UNITED STATES OF AMERICA
DEPARTMENT OF STATE

INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO

WATER BULLETIN NUMBER 53

Flow of the Rio Grande and Related Data

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

1983

FLOW OF THE RIO GRANDE AND RELATED DATA 1983

INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO

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STORAGE IN MAJOR RESERVOIRS
SOURCES OF RIVER FLOW
DIVERSIONS
QUALITY OF WATER
CLIMATOLOGICAL DATA
DRAINAGE BASIN AND IRRIGATED AREAS

CONTENTS

Quantity of Water

CONTENTS

Quantity of Water

Quality of Water

Climatological Data and Drainage Basin and Irrigated Areas

Supplementary Data

Corrections to Previous Water Bulletins

FOREWORD

This bulletin presents the fifty-third 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 streamflow 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 information for the year 1983.

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 1983 the United States Section of the Commission operated the stream-gaging stations on the Rio Grande at El Paso, American Dam, Clint, Acala, Fort Quitman, Candelaria, Above Rio Conchos, Below Rio Conchos, Johnson Ranch, Foster Ranch, Del Rio, El Indio, Rio Grande City, San Benito, and Brownsville. The Mexican Section operated the stream-gaging stations on the Rio Grande at Below Amistad Dam, Jimenez, Piedras Negras, Villa Hidalgo, Laredo, and Below Anzalduas Dam. 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.

Beginning in 1976, the names of several gaging stations were changed, pursuant to agreement between the two Sections of the Commission. Where it was decided that some confusion might result from this change, a note giving the former name was added to the descriptive heading of the gaging station.

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 11,751,000 acre-feet, in addition to the International Amistad and Falcon Reservoirs, which have a combined conservation capacity of 6,051,000 acre-feet. In the Rio Grande Basin, a rounded total of 2,260,000 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 1954-1983, this flow has averaged 896,100 acre-feet per year.

The mean sea level datum, referred to as the U. S. C. & G. S. in the description of the stream-gaging stations, is the North American Vertical Datum of 1927.

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 National Weather Service of the U.S. Department of Commerce; the Texas Board of Health; the Texas Department of Water Resources; the Middle Rio Grande Conservancy District; the Red Bluff Water Power Control District; State of Colorado, Division of Water Resources; 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 El Paso Department of Water and Sewerage; the Maverick County Water Control and Improvement District No. 1; the Ministry of Agriculture and Hydraulic Resources 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 Cd. Acuna, Coahuila.

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, irrigation projects on the Rio Conchos and its tributaries in 1947, International Falcon Dam in 1953, and Amistad Dam and Luis L. Leon Dam in 1968.

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

The period of record used to determine the average diversions from the Rio Grande to the United States below Falcon Dam published herein was restricted to 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 total monthly flow in second-foot days. For this 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		0.39370	Inch
1 Meter		3.28084	Feet
1 Kilometer		0.62137	Mile
	AREAS		
1 Square Meter		10.76391	Square Feet
1 Hectare		2.47105	Acres
1 Square Kilometer		0.38610	Square Mile
	VOLUMES		
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		0.26417	U. S. Gallon
	WEIGHTS		
1 Kilogram		2.20462	Pounds
1 Metric Ton		2204.623	Pounds
1 Metric Ton		1.10231	Short Tons (2,000 lbs.)

Both English and metric units are used to report the figures in the descriptive headings and for the yearly figures of the annual and period summaries of all gaging station pages. The yearly figures for the summaries are obtained by direct conversion from English to metric system of units, except for those stations operated by the Mexican Section, where the figures furnished in the metric system of units are used.

GENERAL HYDROLOGIC CONDITIONS FOR 1983

Along and Adjacent to the International Portion of the Rio Grande

During the year 1983, temperatures were about average on the watershed of the Rio Grande below El Paso, Texas. Evaporation was 98% of average. Precipitation was 82% of average from El Paso to Amistad Dam, 63% of average from Amistad Dam to Falcon Dam, 104% of average from Falcon Dam to Rio Grande City, and 116% of average in the Lower Rio Grande Valley on the United States side.

The yearly volume of flow of the Rio Grande was below average from El Paso to the Gulf of Mexico. In the reach between El Paso and the confluence of the Rio Conchos, the flow was 75% of average, ranging from 92% of average at El Paso to 30% at Acala; in the reach between the confluence of the Rio Conchos and Amistad Reservoir, where flows were partly regulated by releases from Luis L. Leon Reservoir (El Granero) on the Rio Conchos, the flow was 51% of average; and in the reach between Amistad Dam to Falcon Reservoir, where flows were partly regulated by releases from Amistad Reservoir, the flow was 82% of average. Flows passing Rio Grande stations below Falcon Dam were partly regulated by releases from Falcon Reservoir. Such releases in 1983 amounted to 2,293,710 acre-feet, or 95% of the average for the thirty years of operation, 1954 to 1983. The volume of flow wasted to the Gulf of Mexico was 284,883 acre-feet, which is 32% of the average for this thirty-year period.

The total annual flow of all measured tributaries below Fort Quitman was 46% of average. The total flow of these tributaries in the United States was 415,872 acre-feet, or 60% of average. For Mexico, the measured tributary flow, excluding Rio Alamo and Rio San Juan, was 572,778 acre-feet, or 45% of average. The flows of the Rio Alamo and Rio San Juan were 64% and 20% of their respective averages.

Return flow to the Rio Grande at Maverick Power Plant near Eagle Pass was 776,510 acre-feet, or 126% of the sixteen-year average. Return flow to the Rio Grande through various drains in the Maverick County Irrigation District, excluding storm inflow, amounted to 93,395 acre-feet, or 68% of the sixteen-year average.

There were no floods of consequence on the Rio Grande in 1983. The highest peak flows recorded on the Rio Grande were, above Falcon Dam, 45,200 second-feet at near Jimenez; and, below Falcon Dam, 23,900 second-feet at Rio Grande City.

For all reservoirs in the Rio Grande basin having a capacity greater than 15,000 acre-feet, excepting Amistad and Falcon International Reservoirs, the average amount of water in storage in 1983 was 5,368,100 acre-feet, or 118% of the average 4,561,900 acre-feet. In the United States, stored water in these reservoirs was 150% of average, while in Mexico it was 103% of average.

In International Amistad Reservoir there was a net decrease in storage during the year of 409,200 acre-feet. Storage ranged from a high of 3,094,600 acre-feet on January 14 to a low of 2,554,700 acre-feet on October 3 and other days and averaged 2,832,900 acre-feet during the year, or 93% of the average for the period 1969 through 1983. In International Falcon Reservoir, there was a net decrease in storage during the year of 785,400 acre-feet. The storage varied from a high of 2,020,300 acre-feet on January 1 to a low of 946,700 acre-feet on May 27 and averaged 1,365,600 acre-feet during the year, or 67% of the average for the thirty years of operation, 1954 through 1983.

Diversions from the Rio Grande in the United States were 110% of average. Diversions into the American Canal were 97% of average, into the Maverick Canal, 114% of average and in the United States below Falcon Dam, 111% of the average for the twenty-seven years, 1957-1983. In Mexico, diversions were 129% of average. Diversions into the Acequia Madre were 126% of average, while diversions through the Anzalduas Canal for irrigation in Mexico were 129% of the thirty-year average.

In 1983, the total reported irrigated acreage from the Rio Grande and its tributaries below El Paso, Texas showed a decrease of 1% from the previous year. On the United States side, there was an increase of about 6% above Falcon Dam and no change below Falcon Dam, for an overall average increase of 1%. On the Mexican side, there was a decrease of 5% above Falcon Dam and no change below Falcon Dam, for an overall average decrease of 2%.

In 1983, investigation of the quality of Rio Grande water extended from El Paso to Brownsville. The annual tonnage of salts carried by the river at Laredo above Falcon Reservoir was 78% of the 1968-1983 average; and at the station below Anzaduas Dam, 68% of the 1959-1983 average. The volume of suspended silt transported by the Rio Grande in 1983 was 28% of the 1968-1983 average at Laredo above Falcon Reservoir, and 96% of the 1955-1983 average at Brownsville.

RIO GRANDE BELOW ELEPHANT BUTTE DAM, NEW MEXICO

DESCRIPTION: Concrete wall control, bubbler gage, and water-stage recorder located on the left bank 100 feet (30.5 m) upstream from the cableway at latitude 33°08'45", longitude 107°12'20", and river mile 1,389.1 (2,235.5 km); 0.7 river mile (1.1 km) downstream from Elephant Butte Dam, 1.5 river miles (2.4 km) upstream from Cuchillo Negro River, and 135.1 river miles (217.4 km) upstream from the American Dam at El Paso, Texas. The zero of the gage is 4,242.09 feet (1,292.99 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 30 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 1983.

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 (Cubic Meters per Second)

Daily:	Max.	8,220 (233)	May 22, 1942	Min.	0	Occasionally
Monthly:	Max.	7,600 (215)	May 1942	Min.	1.2 (0.03)	Nov. 1971
Yearly:	Max.	2,510 (71.1)	1942	Min.	253 (7.16)	1964

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	18.0	645	* 22.0	2,150 *	2,200	1,450 *	1,350	1,300	963 *	1.0	* 13.0	12.0
2	18.0	647	* 20.0	2,170	2,210	1,430	1,350	1,300	975	9.5	13.0	12.0
3	608 *	653	18.0	2,140	2,190	1,410	1,350	1,290 *	973	2.6	16.0	12.0
4	625	653	21.0	2,160	2,130 *	1,400	1,350	1,330	976	.4	23.0	13.0
5	624	43.0	18.0	2,180	1,790 *	1,400	1,360	1,330	972	.1	19.0	* 13.0
6	630	23.0	17.0	2,190	2,060	1,390	1,360	1,340	971	.1	1,030	13.0
7	634	626	16.0	2,180	2,060	1,380	1,370	1,350	977	* .1	18.0	14.0
8	42.0	647	15.0	2,160	2,080	1,370	1,400	1,340	1,240	.1	10.0	14.0
9	20.0	649	15.0	2,170	2,070	1,370	1,520	1,340	1,310	.1	9.3	13.0
10	617	649	17.0	2,180	2,090	1,370	1,470	1,250	1,270	.1	9.3	12.0
11	636	649	18.0	2,180 *	2,090	1,360	1,120	1,260	1,270	.1	9.3	12.0
12	633	38.0	18.0	2,180	2,110	1,360	1,250	1,280	1,300	.1	10.0	16.0
13	636	25.0	18.0	2,020	2,100	1,350	1,250	1,300	1,280	.3	11.0	21.0
14	637 *	640	10.0	2,190	2,120	1,340	1,300 *	1,330	820	.8	11.0	26.0
15	48.0	1,900	* 4.7	2,190	2,130	1,330 *	1,300 *	1,340 *	811	.1	16.0	26.0
16	23.0	1,920	6.8	2,190	2,130 *	1,330	1,340	1,350	816	.1	* 16.0	* 24.0
17	618	1,950	18.0	2,190	2,140	1,340	1,320	1,350	824	3.2	13.0	23.0
18	649	1,950 *	18.0	2,150 *	2,140	1,340	1,310	1,370	827	16.0	13.0	23.0
19	646	1,950	18.0	2,130	2,150	1,340	1,320	1,360	* 33.0	15.0	13.0	23.0
20	649	1,960	18.0	2,130	2,150	1,350	1,310	1,370	5.4	14.0	13.0	6.1
21	653	1,960	18.0	2,130	2,160	1,340	1,300	1,360	2.5	13.0	8.7	4.5
22	47.0	1,960	17.0	2,140	2,140	1,350	1,280	1,330	1.4	12.0	2.7	4.3
23	23.0	1,950	18.0	2,150	2,160	1,350	1,290	1,490	.8	11.0	11.0	12.0
24	619	1,960	17.0	2,150	1,980	1,350	1,280	1,400	1.3	11.0	11.0	20.0
25	647	1,970	16.0	2,160	2,180	1,350	1,300	1,390	1.0	10.0	12.0	20.0
26	648	1,980	16.0	2,160	2,190	1,350	1,300	1,390	.2	11.0	12.0	21.0
27	649	1,990	16.0	1,830	2,190	1,350	1,280	1,360	.5	11.0	12.0	20.0
28	655	1,980	16.0	2,200	2,200	1,350	1,300	1,350	.4	11.0	12.0	21.0
29	48.0		16.0	2,170 *	2,200	1,350	1,300	1,350	.6	12.0	12.0	22.0
30	24.0		21.0	2,190	2,200	1,350 *	1,290	946	.8	12.0	12.0	22.0
31	621 *		* 18.0		2,170		1,310	969		12.0		22.0
Sum	33,967.0		64,510		40,900		40,815			189.8		516.9
	13,645.0		515.5		65,910		40,930		18,622.9		1,391.3	

Current Year 1983 — Period 1938-1983

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.			28	655	! 1	18.0	440	27,064	24,294	86,500	200
Feb.			27	1,990	6	23.0	1,210	67,373	37,080	88,861	188
Mar.			1	22.0	15	4.7	16.6	1,022	65,304	128,925	1,022
Apr.			28	2,200	27	1,830	2,150	127,954	79,476	162,000	11,207
May			2	2,210	5	1,790	2,130	130,731	83,247	467,000	512
June			1	1,450	! 15	1,330	1,360	81,124	92,330	363,000	16,913
July			9	1,520	11	1,120	1,320	81,183	92,025	211,000	41,352
Aug.			23	1,490	30	946	1,320	80,955	74,145	134,000	9,530
Sept.			9	1,310	26	.2	621	36,938	31,647	129,000	163
Oct.			18	16.0	! 5	.1	6.1	376	14,920	72,100	166
Nov.			6	1,030	22	2.7	46.4	2,760	15,917	158,000	74.2
Dec.			! 14	26.0	22	4.3	16.7	1,025	20,651	87,300	179
Yearly				2,210		0.1	882	638,505	631,036	1,818,800	183,415
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
				62.6		0	25.0	787,596	778,383	2,243,490	226,242

* 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 1,360.8 (2,190.0); 0.8 river mile (1.3 km) downstream from Caballo Dam, about 3 miles (5 km) northeast of Arrey, New Mexico, 5 miles (8.0 km) south of Caballo, New Mexico, and 106.8 river miles (171.9 km) upstream from the American Dam at El Paso, Texas. The zero of the gage is 4,140.90 feet (1,262.15 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 68 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 1983.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station. In addition to the outflow from Caballo Dam listed below, 1,225 acre-feet (1,511,000 m^3) of water were diverted in 1983 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 (2.4 km) 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 (Cubic Meters per Second)

Daily:	Max.	7,650 (217)	May 20, 1942	Min.	0.1 (0.003)	Several days 1954, 1955 and 1972
Monthly:	Max.	6,710 (190)	May 1942	Min.	0.1 (0.003)	Nov. & Dec. 1955
Yearly:	Max.	2,480 (70.2)	1942	Min.	284 (8.04)	1964

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1.2	1.5	897	1,340 *	1,200	1,800	1,970	1,630	1,940	281	1.2	1.4
2	1.2	1.5	894	1,320	1,240	1,790	2,020	1,770 *	1,610 *	281	1.1	1.4
3	* 1.1	232 *	894	1,330	1,220 *	1,660 *	1,910	1,910	1,430	97.0	* 1.0	1.3
4	1.1	410	834	1,320	1,420	1,570	1,850	1,920	1,430	2.3	1.0	1.3
5	1.1	363	811	1,290	1,430	1,570	2,000 *	1,860 *	1,430	2.3	1.1	* 1.2
6	1.2	360	776 *	950	1,350	1,560	2,170	1,800	1,540 *	* 2.3	1.1	1.2
7	1.2	360 *	1,030 *	700	1,280 *	1,600	2,220	1,800	1,660	2.3	1.2	1.2
8	1.2	352	1,290 *	345 *	1,290	1,610	2,040 *	1,790	1,570	2.3	1.2	1.2
9	1.2	344	1,310	117	1,290	1,520	1,870	2,020	1,420 *	2.2	1.3	1.2
10	1.2	344	1,300	117	1,490 *	1,440 *	1,860	2,110	1,370	2.2	1.3	1.3
11	1.2	208 *	1,470 *	117	1,660	1,450	1,840	1,970	1,320	2.2	1.4	1.3
12	1.3	4.0	1,660	554 *	1,570	1,460	1,880 *	1,600 *	1,230	2.2	1.4	* 1.3
13	1.3	2.5	1,690	906 *	1,540 *	1,450	1,770	1,620	1,080 *	2.2	1.5	1.3
14	1.3	2.2	1,690	945	1,540	1,600 *	1,740	1,610	1,050	2.1	1.5	1.3
15	1.3	2.2	1,670	1,310 *	1,550	1,790 *	1,740 *	1,610	1,050	2.1	1.6	1.3
16	1.3	2.2	1,660	1,660	1,550	1,760	1,730	1,600	924	2.1	1.6	1.3
17	1.3	2.2	1,680	1,670	1,480	1,720 *	1,730	1,580	814	2.1	1.7	1.3
18	1.3	2.2	1,490 *	1,680	1,450 *	1,700	1,730	1,600	847	2.0	1.7	1.3
19	1.4	2.2	1,340	1,470 *	1,450	1,730	1,900 *	1,570 *	855	2.0	1.8	1.2
20	1.4	2.2	1,440	1,440	1,510 *	1,720	2,040	1,550	912 *	2.0	1.8	1.2
21	1.4	2.2	1,430 *	1,440	1,580	1,930 *	2,140	1,550	1,110	2.0	1.8	1.2
22	1.4	2.2	1,600 *	1,350 *	1,570	2,180	2,130 *	1,540	1,190	1.9	* 1.9	1.2
23	1.4	* 2.2	1,710	1,260	1,570	2,150	2,030	1,880	1,390	1.9	1.8	1.2
24	1.5	2.2	1,700	1,270	1,540	2,060	1,950	2,120	1,580	1.9	1.8	1.2
25	1.5	439 *	1,650	1,280	1,560	1,850	1,840	1,950	1,440	* 1.9	1.7	1.2
26	* 1.5	901	1,550 *	1,460	1,540	1,820	1,870	1,620 *	1,100	1.8	1.7	1.2
27	1.5	901	1,450 *	1,590 *	1,460 *	1,810 *	1,880	1,490	731	1.7	1.6	1.2
28	1.5	901	1,440	1,590	1,340	1,800	2,070	1,500	114	1.6	1.6	1.2
29	1.5		1,420 *	1,140 *	1,330	1,800	1,800 *	1,500	* 59.0	1.5	1.5	1.2
30	1.5		1,420	770	1,290 *	1,910	1,610	1,700 *	148 *	1.4	1.5	1.2
31	1.5		1,420		1,530 *		1,610	1,850		1.3		1.2
Sum	41.0	6,148.7	42,616	33,731	44,820	51,810	58,940	53,620	34,344.0	714.8	44.4	38.7

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 1983						**Period 1938-1983**		
Jan.			!24	1.5	! 3	1.1	1.3	81.3	1,219	21,032	19.2
Feb.			!26	901	! 1	1.5	220	12,196	7,989	64,300	11.7
Mar.			23	1,710	6	776	1,370	84,528	83,556	135,000	24,900
Apr.			18	1,680	! 9	117	1,120	66,904	78,421	212,000	25,470
May			11	1,660	1	1,200	1,450	88,899	74,454	412,000	75.2
June			22	2,180	10	1,440	1,730	102,764	103,117	354,000	25,289
July			7	2,220	!30	1,610	1,900	116,906	109,168	234,000	28,200
Aug.			24	2,120	27	1,490	1,730	106,354	104,383	179,000	20,500
Sept.			1	1,940	29	59.0	1,140	68,120	47,930	181,000	6,757
Oct.			! 1	281	31	1.3	23.1	1,418	3,699	35,400	15.5
Nov.			22	1.9	! 3	1.0	1.5	88.1	1,972	14,400	7.0
Dec.			! 1	1.4	! 5	1.2	1.2	76.8	2,044	19,100	6.0
Yearly				2,220		1.0	896	648,335.2	617,952	1,795,670	206,084.6
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
				62.9		0.03	25.4	799,721	762,244	2,214,959	254,205

* 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 1,255.7 (2,020.8 km); 5.5 river miles (8.9 km) upstream from the Paso del Norte Bridge between El Paso, Texas and Cd. Juarez, Chihuahua and 1.7 miles (2.7 km) upstream from the American Dam at El Paso, Texas. The zero of the gage is 3,722.30 feet (1,134.56 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Mean daily discharges in 1983 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 1983.

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

EXTREME FLOWS FROM RECORDS: Momentary: Max. 24,000 second-feet (680 m^3/sec) 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 (382 m^3/sec) on September 3, 1925.

Average Flow in Second-Feet (Cubic Meters per Second)

Daily:	Max. 23,680 (671)	June 12, 1905	Min. 0	Occasionally
Monthly:	Max. 14,300 (405)	June 1905	Min. 0	Occasionally
Yearly:	Max. 2,780 (78.7)	1905	Min. 70.1 (1.99)	1902

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	102	87.9	559	574	613	523	644	882	740	560	161	94.2
2	114	88.4	636	609	374	471	754	853	837	556	157	96.1
3	112	82.6	642	585	422	584	838	848	828	570	154	98.2
4	119	96.1	672	550	668	607	913	853	810	584	264	96.4
5	114	101	697	522	554	593	833	911	717	541	210	91.2
6	94.0	101	663	679	622	583	813	899	699	378	199	88.1
7	97.5	257	628	923	630	610	832	887	668	315	374	86.5
8	102	325	607	608	608	634	892	808	641	308	194	85.0
9	94.9	330	574	432	610	634	945	811	619	299	174	86.8
10	88.5	328	572	477	635	637	928	788	708	307	153	85.3
11	59.2	341	431	333	576	626	825	866	778	300	136	83.9
12	66.7	331	414	248	592	603	868	995	687	261	136	80.9
13	69.8	319	464	222	730	619	868	1,030	774	251	127	81.0
14	69.5	266	663	219	689	632	861	905	678	257	126	79.7
15	70.1	172	759	210	630	631	858	926	572	240	123	72.5
16	71.1	137	644	213	612	612	833	914	570	228	132	78.5
17	72.0	124	590	316	671	670	870	889	541	218	126	77.1
18	76.8	108	499	648	671	681	850	849	520	215	111	78.7
19	77.9	101	495	721	648	705	877	838	388	248	108	77.4
20	80.6	93.5	510	666	559	703	851	873	362	242	107	77.5
21	82.3	89.2	431	615	566	694	861	846	364	221	107	77.7
22	83.4	87.4	509	519	582	706	832	779	325	194	109	79.3
23	84.3	84.9	520	522	621	709	887	822	357	202	101	73.6
24	84.5	84.0	508	548	651	732	960	796	420	188	95.0	72.4
25	85.3	83.8	563	530	657	781	1,010	887	609	170	96.2	73.9
26	82.1	83.7	540	527	629	813	992	1,090	698	168	97.3	71.3
27	82.8	79.7	551	547	598	805	982	1,040	642	172	93.2	67.4
28	82.5	250	526	592	597	762	1,010	934	570	177	91.0	71.5
29	82.0		439	683	613	695	853	826	796	170	93.8	72.9
30	85.3		450	667	578	679	978	768	808	166	91.3	74.9
31	88.3		483		581		939	767		165		78.8
Sum	2,674.4	4,632.2	17,239	15,505	18,787	19,734	27,257	27,180	18,726	8,871	4,246.8	2,508.7

Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
			High		Low						
	High	Low	Day		Day				Average	Maximum	Minimum
	Current Year 1983								Period 1938-1983		
Jan.	2.05	1.88	4	119	11	59.2	86.3	5,305	6,135	15,594	220
Feb.	3.28	1.90	11	341	3	66.7	165	9,188	7,199	52,200	136
Mar.	4.07	3.13	15	795	1	252	556	34,193	33,766	62,500	1,790
Apr.	4.59	2.82	7	1,020	16	194	517	30,754	40,230	139,000	6,820
May	4.07	3.10	13	746	2	310	606	37,263	42,974	357,000	522
June	4.58	3.50	26	936	2	454	658	39,142	51,217	304,000	6,020
July	4.70	3.77	26	1,170	1	526	879	54,063	57,238	198,000	9,652
Aug.	5.10	4.00	26	1,210	24	739	877	53,911	55,954	158,000	4,870
Sept.	4.57	3.02	30	960	22	309	624	37,142	37,878	171,000	2,430
Oct.	3.77	2.62	5	666	31	164	286	17,595	13,479	57,900	151
Nov.	3.22	2.30	7	448	29	87.0	142	8,423	8,063	21,300	229
Dec.	2.35	2.12	3	100	27	64.8	80.9	4,976	7,555	25,600	206
Yearly	5.10	1.88		1,210		59.2	459	331,955	361,688	1,559,200	57,481
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
	1.55	0.57		34.3		1.68	13.0	409,466	446,142	1,923,273	70,903

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°31'35", and about 2,400 feet (700 m) downstream from the headgates of the American Dam, which are located at river mile 1,254.0 (2,018.0 km). The zero of the gage is 3,712.09 feet (1,131.45 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 16 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 1983.

REMARKS: This canal diverts water from the Rio Grande at the American Dam at El Paso, Texas, 2.1 river miles (3.4 km) upstream from the International Dam at Cd. Juarez, Chihuahua. Water from this canal discharges into the Franklin Canal from which water is frequently returned to the Rio Grande at spillways 2.2 (3.5), 2.7 (4.3), and 3.6 (5.8) river miles (km) 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 (52.1 m^3/sec) on March 27, 1944. Min. frequently no flow.

Average Flow in Second-Feet (Cubic Meters per Second)

Daily:	Max. 1,510 (42.8)	Aug. 13, 1945	Min. 0	Frequently
Monthly:	Max. 1,210 (34.3)	Aug. 1943	Min. 0	Frequently since 1952
Yearly:	Max. 748 (21.2)	1943	Min. 65.6 (1.86)	1956

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	92.0	75.5	552	388	484	347 *	470 *	704 *	605 *	553	5.1	* 0
2	104	76.2	629	422	261	298	574	677	723	548	* 5.0	0
3	102	70.6	636 *	409	303	411	656	676	714	563 *	4.7	0
4	109	* 84.3	666	368 *	546	430	727	681	696	576	5.0	0
5	104	89.3	693	341	438	415	651	733	603	536	4.1	0
6	83.6	89.4	658	485	503 *	406	632	721	585	375	3.3	0
7	87.0	246	621	747	508	429	668	707	553	315	4.5	0
8	91.8	314	601	455	486	459	714	627	528	308	4.5	0
9	84.2	319	567	273	491	462	764	627	506	299	3.6	0
10	77.8	317	565 *	307	516	472	746	604	629	307	3.3	0
11	48.4	331	426	161	461	458	647	674	773	300	3.3	0
12	55.8	321	410	73.7	482	433	689	811	682	261	2.6	0
13	* 58.8	309	462	41.3	629	448	691	854	769	251	.9	0
14	58.5	256	658	48.6	596	460	690	729	673	257	.1	0
15	59.0	162	754	41.1	546	460	687	746	568	240	0	0
16	59.9	128	639	39.6	472	441	661	736	566	228	0	0
17	60.7	115	581 *	135	494	497	694	713	535	218	0	0
18	65.5	99.6	490	464	505	509	675	673	514	215	0	0
19	66.5	92.6	487	539	482	531	698	660	381	248	0	0
20	69.1	85.0	501	510	394	533	673	694	355	242	0	0
21	70.7	80.9	421	453	395	521	682	667	356	169	0	0
22	71.8	79.3	474	360	413	534	657	602	318	15.6	0	0
23	72.6	77.0	434	357	446	536	708	642	350	12.1	0	0
24	72.7	76.3	372	378	478	556	780	613	413	* 10.4	0	0
25	73.4	76.3	392	362	482	603	825	718	602	9.4	0	0
26	70.2	76.4	394	360	452	636	809	905	690	7.8	0	0
27	70.8	72.6	398	382	416	633	802	856	634	6.5	0	0
28	70.4	243	371	424	418	587	829	758	563	6.6	0	0
29	69.8		292	515	437	524	680	654	789	6.0	0	30.8
30	73.1		302	503	409	507	799	599	800	5.7	0	* 70.6
31	76.0		325		406		760	595		5.7		74.6
Sum	2,329.1	4,362.3	15,771	10,342.3	14,349	14,536	21,738	21,656	17,473	7,094.8	50.0	176.0

Current Year 1983 — **Period** 1939-1983

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.	4.61	3.23	3	135	11	17.1	75.1	4,620	2,459	15,594	0
Feb.	5.91	3.56	!11	331	3	54.7	156	8,652	5,005	19,500	0
Mar.	8.30	5.36	15	790	1	245	509	31,281	30,404	50,100	1,700
Apr.	8.87	3.13	7	846	16	20.9	345	20,514	29,402	70,900	4,560
May	7.75	4.90	!13	645	2	197	463	28,461	27,032	69,000	392
June	7.67	5.83	27	640	2	281	485	28,832	35,772	65,700	5,990
July	8.66	6.00	28	876	1	352	701	43,117	42,527	70,700	8,673
Aug.	9.54	7.26	26	1,040	24	556	699	42,954	42,110	74,600	4,840
Sept.	9.25	5.96	30	952	22	302	582	34,657	28,039	63,100	2,230
Oct.	7.95	2.92	5	658	31	5.3	229	14,072	11,329	39,000	0
Nov.	2.96		4	6.8	!13	0	1.7	99.2	6,509	21,000	0
Dec.	3.82		31	79.3	! 1	0	5.7	349	6,329	25,500	0
Yearly	9.54			1,040		0	356	257,608.2	266,917	541,610	47,397.4
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
	2.91			29.5		0	10.1	317,760	329,242	668,076	58,465

* Discharge measurement made on this day ! And other days

RIO GRANDE BELOW AMERICAN DAM AT EL PASO, TEXAS AND CD. JUAREZ, CHIHUAHUA

DESCRIPTION: Cableway, gravity well, and water-stage recorder located on the left bank of the river at latitude 31°46'35", longitude 106°31'20", and river mile 1,253.4 (2,017.1 km); 1.5 river miles (2.4 km) upstream from the International Dam, 3.1 river miles (5.0 km) upstream from the Paso del Norte Bridge between El Paso, Texas and Cd. Juarez, Chihuahua, and 0.6 river mile (1.0 km) downstream from the American Dam. The zero of the gage is 3,712.30 feet (1,131.51 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 69 discharge measurements during the year and a continuous record of gage heights. Computations by shifting control methods. Records available: June 1938 through 1983.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station. The operation of the American Dam began June 2, 1938. Part of the flow above the dam is diverted into the American Canal, and the remainder, including excess flood flows, passes below the dam.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 11,300 second-feet (320 m^3/sec) on September 14, 1958 with a gage height of 14.50 feet (4.42 m). Min. occasionally no flow.

Average Flow in Second-Feet (Cubic Meters per Second)

Daily:	Max. 6,040 (171)	May 20, 1942	Min. 0		Occasionally
Monthly:	Max. 4,880 (138)	May 1942	Min. 0		Occasionally
Yearly:	Max. 1,510 (42.8)	1942	Min. 13.8 (0.39)		1956

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	10.2	* 12.4	6.9	186 *	129	176	174	178	135	7.5	156	* 94.2
2	10.2	12.2	6.7	187	113 *	173 *	180	176 *	114 *	7.5	152 *	96.1
3	* 10.2	12.0 *	6.5	176	119 *	173	182	172	114	7.5	149	98.2
4	10.3	11.8	6.5	182 *	122	177	186	172 *	114	7.5	259	96.4
5	10.4	11.6	4.2	181 *	116 *	178	182 *	178	114	5.0	206	91.2
6	10.4	11.4	4.9	194	119	177	181	178	114 *	2.5	196	88.1
7	10.5	11.2	6.5	176	122	181 *	164 *	180	115	* 0	370	86.5
8	10.6	11.0	5.7	153 *	122	175	178	181	113 *	0	189	85.0
9	10.7	10.8	6.5	159	119	172 *	181	184 *	113	0	170	86.8
10	10.7	10.6	6.5	170	119 *	165	182	184	79.5	0	150	85.3
11	10.8	10.4	4.9	172 *	115	168	178	192 *	5.2	0	133	83.9
12	10.9	10.2	3.5	174	110 *	170	179 *	184	* 5.0	0	133	80.9
13	11.0	10.0	2.2	181 *	101	171	177	176	5.0	0	126	81.0
14	11.0	9.8	4.9	170 *	92.8	172 *	171 *	176	5.0	0	126	79.7
15	11.1	9.6	4.9	169	84.2	171	171	180	4.5	0	123	72.5
16	11.2	9.3	4.9	173	140	171 *	172	178 *	4.2	0	132	78.5
17	11.3	9.1	8.6	181	177 *	173	176	176	5.6	0	126	77.1
18	11.3	8.9	9.3	184 *	166	172	175	176 *	6.4	0	111	78.7
19	11.4	8.7	8.3	182 *	166 *	174	179 *	178	* 7.2	0	108	77.4
20	11.5	8.5	9.3	156 *	165	170	178	179	7.5	0	107	77.5
21	11.6	8.3	10.3	162 *	171	173 *	179 *	179	7.5	52.2	107	77.7
22	11.6	8.1	* 35.4	159	169	172	175	177	7.0	178	109	79.3
23	11.7	7.9	* 85.5	165	175	173 *	179	180	7.3	190	101	73.6
24	11.8	7.7	136 *	170	173	176	180	183 *	7.0	178 *	95.0	72.4
25	11.9	7.5	171 *	168 *	175	178	182	169 *	7.0	161	96.2	73.9
26	11.9	7.3	146	167	177 *	177	183 *	189	7.5	160	97.3	71.3
27	12.0	7.1	153	165	182 *	172	180	183	7.5	166	93.2	67.4
28	12.1	6.9	155 *	168 *	179	175 *	177 *	176	7.5	170	91.0	71.5
29	12.2		147 *	168	176	171	173	172	7.5	164	93.8	42.1
30	12.2		148 *	164	169	172 *	179	169 *	7.7	160	91.3	4.3
31	12.3		158 *		175 *		179	172		159		4.2
Sum	347.0	270.3	1,466.9	5,162	4,438.0	5,198	5,512	5,527	1,254.6	1,775.7	4,196.8	2,332.7

Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
			High		Low						
	High	Low	Day		Day				Average	Maximum	Minimum
			Current Year 1983						**Period 1939-1983**		
Jan.			31	Ø 12.3	! 1	Ø 10.2	11.2	688	3,574	12,000	0
Feb.			1	Ø 12.4	28	Ø 6.9	9.7	536	1,958	32,800	0
Mar.	5.87	4.72	24	198	13	2.2	47.3	2,910	3,138	22,800	81.9
Apr.	6.39	5.85	3	471	8	145	172	10,239	10,255	74,500	2,230
May	6.16	5.61	26	306	15	84.2	143	8,803	15,314	300,000	25.2
June	6.20	5.80	26	300	11	161	173	10,310	14,833	250,000	0
July	6.25	5.68	26	327	7	143	178	10,933	14,237	155,000	967
Aug.	6.56	5.73	26	474	14	157	178	10,963	13,548	114,000	37.5
Sept.	5.80		1	164	16	Ø 4.2	41.8	2,488	9,341	124,000	53.8
Oct.	5.93		23	196	! 7	0	57.3	3,522	1,844	19,000	18.0
Nov.	6.50	5.47	7	443	29	87.0	140	8,324	1,361	8,700	0
Dec.	5.55	4.55	3	100	30	4.1	75.2	4,627	1,030	7,760	0
Yearly	6.56			474		0	103	74,343	90,433	1,093,553	10,001.1
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
	2.00			13.4		0	2.92	91,702	111,549	1,348,898	12,336

* Discharge measurement made on this day Ø Mean daily ! And other days

DIVERSIONS FROM THE RIO GRANDE
ACEQUIA MADRE AT CD. JUAREZ, CHIHUAHUA

DESCRIPTION: Bridge for making discharge measurements, gravity well, and water-stage recorder located on the right bank of the canal at Cd. Juarez, Chihuahua, latitude 31°45'40", longitude 106°30'30", about 260 feet (80 m) downstream from the canal intake at the International Dam at Cd. Juarez, Chihuahua, which is located at river mile 1,251.8 (2,014.7 km) and 2.1 river miles (3.4 km) downstream from the American Dam at El Paso, Texas.

RECORDS: Flow records provided by Mexican Section. Records available: 1938 through 1983. These records, showing the water 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 the 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 1983 all of the 60,621 acre-feet (74,775,000 m^3) tabulated below were distributed to land irrigated in the first unit under the canal.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 480 second-feet (13.6 m^3/sec) on July 21, 1944 with a gage height of 6.00 feet (1.83 m). Min. no flow during several months throughout the year.

Average Flow in Second-Feet (Cubic Meters per Second)

Daily:	Max. 339 (9.61)	May 10, 1942	Min. 0	Several months each year
Monthly:	Max. 283 (8.00)	May 1938	Min. 0	Several months each year
Yearly:	Max. 116 (3.28)	1942	Min. 9.2 (0.26)	1964

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	0	175	155	183 *	188 *	189	164	0	0	0
2	0	0	0	184	125 *	184 *	192	187 *	132 *	0	0	0
3	0	0	0	181	126 *	192 *	194	184 *	132	0	0	0
4	0	0	0	180 *	132 *	187	197 *	188 *	135	0	0	0
5	0	0	0	188 *	126 *	192	194 *	186	136	0	0	0
6	0	0	0	182	129 *	190 *	190 *	188	137 *	0	0	0
7	0	0	0	176	125	192 *	187 *	186	137	0	0	0
8	0	0	0	182 *	122	192 *	186 *	184 *	135 *	0	0	0
9	0	0	0	187	122 *	193 *	190	185 *	134 *	0	0	0
10	0	0	0	191	124 *	186 *	187	184	102	0	0	0
11	0	0	0	183 *	124 *	182	182	186 *	0	0	0	0
12	0	0	0	185 *	123 *	178	188 *	187 *	0	0	0	0
13	0	0	0	185 *	125 *	184 *	188 *	190	0	0	0	0
14	0	0	0	190 *	122	184 *	187 *	191	0	0	0	0
15	0	0	0	191 *	124	184 *	190	190 *	0	0	0	0
16	0	0	0	195	160 *	189 *	190	190 *	0	0	0	0
17	0	0	0	188	192 *	191 *	191	188 *	0	0	0	0
18	0	0	0	190 *	185 *	188 *	190 *	187 *	0	0	0	0
19	0	0	0	191 *	186 *	186 *	190 *	190	0	0	0	0
20	0	0	0	182 *	184 *	183 *	190 *	188	0	0	0	0
21	0	0	0	182 *	186	183 *	190 *	189	0	0	0	0
22	0	0	* 32.1	181	187	183 *	189 *	191 *	0	0	0	0
23	0	0	* 64.3	182	190 *	183 *	194	190 *	0	0	0	0
24	0	0	136 *	183	192 *	188 *	194	191 *	0	0	0	0
25	0	0	170 *	183 *	193 *	189	196 *	192 *	0	0	0	0
26	0	0	179	184 *	194 *	189	194 *	193	0	0	0	0
27	0	0	180	185	189 *	183	196 *	192	0	0	0	0
28	0	0	171 *	186 *	189	184 *	198 *	191	0	0	0	0
29	0		162 *	187	190	182 *	196 *	190 *	0	0	0	0
30	0		163 *	185	188 *	186 *	187	194 *	0	0	0	0
31	0		164 *		187 *		189	194		0		0
Sum	0	0	1,421.4	5,544	4,896	5,590	5,914	5,855	1,344.0	0	0	0

Month	Average Rainfall Inches** 1938-1983	Average Rainfall Inches** 1983	Current Year 1983 Extreme Second-Feet High Day	High	Low Day	Low	Average Second-Feet	Total Acre-Feet	Period 1938-1983 Acre-Feet Average	Maximum	Minimum
Jan.	0.40	0.45		0		0	0	0	0	0	0
Feb.	.35	.44		0		0	0	0	0	0	0
Mar.	.23	.44	25	184	! 1	0	45.9	2,816	1,261	6,482	0
Apr.	.19	.86	6	202	1	166	185	10,992	8,117	12,383	2,020
May	.34	.31	26	196	8	118	158	9,716	8,837	17,380	0
June	.63	.38	5	203	4	174	186	11,091	8,446	15,700	0
July	1.52	.52	9	202	30	159	191	11,727	8,658	15,170	0
Aug.	1.34	.94	25	197	11	171	189	11,617	8,464	12,620	0
Sept.	1.24	.70	! 1	192	!10	0	44.8	2,662	4,333	12,380	0
Oct.	.80	1.40		0		0	0	0	33.2	328	0
Nov.	.32	.59		0		0	0	0	0	0	0
Dec.	.46	.04		0		0	0	0	0	0	0
Yearly	7.82	7.26		203		0	83.7	60,621	48,149.2	83,930	6,653
	Millimeters		Cubic Meters per Second					Thousands of Cubic Meters			
	199	184		5.74		0	2.37	74,775	59,390	103,511	8,207

* Discharge measurement made on this day ! And other days

RIO GRANDE NEAR CLINT, TEXAS AND SAN AGUSTIN, CHIHUAHUA

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 1,226.9 (1,974.5 km); 0.7 river mile (1.1 km) downstream from the Riverside Canal Wasteway No. 2, about 4 miles (6.4 km) south southwest of Clint, Texas, and 27.1 river miles (43.5 km) downstream from the American Dam at El Paso, Texas. The zero of the gage is 3,608.99 feet (1,100.02 m) above 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 by shifting control methods. Records available: August 17, 1938 through 1983. Records prior to 1976 were published under the title "Rio Grande - Island Station near Clint, Texas."

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

EXTREME FLOWS FROM RECORDS: Momentary: Max. 7,050 second-feet (200 m^3/sec) on September 14, 1958 with a gage height of 15.80 feet (4.82 m). Min frequently no flow.

Average Flow in Second-Feet (Cubic Meters per Second)

Daily:	Max. 6,140 (174)	May 19, 1942	Min. 0		Frequently
Monthly:	Max. 4,880 (138)	May 1942	Min. 0		Frequently
Yearly:	Max. 1,490 (42.2)	1942	Min. 0.3 (0.01)		1956

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	95.7	2.5	3.5	* 0	1.4	0	0	14.3	0.6	106	140	93.1
2	87.9	* .7	* 3.2	0	15.2	0	0	2.0	.4	29.0	140	* 92.3
3	80.5	1.1	2.8	0	1.1	* 0	0	* 0	0	49.1	139	89.3
4	77.0	1.4	2.8	0	* 1.1	0	0	0	0	127	147 *	90.3
5	* 68.5	1.8	2.5	0	1.4	0	0	0	0	* 52.4	262	87.4
6	69.6	2.1	2.5	.7	1.4	0	* 0	0	0	23.6	169	79.1
7	71.0	2.5	2.1	29.0	1.8	0	0	0	* 0	96.7	231	79.0
8	72.0	2.8	2.1	151	1.8	0	0	1.0	0	226	178	78.8
9	73.1	3.2	2.1	81.9	2.1	0	0	0	0	313	157	78.7
10	74.2	3.5	1.8	65.7	2.1	0	0	0	0	280	156	78.5
11	75.6	3.9	1.4	85.8	2.5	0	0	0	0	255	133	78.4
12	76.6	3.9	1.4	58.6	2.5	0	0	73.4	0	111	130	78.2
13	77.7	4.2	1.4	29.0	* 2.8	0	0	14.2	22.1	34.3	129	78.1
14	79.1	4.2	1.1	3.5	2.8	0	0	19.0	59.8	24.9	121	77.9
15	80.2	4.6	1.1	* 2.5	2.5	* 0	* 0	3.0	0	20.3	118	* 77.8
16	81.2	4.6	* 1.1	2.5	2.5	0	0	1.0	0	35.7	115 *	77.3
17	82.3	* 4.9	1.1	2.5	2.5	0	0	* 0	0	39.0	119	76.7
18	83.7	4.9	.7	2.1	2.1	0	0	0	0	31.8	114	76.2
19	* 84.8	4.9	.7	2.1	2.1	0	0	0	0	* 78.3	102	75.6
20	82.3	4.9	.4	2.1	2.1	0	0	0	0	73.7	98.6	75.2
21	73.9	4.6	.4	2.1	1.8	0	0	0	* 0	67.2	105	74.6
22	78.8	4.6	0	2.1	1.8	0	0	0	0	56.0	119	74.1
23	60.7	4.6	0	2.1	1.8	0	0	0	0	41.4	104	73.6
24	35.0	4.2	0	1.8	1.4	0	0	0	0	30.2	98.2	73.0
25	26.5	4.2	0	1.8	1.4	0	0	12.3	0	24.2	82.6	72.5
26	20.5	3.9	0	1.8	1.4	0	0	47.1	0	20.8	93.4	72.0
27	14.8	3.9	0	1.8	1.1	0	0	141	0	18.0	94.5	71.5
28	10.2	3.5	0	1.4	1.1	0	0	28.5	1.4	35.5	79.4	70.9
29	7.8		0	1.4	1.1	0	0	15.8	3.0	55.8	86.9	70.4
30	6.0		0	1.4	.7	0	0	3.0	162	47.5	86.2	69.9
31	4.2		0		.7		0	2.0		58.8		69.3
Sum	1,911.4	100.1	36.2	536.7	68.1	0	0	377.6	249.3	2,462.2	3,847.8	2,409.7

Current Year 1983 — **Period** 1939-1983

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	Ø 95.7	31	Ø 4.2	61.7	3,791	3,615	11,900	0
Feb.			!17	Ø 4.9	2	Ø .7	3.6	199	2,286	37,000	0
Mar.	2.46		! 1	3.5	!22	0	1.2	71.8	1,834	21,000	0
Apr.	10.33		8	208	! 1	0	17.9	1,065	2,759	70,500	0
May	9.25		3	48.7	!30	.7	2.2	135	7,827	299,800	0
June				0		0	0	0	6,729	241,000	0
July				0		0	0	0	6,996	118,500	0
Aug.	12.25		27	420	! 3	0	12.2	749	6,611	99,400	0
Sept.	11.05		30	200	! 3	0	8.3	494	7,130	119,200	0
Oct.	10.94	8.43	8	331	27	18.0	79.4	4,884	3,668	42,800	0
Nov.	10.95	9.09	5	353	28	70.8	128	7,632	1,335	7,632	0
Dec.	9.56		1	98.7	31	Ø 69.3	77.7	4,780	1,988	12,900	0
Yearly	12.25			420		0	32.9	23,800.8	52,778	1,079,340	238.1
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
	3.73			11.9		0	0.93	29,358	65,102	1,331,366	294

* Discharge measurement made on this day Ø Mean daily ! And other days

RIO GRANDE NEAR ACALA, TEXAS
AND PRAXEDES GUERRERO, CHIHUAHUA

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 1,206.7 (1,942.0 km); 0.8 river mile (1.3 km) downstream from the El Paso-Hudspeth County Line, 5.5 miles (8.9 km) northwest of Acala, Texas, about 8 miles (12.9 km) southeast of Tornillo, Texas, and 47.2 river miles (76.0 km) downstream from the American Dam at El Paso, Texas. The zero of the gage is 3,547.59 feet (1,081.31 m) above 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 by shifting control methods. Records available: 1938 through 1983. Records prior to 1976 were published under the title "Rio Grande - County Line Station near Acala, Texas."

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

EXTREME FLOWS FROM RECORDS: Momentary: Max. 6,340 second-feet (180 m^3/sec) on May 19, 1942 with a gage height of 8.66 feet (2.64 m). Min. frequently no flow.

Average Flow in Second-Feet (Cubic Meters per Second)

Daily:	Max. 6,180 (175)	May 18, 1942	Min. 0		Frequently
Monthly:	Max. 4,920 (139)	May 1942	Min. 0		Frequently
Yearly:	Max. 1,720 (48.7)	1942	Min. 0		1956 & 1964

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	101	9.5	2.5	* 14.8	19.1	7.4	1.4	87.7	0	350	49.0	24.1
2	103	* 4.9	* 2.5	14.5	43.4	4.9	1.3	15.7	0	230	30.5	* 66.9
3	84.4	4.9	2.5	14.1	12.7	* 3.2	1.5	* 6.2	0	285	30.5	75.0
4	84.0	4.9	2.8	13.8	* 5.7	10.2	1.6	0	0	365	* 27.7	78.0
5	* 77.3	4.9	2.8	13.1	4.6	14.5	1.8	0	24.5	365	67.0	77.0
6	77.3	4.9	2.8	12.7	3.2	15.9	* 2.3	0	0	340 *	96.0	61.5
7	75.6	4.9	3.2	12.4	3.2	6.0	3.5	0	* 0	205	114	23.8
8	79.5	62.5	3.2	12.0	3.2	4.9	3.4	44.7	0	145	114	22.8
9	77.0	95.7	3.2	11.7	14.5	8.8	1.8	10.6	0	125	57.0	22.8
10	75.2	98.2	3.5	11.3	22.2	5.3	3.1	5.8	0	145	45.0	20.9
11	73.1	86.2	3.5	10.9	20.8	3.9	12.7	0	0	110	30.5	18.3
12	71.0	31.8	3.9	10.2	17.7	5.3	5.2	0	83.6	62.7	30.5	21.8
13	74.9	108	3.9	9.9	* 10.2	19.4	3.7	0	72.5	57.3	30.5	33.2
14	80.9	137	3.9	9.5	22.2	11.7	3.0	36.5	93.7	72.0	30.5	16.7
15	76.6	93.2	4.2	* 9.2	32.5	* 6.7	* 4.0	34.0	157	54.0	30.5	* 19.1
16	76.6	26.1	* 4.2	13.4	45.9	5.7	7.4	16.5	128	62.0	* 30.5	20.5
17	72.4	* 8.8	4.2	7.8	17.7	4.2	2.1	* 14.5	95.5	66.0	27.7	13.5
18	70.3	4.6	4.2	4.9	8.8	4.2	53.3	9.4	135	46.0	26.5	13.5
19	* 72.0	4.6	4.2	3.9	4.9	4.2	10.3	0	140	* 82.0	24.1	13.5
20	67.1	4.2	4.2	4.2	20.8	4.6	4.5	0	32.3	102	21.9	12.2
21	62.5	4.2	4.2	4.2	15.9	4.6	2.6	0	* 0	105	19.3	13.5
22	57.6	3.9	4.2	6.7	17.7	4.6	4.4	0	0	94.0	12.2	13.5
23	53.0	3.9	46.3	5.3	15.9	4.6	3.6	0	18.6	86.0	10.0	13.5
24	48.0	3.5	81.6	2.8	7.4	6.0	7.4	0	25.0	74.0	6.0	20.0
25	43.4	3.5	53.0	.4	4.9	6.4	39.1	0	42.0	67.0	5.7	20.0
26	38.5	3.2	71.0	8.1	6.0	4.9	41.6	0	76.0	60.0	4.3	13.5
27	33.5	3.2	82.3	.4	6.0	10.2	12.6	19.8	16.1	66.0	3.8	24.5
28	29.0	2.8	73.5	.4	10.2	7.4	.7	81.0	0	82.0	2.5	49.0
29	24.0		44.8	1.4	6.0	4.9	3.3	82.0	0	92.0	1.5	26.0
30	19.4		21.5	7.1	17.7	3.9	.5	13.0	84.0	74.0	1.3	28.0
31	14.5		14.8		14.5		46.7	0		68.0		28.5
Sum	1,992.6	828.0	566.6	251.1	455.5	208.5	289.4	477.4	1,223.8	4,137.0	980.5	905.1

Month	Current Year 1983 Extreme Gage Feet High	Extreme Gage Feet Low	Extreme Second-Feet High Day	Extreme Second-Feet High	Extreme Second-Feet Low Day	Extreme Second-Feet Low	Average Second-Feet	Total Acre-Feet	Period 1938-1983 Acre-Feet Average	Maximum	Minimum
Jan.			2	Ø 103	31	Ø 14.5	64.3	3,952	4,666	20,000	0
Feb.			14	Ø 137	28	Ø 2.8	29.6	1,642	3,826	47,900	0
Mar.	0.82		26	91.5	! 1	Ø 2.5	18.3	1,124	3,402	38,900	0
Apr.			1	Ø 14.8	!25	Ø .4	8.4	498	5,072	84,200	0
May	.52	- 0.46	16	54.0	! 6	3.2	14.7	903	9,755	303,000	0
June	.16	- .49	13	32.8	3	2.1	7.0	414	8,608	239,000	0
July	1.28	- .55	31	154	30	.5	9.3	574	9,215	140,000	0
Aug.	1.12		8	137	! 4	0	15.4	947	8,901	123,000	0
Sept.	2.20		30	430	! 1	0	40.8	2,427	11,419	140,000	0
Oct.	1.83	- .25	4	380	12	25.0	133	8,206	7,153	61,400	0
Nov.	1.07	- .47	5	215	30	1.3	32.7	1,945	4,529	20,400	0
Dec.	.35	- .36	4	84.0	20	12.2	29.2	1,795	4,920	29,700	0
Yearly	2.20			430		0	33.7	24,427	81,466	1,247,500	0
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
	0.67			12.2		0	0.95	30,131	100,488	1,538,791	0

* Discharge measurement made on this day Ø Mean daily ! And other days

RIO GRANDE AT FORT QUITMAN, TEXAS
NEAR COLONIA LUIS LEON, CHIHUAHUA

DESCRIPTION: Cableway, gravity well, and water-stage recorder located on the left bank of the rectified channel of the Rio Grande at latitude 31°05'10", longitude 105°36'30", and river mile 1,173.2 (1,888.1 km); 1.5 river miles (2.4 km) downstream from Old Fort Quitman, 9 miles (14.5 km) southeast of Esperanza, Texas, and 17.5 miles (28.2 km) southeast of McNary, Texas. The zero of the gage is 3,450.57 feet (1,051.73 m) above 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 by shifting control methods. Records available: 1889 through 1983.

