Total	97.66	109.83	75.76	77.33	79.33	91.26	105.28	113.65	55.36	56.96

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 137 through 147 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 40 published by the Mexican Section of this Commission.

Month	Ojinaga, Chihuahua		Cd. Acuña, Coahuila		Jiménez, Coahuila		Hidalgo, Coahuila	
	1970	#Average April 1954-1970	1970	#Average 1951-1970	1970	#Average 1951-1970	1970	Average Feb. 1951-1970
Jan.	4.06	3.63	2.76	3.47	2.80	3.39	3.43	4.07
Feb.	4.92	5.12	3.39	4.67	3.82	4.27	3.39	5.24
Mar.	8.27	8.50	5.63	7.80	6.30	6.63	5.43	8.00
Apr.	11.10	11.05	6.22	8.85	7.28	7.46	8.07	10.39
May	12.56	13.52	10.00	10.12	9.92	8.70	10.75	12.38
June	14.41	13.86	10.75	12.00	13.43	10.83	11.97	14.27
July	14.88	13.38	13.66	13.84	14.09	12.43	14.49	16.15
Aug.	12.40	11.64	12.36	12.55	11.97	11.14	14.09	14.75
Sept.	9.72	9.29	8.90	9.04	9.37	7.71	10.20	10.20
Oct.	6.26	7.34	5.20	6.29	6.14	5.28	7.05	7.52
Nov.	5.12	4.46	4.37	3.99	5.31	3.39	5.94	4.98
Dec.	3.66	3.27	3.27	3.16	3.66	2.82	3.58	3.93
Total	107.36	105.06	86.51	95.78	94.09	84.05	98.39	111.88

Month	Nuevo Laredo, Tamaulipas		Rancho San Juan de la Palma, Tamaulipas		Nueva Cd. Guerrero, Tamaulipas		Cd. Mier, Tamaulipas		Retamal, Tamaulipas	
	1970	Average Aug. 1964-1970	1970	#Average April 1955-1970	1970	#Average June 1954-1970	1970	#Average Oct. 1955-1970	1970	#Average 1951-1970
Jan.	2.87	3.97	2.72	3.73	2.32	3.51	2.87	3.60	2.17	3.92
Feb.	4.80	4.72	4.33	4.97	3.94	4.34	4.57	4.72	4.65	4.64
Mar.	7.76	7.77	6.30	7.51	7.01	7.22	7.87	7.66	4.65	6.45
Apr.	9.72	10.04	7.09	9.66	9.17	9.10	9.80	9.54	7.36	8.11
May	10.79	10.93	9.65	11.74	9.96	10.83	10.98	11.22	6.81	8.69
June	10.79	13.11	8.43	12.30	10.91	11.75	11.69	12.52	7.91	9.15
July	13.78	14.64	11.34	14.10	12.09	13.97	13.74	15.08	9.61	10.13
Aug.	13.46	13.42	11.85	13.60	11.85	12.81	13.19	13.69	7.95	9.83
Sept.	10.16	9.75	9.57	10.03	8.03	9.21	9.76	10.06	7.40	7.33
Oct.	6.89	7.47	7.32	7.56	6.26	6.94	6.97	7.74	5.28	6.05
Nov.	6.34	5.18	5.31	5.12	5.83	4.92	6.38	5.01	5.00	4.39
Dec.	4.37	4.03	6.18	3.80	4.57	3.59	4.92	3.81	4.17	3.72
Total	101.73	105.03	90.09	104.12	91.94	98.19	102.74	104.65	72.96	82.41

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 1970	Average March 1963-1970	1970 Max.	1970 Min.	Mean 1970	#Average 1964-1970	1970 Max.	1970 Min.	Mean 1970	Average July 1950-1970	1970 Max.	1970 Min.
Jan.	45.1	50.3	76	19	45.7	50.9	72	22	48.6	56.4	81	25
Feb.	53.1	52.3	80	27	55.1	53.5	80	30	57.5	60.4	85	33
Mar.	56.4	60.9	82	35	59.6	61.2	84	40	61.5	67.1	94	39
Apr.	69.1	72.3	92	42	73.2	73.4	98	46	74.6	75.9	103	51
May.	73.0	76.4	92	49	76.0	76.8	98	48	74.8	80.5	97	53
June	80.0	82.8	100	58	82.4	83.4	102	60	80.5	84.7	108	60
July	84.4	86.4	101	68	84.5	87.2	102	68	83.3	87.0	103	71
Aug.	83.9	85.1	98	69	84.5	85.7	100	70	85.0	86.6	105	69
Sept.	76.3	78.9	96	49	77.6	78.5	100	50	77.0	81.7	103	55
Oct.	64.9	69.4	86	40	66.4	69.0	88	36	65.5	73.8	93	44
Nov.	55.6	60.6	83	28	58.8	61.1	84	30	59.7	64.4	87	31
Dec.	55.7	51.8	75	35	59.5	54.6	80	38	63.8	58.2	88	40
Yearly	66.5	68.9	101	19	68.6	69.6	102	22	69.3	73.1	108	25

Temperature - Degrees Fahrenheit
In Mexico

Month	Cd. Juárez, Chihuahua				Ojinaga, Chihuahua				Cd. Acuña, Coahuila			
	Mean 1970	#Average July 1960-1970	1970 Max.	1970 Min.	Mean 1970	#Average April 1954-1970	1970 Max.	1970 Min.	Mean 1970	#Average April 1951-1970	1970 Max.	1970 Min.
Jan.	46.4	45.0	79	14	50.0	49.0	84	21	46.4	49.2	77	16
Feb.	50.0	49.6	75	23	55.4	53.7	84	25	53.6	54.6	82	23
Mar.	53.6	55.4	81	30	59.0	60.4	90	37	57.2	62.3	84	30
Apr.	60.8	64.2	86	34	69.8	70.8	93	36	69.8	72.3	102	39
May	68.0	73.9	99	36	93.2	79.8	102	48	73.4	78.5	95	39
June	80.6	80.6	108	55	84.2	85.1	108	59	82.4	85.1	108	54
July	84.2	83.2	106	64	86.0	85.7	108	66	86.0	87.9	104	68
Aug.	78.8	80.5	100	57	86.0	84.3	104	64	86.0	87.8	106	68
Sept.	73.4	75.0	100	46	80.6	79.6	104	46	78.8	81.9	100	46
Oct.	57.2	64.3	86	27	62.6	69.8	90	37	66.2	71.5	97	34
Nov.	51.8	52.4	81	23	57.2	57.8	84	27	55.4	59.0	86	23
Dec.	50.0	46.9	79	23	55.4	50.3	82	28	57.2	51.5	79	30
Yearly	62.9	64.2	108	14	70.0	68.9	108	21	67.7	70.1	108	16

Month	Chupadero, Coahuila				Jiménez, Coahuila				El Remolino, Coahuila			
	Mean 1970	#Average 1961-1970	1970 Max.	1970 Min.	Mean 1970	#Average March 1951-1970	1970 Max.	1970 Min.	Mean 1970	Average June 1958-1970	1970 Max.	1970 Min.
Jan.	42.8	48.9	70	16	48.2	51.7	73	30	57.2	55.6	95	27
Feb.	51.8	54.3	73	23	55.4	56.3	79	34	60.8	59.6	86	34
Mar.	55.4	62.2	81	34	57.2	62.4	82	36	64.4	66.3	100	34
Apr.	68.0	73.0	91	41	69.8	71.9	91	43	75.2	75.2	104	50
May	73.4	77.4	90	45	73.4	77.6	88	43	84.2	79.5	108	50
June	80.6	83.7	97	54	82.4	84.1	99	57	84.2	84.4	113	52
July	84.2	87.1	100	68	84.2	86.0	102	72	86.0	86.6	111	64
Aug.	84.2	85.5	97	68	86.0	85.9	97	59	86.0	86.2	111	61
Sept.	77.0	80.4	95	48	78.8	80.4	97	54	77.0	82.0	108	46
Oct.	64.4	70.5	86	32	68.0	71.6	86	37	73.4	73.4	100	43
Nov.	53.6	60.3	81	25	57.2	60.8	86	28	68.0	65.7	95	41
Dec.	55.4	52.0	79	32	59.0	53.8	81	36	64.4	58.6	97	25
Yearly	65.9	69.6	100	16	68.3	70.2	102	28	73.4	72.8	113	25