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

EXTREME FLOWS FROM RECORDS**: Momentary: Max. 10,600 second-feet (300 m³/sec) October 5, 1946 with a gage height of 10.00 feet (3.05 m). Min. frequently no flow.

Average Flow in Second-Feet (Cubic Meters per Second)**

Daily:	Max.	5,890 (167)	May 19, 1942	Min.	0	Frequently
Monthly:	Max.	5,030 (142)	May 1942	Min.	0	Several months since 1951
Yearly:	Max.	1,750 (49.6)	1942	Min.	2.3 (0.07)	1965

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	177	68.5	30.4	* 84.0	28.6	51.9	19.6	74.7	67.1	304	210	124
2	195	* 58.6	* 30.7	95.0	46.3	48.7	19.3	128	51.6	387	175	143 *
3	203	72.7	32.1	122	85.5	* 48.7	18.6	* 62.8	35.7	335	167	174
4	189	72.4	43.4	218	* 53.3	37.8	18.2	54.6	31.8	406	353 *	174
5	164 *	88.6	38.1	209	45.6	38.5	16.8	52.0	31.1	552	299	152
6	148	101	92.2	166	33.5	44.5	* 16.0	49.7	36.0	616 *	311	135
7	143	107	155	466	31.1	48.7	14.9	47.4	* 30.3	379	238	122
8	143	66.0	126	749	33.2	52.6	15.5	56.1	28.4	325	151	119
9	138	60.7	66.4	636	38.5	41.7	15.0	76.0	29.8	342	218	100
10	135	105	42.4	403	44.8	42.7	11.9	58.7	39.0	336	152	109
11	139	126	57.6	233	51.9	41.0	22.4	60.6	36.8	342	238	125
12	144	111	45.2	230	41.3	39.2	15.0	54.2	24.3	189	236	117
13	140	111	56.5	170	* 44.1	37.8	13.9	50.1	99.1	158	199	103
14	120	225	65.7	138	41.3	50.9	9.3	45.8	224	158	180	125
15	125	236	84.4	* 65.0	60.0	* 61.4	* 10.8	43.8	197	148	143	* 96.1
16	123	174	* 76.6	46.6	97.1	54.0	9.7	55.7	350	131	130 *	107
17	120	* 72.7	75.6	51.6	102	34.3	9.2	* 61.2	466	148	117	91.4
18	118	58.3	58.3	44.1	60.7	28.6	13.2	70.2	373	131	107	112
19	123 *	59.0	68.9	71.3	33.5	28.8	17.6	70.7	486	189 *	100	112
20	122	54.7	86.2	17.7	26.8	27.9	21.4	55.5	324	375	103	102
21	129	31.4	84.8	18.4	23.3	30.4	21.8	44.3	132 *	445	98.3	118
22	121	43.4	111	21.5	29.3	25.4	25.8	44.4	81.9	408	83.4	129
23	114	44.1	116	22.6	34.6	24.7	23.2	39.7	223	305	85.8	134
24	113	44.5	232	31.1	40.3	27.2	23.8	174	303	210	76.1	137
25	88.3	33.9	277	35.0	43.4	26.8	24.3	98.5	137	161	80.3	142
26	93.6	25.1	200	24.7	35.3	31.4	25.2	61.5	213	193	88.8	145
27	98.9	29.0	239	33.2	32.8	27.5	48.2	50.9	273	197	87.1	145
28	105	26.5	273	31.4	33.2	22.2	42.8	45.0	129	249	83.3	119
29	97.8		310	27.2	33.5	21.9	43.0	90.7	188	231	118	107
30	79.8		247	27.9	31.1	20.1	32.6	136	272	269	103	112
31	69.2		88.6		38.8		38.6	102		222		135
Sum	2,306.1		4,488.3		1,117.3		2,114.8		8,841			3,865.5
	4,018.6		3,510.1		1,374.7		657.6		4,912.9		4,731.1	

Month	Current Year 1983								Period 1938-1983		
	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
			High		Low				Average	Maximum	Minimum
	High	Low	Day		Day						
Jan.	5.81	5.02	3	203	31	64.3	130	7,971	5,675	20,900	0
Feb.	5.81	4.66	14	248	26	22.2	82.4	4,574	4,678	50,100	0
Mar.	6.07	4.69	30	364	! 3	29.0	113	6,962	3,756	38,900	0
Apr.	6.89	4.86	8	780	20	17.7	150	8,902	4,681	77,000	0
May	5.61	4.76	3	137	21	23.3	44.3	2,727	10,529	309,000	0
June	5.41	4.56	15	110	30	19.1	37.2	2,216	9,360	240,000	0
July	5.60	4.21	27	151	15	7.4	21.2	1,304	10,757	140,000	3.8
Aug.	6.87	4.68	24	781	15	36.6	68.2	4,195	11,402	127,000	16.7
Sept.	6.82	4.75	13	748	12	23.2	164	9,745	15,283	147,000	0
Oct.	7.93	5.68	6	1,210	15	103	285	17,536	11,584	66,500	0
Nov.	6.73	5.34	4	710	25	61.9	158	9,384	7,376	24,500	0
Dec.	5.89	5.44	3	210	8	83.0	125	7,667	7,372	31,000	0
Yearly	7.93	4.21		1,210		7.4	115	83,183	102,453	1,270,400	1,662.3
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
	2.42	1.28		34.3		0.2	3.26	102,606	126,376	1,567,038	2,050

** Period 1924-1983 * Discharge measurement made on this day ! And other days

RIO GRANDE NEAR CANDELARIA, TEXAS AND SAN ANTONIO DEL BRAVO, CHIHUAHUA

DESCRIPTION: Cableway, gravity well, and digital recorder located on the left bank of the Rio Grande at San Antonio Diversion Dam, latitude 30°10'30", longitude 104°41'10" and river mile 1,038.8 (1,671.8 km), 0.5 river mile (0.8 km) upstream from Capote Creek and about 2.5 miles (4.0 km) north of Candelaria, Texas and San Antonio, Chihuahua. The zero of the gage is 2,857.96 feet (871.11 m) above mean sea level, U.S.C.& G.S. datum.

RECORDS: Based on 19 discharge measurements during the year and a continuous record of gage heights. Computations by shifting control methods. Records available: November 19, 1975 through 1983.

REMARKS: Reservoirs, diversions, and drainage returns modify the flow at this station. An auxiliary well, located 300 feet (91 m) upstream, is used to record extreme low flows. Prior to June 1979 the zero of the gage was 2,857.84 feet (871.07 m) above mean sea level, U.S.C.& G.S. datum.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 19,800 second-feet (561 m^3/sec) on September 30, 1978 with a gage height of 10.86 feet (3.31 m). Min. frequently no flow.

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	88.6	71.7	* 41.7	70.3	27.2	20.2	0	8.6	0	103	158	115
2	94.3	72.0	39.6	77.3	24.4	17.4	0	0	* 0	170	161 *	* 95.6
3	97.8	* 72.0	34.3	83.0	22.6	* 3.5	0	* 0	0	470	167	91.4
4	103	66.4	35.3	96.8	* 20.5	1.3	0	0	0	301	169	92.0
5	110 *	60.7	35.7	101	16.6	.7	0	0	0	* 95.4	253	93.8
6	115	54.4	35.7	* 88.6	16.2	1.6	* 0	0	0	177	187	95.8
7	111	50.1	35.3	72.7	19.4	9.6	0	0	0	110	172	100
8	110	50.9	33.5	73.1	29.3	11.9	0	2.2	* 22.6	109	166	111
9	116	52.6	33.9	76.6	28.3	7.0	231	4.7	12.7	118	162	127
10	114	54.7	33.2	77.3	23.7	2.1	13.8	* .9	0	144	168	137
11	106	56.5	35.0	78.4	38.8	1.4	3.6	126	56.2	148	175	137
12	105	56.9	44.8	73.8	39.2	1.8	9.2	135	1.8	154	176	130
13	105	54.4	52.3	* 84.8	25.8	.2	8.4	214	.7	154	172	120 *
14	100	50.1	45.6	101	19.8	.3	2.1	27.4	48.7	149	164	109
15	99.6	53.3	35.7	115	17.3	.2	0	73.1	49.8	139	161	104
16	98.9	56.2	33.9	132	17.3	1.6	0	11.1	159	139	159	100
17	95.3	61.1	34.6	141	17.3	64.1	238	6.1	48.7	137	159	98.1
18	94.6	59.3	34.3	143	17.7	22.8	314	3.3	30.1	145	161	97.7
19	* 97.5	66.7	34.3	143	18.4	2.0	4.7	1.1	26.0	258	160	96.8
20	97.5	73.5	39.2	132	24.7	.3	0	0	21.6	253	158	97.5
21	92.2	77.7	37.1	97.1	28.6	5.4	0	0	19.5	203	157	* 96.6
22	95.0	77.3	35.0	72.4	31.4	* 5.5	0	1.6	17.5	162	156	96.4
23	91.5	66.4	33.9	59.3	33.2	.4	0	0	16.9	154	154	94.7
24	90.1	58.6	33.9	47.3	15.2	21.5	0	0	15.6	152	153	91.4
25	86.5	56.5	40.6	39.6	.4	58.4	0	0	47.7	155	153	89.9
26	85.1	41.3	37.8	35.7	1.8	4.9	0	7.4	64.2	157	153	93.4
27	81.9	41.7	43.1	34.3	.4	6.8	0	8.2	69.0	161	153	96.0
28	80.5	41.7	47.0	32.5	23.7	10.5	0	3.6	64.2	164	153	100
29	76.6		52.3	30.0	31.1	2.7	0	.1	96.0	164	142	104
30	75.9		62.9	29.0	38.8	.2	0	.6	289	162	138	109
31	74.9		66.0		43.8		63.8	0		160		111
Sum	2,989.3	1,654.7	1,237.5	2,437.9	712.9	286.3	888.6	635.0	1,177.5	5,267.4	4,920	3,231.1

Month	Current Year 1983								Period Dec. 1975-1983		
	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
			High		Low						
	High	Low	Day		Day				Average	Maximum	Minimum
Jan.	3.90	3.61	10	117	25	71.0	96.4	5,929	3,877	7,415	0
Feb.	4.17	3.28	25	180	4	37.1	59.1	3,282	2,078	3,396	0
Mar.	3.58	3.22	31	67.8	24	31.4	39.9	2,455	1,299	2,455	0
Apr.	4.04	3.22	!17	143	30	27.2	81.3	4,836	1,258	4,836	8.4
May	4.20	2.30	28	190	!26	0	23.0	1,414	1,693	5,031	0
June	4.32		24	238	!13	0	9.5	568	2,678	‼ 7,756	143
July	6.37	1.06	31	1,130	! 1	0	28.7	1,763	2,704	9,420	79.1
Aug.	4.71		10	366	! 1	0	20.5	1,260	6,525	31,066	611
Sept.	5.64		30	764	! 1	0	39.3	2,336	22,394	135,232	362
Oct.	7.04	3.62	2	1,430	2	33.8	170	10,448	13,657	57,823	435
Nov.	5.07	4.40	5	272	29	115	164	9,759	5,796	10,241	0
Dec.	4.52	4.22	11	140	24	89.2	104	6,409	5,180	11,506	0
Yearly	7.04			1,430		0	69.7	50,459	69,139	214,936	15,148
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
	2.15			40.5		0	1.97	62,241	85,283	265,124	18,685

* Discharge measurement made on this day ! And other days ‼ Estimated

RIO GRANDE ABOVE RIO CONCHOS NEAR PRESIDIO, TEXAS AND OJINAGA, CHIHUAHUA

DESCRIPTION: Cableway, bubbler gage, and digital water-stage recorder located on the left bank at latitude 29°36'15", longitude 104°27'05", and river mile 963.7 (1,551.0 km); 5.0 river miles (8.0 km) upstream from the international highway bridge between Presidio, Texas and Ojinaga, Chihuahua and 2.4 river miles (3.8 km) upstream from the Rio Conchos. The zero of the gage is 2,573.14 feet (784.29 m) 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: 1889 through 1983.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station. Prior to 1978 the zero of the gage was 2,576.66 feet (785.37 m) above mean sea level, U. S. C. & G. S. datum.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 14,000 second-feet (396 m^3/sec) on June 14, 1905. Highest flow recorded since 1924 was 5,160 second-feet (146 m^3/sec), with a gage height of 10.57 feet (3.22 m), on May 26, 1942. Min. frequently no flow.

Average Flow in Second-Feet (Cubic Meters per Second)**

Daily:	Max. 13,700 (388)	June 13 & 14, 1905	Min. 0		Frequently
Monthly:	Max. 10,150 (287)	June 1905	Min. 0		Frequently
Yearly:	Max. 1,970 (55.8)	1907	Min. 1.3 (0.04)		1964

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	75.6	* 75.9	83.0	* 31.8	32.1	15.3	4.2	23.2	13.4	249	138	123 *
2	75.9	71.0	78.0	47.0	29.7	9.4	5.7	* 40.2	15.7	122	136	118
3	76.6	71.3	60.4	56.5	* 23.3	6.2	4.9	41.8	25.5	86.3	295	113
4	* 63.9	67.5	54.7	65.0	26.8	12.1	5.8	35.0	22.0	* 62.4	266	100
5	54.4	77.0	60.4	* 50.9	30.4	14.9	* 2.3	24.6	24.6	64.9	145	99.1
6	60.4	69.9	55.1	50.5	39.9	* 13.4	78.5	24.6	32.8	123	170	* 95.4
7	56.9	73.8	49.4	64.6	41.7	13.9	27.0	27.7	* 32.0	138	147 *	90.1
8	63.9	* 73.5	* 47.0	80.9	71.3	14.2	9.4	* 38.5	17.8	130	178	95.3
9	62.9	61.1	39.2	83.3	136 *	11.9	4.0	44.7	30.8	150	172	98.6
10	* 56.2	53.7	35.0	83.7	87.6	5.5	5.6	39.1	33.1	144	157	108
11	72.4	47.7	30.4	* 77.0	78.0	12.1	* 5.2	275	28.7	128 *	142	116
12	75.9	46.6	27.5	61.8	62.2	15.4	2.8	12.9	* 31.8	126	144	121 *
13	84.0	45.9	24.7	63.2	52.6	14.1	5.5	27.1	25.6	124	145	120
14	82.3	* 42.4	* 21.9	64.6	45.6	* 13.1	8.1	24.8	27.1	129	152	128
15	80.5	39.9	22.6	61.1	45.2	8.3	18.9	25.2	28.7	138	147 *	138
16	78.8	38.5	35.3	53.3	38.1	5.8	25.1	* 38.3	25.5	138	152	135
17	77.0	35.3	27.5	70.3	* 24.4	4.4	9.3	34.4	29.1	141	155	136
18	* 83.3	36.7	29.7	72.4	13.1	3.3	8.8	52.2	40.7	138 *	154	128
19	98.2	36.4	29.3	* 75.6	13.4	7.0	* 8.6	41.7	36.8	218	145	133
20	114	40.6	30.7	83.7	14.5	* 7.6	11.7	49.8	* 43.0	150	144	129 *
21	116	42.4	29.3	99.9	14.5	14.6	4.2	50.5	32.2	146	160 *	125
22	106	43.1	* 28.6	98.2	14.1	1.0	13.8	* 60.7	33.5	180	157	125
23	92.5	48.0	29.0	103	* 12.7	1.9	19.2	78.0	40.4	199	160	128
24	* 89.0	* 51.2	30.0	105	10.2	313	19.0	47.1	36.9	170 *	138	129
25	86.2	56.2	31.4	* 94.6	248	17.8	* 20.4	25.5	35.5	145	148	131
26	83.7	62.5	31.4	78.0	34.3	17.9	16.3	8.1	40.4	131	141	131
27	75.6	67.1	31.8	56.9	24.7	12.6	21.9	10.4	30.9	127	113	135 *
28	75.6	* 69.9	* 31.4	45.6	15.2	* 6.4	3.9	23.8	* 36.8	122	110	133
29	74.9		25.4	38.1	10.9	* 5.8	16.1	26.0	115	120	109 *	126
30	71.7		28.3	32.5	11.3	4.0	39.1	* 17.7	767 *	124	107	122
31	80.9		25.8		* 10.9		31.7	15.9		125 *		122
Sum	1,545.1		2,049.0		602.9		1,284.5		4,288.6			3,731.5
	2,445.2		1,164.2		1,312.7		457.0		1,733.3		4,627	

Month	Current Year 1983 Extreme Gage Feet High	Extreme Gage Feet Low	Extreme Second-Feet High Day	Extreme Second-Feet High	Extreme Second-Feet Low Day	Extreme Second-Feet Low	Average Second-Feet	Total Acre-Feet	Period 1938-1983 Acre-Feet Average	Maximum	Minimum
Jan.	2.66	1.94	21	134	9	36.4	78.9	4,850	5,189	24,400	0
Feb.	2.40	1.94	5	85.8	15	31.1	55.2	3,065	4,162	40,800	0
Mar.	2.36	1.61	1	88.3	30	17.0	37.6	2,309	2,962	39,100	0
Apr.	2.59	1.77	8	129	1	23.7	68.3	4,064	2,302	41,600	0
May	5.68	1.28	25	978	!28	.7	42.3	2,604	7,329	240,000	0
June	6.47	1.30	24	1,250	22	.8	20.1	1,196	7,826	216,000	0
July	4.75	1.15	6	607	12	.3	14.7	906	10,317	156,000	0
Aug.	5.57		11	879	!12	0	41.4	2,548	10,903	133,000	0
Sept.	5.10	1.57	30	846	1	2.6	57.8	3,438	15,315	151,000	0
Oct.	4.44	2.11	1	634	5	54.3	138	8,506	14,003	105,000	0
Nov.	4.52	2.38	4	555	29	95.1	154	9,178	5,600	34,500	0
Dec.	2.75	2.29	12	152	7	81.9	120	7,401	5,517	30,900	0
Yearly	6.47			1,250		0	69.2	50,065	91,425	1,176,700	951.8
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
	1.97			35.4		0	1.96	61,755	112,773	1,451,459	1,174

** Period June 1900-March 1914; September 1919-March 1920; and 1924-1983 ! And other days

* Discharge measurement made on this day

RIO CONCHOS NEAR OJINAGA, CHIHUAHUA

DESCRIPTION: Cableway, gravity well, and water-stage recorder located on the right bank at latitude 29°34'55", longitude 104°25'50", 0.6 river miles (1.0 km) from the confluence with the Rio Grande, 2.5 miles (4 km) northwest of Ojinaga, Chihuahua, and 3.7 miles (6 km) northwest of Presidio, Texas. This stream enters the Rio Grande at river mile 961.4 (1,547.2 km), 11.6 river miles (18.7 km) upstream from the "Rio Grande below Rio Conchos" Gaging Station. The zero of the gage is 2,560.37 feet (780.40 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 225 discharge measurements during the year, 216 by the Mexican Section and 9 by the United States Section of the Commission, and a continuous record of gage heights. Computations by shifting control methods. Records available: 1896 through 1983. Prior to April 4, 1954, flow records were determined from records of the Rio Grande at stations located upstream and downstream from the Rio Conchos confluence.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station. La Boquilla Reservoir, La Colina Reservoir, La Rosetilla Reservoir, and Luis L. Leon Reservoir are located 252 (405), 244 (393), 188 (302), and 114 (183) river miles (km), respectively, upstream from this station. Francisco I. Madero Reservoir is located on the Rio San Pedro, a tributary which enters the Rio Conchos 176 river miles (283 km) 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. The station was relocated on January 20, 1978 incident to the Rio Grande channel rectification in the Presidio-Ojinaga area.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 162,000 second-feet (4,590 m^3/sec), on September 11, 1904.

Average Flow in Second-Feet (Cubic Meters per Second)**

Daily:	Max.	‼52,600 (‼1,490)	Oct. 1, 1978	Min.	23.0 (0.65)	Dec. 19, 1973
Monthly:	Max.	10,700 (302)	Oct. 1978	Min.	57.9 (1.64)	Feb. 1968
Yearly:	Max.	2,340 (66.4)	1978	Min.	491 (13.9)	1983

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	* 72.4	205 *	252 *	213	1,130	562 *	181 *	348 *	809	1,080	593 *	291
2	75.9	199 *	241 *	233	1,160 *	696 *	161	332 *	682	1,200	600	277 *
3	* 72.4	202 *	233 *	266	1,130 *	639	159	325 *	597	1,250 *	2,220 *	278
4	71.7	200 *	233 *	247 *	1,130 *	590 *	137 *	301	544	1,190 *	2,720 *	280
5	* 70.6	196	238	209 *	1,120	586	* 77.0	272 *	505 *	763 *	1,300 *	275 *
6	66.4	188	238	196 *	1,090	576 *	* 67.4	249	473 *	629 *	844	276 *
7	* 60.0	199 *	228 *	194	1,060	512 *	212 *	242	431 *	579 *	727 *	268 *
8	152	187 *	224 *	220 *	1,290	477 *	292 *	261 *	378	547	682	257
9	236	190 *	213 *	245	1,490 *	434 *	297	291 *	374 *	915	678 *	255 *
10	256 *	182 *	212 *	277	1,350 *	427	282	381 *	353	523 *	653 *	251
11	254	182 *	202 *	290 *	1,270 *	420 *	273 *	1,190	348	498 *	622 *	238
12	240 *	195	182	255 *	1,200 *	399	254 *	622 *	350 *	473	572	231 *
13	249	186	180	215 *	1,180 *	381 *	231 *	533	463 *	448 *	547	229
14	253 *	207 *	198 *	200 *	1,200	367 *	233 *	1,030	558 *	459 *	537 *	228 *
15	255	208 *	201 *	222 *	1,230	336 *	237 *	1,570	413 *	477	523 *	225 *
16	256	191 *	185 *	221	1,330 *	293 *	255	1,550	477	484	516 *	233 *
17	260 *	178 *	165 *	226	1,320 *	353 *	255	1,550	434	487 *	498 *	239
18	252	167 *	166 *	265 *	1,240 *	337	280 *	766	424	487 *	494 *	243
19	243 *	189	163	269 *	1,110 *	310	336 *	1,580	420 *	1,670	494	281 *
20	245	207	169	255 *	1,110 *	283 *	323 *	1,710	392 *	766 *	505	249 *
21	221 *	200 *	178 *	189 *	1,330	280 *	333	1,780	341 *	629 *	523 *	241 *
22	221	195 *	256 *	189 *	1,180	280 *	315	1,830	339 *	603	533 *	241
23	202	190 *	230 *	180	999 *	321 *	290	1,850	357 *	600	526 *	240 *
24	195 *	178	217 *	184	893 *	759 *	298	1,890	348	600 *	551 *	214
25	182 *	175 *	213 *	220 *	2,120 *	325	328 *	1,720	348	586 *	530 *	257
26	184 *	213	249	349 *	777 *	288 *	352 *	1,650	353 *	600 *	547	252 *
27	179 *	238	254	374 *	664 *	275 *	505 *	1,500 *	353 *	636 *	494	238 *
28	184 *	259 *	255 *	974 *	646	238 *	348	1,440	360 *	614 *	392	224 *
29	180		250 *	1,090 *	636	190 *	381 *	1,320	452 *	597	343 *	219
30	156		232 *	1,120	600	186 *	360	1,120	2,130 *	593	272 *	219 *
31	191 *		210 *		593 *		344	908		590 *		216
Sum	5,506		9,587		12,120		32,111		21,573		7,665	
	5,735.4	6,667		34,578		8,396.4		14,806		21,036		

Month	Current Year 1983							Period 1968-1983		
	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet		
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum
Jan.	2.53	1.64	20	275	! 6	60.0	185	11,374	36,709	131,293	11,374
Feb.	2.49	2.07	26	279	!18	159	197	10,917	34,212	124,386	3,336
Mar.	2.46	2.00	25	279	19	141	215	13,219	52,594	201,219	4,171
Apr.	3.77	2.03	30	1,130	23	166	320	19,027	47,479	89,875	5,565
May	7.74	2.95	25	5,050	31	565	1,120	68,560	53,574	123,749	10,932
June	4.33	2.26	24	1,380	30	138	403	24,043	49,896	139,972	6,008
July	3.54	1.84	27	848	! 6	60.0	271	16,654	59,353	154,562	16,654
Aug.	5.61	2.43	14	3,390	7	237	1,030	63,650	95,836	243,660	31,728
Sept.	6.36	2.53	30	3,160	!21	332	494	29,349	157,643	468,680	17,892
Oct.	5.58	2.76	19	2,470	13	448	696	42,791	113,522	655,967	16,883
Nov.	8.53	2.20	3	5,970	30	208	703	41,747	45,396	137,415	7,484
Dec.	2.40	2.03	19	335	24	194	247	15,202	29,051	65,969	7,383
Yearly	8.53	1.64		5,970		60.0	491	356,533	775,265	1,698,395	356,533
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
	2.60	0.50		169		1.70	13.9	439,780	956,278	2,094,945	439,780

** Period 1968-1983 * Discharge measurement made on this day ! And other days

‼ Estimated

ALAMITO CREEK NEAR PRESIDIO, TEXAS

DESCRIPTION: Gravity well and water-stage recorder located on the left bank 300 feet (91.4 m) upstream from the highway bridge on Farm-to-Market Road 170 at latitude 29°31'25", longitude 104°17'15", about 2,000 feet (610 m) from the confluence with the Rio Grande, and about 6 miles (9.7 km) southeast of Presidio, Texas. This stream enters the Rio Grande near the lower end of the Presidio Valley at river mile 950.1 (1,529.1 km), 8.6 river miles (13.8 km) downstream from the international highway bridge between Presidio, Texas and Ojinaga, Chihuahua. Measurements of high flows are made from the highway bridge. The zero of the gage is 2,541.61 feet (774.68 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 56 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 1983.

REMARKS: A small irrigation reservoir (San Esteban) 10.5 miles (16.9 km) south of Marfa, Texas and irrigation diversions below the reservoir modify the flow of this spring-fed creek. Backwater from the Rio Grande begins to affect the station record when the flow at the station on the Rio Grande below Rio Conchos reaches about 35,000 second-feet (991 m^3/sec).

EXTREME FLOWS FROM RECORDS: Momentary: Max. 56,400 second-feet (1,600 m^3/sec), determined by slope-area calculations, on September 2, 1962, with a gage height of 13.54 feet (4.13 m). Min. Ø0.1 second-foot (0.003 m^3/sec) occasionally.

Average Flow in Second-Feet (Cubic Meters per Second)

Daily:	Max.	12,400 (351)	Sept. 21, 1974	Min.	0.1 (0.003)	Occasionally
Monthly:	Max.	998 (28.3)	Sept. 1974	Min.	0.2 (0.005)	July 1980
Yearly:	Max.	97.1 (2.75)	1974	Min.	3.2 (0.09)	1982

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0.7	* 1.1	0.7	* 1.1	0.7	0.4	0.4	0.4	* 0.5	1.5	0.6	0.9
2	.7	1.1	.7	1.1	.7	.4	.3	* .4	.5	1.3	.7	.8
3	.7	1.1	.7	1.1	* .7	.4	.3	.4	.5	1.6	.7	.8
4	* .7	1.1	.7	1.1	.7	.5	.3	.4	.5	386 *	.7	.8
5	.7	1.1	1.1	* 1.1	1.1	.5	* .3	.4	.5	3.7	.7	.7
6	.7	1.1	1.1	1.1	1.1	* .5	.3	.4	.5	1.1	.8	* .7
7	.7	1.1	1.1	1.1	1.1	.5	.3	.4	* .5	1.0	* .8	.7
8	1.1	* 1.1	* 1.1	.7	1.1	.4	.3	* .4	.5	.8	.8	.8
9	1.1	1.1	1.1	.7	* 90.8	.4	.3	83.8	.5	.8	.8	.8
10	1.1	1.1	1.1	.7	12.4	.4	.3	.7	.4	.6	.8	.9
11	* 1.1	.7	1.1	* .7	.4	.4	* .3	157	.4	* .6	.7	1.0
12	1.1	.7	1.1	.7	.4	.4	.3	.6	* .4	.6	.7	* 1.0
13	1.1	.7	1.1	.7	.4	.3	.3	.5	.4	.6	.7	1.0
14	1.1	* .7	* 1.1	.7	.4	* .3	.3	.4	.4	.6	.7	1.0
15	1.1	.7	1.1	.7	.4	.3	.4	.3	.4	.6	* .7	.9
16	1.1	.7	1.1	.7	.4	.3	.4	* .3	.4	.6	.7	.9
17	1.1	.7	1.1	.7	* .4	.4	.4	.3	.4	.6	.7	.9
18	* 1.1	.7	1.1	.7	.4	.4	.4	.4	.4	* .6	.7	.8
19	1.1	.7	1.1	* .7	.4	.4	* .4	.4	.4	.6	.7	.8
20	1.1	.7	1.1	.7	.4	* .4	.4	.4	* .4	.6	.7	* .8
21	.7	.7	1.1	.7	.4	.4	.4	.5	.4	.6	* .7	.8
22	.7	.7	* 1.1	.7	.4	.4	.4	* .5	.4	.6	.7	.8
23	.7	.7	1.1	.7	* .4	.4	.3	.5	.4	.6	.8	.8
24	* .7	.7	1.1	.7	.4	.5	.3	.5	.4	* .6	.8	.9
25	.7	.7	1.4	* .7	.4	.7	* .3	.5	.4	.6	.8	.9
26	.7	.7	1.4	.7	.4	.4	3.8	.5	* .4	.6	.8	.9
27	.7	.7	1.4	.7	.4	.4	.5	.5	.4	.6	.8	* .9
28	.7	* .7	* 1.4	.7	.4	* .4	.4	.5	* .6	.6	.9	.9
29	1.1		1.4	.7	.4	.4	3.4	.5	1.1	.6	* .9	1.0
30	1.1		1.4	.7	.4	.4	.4	* .5	546 *	.6	.9	1.0
31	1.1		1.1		* .4		.4	.5		* .6		1.1
Sum	28.1	23.6	34.3	23.8	118.8	12.4	17.3	253.8	559.4	411.0	22.5	27.0

Current Year 1983 — Period 1932-1983

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.			! 8	Ø 1.1	! 1	Ø 0.7	0.9	55.7	134	273	46.4
Feb.			! 1	Ø 1.1	!11	Ø .7	.8	46.8	182	3,120	41.5
Mar.			!25	Ø 1.4	! 1	Ø .7	1.1	68.0	153	1,018	46.4
Apr.			! 1	Ø 1.1	! 8	Ø .7	.8	47.2	269	3,690	40.3
May	6.56		9	604	!11	Ø .4	3.8	236	899	8,520	34.7
June	5.39		25	3.2	!13	Ø .3	.4	24.6	1,736	12,653	24.2
July	6.14		26	80.2	! 2	Ø .3	.6	34.3	3,001	18,500	9.5
Aug.	7.53	4.95	11	2,030	10	.2	8.2	503	3,042	16,330	49.0
Sept.	8.43		30	4,540	!10	Ø .4	18.6	1,110	4,560	59,380	37.1
Oct.	7.85	5.10	4	1,680	!10	Ø .6	13.3	815	1,754	19,200	36.9
Nov.			!28	Ø .9	1	Ø .6	.8	44.6	194	2,554	35.7
Dec.			31	1.1	! 5	Ø .7	.9	53.6	141	408	39.3
Yearly				4,540		0.2	4.2	3,038.8	16,065	70,273.8	2,319.9
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
				129		0.01	0.12	3,748	19,816	86,683	2,861.8

* Discharge measurement made on this day Ø Mean daily ! And other days

RIO GRANDE BELOW RIO CONCHOS NEAR PRESIDIO, TEXAS AND OJINAGA, CHIHUAHUA

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°31'10", longitude 104°17'10", and river mile 949.8 (1,528.5 km); 0.4 river mile (0.6 km) downstream from Alamito Creek and 9.0 river miles (14.4 km) downstream from the international highway bridge between Presidio, Texas and Ojinaga, Chihuahua. The zero of the gage is 2,532.00 feet (771.75 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 55 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 1983. Records are also available from 1896 through June 13, 1932 for a station located about 12.1 river miles (19.5 km) downstream from the Rio Conchos and 1.3 miles (2.1 km) upstream from Alamito Creek; and from June 14, 1932 through 1954 for a station about 2.0 river miles (3.2 km) downstream from the Rio Conchos and 11.4 river miles (18.3 km) upstream from Alamito Creek.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station. The transmitter, operated in cooperation with the National Weather Service, relays gage height data upon interrogation by telephone via commercial circuits. Prior to December 1, 1979 the zero of the gage was 2,536.00 feet (772.97 m) above mea sea level, U. S. C. & G. S. datum.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 61,200 second-feet (1,730 m^3/sec) on September 30, 1978 with a gage height of 15.41 feet (4.70 m). The greatest recorded flow occurred September 11, 1904, with a peak flow estimated at 162,000 second-feet (4,590 m^3/sec) at a station 11.8 miles (19.0 km) upstream. Min. 0.2 second-foot (0.01 m^3/sec) several days in July 1955, and on June 30, 1958.

Average Flow in Second-Feet (Cubic Meters per Second)**

Daily:	Max. 53,300 (1,510)	Oct. 1, 1978	Min. 12.9 (0.37)	March 27, 1968
Monthly:	Max. 11,500 (326)	Oct. 1978	Min. 74.5 (2.11)	March 1968
Yearly:	Max. 2,390 (67.7)	1978	Min. 602 (17.0)	1983

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	153	299 *	343	239 *	1,100	585	210	456	907	1,720	689	391
2	158	301	329	270	1,150	631	194	414 *	802	1,470	704	393
3	156	280	308	348	1,100 *	689	182	381	705	1,570	2,470	397
4	142 *	252	301	336	1,120	634	186	351	622	1,980 *	4,010	393
5	142	248	323	286 *	1,120	623	116 *	310	595	869	1,640	401
6	142	258	315	247	1,120	616 *	142	308	563	682	1,130	397 *
7	133	278	297	253	1,140	545	354	318	523 *	732	939 *	383
8	162	269 *	273 *	295	1,310	510	304	372	447	596	893	372
9	314	266	241	326	1,630 *	452	334	466 *	467	1,090	876	375
10	343	255	232	360	1,490	444	324	623	471	739	853	386
11	343 *	242	220	403 *	1,370	436	326 *	2,790	477	678 *	820	384
12	322	251	225	364	1,270 *	447	301	1,060 *	489 *	653	763	389 *
13	329	254	212	317	1,190 *	423	276	779	525	641	757	366
14	334	262 *	252 *	290	1,300	396 *	272	872	721	653	764	354
15	346	275	255	280	1,390	360	272	1,870	567	670	741 *	367
16	345	257	255	273	1,480	329	286	1,670 *	542	683	722	376
17	353	231	219	309	1,470 *	352	357	1,720	589	683	705	381
18	360 *	218	206	364	1,310	357	325	1,060	537	666 *	675	384
19	342	226	202	371 *	1,150	351	346 *	1,520	530	2,070	655	428
20	388	267	210	367	1,120	338 *	405	1,730	525 *	1,130	661	412 *
21	350	281	224	321	1,360	307	363	1,740	514	849	663 *	393
22	345	266	267 *	307	1,280	312	361	1,800 *	459	836	674	384
23	328	270	283	297	1,060 *	317	347	1,820	444	860	663	391
24	310	244	259	320	915	997	335	1,820	441	834 *	685	374
25	290 *	213	236	307 *	2,240	409	379 *	1,830	426	846	661	399
26	288	234	268	417	869	336	390	1,750	413 *	774	672	411
27	278	326	280	392	706	329	624	1,640	393	800	647	404 *
28	275	332 *	310 *	812	636	288 *	435	1,590	359	766	521	383
29	278		302	1,060	632	256	404	1,500	408	750	475 *	380
30	260		273	1,070	607	241	484	1,270 *	3,610	737	408	381
31	273		251		590 *		440	1,060		712 *		383
Sum	7,355		11,601		13,310			36,890		28,739		12,012
	8,582		8,171		36,225		10,074		19,071		27,536	

Month	Current Year 1983 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 1968-1983 Acre-Feet Average	Maximum	Minimum
Jan.	2.95	1.90	20	480	! 7	125	277	17,022	37,642	116,947	16,068
Feb.	2.69	2.26	28	344	26	200	263	14,588	34,129	110,937	4,745
Mar.	2.69	1.97	1	345	20	130	264	16,207	52,662	223,755	4,583
Apr.	4.30	2.23	31	1,120	1	227	387	23,010	48,546	96,089	6,497
May	6.89	3.18	25	5,090	31	565	1,170	71,851	53,981	124,046	12,147
June	5.12	2.28	24	1,790	30	224	444	26,400	50,121	146,055	5,927
July	3.72	1.73	27	852	5	91.0	325	19,981	63,496	172,324	18,744
Aug.	7.90	2.46	11	9,850	5	295	1,190	73,170	104,000	270,367	30,365
Sept.	6.63	2.71	30	5,610	28	345	636	37,827	173,613	469,832	22,489
Oct.	5.89	3.40	4	3,340	! 8	535	927	57,003	131,959	706,691	16,772
Nov.	7.39	2.52	3	8,090	30	304	918	54,617	48,740	128,549	8,741
Dec.	2.91	2.41	19	472	14	295	387	23,825	32,275	77,106	11,038
Yearly	7.90	1.73		9,850		91.0	602	435,501	831,164	1,732,514	483,092
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
	2.41	0.53		279		2.6	17.0	537,190	1,025,241	2,137,056	595,894

** Period 1968-1983 * Discharge 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°11'50", longitude 103°36'20", 2.6 creek miles (4.2 km) from the confluence with the Rio Grande, and about 8.5 miles (13.7 km) south of Terlingua, Brewster County, Texas. This creek enters the Rio Grande at river mile 885.2 (1,424.6 km), the lower end of Santa Helena Canyon. The zero of the gage is 2,200.64 feet (670.76 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 30 discharge measurements during the year and a continuous record of gage heights. Computations by shifting control methods. Records available: 1932 through 1983.

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

EXTREME FLOWS FROM RECORDS: Momentary: Max. 34,900 second-feet (988 m^3/sec) on May 24, 1935 with a gage height of 17.59 feet (5.36 m) on a gage 0.3 mile (0.5 km) downstream. Min. 0.1 second-foot (0.003 m^3/sec) several days in June and July 1950.

Average Flow in Second-Feet (Cubic Meters per Second)

Daily:	Max.	17,200 (487)	June 1, 1937	Min.	0.1 (0.003)	Several days in June & July 1950
Monthly:	Max.	1,150 (32.6)	Sept. 1974	Min.	0.8 (0.02)	October 1934
Yearly:	Max.	146 (4.13)	1937	Min.	5.5 (0.16)	1943

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2.8	3.2	3.2	2.5	2.1	* 42.3	* 2.0	* 1.5	1.9	2.0	* 2.0	1.6
2	2.8	2.8	3.2	2.5	* 2.1	22.9	2.1	1.5	1.8	1.9	2.0	1.6
3	* 2.8	2.8	3.2	2.5	2.1	4.6	14.1	1.5	1.8	* 33.4	1.9	1.5
4	2.8	2.8	2.8	* 2.5	2.1	1.8	3.0	1.4	1.8	26.6	2.0	1.5
5	2.8	2.8	2.8	2.5	1.8	1.7	89.8	3.7	1.8	13.2	183	* 1.5
6	2.8	2.5	2.1	2.5	1.8	1.4	5.7	14.4	* 1.8	39.8	2.5	1.5
7	2.8	* 2.5	* 2.1	2.5	1.8	1.2	9.3	1.7	2.0	15.8	1.7	1.5
8	2.8	2.5	2.1	2.5	1,650	1.3	10.2	11.9	2.0	124	1.7	1.5
9	2.8	2.5	2.1	2.5	403	1.3	2.0	28.8	2.0	13.7	1.5	1.5
10	2.8	2.5	2.1	2.5	38.8	1.1	2.0	11.4	1.9	2.1	1.7	1.5
11	2.8	2.5	2.1	2.5	* 14.8	1.1	1.8	170	1.9	2.0	1.6	1.5
12	2.8	2.5	2.1	2.5	5.6	1.0	1.8	82.3	1.9	1.7	1.6	1.5
13	2.8	2.5	2.1	2.5	2.8	* 1.1	1.8	566	36.6	1.9	1.6	1.5
14	2.8	2.5	2.1	2.5	2.8	1.1	1.8	31.7	8.3	1.8	* 1.6	1.5
15	2.8	2.8	3.2	2.5	2.8	3.4	1.8	* 10.7	1.9	1.7	1.6	1.5
16	2.8	2.8	3.2	2.5	* 2.8	207	3.1	1.7	1.8	1.7	1.6	1.5
17	* 2.8	2.8	2.5	2.5	2.8	21.1	31.0	1.5	4.9	* 1.6	1.6	1.5
18	2.8	2.8	2.5	* 2.5	2.8	4.6	* 54.6	1.5	2.1	1.7	1.6	1.5
19	2.8	2.8	2.5	2.5	2.8	2.0	24.9	1.5	* 1.8	2,690	1.6	* 1.5
20	92.2	2.8	2.5	2.5	2.8	2.1	5.4	1.6	1.6	228	1.6	1.5
21	22.6	2.8	* 2.5	2.5	2.8	2.0	1.8	1.6	1.6	9.6	1.6	1.5
22	12.4	* 2.8	2.5	2.5	2.8	2.1	1.7	1.6	1.8	3.5	1.7	1.5
23	7.1	2.8	2.5	2.5	2.8	2.1	1.5	112	1.8	2.4	1.7	1.5
24	3.9	3.5	2.5	2.5	2.8	13.2	1.5	13.1	1.8	1.9	1.7	1.5
25	3.2	3.9	2.5	2.1	2.8	5.5	1.5	2.1	1.8	1.8	1.7	1.5
26	3.2	3.2	2.5	2.1	2.8	22.6	1.5	1.9	1.8	1.8	1.7	1.5
27	3.2	3.2	2.5	2.1	2.8	* 9.8	1.5	1.8	1.9	1.9	1.7	1.6
28	3.2	3.2	2.5	2.1	2.8	3.0	* 1.5	1.9	1.9	1.9	* 1.7	1.6
29	3.2		2.5	2.1	2.8	2.1	1.5	* 1.9	1.9	1.8	1.6	1.6
30	3.2		2.5	2.1	2.8	2.0	1.5	1.9	2.0	1.8	1.6	1.6
31	* 3.2		2.5		2.8		1.5	1.9		1.9		1.6
Sum	213.8	79.1	78.0	72.6	2,179.2	388.5	285.2	1,088.0	99.9	3,234.9	232.7	47.2

Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Period 1932-1983 Acre-Feet		
				High		Low					
	High	Low	Day		Day				Average	Maximum	Minimum
Jan.	4.30		20	604	! 1	2.8	6.9	424	194	875	82.7
Feb.	2.79		25	32.5	! 6	2.5	2.8	157	229	4,400	73.4
Mar.	2.66		15	9.9	! 6	2.1	2.5	155	254	2,410	72.4
Apr.			! 1	Ø 2.5	!25	2.1	2.4	144	1,218	18,640	55.1
May	7.45	2.07	8	12,400	! 5	1.8	70.3	4,322	3,536	26,000	81.3
June	4.71	2.03	16	1,740	12	1.0	13.0	771	6,308	54,800	59.5
July	4.74	2.05	5	1,810	!23	1.5	9.2	566	8,134	28,700	113
Aug.	5.65	2.04	13	4,720	! 4	1.4	35.1	2,158	6,159	33,617	123
Sept.	4.01		13	693	!20	1.6	3.3	198	8,749	68,375	123
Oct.	7.06		19	11,200	17	1.6	104	6,416	3,404	27,900	50.8
Nov.	5.16	1.70	5	2,890	9	1.5	7.8	462	394	3,058	64.9
Dec.			! 1	Ø 1.6	! 3	1.5	1.5	93.6	304	3,080	90.0
Yearly				12,400		1.0	21.9	15,866.6	38,883	105,807	3,958
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
				351		0.03	0.62	19,571	47,962	130,513	4,882

Current Year 1983

Ø Mean daily

! And other days

RIO GRANDE AT JOHNSON RANCH NEAR CASTOLON, TEXAS AND SANTA ELENA, CHIHUAHUA

DESCRIPTION: Cableway, gravity well, and digital water-stage recorder located on the left bank at latitude 29°02'05", longitude 103°23'25", and river mile 862.4 (1,388.0 km); 1.3 river miles (2.2 km) upstream from the old Johnson Ranch headquarters, 6.0 river miles (9.7 km) downstream from Smoky Creek, and 9.2 river miles (14.8 km) upstream from Chizos Crossing and the Chihuahua-Coahuila state line. The zero of the gage is 2,045.30 feet (623.41 m) above mean sea level, U. S. C. & G. S. datum.
RECORDS: Based on 28 discharge measurements during the year and a continuous record of gage heights. Computations by shifting control methods. Records available: April 1936 through 1983.
REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station.
EXTREME FLOWS FROM RECORDS: Momentary: Max. 71,900 second-feet (2,040 m^3/sec), on September 30, 1978 with a gage height of 28.40 feet (8.66 m). A flow estimated at 97,000 second-feet (2,750 m^3/sec) with a stage of 24.6 feet (7.50 m) 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 (Cubic Meters per Second)**

Daily:	Max. 65,300 (1,850)	Oct. 1, 1978	Min. 27.5 (0.78)		Sept. 9, 1968
Monthly:	Max. 12,200 (345)	Oct. 1978	Min. 96.9 (2.74)		April 1976
Yearly:	Max. 2,490 (70.5)	1978	Min. 559 (15.8)		1983

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	145	227	294	198	968	560 *	213 *	324 *	961	2,590	680 *	496
2	142	233	299	179	1,020 *	544	200	302	818	2,250	642	434
3	152 *	259	303	180	1,070	538	198	300	730	1,320 *	648	441
4	163	265	310	201 *	1,080	632	173	276	639	1,350	2,530	430
5	161	253	284	265	1,050	549	155	265	582	1,560	4,620	425 *
6	153	230	269	265	1,050	523	349	258	538 *	1,080	1,840	421
7	138	222 *	278 *	236	985	525	169	208	501	804	1,260	418
8	125	242	280	207	957	484	156	227	461	804	987	414
9	120	249	256	199	2,600	441	235	332	423	841	884	404
10	115	238	229	246	1,670	409	214	250	378	842	855	392
11	226	243	197	280	1,550	389	234	1,940	381	773	814	387
12	289	244	178	327	1,320	366	233	2,860	382	638	796	386
13	293	231	170	341	1,220	386 *	234	1,350	410	619	729	383
14	274	241	170	311	1,110	376	210	690	467	599	699 *	374
15	280	247	158	252	1,080	473	184	785 *	546	579	686	355
16	285	244	168	227	1,150 *	1,390	179	1,480	546	560	678	349
17	283 *	240	190	223	1,230	435	247	1,390	506	582 *	651	356
18	298	230	194	209 *	1,220	390	241 *	1,460	528	753	654	360
19	289	214	171	244	1,100	381	321	1,070	463 *	3,140	634	361 *
20	314	198	161	262	985	376	240	1,080	417	2,140	620	365
21	487	188	171 *	272	922	373	260	1,510	407	786	620	398
22	392	234 *	181	266	1,080	369	270	1,560	401	376	636	385
23	325	240	177	230	1,140	369	270	1,720	402	387	647	366
24	320	226	203	210	961	369	272	1,590	396	521	655 *	356
25	297	278	230	215	795	592	265	1,610	382	661	677	368
26	286	243	212	243	1,930	597	295	1,490	380	684	660	364
27	258	205	196	238	996	371	318	1,500	377	687	663	390
28	245	212	229	340	752	301 *	355	1,380	371	687	679	389
29	239		248	413	618	270	390	1,340 *	369	686	599	373
30	235		255	848	576	230	322	1,270	367	687	539	355
31	235 *		231		544		305	1,120		689		353
Sum	7,564	6,576	6,892	8,127	34,729	14,008	7,707	32,937	14,529	30,675	28,282	12,048

Month	Current Year 1983							Period 1968-1983		
	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
	High	Low	High Day	High	Low Day	Low			Average	Maximum	Minimum
Jan.	2.79	1.25	21	745	!10	115	244	15,003	38,492	118,276	15,003
Feb.	2.49	1.51	25	583	21	178	235	13,043	34,118	111,869	7,743
Mar.	1.94	1.41	4	327	15	139	222	13,670	50,410	211,676	6,067
Apr.	3.05	1.48	31	918	2	177	271	16,120	46,587	101,012	5,765
May	8.17	2.53	9	6,890	31	516	1,120	68,884	56,365	116,801	14,454
June	6.08	1.65	16	3,870	30	216	467	27,784	57,977	192,801	5,839
July	2.44	1.20	19	551	8	107	249	15,287	72,482	194,499	12,460
Aug.	8.10	1.69	11	6,780	8	190	1,060	65,330	114,549	242,539	30,689
Sept.	3.29	2.01	1	1,040	30	366	484	28,818	179,191	472,093	27,759
Oct.	9.34	2.05	19	8,540	22	344	990	60,843	147,671	751,755	17,776
Nov.	8.88	2.38	5	7,940	30	517	943	56,097	52,568	147,392	13,267
Dec.	2.39	1.94	1	522	!15	335	389	23,897	34,513	80,139	12,107
Yearly	9.34	1.20		8,540		107	559	404,776	884,923	1,801,958	501,243
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
	2.85	0.37		242		3.03	15.8	499,291	1,091,553	2,222,715	618,283

** Period 1968-1983 * Discharge measurement made on this day ! And other days

RIO GRANDE AT FOSTER RANCH NEAR LANGTRY, TEXAS AND RANCHO SANTA ROSA, COAHUILA

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°45'30", and river mile 657.5 (1,058.2 km); 500 feet (152 m) downstream from the Terrell-Val Verde County Line, 5.4 river miles (8.8 km) downstream from Lozier Canyon, and about 12.3 miles (19.8 km) west of Langtry, Texas. The zero of the gage is 1,157.17 feet (352.71 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 26 discharge measurements during the year, 22 by the United States Section and 4 by the Mexican Section of the 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 1983.

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. The transmitter relays gage height data upon interrogation from the Amistad Dam hydrographic office of the United States Section of the Commission. Transmission is via radio.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 148,000 second-feet (4,190 m^3/sec) on November 5, 1978 with a gage height of 38.14 feet (11.63 m). Min. 188 second-feet (5.32 m^3/sec) on August 19, 1965.