Some months missing

TEMPERATURE, HUMIDITY AND WIND

Temperature - Degrees Fahrenheit
In Mexico

Month	Piedras Negras, Coahuila				Rancho Mercedes, Coahuila				Nuevo Laredo, Tamps., C. I. L. A.			
	Mean 1970	#Average April 1951-1970	1970 Max.	1970 Min.	Mean 1970	#Average June 1959-1970	1970 Max.	1970 Min.	Mean 1970	Average August 1964-1970	1970 Max.	1970 Min.
Jan.	46.4	50.6	75	18	51.8	55.4	81	25	50.0	55.7	86	25
Feb.	55.4	55.2	81	25	57.2	58.5	82	39	59.0	57.5	88	30
Mar.	59.0	61.6	88	37	64.4	63.5	86	43	62.6	65.0	93	39
Apr.	71.6	71.5	97	43	75.2	71.5	100	43	77.0	77.6	104	46
May	73.4	77.2	97	43	77.0	76.1	100	50	77.0	80.6	97	46
June	82.4	84.1	102	55	77.0	82.7	102	54	84.2	85.1	106	63
July	86.0	86.8	104	70	80.6	85.7	102	55	86.0	88.1	104	70
Aug.	86.0	86.3	102	68	82.4	85.4	100	61	87.8	87.3	106	72
Sept.	78.8	80.0	102	48	75.2	81.3	99	48	80.6	82.9	104	50
Oct.	68.0	70.1	90	36	66.2	74.1	86	48	71.6	73.7	95	41
Nov.	57.2	58.7	86	25	60.8	65.3	82	28	62.6	66.5	91	30
Dec.	59.0	52.2	79	34	62.6	59.5	82	30	64.4	59.2	89	39
Yearly	68.6	69.5	104	18	69.2	71.6	102	25	71.9	73.3	106	25

Month	Nuevo Laredo, Tamps., M. S. of M.				Rancho San Juan de la Palma, Tamps.				El Treinta, Coahuila			
	Mean 1970	Average 1945-1970	1970 Max.	1970 Min.	Mean 1970	#Average April 1955-1970	1970 Max.	1970 Min.	Mean 1970	Average 1961-1970	1970 Max.	1970 Min.
Jan.	48.2	55.8	72	27	44.6	55.4	61	32	46.4	49.9	77	18
Feb.	59.0	60.5	81	30	50.0	59.7	61	41	53.6	54.9	86	27
Mar.	64.4	67.0	93	37	53.6	65.4	68	41	59.0	63.3	88	34
Apr.	77.0	75.3	100	48	66.2	75.4	77	48	84.2	74.8	108	39
May	77.0	80.7	97	55	68.0	80.5	77	48	73.4	77.7	99	45
June	84.2	84.8	100	61	82.4	85.7	106	64	80.6	82.2	108	54
July	86.0	88.0	100	73	86.0	88.8	102	68	82.4	84.6	104	64
Aug.	87.8	87.8	102	73	86.0	88.0	102	68	84.2	84.2	104	63
Sept.	80.6	81.9	104	54	78.8	82.9	100	55	77.0	78.6	99	46
Oct.	71.6	73.5	88	43	69.8	75.7	93	43	66.2	69.8	93	39
Nov.	60.8	64.4	84	30	62.6	66.2	86	32	57.2	60.4	88	23
Dec.	64.4	57.1	82	41	64.4	58.7	84	41	57.2	53.2	88	32
Yearly	71.8	73.1	104	27	67.7	73.5	106	32	68.4	69.5	108	18

Month	Sabinas Hidalgo, Nuevo León				Nueva Cd. Guerrero, Tamaulipas				Cd. Mier, Tamaulipas			
	Mean 1970	Average October 1961-1970	1970 Max.	1970 Min.	Mean 1970	Average 1958-1970	1970 Max.	1970 Min.	Mean 1970	#Average October 1955-1970	1970 Max.	1970 Min.
Jan.	51.8	56.2	88	28	51.8	53.9	77	28	50.0	54.6	82	25
Feb.	59.0	60.2	90	48	59.0	58.1	82	34	57.2	58.9	82	34
Mar.	64.4	65.2	93	37	60.8	65.1	93	41	62.6	65.8	93	37
Apr.	75.2	77.0	104	43	77.0	75.9	102	52	73.4	75.8	99	46
May	77.0	80.2	100	48	77.0	80.5	95	54	73.4	80.3	93	48
June	84.2	84.6	111	66	82.4	84.9	108	64	82.4	84.5	106	64
July	84.2	86.4	109	66	86.0	86.9	102	72	82.4	86.3	99	61
Aug.	86.0	86.0	108	64	87.8	86.6	104	70	86.0	86.3	102	64
Sept.	80.6	81.2	102	50	82.4	82.2	100	54	78.8	81.8	100	50
Oct.	71.6	74.3	97	50	73.4	74.1	95	45	68.0	74.0	88	39
Nov.	62.6	65.3	90	30	64.4	65.1	88	34	62.6	64.4	86	23
Dec.	64.4	59.9	86	36	66.2	57.5	90	43	64.4	58.2	91	36
Yearly	71.8	73.0	111	28	72.4	72.6	108	28	70.1	72.6	106	23

Month	Reynosa Km. 40, SW., Nuevo León				Retamal, Tamaulipas							
	Mean 1970	Average March 1959-1970	1970 Max.	1970 Min.	Mean 1970	#Average 1951-1970	1970 Max.	1970 Min.				
Jan.	59.0	58.8	91	18	53.6	60.2	86	27				
Feb.	68.0	63.0	95	41	60.8	63.0	82	30				
Mar.	68.0	67.7	95	36	66.2	69.1	99	41				
Apr.	78.8	76.0	104	54	75.2	77.1	97	48				
May	77.0	80.2	102	48	77.0	80.4	95	50				
June	80.6	83.0	104	55	82.4	84.3	99	61				
July	80.6	84.0	104	52	84.2	86.1	100	70				
Aug.	80.6	83.8	104	57	86.0	86.8	102	68				
Sept.	78.8	80.4	102	45	80.6	83.4	102	57				
Oct.	77.0	74.7	100	50	73.4	76.9	99	43				
Nov.	64.4	67.5	93	28	64.4	68.4	95	37				
Dec.	69.8	61.6	95	43	68.0	62.3	90	37				
Yearly	73.6	73.4	104	18	72.6	74.8	102	27				

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	
	1970	Average 1957-1970	1970	#Average March 1963-1970	1970	#Average December 1963-1970	1970	#Average July 1950-1970
Jan.	3.7	4.1	3.4	3.5	2.5	2.6	3.7	3.8
Feb.	4.5	4.9	3.4	4.1	2.5	3.3	4.0	4.6
Mar.	5.9	6.5	4.5	5.2	3.5	3.9	4.7	5.1
Apr.	6.2	6.4	4.4	4.8	3.1	3.7	4.7	5.7
May	6.2	7.0	4.7	5.0	2.8	3.6	4.8	5.9
June	6.6	7.5	4.8	5.5	3.2	4.0	5.5	6.2
July	6.1	7.0	4.4	5.2	2.8	3.8	4.7	6.5
Aug.	5.6	6.2	4.2	4.7	2.7	3.5	4.2	5.4
Sept.	6.0	5.3	4.6	4.0	3.0	2.9	4.8	4.2
Oct.	3.8	4.8	2.8	3.7	1.6	2.4	2.7	3.6
Nov.	4.0	4.1	3.1	3.2	1.6	2.2	3.8	4.0
Dec.	3.1	3.7	2.8	3.2	1.6	2.2	3.5	3.6
Yearly	5.1	5.6	3.9	4.3	2.6	3.2	4.3	4.9