Average Flow in Second-Feet (Cubic Meters per Second)**

Daily:	Max. 81,600 (2,310)	Sept. 20, 1974	Min. 217 (6.15)	July 1,	1968
Monthly:	Max. 14,700 (416)	Oct. 1978	Min. 322 (9.12)	March	1968
Yearly:	Max. 3,030 (85.8)	1978	Min. 845 (23.9)		1983

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	533	604	657	466	448	882	550	603 *	1,420	639	871	915
2	505	583	569	483	484	868	578	554	1,350	618	856	867
3	537 *	572 *	537	491	784	834	502	520	1,230	1,190 *	854	828
4	533	565	551	487 *	971	842	466	519 *	1,110	2,020	853	793
5	533	565	604	463	1,060	813	437 *	516	1,010	1,560	1,100	756 *
6	533	565	611	434	1,120	826 *	442	514	963 *	1,410	4,320	747
7	533	565 *	604 *	427	1,130	915	542	522	899	1,490	3,770 *	736
8	544	565	604	424	1,100	774	601	507	854	1,570	1,950	725
9	544	565	604	505	1,130	729	458	513	792	1,990	1,530 *	714
10	533	530	569	537	2,270	737	504	500	784	1,950	1,280	704
11	498	530	569	526	2,320	703	412	584	784	1,380	1,140	693
12	498	537	569	498	1,620	659	368	860	776	1,050	1,090	683
13	498	530	569	466	1,620	642	416	3,330	708	1,080	1,070	672
14	498	530	544	484	1,470	613	405	3,040	722	980	1,040	652
15	551	530	533	498	1,350	584	430	1,930	710	875	1,020	634
16	629	551	498	533	1,290 *	574	435	1,320	710	842	970	621
17	618 *	530	470	565	1,270	612	519	1,050	749	819 *	945	609
18	604	544	477	565 *	1,250	1,080	561 *	1,260	1,200	790	942	583
19	604	554	487	526	1,300	1,060	456	1,580	748	818	933	598 *
20	660	540	466	487	1,380	753 *	447	1,500	674	6,040 *	915	619
21	653	530	477 *	452	1,370	629	475	1,500	699	5,640	910 *	635
22	671	530	484	427	1,290	564	484	1,150	669	2,670	888	630
23	791	530	494	427	1,210	530	523	1,430	644	1,580	880	636
24	826	526	466	456	1,160	539	473	1,580	639	1,160	865	646
25	724	537	466	456	1,320	588	468	1,720	632	1,020	889	647
26	710	703	466	466	1,300 *	503	476	1,750	609	933	901	636
27	667	565	466	452	1,160	494	478	1,640	594	946	900	650
28	687	636	456	420	1,600	662	603	1,640	598	922	904	649
29	646		484	424	1,570	780	577	1,570	614	914	908	646
30	629		498	456	1,150	632	523	1,530	621	882	912	652
31	604		466		971		551	1,450		881		675
Sum	15,612		14,301		21,421		38,682		46,659		21,251	
	18,594		16,315		39,468		15,160		24,512		36,406	

Current Year 1983									Period 1968-1983		
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.	2.23	1.90	24	883	! 2	498	600	36,881	55,108	122,084	31,343
Feb.	2.30	1.90	26	971	!24	498	558	30,966	48,323	115,301	22,435
Mar.	2.07	1.84	1	678	28	434	526	32,360	65,997	224,767	19,789
Apr.	2.00	1.80	17	604	! 7	403	477	28,366	65,986	146,598	20,200
May	3.28	1.87	10	2,800	1	448	1,270	78,284	77,022	129,421	28,616
June	2.63	1.89	18	1,470	27	468	714	42,488	81,230	251,940	22,463
July	2.21	1.77	7	836	12	356	489	30,069	92,527	218,916	23,871
Aug.	3.75	1.89	13	4,220	11	468	1,250	76,725	139,193	233,664	45,474
Sept.	2.85	2.01	18	1,860	!26	594	817	48,619	195,458	590,037	48,619
Oct.	5.62	2.01	20	9,120	3	594	1,510	92,547	185,201	901,825	32,134
Nov.	4.43	2.20	6	6,770	24	823	1,210	72,210	82,140	357,878	30,399
Dec.	2.28	1.98	1	930	19	560	686	42,151	52,183	95,969	32,025
Yearly	5.62	1.77		9,120		356	845	611,666	1,140,368	2,196,111	611,666
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
	1.71	0.54		258		10.1	23.9	754,490	1,406,644	2,708,903	754,490

** Period 1968-1983 * Discharge measurement made on this day ! And other days

PECOS RIVER NEAR LANGTRY, TEXAS

DESCRIPTION: Cableway, concrete control weir, bubbler gage, and water-stage recorders (graphic and digital), located on the right bank at latitude 29°48'10", longitude 101°26'45", about 7.5 miles (12.1 km) east of Langtry, Texas, 9.5 river miles (15.3 km) upstream from the Pecos High Railroad Bridge, and 15.0 river miles (24.1 km) from the confluence with the Rio Grande. This stream enters the Rio Grande at river mile 616.0 (991.4 km); 23.6 river miles (38.0 km) downstream from Langtry, Texas. The zero of the gage is 1,133.08 feet (345.36 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 26 discharge measurements during the year, 22 by the United States Section and 4 by the Mexican Section of the 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 1983. Records are also available for Pecos River near Comstock, 9.5 river miles (15.3 km) downstream, from March 17 through December 3, 1898 and May 1900 through October 7, 1954; for Pecos River near Shumla, 3.5 river miles (5.6 km) 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 transmitter relays gage height data upon interrogation from the Amistad Dam hydrographic office of the United States Section of the Commission. Transmission is via radio.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 577,000 second-feet (16,300 m^3/sec) on September 20, 1974 with a gage height of 75.30 feet (22.95 m). The greatest flood of record, which exceeded a gage height of 100 feet (30.5 m) at this station, occurred on June 28, 1954. The peak discharge was 948,000 second-feet (26,800 m^3/sec) at the gaging station located near the railroad bridge 9.5 river miles (15.3 km) downstream. Min. 58.3 second-feet (1.65 m^3/sec) on July 27, 1974 with a gage height of 1.47 feet (0.45 m).

Average Flow in Second-Feet (Cubic Meters per Second)

Daily:	Max. 153,000 (4,330)	Sept. 20, 1974	Min. 59.5 (1.69)	Aug. 20, 21, & 22, 1970
Monthly:	Max. 13,500 (382)	Sept. 1974	Min. 68.0 (1.93)	August 1970
Yearly:	Max. 1,500 (42.5)	1974	Min. 131 (3.71)	1970

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	183	185	193	158	131	112	136	* 85.3	82.4	87.1	291	191
2	183	183	186	153	126 *	112	129	87.9	86.6	88.9	275	191
3	183 *	183	183	153	118	112	122	95.1	83.8	* 93.2	265	192
4	183	174	196	153 *	113	112	118	106	79.9	108	268	190
5	183	183	191	153	106	112	115	100	76.6	104	316	188 *
6	183	183	180	150	104	145 *	114	122	* 76.9	102	297	183
7	183	183 *	183 *	145	107	174	115	102	78.5	102	283 *	183
8	183	183	183	150	108	135	114	97.0	* 77.9	103	275	184
9	173	183	183	153	127	117	110	96.7	78.7	104	272	186 *
10	178	183	183	153	119	109	107	96.7	79.5	104	258	187
11	183	183	183	153	115	107	103	95.2	81.3	104	247	186
12	183	192	176	153	115	106	100	97.2	83.7	106	239	181
13	183	193	177	151	115	105	101	96.2	86.6	107	235	181
14	183	192	177	144	112	106	102	95.8	109	107	229	185
15	183	193	173	144	109	110	99.3	97.9	93.6	108	221	184
16	183	193	172	144	107 *	126	96.2	95.6	93.3	109	217	179
17	183 *	184	163	144	104	110 *	94.2	92.0	88.4	111 *	211	179
18	183	183	163	144 *	104	110	* 93.6	89.3	90.9	110	211	178
19	190	183	163	145	120	108	91.0	88.7	* 91.8	232	208	177 *
20	195	183	163	144	129	103 *	91.6	86.1	93.0	4,740	201	178
21	204	176	163 *	144	245	99.0	92.3	83.7	89.3	661	201 *	178
22	204	173 *	163	144	109	98.1	90.0	82.2	86.9	553	201	178
23	193	173	163	136	102	97.3	86.9	82.7	84.6	511	202	178
24	193	173	163	135	99.1	125	85.8	81.5	85.6	380	202	172
25	193	209	163 *	135	100	488	83.7	81.0	86.9	563	201	172
26	193	341	163	135	101	236	82.7	80.0	88.3	610	198	172
27	183	212	163	135	100	211	80.7	79.9	88.5	656	194	175
28	183	197	159	135	106	185	80.4	82.6	86.1	511	192	178
29	183		153	135	117	162	80.6	81.5	84.8	407	193	175
30	183		159	135	113	147	82.5	79.9	86.7	351	194	172
31	183		163		112		82.7	81.4		310		172
Sum	5,759	5,356	5,346	4,356	3,593.1	4,179.4	3,080.2	2,819.1	2,580.1	12,343.2	6,997	5,605

Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
				High		Low					
	High	Low	Day		Day				Average	Maximum	Minimum
	Current Year 1983								Period July 1967-1983		
Jan.	2.03	1.90	21	215	! 3	173	186	11,423	13,176	29,240	7,559
Feb.	2.49	1.90	!25	456	! 4	173	191	10,623	11,585	25,414	7,012
Mar.	2.07	1.84	4	226	!26	153	172	10,604	11,789	22,124	6,929
Apr.	1.87	1.77	1	163	!23	135	145	8,640	15,928	51,960	8,156
May	2.50	1.64	21	452	!23	99.1	116	7,127	15,682	46,055	7,127
June	3.08	1.63	25	1,150	23	94.2	139	8,290	13,582	37,856	5,458
July	1.82	1.57	1	145	!27	79.9	99.4	6,109	17,061	76,891	4,289
Aug.	1.79	1.57	6	137	!24	79.9	90.9	5,592	22,317	162,055	4,178
Sept.	1.71	1.55	14	115	! 5	75.4	86.0	5,118	62,266	804,466	5,118
Oct.	6.23	1.60	20	7,980	! 1	87.0	398	24,482	24,362	113,911	7,123
Nov.	2.40	1.96	5	380	28	188	233	13,878	16,558	59,734	6,589
Dec.	1.99	1.91	! 3	198	!24	172	181	11,117	13,981	37,859	7,662
Yearly	6.23	1.55		7,980		75.4	170	123,003	238,287	1,087,822	94,683
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
	1.90	0.47		226		2.14	4.81	151,724	293,927	1,341,828	116,791

* Discharge measurement made on this day. ! And other days.

DEAD MANS CANYON NEAR COMSTOCK, TEXAS

In order to determine storm runoff formerly included with measured flows at a gaging station on the Pecos River before its relocation upstream incident to the completion of Amistad Dam, a gaging station was established during 1968 on Dead Mans Canyon.

DESCRIPTION: Cableway, control weir, bubbler gage, and digital recorder located on the left bank of the canyon at latitude 29°47'05", longitude 101°19'25", 2.3 miles (3.7 km) upstream from its confluence with the Pecos River, which is 9.5 miles (15.3 km) upstream from the Pecos River confluence with the Rio Grande. The zero of the gage is 1,178.00 feet (359.05 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on current meter measurements, a continuous record of gage heights, and the weir discharge rating. Records available: March 1968 through 1983.

REMARKS: This stream is normally dry, its flow being confined to periods of storm runoff from its 88 square miles (228 km^2) of watershed area. Only the days of flow are shown below.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 37,800 second-feet (1,070 m^3/sec) on September 17, 1974 with a gage height of 12.78 feet (3.90 m). Maximum volumes: Monthly, 29,164 acre-feet (35,974,000 m^3) in September 1974; yearly 30,527 acre-feet (37,655,000 m^3) in 1974.

Average Flow in Second-Feet (Cubic Meters per Second)

Daily:	Max.	5,850 (166)	Sept. 18, 1974	Min.	}	see REMARKS
Monthly:	Max.	490 (13.9)	Sept. 1974	Min.	}	
Yearly:	Max.	42.2 (1.20)	1974	Min.	}	

Mean Daily Discharge in Second Feet 1983

Month and Day			
	No flow during 1983		

Annual Summary

Month	Maximum Gage and Discharge			Total Acre-Feet
	Day	Feet	Second-Feet	
Yearly		Meters	Cubic Meters per Second	Thous. of Cub. Meters

DOLAN SPRINGS NEAR LOMA ALTA, TEXAS

DESCRIPTION: Various springs located on the left bank of Snake Creek near its mouth, latitude 29°53'40", longitude 100°59'00", and about 12 miles (19.3 km) west of Loma Alta, Val Verde County, Texas. Snake Creek enters Dolan Creek from the left side, 0.9 creek mile (1.4 km) from the confluence with Devils River. Dolan Creek enters Devils River from the left side, 16.8 river miles (27.0 km) upstream from Pafford Crossing, and 42.3 river miles (68.1 km) from the confluence with the Rio Grande. The zero of the gage is 1,338.5 feet (407.97 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 12 discharge measurements during the year. Mean daily discharges determined by prorating between measurements. Records available: 1966 through 1983.

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. Prior to October 14, 1981, there was a concrete wall control, bubbler gage, and water-stage recorder on the left bank of Snake Creek near its mouth.

EXTREME FLOWS FROM RECORDS:

Average Flow in Second-Feet (Cubic Meters per Second)

Daily:	Max.	25.0 (0.71)	July 18, 1976	Min.	1.0 (0.03)	Several days in May 1971
Monthly:	Max.	21.9 (0.62)	February 1982	Min.	1.1 (0.03)	March, April & May 1971
Yearly:	Max.	17.2 (0.49)	1977	Min.	1.7 (0.05)	1968

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	4.9	4.6	4.6	4.2	4.1	4.2	4.0	* 4.0	4.1	3.8	4.0	3.8
2	4.9	4.6	4.6	4.2	4.1	4.2	4.0	4.0	4.1	3.8	4.1	3.8
3	* 4.9	4.6	4.6	4.2	4.1	4.2	4.0	4.0	4.1	* 3.8	4.1	3.8
4	4.9	4.6	4.6	* 4.2	* 4.1	4.2	4.0	4.0	4.1	3.8	4.1	3.8
5	4.9	4.6	4.6	4.2	4.1	4.2	* 4.0	4.0	4.1	3.8	4.1	* 3.8
6	4.9	4.6	4.6	4.2	4.1	4.2	4.0	4.0	* 4.1	3.8	4.1	3.8
7	4.9	* 4.6	* 4.6	4.2	4.1	4.2	4.0	4.0	4.1	3.8	* 4.1	3.8
8	4.9	4.6	4.6	4.2	4.1	4.2	4.0	4.0	4.1	3.8	4.1	3.9
9	4.9	4.6	4.6	4.2	4.1	4.2	4.0	4.0	4.1	3.8	4.1	3.9
10	4.9	4.6	4.6	4.2	4.1	4.2	4.0	4.0	4.1	3.9	4.1	3.9
11	4.9	4.6	4.6	4.2	4.1	4.2	4.0	4.0	4.0	3.9	4.0	3.9
12	4.9	4.6	4.6	4.2	4.1	4.2	4.0	4.0	4.0	3.9	4.0	3.9
13	4.9	4.6	4.6	4.2	4.1	* 4.2	4.0	4.0	4.0	3.9	4.0	4.0
14	4.9	4.6	4.6	4.2	4.1	4.2	4.0	4.0	4.0	3.9	4.0	4.0
15	4.9	4.6	4.6	4.2	4.1	4.2	4.0	4.0	4.0	3.9	4.0	4.0
16	4.9	4.6	4.6	4.2	4.1	4.2	4.0	4.0	4.0	3.9	4.0	4.0
17	4.9	4.6	4.6	4.2	4.1	4.2	4.0	4.0	4.0	3.9	4.0	4.0
18	4.9	4.6	4.6	4.2	4.1	4.2	4.0	4.0	4.0	3.9	4.0	4.1
19	4.9	4.6	4.6	4.2	4.1	4.1	4.0	4.0	4.0	3.9	3.9	4.1
20	4.9	4.6	4.6	4.1	4.1	4.1	4.0	4.1	3.9	3.9	3.9	4.1
21	4.6	4.6	4.2	4.1	4.1	4.1	4.0	4.1	3.9	3.9	3.9	4.1
22	4.6	4.6	4.2	4.1	4.1	4.1	4.0	4.1	3.9	4.0	3.9	4.1
23	4.6	4.6	4.2	4.1	4.1	4.1	4.0	4.1	3.9	4.0	3.9	4.1
24	4.6	4.6	4.2	4.1	4.2	4.1	4.0	4.1	3.9	4.0	3.9	4.2
25	4.6	4.6	4.2	4.1	4.2	4.1	4.0	4.1	3.9	4.0	3.9	4.2
26	4.6	4.6	4.2	4.1	4.2	4.1	4.0	4.1	3.9	4.0	3.9	4.2
27	4.6	4.6	4.2	4.1	4.2	4.1	4.0	4.1	3.9	4.0	3.8	4.2
28	4.6	4.6	4.2	4.1	4.2	4.1	4.0	4.1	3.9	4.0	3.8	4.2
29	4.6		4.2	4.1	4.2	4.1	4.0	4.1	3.8	4.0	3.8	4.3
30	4.6		4.2	4.1	4.2	4.0	4.0	4.1	3.8	4.0	3.8	4.3
31	4.6		4.2		4.2		4.0	4.1		4.0		4.3
Sum	148.6	128.8	138.2	124.9	127.9	124.7	124.0	125.2	119.7	121.0	119.3	124.6

Month	Extreme Gage Feet		Ø Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Period 1966-1983 Acre-Feet		
			High		Low				Average	Maximum	Minimum
	High	Low	Day		Day						
Jan.			! 1	4.9	!21	4.6	4.8	295	523	1,195	77.2
Feb.			! 1	4.6	! 1	4.6	4.6	255	438	1,213	66.8
Mar.			! 1	4.6	!21	4.2	4.5	275	456	1,278	70.4
Apr.			! 1	4.2	!20	4.1	4.2	248	392	1,061	65.5
May			!24	4.2	! 1	4.1	4.1	254	422	1,096	66.2
June			! 1	4.2	30	4.0	4.2	247	417	1,129	87.9
July			! 1	4.0	! 1	4.0	4.0	246	461	1,117	80.9
Aug.			!20	4.1	! 1	4.0	4.0	248	552	1,105	93.8
Sept.			! 1	4.1	!29	3.8	4.0	237	560	1,167	85.5
Oct.			!22	4.0	! 1	3.8	3.9	240	614	1,188	87.9
Nov.			! 2	4.1	!27	3.8	4.0	237	600	1,203	84.5
Dec.			!29	4.3	! 1	3.8	4.0	247	587	1,117	83.9
Yearly				4.9		3.8	4.2	3,029	6,022	12,443	1,257.2
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
				0.14		0.11	0.12	3,736	7,428	15,348	1,551

* Discharge measurement made on this day Ø Mean daily ! And other days

DEVILS RIVER AT PAFFORD CROSSING NEAR COMSTOCK, TEXAS

DESCRIPTION: Concrete control wall with rectangular notch opening of 900 second-foot (25.5 m^3/sec) capacity, cableway, bubbler gage, water-stage recorders (graphic & digital), and binary decimal transmitter located on the left bank at latitude 29°40'35", longitude 101°00'00", about 11.5 miles (18.5 km) east of Comstock, Val Verde County, Texas, and 25.5 river miles (41.0 km) from the confluence with the Rio Grande. The confluence is located at river mile 574.6 (924.7 km), 0.7 river mile (1.1 km) upstream from Amistad Dam. The zero of the gage is 1,131.88 feet (345.00 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 17 discharge measurements during the year, 13 by the United States Section and 4 by the Mexican Section of the Commission, a stable rating curve based on meter measurements, and a continuous record of gage heights. Records available: 1960 through 1983. Records are also available from May 1900 through March 1914 for a station 23.8 river miles (38.3 km) downstream; from December 1923 through September 1932 for a station 22.8 river miles (36.7 km) downstream; from September 2, 1932 through August 1957 for a station 21.0 river miles (33.8 km) downstream; from August 7, 1954 through January 1958 for a station 5.4 river miles (8.7 km) upstream; and from August 1954 through May 31, 1968 for a station at the mouth 24.7 river miles (39.8 km) downstream.

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 the Commission. Transmission is via radio.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 250,000 second-feet (7,080 m^3/sec) on September 18, 1974 with a gage height of 19.82 feet (6.04 m). Min. 48.6 second-feet (1.38 m^3/sec) on August 20, 1969.

Average Flow in Second-Feet (Cubic Meters per Second)

Daily:	Max.	123,000 (3,480)	Sept. 18, 1974	Min.	53.7 (1.52)	August 20,	1969
Monthly:	Max.	8,460 (240)	Sept. 1974	Min.	64.3 (1.82)	August	1964
Yearly:	Max.	977 (27.7)	1974	Min.	99.9 (2.83)		1968

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	260	252	252	222	221	181	166	166	160	161	173	208
2	267	252	243	212	200	184	163	166	160	162	170	208
3	260	248	237	215	192	184	163	166	160	159	170	208
4	252	243	248	219	189	184	163	178	156	162	176	208
5	242	252	246	218	186	177	166	180	156	163	454	208
6	237	252	237	214	189	223	170	173	156	160	281	208
7	237	252	237	212	194	203	192 *	170	153	157 *	249	208
8	245	252	237	228 *	192	200	184	168	153	176	228	208
9	252	252	237	223	211	184	177	177	153	192	217	208
10	252	252	237	223	204	181	170	190	153	174	211	208
11	252	252	237	223	204	181	166	180	153	168	205	206
12	247	252	237	230	203	174	166	174	160	162	200	200
13	237	252	237	223	200	177	166	166	160	158	198	196
14	237	252	237 *	223	200	177	170	165	163	157	196	196
15	237	252	237	223	197	177	170	164 *	160	159	192	196
16	237	252	234	223	192 *	177	170	163	158	161	190	196
17	245 *	252	223	223	190	181	166	163	155	163 *	188	196
18	252	252	223	223 *	194	174	170 *	163	182 *	163	188	198
19	252	252	225	223	199	174	170	162	166	165	187	200 *
20	262	252	230	220	224	174 *	174	164	163	14,400	184 *	200
21	283	237	223	223	315	174	170	156	156	979	186 *	200
22	275	237 *	223	225	342	174	170	156	155	318	189	204
23	267	237	230	218	242	177	166	156	155	227	188	204
24	267	237	223	209	229	181	166	155	156	192	188	204
25	257	246	226	209	219	184	166	155	158	189	184	204
26	252	252	232	209	215	181	166	157	162	188	184	204
27	252	252	223	217	207	174	166	156	163	182	184	208
28	252	252	223	223	203	170	166	157	162	176	184	208
29	252		223	223	201	170	166	157	159	177	184	208
30	252		223	223	197	166	166	158	158	174	184	208
31	252 *		223		196		166	160		174		207
Sum	7,823	6,977	7,203	6,599	6,547	5,418	5,236	5,121	4,764	20,498	6,112	6,323

Current Year 1983									Period 1960-1983		
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.	1.74	1.64	20	283	! 5	237	252	15,517	15,004	28,842	4,647
Feb.	1.71	1.64	1	267	! 3	237	249	13,839	12,897	25,287	3,999
Mar.	1.67	1.57	! 1	252	28	209	232	14,287	12,971	26,404	4,186
Apr.	1.67	1.57	1	252	! 1	209	220	13,089	14,027	38,777	4,520
May	2.21	1.51	21	514	! 4	180	211	12,986	15,310	35,344	4,517
June	1.87	1.53	6	308	30	166	181	10,746	18,385	54,328	4,259
July	1.65	1.50	7	211	11	156	169	10,385	21,280	186,522	4,034
Aug.	1.68	1.48	9	223	23	150	165	10,157	43,270	408,000	3,955
Sept.	1.64	1.48	18	207	17	150	159	9,449	49,430	503,506	5,000
Oct.	9.32	1.48	20	63,000	14	150	661	40,657	27,074	162,407	5,004
Nov.	2.84	1.54	5	1,150	! 1	170	204	12,123	16,492	33,013	4,532
Dec.	1.58	1.55	! 1	208	!12	196	204	12,541	15,664	31,063	4,697
Yearly	9.32	1.48		63,000		150	243	175,776	261,804	707,092	72,494
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
	2.84	0.45		1,780		4.25	6.88	216,820	322,935	872,198	89,421

* Discharge measurement made on this day ! And other days

BIG SATAN CREEK NEAR COMSTOCK, TEXAS

In order to determine storm runoff formerly included with measured flows at a gaging station on the Devils River before its relocation upstream incident to the completion of Amistad Dam, a gaging station was established during 1968 on Big Satan Creek.

DESCRIPTION: Cableway, control weir, bubbler gage, and digital recorder located on the right bank of the creek at latitude 29°39'50", longitude 100°57'50", 1.1 miles (1.8 km) upstream from its confluence with the Devils River, which is 21.2 miles (34.1 km) upstream from the Devils River confluence with the Rio Grande. The zero of the gage is 1,134.00 feet (345.64 m) above mean sea level, U. S. C. & G. S. datum.
RECORDS: Based on current meter measurements, a continuous record of gage heights, and the weir discharge rating. Records available: May 1968 through 1983.
REMARKS: This creek is normally dry, its flow being confined to periods of storm runoff from its 42 square miles (109 km^2) of watershed area. Only the days of flow are shown below.
EXTREME FLOWS FROM RECORDS: Momentary: Max. 56,100 second-feet (1,590 m^3/sec) on August 15, 1971 with a gage height of 12.31 feet (3.75 m). Maximum volumes: Monthly, 12,204 acre-feet (15,054,000 m^3) in August 1971; yearly 12,525 acre-feet (15,450,000 m^3) in 1971.

Average Flow in Second-Feet (Cubic Meters per Second)

Daily:	Max.	4,480 (127)	Aug. 15, 1971	Min.	see REMARKS
Monthly:	Max.	198 (5.61)	Aug. 1971	Min.	
Yearly:	Max.	17.3 (0.49)	1971	Min.	

Mean Daily Discharge in Second-Feet 1983

Month and Day												
Oct. 20	164											

Annual Summary

Month	Maximum Gage and Discharge			Total Acre-Feet
	Day	Feet	Second-Feet	
Oct.	20	1.96	366	325
Yearly		1.96	366	325
		Meters	Cubic Meters per Second	Thous. of Cub. Meters
		0.60	10.4	401

ROUGH CANYON NEAR DEL RIO, TEXAS

In order to determine storm runoff formerly included with measured flows at a gaging station on the Devils River before its relocation upstream incident to the completion of Amistad Dam, a gaging station was established during 1968 on Rough Canyon.

DESCRIPTION: Cableway, control weir, bubbler gage, and digital recorder located on the right bank at latitude 29°34'40", longitude 100°56'00", 3.9 miles (6.3 km) upstream from its confluence with the Devils River, which is 11.1 miles (17.9 km) upstream from the Devils River confluence with the Rio Grande. The zero of the gage is 1,129.00 feet (344.12 m) above mean sea level, U. S. C. & G. S. datum.
RECORDS: Based on current meter measurements, a continuous record of gage heights, and the weir discharge rating. Records available: January 1968 through 1983.
REMARKS: This stream is normally dry, its flow being confined to periods of storm runoff from its 24 square miles (62.2 km^2) of watershed area. Only the days of flow are shown below.
EXTREME FLOWS FROM RECORDS: Momentary: Max. 7,040 second-feet (199 m^3/sec) on August 12, 1972 with a gage height of 6.80 feet (2.07 m). Maximum volumes: Monthly, 8,230 acre-feet (10,152,000 m^3) in August 1971; yearly 8,232.2 acre-feet (10,154,000 m^3) in 1971.

Average Flow in Second-Feet (Cubic Meters per Second)

Daily:	Max.	2,140 (60.6)	Aug. 16, 1971	Min.	see REMARKS
Monthly:	Max.	134 (3.79)	Aug. 1971	Min.	
Yearly:	Max.	11.4 (0.32)	1971	Min.	

Mean Daily Discharge in Second Feet 1983

Month and Day												
May	19	2.0	June	6	9.6	Oct.	8	12.5	Nov.	5	101
	20	.9					9	117		6	4.2
							20	305			
							21	2.1			

Annual Summary

Month	Maximum Gage and Discharge			Total Acre-Feet
	Day	Feet	Second-Feet	
May	19	1.13	20.3	5.8
June	6	1.26	59.0	19.0
Oct.	20	2.87	1,230	866
Nov.	5	1.64	236	209
Yearly		2.87	1,230	1,099.8
		Meters	Cubic Meters per Second	Thous. of Cub. Meters
		0.87	34.8	1,357

NORTH FORK SAN PEDRO CREEK NEAR DEL RIO, TEXAS

In order to determine storm runoff formerly included with measured flows at a gaging station on the Devils River before its relocation upstream incident to the completion of Amistad Dam, a gaging station was established during 1968 on the north fork of San Pedro Creek.

DESCRIPTION: Cableway, control weir, bubbler gage, and digital recorder located on the right bank of the creek at latitude 29°31'20", longitude 100°53'00", 3 miles (4.8 km) upstream from its confluence with the Middle Fork Branch, which is 6.3 miles (10.1 km) upstream from its confluence with Devils River, which itself is 4.5 river miles (7.2 km) above the Devils River confluence with the Rio Grande. The zero of the gage is 1,126.92 feet (343.49 m) above mean sea level, U. S. C. & G. S. datum.
RECORDS: Based on current meter measurements, a continuous record of gage heights, and the weir discharge rating. Records available: January 1968 through 1983.
REMARKS: This creek is normally dry, its flow being confined to periods of storm runoff from its 17 square miles (44 km^2) of watershed area. Only the days of flow are shown below.
EXTREME FLOWS FROM RECORDS: Momentary: Max. 5,070 second-feet (144 m^3/sec) on August 12, 1972 with a gage height of 8.44 feet (2.57 m). Maximum volumes: Monthly, 3,403 acre-feet (4,198,000 m^3) in October 1969; yearly 4,061.7 acre-feet (5,010,000 m^3) in 1969.

Average Flow in Second-Feet (Cubic Meters per Second)

Daily:	Max.	1,240 (35.1)	Oct. 4, 1969	Min.	}	see REMARKS
Monthly:	Max.	55.3 (1.57)	Oct. 1969	Min.		
Yearly:	Max.	5.6 (0.16)	1969	Min.		

Mean Daily Discharge in Second Feet 1983

Month and Day			
Oct. 8 26.0			
9 100			
20 337			

Annual Summary

Month	Maximum Gage and Discharge			Total Acre-Feet
	Day	Feet	Second-Feet	
Oct.	20	5.20	2,330	998
Yearly		5.20	2,330	998
		Meters	Cubic Meters per Second	Thous. of Cub. Meters
		1.58	66.0	1,231

MIDDLE FORK SAN PEDRO CREEK NEAR DEL RIO, TEXAS

In order to determine storm runoff formerly included with measured flows at a gaging station on the Devils River before its relocation upstream incident to the completion of Amistad Dam, a gaging station was established during 1968 on the middle fork of San Pedro Creek.

DESCRIPTION: Cableway, control weir, bubbler gage, and digital recorder located on the right bank of the creek at latitude 29°29'30", longitude 100°52'50", 3.2 miles (5.1 km) upstream from its confluence with the North Fork Branch which is 6.3 miles (10.1 km) above the confluence with Devils River, which itself is 4.5 river miles (7.2 km) above the Devils River confluence with the Rio Grande. The zero of the gage is 1,137.02 feet (346.56 m) above mean sea level, U. S. C. & G. S. datum.
RECORDS: Based on current meter measurements, a continuous record of gage heights, and the weir discharge rating. Records available: December 1967 through 1983.
REMARKS: This creek is normally dry, its flow being confined to periods of storm runoff from its 12 square miles (31 km^2) of watershed area. Only the days of flow are shown below.
EXTREME FLOWS FROM RECORDS: Momentary: Max. 10,200 second-feet (289 m^3/sec) on July 17, 1975 with a gage height of 5.84 feet (1.78 m). Maximum volumes: Monthly, 3,726 acre-feet (4,596,000 m^3) in July 1975; yearly 3,726 acre-feet (4,596,000 m^3) in 1975.

Average Flow in Second-Feet (Cubic Meters per Second)

Daily:	Max.	1,390 (39.4)	July 17, 1975	Min.	}	see REMARKS
Monthly:	Max.	60.6 (1.72)	July 1975	Min.		
Yearly:	Max.	5.1 (0.14)	1975	Min.		

Mean Daily Discharge in Second-Feet 1983

Month and Day												
Oct. 9	124	Oct. 22	12.8	Oct. 27	19.2	Nov. 1	3.0
10	2.8	23	13.9	28	17.8	2	1.3
19	.4	24	15.2	29	13.9	3	.6
20	1,020	25	19.2	30	11.7		
21	12.8	26	19.2	31	5.4		

Annual Summary

Month	Maximum Gage and Discharge			Total Acre-Feet
	Day	Feet	Second-Feet	
Oct.	20	5.04	7,340	2,595
Nov.	1	.90	4.1	9.7
Yearly		5.04	7,340	2,604.7
		Meters	Cubic Meters per Second	Thous. of Cub. Meters
		1.54	208	3,213

EVANS CREEK NEAR COMSTOCK, TEXAS

In order to determine storm runoff formerly included with measured flows at a gaging station on the Devils River before its relocation upstream incident to the completion of Amistad Dam, a gaging station was established during 1968 on Evans Creek.

DESCRIPTION: Cableway, control weir, bubbler gage, and digital recorder located on the left bank of the creek at latitude 29°32'15", longitude 101°06'10", 11.0 miles (17.7 km) upstream from its confluence with Devils River, which is 3.2 miles (5.1 km) upstream from the Devils River confluence with the Rio Grande. The zero of the gage is 1,162.54 feet (354.34 m) above mean sea level, U. S. C. & G. S. datum.
RECORDS: Based on current meter measurements, a continuous record of gage heights, and the weir discharge rating. Records available: December 1967 through 1983.
REMARKS: This creek is normally dry, its flow being confined to periods of storm runoff from its 74 square miles (192 km^2) of watershed area. Only the days of flow are shown below.
EXTREME FLOWS FROM RECORDS: Momentary: Max. 17,400 second-feet (493 m^3/sec) on June 12, 1971 with a gage height of 5.99 feet (1.83 m). Maximum volumes: Monthly, 9,281 acre-feet (11,448,000 m^3) in August 1971; yearly 14,404 acre-feet (17,767,000 m^3) in 1971.

Average Flow in Second-Feet (Cubic Meters per Second)

Daily:	Max.	3,940 (112)	Aug. 15, 1971	Min.	}	see REMARKS
Monthly:	Max.	151 (4.28)	Aug. 1971	Min.		
Yearly:	Max.	19.9 (0.56)	1971	Min.		

Mean Daily Discharge in Second-Feet 1983

Month and Day																																		
Nov.	5	79.4																																

Annual Summary

Month	Maximum Gage and Discharge			Total Acre-Feet
	Day	Feet	Second-Feet	
Nov.	5	1.54	339	157
Yearly		1.54	339	157
		Meters	Cubic Meters per Second	Thous. of Cub. Meters
		0.47	9.6	194

CARMINA SPRINGS NEAR CD. ACUNA, COAHUILA

DESCRIPTION: Cipolletti weir of 70.6 second-foot (2.0 m^3/sec) capacity and staff gage located on a creek that runs almost parallel to Amistad Dam, about 130 feet (40 m) from the confluence with the Rio Grande, at latitude 29°26'50", longitude 101°03'35", and about 11.0 miles (17.7 km) northwest of Cd. Acuna, Coahuila. This creek enters the Rio Grande from the Mexican side at river mile 573.7 (923.2 km), 0.2 river mile (400 m) downstream from Amistad Dam and 12.6 river miles (20.3 km) upstream from the international highway bridge between Del Rio, Texas and Cd. Acuna, Coahuila. The elevation of the zero of the gage has not been determined.

RECORDS: Based on periodic staff gage readings and the weir discharge table. Mean daily discharges determined by prorating between readings. Records available: 1969 through 1983.

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. On September 24, 1971, a flood destroyed part of the weir.

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	48.7	41.0	48.7	39.6	33.5	48.0	43.8	42.7	41.7	41.7	41.7	40.6
2	48.7	41.0	48.7	39.6	33.5	48.0	43.8	42.7	41.7	41.7	40.6	40.6
3	48.7	41.0	48.7	39.6	33.5	48.0	43.8	41.7	41.7	41.7	40.6	40.6
4	48.7	41.0	48.7	39.6	33.5	48.0	43.8	41.7	41.7	41.7	40.6	40.6
5	48.7	41.0	48.7	39.6	36.7	48.0	43.8	41.7	41.7	41.7	41.7	40.6
6	48.7	41.0	48.7	39.6	33.5	48.0	43.8	41.7	41.7	41.7	41.3	40.6
7	48.7	41.0	48.7	39.6	33.5	47.3	43.8	41.7	41.7	41.7	40.6	40.6
8	48.7	41.0	48.7	39.6	33.5	46.6	43.8	41.7	42.7	41.7	40.6	40.6
9	48.7	41.0	48.7	39.6	41.0	46.6	43.8	41.7	42.7	41.7	40.6	40.6
10	48.7	41.0	45.6	39.6	39.6	46.6	43.8	41.7	42.7	41.7	40.6	40.6
11	48.7	44.1	45.6	39.6	38.1	46.6	43.8	41.7	42.7	41.7	40.6	40.6
12	48.7	50.9	45.6	39.6	35.0	46.6	43.8	41.7	42.7	41.7	40.6	40.6
13	48.7	48.7	45.6	39.6	35.0	46.6	43.8	41.7	42.7	41.7	40.6	40.6
14	48.7	48.7	45.6	36.7	33.5	46.6	43.1	41.7	43.1	41.7	40.6	40.6
15	48.7	48.7	45.6	36.7	33.5	45.9	43.1	41.7	43.1	42.7	40.6	40.6
16	48.7	48.7	41.0	36.7	33.5	45.9	43.1	41.7	43.1	42.7	41.0	40.6
17	48.7	48.7	41.0	36.7	33.5	45.9	43.1	41.7	43.1	42.7	41.0	40.6
18	48.7	48.7	41.0	36.7	30.7	45.9	43.1	42.0	43.1	42.7	41.0	40.6
19	48.7	48.7	41.0	36.7	33.5	45.9	43.1	42.0	43.1	42.7	41.0	40.6
20	45.6	48.7	41.0	36.7	33.5	45.9	42.7	42.0	43.1	41.7	41.0	40.6
21	45.6	48.7	41.0	33.5	33.5	45.9	42.7	42.0	43.1	41.7	41.0	40.6
22	45.6	48.7	41.0	33.5	33.5	44.8	42.7	42.0	43.1	41.7	41.0	40.6
23	45.6	48.7	41.0	33.5	33.5	44.8	42.7	42.0	43.1	41.7	41.0	40.6
24	45.6	48.7	41.0	33.5	33.5	44.8	42.7	42.0	43.1	41.7	41.0	41.0
25	45.6	48.7	41.0	33.5	33.5	44.8	42.7	42.0	43.1	41.7	41.0	41.3
26	41.0	48.7	41.0	33.5	33.5	44.8	42.7	42.0	43.1	41.7	41.0	41.3
27	41.0	48.7	41.0	33.5	33.5	44.8	42.7	42.0	43.1	41.7	41.0	41.7
28	41.0	48.7	41.0	33.5	33.5	44.8	42.7	42.0	41.7	41.7	41.0	41.7
29	41.0		41.0	33.5	33.5	43.8	42.7	42.0	41.7	41.7	40.6	41.7
30	41.0		41.0	33.5	33.5	43.8	42.7	42.0	41.7	41.7	40.6	41.7
31	41.0		39.6		33.5		42.7	42.0		41.7		41.7
Sum	1,444.9	1,284.2	1,366.5	1,106.7	1,060.1	1,384.0	1,340.4	1,298.9	1,276.6	1,297.7	1,226.1	1,265.9

Current Year 1983 — **Period** 1969-1983

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.			! 1	48.7	!26	41.0	46.6	2,866	2,741	4,041	364
Feb.			12	50.9	! 1	41.0	45.9	2,547	2,472	3,405	373
Mar.			! 1	48.7	31	39.6	44.1	2,709	2,669	3,621	525
Apr.			! 1	39.6	!21	33.5	36.7	2,195	2,550	3,514	629
May			9	41.0	18	30.7	34.3	2,105	2,586	3,691	709
June			! 1	48.0	!29	43.8	46.3	2,747	2,568	3,572	598
July			! 1	43.8	!20	42.7	43.1	2,659	2,622	3,691	533
Aug.			! 1	42.7	! 3	41.7	42.0	2,576	2,682	3,616	540
Sept.			!14	43.1	! 1	41.7	42.7	2,533	2,634	3,377	593
Oct.			!15	42.7	! 1	41.7	41.7	2,572	2,820	3,816	830
Nov.			! 1	41.7	! 2	40.6	41.0	2,431	2,768	3,685	964
Dec.			!27	41.7	! 1	40.6	41.0	2,511	2,892	3,906	1,077
Yearly				50.9		30.7	42.0	30,451	32,004	41,290	9,080
	Meters			Cubic Meters per Second				Thousands of Cubic Meters			
				1.44		0.87	1.19	37,563	39,474	50,932	11,201

Ø Mean daily ! And other days

LOURDES AND HILDA SPRINGS
NEAR CD. ACUNA, COAHUILA

LOURDES SPRING

DESCRIPTION: Rectangular sharp-crested weir of 28.8 second-foot (815 l/sec) capacity and staff gage located at latitude 29°26'35", longitude 101°03'30", at the base of the high bank of the Rio Grande, and about 11.1 miles (17.9 km) northwest of Cd. Acuna, Coahuila. This creek enters the Rio Grande from the Mexican side at river mile 573.2 (922.5 km), 12.2 river miles (19.6 km) upstream from the international highway bridge between Del Rio, Texas and Cd. Acuna, Coahuila. The zero of the gage is 926.28 feet (282.33 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on periodic staff gage readings and the weir discharge table. Mean daily discharges determined by prorating between readings. Records available: 1969 through 1983.

REMARKS: This spring emerged since operation of Amistad Dam began in May 1968. All storm water from surface runoff passing this station is deducted. The daily flow throughout the year was a steady 2.1 second-feet (0.06 m^3/sec). The volume for the year amounted to 1,520 acre-feet (1,875,000 m^3).

HILDA SPRING

DESCRIPTION: Rectangular sharp-crested weir of 53.0 second-foot (1.50 m^3/sec) capacity and staff gage located at latitude 29°26'20", longitude 101°03'35", about 328 feet (100 m) from the confluence with the Rio Grande and about 11.0 miles (17.7 km) northwest of Cd. Acuna, Coahuila. This creek enters the Rio Grande from the Mexican side at river mile 572.8 (921.8 km), 11.8 river miles (19.0 km) upstream from the international highway bridge between Del Rio, Texas and Cd. Acuna, Coahuila. The zero of the gage is 908.14 feet (276.80 m) above mean sea level U. S. C. & G. S. datum.

RECORDS: Based on periodic staff gage readings and the weir discharge table. Mean daily discharges determined by prorating between readings. Records available: 1969 through 1983.

REMARKS: This spring emerged since operation of Amistad Dam began in May 1968. All storm water from surface runoff passing this station is deducted. The daily flow throughout the year ranged from 2.1 (0.06) to 2.8 second-feet (0.08 m^3/sec) and averaged 2.5 second-feet (0.07 m^3/sec). The volume for the year amounted to 1,803 acre-feet (2,224,000 m^3).

In order to determine what effect storage in Amistad Reservoir has on the flow of various Mexican springs in the vicinity of Amistad Dam, gaging stations were established in November 1961 at Ernestina and Rosita Springs. The station at Rosita Spring was discontinued in June 1976. The station at Ernestina was discontinued in March 1981.

RIO GRANDE BELOW AMISTAD DAM, NEAR CD. ACUNA, COAHUILA AND DEL RIO, TEXAS

DESCRIPTION: Cableway, gravity well, concrete control weir, and water-stage recorders (graphic and digital), and binary decimal transmitter located on the left bank at latitude 29°25'30", longitude 101°02'25", and river mile 571.8 (920.3 km), 2.2 river miles (3.4 km) downstream from Amistad Dam and 10.8 river miles (17.4 km) upstream from the international highway bridge between Del Rio, Texas and Cd. Acuna, Coahuila. The zero of the gage is 898.94 feet (274.00 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 38 discharge measurements during the year, 22 by the Mexican Section and 16 by the United States Section of the 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 1983. Records are also available from May 1900 through April 1915 for a station 1.9 miles (3 km) upstream; from December 1919 through March 1920 for a station 1.7 miles (3 km) 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; and from December 1923 through July 2, 1941, and 1968 through 1983 for a station approximately 10.6 miles (17.0 km) 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, 2.1 river miles (3.3 km) upstream. The transmitter relays gage height data upon interrogation by telephone via private line to the Amistad office.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 1,158,000 second-feet (32,800 m^3/sec) on June 28, 1954, determined by slope-area computation, with a gage height of 55.72 feet (16.98 m) at the old station site 500 feet (152 m) downstream. This is the greatest rate of discharge recorded at any point on the Rio Grande. Max. since Amistad Dam, 62,200 second-feet (1,760 m^3/sec) on Sept. 21, 1974. Min. 22.2 second-feet (0.63 m^3/sec) on February 14, 1969 with a gage height of 1.08 feet (0.33 m).

Average Flow in Second-Feet (Cubic Meters per Second)

Daily:	Max. 61,100 (1,730)	Sept. 22, 1974	Min. 46.6 (1.32)	April 13, 1971
Monthly:	Max. 21,500 (609)	Sept. 1974	Min. 60.7 (1.72)	Oct. 1971
Yearly:	Max. 4,910 (139)	1974	Min. 576 (16.3)	1972

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,090	1,420	1,420	1,250	1,370	4,030	2,360	2,250	2,310	1,950	1,550	643
2	1,090	1,420	1,420	1,060	1,370	3,710	2,210	2,250	2,320	1,920	1,660 *	639
3	1,090	1,420	1,420	1,050	1,360	3,990	2,210	2,270	2,320	1,960	1,780	664
4	1,090	1,420	1,420	1,060	1,370	4,060	2,210	2,270	2,340	1,910	1,910 *	710
5	1,090	1,420	1,410	1,060	1,370	4,030	2,210	2,260	2,340	1,900	1,930	872
6	1,090	1,420	1,410	1,060	1,470	4,030	2,210	2,260	2,340	1,850	1,850	1,910
7	1,090	1,420	1,410	1,060	1,500	4,030	2,210	2,260	2,320	1,900	1,800	650 *
8	1,080	1,420	1,410	1,060	1,490	3,990 *	2,210	2,150	2,310	1,670	1,850 *	675
9	1,080	1,430 *	1,420 *	1,050	1,540	4,060	2,210	2,250	2,300	1,710	1,410	650
10	1,080	1,420	1,420	1,050	1,550	4,060	2,210	2,250 *	2,100	1,910	1,050	639
11	1,090	1,420	1,420	1,040	1,550	3,780	2,220	2,240	2,320	2,080	1,020 *	643
12	1,090	1,420	1,420	1,080	1,550	3,670	2,220	2,240	2,220	1,850	1,030	653
13	1,090	1,420	1,420	1,250 *	1,550	3,670	2,210 *	2,240	2,030	1,800	1,030	901
14	1,090	1,420	1,420	1,450	1,550	2,530	2,210	2,240	2,010 *	1,800 *	1,150	1,210
15	1,090	1,420	1,420	1,490	1,550	3,710 *	2,050	2,240	2,010 *	2,000	1,040	1,420
16	1,090	1,420	1,440	1,490	1,550	3,410 *	2,220	2,200	2,010	1,960	1,040 *	1,330
17	1,120	1,430 *	1,380	1,490	1,550	2,940	2,220	2,240	2,010	1,720	1,040 *	1,600
18	1,160	1,430	2,410	1,490	1,550 *	2,940	2,220	2,240 *	2,010	1,830	1,040	1,550
19	1,120	1,430	5,260	1,490	1,600	2,940	2,220	2,240	1,830	1,920	1,040	1,540
20	1,140 *	1,430	5,260	1,470	1,580	2,940	2,220	2,240	1,970	1,470 *	1,040	1,260
21	1,230	1,430	5,370	1,470 *	1,560	2,750	2,220 *	2,240	1,970	703 *	1,040	706
22	1,230	1,430	5,440	1,270	1,560	2,590 *	2,220	2,240	1,990	1,770	1,030 *	675
23	1,230	1,430	5,400	1,130	1,610	2,580	2,240	2,230	1,970	1,770	805	675
24	1,290	1,430	4,590	1,140	2,800	2,550	2,230	2,240	2,030	1,730 *	678	682
25	1,410	1,460	2,590	1,140	4,340 *	2,540	2,260	2,170	1,940	1,810	682 *	2,950
26	1,420 *	1,450	1,470	1,140	4,480 *	2,540	2,240	2,250	1,950	1,840 *	664	3,130
27	1,420	1,440	1,460	1,280	4,380	2,530	2,260	2,310	1,900	1,700	664	1,060 *
28	1,420	1,430	1,470 *	1,370	4,310	2,560	2,280	2,310	2,000	1,920	689	1,590 *
29	1,420		1,510	1,370	4,310	2,520	2,270	2,310	1,990	1,790	639	1,560
30	1,420		1,520	1,370	4,310	2,570	2,250	2,330	2,030	1,830	657	1,550
31	1,420		1,510		4,520		2,250	2,210		1,750		1,550
Sum	36,860	39,950	69,340	37,180	68,150	98,250	68,980	69,670	63,190	55,723	34,808	36,287

Month	Current Year 1983 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 1968-1983 Acre-Feet Average	Maximum	Minimum
Jan.	1.35	1.15	1,450	28	1,070	20	1,190	73,071	84,845	209,814	5,318
Feb.	1.41	1.31	1,550	25	1,400	4	1,430	79,193	116,790	467,202	12,467
Mar.	2.72	1.31	5,470	24	1,370	17	2,240	137,520	129,239	396,457	7,271
Apr.	1.41	1.08	1,560	18	950	1	1,240	73,744	103,089	342,129	27,570
May	2.89	1.31	6,110	31	1,350	1 2	2,200	135,153	188,503	506,848	24,137
June	2.72	.33	5,470	4	126	14	3,270	194,859	162,962	327,602	16,418
July	1.84	.89	2,570	1	671	15	2,230	136,918	131,650	366,470	23,182
Aug.	1.77	.98	2,470	25	805	31	2,250	138,228	157,621	662,215	15,589
Sept.	1.77	.72	2,380	7	463	19	2,100	125,346	213,931	1,280,079	17,606
Oct.	2.23	.30	3,810	20	61.1	21	1,800	110,574	164,418	812,596	3,734
Nov.	1.87	.43	2,670	5	142	1	1,160	69,064	96,316	502,295	4,539
Dec.	2.43	.66	4,560	25	350	12	1,170	71,979	72,576	216,286	4,859
Yearly	2.89	0.30	6,110		61.1		1,860	1,345,649	1,621,940	3,566,066	416,788
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
	0.88	0.09	173		1.73		52.6	1,659,839	2,000,642	4,398,694	514,104

SPRING M-15 AND SPRING M-5 NEAR CD. ACUNA, COAHUILA

SPRING M-15

DESCRIPTION: Rectangular sharp-crested weir of 8.1 second-foot (230 l/sec) capacity and staff gage located at latitude 29°25'20", longitude 101°02'40", about 1,300 feet (400 m) from the confluence with the Rio Grande and about 9.4 miles (15.1 km) northwest of Cd. Acuna, Coahuila. This creek enters the Rio Grande from the Mexican side at river mile 571.3 (919.4 km), 10.3 river miles (16.6 km) upstream from the international highway bridge between Del Rio, Texas and Cd. Acuna, Coahuila. The zero of the gage is 925.13 feet (281.98 m) above mean sea level, U. S. C. & G. S. datum.
RECORDS: Based on periodic staff gage readings and the weir discharge table. Mean daily discharges determined by prorating between readings. Records available: 1969 through 1983.
REMARKS: This spring emerged since operation of Amistad Dam began in May 1968. All storm water from surface runoff passing this station is deducted and is not included in the tabulation below.

Month	Current Year 1983								Period 1969-1983		
	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.			! 1	1.4	! 1	1.4	1.4	86.1	77.7	131	21.1
Feb.			! 1	1.4	! 1	1.4	1.4	77.8	69.7	123	19.5
Mar.			! 1	1.4	!20	1.2	1.3	78.9	71.5	122	21.9
Apr.			! 1	1.1	!24	.8	1.0	57.1	69.2	105	21.1
May			!29	1.1	! 1	.7	.9	53.8	73.4	109	21.9
June			! 1	1.1	!24	.8	.9	55.9	65.5	121	21.1
July			! 1	.8	! 3	.7	.7	43.4	67.2	106	21.1
Aug.			! 1	.7	! 1	.7	.7	43.0	64.3	122	0
Sept.			! 1	.7	! 1	.7	.7	41.7	64.9	105	0
Oct.			31	1.4	! 1	.7	1.0	61.1	69.2	117	0
Nov.			! 1	1.4	!20	1.2	1.2	76.6	71.6	124	21.1
Dec.			31	2.1	! 2	1.1	1.5	91.0	79.0	131	21.9
Yearly				2.1		0.7	1.1	766.4	843.2	1,362.2	257.2
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
				0.06		0.02	0.03	945	1,040	1,679	317

SPRING M-5

DESCRIPTION: Rectangular sharp-crested weir of 17.7 second-foot (500 l/sec) capacity and staff gage located at latitude 29°25'20", longitude 101°02'35", at the base of the high bank of the Rio Grande, and about 9.2 miles (14.8 km) northwest of Cd. Acuna, Coahuila. This creek enters the Rio Grande from the Mexican side at river mile 571.1 (919.1 km), 10.1 river miles (16.3 km) upstream from the international highway bridge between Del Rio, Texas and Cd. Acuna, Coahuila. The zero of the gage is 932.38 feet (284.19 m) above mean sea level, U. S. C. & G. S. datum.
RECORDS: Based on periodic staff gage readings and the weir discharge table. Mean daily discharges determined by prorating between readings. Records available: 1969 through 1983.
REMARKS: This spring emerged since operation of Amistad Dam began in May 1968. All storm water from surface runoff passing this station is deducted and is not included in the tabulation below.