Mean Relative Humidity-Percent
In the United States

Month	Amistad Dam, Texas		Eagle Pass, Texas		Falcon Dam, Texas	
	1970	Average March 1963-1970	1970	#Average 1964-1970	1970	Average July 1950-1970
Jan.	74.6	61.1	78.4	65.5	81.6	67.1
Feb.	67.2	60.9	66.4	63.7	68.1	65.0
Mar.	65.5	55.2	65.1	59.5	63.2	62.5
Apr.	59.9	59.0	62.9	62.9	62.8	62.8
May	58.5	63.7	63.4	69.5	63.7	65.4
June	64.6	60.0	65.2	63.6	63.7	64.5
July	55.4	54.4	58.4	59.4	61.2	60.3
Aug.	56.8	56.1	57.5	61.3	60.5	61.7
Sept.	69.6	65.2	66.9	71.3	71.4	66.4
Oct.	64.4	63.4	62.9	68.3	66.5	67.1
Nov.	49.8	61.2	56.5	67.2	54.5	67.2
Dec.	63.0	62.6	63.2	65.6	65.4	65.3
Yearly	62.4	60.2	63.9	64.8	65.2	64.6

Some months missing

DRAINAGE BASIN AND IRRIGATED AREAS
Along the Rio Grande and Tributaries – 1970

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 run-off to the Rio Grande. Such noncontributing 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 1970 are shown except that, in the United States below Falcon Dam, the figures shown represent acreages which were subject to irrigation in 1970 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 1970.

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	92,992	0	92,992
Above El Paso Gaging Station	29,267	0	29,267	92,992	0	92,992
El Paso Station to American Dam	4	0	4	14,057	0	14,057
Above American Dam	29,271	0	29,271	107,049	0	107,049
American Dam to Island Station	187	285	472	34,415	24,673	59,088
Above Island Gaging Station	29,458	285	29,743	141,464	24,673	166,137
Island Station to County Line Station	485	259	744	0	0	0
American Dam to County Line Station - Total	672	544	1,216	34,415	24,673	59,088
Above County Line Gaging Station	29,943	544	30,487	141,464	24,673	166,137
County Line Station to Fort Quitman Station	663	794	1,457	14,607	0	14,607
Above Fort Quitman Gaging Station	30,606	1,338	31,944	156,071	24,673	180,744
Fort Quitman Station to Above Presidio Station	1,621	1,401	3,022	1,367	339	1,706
Above Presidio Station above Rio Conchos	32,227	2,739	34,966	157,438	25,012	182,450
Rio Conchos Above Boquilla Dam	0	8,131	8,131	0	a) 5,832	5,832
Rio Conchos Above Granero Dam	0	22,992	22,992	0		
Rio Conchos - Total	0	26,404	26,404	0	363,967	363,967
Alamito Creek Above Gaging Station	1,504	0	1,504	0	0	0
Presidio Station Above Rio Conchos to Presidio Station below Rio Conchos - excluding above tributaries	367	98	465	3,861	452	4,313
Presidio Station Above Rio Conchos to Presidio Station below Rio Conchos - Total	1,871	26,502	28,373	3,861	364,419	368,280
Above Presidio Station below Rio Conchos	34,098	29,241	63,339	161,299	389,431	550,730
Terlingua Creek above Gaging Station	1,070	0	1,070	b) 2,400	0	2,400
Presidio Station below Rio Conchos to Johnson Ranch Station - excluding Terlingua Creek	1,093	2,258	3,351	1,035	1,621	2,656
Presidio Station below Rio Conchos to Johnson Ranch Station - Total	2,163	2,258	4,421	c) 3,435	1,621	5,056
Above Johnson Ranch Gaging Station	36,261	31,499	67,760	164,734	391,052	555,786
Johnson Ranch Station to Foster Ranch Station	6,412	6,570	12,982	d) 2,215	0	2,215
Above Foster Ranch Gaging Station	42,673	38,069	80,742	166,949	391,052	558,001
Foster Ranch Station to Langtry Station	182	505	687	0	0	0
Above Langtry Gaging Station	42,855	38,574	81,429	166,849	391,052	558,001
Pecos River above Girvin	29,562	0	29,562	0	0	0
Pecos River, Girvin to Station near Langtry	5,617	0	5,617	0	0	0
Pecos River above Station at Mouth (Discontinued)	35,308	0	35,308	0	0	0
Devils River above Pafford Crossing Station	3,961	0	3,961	0	0	0
Devils River above Station near Mouth (Discontinued)	4,305	0	4,305	0	0	0
Langtry Station to Amistad Dam excluding above tributaries	217	1,875	2,092	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 1,800 acres irrigated by spreader dams

DRAINAGE BASIN AND IRRIGATED AREAS

Along the Rio Grande and Tributaries – 1970

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	166,949	391,052	558,001
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	166,949	391,052	558,001
Below Amistad Dam Station to Del Rio Station	60	100	160	394	0	394
Above Del Rio Gaging Station	82,750	40,553	123,303	167,343	391,052	558,395
Arroyo Las Vacas above Gaging Station	0	350	350	0	598	598
San Felipe Creek above Gaging Station	46	0	46	1,950	0	1,950
Pinto Creek above Gaging Station	249	0	249	100	0	100
Río San Diego above Gaging Station	0	853	853	0	11,389	11,398
Río San Diego - Total	0	859	859	0	12,432	12,432
Del Rio Station to Below Maverick Dam Station near Quemado - excluding above tributaries	669	110	779	37,692	996	38,688
Del Rio Station to Below Maverick Dam Station near Quemado - Total	964	1,319	2,283	39,742	14,026	53,768
Above the Below Maverick Dam Gaging Station near Quemado	83,714	41,872	125,586	207,085	405,078	612,163
Río San Rodrigo near Mouth above Gaging Station	0	1,049	1,049	0	5,896	5,896
Río San Rodrigo - Total	0	1,049	1,049	0	5,896	5,896
Below Maverick Dam Station near Quemado to Maverick Power Plant - excluding Río San Rodrigo	287	114	401	930	0	930
Below Maverick Dam Station near Quemado to Maverick Power Plant - Total	287	1,163	1,450	930	5,896	6,826
Above Maverick Power Plant	84,001	43,035	127,036	208,015	410,974	618,989
Maverick Power Plant to Eagle Pass Station	244	32	276	45	131	176
Above Eagle Pass Gaging Station	84,245	43,067	127,312	208,060	411,105	619,165
Río Escondido above Gaging Station	0	1,459	1,459	0	10,235	10,235
Río Escondido - Total	0	1,471	1,471	0	10,235	10,235
Eagle Pass Station to San Antonio Crossing Station - excluding Río Escondido	237	206	443	250	212	462
Eagle Pass Station to San Antonio Crossing Station - Total	237	1,677	1,914	250	10,447	10,697
Above San Antonio Crossing Gaging Station	84,482	44,744	129,226	208,310	421,552	629,862
San Antonio Crossing Station to Palafox Station	629	1,683	2,312	1,100	1,238	2,338
Above Palafox Gaging Station	85,111	46,427	131,538	209,410	422,790	632,200
Palafox Station to Laredo Station	607	433	1,040	4,599	3,232	7,831
Above Laredo Gaging Station	85,718	46,860	132,578	214,009	426,022	640,031
Río Salado above Venustiano Carranza Dam	0	15,831	15,831	0	63,639	63,639
Río Salado above Las Tortillas Gaging Station	0	23,155	23,155	0	86,756	86,756
Río Salado above River Road Crossing	0	23,323	23,323	0	86,756	86,756
Laredo Station to Falcon Dam - excluding Río Salado	2,042	1,327	3,369	e) 7,780	2,948	10,728
Laredo Station to Falcon Dam - Total	2,042	24,650	26,692	7,780	89,704	97,484
Amistad Dam to Falcon Dam - excluding above tributaries	4,780	4,009	8,789	52,790	8,757	61,547
Above Falcon Dam	87,760	71,510	159,270	221,789	515,726	737,515
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	175,147	175,147
Río San Juan - Total	0	12,949	12,949	0	277,695	277,695
Falcon Dam to Ft. Ringgold Station - excluding above tributaries	222	246	468	9,216	16,107	25,323
Falcon Dam to Ft. Ringgold Station - Total	222	14,870	15,092	9,216	301,462	310,678
Above Fort Ringgold Gaging Station	87,982	86,380	174,362	231,005	817,188	1,048,193
Fort Ringgold Station to Anzaldúas Dam	952	798	1,750	186,579	449,499	636,078
Above Anzaldúas Dam	88,934	87,178	176,112	417,584	1,266,687	1,684,271
Anzaldúas Dam to Progreso Station	13	163	176	145,070	5,165	150,235
Above Progreso Gaging Station	88,947	87,341	176,288	562,654	1,271,852	1,834,506
Progreso Station to San Benito Station	7	9	16	313,447	2,656	316,103
Above San Benito Gaging Station	88,954	87,350	176,304	876,101	1,274,508	2,150,609
San Benito Station to Brownsville Station	14	15	29	116,807	1,992	118,799
Falcon Dam to Brownsville Station - excluding Río Alamo and Río San Juan	1,208	1,231	2,439	771,119	475,419	1,246,538
Above Brownsville Gaging Station	88,968	87,365	176,333	992,908	1,276,500	2,269,408