Month	Current Year 1983								Period 1969-1983		
	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.			! 1	2.5	! 1	2.5	2.5	154	158	195	86.7
Feb.			! 1	2.5	! 1	2.5	2.5	139	143	173	78.6
Mar.			! 1	2.5	! 1	2.5	2.5	154	153	184	64.9
Apr.			30	2.8	! 1	2.5	2.6	155	148	178	63.2
May			! 1	2.8	! 1	2.8	2.8	172	156	186	64.9
June			! 1	2.8	!19	2.6	2.7	159	147	181	63.2
July			! 1	2.5	! 1	2.5	2.5	154	147	173	43.8
Aug.			!21	2.7	! 1	2.5	2.6	160	153	195	43.8
Sept.			! 2	2.8	1	2.7	2.8	166	151	189	42.2
Oct.			! 1	2.8	!27	2.5	2.7	164	156	195	43.8
Nov.			! 1	2.5	! 1	2.5	2.5	149	151	189	63.2
Dec.			! 1	2.5	! 1	2.5	2.5	154	155	195	64.9
Yearly				2.8		2.5	2.6	1,880	1,818	2,148	723.2
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
				0.08		0.07	0.07	2,319	2,243	2,653	892

ø Mean daily ! And other days

ARROYO DE LOS JABONCILLOS NEAR CD. ACUNA, COAHUILA

DESCRIPTION: Cipolletti weir of 70.6 second-foot (2 m^3/sec) capacity and staff gage located at latitude 29°24'25", longitude 101°02'20", about 660 feet (200 m) from the confluence with the Rio Grande, and about 8.6 miles (13.8 km) northwest of Cd. Acuna, Coahuila. This creek enters the Rio Grande from the Mexican side at river mile 570.5 (918.2 km), 9.5 river miles (15.3 km) upstream from the international highway bridge between Del Rio, Texas and Cd. Acuna, Coahuila. The elevation of the zero of the gage has not been determined.
RECORDS: Based on periodic staff gage readings and the weir discharge table. Mean daily discharges determined by prorating between readings. Records available: 1969 through 1983.
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 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	57.6	58.6	58.6	55.1	53.0	53.3	49.8	43.4	44.8	45.6	50.9	50.9
2	57.6	58.6	58.6	54.7	53.0	53.7	49.1	43.4	44.5	45.2	51.2	51.2
3	57.6	58.6	58.6	55.1	51.6	53.0	48.4	44.5	43.8	44.8	51.2	50.9
4	57.6	58.6	58.6	54.7	52.3	53.0	48.4	46.3	43.4	44.5	51.2	50.5
5	57.6	58.6	58.6	53.7	52.3	52.6	48.0	45.6	43.4	45.2	51.2	50.1
6	57.2	58.6	58.6	54.7	51.9	54.7	48.7	44.8	43.1	45.6	52.3	49.8
7	57.2	58.6	58.6	55.8	51.2	56.2	49.4	44.5	44.1	45.2	52.3	50.9
8	57.2	58.6	58.6	55.1	51.6	54.0	49.1	45.2	44.5	45.6	53.3	50.9
9	57.2	58.6	58.6	55.4	51.6	52.6	48.4	45.6	44.5	45.6	53.3	50.9
10	57.2	58.6	57.6	54.7	51.6	52.6	47.7	45.6	44.8	45.6	52.3	50.9
11	57.2	58.6	57.6	54.4	53.0	52.3	47.7	45.6	44.5	45.6	52.3	49.4
12	57.2	58.6	57.6	54.0	53.0	51.9	47.7	45.6	43.8	45.2	51.2	49.4
13	56.5	58.6	57.6	55.1	52.6	51.2	48.0	45.2	44.1	47.0	51.2	50.1
14	56.5	58.6	57.6	54.7	50.9	51.6	48.7	44.1	44.8	46.6	51.2	53.0
15	56.5	58.6	57.6	54.7	50.5	53.0	48.4	43.8	44.5	46.3	51.2	50.5
16	56.5	58.6	57.6	54.7	49.8	53.0	48.4	43.4	44.1	46.3	50.5	50.1
17	56.5	58.3	57.6	54.4	49.8	53.0	47.3	44.1	44.1	46.3	50.5	50.9
18	56.5	58.3	57.6	53.7	49.4	53.0	47.3	44.8	44.8	46.3	50.5	50.5
19	56.5	58.3	57.6	53.7	50.5	53.0	47.7	44.5	44.5	48.7	49.8	50.5
20	57.9	58.3	57.6	54.0	53.0	53.0	47.3	44.5	43.8	53.7	49.1	52.3
21	58.6	58.3	57.6	54.4	51.2	53.0	46.3	44.8	43.4	53.7	49.1	51.9
22	58.6	58.3	57.6	53.3	49.8	53.0	45.6	43.8	43.8	53.7	49.8	51.2
23	58.6	58.3	57.6	52.3	49.8	52.3	45.2	43.1	43.4	53.0	49.8	50.9
24	58.6	58.6	57.2	52.3	49.8	52.3	44.5	44.1	43.4	52.3	49.8	50.5
25	58.6	58.6	56.9	52.3	52.6	52.3	44.1	44.5	43.1	51.2	49.8	49.8
26	58.6	58.6	55.8	52.3	53.7	52.3	43.8	44.1	42.7	51.2	49.8	51.2
27	58.6	58.6	55.1	53.7	53.0	52.3	44.1	43.8	42.7	53.0	49.1	51.9
28	58.6	58.6	54.7	54.4	53.0	52.3	44.5	44.5	45.2	51.6	49.8	51.2
29	58.6		54.7	54.0	52.6	50.9	44.5	44.5	46.3	51.2	50.5	50.1
30	58.6		56.5	53.7	51.9	50.1	43.8	43.8	46.3	51.2	51.6	50.5
31	58.6		56.9		51.6		43.8	44.1		50.9		51.2
Sum	1,786.4	1,638.7	1,781.6	1,625.1	1,601.6	1,581.5	1,455.7	1,379.6	1,324.2	1,497.9	1,525.8	1,574.1

Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Period 1969-1983 Acre-Feet		
			High		Low						
	High	Low	Day		Day				Average	Maximum	Minimum
Jan.			21	58.6	13	56.5	57.6	3,544	3,442	4,720	349
Feb.			1	58.6	17	58.3	58.6	3,251	3,134	4,207	381
Mar.			1	58.6	28	54.7	57.6	3,533	3,404	4,574	526
Apr.			7	55.8	23	52.3	54.0	3,223	3,262	4,345	636
May			26	53.7	18	49.4	51.6	3,176	3,313	4,540	721
June			7	56.2	30	50.1	52.6	3,136	3,101	4,071	678
July			1	49.8	26	43.8	47.0	2,887	3,135	4,367	769
Aug.			4	46.3	23	43.1	44.5	2,737	3,189	4,321	782
Sept.			29	46.3	26	42.7	44.1	2,628	3,213	* 4,417	782
Oct.			20	53.7	4	44.5	48.4	2,970	3,523	# 5,211	1,097
Nov.			8	53.3	20	49.1	50.9	3,026	3,497	4,847	1,282
Dec.			14	53.0	11	49.4	50.9	3,119	3,606	4,709	1,398
Yearly				58.6		42.7	51.6	37,230	39,819	51,839	9,850
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
				1.66		1.21	1.46	45,920	49,117	63,943	12,152

Ø Mean daily 1 And other days * Partly estimated # Estimated

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

ARROYO DEL BUEY

DESCRIPTION: Cipolletti weir of 35.3 second-foot (1 m^3/sec) capacity, located at latitide 29°24'20", longitude 101°02'25", 0.2 creek mile (300 m) from the confluence with the Rio Grande, and about 8.5 miles (13.7 km) northwest of Cd. Acuna, Coahuila. This stream enters the Rio Grande from the Mexican side at river mile 570.4 (918.0 km), 3.5 river miles (5.6 km) downstream from Amistad Dam and 9.4 river miles (15.2 km) upstream from the international highway bridge between Del Rio, Texas and Cd. Acuna, Coahuila. The elevation of the zero of the gage has not been determined.

RECORDS: Based on periodic staff gage readings and the weir discharge table. Mean daily disharges determined by prorating between readings. Records available: November 1961 through 1983.

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 heights 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 (0.5 km) 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 (566 m^3/sec).

	Current Year 1983								Period #Nov. 1961-1983		
Month	Extreme Gage Feet		Ø Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
			High		Low				Average	Maximum	Minimum
	High	Low	Day		Day						
Jan.			! 1	7.4	!28	7.1	7.3	447	303	528	6.8
Feb.			! 1	7.1	! 1	7.1	7.1	394	274	477	5.4
Mar.			! 1	7.1	! 1	7.1	7.1	437	298	520	9.3
Apr.			! 1	7.1	!29	6.5	6.9	408	322	540	6.3
May			!28	6.7	! 3	6.4	6.5	402	308	544	10.9
June			! 1	6.7	!19	6.5	6.6	392	302	492	6.3
July			! 1	6.4	! 1	6.4	6.4	394	294	503	6.5
Aug.			!21	6.6	! 1	6.4	6.5	400	316	517	6.7
Sept.			! 2	6.7	1	6.6	6.7	398	323	493	6.6
Oct.			!29	7.1	! 1	6.7	6.9	422	346	544	6.5
Nov.			! 1	7.1	! 1	7.1	7.1	422	309	515	6.3
Dec.			! 1	7.1	! 1	7.1	7.1	437	313	538	6.5
Yearly				7.4		6.4	6.8	4,953	3,708	6,031	216.8
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
				0.21		0.18	0.19	6,110	4,574	7,438	267

ARROYO DE LA TREINTA Y UNA

DESCRIPTION: Cipolletti weir of 35.3 second-foot (1 m^3/sec) capacity, located at latitude 29°22'35", longitude 101°01'15", 0.6 creek mile (900 m) from the confluence with the Rio Grande, and about 6.5 miles (10.5 km) northwest of Cd. Acuna, Coahuila. This stream enters the Rio Grande from the Mexican side at river mile 567.6 (913.5 km), 6.3 river miles (10 km) downstream from Amistad Dam and 6.6 river miles (10.6 km) upstream from the international highway bridge between Del Rio, Texas and Cd. Acuna, Coahuila. The elevation of the zero of the gage has not been determined.

RECORDS: Based on periodic staff gage readings and the weir discharge table. Mean daily discharges determined by prorating between readings. Records available: May 1961 through 1983.

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 heights 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.

	Current Year 1983								Period #May 1961-1983		
Month	Extreme Gage Feet		Ø Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
			High		Low				Average	Maximum	Minimum
	High	Low	Day		Day						
Jan.			! 1	3.2	! 1	3.2	3.2	197	166	282	15.2
Feb.			!27	3.5	! 1	3.2	3.3	185	150	257	13.9
Mar.			! 1	3.5	!20	3.3	3.4	208	166	327	14.2
Apr.			! 1	3.2	! 1	3.2	3.2	190	176	302	10.5
May			! 1	3.2	! 1	3.2	3.2	197	167	262	5.9
June			! 1	3.2	!23	2.9	3.0	181	153	254	4.2
July			! 1	2.9	! 2	2.8	2.8	172	154	253	0
Aug.			! 1	2.8	! 1	2.8	2.8	172	161	323	0
Sept.			! 1	2.8	1	2.8	2.8	167	175	273	13.1
Oct.			31	3.5	! 1	2.8	3.1	190	183	282	12.1
Nov.			! 1	3.5	!19	3.3	3.4	201	168	273	14.2
Dec.			!30	3.5	! 1	3.2	3.3	204	171	282	15.2
Yearly				3.5		2.8	3.1	2,264	1,990	3,264	250.4
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
				0.10		0.08	0.09	2,793	2,455	4,025	308.6

Ø Mean daily # Some months missing ! And other days

MARIS SPRING NEAR CD. ACUNA, COAHUILA

DESCRIPTION: Cipolletti weir of 106 second-foot (3 m^3/sec) capacity and staff gage located at the spring about 100 feet (30 m) from the right bank of the Rio Grande at latitude 29°24'00", longitude 101°01'40", and about 8 miles (12.9 km) northwest of Cd. Acuna, Coahuila. This spring enters the Rio Grande at river mile 569.9 (917.2 km), 8.9 river miles (14.3 km) upstream from the international highway bridge between Del Rio, Texas and Cd. Acuna, Coahuila and 4.0 river miles (6 km) downstream from Amistad Dam. The elevation of the zero of the gage has not been determined.

RECORDS: Based on periodic staff gage readings and the weir discharge table. Mean daily discharges determined by prorating between readings. Records available: November 14, 1961 through 1983.

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. All storm water from surface runoff passing this station is deducted and is not included in the tabulation below. Prior to May 1969 the weir had an 11.1 second-foot (315 l/sec) capacity.

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	6.4	6.0	6.4	5.7	5.7	7.1	7.1	5.7	5.7	4.9	13.4	8.1
2	6.4	6.0	6.4	5.7	5.7	7.1	7.1	5.7	5.7	4.9	13.1	8.1
3	6.4	6.0	6.4	5.7	5.7	7.1	7.1	5.3	5.7	4.9	12.0	8.1
4	6.4	6.0	6.4	5.7	5.7	7.1	7.1	5.3	5.7	4.9	11.3	8.1
5	6.4	6.0	6.4	5.7	5.7	7.1	7.1	5.3	5.7	4.9	15.5	8.1
6	6.0	6.0	6.4	5.7	5.7	7.1	6.4	5.3	5.7	4.9	16.6	8.1
7	6.0	6.0	6.4	5.7	5.7	7.1	6.4	5.3	5.3	4.9	16.6	8.1
8	6.0	6.0	6.4	5.7	5.7	7.1	6.4	5.3	5.3	4.9	16.6	8.1
9	6.0	6.0	6.4	5.7	5.7	6.7	6.4	7.1	5.3	8.1	16.6	8.1
10	6.0	6.0	6.0	5.7	5.7	6.7	6.4	7.4	5.3	9.5	16.2	8.1
11	6.0	6.0	6.0	5.7	5.3	6.7	6.4	7.4	5.3	9.5	15.5	7.8
12	6.0	6.0	6.0	5.7	5.3	6.7	6.4	7.1	5.3	9.5	14.8	7.4
13	6.0	6.0	6.0	5.7	5.3	6.7	6.0	6.4	5.3	9.5	13.4	7.4
14	6.0	6.0	6.0	5.7	5.3	6.7	6.0	6.0	5.3	9.2	12.7	7.4
15	6.0	6.0	6.0	5.7	5.3	6.4	6.0	6.0	5.3	8.1	11.7	7.4
16	6.0	6.0	6.0	5.7	5.3	6.4	6.0	6.0	5.3	7.4	11.7	7.1
17	6.0	6.0	6.0	5.7	5.3	6.4	6.0	5.7	5.3	7.1	10.9	7.1
18	6.0	6.0	6.0	5.7	5.3	6.4	6.0	5.7	5.3	6.7	10.6	6.7
19	6.0	6.0	6.0	5.7	5.3	6.4	6.0	5.7	5.3	7.1	9.9	6.7
20	6.0	6.0	6.0	5.7	6.7	6.4	6.0	5.7	5.3	18.4	9.9	7.1
21	6.0	6.0	6.0	5.7	7.4	6.4	6.0	5.7	5.3	19.8	9.2	7.1
22	6.0	6.0	6.7	5.7	7.4	6.4	6.0	5.7	5.3	19.1	9.2	7.1
23	6.0	6.0	6.7	5.7	7.4	6.4	6.0	5.7	5.3	17.7	9.2	6.7
24	6.0	6.0	6.4	5.7	7.4	6.4	6.0	5.7	5.3	17.3	9.2	6.7
25	6.0	6.0	6.4	5.7	7.4	7.1	6.0	5.7	5.3	16.2	9.2	6.7
26	6.0	6.0	6.4	5.7	7.4	7.1	6.0	5.7	5.3	16.2	8.8	6.7
27	6.0	6.0	6.4	5.7	7.4	7.1	5.7	5.7	5.3	15.9	8.5	6.7
28	6.0	6.0	6.4	5.7	7.4	7.1	5.7	5.7	4.9	15.2	8.1	6.7
29	6.0		6.4	5.7	7.1	7.1	5.7	5.7	4.9	14.8	8.1	6.4
30	6.0		5.7	5.7	7.1	7.1	5.7	5.7	4.9	14.5	8.1	6.4
31	6.0		5.7		7.1		5.7	5.7		14.1		6.4
Sum	188.0	168.0	192.8	171.0	191.9	203.6	192.8	182.1	160.2	330.1	356.6	226.7

Current Year 1983 — **Period # Dec. 1961-1983**

Month	Extreme Gage Feet		ø Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum
Jan.			! 1	6.4	! 6	6.0	6.0	373	479	934	4.4
Feb.			! 1	6.0	! 1	6.0	6.0	333	426	843	4.1
Mar.			!22	6.7	!30	5.7	6.4	381	453	923	4.9
Apr.			! 1	5.7	! 1	5.7	5.7	336	475	914	4.2
May			!21	7.4	!11	5.3	6.0	379	537	1,317	8.7
June			! 1	7.1	!15	6.4	6.7	402	486	1,133	6.0
July			! 1	7.1	!27	5.7	6.4	381	520	977	7.9
Aug.			!10	7.4	! 3	5.3	6.0	359	552	1,216	6.2
Sept.			! 1	5.7	!28	4.9	5.3	317	600	1,111	5.4
Oct.			21	19.8	! 1	4.9	10.6	656	662	1,420	4.6
Nov.			! 6	16.6	!28	8.1	12.0	708	597	1,338	4.2
Dec.			! 1	8.1	!29	6.4	7.4	450	516	1,187	4.4
Yearly				19.8		4.9	7.1	5,075	6,303	11,421	146.2
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
				0.56		0.14	0.20	6,261	7,775	14,089	180.1

EIGHT MILE CREEK NEAR DEL RIO, TEXAS

DESCRIPTION: Concrete wall with 90° V-notch weir of 6.9 second-foot (0.2 m^3/sec) capacity, bubbler gage, and water-stage recorder located on the left bank at latitude 29°24'00", longitude 101°00'55", 0.8 creek mile (1.3 km) from the confluence with the Rio Grande, and about 8 miles (12.9 km) northwest of Del Rio, Texas. This stream enters the Rio Grande from the United States side at river mile 569.3 (916.2 km), 4.6 river miles (7.4 km) downstream from Amistad Dam, and 8.3 river miles (13.4 km) upstream from the international highway bridge between Del Rio, Texas and Cd. Acuna, Coahuila. The elevation of the zero of the gage is 913.97 feet (278.58 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on a continuous record of gage heights and the weir discharge table. Records available: March 1961 through 1983.

REMARKS: The source of flow of this stream is from surface runoff during rainy periods and the subsequent flow from underground seepage as a result of such rains. All storm water from surface runoff passing this station is deducted and is not included in the tabulation below. This station was established for investigational purposes in connection with Amistad Dam to determine what effect storage in Amistad Reservoir may have on the flow of this stream.

EXTREME FLOWS FROM RECORDS:

	Average Flow in Second-Feet (Cubic Meters per Second)				
Daily:	Max. 15.9 (0.45)	July 23 & 24, 1976	Min. 0	Occasionally
Monthly:	Max. 6.3 (0.18)	July 1976	Min. 0	Occasionally
Yearly:	Max. 4.0 (0.11)	1974 & 1975	Min. 0	Several years

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2.8	2.8	2.8	2.4	2.2	2.2	1.7	1.8	1.8	1.9	2.2	2.2
2	2.8	2.8	2.8	2.5	2.1	2.1	1.7	1.8	1.8	1.9	2.3	2.2
3	2.8	2.8	2.8	2.5	2.0	2.0	1.7	1.8	1.8	1.9	2.3	2.2
4	2.8	2.8	2.8	2.5	2.1	2.0	1.7	1.8	1.8	1.9	2.4	2.2
5	2.8	2.8	2.8	2.4	2.0	2.0	1.7	1.9	1.8	1.8	3.1	2.2
6	2.8	2.8	2.8	2.5	2.1	2.0	1.7	1.8	1.8	1.8	3.3	2.2
7	2.8	2.8	2.8	2.4	2.1	2.2	1.7	1.8	1.8	1.8	3.0	2.2
8	2.8	2.8	2.8	2.4	2.0	2.0	1.6	1.8	1.8	1.9	2.8	2.2
9	2.8	2.8	2.8	2.4	2.0	1.9	1.6	2.0	1.8	2.6	2.5	2.2
10	2.8	2.8	2.8	2.4	2.2	1.9	1.7	1.9	1.8	2.5	2.5	2.2
11	2.8	2.8	2.8	2.4	2.2	2.0	1.7	1.9	1.8	2.2	2.4	2.2
12	2.8	2.8	2.8	2.4	2.1	1.9	1.7	1.9	1.8	2.0	2.4	2.2
13	2.8	2.8	2.8	2.3	2.0	1.9	1.7	2.0	1.9	2.0	2.4	2.2
14	2.8	2.8	2.8	2.3	2.0	2.0	1.8	1.9	1.9	2.0	2.3	2.1
15	2.8	2.8	2.8	2.4	2.0	2.2	1.8	1.9	1.8	2.0	2.3	2.1
16	2.8	2.8	2.5	2.4	2.0	2.4	1.8	1.8	1.8	2.0	2.3	2.1
17	2.8	2.8	2.5	2.4	2.0	2.3	1.7	1.8	1.8	2.0	2.3	2.2
18	2.8	2.8	2.5	2.3	2.0	2.1	1.7	1.8	1.9	2.0	2.3	2.2
19	2.8	2.8	2.5	2.3	2.0	2.0	1.8	1.8	2.0	2.0	2.2	2.2
20	2.8	2.8	2.5	2.2	2.6	2.0	1.9	1.8	1.9	2.8	2.2	2.3
21	2.8	2.5	2.5	2.3	2.3	1.9	1.8	1.7	1.9	3.2	2.2	2.3
22	2.8	2.5	2.5	2.2	2.2	1.9	1.8	1.7	1.8	2.8	2.2	2.2
23	2.8	2.8	2.5	2.2	2.2	1.9	1.8	1.7	1.9	2.5	2.2	2.2
24	2.8	2.8	2.5	2.2	2.2	1.9	1.8	1.7	1.9	2.2	2.2	2.1
25	2.8	2.8	2.5	2.2	2.1	2.0	1.8	1.7	1.9	2.4	2.2	2.1
26	2.8	3.2	2.5	2.2	2.0	1.9	1.8	1.8	1.9	2.3	2.2	2.1
27	2.8	2.8	2.5	2.2	2.0	1.7	1.7	1.8	1.9	2.3	2.2	2.1
28	2.8	2.8	2.5	2.2	2.0	1.7	1.7	1.8	1.9	2.3	2.2	2.1
29	2.8		2.5	2.2	2.1	1.8	1.8	1.8	1.9	2.3	2.2	2.0
30	2.8		2.5	2.2	2.0	1.8	1.8	1.8	1.9	2.3	2.2	2.0
31	2.8		2.5		2.0		1.8	1.8		2.3		2.0
Sum	86.8	78.2	82.0	69.9	64.8	59.6	54.0	56.3	55.5	67.9	71.5	67.0

Current Year 1983 — Period #March 1961-1983

Month	Extreme Gage Feet ** High	Extreme Gage Feet ** Low	Ø Extreme Second-Feet High Day	Ø Extreme Second-Feet High	Ø Extreme Second-Feet Low Day	Ø Extreme Second-Feet Low	Average Second-Feet	Total Acre-Feet	Acre-Feet Average	Acre-Feet Maximum	Acre-Feet Minimum
Jan.	1.25	1.02	! 1	2.8	! 1	2.8	2.8	172	112	294	0
Feb.	1.80	1.00	26	3.2	!21	2.5	2.8	155	101	273	0
Mar.	1.31	.98	! 1	2.8	!16	2.5	2.6	162	105	271	0
Apr.	1.01	.92	! 2	2.5	20	2.2	2.3	139	105	244	0
May	2.55	.87	20	2.6	! 3	2.0	2.1	129	104	224	0
June	1.49	.85	16	2.4	!27	1.7	2.0	118	95.1	214	0
July	.90	.82	20	1.9	! 8	1.6	1.7	107	100	390	0
Aug.	1.30	.83	! 9	2.0	!21	1.7	1.8	112	104	299	0
Sept.	2.26	.84	19	2.0	! 1	1.8	1.8	110	95.7	240	0
Oct.	3.75	.87	21	3.2	! 5	1.8	2.2	135	114	334	0
Nov.	2.54	.92	6	3.3	! 1	2.2	2.4	142	107	321	0
Dec.	.96	.92	!20	2.3	!29	2.0	2.2	133	111	283	0
Yearly	3.75	0.82		3.3		1.6	2.2	1,614	1,253.8	2,892	3.4
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
	1.14	0.25		0.09		0.05	0.06	1,991	1,547	3,567	4.2

\# Some months missing ** Includes storm runoff Ø Mean daily ! And other days

MCKEE SPRING NEAR DEL RIO, TEXAS

DESCRIPTION: This spring is located on the left flood plain of the Rio Grande at latitude 29°23'35", longitude 101°01'15", about 150 feet (45.7 m) from the edge of the low-flow channel and about 8 miles (12.9 km) northwest of Del Rio, Texas. Water from this spring enters the Rio Grande at river mile 569.1 (915.9 km) 4.8 river miles (7.7 km) downstream from Amistad Dam. The zero of the gage is 894.59 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 25 discharge measurements during the year. Mean daily discharges determined by prorating between measurements. Records available: November 1961 through 1983.

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 this spring when the river flow is approximately 14,000 second-feet (396 m³/sec). This station was established for investigational purposes in connection with Amistad Dam to determine what effect storage in Amistad Reservoir may have on the flow of this spring. In April 1977 the water began to leak under the weir, causing the gage height-discharge relationship to become ineffective.

EXTREME FLOWS FROM RECORDS:

		Average Flow in Second-Feet (Cubic Meters per Second)			
Daily:	Max. 11.0 (0.31)	Feb. 16, 1983	Min. 0	Occasionally
Monthly:	Max. 9.2 (0.26)	Feb. 1983	Min. 0	Occasionally
Yearly:	Max. 7.8 (0.22)	1979	Min. 0	1963

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	6.6	6.4	9.0	8.1	8.0	* 7.2	8.6	9.0	* 6.6	8.0	8.6	5.1
2	6.6	* 6.4	* 8.8	8.1	8.1	7.2	8.7	8.9	6.6	8.0	* 8.7	5.0
3	6.6	6.7	8.7	8.1	8.3	7.3	8.7	* 8.9	6.7	8.1	8.3	5.0
4	6.6	7.1	8.6	8.1	* 8.4	7.4	8.8	8.9	6.7	8.2	8.0	4.9
5	* 6.6	7.4	8.5	8.2	8.4	7.4	8.8	8.8	6.8	* 8.2	7.6	4.9
6	6.6	7.7	8.5	* 8.2	8.5	7.4	8.9	8.8	6.8	8.2	7.2	4.8
7	6.6	8.0	8.4	8.1	8.5	7.5	* 8.9	8.8	6.9	8.1	6.8	* 4.8
8	6.6	8.4	8.3	8.0	8.5	7.6	8.9	8.8	6.9	8.1	6.5	4.8
9	6.6	8.7	8.2	7.9	8.6	7.6	9.0	8.7	7.0	8.1	* 6.1	4.8
10	6.6	9.0	8.1	7.7	8.6	7.6	9.0	8.7	7.0	8.0	6.1	4.8
11	6.6	9.4	8.0	7.6	8.6	7.7	9.1	8.7	7.0	8.0	6.0	4.9
12	6.6	9.7	7.9	7.5	8.7	7.8	9.1	8.6	7.1	7.9	6.0	4.9
13	6.6	10.0	7.9	7.4	8.7	7.8	9.2	8.6	7.1	7.9	5.9	4.9
14	6.6	10.3	7.8	7.3	8.8	7.8	9.2	8.6	7.2	7.9	5.9	4.9
15	6.6	10.7	7.7	7.2	8.8	* 7.9	9.2	8.6	7.2	7.8	5.8	4.9
16	6.6	*11.0	* 7.6	7.1	8.8	7.9	9.3	8.5	7.3	7.8	* 5.8	4.9
17	6.6	10.8	7.6	6.9	8.9	8.0	9.3	* 8.5	7.3	7.8	5.8	5.0
18	6.6	10.7	7.7	6.8	* 8.9	8.0	9.4	8.4	7.4	7.7	5.7	5.0
19	* 6.6	10.5	7.7	6.7	8.8	8.1	9.4	8.2	7.4	* 7.7	5.7	5.0
20	6.6	10.4	7.7	* 6.6	8.7	8.1	9.5	8.1	7.5	7.8	5.6	* 5.0
21	6.6	10.2	7.7	6.7	8.5	8.2	* 9.5	8.0	* 7.5	7.8	5.6	5.0
22	6.6	10.1	7.8	6.9	8.4	8.2	9.5	7.9	7.6	7.9	5.5	5.0
23	6.5	9.9	7.8	7.0	8.3	8.3	9.4	7.7	7.6	8.0	5.5	5.0
24	6.5	9.7	7.8	7.1	8.2	8.3	9.4	7.6	7.6	8.1	5.4	5.0
25	6.5	9.6	7.9	7.2	8.0	8.4	9.3	7.5	7.7	8.1	5.4	5.0
26	6.5	9.4	7.9	7.4	7.9	8.4	9.3	7.4	7.8	8.2	5.3	5.0
27	6.5	9.3	7.9	7.5	7.8	8.4	9.2	7.2	7.8	8.3	5.3	5.0
28	6.5	9.1	7.9	7.6	7.7	8.5	9.2	7.1	7.8	8.3	5.2	5.0
29	6.5		8.0	7.8	7.6	8.5	9.1	7.0	7.9	8.4	5.2	5.0
30	6.4		8.0	7.9	7.4	8.6	9.1	6.9	8.0	8.5	5.1	5.0
31	6.4		8.0		7.3		9.0	6.7		8.6		5.0
Sum	203.5	256.6	249.4	224.7	258.7	237.1	283.0	254.1	217.8	249.5	185.6	153.3

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
			Current Year 1983						Period Nov. 1961-1983		
Jan.			! 1	6.6	!30	6.4	6.6	404	294	526	0
Feb.			16	11.0	! 1	6.4	9.2	509	274	509	0
Mar.			1	9.0	!16	7.6	8.0	495	295	527	0
Apr.			! 5	8.2	20	6.6	7.5	446	288	490	0
May			!17	8.9	31	7.3	8.3	513	317	513	.7
June			30	8.6	! 1	7.2	7.9	470	290	470	0
July			!20	9.5	1	8.6	9.1	561	301	561	0
Aug.			1	9.0	31	6.7	8.2	504	301	504	0
Sept.			30	8.0	! 1	6.6	7.3	432	296	479	0
Oct.			31	8.6	!18	7.7	8.0	495	308	519	0
Nov.			2	8.7	30	5.1	6.2	368	291	516	0
Dec.			1	5.1	! 6	4.8	4.9	304	295	483	0
Yearly				11.0		4.8	7.6	5,501	3,550	5,657	0.7
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
				0.31		0.14	0.22	6,785	4,379	6,978	0.9

* Discharge measurement made on this day Ø Mean daily ! And other days

CANTU SPRING NEAR DEL RIO, TEXAS

DESCRIPTION: Concrete enclosure located at the spring source in the channel of a small tributary to Cienegas Creek at latitude 29°23'15", longitude 100°56'00", about 2.5 miles (4.0 km) northwest of Del Rio, Texas and 3.5 creek miles (5.6 km) from the confluence with the Rio Grande. Cienegas Creek enters the Rio Grande at river mile 562.9 (905.8 km), 1.8 river miles (3.0 km) upstream from the international highway bridge between Del Rio, Texas and Cd. Acuna, Coahuila. The elevation of the zero of the gage has not been determined.
RECORDS: Based on 52 discharge measurements during the year. Mean daily discharges determined by prorating between measurements. Records available: March 1961 through 1983.
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. This station was established for investigational purposes in connection with Amistad Dam to determine what effect storage in Amistad Reservoir may have on the flow of this spring.
EXTREME FLOWS FROM RECORDS:

Average Flow in Second-Feet (Cubic Meters per Second)

Daily:	Max.	10.1 (0.29)	October 20, 1982	Min. 0	Occasionally
Monthly:	Max.	9.3 (0.26)	March 1982	Min. 0	Occasionally
Yearly:	Max.	8.3 (0.24)	1982	Min. 0	1963

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	8.2	8.3	8.5	7.7	7.2	* 7.0	7.1	6.7	* 6.0	6.0	8.3	7.1
2	8.2	* 8.3	* 8.5	7.7	7.2	7.3	7.1	6.7	6.0	6.0	* 8.2	7.0
3	8.2	8.3	8.6	7.8	7.2	7.7	7.0	* 6.6	6.0	6.0	8.3	6.9
4	8.1	8.2	8.7	7.8	* 7.2	8.0	6.9	6.5	6.0	5.9	8.4	6.8
5	* 8.1	8.2	8.8	7.8	7.2	8.4	6.9	6.5	6.1	* 5.9	8.5	6.7
6	8.2	8.1	8.9	* 7.8	7.1	8.7	* 6.8	6.4	6.1	6.1	8.7	6.6
7	8.4	8.1	9.0	7.9	7.1	9.1	6.9	6.3	* 6.1	6.2	8.8	* 6.5
8	8.5	8.0	9.1	7.9	7.0	* 9.4	6.9	6.2	6.1	6.4	8.9	6.5
9	8.7	* 8.0	* 9.2	8.0	7.0	9.2	7.0	6.2	6.1	6.6	* 9.0	6.4
10	8.8	8.2	9.1	8.0	6.9	9.0	7.0	* 6.1	6.1	6.8	8.8	6.4
11	9.0	8.4	8.9	8.1	* 6.9	8.8	7.1	6.2	6.0	6.9	8.5	6.4
12	* 9.1	8.6	8.8	8.1	7.0	8.5	7.1	6.3	6.0	* 7.1	8.3	6.4
13	9.0	8.7	8.6	* 8.2	7.1	8.3	* 7.2	6.4	6.0	7.1	8.1	6.3
14	8.9	8.9	8.5	8.2	7.2	8.1	7.2	6.4	* 6.0	7.1	7.9	* 6.3
15	8.8	9.1	8.3	8.1	7.4	* 7.9	7.1	6.5	6.0	7.1	7.6	6.4
16	8.6	* 9.3	* 8.2	8.1	7.5	7.7	7.1	6.6	6.1	7.1	* 7.4	6.5
17	8.5	9.2	8.2	8.0	7.6	7.5	7.0	* 6.7	6.1	7.1	7.4	6.6
18	8.4	9.2	8.2	8.0	* 7.7	7.3	7.0	6.6	6.2	7.1	7.4	6.7
19	* 8.3	9.1	8.2	7.9	7.6	7.2	6.9	6.6	6.2	* 7.1	7.4	6.8
20	8.3	9.0	8.3	* 7.9	7.5	7.0	* 6.9	6.5	6.3	7.4	7.3	* 6.9
21	8.3	8.9	8.3	7.8	7.4	6.8	6.9	6.4	* 6.3	7.7	7.3	6.9
22	8.3	8.9	8.3	7.7	7.4	* 6.6	6.9	6.3	6.3	8.0	7.3	6.9
23	8.2	* 8.8	* 8.3	7.6	7.3	6.7	6.9	6.3	6.2	8.3	* 7.3	6.9
24	8.2	8.8	8.2	7.5	7.2	6.8	7.0	* 6.2	6.2	8.6	7.3	6.9
25	8.2	8.7	8.1	7.4	* 7.1	6.8	7.0	6.2	6.2	8.9	7.3	6.9
26	* 8.2	8.7	8.0	7.3	7.1	6.9	7.0	6.2	6.2	* 9.2	7.3	6.9
27	8.2	8.6	8.0	* 7.2	7.1	7.0	* 7.0	6.1	* 6.1	9.1	7.2	6.9
28	8.2	8.6	7.9	7.2	7.1	7.0	6.9	6.1	6.1	8.9	7.2	* 6.9
29	8.2		7.8	7.2	7.0	7.1	6.9	6.1	6.1	8.8	7.2	6.9
30	8.3		* 7.7	7.2	7.0	* 7.2	6.8	6.0	6.0	8.6	* 7.2	6.9
31	8.3		7.7		7.0		6.8	6.0		8.5		6.9
Sum	260.9	241.2	260.9	233.1	223.3	231.0	216.3	196.9	183.2	227.6	235.8	208.1

Current Year 1983 — Period March 1961-1983

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.			12	9.1	! 4	8.1	8.4	517	310	565	0
Feb.			16	9.3	! 8	8.0	8.6	478	278	478	0
Mar.			9	9.2	!30	7.7	8.4	517	297	569	0
Apr.			!13	8.2	!27	7.2	7.8	462	276	486	0
May			18	7.7	!10	6.9	7.2	443	278	508	0
June			8	9.4	22	6.6	7.7	458	264	531	0
July			!13	7.2	! 6	6.8	7.0	429	271	505	0
Aug.			! 1	6.7	!30	6.0	6.4	391	275	526	0
Sept.			!20	6.3	! 1	6.0	6.1	363	281	520	0
Oct.			26	9.2	! 4	5.9	7.3	451	313	567	0
Nov.			9	9.0	!27	7.2	7.9	468	302	521	0
Dec.			1	7.1	!13	6.3	6.7	413	313	544	0
Yearly				9.4		5.9	7.4	5,390	3,458	6,019	0
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
				0.27		0.17	0.21	6,649	4,265	7,423	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 right bank of the Cienegas Creek at latitude 29°21'10", longitude 100°56'35", 0.5 creek mile (0.8 km) 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 (884 m) 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 (4.0 km) west of Del Rio, Texas. The point of diversion is 1.8 creek miles (2.9 km) from the confluence with the Rio Grande. Cienegas Creek enters the Rio Grande at river mile 562.9 (905.8 km), 1.8 river miles (3.0 km) upstream from the international highway bridge between Del Rio, Texas and Cd. Acuna, Coahuila. The elevation of the zero of the gages has not been determined.

RECORDS: Based on 53 and 57 discharge measurements at Cienegas Creek and Briggs Farm ditch, respectively, during the year and a continuous record of gage heights. Mean daily discharge computations determined by combining the two records for the total yield of the springs. Records available: March 1965 through 1983. Discharge measurement data available since November 1962. Records are also available from September 1931 through June 1935 for a station 0.3 creek mile (0.5 km) downstream. The station was moved 0.2 creek mile (0.3 km) upstream in June 1983.

REMARKS: Low flow of this stream is from springs, one of which is Cantu Spring, whose discharge is shown on page 40. The flow of this stream is modified by irrigation diversions through the Briggs Farm ditch. During 1983 there were no appreciable diversions from the creek, other than through the Briggs Farm ditch, whose net amount of diversion is 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 may have on the flow of these springs.

EXTREME FLOWS FROM RECORDS:

		Average Flow in Second-Feet (Cubic Meters per Second)					
Daily:	Max. 42.7 (1.21)	August 12,	1972	Min. 0.5	(0.01)	April 21,	1966
Monthly:	Max. 24.8 (0.70)	July	1976	Min. 0.8	(0.02)	August	1967
Yearly:	Max. 17.9 (0.51)		1977	Min. 2.2	(0.06)		1968

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	18.4	15.9	13.8	13.4	12.6	14.0	10.8	10.7	10.8	12.8	12.8	13.8
2	18.7	15.9	12.7	13.1	12.4	13.6	10.4	10.6	10.9	13.1	14.6	14.1
3	15.2	15.9	13.4	13.0	11.7	13.4	10.4	10.5	11.0	11.3	15.4	13.3
4	14.8	16.2	13.8	13.3	11.7	13.7	10.6	11.6	11.1	11.7	16.0	13.5
5	15.5	17.0	13.4	13.8	11.9	14.2	10.4	12.1	10.6	10.5	18.0	13.7
6	16.6	16.6	14.1	13.7	12.5	14.8	10.7	11.3	11.4	11.7	23.0	14.1
7	16.6	15.2	13.4	14.4	12.5	15.2	10.7	10.7	11.6	11.8	19.9	15.2
8	17.0	15.5	14.1	14.1	12.8	15.3	9.9	10.6	11.5	11.9	19.0	14.5
9	17.7	16.2	15.5	13.5	11.7	15.3	9.0	11.1	11.5	21.4	18.3	14.5
10	17.0	16.6	15.5	13.5	10.6	15.8	8.4	11.5	11.4	14.6	17.4	14.3
11	15.5	15.5	14.8	14.0	11.1	15.5	8.0	11.4	10.8	16.9	16.3	15.3
12	15.9	14.1	13.4	14.0	12.1	14.9	8.5	11.3	10.7	15.3	16.4	14.6
13	16.2	13.8	14.8	13.5	12.4	14.5	9.1	11.3	10.5	15.1	16.5	14.9
14	15.9	14.1	15.9	14.2	12.8	14.4	9.7	10.5	10.7	14.2	16.5	14.3
15	16.2	14.8	15.5	14.5	12.7	14.1	10.0	10.5	11.2	14.1	15.6	14.2
16	17.0	14.5	15.2	14.2	12.6	14.2	10.2	10.3	11.1	13.5	15.6	14.3
17	17.0	14.8	15.2	13.4	13.0	13.2	10.4	10.2	11.3	13.4	15.7	15.2
18	15.9	14.8	15.2	13.7	13.0	12.7	10.6	10.3	14.7	13.3	16.0	15.4
19	15.5	13.1	15.5	13.9	12.3	12.2	10.9	10.3	13.5	12.9	15.3	15.6
20	16.6	13.1	15.2	14.3	13.7	11.1	11.8	10.0	12.7	26.6	14.6	15.7
21	18.7	13.4	14.1	13.8	14.3	10.7	12.7	9.6	12.0	30.5	14.7	16.3
22	17.0	13.4	14.8	14.0	14.5	9.9	12.2	10.4	12.1	28.2	15.0	16.1
23	16.2	14.8	14.8	13.6	14.5	10.6	11.9	10.3	12.1	24.9	15.2	15.8
24	16.6	13.4	14.8	14.2	13.7	10.4	12.0	10.4	12.1	21.8	14.9	15.4
25	16.2	14.8	14.5	14.9	13.0	10.9	12.7	10.3	12.4	19.1	14.5	15.1
26	16.2	15.2	14.8	14.0	13.0	11.6	12.3	11.0	13.3	17.0	14.6	15.5
27	17.0	13.8	13.8	13.8	13.4	11.7	12.2	10.9	12.5	15.5	14.1	15.1
28	17.0	14.5	14.1	13.3	12.7	11.3	10.8	10.9	12.7	14.1	13.6	13.9
29	16.6		14.8	13.4	12.3	11.0	10.8	10.9	12.2	14.0	14.2	14.3
30	17.3		15.2	12.9	12.1	11.1	10.7	10.8	12.8	14.2	13.8	14.3
31	17.3		14.8		13.5		10.7	10.9		13.8		15.2
Sum	515.3	416.9	450.9	413.4	393.1	391.3	329.5	333.2	353.2	499.2	477.5	457.5

Current Year 1983 — **Period March 1965-1983**

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.			! 2	18.7	4	14.8	16.6	1,022	798	1,242	134
Feb.			5	17.0	!19	13.1	14.9	827	742	1,157	98.0
Mar.			14	15.9	2	12.7	14.5	894	767	1,185	102
Apr.			25	14.9	30	12.9	13.8	820	716	1,125	100
May			!22	14.5	10	10.6	12.7	780	710	1,159	109
June			10	15.8	22	9.9	13.0	776	637	1,070	86.3
July			!21	12.7	11	8.0	10.6	654	649	1,527	85.5
Aug.			5	12.1	21	9.6	10.7	661	659	1,241	48.4
Sept.			18	14.7	13	10.5	11.8	701	648	1,043	84.1
Oct.			21	30.5	5	10.5	16.1	990	766	1,135	150
Nov.			6	23.0	1	12.8	15.9	947	766	1,117	152
Dec.			21	16.3	3	13.3	14.8	907	798	1,168	133
Yearly				30.5		8.0	13.8	9,979	8,656	12,965	1,530.9
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
				0.86		0.23	0.39	12,309	10,677	15,992	1,888

Ø Mean daily ! And other days

RIO GRANDE AT DEL RIO, TEXAS AND CD. ACUNA, COAHUILA

DESCRIPTION: Cableway, gravity well, concrete control weir, water-stage recorders (graphic and digital) and binary decimal transmitter located on the right bank at latitude 29°19'40", longitude 100°55'50", and river mile 561.2 (903.2 km), 1,200 feet (366 m) upstream from the international highway bridge between Del Rio, Texas and Cd. Acuna, Coahuila and 12.7 river miles (20.4 km) downstream from Amistad Dam. The zero of the gage is 869.20 feet (264.93 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 24 discharge measurements during the year, 15 by the United States Section and 9 by the Mexican Section of the 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: December 1923 through July 2, 1941 and January 1968 through 1983. Records are available from May 1900 through April 1915 for a station 12.2 miles (19.6 km) upstream; for December 1919 through March 1920 for a station 8.7 miles (14.0 km) upstream near McKee's Switch; from July 2, 1941 through 1954 and October 1960 through 1967 for a station 1,200 feet (366 m) downstream at the international highway bridge; and from September 1954 through 1983 for a station, Rio Grande below Amistad Dam, 10.6 miles (17.0 km) 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 is controlled largely by releases from Amistad Reservoir. The transmitter, operated in cooperation with the National Weather Service, 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 (32,300 m^3/sec) occurred on June 28, 1954, with a gage height of 38.25 feet (11.66 m) at a station 1,200 feet (366 m) downstream. The lowest recorded flow was 124 second-feet (3.51 m^3/sec) which occurred March 5 and 6, 1969, with a gage height of 1.24 feet (0.38 m).

Average Flow in Second-Feet (Cubic Meters per Second)**

Daily:	Max. 63,800 (1,810)	Sept. 22, 1974	Min. 164 (4.64)	Aug. 13, 1971
Monthly:	Max. 22,300 (632)	Sept. 1974	Min. 188 (5.32)	October 1971
Yearly:	Max. 5,170 (146)	1974	Min. 701 (19.9)	1972

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,200	1,530	1,490	1,450	1,450	4,190	2,540	2,330	2,410 *	2,040	1,610	703 *
2	1,200	1,550	1,490	1,200	1,450	3,840 *	2,350	2,330	2,400	1,950	1,640	715
3	1,200	1,530 *	1,490 *	1,200	1,450	4,490	2,340	2,340	2,400	2,060	1,940 *	718
4	1,200	1,560	1,490	1,200	1,450	4,230	2,340	2,350	2,400	1,930	1,970	768
5	1,200	1,570	1,490	1,200	1,450 *	4,150	2,350	2,340	2,400	1,900	2,360	793
6	1,200 *	1,570	1,490	1,200	1,520	4,230	2,340	2,340	2,400	1,990 *	1,990	1,930
7	1,200	1,570	1,490	1,200 *	1,590	4,150	2,340 *	2,330	2,400	1,960	1,930	773
8	1,200	1,570	1,490	1,200	1,600	4,060	2,330	2,240	2,390	2,010	1,960	733
9	1,200	1,570	1,540	1,200	1,620	4,150 *	2,330	2,350	2,400	1,970	1,610	713
10	1,200	1,570	1,570	1,200	1,630	4,230	2,330	2,350	2,280	2,000	1,130	714
11	1,200	1,570	1,570	1,200	1,630	3,940	2,330	2,330	2,430	2,190	1,080	700
12	1,200	1,570	1,570	1,230	1,630	3,810	2,340	2,350	2,330	1,920	1,090	696
13	1,200	1,570	1,570	1,320	1,620	3,810	2,330	2,340	2,150	1,990	1,070	849
14	1,200	1,570	1,570	1,590	1,630	2,380	2,330	2,330	2,080	1,910	1,140	1,090
15	1,200	1,570	1,570	1,650	1,630	3,770	2,200	2,330	2,080	2,090	1,080	1,400
16	1,200	1,570	1,570	1,650	1,630	3,570 *	2,330	2,300	2,080	2,020	1,070	1,310
17	1,230	1,530	1,570	1,650	1,620	3,000	2,330	2,370 *	2,090	1,920	1,060	1,500
18	1,270	1,490	2,110	1,650	1,620	2,990	2,330	2,370	2,090	1,920	1,060	1,530
19	1,250	1,490	5,620	1,650	1,810	2,980	2,330	2,380	1,910	1,940 *	1,030	1,520
20	1,260	1,480	5,620	1,620	1,750	2,990	2,330 *	2,370	2,050	6,410 *	1,060	1,410
21	1,350	1,480	5,690	1,650	1,640	2,890	2,330	2,360	2,030	755	1,040	774
22	1,350	1,490	5,760	1,480	1,630	2,650 *	2,340	2,370	2,040 *	1,870	1,040	749
23	1,350	1,490	5,620	1,270	1,670	2,650	2,330	2,370	2,040	1,870	904	730
24	1,370	1,490	5,120	1,270	3,010	2,620	2,340	2,350	2,070	1,830	762	748
25	1,520	1,530	3,010 *	1,270	4,490	2,610	2,340	2,260	2,020	1,900	755	2,390
26	1,550	1,490	1,620	1,270	4,670 *	2,600	2,330	2,360	2,010	1,910	723	3,280
27	1,530 *	1,490	1,640	1,370	4,490 *	2,590	2,340	2,400	2,000	1,820	721	934
28	1,530	1,490	1,620	1,490	4,400	2,610	2,340	2,400	2,030	1,930	750	1,530 *
29	1,550		1,650	1,490	4,400	2,560	2,330	2,400	2,040	1,890	723	1,590
30	1,510		1,650	1,490	4,450	2,600	2,320	2,410	2,050	1,900	729	1,580
31	1,570		1,650		4,630		2,320	2,290		1,890		1,580
Sum	40,390	42,950	74,400	41,510	71,260	101,340	72,430	72,740	65,500	63,685	37,027	36,450

Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Period #1968-1983 Acre-Feet		
			High		Low						
	High	Low	Day		Day				Average	Maximum	Minimum
Jan.	2.13	1.97	!25	1,570	! 1	1,200	1,300	80,112	92,593	221,105	14,497
Feb.	2.17	2.07	25	1,650	!20	1,420	1,530	85,190	122,338	448,205	18,633
Mar.	3.25	2.07	!21	5,760	1	1,420	2,400	147,570	136,936	382,036	17,298
Apr.	2.20	1.94	1	1,730	1	1,130	1,380	82,334	111,846	354,407	33,846
May	3.26	2.09	31	5,760	5	1,430	2,300	141,342	195,080	516,357	30,928
June	3.11	1.53	4	5,040	14	414	3,380	201,005	169,391	338,718	23,143
July	2.51	2.02	1	2,780	15	1,300	2,340	143,663	140,407	367,024	31,474
Aug.	2.41	2.08	!19	2,440	31	1,460	2,350	144,278	166,764	670,572	28,826
Sept.	2.41	1.89	! 1	2,440	19	1,000	2,180	129,917	226,961	1,327,500	38,850
Oct.	5.63	1.42	20	19,000	21	282	2,050	126,317	173,860	815,207	11,578
Nov.	2.60	1.56	5	3,110	!26	453	1,230	73,442	105,363	527,524	13,644
Dec.	2.96	1.55	26	4,360	12	440	1,180	72,298	80,189	228,774	13,918
Yearly	5.63	1.42		19,000		282	1,970	1,427,468	1,721,728	3,743,795	508,583
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
	1.72	0.43		538		8.0	55.8	1,760,782	2,123,751	4,617,971	627,337

** Period 1968-1983 * Discharge measurement made on this day ! And other days

Values for January 1968 are Rio Grande near Del Rio less Arroyo Las Vacas flow

ARROYO DE LAS VACAS AT CD. ACUNA, COAHUILA

DESCRIPTION: Cableway with sit-down cable car, concrete wall with a V-shape concrete control weir of 353 second-foot (10 m^3/sec) capacity, gravity well, and water-stage recorder located on the left bank at Cd. Acuna, Coahuila, latitude 29°19'45", longitude 100°57'20" and 1.8 creek miles (3 km) from the confluence with the Rio Grande. This stream enters the Rio Grande at river mile 561.0 (902.9 km) on the upstream side of the international highway bridge between Del Rio, Texas and Cd. Acuna, Coahuila and 12.9 river miles (20.7 km) downstream from Amistad Dam. The zero of the gage is 885.82 feet (270 m) above mean sea level, U.S.C.&G.S. datum.

RECORDS: Based on 13 discharge measurements during the year, 11 by the Mexican Section and 2 by the United States Section of the Commission, a stable rating curve up to 353 second-feet (10 m^3/sec), 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 1983, the capacity of the weir was exceeded on May 19, June 24, October 9 and 20, and November 5. Records available: Occasional estimates from June 1935 to March 19, 1938 and a continuous record from March 20, 1938 through 1983.