e) Includes 110 acres irrigated from small reservoirs

DRAINAGE BASIN AND IRRIGATED AREAS
Along the Rio Grande and Tributaries – 1970

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				6,272	74	6,346
Falcon Dam to Gulf of Mexico - excluding Río Alamo and Río San Juan				777,391	475,493	1,252,884
Amistad Dam to Gulf of Mexico - excluding above tributaries				830,181	484,250	1,314,431
Above Gulf of Mexico				999,180	1,276,574	2,275,754

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 1970 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 1970 — Annual and Period Summary

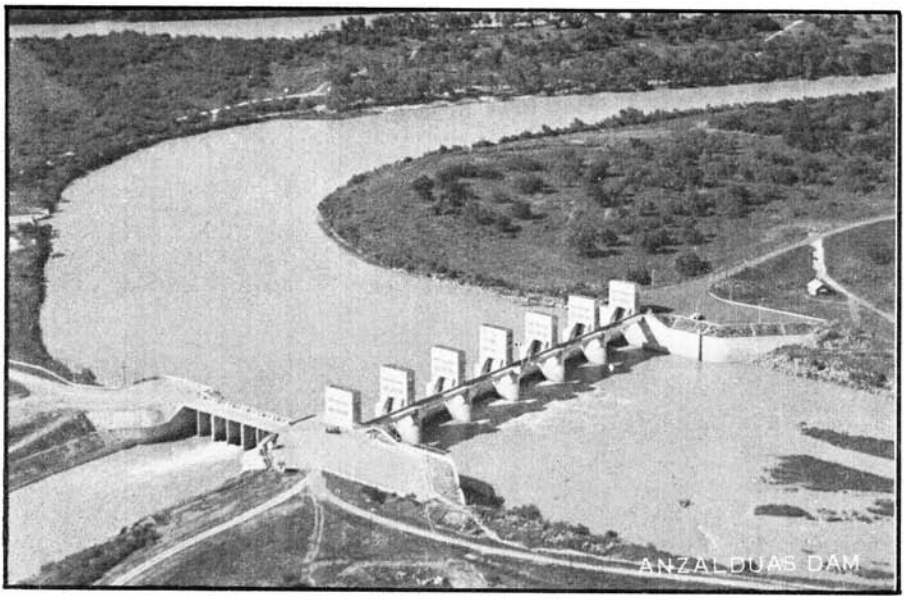
Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	318	1,760	6,960	809	43.8	11,500	4,800	699	1,070	8,330	1,160	1,540
2	2,810	2,020	7,450	1,660	21.9	3,960	4,340	579	328	5,300	996	1,530
3	1,430	689	8,330	52.3	98.2	4,340	4,270	696	306	5,620	289	1,210
4	2,900	1,660	7,200	399	141	4,700	4,060	780	593	5,510	351	1,120
5	2,590	2,130	5,580	837	190	3,670	4,560	1,060	1,060	2,930	326	1,080
6	155	1,390	9,640	780	224	3,920	3,470	2,210	929	3,090	367	1,510
7	132	1,580	6,390	1,100	180	4,840	4,340	2,710	1,760	1,880	703	530
8	1,760	1,890	2,470	144	285	5,050	3,250	1,940	989	2,980	692	1,280
9	1,780	1,580	3,230	320	195	4,560	3,670	1,650	653	1,670	1,190	1,000
10	1,070	766	4,410	2,550	194	4,130	3,880	1,950	1,530	1,190	1,200	1,090
11	1,330	1,060	2,550	915	696	4,450	3,350	586	939	2,600	1,470	968
12	1,560	614	487	837	643	3,350	4,380	1,850	1,890	1,490	844	181
13	2,030	858	222	968	1,340	3,470	3,470	745	1,490	777	337	523
14	1,560	939	74.5	1,560	943	3,420	4,200	675	1,350	1,070	417	996
15	2,000	1,090	185	1,760	2,280	3,740	5,120	925	1,820	2,140	713	904
16	2,290	230	961	932	1,430	3,780	4,870	749	2,450	1,330	268	759
17	1,710	328	1,470	484	2,640	3,600	1,450	1,030	2,160	1,040	1,250	569
18	2,910	1,260	745	327	2,190	3,040	1,390	381	2,220	1,050	403	664
19	456	1,130	526	1,540	1,510	2,300	1,700	1,210	1,910	311	1,440	833
20	1,080	1,150	498	639	441	3,850	1,120	413	869	692	833	1,340
21	3,090	3,710	169	1,300	1,240	5,050	1,600	342	569	802	886	1,130
22	1,310	7,380	202	904	837	4,030	1,120	1,620	1,010	1,220	1,720	1,220
23	1,680	8,300	434	1,790	1,410	4,770	791	1,290	4,100	1,700	289	1,250
24	1,230	7,350	270	720	3,990	6,500	650	911	2,740	1,080	116	932
25	2,260	6,500	1,130	186	1,680	5,400	1,470	855	3,170	1,500	600	784
26	1,380	6,220	632	236	3,400	5,580	1,270	971	11,900	1,460	533	91.5
27	1,250	6,670	487	501	4,030	5,260	360	95.3	6,040	830	759	292
28	2,090	6,570	1,140	262	5,650	2,350	438	484	14,200	699	929	512
29	2,160		752	554	5,970	3,710	558	1,120	16,100	572	855	572
30	618		657	114	7,310	4,660	710	1,430	9,150	371	879	699
31	936		341		8,970		678	494		371		1,080
Sum	49,875	76,824	75,592.5	25,180.3	60,172.9	132,980	81,335	32,450.3	95,295	61,605	22,815	28,189.5