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-shape concrete control weir with a capacity of 353 second-feet (10 m^3/sec), 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 (275.08 m) at this station. Records prior to 1965 were published under the title "Arroyo Las Vacas near Cd. Acuna, Coahuila."

EXTREME FLOWS FROM RECORDS: Momentary: Max. 63,570 second-feet (1,800 m^3/sec) with a gage height of 25.26 feet (7.70 m) on June 17, 1961. Min. no flow several occasions in 1956, 1957, 1960, 1961, and September 1, 1967.

Average Flow in Second-Feet (Cubic Meters per Second)**

Daily:	Max.	23,940	(678)	June 17, 1961	Min. 0	Several days Dec. 1956, Jan. 1957, & Sept. 1, 1967
Monthly:	Max.	1,050	(29.8)	June 1961	Min. 0.4 (0.01)	Several months 1952, 1953, & 1954
Yearly:	Max.	96.7 (2.74)		1961	Min. 2.8 (0.08)	1952

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	4.6	3.9	3.5	3.9	2.1	2.1	1.4	0.7	0.7	1.1	5.3	4.2
2	4.9	3.9	3.5	3.9	2.1	1.8	1.4	.7	.7	1.1	5.7	4.6
3	5.3	3.9	3.5	3.9	2.1	1.8	1.4	.7	.7	1.1	5.7	4.9
4	4.9	3.9	3.9	3.5	2.1	1.8	1.1	1.1	.7	1.1	7.1	4.6
5	4.6	4.2	4.2	3.5	1.8	1.8	1.1	.7	.7	.7	232 *	4.2
6	4.6	4.2	4.6	3.5	1.8	2.1	1.1	.7	.7	1.1	33.9	4.2
7	4.2	3.5	3.9	3.5	1.8	2.1	1.1	.7	.7	1.1	15.2	4.9
8	3.9	3.5	3.5	3.9	1.8	1.8	1.1	.7	.7	300	11.3	4.6
9	3.5	3.2	3.5	4.2	2.1	1.8	1.1	.7	.7	551	9.5	4.6
10	3.5	3.2	3.5	3.5	2.1	1.8	1.1	.7	.7	8.8	8.8	4.9
11	3.5	3.2	3.2	3.2	2.5	1.8	1.1	.7	.7	3.2	* 8.8	5.3
12	3.5	3.2	3.5	2.8	2.5	1.8	1.1	14.8	.7	2.8	8.8	4.6
13	3.5	3.2	4.2	2.8	2.5	1.8	.7	4.6	.7	3.9	8.8	4.2
14	3.5	3.9	3.5	2.8	2.1	1.4	1.1	1.8	.7	2.8	8.8	4.2
15	3.5	4.2	3.5	2.8	2.1	2.1	1.1	1.4	.7	2.1	7.4	4.2
16	3.5	4.2	3.2	2.8	2.1	2.1	.7	1.1	.7	2.1	6.4	4.2
17	3.2	* 3.5	3.2	2.8	1.8	1.8	1.1	.7	11.3	2.1	6.4	4.9
18	3.2	3.5	3.2	2.5	1.8	1.8	1.1	* 1.1	32.5	2.1	6.4	4.6
19	3.5	3.5	3.2	2.5	75.6	1.4	1.1	1.1	3.2	60.7	7.1	4.9
20	3.5	3.5	3.2	2.5	* 55.4	1.4	1.1	1.1	2.1	1,970 *	6.0	5.3
21	4.2	3.5	3.2	2.5	12.4	1.4	1.1	1.1	1.8	72.0	5.3	6.7
22	4.6	3.5	3.5	2.5	4.9	1.1	.7	1.1	* 1.4	22.6	4.2	6.0
23	5.7	3.5	3.9	2.1	4.2	1.4	.7	1.1	1.4	14.8	3.5	5.3
24	6.0	3.5	3.5	2.1	3.2	84.8	1.1	1.1	1.4	11.3	3.5	4.9
25	6.4	7.8	4.2	2.1	2.8	11.7	.7	1.1	1.4	9.9	* 4.2	5.3
26	6.0	7.8	4.2	2.1	2.8	3.5	.7	.7	1.4	9.5	4.2	6.4
27	* 4.6	6.0	3.5	2.1	2.8	2.5	.7	.7	* 1.4	7.1	4.2	6.7
28	4.6	4.9	3.5	2.1	2.5	2.1	.7	.7	1.4	4.9	4.2	5.7
29	4.6		3.5	* 2.1	2.5	1.8	* .7	.7	1.4	4.6	4.2	5.3
30	4.2		* 3.9	2.1	1.8	1.8	.7	.7	1.1	4.6	4.2	5.3
31	4.2		3.9		1.8		.7	.7		5.3		6.0
Sum	133.5	113.8	112.3	86.6	209.9	148.4	30.6	45.5	74.4	3,085.5	451.1	155.7

Current Year 1983								Period 1938-1983		
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.	0.46	0.33	24	7.1	17	2.8	4.2	265	377	910	31.5
Feb.	.89	.33	25	34.3	!10	2.8	4.2	226	490	5,950	33.3
Mar.	.49	.33	26	7.8	20	2.8	3.5	224	537	2,600	59.2
Apr.	.43	.30	9	6.0	!22	2.1	2.8	173	1,399	16,610	75.4
May	2.66	.26	19	636	30	1.4	6.7	416	1,262	9,080	90.0
June	2.82	.20	24	731	22	.7	4.9	293	2,394	62,520	43.8
July	.26	.16	1	1.8	!13	.7	1.1	59.2	1,397	16,409	26.8
Aug.	1.67	.13	12	181	29	.4	1.4	90.0	1,415	19,888	42.2
Sept.	1.71	.16	17	196	! 3	.4	2.5	148	2,563	49,566	37.3
Oct.	7.38	.20	20	6,710	! 4	.7	99.6	6,121	1,702	20,444	22.6
Nov.	2.66	.33	5	639	24	3.2	15.2	896	436	2,855	21.0
Dec.	.49	.36	21	7.4	! 1	4.2	4.9	310	351	1,066	22.0
Yearly	7.38	0.13		6,710		0.4	12.7	9,221.2	14,323	70,026.3	2,066.7
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
	2.25	0.04		190		0.01	0.36	11,373	17,667	86,384	2,555

** Period 1938-1983 * Discharge measurement made on this day ! 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 (1.0 km) downstream from the source of the springs and 3.9 creek miles (6.3 km) 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 (91 m) 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 560.5 (902.1 km), 0.5 river mile (0.8 km) downstream from the international highway bridge between Del Rio, Texas and Cd. Acuna, Coahuila. The zeros of the gages for the two stations are, respectively, 942.58 feet (287.30 m) and 930.77 feet (283.70 m) 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 52 and 52 discharge measurements, respectively, by wading during the year, and continuous records of gage heights. Computations by shifting control methods. Records for the Del Rio Pumping Plant are furnished by the city of Del Rio Water Department. Records available: Total yield of the springs, February 1961 through 1983.

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

Average Flow in Second-Feet (Cubic Meters per Second)

Daily:	Max.	171 (4.84)	July 23, 1976	Min. 29.2 (0.83)	July 29, 1964
Monthly:	Max.	153 (4.33)	December 1976	Min. 34.4 (0.97)	August 1964
Year:	Max.	149 (4.22)	1977	Min. 50.5 (1.43)	1963

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	133	131	134	131	132	132	124	116	111	120	125	136
2	134	130	133	135	134	131	121	115	127	120	124	134
3	133	133	134	135	138	128	120	115	122	121	125	135
4	133	133	136	139	137	127	121	131	121	118	124	136
5	133	133	134	138	135	125	122	132	119	121	130	135
6	133	134	134	138	135	124	120	130	115	122	128	134
7	135	135	137	138	135	134	125	122	124	123	127	134
8	133	135	137	136	132	131	122	115	132	127	131	134
9	132	133	136	137	134	132	121	120	127	123	131	135
10	132	132	136	138	134	131	120	117	119	123	130	135
11	132	134	136	134	136	125	122	114	115	115	129	134
12	135	132	134	132	133	133	121	115	115	116	131	135
13	133	133	136	132	131	130	119	117	122	120	132	135
14	134	135	137	133	130	131	124	116	122	119	129	135
15	136	136	136	132	131	131	121	118	123	115	132	136
16	138	138	135	133	131	130	124	114	120	115	131	134
17	136	135	132	134	134	130	127	110	116	116	132	132
18	140	135	131	133	135	128	127	112	130	118	130	134
19	138	133	130	136	126	128	126	115	129	119	133	132
20	137	133	134	135	134	130	130	120	122	134	132	133
21	137	135	133	131	129	132	124	117	129	127	131	136
22	138	135	133	130	131	132	120	113	126	126	128	136
23	133	135	134	129	128	136	120	111	128	125	130	137
24	133	135	136	131	127	135	119	110	124	124	132	139
25	132	139	135	129	124	134	118	112	124	126	131	140
26	131	139	133	128	124	130	113	115	122	126	133	138
27	130	138	135	130	126	130	118	116	117	126	132	133
28	132	137	135	131	127	133	118	117	113	127	133	132
29	131		132	134	129	131	118	114	119	123	132	130
30	129		135	132	131	138	118	116	122	125	133	132
31	128		133		132		119	117		127		134
Sum	4,144	3,766	4,166	4,004	4,075	3,922	3,762	3,622	3,655	3,787	3,901	4,175

Month	Current Year 1983 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 Feb. 1961-1983 Acre-Feet Average	Maximum	Minimum
Jan.			18	140	31	128	134	8,220	6,774	9,370	2,274
Feb.			!25	139	2	130	134	7,470	5,993	8,212	2,119
Mar.			! 7	137	19	130	134	8,263	6,528	9,029	2,365
Apr.			4	139	26	128	133	7,942	6,278	8,602	2,291
May			3	138	!25	124	131	8,083	6,610	9,300	2,842
June			30	138	6	124	131	7,779	6,404	9,049	2,481
July			20	130	26	113	121	7,462	6,597	9,342	2,214
Aug.			5	132	!17	110	117	7,184	6,563	9,039	2,114
Sept.			8	132	1	111	122	7,250	6,424	8,884	2,555
Oct.			20	134	11	115	122	7,511	6,810	9,249	2,508
Nov.			!19	133	! 2	124	130	7,738	6,623	8,965	2,384
Dec.			25	140	29	130	135	8,281	6,922	9,431	2,390
Yearly				140		110	129	93,183	78,526	107,892	36,580
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
				3.96		3.12	3.65	114,941	96,862	133,085	45,121

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°19'50", longitude 100°53'20", immediately upstream from the Silos Farm road bridge, 1.1 creek miles (1.8 km) from the confluence with the Rio Grande, and about 2 miles (3.2 km) south-southeast of Del Rio, Texas. This stream enters the Rio Grande at river mile 560.5 (902.1 km), 0.5 river mile (0.8 km) downstream from the international highway bridge between Del Rio, Texas and Cd. Acuna, Coahuila. The zero of the gage is 877.43 feet (267.44 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 55 discharge measurements during the year, 53 by the United States Section and 2 by the Mexican Section of the Commission, and a continuous record of gage heights. Computations by shifting control methods. Records available: September 1931 through 1983.

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 (4.6 m), or a flow of about 60,000 second-feet (1,700 m^3/sec). On June 28, 1954 combined creek flow and backwater from the Rio Grande reached a stage of 24.51 feet (7.47 m), the highest of record, at this station.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 45,000 second-feet (1,270 m^3/sec) on June 14, 1935 with a gage height of 23.20 feet (7.07 m). Min. 0.4 second-foot (0.01 m^3/sec) on July 20, 1953.

Average Flow in Second-Feet (Cubic Meters per Second)

Daily:	Max.	16,200 (459)	June 14, 1935	Min.	1.5 (0.04)	July 21, 1953
Monthly:	Max.	805 (22.8)	June 1935	Min.	4.6 (0.13)	July 1953
Yearly:	Max.	136 (3.85)	1935	Min.	25.1 (0.71)	1953

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	131	136 *	125 *	109	103	114	93.5	85.8	101	103	117 *	123
2	133	136	127	109	102	115	93.6	* 85.2	105	104	118	123
3	135	136	128	115	105 *	114	93.9	85.8	102	102	119	122
4	137 *	136	131	112	106	117	98.1	102	101	* 95.0	122	122
5	137	140	129	112 *	105	119	103 *	95.0	99.5	93.4	165	121
6	137	136	129	112	108	245	103	92.7	97.1	92.6	131	119 *
7	137	135	128	108	117	138 *	111	89.7	106	92.8	131	118
8	137	135 *	129 *	110	118	123	112	85.4	110 *	118	135 *	120
9	137	135	126	108	123	115	111	* 86.3	107	228	129	124
10	135	135	125	104	124 *	111	113	85.0	106	103	132	127
11	136 *	133	119	103	126	110	114	83.1	102	101 *	127	128
12	137	132	118	104 *	126	110	118 *	83.2	101	98.7	125	130
13	135	132	115	102	126	105	117	86.3	107 *	102	125	130 *
14	134	132	113	99.9	125	105 *	112	86.4	106	108	122	130
15	133	133 *	110 *	97.1	123	125	106	86.5	106	106	120 *	126
16	135	132	111	97.8	119	114	104	* 85.2	103	104	120	128
17	132	131	108	96.4	119 *	106	107	83.2	107	104	120	129
18	135 *	128	105	91.8	116	106	107	84.5	120	* 99.7	121	132
19	136	130	104	* 91.8	121	103	106 *	86.4	114	106	122	132
20	138	130	105	91.5	119	98.3	109	88.8	112 *	2,840 *	123	133 *
21	139	129	105	91.1	119	* 95.2	107 *	87.4	113	122	126	132
22	138	128	107	90.4	116	94.0	100	86.4	111	116	127 *	132
23	140	126 *	107 *	91.8	112	91.7	97.2	* 85.8	111	114	126	131
24	141	127	108	92.2	109 *	150	96.1	85.2	108	123	126	130
25	142 *	134	113	90.1	109	126	94.4	85.4	107	117 *	126	129
26	141	132	119	* 89.7	110	103	* 93.3	86.3	105	114	125	131
27	140	129	119	90.8	114	101	92.0	88.0	105 *	114	126	134 *
28	139	127	118	93.9	114	* 98.2	90.9	93.6	105	117 *	125	133
29	138		119 *	98.2	114	97.0	91.9	97.8	106	121	123 *	133
30	139		116	99.6	115	95.6	93.3	* 97.2	106	122	123	134
31	137		111		116 *		93.1	97.9		118		136
Sum	3,705		3,002.1		3,445.0		2,736.5		6,199.2		3,972	
	4,241		3,627		3,579		3,181.3		3,189.6		3,777	

Month	Current Year 1983								Period 1932-1983		
	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
			High		Low				Average	Maximum	Minimum
	High	Low	Day		Day						
Jan.	1.71	1.48	120	154	14	125	137	8,412	5,037	8,906	934
Feb.	1.77	1.05	5	164	18	79.8	132	7,349	4,140	8,630	487
Mar.	1.74	1.18	26	161	19	95.0	117	7,194	3,962	8,354	689
Apr.	1.41	1.05	2	121	21	79.8	100	5,955	4,339	10,407	566
May	2.02	1.12	19	206	6	97.7	115	7,099	5,108	17,600	739
June	4.70	1.03	6	711	22	89.7	115	6,833	5,318	47,900	301
July	1.32	.96	12	128	31	83.6	103	6,310	4,394	22,077	285
Aug.	1.38	.87	4	129	9	72.8	88.3	5,428	3,952	7,584	350
Sept.	1.63	.98	17	164	6	90.0	106	6,326	5,263	28,678	872
Oct.	16.62	.97	20	12,350	6	81.6	200	12,296	5,281	14,229	1,000
Nov.	2.20	1.29	5	230	2	111	126	7,492	4,489	8,567	526
Dec.	1.75	1.30	27	167	15	116	128	7,878	4,622	8,642	496
Yearly	16.62	0.87		12,350		72.8	122	88,572	55,905	98,137	18,201
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
	5.07	0.27		350		2.06	3.46	109,254	68,959	121,052	22,451

* 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 (0.8 km) downstream from the Tequesquite Creek Siphon, 3.5 canal miles (5.6 km) upstream from the Las Moras Creek Siphon, about 7.5 miles (12.1 km) north-northwest of Quemado, Maverick County, Texas, and 12.8 canal miles (20.6 km) from the canal intake. The canal intake is at river mile 543.6 (874.9 km), 17.4 river miles (28.0 km) downstream from the international highway bridge between Del Rio, Texas and Cd. Acuna, Coahuila. The elevation of the zero of the gage has not been determined.

RECORDS: Based on 25 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 1983.

REMARKS: At canal mile 31.8 (51.2 km) a portion of the diverted water returns to the river through the Maverick Power Plant, and the remainder enters the Maverick Canal Extension. In 1983, 10,900 acres (4,411 ha) of land were irrigated between this station and the power plant, and 26,800 acres (10,846 ha) were irrigated from the extension, making a total of 37,700 acres (15,257 ha). A total of 869,905 acre-feet (1,073,027,000 m3) returned to the Rio Grande at the power plant and through the irrigation system (see pages 51, 53, and 56).

EXTREME FLOWS FROM RECORDS: Momentary: Max. 1,750 second-feet (49.6 m3/sec) on August 30, 1973. Min. no flow several days in June, July, and November 1954; and October 1978.

Average Flow in Second-Feet (Cubic Meters per Second)**

Daily:	Max. 1,730 (49.0)	August 29, 1973	Min. 0	Oct. 2 & 3,	1978
Monthly:	Max. 1,600 (45.4)	September 1981	Min. 295 (8.35)	February	1977
Yearly:	Max. 1,490 (42.2)	1980 & 1981	Min. 632 (17.9)		1972

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,180	1,500 *	1,490 *	1,450	1,100	1,500 *	1,260	1,440 *	1,600 *	1,560	1,520 *	821 *
2	1,170	1,490	1,470	1,290	1,210 *	1,520	1,350	1,460	1,590	1,550	1,500	786
3	1,170	1,500	1,520	1,160	1,270	1,550	1,370	1,480	1,580	1,550 *	1,560	799
4	1,170 *	1,510	1,470	1,170 *	1,300	1,570	1,370	1,480	1,580	1,550	1,570	815
5	1,170	1,490	1,480	1,150	1,290	1,560	1,340 *	1,490	1,590	1,540	1,600	850
6	1,170	1,490	1,490	1,170	1,010	1,570	1,340	1,500	1,570	1,530	1,600	1,130
7	1,170	1,490	1,480	1,170	1,300	1,540	1,330	1,520	1,560	1,540	1,620	1,410
8	1,190	1,480	1,470	1,180	1,400	1,570	1,160	1,510	1,560	1,520	1,620	878
9	1,190	1,470	1,470	1,160	1,400	1,590	1,410	1,530	1,550	1,500	1,620	844
10	1,180	1,470	1,480	1,180	1,430	1,610	1,440	1,530	1,550	1,530	1,520	818
11	1,180	1,460	1,490	1,160	1,440	1,590	1,420	1,530	1,540	1,570	1,360	816
12	1,180	1,440	1,470	1,110	1,460	1,590	1,400	1,530	1,540	1,580	1,320	798
13	1,180	1,450	1,460	1,130	1,460	1,560 *	1,350	1,540	1,530	1,590	1,330	793 *
14	1,230	1,450 *	1,450 *	1,290	1,480	1,520	1,430	1,550	1,540 *	1,600	1,240 *	1,080
15	1,190	1,450	1,450	1,400	1,510	1,530	1,430	1,560 *	1,540	1,600	1,050	1,380
16	1,190	1,470	1,430	1,410	1,510	1,480	1,410	1,560	1,550	1,610	1,100	1,540
17	1,250 *	1,480	1,450	1,430	1,500 *	1,400	1,420	1,560	1,550	1,590	1,070	1,520
18	1,270	1,480	1,450	1,430 *	1,470	1,500	1,410	1,560	1,560	1,610	1,030	1,610
19	1,240	1,430	1,440	1,450	1,460	1,480	1,350	1,570	1,550	1,610 *	1,050	1,600
20	1,200	1,180	1,470	1,450	1,380	1,420	1,430 *	1,570	1,550	1,530	1,080	1,600
21	1,150	1,050	1,480	1,450	1,470	1,340	1,460	1,580	1,570	1,400	1,090	1,280
22	1,180	975	1,480	1,460	1,470	1,360	1,440	1,560	1,550	1,520	1,140	830
23	1,170	1,030	1,480	1,400	1,280	1,280	1,470	1,580	1,560	1,590	1,260	765
24	1,170	1,420	1,480	1,360	1,420	1,330	1,480	1,580	1,560	1,580	1,010	766
25	1,160	1,510	1,480	1,360	1,420	1,270	1,460	1,570	1,580	1,580	856	813
26	1,170	1,500	1,470	1,290	1,500	1,370	1,460	1,570	1,570	1,580	836	1,560
27	1,330	1,500	1,470	1,010	1,490	1,420	1,450	1,580	1,580 *	1,560	826	1,210
28	1,520	1,510	1,470	872	1,500	1,350	1,430	1,610	1,580	1,570	824	1,280
29	1,540		1,470	939	1,530	1,430	1,450	1,600	1,580	1,570	844	1,520
30	1,530		1,470	989	1,500	1,380	1,450	1,600	1,570	1,580	832	1,540
31	1,520		1,480		1,530		1,460	1,600		1,580		1,530
Sum	38,310	39,675	45,610	37,470	43,490	44,180	43,430	47,900	46,880	48,370	36,878	34,982

Month	Current Year 1983 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 1968-1983 Acre-Feet Average	Maximum	Minimum
Jan.	9.22	7.41	29	1,550	25	1,070	1,240	75,987	68,445	96,747	20,860
Feb.	9.35	7.28	4	1,550	22	968	1,420	78,694	63,789	88,166	16,403
Mar.	9.58	8.98	3	1,570	16	1,380	1,470	90,466	71,312	96,284	27,679
Apr.	9.48	6.66	1	1,480	!29	802	1,250	74,321	73,848	92,978	40,721
May	9.50	7.27	31	1,560	6	863	1,400	86,261	79,903	97,573	40,463
June	9.65	7.47	10	1,620	25	976	1,470	87,630	79,929	94,260	31,210
July	9.57	7.50	24	1,500	8	950	1,400	86,142	81,012	97,657	35,776
Aug.	9.74	9.27	28	1,620	1	1,410	1,550	95,008	80,777	97,111	36,708
Sept.	9.95	9.39	18	1,630	18	1,490	1,560	92,985	78,240	95,485	32,963
Oct.	9.73	8.20	16	1,620	21	1,270	1,560	95,940	76,898	97,931	22,235
Nov.	9.73	5.89	9	1,630	30	612	1,230	73,146	66,564	93,391	22,487
Dec.	9.42	5.76	7	1,680	24	535	1,130	69,386	64,294	97,665	23,516
Yearly	9.95	5.76		1,680		535	1,390	1,005,966	885,011	1,084,048	458,631
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
	3.03	1.76		47.6		15.2	39.4	1,240,859	1,091,661	1,337,173	565,721

** Period 1968-1983 * 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 (2.6 km) from the confluence with the Rio Grande, and about 19 miles (30.6 km) southeast of Del Rio, Texas. This stream enters the Rio Grande at river mile 536.9 (864.1 km), 5.6 river miles (9.1 km) downstream from the Maverick County Water Control and Improvement District No. 1 diversion dam. The zero of the gage is 813.68 feet (248.01 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 12 discharge measurements during the year and a continuous record of gage heights. Records available: September 1955 through 1983 at this station, and November 22, 1928 through August 1955 at a site 3.9 miles (6.3 km) 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 (2,270 m^3/sec), backwater may reach this station. Backwater from the Rio Grande flood of June 1954 reached a gage height of 28.8 feet (8.78 m), or an elevation of 842.50 feet (256.79 m) above mean sea level, at this station.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 186,000 second-feet (5,270 m^3/sec) on June 24, 1948 with a gage height of 32.0 feet (9.75 m). Min. frequently no flow.

Average Flow in Second-Feet (Cubic Meters per Second)

Daily:	Max.	28,200 (799)	June 24, 1948	Min.	0	Frequently
Monthly:	Max.	953 (27.0)	June 1948	Min.	0	Frequently
Yearly:	Max.	105 (2.97)	1932	Min.	1.3 (0.04)	1980

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	12.4	* 1.4	* 1.8	2.8	1.2	0.6	0.6	0.1	0	1.6	* 3.3	* 5.6
2	12.0	1.4	1.8	2.8	1.2	* .6	.6	* .1	0	1.6	3.3	5.8
3	10.9	1.4	1.8	2.8	* 1.2	.5	.6	.1	0	* 1.5	3.4	6.4
4	* 2.5	1.4	1.8	2.8	1.2	.5	.4	.2	0	1.5	3.6	6.6
5	2.1	1.4	1.8	* 2.5	1.1	.5	.4	.2	0	1.5	21.2	6.7
6	2.1	1.8	2.1	2.8	1.0	94.6	* .3	.2	0	1.5	16.4	6.4
7	2.1	1.8	2.1	2.8	.9	17.8	.4	.1	* 0	1.4	8.3	6.2
8	2.1	1.8	2.1	2.8	.9	3.0	.3	.1	0	6.4	5.0	6.3
9	2.1	1.8	2.1	2.8	.8	2.2	.3	.1	0	723	4.6	6.5
10	2.1	1.8	2.1	2.5	.9	1.4	.3	.1	0	127	4.4	7.2
11	2.1	1.8	2.1	2.8	1.0	1.0	.2	.1	0	19.4	4.5	7.7
12	2.1	1.8	2.1	2.8	1.1	.8	.2	.1	0	5.5	4.4	7.2
13	1.8	1.8	2.1	2.8	1.1	.8	.2	.1	0	3.8	4.3	7.0
14	1.8	1.8	2.1	2.8	1.1	.8	.2	.1	0	3.5	3.5	7.1
15	1.8	1.4	3.2	2.1	1.1	.9	.2	0	0	3.3	3.5	7.6
16	1.8	1.1	3.5	2.1	1.0	15.8	.2	0	0	3.1	3.6	8.4
17	1.8	1.4	3.5	2.1	.9	7.9	.2	0	0	3.0	3.6	8.1
18	1.8	1.4	3.2	2.1	.8	3.1	.1	0	1,220	2.8	3.6	8.5
19	1.8	1.4	3.5	2.1	.9	2.6	.1	0	277	2.7	4.0	9.1
20	1.8	1.4	3.5	1.8	1.0	2.0	.1	0	35.7	1,090	4.0	9.9
21	1.8	1.4	3.5	1.8	1.1	1.5	.1	0	8.4	256	4.0	10.8
22	1.8	1.8	3.5	1.8	2.2	1.2	.1	0	4.0	40.0	4.2	11.1
23	1.8	1.8	3.9	1.8	2.5	1.1	.1	0	3.5	11.1	4.3	11.2
24	1.8	1.4	3.5	1.8	2.0	1.1	.1	0	3.4	5.0	4.3	12.0
25	1.8	1.4	3.5	1.4	1.4	1.1	.2	0	3.1	4.2	4.4	12.3
26	1.8	1.8	5.7	1.4	1.0	1.1	.2	0	2.9	3.8	4.7	13.1
27	1.4	1.8	4.6	1.4	.9	.9	.2	0	2.6	3.8	4.8	13.7
28	1.4	1.8	2.8	1.4	.8	.9	.1	0	2.5	3.4	4.8	14.7
29	1.4		2.8	1.4	.8	.8	.1	0	2.1	3.3	5.3	13.3
30	1.4		2.8	1.4	.7	.8	.1	0	1.8	3.3	5.5	13.6
31	1.4		2.8		.6		.1	0		3.3		13.8
Sum	86.8	44.5	87.7	66.5	34.4	167.9	7.3	1.7	1,567.0	2,341.3	158.8	283.9

Current Year 1983 — Period 1929–1983

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.	1.12	0.79	! 1	12.7	!26	1.4	2.8	172	548	2,270	0
Feb.	.79	.72	!14	2.1	15	.7	1.6	88.3	589	5,760	0
Mar.	.98	.75	26	9.9	! 1	1.8	2.8	174	526	2,500	0
Apr.	.79	.69	! 1	2.8	!22	1.4	2.2	132	1,264	27,100	0
May	.79	.65	!22	2.6	31	.6	1.1	68.2	1,989	29,400	0
June	3.21	.64	6	439	2	.5	5.6	333	3,433	56,700	0
July	.66	.47	1	.7	!17	.1	.2	14.5	1,465	30,000	0
Aug.	.52	.20	! 4	.2	!14	0	.1	3.4	1,602	48,700	0
Sept.	7.43	.01	18	4,690	! 1	0	52.2	3,108	2,221	48,965	0
Oct.	6.36	.74	20	3,030	! 1	1.4	75.5	4,644	1,063	8,940	0
Nov.	1.62	.83	5	35.8	! 1	3.3	5.3	315	501	2,590	0
Dec.	1.24	.94	24	15.3	1	5.6	9.2	563	574	2,470	0
Yearly	7.43	0.01		4,690		0	13.3	9,615.4	15,775	76,259.3	948.2
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
	2.26	0		133		0	0.38	11,861	19,458	94,066	1,170

! And other days

RIO SAN DIEGO NEAR JIMENEZ, COAHUILA

DESCRIPTION: Cableway, masonry and concrete Cipolletti weir of 777 second-foot (22 m^3/sec) capacity, gravity well,and water-stage recorder located on the left bank of Rio 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°47'35", about 3.5 miles (6 km) west of Jimenez, Coahuila, and 4.1 river miles (7 km) 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 532.2 (856.4 km), 10.4 river miles (16.8 km) downstream from Maverick County Water Control and Improvement District No. 1 diversion dam and 28.9 river miles (46.4 km) downstream from the international highway bridge between Del Rio, Texas and Cd. Acuna, Coahuila. The zero of the gage is 831.73 feet (253.51 m) 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 14 discharge measurements during the year, 12 by the Mexican Section and 2 by the United States Section of the Commission, and a continuous record of gage heights. The flow tabulated below includes the flow of the canal, and prior to 1964, records do not include this flow. During 1983 the capacity of the weir was exceeded on February 26, September 18, and October 20. Records available: 1922 through 1983. 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 (0.80 m); in November 1961 an additional 0.20 foot (0.06 m), and the capacity of the weir was increased from 706 (20 m^3/sec) to 777 second-feet (22 m^3/sec).

EXTREME FLOWS FROM RECORDS** Momentary: Max. 81,930 second-feet (2,320 m^3/sec) on June 17, 1961 with a gage height of 20.70 feet (6.31 m). 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 (Cubic Meters per Second)**

Daily:	Max. 36,700 (1,040)	July 18, 1975	Min. 0	
Monthly:	Max. 2,380 (67.5)	Oct. 1932	Min. 8.0 (0.23)	Occasionally July 1956
Yearly:	Max. 622 (17.6)	1976	Min. 24.0 (0.68)	1956

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	77.7	53.3	505	68.5	37.8	37.8	32.1	13.4	17.3	47.3	151	388
2	76.3	53.7	438	67.5	37.8	38.1	31.8	13.4	17.7	42.4	143	385
3	78.8	53.0	388	67.5	37.4	38.1	31.1	13.4	17.3	37.1	141 *	360
4	80.2	53.7	350	67.5	33.2	38.1	30.7	16.6	17.3	34.6	777	292
5	78.8	54.7	324	66.7	33.2	38.1	30.0	17.0	17.3	36.0	1,090	287
6	81.6	55.1	298	67.1	33.2	54.7	25.4	17.0	* 17.3	33.2	773	271
7	78.8	55.1	272	67.1	33.2	60.7	24.7	17.0	17.3	28.3	735	261
8	76.3	55.1	258 *	68.9	33.2	56.2	21.5	15.9	17.7	105	696	235
9	71.3	60.4	248	67.8	33.2	45.9	22.2	* 63.9	18.0	463	639	231
10	65.3	* 49.8	237	66.7	33.5	42.4	22.2	59.3	18.0	140	586	218
11	77.7	61.0	231	66.0	29.7	42.4	22.2	37.8	18.0	* 86.9	544	213
12	72.7	61.0	213	62.2	34.2	42.0	* 23.0	68.5	18.4	83.0	509	211
13	66.4	61.0	203	56.2	34.6	41.7	22.2	64.6	18.4	83.0	473	203
14	66.4	55.4	201	58.3	30.0	* 41.3	22.2	36.0	18.4	77.0	452	195
15	65.3	51.6	182	61.8	29.7	41.0	22.2	30.4	18.4	66.7	438	174
16	65.3	51.6	166	60.0	25.8	43.8	22.2	25.8	18.7	64.6	413	143
17	64.3	* 51.6	157	60.0	22.6	55.1	22.2	25.8	18.7	64.6	403	127
18	60.7	49.8	152	46.6	29.7	47.0	22.2	21.9	1,260	59.0	403	151
19	55.1	48.0	144	* 43.8	36.7	41.7	23.0	21.2	105	53.7	388	185
20	55.1	45.9	137	40.6	60.4	39.6	22.6	21.2	75.6	1,330 *	378	194
21	64.3	42.4	137	40.6	41.3	36.7	22.2	17.3	63.9	456	420	194
22	62.9	45.9	132	38.8	38.5	33.2	22.2	17.3	51.9	326	427	185
23	62.9	45.9	118	37.1	38.5	32.8	18.7	16.6	47.7	294	420	185
24	60.7	48.0	109	37.1	* 36.4	41.0	18.4	16.2	47.7	267	417	205
25	* 57.2	53.3	103	37.1	33.5	185	18.4	16.2	47.7	253	403	212
26	55.1	1,120	86.9	37.4	33.5	69.6	18.7	16.2	53.7	243	417	212
27	54.4	614	82.6	37.4	42.7	47.7	18.4	16.2	50.1	219	438	190
28	53.7	572	80.2	37.8	40.3	37.1	18.4	16.2	50.1	208	424	165
29	53.3		74.2	37.8	38.1	36.4	18.4	16.6	50.1	195	413	142
30	53.0		74.2	37.8	34.3	32.5	18.4	16.6	45.6	180	413	142
31	53.0		72.0		33.2		18.4	* 17.3		166		142
Sum	2,044.6	3,622.3 / 6,173.1	1,609.7	1,089.4	1,437.7	706.3	782.8		2,253.3	5,742.4 / 14,324		6,698

Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Period 1933-1983 Acre-Feet		
			High		Low						
	High	Low	Day		Day				Average	Maximum	Minimum
				Current Year 1983							
Jan.	0.30	0.20	11	85.5	!29	52.6	66.0	4,055	8,083	36,430	1,860
Feb.	2.82	.16	26	2,560	!20	42.4	129	7,178	6,331	25,760	1,060
Mar.	1.05	.23	1	540	31	57.6	199	12,245	5,683	27,040	1,340
Apr.	.23	.10	1	71.0	27	35.3	53.7	3,193	6,833	40,270	1,110
May	.30	.07	19	97.8	16	21.5	35.3	2,161	11,773	120,200	861
June	.75	.07	25	341	!29	26.1	48.0	2,851	11,114	108,300	543
July	.10	.03	1	32.5	31	17.7	23.0	1,402	13,328	136,140	490
Aug.	.69	.03	12	284	! 1	13.1	25.4	1,553	11,398	91,248	738
Sept.	4.13	.03	18	4,660	13	8.5	75.2	4,469	16,601	94,667	1,183
Oct.	3.25	.10	20	3,600	! 7	27.2	185	11,395	18,218	71,830	1,698
Nov.	2.07	.33	5	1,730	3	104	477	28,418	13,288	64,060	803
Dec.	.79	.33	1	396	17	119	216	13,288	9,329	45,320	1,130
Yearly	4.13	0.03		4,660		8.5	127	92,208	131,979	451,952	17,430
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
	1.26	0.01		132		0.24	3.61	113,736	162,795	557,477	21,508

** Period October 1932-1983 * Discharge measurement made on this day ! And other days

RIO GRANDE NEAR JIMENEZ, COAHUILA AND QUEMADO, TEXAS

DESCRIPTION: Cableway, bubbler gage, control weir of 1,270 second-foot (36 m^3/sec) capacity, gravity well, and water-stage recorder located on the right bank at latitude 29°03'00", longitude 100°39'50", and river mile 530.3 (853.5 km); 1.5 miles (2.4 km) south-southeast of Jimenez, Coahuila, 1.8 river miles (3.0 km) downstream from Rio San Diego, about 7.5 miles (12.1 km) north-northwest of Quemado, Maverick County, Texas, 12.3 river miles (19.8 km) downstream from the Maverick County Water Control and Improvement District No. 1 diversion dam, and 30.7 river miles (49.4 km) downstream from the international highway bridge between Del Rio, Texas and Cd. Acuna, Coahuila. The zero of the gage is 769.00 feet (234.39 m) above mean sea level, U.S.C.& G.S. datum.

RECORDS: Based on 21 discharge measurements during the year, 14 by the Mexican Section and 7 by the United States Section of the Commission, and a continuous record of gage heights. Computations by shifting control methods prior to completion of the weir and for flows exceeding the capacity of the weir thereafter. Computations for flows within the capacity of the weir were based on a stable control weir rating curve defined by meter measurements. Records available: 1965 through 1983. Records, excluding some high flow periods, are also available from 1956 through May 1965 for a station 8.1 river miles (14 km) upstream. Records prior to 1976 were published under the title "Rio Grande below Maverick Dam near Quemado, Texas."

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 13.3 river miles (21.5 km) upstream largely control the flow at this station. The weir was placed in operation June 1, 1967, and the zero of the gage was set 3.28 feet (1 m) higher.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 79,800 second-feet (2,260 m^3/sec) on July 18, 1975 with a gage height of 25.20 feet (7.68 m). Min. 2.8 second-feet (0.08 m^3/sec) several days in April 1983 with a gage height of 0.20 foot (0.06 m).

Average Flow in Second-Feet (Cubic Meters per Second)

Daily:	Max. 67,100 (1,900)	July 18, 1975	Min. 2.8 (0.08)	April 25 and 26, 1983
Monthly:	Max. 21,300 (602)	Sept. 1974	Min. 28.3 (0.80)	June 1969
Yearly:	Max. 4,380 (124)	1974	Min. 286 (8.11)	1968

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	378	399	809	326	480	3,180	1,680	932	780	664	537	505
2	367	371	795	201	417	2,590	1,230	911	883	632	477	501
3	378	357	710	131	324	2,470	1,230	897	872	671	682	484
4	351	353	710	131	283	2,810	1,200	946	876	562	1,290	434
5	341	413	643	131	266	2,760	1,230	939	872	526	2,660	431
6	341	392	597	118	540	3,040	1,220	925	893	565	1,640	512
7	343	371	586	124	385	3,060 *	1,260	901	897	512	1,380	975
8	348	374	569	128	333	2,860	1,380	876 *	893	629	1,270	381
9	341	385	547	124	392	2,870	1,110	833	886	5,260	1,190	371
10	353	364 *	512	121	420 *	2,890	1,110	918	855	1,230 *	713	360
11	364	353	484	115	427	2,850	1,110	876	851	823	558	357
12	357	378	484	104	420	2,560	1,160	876	915	826	572	342
13	357	367	505	96.1	434	2,580	1,170	943	770 *	600	544	342
14	318	374	512	118	413	1,570	1,050	883	657	643	558 *	347
15	323	396	484 *	213	353	2,450	1,030 *	848	629	600	720	406 *
16	331	374	512	253	329	2,720	883	844	618	826	600	347
17	286	336	448	253	332	2,040	1,010	826	636	569	685	267
18	328	343	434 *	289	357	1,790	1,050	840	5,260	590	625	388
19	392	360	3,300	267	364	1,830 *	1,110	840 *	1,170	558	692	456
20	374	650	4,270	255	1,020	1,900	960	840	636	24,000	614	438
21	565	759	4,310	255	586	1,990	950	840	660	3,250	653	396
22	562	822	4,410	274	445	1,630	975	840	682	943	689	314
23	554	791	4,410	134	614	1,710	890	819	678	1,040	572	326
24	544	392	4,240	9.2	512	1,890	900	812	678	904	530 *	338
25	614 *	392	2,430	2.8	2,750	2,050	922	798	675	819	516	381
26	710	1,650	840	2.8	3,350	1,620	915	770	657	833 *	547	2,970
27	530	1,080	417	298	3,100	1,580	915	876	636 *	773	540	717
28	331	922	367	600 *	3,160	1,650	932 *	897	625	759	526 *	302
29	328		381	703	3,080	1,530	936	915	653	749	523	452
30	338		385	463	3,110	1,590	897	883	653	678	523	406
31	364		353		3,070		897	858		678		403
Sum	14,518		6,239.9		68,060		27,002		52,712		15,649	
	12,411		40,454		32,066		33,312		27,446		23,626	

Month	Current Year 1983 Extreme Gage Feet High	Low	Extreme Second-Feet High Day	High	Low Day	Low	Average Second-Feet	Total Acre-Feet	Period 1968-1983 Acre-Feet Average	Maximum	Minimum
Jan.	1.25	0.56	25	812	17	244	399	24,616	43,511	144,286	5,236
Feb.	2.53	.62	26	3,100	19	301	519	28,791	76,952	401,339	5,788
Mar.	2.99	.69	22	4,450	31	336	1,310	80,251	78,499	288,077	5,874
Apr.	1.41	.20	29	1,020	25	2.8	208	12,375	54,284	293,637	5,030
May	2.72	.56	31	3,600	5	233	1,030	63,614	131,190	422,934	6,574
June	2.85	.52	1	3,990	15	211	2,270	135,005	106,190	291,767	1,671
July	2.13	1.05	1	2,130	16	632	1,070	66,081	99,323	311,781	2,322
Aug.	1.44	.95	13	1,030	9	533	872	53,564	125,948	710,869	11,855
Sept.	6.96	.79	18	15,400	20	424	915	54,439	177,281	1,264,108	13,678
Oct.	15.91	.72	20	45,200	18	374	1,700	104,655	145,805	831,298	11,210
Nov.	2.59	.56	5	3,280	3	243	788	46,874	72,255	499,143	8,863
Dec.	2.56	.56	26	3,180	17	255	505	31,033	40,463	181,109	7,486
Yearly	15.91	0.20		45,200		2.8	968	701,298	1,151,701	3,169,805	207,998
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
	4.85	0.06		1,280		0.08	27.4	865,041	1,420,607	3,909,913	256,561

RIO SAN RODRIGO AT EL MORAL, COAHUILA

DESCRIPTION: Gravity well and water-stage recorder located on the left bank of El Moral, Coahuila, latitude 28°53'20", longitude 100°37'55", 1.0 river mile (1.6 km) from the confluence with the Rio Grande, and about 15.5 miles (25 km) northwest of Piedras Negras, Coahuila. This stream enters the Rio Grande at river mile 518.2 (834.0 km), 24.4 river miles (39.3 km) downstream from the Maverick County Water Control and Improvement District No. 1 diversion dam and 21.9 river miles (35.2 km) upstream from the international highway bridge between Eagle Pass, Texas and Piedras Negras, Coahuila. The zero of the gage is 750.95 feet (228.89 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 17 discharge measurements during the year, 15 by the Mexican Section and 2 by the United States Section of the Commission, and a continuous record of gage heights. Computations by shifting control methods. Records available: 1962 through 1983.

REMARKS: Prior to 1976 this station was published under the heading "Rio San Rodrigo near Mouth at El Moral, Coahuila." The flow of this spring-fed stream is modified by diversions above this station. The concrete control weir, placed in operation on November 25, 1969, was destroyed by the flood of July 12, 1976, and the station was relocated on October 15, 1976.

EXTREME FLOWS FROM RECORDS**: Momentary: Max. 140,000 second-feet (3,970 m^3/sec) on July 18, 1975 with a gage height of 18.44 feet (5.62 m). Min. frequently no flow.

Average Flow in Second-Feet (Cubic Meters per Second)

Daily:	Max.	44,500 (1,260)	July 18, 1975	Min. 0		Frequently
Monthly:	Max.	7,380 (209)	July 1976	Min. 0		Frequently
Yearly:	Max.	837 (23.7)	1976	Min. 5.3 (0.15)		1963

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	24.0	16.2	15.5	15.5	12.4	3.9	0	0	0	20.5	8.5	38.1
2	24.0	14.5	18.4	14.5	* 11.7	3.9	0	0	0	20.8	7.8	38.1
3	20.5	14.5	18.4	14.5	10.9	3.9	0	0	0	20.8	* 8.5	42.0
4	20.5	14.5	20.5	* 13.8	10.6	3.5	0	0	0	21.2	9.2	42.0
5	20.1	13.1	19.1	13.1	10.6	3.5	0	0	0	20.8	276	42.0
6	19.8	13.1	18.0	13.1	10.2	3.5	0	0	0	20.5	262	45.9
7	19.1	13.1	* 15.9	13.1	10.2	3.5	0	0	0	20.5	445	45.9
8	19.1	13.1	14.5	13.8	10.2	3.2	0	0	0	20.8	452	* 51.2
9	18.4	13.1	14.5	13.1	8.8	3.2	0	0	0	294	403	51.2
10	17.0	13.1	14.5	13.1	7.1	3.2	0	0	0	39.6	340	56.5
11	17.0	13.1	14.5	13.1	7.1	3.2	0	0	0	31.1	259	56.5
12	18.4	13.1	14.5	12.4	7.1	3.2	0	0	0	31.1	182	56.5
13	18.4	13.1	14.5	11.7	7.1	* 2.8	0	0	0	27.9	109	51.2
14	18.4	14.1	14.5	12.4	6.7	2.8	0	0	0	24.7	75.9	45.9
15	18.4	14.5	14.5	12.7	6.7	3.5	0	0	0	24.7	59.0	42.0
16	18.4	14.5	15.8	12.7	6.7	2.8	0	0	0	24.7	51.2	42.0
17	* 18.4	14.5	* 15.5	12.7	6.7	2.8	0	0	0	24.7	* 45.9	38.1
18	17.6	14.5	15.9	11.7	6.7	2.8	0	0	2,460	24.7	45.9	38.1
19	17.0	14.5	16.2	11.7	6.4	2.8	0	0	60.0	24.7	45.9	38.1
20	16.6	13.1	16.2	12.0	6.4	2.8	0	0	16.6	452	42.0	38.1
21	17.7	* 13.1	16.2	12.4	6.0	2.8	0	0	9.2	445	40.3	38.1
22	16.6	13.1	16.2	13.1	5.7	2.5	0	0	10.2	48.0	41.0	38.1
23	18.4	13.1	* 15.5	13.1	5.3	2.5	0	0	12.7	126	38.1	38.1
24	20.5	13.1	14.5	12.4	* 4.9	2.5	0	0	14.5	136	* 33.5	38.1
25	20.5	13.1	15.5	* 12.0	4.9	2.5	0	0	16.2	125 *	33.2	38.1
26	20.8	13.1	16.2	11.7	4.9	2.5	0	0	17.7	114	36.0	38.1
27	21.2	13.1	16.2	11.7	4.9	* 1.4	0	0	18.4	109	37.1	38.1
28	21.9	13.1	15.2	12.4	4.6	.7	0	0	18.4	104	37.1	40.6
29	21.2		14.5	12.7	4.6	0	0	0	19.1	98.2	37.4	38.1
30	20.8		15.5	12.4	4.2	0	0	0	20.1	98.2	38.1	35.3
31	20.5		15.9		3.9		0	* 0		92.5		35.3
Sum	601.2	382.1	492.8	384.6	224.2	82.2	0	0	2,693.1	2,685.7	3,499.6	1,315.4

Month	Current Year 1983 Extreme Gage Feet High	Low	Extreme Second-Feet High Day	High	Low Day	Low	Average Second-Feet	Total Acre-Feet	Period 1962-1983 Acre-Feet Average	Maximum	Minimum
Jan.	1.94	1.90	2	24.4	10	16.2	19.4	1,192	3,403	13,281	0
Feb.	1.94	1.84	1	20.5	28	11.7	13.8	756	2,343	9,932	0
Mar.	1.94	1.87	! 3	20.5	14	14.1	15.9	978	1,907	7,818	0
Apr.	1.90	1.84	1	19.1	!12	11.7	12.7	761	4,088	29,072	81.1
May	1.84	1.67	! 1	12.7	!30	3.9	7.1	445	3,982	29,277	17.0
June	1.71	1.25	! 6	4.9	!29	0	2.8	163	2,422	12,764	0
July	1.25	1.25		0		0	0	0	33,506	454,643	0
Aug.	1.25	1.25		0		0	0	0	12,061	89,017	0
Sept.	12.07	1.25	18	7,800	! 1	0	89.7	5,338	14,722	48,065	0
Oct.	5.74	1.94	21	2,150	! 1	20.5	86.5	5,328	12,139	53,088	0
Nov.	4.00	2.17	5	964	2	7.8	117	6,940	9,037	84,015	0
Dec.	2.56	2.46	10	56.5	30	35.3	42.4	2,610	4,834	19,970	0
Yearly	12.07	1.25		7,800		0	33.9	24,511	104,444	606,526	3,850.7
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
	3.68	0.38		221		0	0.96	30,235	128,831	748,140	4,750

RETURN FLOW TO THE RIO GRANDE FROM THE MAVERICK CANAL 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 (14.5 km) north-northwest of Eagle Pass, Texas, and about 32.2 canal miles (51.8 km) downstream from the point of diversion. The return enters the Rio Grande at river mile 506.8 (815.6 km)

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 the Commission. There were 48 discharge measurements made during the year. Records available: 1949 through 1983.

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 (Cubic Meters per Second)**

Daily:	Max.	1,580 (44.7)	February 28, 1982	Min.	0	Occasionally
Monthly:	Max.	1,480 (41.9)	December 1980	Min.	42.4 (1.20)	December 1971
Yearly:	Max.	1,230 (34.8)	1981	Min.	232 (6.57)	1972

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,020	1,280	1,340 *	1,100	690	1,080 *	753	962	1,060 *	1,540	1,280 *	601 *
2	1,010	1,260 *	1,300	1,090	699 *	1,070	766	928 *	1,050	1,490	1,210	591
3	1,020	1,280	1,310	1,130	702	1,130	956	962	1,000	1,450 *	1,250	600
4	1,020	1,290	1,250	760 *	763	1,150	910	993	1,040	1,380	1,290	637
5	1,020 *	1,300	1,280	719	791	1,160	852	1,020	1,090	1,140	1,350	627
6	1,020	1,330	1,290	698	626	1,150 *	855	1,090	1,070	1,230	1,360	679
7	1,010	1,310	1,290 *	732	698	1,250	884 *	1,120	1,030	1,180	1,410 *	1,110
8	1,020	1,320	1,190	766	955	1,290	719	1,110 *	1,060	1,190	1,410	682 *
9	1,030	1,310 *	1,170	776	946	1,310	869	1,060	1,080	1,450	1,410	598
10	1,020 *	1,270	1,170	860	954	1,310	1,000	1,100	1,110	1,450	1,340	586
11	1,010	1,270	1,110	831 *	964	1,260	957	1,110	1,150	1,450 *	1,190	584
12	998	1,300	1,100	717	1,040	1,270	903	1,110	1,350	1,460	1,110	568 *
13	993	1,330	1,120	719	1,030 *	1,150	846	1,120	1,500	1,460	1,110	558
14	1,000	1,290 *	1,050	809	1,050	1,070 *	870	1,240	1,520 *	1,470	1,080 *	704
15	971	1,310	1,040 *	870	1,130	1,100	918	1,230 *	1,510	1,480	936	972
16	972	1,330	1,030	885	1,120 *	1,200	906	1,200	1,520	1,490	854	1,220
17	995	1,340	1,020	966	1,120	1,090	981	1,200	1,510	1,480	792	1,200
18	997	1,330	1,050	918 *	1,100	1,130	947	1,180	1,510	1,450	796	1,280
19	997 *	1,300	1,020	888	1,060	1,220	885	1,170	1,520	1,450 *	801	1,300
20	944	1,130	1,110	864	1,020	1,120 *	898	1,190	1,520	1,430	831	1,290
21	916	819	1,060 *	880	1,010	1,010	1,010 *	1,200	1,530 *	1,240	832 *	1,230 *
22	972	769 *	1,050	889	1,140	825	1,030	1,150 *	1,520	1,350	805	791
23	975	733	1,080	892	957 *	837	1,060	1,170	1,510	1,450	870	689
24	971 *	1,100	1,070	892	912	750	1,100	1,090	1,520	1,450	763	694
25	962	1,250	1,060	815 *	962	764	1,090 *	1,000	1,490	1,420	625	681
26	926	1,320	1,080	744	1,040	820	1,030	954	1,500	1,400 *	642	1,170
27	1,030	1,310	1,110	593	1,010	879	988	969	1,510	1,340	668	1,250
28	1,210	1,330	1,100	420	1,050	845	975	1,090	1,530 *	1,310	646	956
29	1,280		1,050	485	1,150	933	952	1,060 *	1,540	1,320	603	1,280
30	1,300		1,050	471	1,120	958	936	998	1,540	1,390	577	1,350
31	1,280		1,080		1,100		1,020	1,020		1,340		1,340
Sum	31,889	34,511	35,030	24,179	29,909	32,131	28,866	33,796	40,390	43,130	29,841	27,818

Month	Current Year 1983 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 1968-1983 Acre-Feet Average	Maximum	Minimum
Jan.			30	1,300	21	916	1,030	63,251	51,480	86,856	4,952
Feb.			17	1,340	23	733	1,230	68,452	47,710	78,744	4,871
Mar.			1	1,340	!17	1,020	1,130	69,481	46,447	79,299	5,713
Apr.			3	1,130	28	420	806	47,958	46,638	78,704	4,301
May			29	1,150	6	626	965	59,324	56,573	84,020	13,888
June			! 9	1,310	24	750	1,070	63,731	51,599	78,545	6,618
July			24	1,100	8	719	931	57,255	49,956	76,637	5,537
Aug.			14	1,240	2	928	1,090	67,033	52,380	72,623	18,457
Sept.			!29	1,540	3	1,000	1,350	80,112	58,479	80,112	13,741
Oct.			1	1,540	5	1,140	1,390	85,547	59,320	85,547	11,147
Nov.			! 7	1,410	30	577	995	59,189	49,771	80,073	3,203
Dec.			30	1,350	13	558	897	55,177	48,081	91,260	2,608
Yearly				1,540		420	1,070	776,510	618,434	889,049	168,354
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
				43.6		11.9	30.3	957,825	762,838	1,096,641	207,665

** Period 1968-1983 * Discharge measurement made on this day Ø Mean daily ! And other days

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 (1.6 km) downstream from the heading of this canal extension, about 9 miles (14.5 km) north-northwest of Eagle Pass, Texas, and about 32.8 canal miles (52.8 km) downstream from the point of diversion from the Rio Grande, which is located at river mile 543.6 (874.9 km). The elevation of the zero of the gage has not been determined.

RECORDS: Based on 24 discharge measurements during the year and a continuous record of gage heights. Computations by shifting control methods. Records available: 1939 through 1983.

REMARKS: The main Maverick Canal divides into two branches at a point about 9 miles (14.5 km) north-northwest of Eagle Pass, Texas, and about 31.8 canal miles (51.2 km) 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 1983, 26,810 acres (10,846 ha) of land north and south of Eagle Pass were irrigated. A total of 58,169 acre-feet (71,751,000 m^3) of water from this canal extension returned to the river through the irrigation system which extends approximately 67 canal miles (108 km) downstream.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 580 second-feet (16.4 m^3) on July 25, 1964. Min. occasionally no flow.

Average Flow in Second-Feet (Cubic Meters per Second)**

Daily:	Max.	552 (15.6)	June 6 & 7,	1968	Min.	0		Occasionally		
Monthly:	Max.	507 (14.9)	June	1968	Min.	34.6	(0.98)	June	1981	
Yearly:	Max.	294 (8.33)		1972	Min.	111	(3.13)		1981	

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	91.6	100	* 59.7	265	319	226 *	241	304	291 *	26.8	206 *	184 *
2	90.4	101 *	59.7	237	314 *	209	242	300 *	308	82.0	205	184
3	90.1	101	62.5	72.0	326	199	245	299	330	111 *	204	184
4	81.9	101	92.5	278 *	339	216	245	309	335	159	202	184
5	* 73.1	102	95.0	258	351	243	246	311	339	289	203	183
6	72.7	102	89.7	245	362	241	246	314	324	186	190	182
7	73.5	99.9	78.0	239	383	179	247 *	316	317	233	154	184
8	74.2	80.2	92.5	241	402	151	245	315	321	234	154	180
9	75.2	80.5	113	250	413	152	247	303	324	37.0	152	176
10	76.3	89.0	129	249	424	157	249	255	328	53.8	150	176
11	77.0	98.2	171	247	430	208	251	256	332	91.0	134	176
12	78.0	79.5	184	251	365	209	252	257	168	83.8	112	176 *
13	85.1	79.5	210	260	307	196	252	257	11.1	84.8	110	175
14	102	* 79.8	218	269	271	187 *	252	205	* 13.3	85.8	109 *	157
15	102	78.0	214 *	319	224	191	253	171 *	13.8	86.0	114	143
16	104	77.7	200	339	219 *	174	258	199	13.6	86.3	166	143
17	105	76.6	198	337	165	194	268	198	13.7	86.5	178	156
18	106	82.6	200	332 *	160	195	267	198	13.4	101	168	166
19	106 *	99.2	212	324	194	196	259	197	12.9	101 *	153	166
20	105	95.0	212	315	235	195	252	197	13.1	86.6	155	156
21	95.3	161	214	309	232	197	241 *	245	11.7	87.3	156	146
22	87.9	71.7	236	302	235	229	239	259	11.7	90.0	159	145
23	86.9	99.9	233	297	220	224	242	239	11.7	92.8	194	145
24	85.5	99.2	240	316	222	239	265	270	11.2	109	234	145
25	85.1	112	247	334	224	240	262	352	53.0	119	210	145
26	83.7	62.2	243	326	243	240	259	367	42.3	129	185	147
27	83.0	60.4	243	315	267	228	269	370	21.4	177	165	147
28	83.7	60.4	246	304	250	223	278	372	21.4	198	162	145
29	83.7		259	309	239	241	305	364	23.9	200	182	147
30	88.3		267	317	241	242	307	356	25.2	203	182	148
31	102		266		224		307	332		204		148
Sum	2,529.5		8,456.0		6,221		8,687		3,913.5		5,039	
	2,734.2		5,584.6		8,800		7,991		4,055.4		5,048	

Month	Average Rainfall Inches***		Extreme Second-Feet High		Extreme Second-Feet Low		Average Second-Feet	Total Acre-Feet	Acre-Feet Average	Acre-Feet Maximum	Acre-Feet Minimum
	1939-1983	1983	Day		Day						
Jan.	0.74	0.50	18	106	5	71.7	88.2	5,423	10,935	18,236	4,326
Feb.	.89	1.28	21	367	22	12.0	90.3	5,017	9,904	18,006	4,911
Mar.	.64	.52	31	269	1	59.3	180	11,077	15,810	23,397	7,387
Apr.	1.84	.05	24	344	3	43.1	282	16,772	17,549	25,900	3,654
May	3.06	1.14	11	447	18	158	284	17,455	14,709	28,191	2,279
June	2.20	2.07	6	254	16	134	207	12,339	17,626	30,173	2,066
July	1.46	1.15	27	372	28	231	258	15,850	19,415	28,854	8,826
Aug.	2.10	1.59	28	375	14	128	280	17,230	17,460	24,335	10,086
Sept.	2.89	4.02	6	343	24	8.5	135	8,044	11,742	17,691	4,196
Oct.	2.09	1.99	5	326	1	14.8	126	7,762	10,871	16,504	4,702
Nov.	.77	.94	24	243	14	108	168	10,013	10,716	18,794	6,239
Dec.	.65	.09	3	187	16	141	163	9,995	10,243	16,824	3,134
Yearly	19.33	15.34		447		8.5	184	136,977	166,980	213,138	80,123
	Millimeters		Cubic Meters per Second					Thousands of Cubic Meters			
	491	390		12.7		0.24	5.35	168,961	205,970	262,906	98,832

Current Year 1983 — Period 1968-1983

** Period 1968-1983 * Discharge measurement made on this day ! And other days

RETURN FLOW TO THE RIO GRANDE FROM THE MAVERICK IRRIGATION DISTRICT ABOVE 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, Canon Grande, Quemado Creek, Lateral 15 Spill, Houchin Spill, Lateral 8-B Spill, Elm Creek, and Seco Creek; and a Parshall flume at the Lateral 2 Sand Trap Spill into Las Moras Creek immediately below the canal siphon.

RECORDS: Based on the weir discharge table and a continuous record of gage heights. All storm flow occurring at these stations is deducted from the records and is not shown below. Records available: April 1959 through 1983. Records prior to 1976 were published under the title "Return Flow to the Rio Grande from Maverick Canal - Maverick Dam to Eagle Pass, Texas."

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 51).

EXTREME FLOWS FROM RECORDS:

Average Flow in Second-Feet (Cubic Meters per Second)**

Daily:	Max. 929 (26.3)	Sept. 29, 1975	Min. 18.3 (0.52)	March 9, 1969
Monthly:	Max. 154 (4.36)	June 1968	Min. 32.8 (0.93)	January 1973
Yearly:	Max. 126 (3.57)	1968	Min. 49.6 (1.40)	1981

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	36.5	33.6	72.8	102	66.3	63.7	63.8	77.8	69.9	49.9	51.3	36.9
2	33.4	37.8	66.4	95.1	65.3	68.0	71.1	83.9	63.4	48.5	54.8	41.5
3	33.2	33.7	52.9	76.4	59.9	68.9	46.1	73.3	75.3	46.0	61.9	37.9
4	33.4	36.4	26.1	64.1	49.8	76.8	44.2	72.1	81.4	45.8	63.4	30.0
5	33.0	38.3	39.1	72.3	56.7	65.7	59.9	86.8	79.7	55.1	59.7	30.3
6	31.7	30.5	41.7	65.3	71.8	69.6	67.5	78.2	69.1	64.4	69.6	31.7
7	32.0	36.9	41.3	66.7	71.3	56.0	68.0	69.1	74.1	65.2	59.8	27.6
8	33.1	40.6	28.9	82.8	51.7	56.1	59.4	50.1	82.1	58.3	59.1	26.9
9	31.2	46.3	57.4	93.9	51.9	57.8	85.1	62.4	84.0	64.9	47.8	28.3
10	31.4	49.8	48.3	77.0	72.5	58.5	73.4	85.1	75.6	63.5	33.9	41.4
11	32.5	49.9	37.1	73.6	92.1	52.9	70.6	76.0	87.3	51.3	30.5	37.1
12	33.6	48.2	34.2	84.5	100	48.5	71.0	61.7	70.4	47.1	24.6	33.3
13	29.1	32.5	36.9	84.6	85.2	52.6	64.4	69.4	49.8	36.8	29.2	35.5
14	35.6	61.4	43.2	93.2	89.4	71.6	74.8	70.1	43.6	35.9	31.4	35.7
15	38.9	63.4	65.2	79.0	75.8	74.1	73.3	71.5	39.9	38.1	36.1	39.5
16	42.9	36.7	108	82.7	76.6	58.1	74.8	64.6	37.5	36.1	44.4	33.1
17	38.8	37.2	95.7	93.5	81.0	50.5	71.3	58.4	36.3	38.5	45.4	30.0
18	49.1	33.5	84.0	86.2	84.5	46.5	60.9	73.5	36.0	41.2	47.7	33.7
19	49.8	35.1	100	77.7	80.6	37.7	65.6	84.3	35.3	34.8	43.9	34.2
20	59.6	33.6	86.4	84.8	85.5	38.3	63.6	81.0	48.0	34.4	44.1	38.1
21	58.2	35.5	66.0	84.2	59.3	38.5	54.0	86.3	64.1	34.2	40.7	44.6
22	30.9	41.6	52.8	82.0	50.9	36.9	52.6	69.4	56.5	34.0	40.6	43.1
23	24.8	44.6	64.8	86.8	55.4	52.9	62.4	65.8	53.6	30.1	40.1	41.6
24	34.0	40.1	59.8	52.9	70.8	76.5	71.1	66.1	52.8	30.0	31.7	38.9
25	33.7	49.7	53.6	67.2	73.6	81.2	47.7	80.5	54.9	35.7	38.5	38.1
26	35.1	43.9	47.2	94.9	72.8	62.0	50.9	83.9	56.0	40.5	33.2	34.9
27	47.0	37.0	46.8	85.4	78.1	60.1	56.8	94.6	54.7	43.0	29.7	32.1
28	53.9	38.0	76.3	79.1	81.1	84.3	48.2	83.4	51.1	41.9	31.8	33.2
29	51.2		84.9	79.3	70.1	67.9	45.4	80.9	53.3	43.6	34.1	36.3
30	39.5		78.8	70.7	60.0	69.5	63.9	92.6	53.0	49.4	35.8	31.2
31	40.5		69.9		55.8		73.1	88.3		48.4		31.9
Sum	1,145.8		2,417.9		1,801.7		2,341.1		1,386.6		1,088.6	
	1,187.6	1,866.5		2,195.8		1,954.9		1,788.7		1,294.8		

Month	Current Year 1983								Period 1968-1983		
	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.			20	59.6	23	24.8	38.3	2,356	3,641	7,640	2,014
Feb.			15	63.4	6	30.5	40.9	2,273	3,290	6,126	1,826
Mar.			16	108	4	26.1	60.2	3,702	4,366	6,437	2,732
Apr.			1	102	24	52.9	80.6	4,795	4,508	7,795	3,120
May			12	100	4	49.8	70.8	4,355	4,205	8,178	2,755
June			28	84.3	22	36.9	60.1	3,574	4,553	9,190	2,912
July			9	85.1	4	44.2	63.1	3,877	4,746	8,157	2,811
Aug.			27	94.6	8	50.1	75.5	4,644	4,731	9,261	2,931
Sept.			11	87.3	19	35.3	59.6	3,548	3,935	7,680	2,427
Oct.			7	65.2	24	30.0	44.7	2,750	3,832	6,564	2,287
Nov.			6	69.6	12	24.6	43.2	2,568	3,630	8,696	2,416
Dec.			21	44.6	8	26.9	35.1	2,159	3,231	5,774	2,159
Yearly				108		24.6	56.1	40,601	48,668	91,498	35,889
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
				3.06		0.70	1.59	50,081	60,032	112,863	44,269

RIO GRANDE AT PIEDRAS NEGRAS, COAHUILA AND EAGLE PASS, TEXAS

DESCRIPTION: Cableway, gravity well, water-stage recorder, and resistance-type transmitter located on the left bank at latitude 28°42'50", longitude 100°30'25", and river mile 497.0 (799.8 km), 0.6 river mile (1.0 km) upstream from the international highway bridge between Eagle Pass, Texas and Piedras Negras, Coahuila and 77.0 river miles (123.8 km) downstream from Amistad Dam. The zero of the gage is 682.91 feet (208.15 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 40 discharge measurements during the year, 27 by the Mexican Section and 13 by the United States Section of the 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 1983. Records prior to 1976 were published under the title "Rio Grande at Eagle Pass, Texas."

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 National Weather Service.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 964,100 second-feet (27,300 m^3/sec), determined by slope-area calculations, on June 29, 1954 with a gage height of 53.51 feet (16.31 m). Well-authenticated information indicates the occurrence of a flood in June 1865 with an estimated discharge of 1,236,000 second-feet (35,000 m^3/sec) and a gage height of 56.00 feet (17.07 m) on the present gage, and also that these were the only floods since 1745 with flows greater than 825,000 second-feet (23,400 m^3/sec). Min. 24.4 second-feet (0.69 m^3/sec) on June 22, 1953 with a gage height of 0.07 foot (0.02 m).

Average Flow in Second-Feet (Cubic Meters per Second)**

Daily:	Max.	101,400 (2,870)	July 19, 1975	Min.	187 (5.30)	June 6, 7, & 8, 1972
Monthly:	Max.	22,000 (622)	Sept. 1974	Min.	323 (9.16)	June 1969
Yearly:	Max.	5,190 (147)	1974	Min.	971 (27.5)	1972

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,420	1,660	2,270	1,590	1,190	4,450	2,490	1,970*	1,910	2,170	2,100	1,280
2	1,410	1,650	2,200	1,550	1,200	3,810	2,330	1,910	2,010	2,110	1,860	1,280
3	1,410	1,640	2,110	1,480	1,120	3,440	2,150	1,850	1,950	2,000*	1,880	1,280
4	1,410	1,640	2,030	1,100	1,080	3,880	2,210*	1,920	1,950	2,090	2,330	1,290
5	1,400	1,650	2,030	1,020	1,090	3,990	2,260	2,020	2,010*	1,720	5,690	1,240*
6	1,390	1,730	1,970	1,020	992	4,060*	2,160	2,100	2,000	1,780	4,480	1,260
7	1,370	1,700	1,950	1,040*	1,220	4,590	2,220	2,220	1,960	1,770	3,170*	2,140
8	1,370	1,720	1,920	1,060	1,340	4,240	2,130*	2,270	2,010	1,900	3,010	1,490
9	1,370	1,720	1,850	1,060	1,310	4,170	2,110	2,080	2,030	7,660*	2,370	1,200
10	1,360	1,700	1,820	1,120	1,390	4,200	2,220	2,220	2,080	4,170	2,600	1,190
11	1,370	1,680	1,770	1,100	1,440	4,170	2,200	2,210	2,030	2,570	2,090	1,190
12	1,370	1,700	1,770	961*	1,500	3,780	2,150*	2,180	2,260	2,500	1,920	1,140*
13	1,360	1,730	1,790	908	1,500	3,600	2,090	2,230	2,420	2,220	1,890	1,130
14	1,350	1,700	1,790*	996	1,510	3,420	2,030	2,330	2,230	2,200	1,840	1,220
15	1,320	1,770	1,760	1,060	1,570	2,610	2,040	2,150*	2,180	2,110	1,760	1,490
16	1,300	1,740	1,770	1,190	1,530	4,130	1,870	2,080	2,140*	2,200	1,700	1,810
17	1,340	1,730*	1,760	1,310	1,530	3,350*	1,990	2,080	2,140	2,270	1,620*	1,760
18	1,330	1,710	1,750	1,300	1,520	2,720	1,960*	2,080	24,800	2,000	1,620	1,780
19	1,370	1,670	2,930	1,250	1,460	2,780	1,900	2,080	8,230*	2,040	1,630	1,940*
20	1,400	1,610	5,790	1,210	1,670	2,780	1,910	2,120	2,720	10,700	1,620	1,920
21	1,410	1,580*	5,790	1,220	1,950	2,730*	1,830	2,110	2,380	18,700	1,640*	1,930*
22	1,600	1,690	5,860	1,240	1,760	2,520	1,800	2,050	2,270	2,790	1,620	1,440
23	1,570	1,680	6,070	1,250	1,550	2,350	1,770	2,030	2,250	2,930	1,620	1,200
24	1,560*	1,770	6,000*	1,120	1,570*	2,340	1,720	1,950	2,240	2,650	1,490	1,190
25	1,520	1,730	4,700	939*	2,510	3,270	1,700	1,870	2,220	2,390	1,320	1,180
26	1,670*	2,360	3,130	879	4,200	2,760	1,640	1,780	2,180	2,340	1,290	2,830
27	1,710	2,710	1,960	749	4,310	2,440	1,530	1,860	2,190	2,220*	1,340	3,420
28	1,710	2,370*	1,730*	826	4,380	2,690	1,580	2,010	2,160	2,080	1,340*	1,520
29	1,660		1,620	1,140	4,340	2,520	1,550	2,000*	2,190	2,160	1,310	1,740
30	1,700		1,590	1,180	4,310*	2,460	1,550	1,950	2,190	2,100	1,280	1,960
31	1,660		1,590		4,200*		1,550	1,950		2,080*		1,920
Sum	49,740		33,868		100,250		63,660		100,620		49,360	
	45,190		83,070		62,242		60,640		93,330		61,430	

Month	Current Year 1983 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 1968-1983 Acre-Feet Average	Maximum	Minimum
Jan.	3.05	2.72	27	1,790	15	1,280	1,460	89,651	105,306	217,295	26,191
Feb.	4.23	2.72	26	3,810	21	1,250	1,780	98,666	130,742	448,150	35,604
Mar.	5.35	2.89	23	6,140	30	1,530	2,680	164,795	134,955	397,213	20,899
Apr.	2.99	2.20	1	1,660	28	597	1,130	67,188	113,477	351,859	24,030
May	4.63	2.49	25	4,590	6	939	2,010	123,490	201,568	588,871	36,193
June	4.76	3.05	1	4,870	15	1,310	3,340	198,873	173,847	415,943	19,254
July	3.87	3.12	1	2,920	27	1,380	1,960	120,282	199,603	779,878	26,100
Aug.	3.51	2.99	14	2,480	26	1,640	2,060	126,299	191,897	743,286	56,856
Sept.	17.16	3.05	18	44,100	1	1,730	3,110	185,025	254,750	1,306,836	80,699
Oct.	14.27	2.99	21	33,100	5	1,620	3,250	199,650	225,223	891,747	58,642
Nov.	6.82	2.62	5	9,460	30	1,170	2,050	121,816	139,041	570,870	46,790
Dec.	4.66	2.53	27	4,660	13	1,070	1,590	97,860	100,804	268,589	26,197
Yearly	17.16	2.20		44,100		597	2,200	1,593,595	1,971,213	3,753,089	705,670
	Meters			Cubic Meters per Second				Thousands of Cubic Meters			
	5.23	0.67		1,250		16.9	62.3	1,965,677	2,431,466	4,629,385	870,435

RIO ESCONDIDO AT VILLA DE FUENTE, COAHUILA

DESCRIPTION: Cableway, gravity well, concrete control weir of 1,750 second-foot (50 m^3/sec) capacity, and water-stage recorder located on the downstream side of the left abutment of the highway bridge over Rio Escondido on the outskirts of Villa de Fuente, Coahuila, 1.2 river miles (1.9 km) downstream from the cableway at latitude 28°40'05", longitude 100°31'00", about 3 miles (5 km) southwest of Piedras Negras, Coahuila, 3.7 river miles (6.0 km) from the confluence with the Rio Grande, and 6.8 river miles (10.9 km) downstream from the confluence of Rio San Antonio with Rio Escondido. Rio Escondido enters the Rio Grande at river mile 493.2 (793.8 km), 3.1 river miles (5.0 km) downstream from the international highway bridge between Eagle Pass, Texas and Piedras Negras, Coahuila. The zero of the gage is 718.37 feet (218.96 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 17 discharge measurements during the year, 15 by the Mexican Section and 2 by the United States Section of the Commission, and a continuous record of gage heights. Records available: 1922 through 1983. 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 (222.48 m) 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 (680 m^3/sec) on June 29, 1936 with a gage height of 19.13 feet (5.83 m). Min. frequently no flow.

Average Flow in Second-Feet (Cubic Meters per Second)**

Daily:	Max.	13,100 (371)	Sept. 24, 1964	Min.	0	Several days 1956-1958 & 1965
Monthly:	Max.	827 (23.4)	Sept. 1964	Min.	0.3 (0.01)	September 1965
Yearly:	Max.	219 (6.21)	1976	Min.	2.4 (0.07)	1956

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	49.8	47.3	54.0	24.0	14.1	16.2	5.3	3.9	2.1	11.3	13.4	19.8
2	49.8	46.6	54.0	24.0	12.0	14.1	5.3	3.5	2.1	11.3	13.4	19.8
3	49.8	46.3	53.3	26.1	10.6	12.7	5.3	3.9	2.1	9.2	13.4	20.1
4	50.1	47.7	52.6	24.0	10.6	13.1	4.9	4.2	2.1	6.0	13.4	20.1
5	51.6	49.8	53.3	23.7	10.6	12.4	6.0	4.6	2.1	6.0	51.2	19.4
6	52.3	51.2	52.3	23.7	9.9	28.6	5.7	4.2	2.1	6.0	41.7	19.4
7	51.2	* 50.8	52.3	21.9	9.5	24.4	5.3	3.9	2.1	6.0	27.2	19.4
8	50.5	48.0	45.2	23.0	9.5	16.6	5.3	* 3.5	2.1	35.3	21.9	19.4
9	50.1	46.6	42.7	23.4	8.5	13.4	4.9	3.2	2.5	104	20.5	20.1
10	50.9	45.9	42.7	22.6	21.2	13.1	4.9	3.5	2.8	81.9	20.5	20.5
11	48.7	46.6	41.0	21.9	48.0	12.7	* 3.9	6.7	4.2	36.0	20.5	20.1
12	45.9	47.7	41.0	21.5	21.2	13.4	4.2	3.9	2.8	24.0	20.5	* 19.4
13	44.8	46.6	43.1	21.9	19.1	* 12.7	3.9	5.7	* 2.5	20.5	20.5	20.1
14	44.8	48.7	42.4	20.1	15.5	12.7	3.9	4.9	2.1	19.1	20.5	20.5
15	44.8	50.5	42.0	20.5	13.8	220	4.2	4.2	2.5	18.4	20.5	20.1
16	45.2	50.5	41.0	20.5	* 13.4	39.9	4.9	3.9	2.5	18.7	21.9	20.5
17	* 44.5	50.1	* 39.6	20.5	14.5	23.7	4.2	4.9	2.8	* 20.5	23.0	20.8
18	46.6	49.8	39.6	* 20.8	13.8	17.7	4.6	5.3	1,150	20.5	20.5	22.2
19	49.4	49.8	45.2	22.2	13.4	16.2	9.2	3.5	63.2	21.2	18.0	22.2
20	50.5	49.4	50.5	21.2	13.4	15.5	15.9	2.8	31.8	20.5	17.3	22.6
21	53.3	48.7	50.5	19.4	13.1	14.5	5.7	2.5	18.0	20.5	* 17.3	22.6
22	50.9	49.4	50.5	18.7	12.4	14.5	5.3	2.1	14.8	17.7	17.3	22.6
23	50.5	50.5	* 48.7	17.3	10.6	15.9	4.9	1.8	13.4	15.5	16.2	22.6
24	49.8	50.9	46.6	17.0	12.4	26.1	4.9	1.8	12.4	14.8	17.3	22.6
25	48.7	62.2	45.9	17.7	22.6	22.6	4.2	1.8	11.7	14.0	17.0	22.6
26	47.7	73.4	44.5	20.5	33.2	20.5	3.5	1.8	* 11.7	13.4	17.0	* 24.0
27	47.0	63.9	43.1	24.7	19.8	18.0	3.5	2.1	10.6	13.1	17.3	25.1
28	47.3	57.6	36.7	23.0	17.3	13.8	3.2	2.1	9.9	12.7	* 17.3	25.1
29	47.0		26.1	17.7	17.7	7.1	3.9	1.8	9.9	13.4	18.4	25.1
30	46.6		26.1	14.5	18.7	6.0	3.9	2.1	9.9	13.4	19.8	25.1
31	46.6		25.8		17.3		4.2	2.1		13.1		25.1
Sum	1,506.7	1,426.5	1,372.3	638.0	497.7	708.1	159.0	106.2	1,408.8	658.0	614.7	669.0

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
	Current Year 1983								Period 1933-1983		
Jan.	1.15	1.05	21	54.0	17	43.4	48.7	2,989	3,064	18,930	43.8
Feb.	1.38	1.05	25	87.9	! 9	44.8	50.9	2,830	2,302	14,433	38.9
Mar.	1.15	.85	5	56.2	31	24.4	44.1	2,722	1,908	11,407	92.4
Apr.	.95	.69	3	33.2	29	14.1	21.2	1,265	2,279	21,950	81.1
May	1.61	.59	11	133	! 8	8.5	15.9	987	3,908	25,470	154
June	3.77	.52	15	1,280	30	5.3	23.7	1,405	2,669	19,730	60.3
July	1.18	.43	19	58.3	27	2.8	5.3	316	2,075	15,568	57.6
Aug.	.66	.36	11	10.6	!27	1.4	3.5	211	3,503	30,106	34.9
Sept.	6.40	.36	18	5,190	1	1.8	47.0	2,804	4,676	49,182	17.8
Oct.	2.07	.52	8	252	! 3	6.0	21.2	1,305	4,020	28,327	43.8
Nov.	1.41	.66	5	98.5	! 1	13.4	20.5	1,218	3,283	25,730	43.8
Dec.	.85	.75	!27	25.1	! 7	18.4	21.5	1,327	2,915	22,003	67.3
Yearly	6.40	0.36		5,190		1.4	26.8	19,379	36,602	159,211	1,755.3
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
	1.95	0.11		147		0.04	0.76	23,905	45,149	196,385	2,164

* Discharge measurement made on this day ! And other days

RETURN FLOW TO THE RIO GRANDE FROM THE MAVERICK IRRIGATION DISTRICT BELOW 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 Eagle Pass, Texas and the El Indio 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, Canon Diablo, Lateral 50 Spill, Lateral 50 Lowline No. 2, Rosita Creek, Lateral 60-K Spill, Sauz Creek, Lateral 70 Spill No. 2, Indio Creek, Gravel 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 1983. Records prior to 1976 were published under the title "Return Flow to the Rio Grande from Maverick Canal, Eagle Pass to San Antonio Crossing."

EXTREME FLOWS FROM RECORDS:

Average Flow in Second-Feet (Cubic Meters per Second)**

Daily:	Max. 350 (9.91)	July 5, 1968	Min. 9.7 (0.27)	Dec. 10, 1980
Monthly:	Max. 247 (7.00)	July 1968	Min. 22.3 (0.63)	December 1980
Yearly:	Max. 180 (5.10)	1971	Min. 44.8 (1.27)	1981

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	99.8	37.9	39.5	75.2	86.1	89.6	68.5	57.1	127	29.5	93.1	83.3
2	88.3	34.8	39.0	91.4	91.7	65.2	62.3	65.2	99.7	26.2	82.2	94.6
3	77.6	37.3	41.2	111	85.8	106	59.6	70.3	77.2	25.6	92.5	106
4	43.4	44.4	50.8	97.7	87.7	99.7	58.2	75.2	94.3	21.5	103	116
5	57.7	44.4	51.7	53.2	83.2	78.7	51.3	99.0	115	35.2	106	115
6	73.8	45.5	54.1	70.8	83.6	72.1	61.2	105	117	112	133	115
7	76.8	47.3	52.5	104	86.4	120	58.9	73.9	93.6	129	136	114
8	77.8	49.7	75.9	89.9	89.6	136	57.1	69.7	70.9	49.5	121	103
9	76.4	59.0	69.1	71.3	86.5	106	62.2	67.2	73.2	114	91.5	80.4
10	76.1	74.7	69.1	60.6	120	49.0	62.8	63.2	63.8	97.7	85.3	84.8
11	51.8	66.8	69.4	55.0	116	44.8	55.9	54.7	69.2	56.7	98.0	95.8
12	15.3	45.8	78.3	72.3	122	43.7	54.9	53.5	100	39.4	103	96.4
13	17.4	43.4	62.9	61.1	151	71.0	58.9	68.2	187	49.5	92.2	92.3
14	27.6	47.9	71.8	56.2	162	94.8	59.5	119	54.9	70.5	73.2	91.0
15	39.3	51.2	77.0	52.0	161	77.6	55.2	117	52.0	39.4	66.3	88.9
16	54.5	32.6	67.8	58.8	163	110	56.1	84.4	29.4	61.8	55.6	96.8
17	55.6	28.6	82.1	66.2	149	77.8	55.1	54.6	20.0	75.2	58.2	80.6
18	63.0	31.1	87.6	97.1	129	83.1	57.3	36.1	17.3	46.7	89.9	56.4
19	49.7	31.9	98.1	72.8	79.5	117	68.0	37.8	17.5	48.1	108	59.5
20	40.0	33.8	70.9	80.9	84.3	111	55.8	43.2	17.7	49.1	106	98.9
21	55.2	33.6	78.2	93.6	76.2	91.1	53.1	46.3	43.9	45.2	109	113
22	55.9	30.8	92.1	87.8	124	69.7	52.0	43.0	32.9	53.2	97.9	111
23	71.1	25.5	86.5	84.6	121	54.2	46.9	36.3	24.9	49.8	59.3	103
24	71.0	26.5	69.9	83.7	117	62.5	47.0	47.7	24.5	41.7	71.3	94.5
25	52.3	35.9	80.5	86.6	75.4	71.8	50.0	51.8	22.7	33.5	89.2	92.1
26	32.1	47.3	76.4	87.3	60.7	71.4	47.8	64.7	21.4	30.6	126	98.2
27	32.0	62.0	75.9	92.0	61.4	101	60.6	82.2	20.3	37.5	132	105
28	33.3	79.3	79.2	90.6	80.1	99.6	73.5	114	20.6	43.5	81.9	104
29	36.2		87.9	94.3	108	84.0	60.0	102	34.7	46.6	53.8	100
30	39.5		92.0	95.7	112	74.7	51.3	108	37.0	75.1	72.5	109
31	37.4		97.5		101		47.5	124		94.4		109
Sum	1,229.0		2,393.7		2,533.1		2,234.3		1,727.7		3,007.5	
	1,677.9		2,224.9		3,253.2		1,768.5		1,779.6		2,786.9	

Month	Current Year 1983 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 1968-1983 Acre-Feet Average	Maximum	Minimum
Jan.			1	99.8	12	15.3	54.1	3,328	7,097	12,728	2,487
Feb.			28	79.3	23	25.5	43.9	2,438	5,968	10,704	2,152
Mar.			19	98.1	2	39.0	71.8	4,413	8,125	11,675	3,124
Apr.			3	111	15	52.0	79.8	4,748	8,949	14,646	3,254
May			16	163	26	60.7	105	6,453	8,149	14,327	2,374
June			8	136	12	43.7	84.4	5,024	8,621	14,384	2,224
July			28	73.5	23	46.9	57.0	3,508	8,311	15,180	2,728
Aug.			31	124	18	36.1	72.1	4,432	7,652	11,586	2,619
Sept.			13	187	18	17.3	59.3	3,530	6,376	9,162	2,200
Oct.			7	129	4	21.5	55.7	3,427	6,011	8,220	2,966
Nov.			7	136	29	53.8	92.9	5,528	6,206	10,790	2,678
Dec.			4	116	18	56.4	97.0	5,965	6,493	12,797	1,369
Yearly				187		15.3	72.9	52,794	87,958	130,563	32,415
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
				5.30		0.43	2.06	65,121	108,496	161,049	39,984

** Period 1968-1983 Ø Mean daily

RIO GRANDE NEAR EL INDIO, TEXAS AND VILLA GUERRERO, COAHUILA

DESCRIPTION: Cableway, bubbler gage, concrete control weir, and water-stage recorders (graphic and digital) located on the left bank at latitude 28° 20'45", longitude 100° 18'35",and river mile 460.4 (741.0 km), 0.6 river mile (0.9 km) downstream from Cuervo Creek, which marks the lower end of the Maverick County Water Control and Improvement District No. 1, 1.9 river miles (3.1 km) upstream from Tovar Creek, 5 miles (8.0 km) northeast of Villa Guerrero, Coahuila, about 11.5 miles (18.5 km) south of El Indio, Texas, and 35.9 river miles (57.8 km) downstream from the international highway bridge between Eagle Pass, Texas and Piedras Negras, Coahuila. The zero of the gage is 580.00 feet (176.78 m) above 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: March, April, May, October, November, and December 1952 with some days missing; January through August 20, 1953; September 23, 1953 through June 14, 1954; and May 27, 1955 through 1983 with several days missing prior to September 1955. Records prior to 1976 were published under the title "Rio Grande at San Antonio Crossing near El Indio, Texas."

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

EXTREME FLOWS FROM RECORDS: Momentary: Max. 912,000 second-feet (25,800 m^3/sec) in June 1954, determined by slope-area computation, with an elevation of 624.31 feet (190.29 m). Min. 54.4 second-feet (1.54 m^3/sec) on June 24, 1953 with an elevation of 581.96 feet (177.38 m) at a station 1,700 feet (518 m) upstream from the present site.

Average Flow in Second-Feet (Cubic Meters per Second)**

Daily:	Max.	96,400 (2,730)	July 19, 1975	Min.	327 (9.26)	June 29 & 30, 1972
Monthly:	Max.	21,800 (617)	Sept. 1974	Min.	501 (14.2)	June 1969
Yearly:	Max.	5,300 (150)	1974	Min.	1,230 (34.8)	1972

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,630	1,830 *	2,500	1,690	1,260	4,170	2,460	1,940	2,160	2,230	2,220	1,390
2	1,630	1,810	2,400 *	1,730	1,260	4,040 *	2,370	1,880	2,070	2,180	2,140 *	1,420 *
3	1,630	1,810	2,340	1,680	1,260 *	3,690	2,140	1,940 *	2,120	2,100	2,130	1,400
4	1,630	1,820	2,230	1,510	1,210	3,660	2,150	2,010	2,060	2,100 *	2,250	1,400
5	1,570 *	1,820	2,160	1,180	1,160	3,980	2,120	2,130	2,180	1,930	3,850	1,350
6	1,600	1,850	2,140	1,150 *	1,100	4,010	2,300 *	2,190	2,210	1,820	6,350	1,310
7	1,630	1,900	2,100	1,210	1,120	4,530	2,210	2,150	2,170 *	1,930	3,640	1,410
8	1,600	1,840	2,000	1,210	1,280	4,310	2,130	2,170	2,130	1,850	3,330	2,180
9	1,570	1,840	1,960	1,200	1,360	4,220	2,110	2,340	2,150	5,780	3,150	1,300
10	1,570	1,880	1,880	1,200	1,470	4,140	2,110	2,230	2,170	6,500	3,000	1,170
11	1,570	1,840	1,820	1,260	1,540	4,140	2,110	2,190	2,180	3,050	2,440	1,160
12	1,570	1,800	1,780	1,230	1,500	3,950	2,070	2,090	2,200	2,640	2,110	1,130
13	1,560	1,830	1,800	1,070	1,600	3,710	2,050	2,190	2,580	2,490	2,050	1,090 *
14	1,570	1,860	1,800	1,050	1,600	3,640 *	2,030	2,360	2,430	2,240	1,980	1,060
15	1,540	1,920 *	1,770	1,130	1,630	2,780	1,990	2,400	2,240	2,250	1,870 *	1,220
16	1,510	1,880	1,800 *	1,240	1,630	4,070	1,990	2,190 *	2,180	2,190	1,800	1,530
17	1,530	1,880	1,780	1,340	1,600	3,870	1,850	2,150	2,150	2,410	1,690	1,710
18	1,560 *	1,830	1,720	1,490	1,560	3,230	2,050	2,050	12,700	2,160	1,710	1,620
19	1,480	1,810	1,740	1,410 *	1,450 *	2,990	2,010	2,110	21,400 *	2,060	1,710	1,770
20	1,540	1,770	4,590	1,380	1,430	3,060	2,090	2,090	3,870	2,540	1,740	1,900
21	1,590	1,730	5,300	1,380	1,750	2,920	2,010	2,150	2,710	20,100 *	1,720	1,960
22	1,650	1,720	5,300	1,370	1,780	2,820	2,030 *	2,100	2,420	3,420	1,740	1,770
23	1,720	1,790	5,400	1,370	1,690	2,510	1,970	2,070	2,330	2,640	1,700	1,350
24	1,700	1,840	5,400	1,360	1,520	2,590	1,950	2,050	2,280	2,840	1,680	1,230
25	1,670	1,900	5,160	1,230	1,540	2,760	1,990	1,940	2,250	2,630	1,510	1,130
26	1,660	1,950	3,780	1,070	3,660	2,960	1,950	1,910	2,200	2,480	1,420	1,300
27	1,840	3,070	2,350	1,050	4,120	2,620	1,880	1,850	2,190	2,450	1,490	4,060
28	1,840	2,680	1,870	915	4,140	2,530	1,860	2,030	2,160	2,320	1,480	2,190
29	1,850		1,770	1,140	4,170	2,660	1,820	2,130	2,120	2,280	1,370	1,610
30	1,820		1,720	1,250	4,170	2,510	1,780	2,090	2,150	2,320	1,390	1,560
31	1,820		1,700		4,120		1,780	2,070		2,280		1,910
Sum	50,650	53,500	82,060	38,495	60,680	103,070	63,360	65,190	98,160	98,210	66,660	48,590

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.	6.66	6.43	27	1,890	18	1,450	1,630	100,463	119,917	221,917	47,179
Feb.	7.45	6.50	27	3,780	22	1,560	1,910	106,116	141,558	444,879	51,336
Mar.	8.01	6.56	23	5,450	15	1,670	2,650	162,764	148,345	423,055	37,442
Apr.	6.79	6.07	29	2,130	28	833	1,280	76,354	129,683	361,567	37,386
May	7.70	6.21	27	4,250	7	1,020	1,960	120,357	220,564	600,198	50,723
June	7.86	6.77	7	4,730	15	2,020	3,440	204,436	196,286	473,653	29,808
July	7.04	6.61	1	2,630	31	1,740	2,040	125,673	212,606	788,688	37,228
Aug.	6.90	6.58	15	2,400	27	1,760	2,100	129,302	212,098	824,033	66,822
Sept.	12.83	6.67	19	43,600	2	1,960	3,270	194,698	269,647	1,296,059	83,327
Oct.	10.64	6.59	21	28,300	1 5	1,690	3,170	194,797	239,383	863,008	55,885
Nov.	8.53	6.41	6	8,950	30	1,320	2,220	132,218	155,469	552,893	58,569
Dec.	7.78	5.56	27	4,470	30	234	1,570	96,377	116,986	276,020	49,819
Yearly	12.83	5.56		43,600		234	2,270	1,643,555	2,162,542	3,835,752	896,415
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
	3.91	1.69		1,235		6.63	64.3	2,027,325	2,667,496	4,731,400	1,105,728

Current Year 1983 — Period 1968-1983

* Discharge measurement made on this day ! And other days

RIO GRANDE AT VILLA HIDALGO, COAHUILA 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 406.0 (653.4 km) 1.9 river miles (3.1 km) downstream from Arroyo Agua Verde in Mexico, 13.1 river miles (21.1 km) upstream from Santo Tomas Creek in United States, and 45.1 river miles (72.6 km) upstream from the old international highway bridge between Laredo, Texas and Nuevo Laredo, Tamaulipas. The zero of the gage is 436.02 feet (132.90 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 25 discharge measurements during the year, 15 by the Mexican Section and 10 by the United States Section of the 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 1983. Records prior to 1976 were published under the title "Rio Grande at Palafox near Laredo, Texas."

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 (6,060 m^3/sec) on September 25, 1964 with a gage height of 42.06 feet (12.82 m). Min. 314 second-feet (8.90 m^3/sec) on June 30 and July 1, 1972 with a gage height of -0.66 foot (-0.20 m).

Average Flow in Second-Feet (Cubic Meters per Second)**

Daily:	Max.	134,000 (3,800)	June 29, 1971	Min.	314 (8.90)	July 1, 1972
Monthly:	Max.	21,000 (595)	Sept. 1974	Min.	434 (12.3)	June 1969
Yearly:	Max.	5,470 (155)	1974	Min.	1,270 (35.9)	1972

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,840	2,020	2,710	1,740	1,250	4,310	2,570	2,020	2,160	2,380	2,360	1,420
2	1,850	1,980 *	2,570 *	1,710	1,320	4,450	2,600	2,080	2,190	2,370	2,320	1,410
3	1,840	1,960	2,450	1,750	1,310	3,990	2,460	2,080 *	2,120	2,330	2,130 *	1,440
4	1,820	1,980	2,380	1,710	1,250	3,810	2,270 *	2,060	2,150	2,240 *	2,080	1,430
5	1,800 *	2,000	2,210	1,520	1,190	4,060	2,300	2,130	2,120	2,270	2,620	1,440
6	1,770	2,020	2,170	1,120 *	1,210 *	4,200 *	2,320	2,240	2,210 *	1,940	6,570	1,370 *
7	1,800	2,080 *	2,140	1,090 *	1,180	4,560	2,390	2,280	2,210	1,980	3,990	1,350
8	1,800	2,070	2,100	1,140	1,190	4,660	2,320	2,250	2,180	2,060	3,460	1,700
9	1,790	2,040	2,010	1,190	1,390	4,380	2,270	2,210	2,190	3,880	3,310	1,950
10	1,790	2,040	2,000 *	1,160	1,510	4,270	2,250	2,340	2,220	9,570	3,160	1,380
11	1,790	2,040	1,940	1,160	1,650	4,270	2,250	2,280	2,250	3,960	2,930	1,280
12	1,770 *	2,020	1,860	1,210	1,660	4,240	2,290	2,260	2,250	2,980	2,420	1,260
13	1,730	1,960	1,860	1,170	1,690	4,030	2,210	2,200	2,370	2,710	2,210	1,250
14	1,740	2,020	1,860	1,010	1,790	3,920	2,190 *	2,510	2,640	2,470	2,160	1,180
15	1,740	2,060	1,880	989	1,800	3,810	2,160	2,500	2,400	2,370	2,070	1,150
16	1,720	2,060	1,850	1,080	1,790	3,030 *	2,130	2,440	2,320	2,330	1,940	1,360
17	1,700	2,030	1,830	1,200	1,790	3,480	2,130	2,290	2,250	2,320	1,860 *	1,850
18	1,750	2,000	1,810	1,320	1,740	3,460	2,060	2,250	2,250	2,520	1,750	1,860
19	1,750	1,980	1,760	1,470	1,690	3,220	2,250	2,200	24,500 *	2,270	1,800	1,820
20	1,760	1,960	2,120	1,390	1,580	3,230	2,220	2,200	8,300	2,240	1,770	1,860
21	1,830	1,890	5,370	1,360	1,570	3,160	2,250	2,200	4,030	13,800	1,810	2,070
22	1,820	1,880	5,470	1,370	2,000	3,060	2,160	2,260	2,780 *	17,000	1,810	2,090
23	1,940	1,830	5,580	1,350	1,900	2,870	2,190	2,180	2,510	3,210	1,800	1,710
24	1,960	1,900	5,760	1,360	1,780	2,640	2,160	2,160	2,480	2,960	1,760	1,490
25	1,930	1,990	5,650	1,350	1,700	2,750	2,130	2,130	2,450	2,840	1,700	1,430
26	1,900	2,060	4,700	1,170	2,190	3,110	2,190	2,030	2,430	2,610	1,550	1,330
27	1,930	2,200	3,450	1,020	4,200	2,970	2,130	1,970	2,380	2,510	1,470	1,900
28	2,040	3,190	2,180	982	4,380	2,710	2,080	1,950	2,400	2,480	1,540	2,010
29	2,050		1,900	886	4,340	2,770	2,090	2,160	2,350	2,350	1,500	1,990
30	2,030		1,810	1,070	4,410	2,710	2,040	2,240	2,350	2,370	1,410	1,670
31	2,030		1,750		4,340		2,020	2,180		2,400		2,100
Sum	57,010	57,260	85,130	38,047	62,790	108,130	69,080	68,280	99,440	111,720	69,260	49,550

Month	Current Year 1983							Period 1968-1983		
	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet		
	High	Low	High Day	High	Low Day	Low			Average	Maximum	Minimum
Jan.	2.20	1.71	!28	2,090	17	1,700	1,840	113,046	122,910	230,946	50,489
Feb.	3.35	1.71	28	3,640	23	1,700	2,040	113,543	142,746	455,925	48,884
Mar.	4.59	1.74	24	5,790	!19	1,720	2,740	168,817	150,812	412,917	38,574
Apr.	1.87	.33	1	1,830	29	826	1,270	75,445	133,913	356,909	36,522
May	3.97	.82	28	4,660	8	1,090	2,030	124,596	226,409	611,076	60,344
June	4.07	2.49	8	4,800	16	2,420	3,600	214,485	232,430	750,690	25,768
July	2.69	1.90	2	2,680	18	1,900	2,230	137,093	224,906	921,377	30,729
Aug.	2.69	1.84	14	2,680	28	1,830	2,200	135,461	220,636	730,503	70,515
Sept.	16.21	2.03	19	36,700	3	2,020	3,320	197,324	273,409	1,250,870	93,812
Oct.	15.09	1.80	22	32,700	! 5	1,800	3,600	221,532	263,279	922,217	70,340
Nov.	6.36	1.25	6	9,320	30	1,380	2,310	137,366	161,529	601,059	56,954
Dec.	2.36	.89	10	2,330	15	1,140	1,600	98,196	123,401	317,123	51,077
Yearly	16.21	0.33		36,700		826	2,400	1,736,904	2,276,380	3,963,062	920,935
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
	4.94	0.10		1,040		23.4	67.9	2,142,450	2,807,881	4,888,381	1,135,961

** Period 1968-1983 * Discharge measurement made on this day ! And other days

RIO GRANDE AT NUEVO LAREDO, TAMAULIPAS AND 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°29'25", and river mile 359.8 (579.0 km), immediately downstream from the Laredo, Texas sewage plant and 1.1 river mile (1.8 km) downstream from the old international highway bridge between Laredo, Texas and Nuevo Laredo, Tamaulipas. The zero of the gage is 345.28 feet (105.24 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 37 discharge measurements during the year, 25 by the Mexican Section and 12 by the United States Section of the Commission, and a continuous record of gage heights. Computations by shifting control methods. Records available: May 1900 through 1913; May, June, and Oct. 1914; Sept. 1916; Sept. and Oct. 1917; Oct. 1918; Sept. and Oct. 1919; Aug. and Sept. 1920; June, Nov., and Dec. 1922; and 1923 through 1983. Gage height records are available for Jan., Feb., and Mar. 1914.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station. This station was established in Jan. 1955 to replace the station 1.7 miles (2.7 km) upstream which was destroyed by the June-July 1954 flood. Prior to July 11, 1968 the recorder was located 0.2 river mile (0.3 km) upstream, where the cableway is still located, and the zero of the gage was 347.90 feet (106.04 m) above mean sea level, U. S. C. & G. S. datum.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 716,900 second-feet (20,300 m^3/sec) on June 30, 1954, determined by slope-area calculations, with a gage height of 61.35 feet (18.70 m). Much well-authenticated information established the occurrence of a greater flood in June 1865 with a gage height of 62.5 feet (19.05 m) on the same gage and discharge of approximately 950,000 second-feet (27,000 m^3/sec), and also that these were the only floods since 1745 with flows greater than 600,000 second-feet (17,000 m^3/sec). Min. no flow several days in June and July 1953 and on July 24, 1956.