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
				Current Year 1970					Period 1968-1970		
Jan.			21	3,090	7	132	1,610	98,933	100,036	124,065	77,110
Feb.			23	8,300	16	230	2,740	152,311	105,602	152,311	65,950
Mar.			6	9,640	14	74.5	2,440	149,942	100,256	149,942	53,064
Apr.			10	2,550	3	52.3	840	49,911	105,861	138,122	49,911
May			31	8,970	2	21.9	1,940	119,346	147,763	173,285	119,346
June			1	11,500	19	2,300	4,410	263,700	134,342	263,700	46,609
July			15	5,120	27	360	2,620	161,356	110,034	161,356	33,481
Aug.			7	2,710	27	95.3	1,050	64,413	102,873	155,225	64,413
Sept.			29	16,100	3	306	3,170	188,951	190,011	243,673	137,408
Oct.			1	8,330	19	311	1,990	122,189	163,844	218,205	122,189
Nov.			22.	1,720	24	116	759	45,260	79,000	102,912	45,260
Dec.			1	1,540	26	91.5	911	55,945	91,823	109,896	55,945
Yearly				16,100		21.9	2,030	1,472,257	1,431,445	1,542,007	1,280,067

Ø Mean daily

Flow of the Rio Grande and Related Data

1970



UNITED STATES OF AMERICA
DEPARTMENT OF STATE

INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO

WATER BULLETIN NUMBER 40

COVER PHOTOGRAPH

Anzalduas Diversion Dam was constructed jointly by the United States and Mexico under authority of the 1944 Water Treaty between the two countries. The specific purpose of the structure is to enable diversion of a portion of floodwaters in the Rio Grande into the United States floodway. It also serves incidentally to divert water into Mexico's Anzalduas Canal and for temporary channel storage of both countries' irrigation waters. Operation of the dam began in April 1960.