Average Flow in Second-Feet (Cubic Meters per Second)**

Daily:	Max.	115,000 (3,270)	June 30, 1971	Min.	247 (7.00)	July 2, 1972
Monthly:	Max.	20,400 (579)	Sept. 1974	Min.	498 (14.1)	June 1969
Yearly:	Max.	5,370 (152)	1974	Min.	1,350 (38.3)	1972

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,560	1,820	2,690 *	1,520	908	4,310	2,460	1,890	2,020	2,280	2,250	1,220
2	1,580	1,800	2,480	1,550	1,050 *	4,340 *	2,440	1,960	2,050	2,300	2,250	1,240
3	1,610 *	1,770	2,340	1,580	1,060	4,240	2,410	1,930	2,010	2,270	2,170	1,250
4	1,590	1,790	2,250	1,580	1,060 *	3,810	2,210	1,900	2,040	2,200	1,910 *	1,270
5	1,580	1,830	2,190	1,500 *	996	3,810	2,100	2,170	1,990	2,070	2,140	1,240
6	1,550	1,840	2,070	1,190	929	4,170	2,130 *	2,060	2,000	2,090	5,050	1,290
7	1,530	1,880	2,030	953 *	957	4,520	2,240	2,180	2,200	1,750	6,600	1,290 *
8	1,560	1,960 *	2,010	939	918	4,770	2,170	2,180 *	2,240	1,870	3,960	1,190 *
9	1,560	1,910	1,940	978	975	4,520	2,140	2,130	2,030	2,550	3,400	1,620
10	1,550	1,900	1,860	1,000	1,280	4,310	2,100	2,090	2,060	6,290 *	3,210	1,460
11	1,550 *	1,930	1,820 *	1,010	1,330	4,240	2,150	2,240	2,180	6,460	3,050	1,150
12	1,550	1,910	1,770	992	1,470	4,170	2,170	2,170	2,220	3,670	2,620	1,100
13	1,530	1,880	1,740	996 *	1,480 *	4,100	2,140 *	2,090	2,150	2,910	2,140	1,070
14	1,510	1,880	1,740	939	1,490	3,780	2,080	2,240	2,490	2,680	1,990 *	1,050
15	1,510	2,060	1,750	805	1,560	3,810 *	2,040	2,400	2,550	2,320	1,920	978
16	1,520	1,940	1,750	788	1,600	3,350	1,990	2,440	2,280	2,280	1,890	978
17	1,500	1,910	1,720	858	1,600	4,380	1,990	2,240	2,230	2,240	1,760	1,290
18	1,500	1,890	1,680	1,000	1,600	4,170	1,920	2,140	2,170	2,380	1,680	1,630
19	1,550	1,860	1,680	1,100	1,540	3,370	2,040	2,070 *	11,200 *	2,370	1,640	1,650
20	1,560	1,850	1,670	1,170	1,380	2,990	2,120	2,070	17,900 *	2,100	1,680	1,650
21	1,550	1,830	3,990	1,120	1,420	3,030	2,120	2,070	4,340	3,850 *	1,610	1,700
22	1,610	1,740	5,470 *	1,070	1,670	2,950	2,060	2,120	2,870	19,900	1,600 *	1,920
23	1,600	1,740 *	5,510	1,100	1,840	2,880	2,040	2,070	2,510	5,760	1,630	1,950
24	1,740	1,780	5,690	1,060	1,650	2,550	2,040	1,990	2,390	2,850	1,610	1,510
25	1,730 *	2,020	5,650 *	1,090	1,480	2,540	2,010	1,980	2,360	2,980	1,610	1,230
26	1,720	2,050	5,300	1,050	1,440	2,710	2,030	1,930	2,410	2,680	1,510	1,170
27	1,680	1,960	3,740	897	3,090	3,070 *	2,030	1,840	2,350	2,460	1,360	1,170
28	1,770	2,390	2,660	795	4,410	2,620	1,960	1,800	2,300	2,410 *	1,320	2,900
29	1,860		1,820	752	4,100	2,540	1,940	1,900	2,340	2,310	1,390	2,600
30	1,890		1,670	678	4,340	2,660	1,920	2,110 *	2,260	2,230	1,320	1,610
31	1,830		1,570		4,380		1,890	2,080		2,270		1,770
Sum	49,930	53,120	82,250	32,060	55,003	108,710	65,080	64,480	94,140	104,780	68,270	45,146

Month	Current Year 1983 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 1968-1983 Acre-Feet Average	Maximum	Minimum
Jan.	3.12	2.66	30	1,930	!14	1,470	1,610	99,009	120,459	212,980	49,774
Feb.	4.04	2.89	28	2,810	!22	1,680	1,900	105,390	142,160	450,602	39,225
Mar.	6.04	2.76	24	5,760	31	1,510	2,650	163,150	148,216	395,686	37,096
Apr.	2.85	1.80	! 2	1,610	30	625	1,070	63,601	131,823	360,566	35,107
May	5.18	1.84	28	4,660	1	653	1,780	109,138	238,084	662,839	89,917
June	5.97	3.48	17	5,690	17	2,370	3,640	215,592	232,149	695,494	29,685
July	3.61	2.95	3	2,520	18	1,790	2,100	129,122	221,043	838,520	32,270
Aug.	4.00	2.92	5	3,010	28	1,760	2,080	127,854	223,544	794,314	65,681
Sept.	16.70	3.05	20	29,600	3	1,900	3,140	186,664	277,361	1,216,757	94,988
Oct.	15.55	2.82	22	26,500	7	1,660	3,380	207,761	277,915	956,960	56,155
Nov.	7.68	2.40	6	8,650	30	1,220	2,270	135,411	158,646	586,280	54,832
Dec.	4.59	2.13	28	3,810	!15	939	1,450	89,504	120,247	307,569	51,316
Yearly	16.70	1.80		29,600		625	2,250	1,632,196	2,291,647	3,891,074	980,740
	Meters 5.09	0.55		Cubic Meters per Second 838		17.7	63.8	Thousands of Cubic Meters 2,013,291	2,826,717	4,799,588	1,209,729

* Discharge measurement made on this day ! And other days

RIO SALADO NEAR LAS TORTILLAS, TAMAULIPAS

DESCRIPTION: Cableway, control weir with notch opening of 2,500 second-foot (72 m^3/sec) 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 (3 km) downstream from the confluence of Rio Sabinas with Rio Salado, 6 miles (10 km) southeast of the town of Las Tortillas, Tamaulipas, and 24.8 river miles (39.9 km) from the confluence with the Rio Grande. This stream enters the Rio Grande at river mile 299.5 (482.0 km), 24.7 river miles (39.8 km) upstream from Falcon Dam. The zero of the gage is 325.72 feet (99.28 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 15 discharge measurements during the year, 12 by the Mexican Section and 3 by the United States Section of the Commission, a stable rating curve up to 2,500 second-feet (72 m^3/sec), and a continuous record of gage heights. Computations by shifting control methods for flows greater than 2,500 second-feet (72 m^3/sec). Records available: September 9, 1953 through 1983. Records are also available for a station at old Cd. Guerrero, 21.7 miles (35 km) 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. 65,000 second-feet (1,840 m^3/sec) on September 16, 1971 with a gage height of 40.39 feet (12.31 m). Min. frequently no flow. The maximum discharge was measured at the highway bridge 13.0 river miles (20.9 km) downstream from the station. Extreme flow data for the Rio Salado at Cd. Guerrero prior to September 8, 1953 may be found in previous bulletins.

Average Flow in Second-Feet (Cubic Meters per Second)**

Daily:	Max. 62,900 (1,780)	Sept. 16, 1971	Min. 0		Frequently
Monthly:	Max. 13,600 (384)	Sept. 1971	Min. 0		Frequently
Yearly:	Max. 3,310 (93.6)	1971	Min. 56.8 (1.61)		1956

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	93.2	* 85.8	178	101	64.6	133	* 84.7	7.8	39.6	18.4	* 38.1	27.9
2	92.5	80.9	138	121	54.4	126	80.9	52.3	* 35.3	20.5	39.6	24.7
3	92.2	80.9	142 *	120	* 52.3	121 *	75.6	79.8	33.2	* 26.5	39.6	26.8
4	79.8	84.0	124	123 *	54.4	117	72.7	223 *	26.8	26.8	37.4	31.1
5	61.4	95.0	98.2	119	56.5	117	58.6	266	22.6	24.7	37.4	* 31.1
6	* 56.5	102	88.3	112	60.7	130	54.4	120	22.6	24.7	44.5	31.1
7	52.3	101	93.2	98.2	56.5	171	50.5	90.4	24.4	24.7	572	31.1
8	60.0	79.5	82.6	90.4	60.7	206	48.0	72.7	40.6	22.6	223	25.8
9	63.6	69.2	69.6	92.2	72.7	121	50.1	54.4	29.0	569	101	16.2
10	65.7	65.0	64.6	83.0	101	113	62.2	50.1	16.2	943	67.8	6.4
11	61.1	162	50.9	98.2	113	101	48.0	45.9	12.7	650	60.7	2.1
12	64.6	403	52.3	95.3	109	93.2	36.7	37.4	12.7	324	50.9	0
13	56.5	238	72.0	87.6	93.2	84.8	100	1,550	26.8	406	39.6	0
14	56.5	131	77.3	73.8	60.7	77.0	124	1,240	50.9	167	43.8	0
15	69.9	112	162	55.8	48.0	80.9	94.6	526	126	97.1	48.0	0
16	105	98.9	256	45.6	64.6	84.8	52.3	192	126	89.0	48.0	0
17	132	82.3	162	45.2	64.6	281	43.8	113	80.9	77.0	48.0	0
18	127	81.2	179	56.5	68.5	367	42.4	80.9	52.3	64.6	39.6	0
19	105	73.5	126	53.0	54.4	236	41.7	64.3	41.7	80.9	35.3	0
20	112	83.7	113	43.8	41.7	149	84.4	54.7	37.4	69.9	39.6	.7
21	136	84.8	104	43.8	37.4	117	156	50.1	132	55.4	39.6	14.5
22	133	63.6	120	62.2	60.7	117	74.9	42.4	160	48.7	35.3	16.2
23	113	57.6	124	60.7	60.7	89.0	49.8	34.6	97.1	43.8	35.3	22.6
24	109	52.3	113	63.6	48.0	103	36.0	29.0	56.5	39.6	39.6	37.4
25	101	294	93.9	68.5	45.9	93.2	22.6	21.2	52.3	39.6	39.6	52.3
26	92.2	1,090	82.3	68.5	72.0	84.8	24.7	16.2	43.8	39.6	39.6	60.7
27	85.5	848	80.9	68.5	189	107	24.7	13.4	35.3	39.6	35.3	72.7
28	84.8	266	89.0	68.5	220	154	20.5	13.4	22.6	39.6	31.1	72.7
29	77.3		99.2	67.1	231	138	15.9	31.4	20.5	37.4	31.1	64.6
30	72.7		102	64.6	209	109	12.7	62.9	20.5	34.6	31.1	62.9
31	72.7		93.9		160		8.8	50.5		33.5		60.7
Sum	2,684.0	5,065.2	3,431.2	2,350.6	2,685.2	4,021.7	1,752.2	5,285.8	1,498.3	4,177.8	2,011.5	792.3

Month	Current Year 1983								Period 1954-1983		
	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum
Jan.	1.02	0.62	21	149	! 7	52.3	86.5	5,329	11,040	59,812	0
Feb.	2.89	.56	26	1,810	24	43.8	181	10,054	9,082	66,880	0
Mar.	1.61	.59	16	410	!11	48.0	111	6,806	5,468	29,690	0
Apr.	.95	.56	! 2	130	!20	43.8	78.4	4,662	13,336	202,979	0
May	1.28	.52	29	236	21	35.3	86.5	5,327	30,135	362,793	0
June	1.57	.72	!17	392	!14	72.7	134	7,980	31,779	246,821	0
July	1.25	.16	21	225	31	7.1	56.5	3,477	33,832	441,541	0
Aug.	3.44	.16	13	2,940	1	7.1	170	10,472	25,186	210,031	0
Sept.	1.28	.30	21	236	!11	12.7	49.8	2,972	89,147	807,616	2,860
Oct.	2.56	.36	9	1,360	! 1	18.4	135	8,285	58,972	550,739	110
Nov.	2.30	.46	7	1,010	!28	31.1	67.1	3,990	30,770	338,000	0
Dec.	.72	0	!27	72.7	!12	0	25.4	1,572	19,987	176,100	0
Yearly	3.44	0		2,940		0	97.8	70,926	358,734	2,400,553.5	41,238.2
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
	1.05	0		83.2		0	2.77	87,486	442,494	2,961,050	50,859

** Period September 1953-1983 * Discharge measurement made on this day ! And other days

RIO GRANDE BELOW FALCON DAM NEAR FALCON, TEXAS AND NUEVA CD. GUERRERO, TAMAULIPAS

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°33'35", longitude 99°10'00", and river mile 274.8 (442.3 km); about 7 miles (11.3 km) southwest of Falcon, Texas, and 86.1 river miles (138.6 km) downstream from the old international highway bridge between Laredo, Texas and Nuevo Laredo, Tamaulipas. A gravity well and water-stage recorder located 2.5 river miles (4.1 km) downstream and a cableway located one mile (1.6 km) farther 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. During 1983 there were 6 discharge measurements made by the United States Section of the Commission. Records available: 1958 through 1983. Records are also available from December 17, 1952 through 1957 for a station at Chapeno, 2.6 miles (4.1 km) 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 the 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. 82,600 second-feet (2,340 m^3/sec) on September 18, 1971. Min. 1.5 second-feet (0.04 m^3/sec) on March 24 and 25, 1957 (at Chapeno gaging station).

Average Flow in Second-Feet (Cubic Meters per Second)**

Daily:	Max.	76,400 (2,160)	Sept. 18, 1971	Min.	1.5 (0.04)	March 24 & 25, 1957
Monthly:	Max.	32,500 (920)	Oct. 1958	Min.	23.5 (0.67)	November 1973
Yearly:	Max.	6,930 (196)	1958	Min.	1,580 (44.7)	1970

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,660	5,470	38.8	462	14,000	2,120	4,130	1,900	2,760	1,550	2,760	1,530
2	2,270	5,090	360	1,180	13,500	2,720	4,750	2,090	2,570	1,520	2,970	1,520
3	2,010	4,840	388	1,900	13,900	2,460	4,760	2,600	2,340	1,520	2,450	1,510
4	1,930	3,880	229	3,750	13,700	2,800	4,170	3,110	2,680	1,040	1,450	1,520
5	2,340	3,300	221	3,570	14,100	2,740	3,540	18.0	3,110	1,620	1,440	1,630
6	2,620	3,030	225	3,830	13,800	2,740	3,360	18.0	3,470	1,910	979	2,130
7	2,800	2,980	239	4,620	13,700	18.0	2,840	18.0	3,730	2,070	494	1,190
8	2,220	2,930	413	5,250	13,900	18.0	2,980	265	1,930	2,540	408	927
9	2,240	2,890	607	6,070	14,400	18.0	2,990	1,720	1,390	2,530	536	1,040
10	2,510	2,870	629	6,240	13,100	18.0	3,000	3,420	1,170	2,210	533	1,360
11	2,110	2,940	657	6,890	11,700	708	2,970	2,920	1,170	794	18.0	1,410
12	3,040	3,140	1,030	10,100	10,600	1,030	1,670	995	1,010	368	18.0	1,010
13	3,740	3,340	1,050	11,600	10,400 *	1,980	18.0	1,310	816	864	18.0	1,390
14	4,200	2,240	791	12,300 *	11,400	2,000	918	1,310	630	1,480	18.0	1,680
15	4,380	1,210	795	13,700 *	11,800	1,320	419	1,500	153	1,010	629	1,710
16	4,380	1,420	512	12,800	11,900	887	118	1,260	621	1,030	634	1,690
17	4,410	1,800	410	13,000	11,400 *	408	118	1,780	615	1,390	627	1,460
18	4,100	1,740	406	14,200	10,700	421	119	2,710	616	1,740	339	1,620
19	3,490	1,850	406	14,600	10,100	1,260	124	3,210	1,030	1,740	423	931
20	3,090	1,880	2,230	14,600	9,830	1,510	120	3,710	1,230	1,600	432	18.0
21	3,170	1,890	4,060	14,700	9,910	2,380	118	2,710	1,020	663	431	900
22	2,550	1,790	4,030	14,700	9,980	3,320	118	2,900	329	1,010	1,260	377
23	2,580	1,820	4,060	14,500	10,100	2,500	273	3,120	18.0	1,010	1,020	18.0
24	2,940	2,150	3,280	14,800	9,450	2,150	501	4,360	18.0	18.0	1,010	418
25	3,490	1,170	989	13,800	9,380	2,910	490	3,400	1,040	1,030	995	3,240
26	3,990	18.0	989	13,400	8,220	3,220	1,980	3,090	1,040	2,030	516	4,270
27	3,780	18.0	971	12,600	7,760	3,220	1,460	2,530	1,040	1,660	515	1,010
28	3,570	18.0	1,010	13,300	4,640	3,270	18.0	1,800	18.0	2,130	1,030	1,330
29	3,740		978	13,800	2,560	3,580	868	1,710	18.0	2,430	1,600	1,200
30	3,740		865	13,200	1,720	3,890	1,720	3,090	1,510	2,410	1,530	1,390
31	4,590		727		1,530		1,710	3,770		2,510		1,420
Sum	97,680	67,714.0	33,595.8	299,462	323,180	57,616.0	52,370.0	68,344.0	39,092.0	47,427.0	27,083.0	42,849.0

Month	Extreme Gage Feet		Ø Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
			High		Low						
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum
			Current Year 1983						Period #1954-1983		
Jan.			31	4,590	1	1,660	3,150	193,745	215,568	462,369	16,245
Feb.			1	5,470	!26	18.0	2,420	134,309	164,261	367,384	16,600
Mar.			!21	4,060	1	38.8	1,080	66,636	135,732	374,142	2,390
Apr.			24	14,800	1	462	9,980	593,974	270,567	593,974	19,530
May			9	14,400	31	1,530	10,400	641,018	340,420	715,233	21,574
June			30	3,890	! 7	18.0	1,920	114,280	267,964	672,976	22,887
July			3	4,760	!13	18.0	1,690	103,874	148,494	391,071	12,839
Aug.			24	4,360	! 5	18.0	2,200	135,558	223,591	1,478,678	25,900
Sept.			7	3,730	!23	18.0	1,300	77,538	179,973	1,080,871	1,428
Oct.			8	2,540	24	18.0	1,530	94,070	236,894	1,997,000	1,932
Nov.			2	2,970	!11	18.0	903	53,718	116,623	1,128,000	1,400
Dec.			26	4,270	!20	18.0	1,380	84,990	112,859	465,000	8,761
Yearly				14,800		18.0	3,170	2,293,710	2,412,946	5,016,800	1,143,806
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
				419		0.51	89.8	2,829,291	2,976,369	6,188,223	1,410,885

** Period 1954-1983 * Discharge measurement made on this day Ø Mean daily

RIO ALAMO AT CD. MIER, TAMAULIPAS

DESCRIPTION: Cableway, reinforced concrete weir of 177 second-foot (5 m^3/sec) capacity, gravity well, and water-stage recorder located on the right bank at a point called "El Paso del Cantaro," latitude 26°27'00", longitude 99°09'05", about 0.5 mile (1 km) north of Cd. Mier, Tamaulipas, and 5.0 river miles (8 km) from the confluence with the Rio Grande. This stream enters the Rio Grande at river mile 262.4 (422.3 km), 12.4 river miles (20.0 km) downstream from Falcon Dam. The weir is located about 300 feet (91 m) downstream from the recorder. The zero of the gage is at mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 6 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 1983.

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 (0.40 m) to make it coincide with the weir crest elevation. Prior to January 1, 1959, the zero of the gage was 188.35 feet (57.41 m) above mean sea level, U. S. C. & G. S. datum.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 144,800 second-feet (4,100 m^3/sec) on September 11, 1948 with a gage height of 33.56 feet (10.23 m). Min. periods of no flow have occurred at times during all years of record except 1934, 1935, 1968, 1972, 1974, 1976, 1977, 1979, and 1981.

Average Flow in Second-Feet (Cubic Meters per Second)**

Daily:	Max.	87,230 (2,470)	Sept. 11, 1948	Min. 0	Frequently
Monthly:	Max.	7,310 (207)	Sept. 1967	Min. 0	Frequently
Yearly:	Max.	837 (23.7)	1967	Min. 16.4 (0.47)	1929

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	4.2	4.2	50.5	6.0	0	6.7	22.2	0	4.2	1.4	0	0
2	4.2	6.0	35.0	6.0	0	2.5	46.6	0	1.8	.7	0	0
3	4.2	8.1	27.9	4.2	0	1.1	27.9	0	.7	0	0	0
4	4.2	8.1	24.7	4.2	0	0	6.7	848	0	0	0	0
5	4.2	8.1	18.7	2.5	0	0	2.5	484	0	0	0	0
6	4.2	8.1	15.9	2.5	0	0	0	537	0	0	14.8	0
7	4.2	8.1	13.0	2.5	0	126	0	30.4	0	0	129	0
8	4.2	8.1	13.0	2.5	0	23.7	0	9.5	153	0	27.9	0
9	4.2	8.1	13.0	2.5	0	2.5	0	3.9	307	1,650	12.7	0
10	4.2	8.1	13.0	1.1	0	0	0	1.8	33.2	975	6.0	0
11	4.2	110	13.0	1.1	0	0	260	.7	9.9	59.3	2.8	0
12	4.2	255	13.0	1.1	0	0	26.5	0	3.9	40.6	1.8	0
13	4.2	51.2	13.0	1.1	0	0	6.0	0	12.7	37.1	1.1	0
14	4.2	24.0	13.0	1.1	0	0	1.1	961	1,040 *	23.3	.7	0
15	33.9	12.0	66.7	0	0	0	0	1,110 *	526 *	9.2	0	0
16	10.2	8.8	197	0	0	74.9	31.1	101 *	190	4.2	0	0
17	6.0	9.2	45.9	0	0	134	13.4	* 36.4	25.8	1.8	0	0
18	6.0	6.0	25.4	0	0	38.8	4.2	14.5	10.9	.7	0	0
19	6.0	6.0	15.9	0	0	10.6	* 2.1	6.0	5.3	0	0	0
20	6.0	4.2	12.4	0	0	2.8	22.6	3.5	1.8	0	0	0
21	8.1	4.2	10.6	0	0	1.1	54.4	1.8	1.4	29.0	0	0
22	8.1	4.2	9.2	0	0	0	11.3	.7	100	12.0	0	0
23	6.0	4.2	9.2	0	0	0	3.5	0	60.7	4.2	0	0
24	6.0	4.2	9.2	0	0	1.1	1.1	0	37.8	1.8	0	0
25	6.0	13,900	9.2	0	0	498	0	0	18.7	.7	0	0
26	4.2	12,000	8.1	0	0	238	0	0	10.9	0	0	0
27	4.2	392	8.1	0	0	25.1	0	0	8.5	0	0	0
28	4.2	103	7.1	0	111	8.5	0	0	4.2	0	0	0
29	4.2		6.0	0	214	2.5	0	31.8	3.2	0	0	0
30	4.2		6.0	0	281	.7	0	73.5	2.1	0	0	0
31	4.2		6.0		21.2		0	18.4		0		0
Sum	186.3	26,973.2	728.7	38.4	627.2	1,198.6	543.2	4,273.9	2,573.7	2,851.0	196.8	0

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.	189.04	188.45	15	67.1	! 1	4.2	6.0	371	3,285	34,920	0
Feb.	206.17	188.45	25	36,700	! 1	4.2	964	53,474	3,307	53,474	0
Mar.	190.39	188.48	!15	657	!29	6.0	23.7	1,445	2,461	19,830	0
Apr.	188.48		! 1	6.0	!14	0	1.4	75.4	5,600	36,210	0
May	190.22		30	530	! 1	0	20.1	1,244	12,011	137,000	0
June	190.91		25	1,150	! 3	0	39.9	2,377	12,280	83,240	0
July	191.08		11	1,330	! 1	0	17.7	1,077	7,554	62,246	0
Aug.	194.23		4	6,070	! 1	0	138	8,478	15,279	205,700	0
Sept.	192.03		14	2,620	! 3	0	85.8	5,110	38,346	434,387	135
Oct.	192.19		9	2,920	! 2	0	91.8	5,652	17,758	193,700	0
Nov.	189.67		7	184	! 1	0	6.7	390	4,147	25,165	0
Dec.				0		0	0	0	3,427	15,982	0
Yearly	206.17			36,700		0	110	79,693.4	125,455	605,678.4	11,898.7
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
	62.84			1,040		0	3.12	98,301	154,747	747,096	14,686

Current Year 1983 — Period 1924-1983

** Period 1924-1983 * Discharge measurement made on this day ! And other days

CONTRIBUTIONS TO THE RIO GRANDE FROM THE LOWER RIO SAN JUAN IRRIGATION DISTRICT FALCON DAM TO RIO GRANDE CITY

DESCRIPTION: The Lower Rio San Juan Irrigation District in Mexico lies along the Rio Grande between Cd. Miguel Aleman and Rio Bravo, Tamaulipas and is irrigated with water impounded by Marte R. Gomez Dam situated on the Rio San Juan 12.4 river miles (20 km) upstream from the confluence with the Rio Grande. The Rio San Juan enters the Rio Grande at river mile 238.7 (384.1 km). Drain water from this irrigation district enters the Rio Grande between Falcon Dam and the Rio Grande City Gaging Station through the Rio San Juan channel, Rancherias 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 drains located upstream from the Rio Grande City Gaging Station is shown below. Drain water reaching the Rio Grande through the Rio San Juan channel is included in the Rio San Juan tabulation. The portion of drain water from this irrigation district reaching the Rio Grande via channels located downstream from the Rio Grande City Gaging Station is shown on page 67 in this bulletin.

RECORDS: Water entering the Rio Grande through the Rio San Juan Channel, composed of spills and leakage from Marte R. Gomez Dam, storm inflow and drainage below the dam, is measured at the Rio San Juan Gaging Station at Camargo, Tamaulipas, 3.1 river miles (5 km) upstream from the confluence with the Rio Grande. The discharge through Rancherias Drain was determined by prorating between 25 current meter measurements made during the year. There were no drainage flows through Los Fresnos Drain in 1983. All storm water measured at these two drains was deducted and is not included in the tabulation below. Records available: 1953 through 1983. Records prior to 1976 include Rio San Juan flow.

REMARKS: In 1983 there were 186,577 irrigable acres (75,505 ha) in the Lower Rio San Juan Irrigation District.

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1.4	* 8.5	5.7	5.7	18.4	13.8	3.5	11.7	2.1	1.4	* 3.2	2.5
2	1.4	8.1	6.4	5.3	19.4	13.4	3.2	* 12.0	2.1	1.4	3.2	2.5
3	1.4	8.1	6.7	4.9	* 20.8	13.1	2.8	11.7	2.1	1.4	3.2	2.5
4	* 1.4	7.8	7.1	4.6	20.1	12.4	2.8	10.9	2.1	* 1.4	3.2	2.1
5	1.4	7.4	7.4	* 4.2	19.8	12.0	* 2.5	10.6	2.1	1.4	3.5	2.1
6	1.4	7.1	7.8	4.2	19.1	11.7	2.8	10.2	2.1	1.4	3.5	2.1
7	1.4	7.1	8.1	3.9	18.7	11.3	2.8	9.9	2.1	1.4	3.5	* 2.1
8	1.4	6.7	* 8.5	3.9	18.0	10.9	3.2	9.2	1.8	1.4	* 3.5	2.1
9	1.4	6.4	8.5	3.9	17.7	10.6	3.5	8.8	1.8	1.4	3.5	2.1
10	1.4	6.4	8.5	3.5	17.0	10.2	3.5	8.5	1.8	1.4	3.5	2.1
11	1.4	6.0	8.5	3.5	16.2	9.5	3.9	7.8	1.8	1.4	3.5	1.8
12	1.8	5.7	8.5	3.2	15.9	9.2	3.9	7.4	1.8	1.4	3.2	1.8
13	1.8	5.3	8.5	3.2	15.2	8.8	4.2	7.1	* 1.8	1.4	3.2	1.8
14	1.8	5.3	8.5	3.2	14.8	8.5	4.6	6.7	1.8	1.4	3.2	* 1.8
15	1.8	4.9	8.5	2.8	14.1	8.1	4.6	6.0	1.8	1.4	3.2	1.8
16	1.8	4.6	8.5	2.8	13.8	7.8	4.9	5.7	1.8	1.8	3.2	1.8
17	1.8	4.6	8.5	2.8	* 13.1	7.4	5.3	5.3	1.8	1.8	3.2	1.8
18	* 1.8	4.2	8.5	2.5	13.1	6.7	5.3	4.6	1.8	1.8	3.2	1.8
19	2.1	3.9	8.5	* 2.5	13.1	6.4	* 5.7	4.2	1.8	1.8	2.8	1.8
20	2.8	3.5	8.5	3.9	13.4	6.0	6.0	3.9	1.4	1.8	2.8	1.8
21	3.2	3.5	8.5	4.9	13.4	* 5.7	6.7	3.5	1.4	1.8	2.8	1.8
22	3.5	* 3.2	8.5	6.4	13.4	5.3	7.1	2.8	1.4	1.8	* 2.8	1.8
23	4.2	3.5	* 8.5	7.8	13.4	5.3	7.4	* 2.5	1.4	1.8	2.8	1.8
24	4.6	3.9	8.1	9.2	13.4	4.9	7.8	2.5	1.4	1.8	2.8	2.1
25	4.9	4.2	7.8	10.2	13.8	4.6	8.5	2.5	1.4	1.8	2.8	2.1
26	5.7	4.6	7.4	11.7	13.8	4.6	8.8	2.5	1.4	* 1.8	2.5	2.1
27	6.0	4.9	7.1	13.1	13.8	4.2	9.2	2.5	* 1.4	2.1	2.5	2.1
28	6.7	5.3	6.7	14.1	13.8	3.9	9.9	2.5	1.4	2.1	2.5	2.1
29	7.1		6.4	15.5	14.1	3.9	10.2	2.1	1.4	2.5	2.5	2.1
30	7.4		6.4	17.0	14.1	3.5	10.6	2.1	1.4	2.8	2.5	2.1
31	8.1		6.0		* 14.1		10.9	2.1		2.8		2.1
Sum	94.3	154.7	241.1	184.4	482.8	243.7	176.1	189.8	51.7	53.1	91.8	62.4

Month	Current Year 1983 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 1954-1983 Acre-Feet Average	Maximum	Minimum
Jan.			31	8.1	! 1	1.4	3.2	187	173	556	0
Feb.			1	8.5	22	3.2	5.7	306	301	938	0
Mar.			! 8	8.5	1	5.7	7.8	477	244	771	25.9
Apr.			30	17.0	!18	2.5	6.0	366	287	708	19.5
May			3	20.8	!17	13.1	15.5	957	585	1,454	61.6
June			1	13.8	30	3.5	8.1	483	512	1,257	55.9
July			31	10.9	5	2.5	5.7	349	256	525	32.4
Aug.			2	12.0	!29	2.1	6.0	376	204	443	25.9
Sept.			! 1	2.1	!20	1.4	1.8	102	212	697	15.4
Oct.			!30	2.8	! 1	1.4	1.8	105	193	797	19.5
Nov.			! 5	3.5	!26	2.5	3.2	182	185	641	6.5
Dec.			! 1	2.5	!11	1.8	2.1	123	160	495	29.2
Yearly				20.8		1.4	5.7	4,013	3,312	6,786	490
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
				0.59		0.04	0.16	4,953	4,087	8,370	605

* Discharge measurement made on this day 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°18'40", longitude 98°50'15", 3.1 river miles (5 km) from the confluence with the Rio Grande, and 9.3 river miles (15 km) downstream from Marte R. Gomez Dam. This stream enters the Rio Grande at river mile 238.7 (384.1 km); 3.7 river miles (6.0 km) upstream from the Rio Grande gaging station at Rio Grande City, 36.1 river miles (58.1 km) downstream from Falcon Dam. The zero of the gage is at mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 31 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 1983.

REMARKS: Except for storm inflow, diversions, and drainage returns below Marte R. Gomez Dam, the flow at this station is controlled by spills from Marte R. Gomez Reservoir and leakage through the dam. Backwater from the Rio Grande frequently reaches this station. Prior to July 1, 1968 the zero of the gage was 130.45 feet (39.76 m) above mean sea level, U. S. C. & G. S. datum.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 115,000 second-feet (3,270 m^3/sec) on September 25, 1967 with a gage height of 42.03 feet (12.81 m). Min. 0.4 second-foot (0.01 m^3/sec) several days in May and June 1979 and March 1982.

Average Flow in Second-Feet (Cubic Meters per Second)

Daily:	Max.	115,000 (3,250)	Sept. 25, 1967	Min. 0.4 (0.01)	Various days in May & June 1979 and March 1982	
Monthly:	Max.	31,600 (894)	Sept. 1967	Min. 1.1 (0.03)	May 1979	
Yearly:	Max.	3,990 (113)	1967	Min. 10.9 (0.31)	1980	

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	4.9	* 7.4	5.3	3.5	2.8	11.7	5.3	27.5	12.7	9.5	285 *	186
2	4.9	7.4	5.3	3.5	2.5	11.3	5.3	* 28.6	14.1	9.2	309	195
3	5.3	7.1	5.3	3.2	* 2.1	10.9	5.3	27.2	15.2	9.2	333	204
4	* 5.3	7.1	5.3	3.2	2.1	10.9	5.3	26.1	16.6	* 8.8	357 *	214
5	5.3	7.1	5.3	* 3.2	2.1	10.6	* 5.3	24.7	17.7	12.4	357	224
6	5.3	7.1	5.3	3.5	2.1	10.2	6.0	23.3	19.1	15.9	657	233
7	5.7	6.7	5.3	3.9	2.5	9.9	6.7	22.2	20.5	19.1	957	242 *
8	5.7	6.7	* 5.3	4.2	2.5	9.5	7.1	20.8	21.5	22.6	1,140 *	222
9	5.7	6.7	5.3	4.6	2.5	9.2	7.8	19.4	23.0	26.1	1,040	203
10	5.7	6.4	5.3	4.9	2.5	8.8	8.5	18.4	24.0	29.7	946	183
11	5.7	6.4	4.9	5.3	2.5	8.8	9.2	17.0	25.4	32.8	848 *	164
12	6.0	6.4	4.9	5.7	2.5	8.5	9.5	15.5	26.5	36.4	837	144
13	6.0	6.4	4.9	6.0	2.5	8.1	10.2	14.5	* 27.9	39.9	826	124
14	6.0	6.0	4.9	6.4	2.8	7.8	10.9	13.1	27.9	43.4	816	105 *
15	6.0	6.0	4.9	6.7	2.8	7.4	11.7	11.7	27.9	46.6	805 *	102
16	6.4	6.0	4.6	7.1	2.8	7.1	12.4	10.6	27.9	50.1	731	100
17	6.4	5.7	4.6	7.4	* 2.8	6.7	12.7	9.2	27.9	53.7	653	98.2
18	* 6.4	5.7	4.6	7.8	3.5	6.7	13.4	7.8	27.9	57.2	579 *	96.1
19	6.4	5.7	4.6	* 8.1	4.2	6.4	* 14.1	6.7	27.9	60.7	530	93.9
20	6.4	5.7	4.6	7.8	4.9	6.0	15.2	5.3	27.9	63.9	484	92.2
21	6.7	5.3	4.2	7.4	5.3	* 5.7	16.2	3.9	1,950	67.5	438	90.1
22	6.7	* 5.3	4.2	6.7	6.0	5.7	17.3	2.8	17.7	71.0	388 *	87.9
23	6.7	5.3	* 4.2	6.4	6.7	5.7	18.4	* 1.4	16.2	74.5	364	85.8
24	6.7	5.3	4.2	6.0	7.4	5.7	19.4	2.8	14.8	77.7	340	83.7
25	6.7	5.3	4.2	5.7	8.1	5.7	20.5	3.9	13.4	81.2	315 *	81.6
26	7.1	5.3	3.9	4.9	8.8	5.7	21.2	5.3	12.0	* 84.8	287	79.5
27	7.1	5.3	3.9	4.6	9.5	5.7	22.2	6.4	* 10.6	118	260	77.3
28	7.1	5.3	3.9	4.2	9.9	5.3	23.3	7.8	10.2	151	232	75.2
29	7.1		3.9	3.9	10.6	5.3	24.4	8.8	10.2	185	204	73.5
30	7.4		3.5	3.5	11.3	5.3	25.4	10.2	9.9	218	176 *	71.3
31	7.4		3.5		* 12.0		26.5	11.7		251		69.2
Sum	192.2	172.1	144.1	159.3	150.6	232.3	416.7	414.6	2,524.5	2,026.9	16,494	4,100.5

Current Year 1983							Period 1954-1983			
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.			30	7.4	! 1	4.9	6.4	380	10,838	95,871	88.4
Feb.			1	7.4	21	5.3	6.0	340	5,232	64,323	203
Mar.			! 1	5.3	30	3.5	4.6	286	3,043	24,513	212
Apr.			19	8.1	! 3	3.2	5.3	316	2,718	35,876	153
May			31	12.0	! 3	2.1	4.9	299	3,739	28,709	73.0
June			1	11.7	28	5.3	7.8	460	17,472	334,608	74.6
July			31	26.5	! 1	5.3	13.4	827	30,909	341,429	182
Aug.			2	28.6	23	1.4	13.4	822	22,828	273,904	161
Sept.	137.07		21	3,880	30	9.9	84.0	4,999	122,271	1,878,406	226
Oct.			31	251	4	8.8	65.3	4,021	111,299	901,500	193
Nov.			8	1,140	30	176	551	32,718	30,683	230,100	126
Dec.			7	242	31	69.2	132	8,134	18,843	154,765	163
Yearly	137.07			3,880		1.4	74.2	53,602	379,875	2,891,093	8,060
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
	41.78			110		0.04	2.10	66,119	468,571	3,566,125	9,941

* Discharge measurement made on this day ! And other days

DIVERSIONS FROM THE RIO GRANDE
UNITED STATES SIDE, FALCON DAM TO RIO GRANDE CITY

Beginning June 1971, the Texas Water Rights Commission, now the Texas Department of Water Resources, assumed control of the United States portion of the water in Falcon Reservoir and in the Rio Grande below Falcon Dam, the disposition of such waters being made by its Rio Grande Watermaster. Previous to that, since June 1956, such waters had been under the jurisdiction of the 93rd District Court of Texas administered by its Special Water Master.

During 1983, 5,691 irrigable acres (2,303 ha) and several towns and rural homes were allotted Rio Grande water in the river reach between Falcon Dam and the Rio Grande City gaging station. Such irrigable area was 0.8% of the total irrigable acres (ha) below Falcon Dam allotted Rio Grande water.

The total diversion during 1983 in this river reach was 8,119 acre-feet (10,015,000 m^3), or 0.8% of the total water diverted from the Rio Grande below Falcon Dam. All records of diversions in this river reach, which were determined by means of flow meters, were furnished by the Rio Grande Watermaster. More than one crop per year is often grown on parts of this land.

Records prior to 1976 were published under the title "Diversions from the Rio Grande, United States Side-Falcon Dam to Fort Ringgold."

EXTREME FLOWS FROM RECORDS:

Average Flow in Second-Feet (Cubic Meters per Second)

Daily:	Max.	77.0 (2.18)	May 1, 1962	Min.	0	Occasionally
Monthly:	Max.	43.8 (1.24)	June 1960	Min.	2.2 (0.06)	March 1957
Yearly:	Max.	20.3 (0.57)	1960	Min.	6.9 (0.20)	1968

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	7.8	21.7	2.0	12.2	0	18.2	10.4	4.2	11.8	45.6	20.6	18.4
2	4.0	15.4	2.0	14.2	11.7	12.8	13.8	6.0	12.8	9.5	25.0	18.4
3	8.7	15.2	0	13.3	11.0	7.5	10.7	7.3	15.3	11.8	26.9	12.1
4	8.5	15.0	0	25.4	19.5	8.5	8.7	12.0	7.5	14.8	27.1	5.3
5	8.7	7.5	0	25.8	29.4	3.7	8.0	11.3	12.5	18.9	23.7	4.5
6	13.4	5.3	0	26.7	30.3	4.9	6.9	11.4	11.6	20.7	15.9	4.5
7	12.7	9.2	.2	21.8	35.6	3.8	7.1	9.3	9.7	15.7	16.2	9.9
8	9.0	11.2	.8	34.5	17.4	3.8	6.8	9.9	7.6	24.8	14.6	15.1
9	4.1	8.2	.8	27.9	23.4	3.2	8.8	9.5	6.9	20.1	19.4	16.1
10	9.9	6.8	5.3	8.5	16.6	3.2	5.4	17.8	10.0	13.2	20.3	9.6
11	16.1	3.8	5.4	25.8	17.7	6.2	5.7	16.7	5.6	10.8	22.1	7.2
12	15.8	4.3	10.8	25.6	15.9	3.3	5.4	12.4	6.1	11.9	21.8	9.2
13	24.0	2.4	8.2	28.5	20.0	7.9	5.4	9.8	8.0	10.1	19.6	10.2
14	20.4	2.6	15.2	27.7	19.0	7.6	5.4	6.6	9.8	10.1	20.8	11.0
15	16.0	2.4	11.0	31.4	10.6	8.6	5.5	7.2	11.0	9.4	16.5	9.4
16	10.4	2.6	5.6	25.6	12.6	8.6	7.9	8.3	10.6	9.2	19.1	8.6
17	16.7	4.2	7.9	22.8	16.0	7.8	5.5	10.2	10.8	9.3	15.3	6.5
18	13.8	7.0	11.6	42.5	23.1	6.6	6.8	5.6	8.1	10.9	14.8	5.9
19	10.9	6.5	11.1	38.4	21.4	3.5	7.2	8.9	13.5	11.7	22.3	6.1
20	9.0	4.3	6.6	35.5	23.4	4.4	4.3	4.0	11.7	14.4	16.7	5.9
21	9.0	6.6	10.1	39.3	23.8	4.1	4.3	3.4	10.0	10.5	23.5	5.9
22	4.6	6.9	9.2	28.9	9.8	4.1	8.4	10.2	8.3	7.6	17.2	6.5
23	2.2	7.2	7.2	19.8	11.4	4.2	12.5	7.7	8.3	4.4	18.9	5.9
24	2.3	5.4	6.0	16.2	10.4	3.5	12.3	11.0	8.1	3.4	16.4	4.6
25	2.3	3.5	6.0	25.9	15.0	3.7	8.8	12.3	5.4	3.4	21.2	2.2
26	5.6	3.0	13.2	18.3	23.8	.3	7.3	14.3	5.4	5.1	17.0	2.8
27	19.6	2.0	12.5	16.5	22.4	.3	5.1	7.3	2.6	5.2	12.7	4.9
28	18.9	2.0	14.8	13.6	16.2	2.2	7.6	4.2	2.6	3.4	10.6	4.0
29	16.1		12.5	15.3	14.8	2.2	7.6	1.1	2.6	3.2	8.2	2.6
30	10.5		14.5	9.0	18.2	2.5	7.4	.8	2.6	.8	8.2	4.5
31	16.8		13.9		17.9		2.3	.8		.8		2.6
Sum	347.8	192.2	224.4	716.9	558.3	161.2	229.3	261.5	256.8	350.7	552.6	241.3

Month	Current Year 1983 Average Rainfall Inches** 1957-1983	1983	Ø Extreme Second-Feet High Day	High	Low Day	Low	Average Second-Feet	Total Acre-Feet	Period 1957-1983 Acre-Feet Average	Maximum	Minimum
Jan.	1.00	0.92	13	24.0	23	2.2	11.2	690	689	1,482	159
Feb.	1.19	5.69	1	21.7	27	2.0	6.9	381	797	1,782	223
Mar.	.57	.58	14	15.2	! 3	0	7.2	445	1,056	1,845	158
Apr.	1.38	0	18	42.5	10	8.5	23.9	1,422	1,139	2,199	357
May	2.54	1.48	7	35.6	1	0	18.0	1,107	986	2,624	211
June	2.57	3.21	1	18.2	26	.3	5.4	320	948	2,610	209
July	1.45	3.09	2	13.8	31	2.3	7.4	455	718	1,620	278
Aug.	2.38	3.33	10	17.8	30	.8	8.4	519	679	1,252	278
Sept.	4.69	2.95	3	15.3	27	2.6	8.6	509	540	1,230	178
Oct.	2.23	2.94	1	45.6	30	.8	11.3	696	718	1,549	131
Nov.	1.08	.63	4	27.1	29	8.2	18.4	1,096	562	1,170	211
Dec.	.82	1.00	! 1	18.4	25	2.2	7.8	479	575	1,580	145
Yearly	21.90	25.82		45.6		0	11.2	8,119	9,407	14,754	4,989
	Millimeters		Cubic Meters per Second					Thousands of Cubic Meters			
	556	656		1.29		0	0.32	10,015	11,604	18,199	6,154

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

RIO GRANDE AT RIO GRANDE CITY, TEXAS NEAR CAMARGO, TAMAULIPAS

DESCRIPTION: Cableway, bubbler gage, gravity well, water-stage recorders (graphic and digital), and digital transmitter located on the left bank at Fort Ringgold, latitude 26°22'00", longitude 98°48'10", and river mile 235.0 (378.1 km); about 1 mile (1.6 km) downstream from Rio Grande City, Texas, and 3.7 river miles (6.0 km) downstream from Rio San Juan. The zero of the gage is 100.00 feet (30.48 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 42 discharge measurements during the year, and a continuous record of gage heights. Computations by shifting control methods. Records available: January 1955 through 1983. Records prior to 1976 were published under the title "Rio Grande at Fort Ringgold, Rio Grande City, Texas." Records composed of the addition of discharges of the Rio Grande at Roma, Texas and the Rio San Juan at Santa Rosalia, 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 (4.8 km) 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 (64.1 km) upstream. The transmitter relays gage height data via radio to the Mercedes Office of the Commission, where it is recorded automatically, and to the Anzalduas Dam control room for visual readout.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 220,000 second-feet (6,230 m^3/sec) on September 22 and 23, 1967 with a gage height of 61.40 feet (18.71 m). Min. no flow occurred several days in June and July 1953.

Average Flow in Second-Feet (Cubic Meters per Second)**

Daily:	Max.	207,000 (5,860)	Sept. 23,	1967	Min.	14.6 (0.41)	April 13,	1957
Monthly:	Max.	49,600 (1,400)	Oct.	1958	Min.	235 (6.66)	March	1957
Yearly:	Max.	9,140 (259)		1958	Min.	1,750 (49.6)		1970

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,610	3,990*	540	1,210	13,900	1,960	3,210 *	2,060	3,120 *	1,010	2,910	1,840 *
2	1,610	4,630	327	1,170	12,100	2,300 *	3,610	2,290 *	2,310	1,620	3,210 *	1,890
3	1,940	4,340	452	1,440	13,700 *	2,680	4,300	2,290	2,130	1,620	3,370	1,890
4	1,890 *	4,030	749 *	2,030	12,500	2,520	4,170	2,630	2,050	1,720	2,870	1,870
5	1,850	3,210	420	3,780	13,200	2,780	3,720	7,130	2,300	1,620	2,110	1,850
6	2,120	2,560	530	3,340	12,900	2,730	3,140	2,020	2,660	2,050	2,960	1,930
7	2,280	2,380	284	3,740 *	12,700	3,080	2,980	1,320	3,030	2,410 *	2,250 *	2,300
8	2,420	2,460	487	4,520	12,600	1,130	2,630 *	784	3,340	2,430	1,840 *	1,550 *
9	2,060	2,390	459	6,290	13,100	685 *	2,750	522	2,100 *	3,060	1,630	1,330
10	2,040	2,300	830	6,070	13,200	491	2,750	1,820 *	1,770	4,360	1,560	1,380
11	2,160	2,410	816	6,670	11,700	501	2,860	3,540	1,460	2,670	1,510	1,650
12	1,980	2,850	844	8,900	11,200	685	3,040	2,820	1,730	1,500	1,270	1,700 *
13	2,660	2,780	1,110	10,100	10,100	1,620	1,890	1,550	1,440	1,220	1,140	1,410
14	3,230	2,920	1,130	10,700 *	10,700	1,970	824	1,780	1,510	1,260 *	1,060	1,630
15	3,670	2,010	982	11,700	11,000	2,220	926	2,400	2,060	1,470	980	1,870
16	3,880	1,320	1,130	12,000	11,200	1,740	864	2,270 *	1,300	1,310	1,080 *	1,860
17	3,880	1,470	932	11,400	10,600	2,350 *	679	1,750	1,290	1,310	1,280	1,890
18	3,960	1,710*	749	12,300	10,300	1,530	436	1,970	1,210	1,540	1,270	1,670
19	3,570	1,700	706	13,000	9,680	1,230	448	2,580	1,310	1,830	1,070	1,920
20	3,010 *	1,760	660	13,200	9,360 *	1,570	749	3,020	1,520	1,900	1,080	1,330
21	2,750	1,770	1,940 *	13,200	9,360	1,910	492	3,450	4,790	8,090 *	1,040	727
22	2,750	1,780	3,370	13,400	9,180	2,460	268 *	2,580	2,700 *	4,650	1,040	976 *
23	2,250	1,730	3,530	13,100	9,220	3,160	236	2,630 *	1,390	1,550	1,560	975
24	2,230	1,750	3,600	13,700	9,150 *	2,710 *	226	2,850	1,080	1,230	1,440	447
25	2,480	6,000	2,920	13,200	9,220	2,420	573	4,130	665	911	1,420 *	568
26	2,950	20,900*	1,280	12,500	8,760	3,190	726 *	3,240	859	1,220	1,400	3,610
27	3,390	6,320	1,250	12,400	8,720	3,080	1,680	2,880	1,370	2,160	1,180	3,250 *
28	3,220	1,490	1,270	11,500	7,450	2,900	1,480	2,650	1,300	1,930 *	1,040	1,310
29	2,970		1,310	13,200	3,710	2,810	669	2,270	805	2,320	1,390	1,500
30	3,140		1,330	11,700	2,780	3,060	637	2,150 *	234 *	2,620	1,760	1,460
31	3,130		1,300		2,180		1,590	2,830		2,730		1,560
Sum	83,080	94,960	37,237	271,460	315,470	63,472	54,553	78,206	54,833	67,321	49,720	51,143

Month	Current Year 1983								Period #1954-1983		
	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
			High		Low				Average	Maximum	Minimum
	High	Low	Day		Day						
Jan.	29.30	26.21	!16	6,220	1	1,230	2,680	164,787	222,596	427,991	33,043
Feb.	38.45	25.49	26	23,900	16	833	3,390	188,350	178,539	376,607	25,500
Mar.	29.17	25.10	24	5,860	7	162	1,200	73,859	140,750	378,000	14,400
Apr.	32.91	25.36	24	14,300	3	872	9,050	538,433	270,842	538,433	75,100
May	33.14	26.25	1	14,800	31	1,490	10,200	625,726	353,559	689,106	36,702
June	28.74	24.93	!23	4,800	10	431	2,120	125,895	298,808	658,255	98,620
July	29.43	25.11	3	6,460	30	167	1,760	108,204	188,107	573,798	22,300
Aug.	31.40	24.93	5	11,100	9	499	2,520	155,119	252,184	1,502,678	25,000
Sept.	29.58	24.99	21	7,460	30	95.4	1,830	108,760	349,064	2,712,754	42,423
Oct.	31.91	25.08	21	11,700	1	170	2,170	133,529	368,901	3,047,000	30,000
Nov.	28.79	25.73	3	5,260	16	891	1,660	98,618	155,560	1,442,000	29,274
Dec.	28.61	25.19	27	4,800	24	288	1,650	101,441	132,913	540,000	36,100
Yearly	38.45	24.93		23,900		95.4	3,380	2,422,721	2,911,823	6,619,700	1,269,259
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
	11.72	7.60		677		2.70	95.7	2,988,426	3,591,734	8,165,400	1,565,631

** Period 1955-1983 * Discharge measurement made on this day ! And other days

CONTRIBUTIONS TO THE RIO GRANDE FROM THE LOWER RIO SAN JUAN IRRIGATION DISTRICT RIO GRANDE CITY TO ANZALDUAS DAM

DESCRIPTION: The Lower Rio San Juan Irrigation District in Mexico lies along the Rio Grande between Cd. Miguel Aleman and Rio Bravo, Tamaulipas and is irrigated with water impounded by Marte R. Gomez Dam situated on the Rio San Juan 12.4 river miles (20 km) upstream from the confluence with the Rio Grande. The Rio San Juan enters the Rio Grande at river mile 238.7 (384.1 km). Drain water from this irrigation district enters the Rio Grande between Falcon Dam and the Rio Grande City Gaging Station through the Rio San Juan channel, Rancherias Drain, and Los Fresnos Drain; and between this station and Anzalduas 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 Rio Grande City Gaging Station is shown below. The portion of water reaching the Rio Grande via channels located upstream from the Rio Grande City Gaging Station is shown on page 63 in this bulletin.

RECORDS: Drain water reaching the Rio Grande through Morillo Drain was determined by hourly staff gage readings and the weir discharge table, and through Puertecitos and Los Indios Drains by prorating between frequent current meter measurements. In 1983, 25 and 25 meter measurements were made at Puertecitos and Los Indios Drains, respectively. All storm water measured at these drains was deducted and is not included in the tabulation below. In 1983, 49% of the drain water from this irrigation district reaching the Rio Grande between the Rio Grande City Gaging Station and Anzalduas Dam was contributed by Morillo Drain. Records available: 1953 through 1983.

REMARKS: In 1983 there were 186,577 irrigable acres (75,505 ha) in the Lower Rio 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 1983, 50,725 acre-feet (62,569,000 m³) were diverted.

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	11.3	138	98.5	15.9	92.5	108	29.7	31.4	9.5	8.1	9.5	7.8
2	11.3	119	55.1	15.9	142	94.6	28.3	32.5	9.5	8.1	9.5	7.4
3	10.9	114	25.8	15.5	85.8	98.2	26.8	36.7	9.5	7.8	9.5	7.4
4	10.9	125	39.9	15.5	76.3	96.1	25.4	37.1	9.5	7.8	9.5	7.4
5	10.9	137	39.9	15.2	76.6	93.6	24.4	29.3	9.5	7.8	9.9	7.4
6	10.9	120	32.8	15.9	79.1	88.6	24.0	28.3	9.2	7.8	9.9	7.1
7	10.9	126	26.1	17.0	101	84.4	24.0	27.2	9.2	8.1	9.9	7.1
8	11.3	117	25.8	17.7	113	80.2	23.7	26.1	9.2	8.1	9.9	7.1
9	11.3	110	25.4	18.7	114	75.6	23.3	25.1	9.2	8.1	9.9	7.4
10	30.7	106	24.7	19.4	133	71.3	23.3	24.0	9.2	8.5	9.9	7.4
11	41.0	103	24.4	20.5	170	56.2	23.0	23.0	16.6	8.5	9.5	7.8
12	38.8	100	25.4	21.5	138	51.2	22.6	21.9	23.0	37.4	9.5	7.8
13	42.7	70.6	28.6	22.2	131	51.6	22.6	20.8	8.8	36.4	9.5	8.1
14	54.4	65.7	23.3	23.3	145	50.1	21.9	19.8	15.9	11.7	9.5	8.1
15	70.3	71.0	23.0	24.0	144	47.3	21.5	18.7	47.7	8.8	9.2	8.1
16	75.2	47.7	26.8	25.8	173	44.5	21.2	17.7	10.9	8.8	8.8	8.1
17	69.6	44.8	21.5	28.3	183	46.3	21.2	16.6	8.8	8.8	8.8	8.1
18	99.9	30.7	20.8	29.0	188	48.0	20.8	15.5	8.8	9.2	8.8	8.1
19	118	20.1	20.5	45.6	185	47.7	20.5	14.5	8.8	9.2	8.8	8.1
20	118	19.8	19.8	54.4	162	47.0	20.5	13.4	9.2	9.2	8.5	7.8
21	122	19.8	19.4	54.0	161	45.6	20.1	12.4	9.2	9.5	8.5	7.8
22	111	19.8	18.7	80.2	167	43.4	21.2	11.3	9.2	9.5	8.5	7.8
23	112	20.1	18.4	99.6	173	42.4	22.2	10.2	9.2	9.5	8.5	7.8
24	112	20.5	18.0	117	139	40.3	23.0	10.2	9.2	9.9	8.1	7.4
25	113	67.1	18.0	145	129	45.9	24.0	10.2	9.2	9.9	8.1	7.4
26	102	85.1	17.7	117	131	36.7	25.1	9.9	9.2	9.9	8.1	7.4
27	111	67.8	17.7	67.1	155	34.6	26.1	9.9	9.2	9.9	8.1	7.4
28	115	118	17.3	58.3	145	33.5	27.5	9.9	9.2	9.9	7.8	7.4
29	115		17.0	75.9	136	32.1	28.6	9.9	8.8	9.5	7.8	7.1
30	108		16.6	120	126	30.7	29.3	9.9	8.8	9.5	7.8	7.1
31	123		16.2		117		30.4	9.5		9.5		7.1
Sum	2,102.3	2,203.6	823.1	1,395.4	4,211.3	1,765.7	746.2	592.9	343.2	334.7	269.6	235.3

Month	Current Year 1983 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 1954-1983 Acre-Feet Average	Maximum	Minimum
Jan.			31	123	! 3	10.9	67.8	4,167	2,080	4,745	466
Feb.			1	138	!20	19.8	78.8	4,370	3,138	7,059	509
Mar.			1	98.5	31	16.2	26.5	1,633	2,254	5,291	560
Apr.			25	145	5	15.2	46.6	2,767	3,172	6,111	899
May			18	188	4	76.3	136	8,356	7,523	30,179	1,557
June			1	108	30	30.7	59.0	3,502	8,989	85,952	2,027
July			31	30.4	21	20.1	24.0	1,480	4,773	48,782	899
Aug.			4	37.1	31	9.5	19.1	1,176	2,509	13,292	661
Sept.			15	47.7	!17	8.8	11.3	681	2,413	11,273	665
Oct.			12	37.4	! 3	7.8	10.6	664	2,939	9,831	623
Nov.			! 5	9.9	!28	7.8	8.8	535	2,135	10,461	520
Dec.			!13	8.1	! 6	7.1	7.4	466	2,632	34,043	466
Yearly				188		7.1	41.0	29,797	44,557	179,482	13,462
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
				5.31		0.20	1.16	36,755	54,961	221,389	16,608

Ø Mean daily ! And other days

DIVERSIONS FROM THE RIO GRANDE
UNITED STATES SIDE, RIO GRANDE CITY TO ANZALDUAS DAM

Beginning June 1971, the Texas Water Rights Commission, now the Texas Department of Water Resources assumed control of the United States portion of the water in Falcon Reservoir and in the Rio Grande below Falcon Dam, the disposition of such waters being made by its Rio Grande Watermaster. Previous to that, since June 1956, such waters had been under the jurisdiction of the 93rd District Court of Texas administered by its Special Water Master.

During 1983, 181,217 irrigable acres (73,337 ha) and several towns and rural homes were allotted Rio Grande water in the river reach between the gaging station at Rio Grande City and Anzalduas Dam. Such irrigable area was 24.8% of the total irrigable acres (ha) below Falcon Dam allotted Rio Grande water.

The total diversion during 1983 in this river reach was 276,100 acre-feet (340,569,000 m^3), or 26.0% of the total water diverted from the Rio Grande below Falcon Dam. About 85% of the water diverted in this river reach was determined by the International Boundary and Water Commission through records of discharge obtained by means of flow meters and by deflection meters developed by the Commission. The records for the rest of these diversions were furnished by the Rio Grande Watermaster and were determined from records of discharge obtained by means of flow meters. More than one crop per year is often grown on parts of this land.

EXTREME FLOWS FROM RECORDS:

	Average Flow in Second-Feet (Cubic Meters per Second)				
Daily:	Max. 1,220 (34.6)	June 21, 1960	Min. 0		Occasionally
Monthly:	Max. 1,010 (28.6)	June 1960	Min. 10.3 (0.29)		March 1957
Yearly:	Max. 457 (12.9)	1982	Min. 188 (5.32)		1966

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	160	365	44.8	339	417	554	693	592	618	356	589	616
2	138	451	4.9	250	623	487	370	552	568	315	613	531
3	323	454	85.3	264	719	362	259	567	557	563	572	263
4	343	329	55.3	441	754	227	482	537	543	529	469	255
5	389	179	34.2	634	807	242	594	410	656	548	306	528
6	322	138	44.0	704	860	274	797	214	837	609	182	504
7	352	258	130	709	654	78.8	866	143	699	574	262	523
8	215	375	163	764	551	160	672	241	602	388	121	547
9	173	340	168	497	042	99.7	487	366	425	353	160	516
10	315	455	197	414	935	77.0	425	537	255	561	163	330
11	391	414	327	803	846	76.2	586	442	164	481	175	298
12	330	165	177	894	823	90.0	220	371	217	223	85.5	576
13	335	110	121	898	668	150	232	261	194	188	109	498
14	314	176	325	950	548	136	130	233	104	294	246	612
15	229	138	250	958	481	156	98.9	555	144	250	315	586
16	222	364	173	575	638	422	111	466	233	203	334	499
17	386	375	168	488	637	310	112	554	224	491	336	344
18	299	327	204	800	698	212	139	443	228	394	365	273
19	295	149	164	902	709	189	128	450	402	447	222	502
20	214	145	62.7	890	662	342	156	357	370	419	218	387
21	180	426	64.9	817	423	472	214	315	313	346	447	313
22	117	574	72.6	751	343	519	212	742	380	232	431	230
23	95.7	568	232	430	713	561	149	750	361	170	432	226
24	178	524	209	325	748	409	119	725	233	199	266	103
25	222	324	359	786	768	334	299	614	216	290	280	30.8
26	323	13.3	187	772	699	296	170	594	351	393	221	111
27	332	9.8	209	750	583	565	257	252	382	345	208	168
28	317	38.4	449	676	306	625	298	102	421	366	522	254
29	187		410	630	237	611	185	730	420	227	494	252
30	205		432	410	295	658	169	597	401	202	466	240
31	404		434		562		189	598		318		160
Sum	8,184.5		19,521		9,694.7		14,310		11,277		11,275.8	
	8,305.7		5,956.7		19,649		9,818.9		11,608		9,599.5	

Month	Average Rainfall Inches**		Current Year 1983 Ø Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Period 1957-1983 Acre-Feet		
			High		Low						
	1957-1983	1983	Day		Day				Average	Maximum	Minimum
Jan.	1.27	0.70	31	404	23	95.7	268	16,474	12,616	28,747	2,010
Feb.	1.21	5.19	22	574	27	9.8	292	16,234	12,963	38,599	1,640
Mar.	.68	1.68	28	449	2	4.9	192	11,815	20,836	41,200	637
Apr.	1.47	0	15	958	2	250	651	38,719	26,119	43,037	5,760
May	2.49	.92	9	942	29	237	634	38,973	23,572	48,400	3,177
June	2.64	2.75	30	658	11	76.2	323	19,229	24,254	59,900	5,011
July	1.51	3.51	7	866	15	98.9	317	19,476	22,995	46,423	6,753
Aug.	2.30	1.65	23	750	28	102	462	28,383	22,351	36,280	6,866
Sept.	3.75	2.78	6	837	15	144	387	23,024	15,392	35,000	4,136
Oct.	2.59	1.74	6	609	23	170	364	22,368	16,831	37,755	2,830
Nov.	.98	1.48	2	613	12	85.5	320	19,040	14,571	27,516	2,030
Dec.	.92	.69	1	616	25	30.8	364	22,365	12,448	25,000	2,506
Yearly	21.81	23.09		958		4.9	381	276,100	224,948	330,908	136,460
	Millimeters		Cubic Meters per Second					Thousands of Cubic Meters			
	554	586		27.1		0.14	10.8	340,569	277,473	408,175	168,323

** United States side, average of several stations in the reach

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°07'50", longitude 98°20'10", 0.5 canal mile (0.8 km) from the canal intake, and about 5 miles (8 km) northwest of Reynosa, Tamaulipas. The canal intake is immediately upstream from Anzalduas Dam at river mile 170.3 (274.1 km), 102.2 river miles (164.5 km) downstream from Falcon Dam. The zero of the gage is 86.32 feet (26.31 m) above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 154 discharge measurements during the year, 147 by the Mexican Section and 7 by the United States Section of the Commission, and a continuous record of gage heights. Computations by shifting control methods. Records available: 1952 through 1983.

REMARKS: Diversions by this canal are for irrigation and domestic use in Mexico and for conveying water for storage in Culebron, Villa Cardenas, and Palito Blanco Reservoirs about 23 canal miles (37.0 km) downstream from this station. During 1983, 471,738 acres (190,906 ha) 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 (7.2 km), 11.3 miles (18.2 km), and 22.5 miles (36.2 km) below this station. During 1983, there was no water returned to the Rio Grande through Poniente Drain.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 10,950 second-feet (310 m^3/sec) on June 2, 1957 with a gage height of 16.01 feet (4.88 m). Min. no flow occurs frequently.

Average Flow in Second-Feet (Cubic Meters per Second)

Daily:	Max. 9,360 (265)	May 29, 1957 & April 23, 1983	Min. 0	
Monthly:	Max. 6,570 (186)	May 1983	Min. 0	Frequently
Yearly:	Max. 1,980 (56.1)	1959	Min. 150 (4.26)	Several months 1952

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,060	3,110 *	473 *	237	8,120	1,500	1.4	498 *	696	1.4	678 *	256
2	1,050	3,460	501	1.4	8,230 *	1,170 *	523	498	855 *	371	731 *	283 *
3	1,060 *	3,210 *	565 *	1.4	8,620 *	1,100 *	526	533 *	883	374 *	848 *	283
4	1,060	2,800 *	286	1.4	8,650 *	1,180	487 *	614	1,030	445	1,060 *	284
5	872	2,810	1.4	618	8,330	1,280	498 *	607 *	1,080 *	441 *	922	272 *
6	731 *	2,760	1.4	1,190 *	8,370 *	1,260 *	491	622	1,080	357	724	268
7	724	2,160 *	1.4	1,770 *	8,160	501 *	438 *	629	1,020 *	551 *	696 *	265 *
8	897	1,990 *	1.4	2,610 *	8,370	572 *	438 *	1.4	911	742	696	265
9	1,050	1,950 *	1.4	3,280	8,620 *	537 *	554	1.4	904 *	749 *	763 *	274 *
10	1,050 *	1,960 *	1.4	3,600	8,690 *	509 *	639	1.4	759	745	766	272
11	1,050	1,910 *	1.4	4,100 *	8,690 *	498	639 *	155	607	812	604 *	273
12	1,050	1,930	180	4,380 *	7,880 *	480	657	480 *	614 *	816	360	284 *
13	1,310	1,940	431	4,910 *	7,310 *	480	678 *	530	554	823 *	1.4	286
14	1,670 *	1,990 *	420 *	5,580 *	6,820	240 *	551	530	562 *	763	1.4	226 *
15	1,760	1,830 *	477	6,250 *	6,750	1.4	396 *	530 *	1.4	710	1.4	222
16	1,950	1,460 *	238 *	7,200	6,710 *	1.4	1.4	586	1.4	636	1.4	230 *
17	2,330 *	1,180 *	1.4	7,880	6,530 *	1.4	1.4	646 *	1.4	565 *	1.4	233
18	2,260 *	961 *	1.4	7,630 *	6,710 *	1.4	1.4	600	1.4	558	1.4	237
19	2,250	890	1.4	8,020 *	6,850 *	1.4	1.4	593 *	1.4	565	1.4	238
20	2,270 *	862	1.4	8,760 *	6,430 *	1.4	1.4	593	290	618 *	1.4	240
21	2,260	876 *	1.4	8,930 *	6,250	1.4	259	590	583 *	576 *	1.4	275 *
22	2,370	886	1.4	9,180 *	5,790	230	516 *	742 *	576	516	99.2	272
23	2,310	883 *	0	9,360	5,690 *	463 *	505	851 *	583 *	459	247 *	275
24	2,200 *	795	0	9,250	5,720 *	477	597	742 *	576	466 *	247	274
25	2,270	516 *	1.4	9,180 *	5,470 *	494	583 *	749 *	579	547 *	247 *	272
26	2,250 *	1.4	184	8,970 *	5,440 *	516	262	749 *	1.4	438	240	275
27	2,280 *	1.4	364	8,550 *	4,700 *	512 *	1.4	904	1.4	364 *	244	277
28	2,440 *	180	399 *	8,230 *	3,380	530	1.4	530	1.4	320 *	247 *	319 *
29	2,480		392	7,800 *	2,240	558	1.4	291	1.4	487	245	364
30	2,690		473 *	7,700	2,090 *	498 *	1.4	565 *	1.4	745	257 *	371
31	2,860 *		466		1,930 *		249	558 *		742 *		494
Sum	53,864	45,301.8	5,868.6	165,169.2	203,540	15,594.8	10,500.0	16,519.2	14,756.0	17,302.4	10,933.8	8,659

Month	Average Rainfall Inches** 1954-1983	Average Rainfall Inches** 1983	Ø Extreme Second-Feet High Day	High	Low Day	Low	Average Second-Feet	Total Acre-Feet	Period 1954-1983 Acre-Feet Average	Maximum	Minimum
			Current Year 1983								
Jan.	1.26	0.83	31	2,860	7	724	1,740	106,868	103,184	265,594	1,520
Feb.	1.42	3.70	2	3,460	!26	1.4	1,620	89,874	97,929	251,519	1,086
Mar.	.67	.75	3	565	!23	0	189	11,643	40,275	147,900	1,128
Apr.	1.81	0	23	9,360	! 2	1.4	5,510	327,589	129,925	327,589	23,381
May	2.60	1.10	!10	8,690	31	1,930	6,570	403,665	200,581	403,665	28,291
June	2.80	1.73	1	1,500	!15	1.4	519	30,932	102,218	270,700	14,221
July	2.01	5.63	13	678	! 1	1.4	339	20,825	44,719	162,400	5,730
Aug.	2.91	1.30	27	904	! 8	1.4	533	32,765	88,981	270,487	6,709
Sept.	4.72	5.39	5	1,080	!15	1.4	491	29,265	62,231	165,800	2,177
Oct.	2.87	1.81	13	823	1	1.4	558	34,314	57,410	209,590	0
Nov.	1.38	1.42	4	1,060	!13	1.4	364	21,691	13,320	83,690	0
Dec.	1.14	.75	31	494	15	222	270	17,174	23,096	166,700	651
Yearly	25.59	24.41		9,360		0	1,560	1,126,605	963,869	1,434,920	551,946
	Millimeters			Cubic Meters per Second					Thousands of Cubic Meters		
	650	620		265		0	44.1	1,389,651	1,188,920	1,770,162	680,817

RIO GRANDE BELOW ANZALDUAS DAM NEAR REYNOSA, TAMAULIPAS AND MISSION, TEXAS

DESCRIPTION: Cableway, gravity well, water-stage recorder, and selsyn-type transmitter, located on the right bank at latitude 26°07'50", longitude 98°19'55", and river mile 169.8 (273.3 km); 0.5 river mile (0.8 km) downstream from Anzalduas Dam, about 4.5 miles (7 km) northwest of Reynosa, Tamaulipas, and 10.3 river miles (16.6 km) upstream from the international highway bridge between Hidalgo, Texas and Reynosa, Tamaulipas. The zero of the gage is at mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 117 discharge measurements during the year, 101 by the Mexican Section and 16 by the United States Section of the Commission, and a continuous record of gage heights. Records available: 1952 through 1983.

REMARKS: Except during local storms, flow at this station is controlled largely by releases from Falcon Reservoir and by diversions into Anzalduas Canal. Excessive upstream flood flows are partly diverted into the United States floodway system inlet at Anzalduas Dam before reaching this station. Prior to January 1, 1968 the zero of the gage was 82.61 feet (25.18 m) above mean sea level, U. S. C. & G. S. datum. The transmitter relays gage height data to the Anzalduas Dam control room.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 131,000 second-feet (3,700 m^3/sec) on September 24, 1967 with a gage height of 30.51 feet (9.30 m). Min. periods of no flow have occurred on several occasions in 1953, 1954, 1956, and 1957.

Average Flow in Second-Feet (Cubic Meters per Second)

Daily:	Max. 121,000 (3,440)	Sept. 25, 1967	Min. 0		Occasionally
Monthly:	Max. 37,830 (1,070)	Oct. 1958	Min. 5.5 (0.16)		March 1957
Yearly:	Max. 6,410 (182)	1958	Min. 158 (4.49)		1957

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	438	1,240	791 *	660	3,320	1,250	2,890 *	890	1,500	403	1,360	833
2	706	1,230	374	590	3,670	1,090 *	3,020	1,080 *	1,310 *	420	1,300	1,060 *
3	629	1,240	316	586	3,230 *	823	2,760	897	1,130	576	1,260 *	1,080
4	685 *	1,170 *	220 *	710 *	3,290	724	3,390	706 *	1,120	653 *	1,080	1,230
5	812	1,620	399	833	3,260	600	3,600	1,560	1,210	664	985	1,340
6	802	1,260	466	1,020	3,280 *	999	2,950 *	4,270	1,480 *	696 *	1,750	1,410 *
7	731 *	1,210 *	438 *	904 *	3,310	3,390	2,530	1,150	1,560	763	2,770 *	1,320
8	823	1,020	403	939	3,470	2,170	2,350 *	710 *	1,310 *	805	1,610	1,130 *
9	1,130	999	417	1,310	3,440 *	480 *	2,170	1,140	1,320	816	1,030	904
10	1,100	982 *	417 *	1,550	3,310	456	2,170	1,210	1,040	1,150	692	639
11	1,120 *	629	491	1,740	3,420	456	2,010	1,190 *	943	2,270 *	731	763
12	1,220	530	452	1,830 *	2,950	533	2,470 *	1,130	802	1,300	865	1,020
13	1,230 *	819	374	2,270	2,980 *	766	2,810	922	862 *	569	999	1,030 *
14	1,370	1,290	558	2,520 *	2,900	1,120 *	1,630	922	632	438 *	802 *	1,010
15	1,340	1,280 *	505 *	2,840	2,960	999	470	890	1,260	396	597	922 *
16	1,390	858	498	3,000	3,380	869 *	350	975 *	1,440	378	537	1,150
17	1,710	742 *	406 *	3,090	3,640	773	625	953	569	569	646 *	876
18	1,820 *	480	703 *	3,090 *	3,090	1,030	434 *	908 *	554	650 *	879 *	812
19	1,790	512	1,670	3,030 *	2,730 *	1,050	371	1,180	572	667	1,040	876
20	1,450	618	1,620	3,210 *	2,690	1,150 *	470 *	1,500	745 *	650	710	1,140
21	1,070 *	660	1,460	3,260	2,660	1,580	417 *	1,540	664	611 *	456 *	667 *
22	759	724 *	2,580 *	3,190 *	2,810	1,700	236	1,660	4,520 *	4,660	632	611
23	742	667	3,600	3,330	2,890	1,830	246	1,850 *	3,060 *	2,170	597	410
24	696 *	629 *	3,010	3,340	2,920 *	1,820 *	279	1,890	1,850	957	484 *	88.6
25	671	1,620	1,600 *	3,410	2,900	1,720	291	1,870 *	526	791 *	501	88.3
26	706 *	15,600 *	1,950	3,200 *	2,840 *	2,070	427 *	1,660 *	456 *	862 *	805	364
27	650 *	15,600 *	604	3,200	2,740	2,360 *	565	1,580	448	953 *	812	3,320
28	706	5,440 *	494	3,090	4,450	2,390 *	660 *	1,910	434	996	572	2,280 *
29	706		689 *	3,110 *	4,770	2,640 *	742	1,810	381 *	1,020	526 *	939
30	840		742	3,740	1,900	2,850	636	1,500 *	463	1,150	533	1,010
31	1,020 *		685		1,170 *		636	1,500		1,400 *		784
Sum	30,862	60,669	28,932	68,592	96,370	41,688	44,605	42,953	34,161	30,403	27,561	31,106.9

Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Period 1954-1983 Acre-Feet		
			High		Low						
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum
Jan.	82.19	78.84	17	2,300	2	341	996	61,220	103,383	325,550	1,090
Feb.	95.70	79.07	26	22,100	19	388	2,170	120,373	77,939	276,539	830
Mar.	84.51	78.77	24	4,170	4	118	932	57,393	80,186	243,477	339
Apr.	84.45	79.30	30	4,240	4	381	2,290	136,077	113,525	319,470	3,160
May	86.48	80.12	28	5,790	31	795	3,110	191,139	148,635	479,551	35,360
June	84.25	78.81	7	3,880	13	170	1,390	82,632	191,353	680,021	7,850
July	84.78	78.74	4	4,380	24	212	1,440	88,474	138,663	557,022	2,000
Aug.	86.35	79.53	6	5,690	1	600	1,390	85,252	142,139	1,207,862	943
Sept.	86.19	78.81	13	5,470	29	244	1,140	67,790	246,549	1,862,856	3,920
Oct.	86.29	79.07	22	5,580	15	371	982	60,330	293,682	2,326,000	1,730
Nov.	83.56	78.87	7	3,340	14	275	918	54,649	138,130	1,438,000	1,430
Dec.	84.22	78.51	27	3,880	24	60.0	1,000	61,732	104,631	540,100	1,500
	95.70	78.51		22,100		60.0	1,470	1,067,061	1,778,815	4,640,968	114,749
Yearly	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
	29.17	23.93		625		1.70	41.7	1,316,204	2,194,145	5,724,004	141,538

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 with the inlet located at Anzalduas Dam near Mission, Texas.

Floodwater entering the system is measured first at the Banker Floodway Station at Anzalduas Dam near Mission and again 25.2 miles (40.6 km) downstream at the Main Floodway Station on Farm Road No. 88 bridge south of Weslaco. At a point 3 miles (4.8 km) southwest of Mercedes 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. At the point of diversion, a divisor dike, which runs longitudinally in the Main Floodway, divides and controls the flows into the Arroyo Colorado Floodway and the North Floodway. The flow of the Arroyo Colorado is measured at El Fuste Siphon south of Mercedes and farther 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 farther downstream at the bridge on U. S. Highway No. 77 near Sebastian.

In 1983, 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 the inlet located 37.1 miles (59.7 km) downstream from Anzalduas Dam and, when necessary, through Anzalduas Canal located at Anzalduas Dam.

Floodwater entering the system through the Retamal Inlet flows into Culebron and Villa Cardenas Lakes through the Retamal Floodway, while flood flows entering the canal at Anzalduas Dam reach these lakes via the Culebron and Retamal Canals from where it flows in a southeastwardly direction via Floodway No. 1 into the Gulf of Mexico.

The Retamal Floodway replaces the previously used floodway system, which consisted of Retamal Canal, San Rafael Floodway and Floodway No. 2.

In 1983, no flood flow was diverted through Retamal Floodway or Anzalduas Canal.

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

Beginning June 1971, the Texas Water Rights Commission, now the Texas Department of Water Resources, assumed control of the United States portion of the water in Falcon Reservoir and in the Rio Grande below Falcon Dam, the disposition of such waters being made by its Rio Grande Watermaster. Previous to that, since June 1956, such waters had been under the jurisdiction of the 93rd District Court of Texas administered by its Special Water Master.

During 1983, 137,314 irrigable acres (55,570 ha) and several towns and rural homes were allotted Rio Grande water in the river reach between Anzalduas Dam and the Progreso International Bridge. Such irrigable area was 18.8% of the total irrigable acres (ha) below Falcon Dam allotted Rio Grande water.

The total diversion during 1983 in this river reach was 227,129 acre-feet (280,164,000 m^3), or 21.4% of the total water diverted from the Rio Grande below Falcon Dam. About 93% of the water diverted in this river reach was determined by the International Boundary and Water Commission through records of discharge obtained by means of flow meters, and by deflection meters developed by the Commission. The records for the rest of these diversions were furnished by the Rio Grande Watermaster and were determined from records of discharge obtained by means of flow meters. More than one crop per year is often grown on parts of this land.

EXTREME FLOWS FROM RECORDS:

		Average Flow in Second-Feet (Cubic Meters per Second)			
Daily:	Max.	1,120 (31.7)	June 16 & 17, 1965	Min. 0	Occasionally
Monthly:	Max.	749 (21.2)	June 1969	Min. 13.3 (0.38)	May 1972
Yearly:	Max.	367 (10.4)	1982	Min. 167 (4.73)	1970

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	62.1	419	104	196	648	205	853	122	472	119	427	450
2	290	319	130	109	610	156	480	281	424	94.9	414	441
3	285	328	50.1	128	761	159	341	263	247	160	413	241
4	234	346	51.2	260	729	60.1	367	258	221	226	392	168
5	290	172	0	407	766	39.1	777	258	380	274	276	400
6	369	180	0	424	670	217	771	168	355	363	163	461
7	352	270	137	430	747	157	804	126	333	368	193	463
8	177	232	157	380	710	127	733	327	368	206	156	454
9	324	287	142	301	706	83.8	657	453	292	144	123	314
10	398	347	160	266	692	54.3	490	381	277	356	115	184
11	363	276	164	574	666	27.9	464	374	272	416	175	179
12	417	61.1	85.3	578	621	28.7	547	368	456	379	45.7	362
13	366	99.6	75.1	674	586	327	480	226	426	301	17.1	366
14	383	175	116	730	502	252	486	224	338	279	217	464
15	162	255	134	733	485	133	229	375	344	164	278	452
16	222	113	101	639	620	541	41.7	289	293	160	301	432
17	386	417	31.2	555	635	160	10.8	318	87.9	326	310	353
18	460	351	57.5	703	568	188	50.1	319	77.5	328	294	171
19	402	148	12.1	646	549	258	36.7	328	242	336	147	295
20	226	135	12.1	727	543	492	94.9	253	362	332	157	212
21	222	264	116	773	365	556	90.5	192	350	292	290	138
22	22.0	412	165	679	410	651	58.7	429	346	182	353	101
23	7.6	395	130	556	516	596	45.7	490	301	217	284	128
24	285	410	172	566	512	501	53.4	525	186	324	79.3	97.9
25	347	245	185	675	585	463	121	551	204	282	331	7.9
26	323	4.2	110	693	668	418	155	457	289	270	197	7.9
27	316	2.1	67.4	654	409	476	236	277	209	326	108	203
28	285	49.0	234	621	252	616	433	106	224	325	338	260
29	141		286	646	204	610	267	375	156	186	413	199
30	130		295	558	310	661	213	383	113	171	423	242
31	319		270		269		150	328		297		178
Sum	6,712.0		15,881		9,213.9		9,824		8,203.9		8,424.7	
	8,565.7		3,750.0		17,314		10,536.5		8,654.4		7,430.1	

Month	Average Rainfall Inches**		Ø Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
			High		Low						
	1957-1983	1983	Day		Day				Average	Maximum	Minimum
	Current Year 1983								Period 1957-1983		
Jan.	1.40	0.65	18	460	23	7.6	276	16,990	12,549	34,959	723
Feb.	1.41	5.84	1	419	27	2.1	240	13,313	10,199	28,535	1,140
Mar.	.70	.89	30	295	5	0	121	7,438	16,602	36,100	1,050
Apr.	1.54	0	21	773	2	109	529	31,500	20,210	39,277	3,630
May	2.75	1.32	5	766	29	204	559	34,342	21,423	43,150	817
June	2.67	2.26	30	661	11	27.9	307	18,276	26,941	44,541	5,336
July	1.72	4.89	1	853	17	10.8	340	20,899	23,313	41,100	6,597
Aug.	2.58	1.62	25	551	28	106	317	19,486	16,604	27,542	7,452
Sept.	4.17	3.32	1	472	18	77.5	288	17,166	12,602	28,000	3,214
Oct.	2.81	1.53	11	416	2	94.9	265	16,272	14,311	29,215	2,059
Nov.	1.22	1.56	1	427	13	17.1	248	14,737	11,055	22,818	1,015
Dec.	1.08	.56	14	464	125	7.9	272	16,710	10,736	19,962	1,852
Yearly	24.05	24.44		853		0	314	227,129	196,245	365,366	121,008
	Millimeters		Cubic Meters per Second					Thousands of Cubic Meters			
	611	621		24.2		0	8.89	280,164	242,068	327,331	149,263

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

Beginning June 1971, the Texas Water Rights Commission, now the Texas Department of Water Resources, assumed control of the United States portion of the water in Falcon Reservoir and in the Rio Grande below Falcon Dam, the disposition of such waters being made by its Rio Grande Watermaster. Previous to that, since June 1956, such waters had been under the jurisdiction of the 93rd District Court of Texas administered by its Special Water Master.

During 1983, 312,230 irrigable acres (126,356 ha) and several towns and rural homes were allotted Rio Grande water in the river reach between Progreso and the gaging station at San Benito. Such irrigable area was 42.7% of the total irrigable acres (ha) below Falcon Dam allotted Rio Grande water.

The total diversion during 1983 in this river reach was 452,690 acre-feet (558,393,000 m^3), or 42.6% of the total water diverted from the Rio Grande below Falcon Dam. About 98% of the water diverted in this river reach was determined by the International Boundary and Water Commission through records of discharge obtained by means of flow meters, by open channel rating stations, and by deflection meters developed by the Commission. The records for the rest of these diversions were furnished by the Rio Grande Watermaster and were determined from records of discharge obtained by means of flow meters. More than one crop per year is often grown on parts of this land.

EXTREME FLOWS FROM RECORDS:

	Average Flow in Second-Feet (Cubic Meters per Second)				
Daily:	Max. 2,750 (77.9)	June 15, 1965	Min. 0		Occasionally
Monthly:	Max. 2,080 (58.9)	June 1960	Min. 53.5 (1.52)		March 1957
Yearly:	Max. 808 (22.9)	1980	Min. 367	(10.4)	1968

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	8.1	436	172	385	1,670	671	1,880	286	980	360	620	113
2	60.7	513	332	352	1,670	567	1,850	278	996	303	550	308
3	227	722	133	285	1,770	367	1,850	284	754	281	636	448
4	272	740	21.0	422	1,900	225	1,770	206	678	252	674	327
5	265	503	58.4	389	1,850	184	1,740	180	802	295	577	769
6	270	395	60.1	389	1,830	154	1,730	248	809	303	492	890
7	324	492	93.5	506	1,890	107	1,510	269	937	415	592	868
8	271	556	121	510	1,730	203	1,400	558	1,020	330	610	810
9	167	592	113	530	1,770	206	1,350	628	837	330	614	527
10	465	554	89.6	572	1,820	186	1,320	551	534	374	562	392
11	612	406	90.4	830	1,850	184	1,300	795	525	437	292	267
12	707	190	90.6	1,160	1,870	122	1,190	720	536	267	53.2	220
13	736	132	85.8	1,250	1,910	159	872	578	462	133	32.9	264
14	771	268	237	1,360	1,840	342	874	619	297	157	142	388
15	756	294	353	1,440	1,800	405	248	604	307	120	148	418
16	720	466	372	1,570	1,750	436	3.5	676	316	102	126	454
17	816	507	262	1,610	1,800	381	21.3	689	319	109	276	446
18	856	484	257	1,680	1,780	368	77.5	650	204	185	270	411
19	896	432	183	1,750	1,830	214	173	630	162	258	246	494
20	882	293	38.4	1,780	1,810	279	198	547	232	262	246	449
21	833	303	101	1,750	1,700	297	138	556	286	242	131	336
22	737	304	244	1,700	1,640	608	24.5	852	139	232	169	298
23	686	236	403	1,600	1,660	812	115	915	308	217	372	347
24	720	220	472	1,600	1,750	977	66.4	964	481	532	392	208
25	433	147	471	1,710	1,840	959	137	1,110	493	598	390	99.3
26	459	11.7	497	1,760	1,650	906	95.9	998	234	464	328	148
27	400	56.3	484	1,720	1,390	1,150	203	842	158	405	297	489
28	408	87.5	476	1,710	1,140	1,350	260	303	161	411	361	580
29	443		455	1,770	761	1,320	261	792	329	408	228	762
30	445		469	1,760	749	1,640	294	1,040	320	429	108	742
31	442		440		613		264	948		551		749
Sum	10,340.5		35,850		15,779		19,316		9,762		14,021.3	
	16,087.8		7,674.8		51,033		23,216.1		14,616		10,535.1	

Month	Current Year 1983								Period 1957-1983		
	Average Rainfall Inches**		Ø Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
			High		Low				Average	Maximum	Minimum
	1957-1983	1983	Day		Day						
Jan.	1.55	1.01	19	896	1	8.1	519	31,910	38,022	97,130	4,872
Feb.	1.81	6.50	4	740	26	11.7	369	20,510	20,961	49,859	4,807
Mar.	.81	1.10	26	497	4	21.0	248	15,223	25,737	54,200	3,280
Apr.	1.67	0	20	1,780	3	285	1,200	71,107	46,923	98,523	12,900
May	3.01	1.81	13	1,910	31	613	1,650	101,222	51,661	110,440	9,277
June	3.13	2.53	30	1,640	7	107	526	31,297	67,188	123,000	14,674
July	2.15	9.85	1	1,880	16	3.5	749	46,048	43,342	89,373	11,307
Aug.	3.05	1.63	25	1,110	5	180	623	38,313	31,818	64,223	12,736
Sept.	4.93	3.84	8	1,020	22	139	487	28,990	24,001	59,400	4,308
Oct.	3.17	2.31	25	598	16	102	315	19,363	24,668	58,164	5,146
Nov.	1.58	1.60	4	674	13	32.9	351	20,896	19,100	44,359	4,853
Dec.	1.31	.64	6	890	25	99.3	452	27,811	20,873	37,500	6,663
Yearly	28.17	32.82		1,910		3.5	625	452,690	414,294	586,544	266,680
	Millimeters		Cubic Meters per Second					Thousands of Cubic Meters			
	716	834		54.1		0.10	17.7	558,393	511,032	723,502	328,950

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

RIO GRANDE NEAR SAN BENITO, TEXAS AND RAMIREZ, TAMAULIPAS

DESCRIPTION: Cableway, concrete control weir, bubbler gage, water-stage recorders (graphic and digital), and digital transmitter, located on the left bank at latitude 26°01'50", longitude 97°43'40", and river mile 96.8 (155.8 km), 3.9 river miles (6.3 km) downstream from San Benito pumping plant and about 9.5 miles (15.3 km) southwest of San Benito, Texas. The zero of the gage is at mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 26 discharge measurements during the year and a continuous record of gage heights. Computations for high flows by shifting control methods. Low and medium flow computations based on a stable control weir rating curve defined by meter measurements. Records available: November 26, 1952 through August 25, 1953, and December 1953 through 1983.

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, 178.0 river miles (286.4 km) 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 radio to the Texas Department of Water Resources office in Weslaco. 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 (708 m^3/sec) on September 29, 1967 with a gage height of 61.05 feet (18.61 m). Min. no flow occurs frequently.

Average Flow in Second-Feet (Cubic Meters per Second)**

Daily:	Max.	24,800 (702)	Sept. 29, 1967	Min.	0	
Monthly:	Max.	14,300 (405)	Oct. 1971	Min.	39.5 (1.12)	Frequently
Yearly:	Max.	3,780 (107)	1976	Min.	200 (5.66)	December 1956 1956

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	340	291	6,670	147	802	798	118 *	222 *	154	88.0	197	118
2	307	264*	3,430	123	869	551 *	138	170	106 *	79.3	324 *	* 89.0
3	167	281	1,610	228	1,010 *	809	397	404	89.0	125	285	66.0
4	* 91.8	230	805 *	273 *	685	660	581	642	241	188 *	121	124
5	167	287	643	190	403	657	852	327	126	136	84.2	242
6	193	826	593	151	643	604	1,110	558	71.8	154	68.0	115
7	169	802	540	150	341	735	690	2,730	59.6	130	710	67.7
8	182	448	523	136	498	2,120	489	1,570	49.1	69.7	1,500	64.2
9	235	374	364	124	597	2,190	388	244	41.5	66.5	1,070	65.9
10	491	274	331	120	600	1,080	293	25.7	51.5	96.8	600	237
11	197	304	353	392	629	526	354	47.3	273	134	421	298
12	138	417	296	167	579	473	407	67.0	263	1,110	575	313
13	108	420	328	117	252	413	754	70.1	187	1,310	724	339 *
14	90.1	388	353	120	180	345	1,470	138	479	841	830 *	256
15	141	657	206	134	329	344	1,700	161 *	456	425	754	309
16	315	770	202	197	498 *	487	1,140	84.9	345	225	575	161
17	367	501*	262	374	876	392	623	47.6	1,050	223	311	102
18	286	338	274	579 *	1,080	226	588	38.8	757	198 *	162	248
19	317	233	226	392	540	262	548	39.8	537	103	157	222
20	431	162	879	399	266	660	372	41.6	341	69.8	525	91.8
21	501	154	1,440 *	431	267	530	318	105	121	95.1	679	363
22	352	203	1,370	512	399	226	471	441	407 *	121	410	540
23	219	249	1,700	572	360	118	359	256	2,600	2,290	140	317
24	148 *	185	2,500	699	484	110 *	294	269	2,660	2,260	62.4	215
25	99.9	260	2,400	675	403	130	234	171	1,620	783	55.2	247
26	102	3,490	1,610	519	441	259	238	160	915	263	55.1	171
27	103	12,100*	1,360	448	509	294	208	251	500	175	55.1	116
28	105	11,000*	840	466	738	266	125	840	235	71.0	72.3	875
29	117		301	378	1,650	138	109	1,140	199 *	33.6	199	1,600
30	109		246	367	2,310	114	104	662	113	25.8	161	442
31	161		252		1,230		137	264		185		100
Sum	6,749.8	35,908	32,907	9,580	20,468	16,517	15,609	12,187.8	15,047.5	12,074.6	11,882.3	8,514.6

Month	Current Year 1983 Extreme Gage Feet High	Extreme Gage Feet Low	Extreme Second-Feet High Day	Extreme Second-Feet High	Extreme Second-Feet Low Day	Extreme Second-Feet Low	Average Second-Feet	Total Acre-Feet	Period 1954-1983 Acre-Feet Average	Maximum	Minimum
Jan.	35.53	34.38	10	646	14	90.1	218	13,388	54,422	319,002	2,920
Feb.	53.74	34.38	27	13,000	20	145	1,280	71,222	50,390	363,000	3,380
Mar.	48.65	34.58	1	8,400	15	138	1,060	65,270	41,088	360,000	2,560
Apr.	35.70	34.22	24	823	10	46.3	319	19,002	46,682	251,919	11,500
May	39.76	34.65	30	2,600	14	154	660	40,598	72,504	382,973	16,873
June	39.70	34.38	9	2,570	30	91.1	551	32,761	84,261	525,330	16,100
July	38.71	34.44	15	2,200	31	91.1	504	30,960	82,785	447,886	4,690
Aug.	40.68	34.33	7	2,910	10	13.4	393	24,174	87,044	827,107	3,100
Sept.	41.29	34.39	23	3,170	9	33.7	502	29,846	149,484	638,757	7,710
Oct.	41.22	34.51	23	3,110	30	18.5	390	23,950	186,391	880,859	3,840
Nov.	37.74	34.40	8	1,720	25	37.2	396	23,568	85,573	662,000	5,640
Dec.	37.86	34.47	29	1,850	28	54.5	275	16,888	76,062	479,000	2,430
Yearly	53.74	34.22		13,000		13.4	541	391,627	1,016,686	2,743,434	145,520
	Meters			Cubic Meters per Second				Thousands of Cubic Meters			
	16.38	10.43		368		0.38	15.3	483,072	1,254,082	3,384,014	179,499

** Period 1954-1983 * Discharge measurement made on this day

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

Beginning June 1971, the Texas Water Rights Commission, now the Texas Department of Water Resources, assumed control of the United States portion of the water in Falcon Reservoir and in the Rio Grande below Falcon Dam, the disposition of such waters being made by its Rio Grande Watermaster. Previous to that, since June 1956, such waters had been under the jurisdiction of the 93rd District Court of Texas administered by its Special Water Master.

During 1983, 89,968 irrigable acres (36,409 ha) and several towns and rural homes were allotted Rio Grande water in the river reach between the gaging stations near San Benito and Brownsville. Such irrigable area was 12.3% of the total irrigable acres (ha) below Falcon Dam allotted Rio Grande water.

The total diversion during 1983 in this river reach was 95,366 acre-feet (117,634,000 m^3), or 9.0% of the total water diverted from the Rio Grande below Falcon Dam. About 88% of the water diverted in this river reach was determined by the International Boundary and Water Commission through records of discharge obtained by means of flow meters and by deflection meters developed by the Commission. The records for the rest of these diversions were furnished by the Rio Grande Watermaster and were determined from records of discharge obtained by means of flow meters. More than one crop per year is often grown on parts of this land.

EXTREME FLOWS FROM RECORDS:

Average Flow in Second-Feet (Cubic Meters per Second)

Daily:	Max. 782 (22.1)	June 14, 1963	Min. 0	Occasionally
Monthly:	Max. 542 (15.3)	June 1965	Min. 18.5 (0.52)	February 1966
Yearly:	Max. 223 (6.32)	1965	Min. 98.3 (2.78)	1981

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	56.3	160	37.1	34.1	94.2	352	366	39.7	156	48.9	254	67.0
2	40.1	286	44.1	82.9	336	187	268	38.6	168	27.7	306	75.8
3	58.9	297	55.9	101	491	189	206	30.8	80.2	47.9	247	66.6
4	72.8	204	66.5	94.1	519	223	303	29.8	50.5	57.5	100	20.8
5	57.4	47.4	60.5	95.7	497	55.2	347	41.0	70.3	104	51.7	176
6	57.3	38.7	27.0	99.0	334	150	438	43.6	122	152	57.8	334
7	45.2	216	27.2	107	287	185	468	25.9	92.0	56.4	62.1	207
8	35.0	359	35.6	95.2	233	240	414	27.5	77.5	40.5	67.1	50.8
9	24.1	264	25.9	86.7	421	244	241	93.8	64.6	32.4	72.5	50.0
10	202	125	19.9	89.6	510	159	107	53.9	36.2	172	50.7	38.3
11	282	26.5	40.2	200	474	116	227	49.8	32.0	181	90.3	58.2
12	180	38.1	36.0	270	458	68.3	285	57.8	39.7	77.0	35.9	108
13	82.2	25.5	24.0	288	336	172	192	56.6	44.3	129	23.6	138
14	43.6	24.1	29.8	325	163	245	97.2	35.2	32.8	129	31.6	237
15	36.5	37.6	81.6	231	124	168	35.6	47.6	39.9	29.6	76.6	268
16	26.9	28.0	43.7	128	393	187	16.1	147	44.1	27.4	45.6	157
17	213	127	65.2	110	490	169	36.3	115	33.7	73.7	23.1	22.4
18	161	83.7	64.8	268	467	120	42.2	159	33.1	25.5	37.1	21.0
19	287	36.6	26.2	421	410	86.4	30.5	126	50.8	28.2	42.8	30.1
20	140	25.2	37.1	312	422	91.8	14.3	65.2	38.9	80.9	23.1	29.4
21	52.3	36.4	59.1	340	342	275	53.2	46.2	31.8	64.9	28.1	20.8
22	27.1	36.4	76.0	366	222	316	59.3	234	48.2	25.5	47.6	23.3
23	24.0	32.2	52.8	363	403	176	62.9	388	38.5	25.5	27.5	37.8
24	25.7	27.3	24.2	402	486	136	51.4	347	31.8	25.5	22.4	14.5
25	78.8	29.3	29.3	450	493	123	68.0	320	31.8	108	32.4	45.4
26	26.9	24.0	31.8	468	431	174	81.6	181	31.8	110	46.8	43.8
27	70.1	24.0	24.2	465	433	146	62.3	70.5	39.7	83.0	27.1	28.6
28	82.0	40.6	189	427	368	234	58.2	28.9	11.0	72.7	23.3	55.4
29	55.8		237	229	228	270	52.2	136	24.4	40.0	83.9	48.3
30	41.5		67.8	109	337	259	31.9	235	50.8	41.2	72.1	32.3
31	83.0		70.7		426		24.6	335		22.7		43.1
Sum	2,699.6		7,057.3		5,516.7		3,605.4		2,139.6		2,558.7	
	2,668.5		1,710.2		11,628.2		4,739.8		1,646.4		2,109.8	

Month	Current Year 1983 Average Rainfall Inches** 1957-1983	1983	@ Extreme Second-Feet High Day	High	Low Day	Low	Average Second-Feet	Total Acre-Feet	Period 1957-1983 Acre-Feet Average	Maximum	Minimum
Jan.	1.71	2.02	19	287	23	24.0	86.1	5,293	10,394	24,568	1,290
Feb.	1.78	3.49	8	359	126	24.0	96.4	5,355	7,242	20,626	1,028
Mar.	.71	1.26	29	237	10	19.9	55.2	3,392	6,791	15,200	705
Apr.	1.86	0	26	468	1	34.1	235	13,998	11,605	27,753	2,180
May	2.92	1.84	4	519	1	94.2	375	23,064	14,578	28,027	1,586
June	3.06	1.15	1	352	5	55.2	184	10,942	16,816	32,279	3,788
July	2.16	8.75	7	468	20	14.3	153	9,401	11,459	23,145	3,687
Aug.	3.16	1.60	23	388	7	25.9	116	7,151	8,293	14,556	3,260
Sept.	5.45	5.84	2	168	28	11.0	54.9	3,266	5,781	12,600	876
Oct.	3.17	2.90	11	181	31	22.7	69.0	4,244	5,888	11,300	1,591
Nov.	1.52	.65	2	306	24	22.4	70.3	4,185	4,724	9,021	1,796
Dec.	1.54	1.21	6	334	24	14.5	82.5	5,075	5,554	11,200	2,014
Yearly	29.04	30.71		519		11.0	132	95,366	109,125	161,503	71,171
	Millimeters		Cubic Meters per Second					Thousands of Cubic Meters			
	738	780		14.7		0.31	3.74	117,634	134,606	199,214	87,788

! And other days

RIO GRANDE NEAR BROWNSVILLE, TEXAS AND MATAMOROS, TAMAULIPAS

DESCRIPTION: Cableway, bubbler gage, water-stage recorders (graphic and digital), and digital transmitter located on the left bank at latitude 25°52'35", longitude 97°27'20", and river mile 48.7 (78.3 km), 0.2 river mile (0.3 km) downstream from El Jardin pumping plant, and 7.0 river miles (11.2 km) downstream from the international highway bridge (Gateway) between Brownsville, Texas and Matamoros, Tamaulipas. The zero of the gage is at mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 27 discharge measurements during the year and a continuous record of gage heights. Computations by shifting control methods. Records available: 1934 through 1983.

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, 226.1 miles (363.9 km) upstream. Excessive upstream flood flows are partly diverted into the United States and Mexican floodway systems before reaching this station. The transmitter relays gage height data via radio to the Texas Department of Water Resources in Weslaco.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 31,700 second-feet (898 m^3/sec) on October 8, 1945 with a gage height of 31.48 feet (9.60 m). Min. no flow occurs frequently.

Average Flow in Second-Feet (Cubic Meters per Second)**

Daily:	Max. 16,200 (459)	Oct. 19 & 20, 1971	Min. 0	Frequently	
Monthly:	Max. 14,400 (408)	Oct. 1971	Min. 3.5 (0.10)	August 1957	
Yearly:	Max. 3,640 (103)	1976	Min. 42.1 (1.19)	1956	

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	161	* 44.8	8,830 *	141	276	1,120 *	* 2.0	130 *	120	185	120	127
2	223	39.6	4,630	109	487 *	576	2.0	166	* 96.9	151	* 78.3	98.0
3	297	27.9	2,070	97.5	378	371	2.1	179	93.2	117 *	32.7	93.5
4	201	* 35.3	957	113 *	304	441	4.7	271	77.7	94.5	57.4	82.2
5	116	94.3	632	194	150	463	19.3	480	106	131	136	* 69.0
6	105 *	241	526	147	93.6	473	241	371	90.3	78.4	118	31.0
7	142	526	417	88.6	105	431	412	344	42.2	41.2	77.3	19.0
8	147	445	438	65.7	138	509	247	1,900	45.8	96.9	351	20.5
9	171	256	441	60.4	196	1,510	181	1,500	78.1	103	966	23.8
10	183	316	357	56.5	144	1,470	258	458	77.8	74.6	778	27.4
11	164	252	266	38.8	146	837	227	198	76.3	24.1	484	104
12	71.7	257	264	17.0	165	509	115	127	152	37.0	404	198
13	56.9	353	261	34.3	158	371	141	95.6	223	525	472	206
14	72.7	410	263	* 9.5	174	212	577	83.9	216	774	579	216
15	77.0	406	298	10.2	129	206	1,870	110 *	293	564	645	124
16	113	501	286	14.5	106 *	186	1,550	124	356	374	604	67.6
17	155	600 *	210	19.1	30.4	259	976	50.5	326	256	495	145
18	86.9	420	229 *	25.1	93.2	234	621	7.0	624	193	367 *	155
19	57.6	300	300	32.1	413	202	555	3.6	563	197 *	232	201
20	129	246	314	69.2	255	167	511	10.5	445	156	187	228 *
21	367	162	710	66.0	64.6	335	383	36.7	386	92.8	289	180
22	420	109	1,200	75.9	37.4	237	298	26.4	233	78.7	425	247
23	353	102	1,290	185	148	* 93.9	352	10.1	398	174	365	423
24	235 *	168	1,730	241	207	47.7	352	3.6	1,990	1,640	229	343
25	89.0	165	2,280	315	178	45.2	255 *	* 1.2	1,960	1,380	143	259
26	57.2	204	1,990	299	39.2	61.8	233	1.0	1,280	625	87.8	222
27	27.2	6,040 *	1,390	233	5.6	30.7	217	1.6	834	300	78.3	218
28	24.0	11,200	1,130	134	120	52.3	203	36.0	530	205	64.3	177
29	67.8		625	124	519	49.1	161	395	373 *	155	36.3	591
30	69.6		403	271	2,060	9.2	140	636	257	131	64.6	850
31	63.6		237		2,220		138	255		117		513
Sum	4,503.2	23,920.9	34,974	3,286.4	9,540.0	11,508.9	11,244.1	8,011.7	12,343.3	9,071.2	8,966.0	6,259.0

Month	Current Year 1983 Extreme Gage Feet High	Extreme Gage Feet Low	Extreme Second-Feet High Day	Extreme Second-Feet High	Extreme Second-Feet Low Day	Extreme Second-Feet Low	Average Second-Feet	Total Acre-Feet	Period 1954-1983 Acre-Feet Average	Maximum	Minimum
Jan.	5.97	3.41	22	441	28	4.9	145	8,932	44,887	330,268	283
Feb.	25.07	3.38	28	11,800	3	25.8	854	47,446	44,154	362,000	1,060
Mar.	25.56	4.53	1	10,300	31	175	1,130	69,370	35,814	361,000	2,050
Apr.	5.12	3.02	25	399	15	7.4	110	6,518	33,485	219,590	875
May	12.96	3.22	31	2,490	27	2.5	308	18,922	56,754	355,795	4,140
June	10.83	2.99	! 9	1,740	30	1.8	384	22,828	66,120	486,551	2,430
July	11.69		15	2,080	! 1	0	363	22,302	73,720	437,546	1,120
Aug.		2.99	8	Ø 1,900	26	.8	258	15,891	77,362	812,033	218
Sept.	12.75	3.58	24	2,300	8	34.8	411	24,483	135,334	635,722	950
Oct.	12.10	3.36	24	2,000	12	9.5	293	17,992	174,081	887,207	756
Nov.	8.76	3.38	9	1,040	3	28.2	299	17,784	80,873	528,000	1,290
Dec.	8.79	2.90	30	1,070	7	18.5	202	12,415	73,530	480,000	524
Yearly	25.56			11,800		0	394	284,883	896,114	2,645,434	30,596
	Meters			Cubic Meters per Second				Thousands of Cubic Meters			
	7.64			334		0	11.2	351,403	1,105,357	3,263,143	37,740

** Period 1954-1983 * Discharge measurement made on this day Ø Mean daily

/ And other days

DIVERSIONS FROM THE RIO GRANDE
UNITED STATES SIDE, BROWNSVILLE TO THE GULF OF MEXICO

Beginning June 1971, the Texas Water Rights Commission, now the Texas Department of Water Resources, assumed control of the United States portion of the water in Falcon Reservoir and in the Rio Grande below Falcon Dam, the disposition of such waters being made by its Rio Grande Watermaster. Previous to that, since June 1956, such waters had been under the jurisdiction of the 93rd District Court of Texas administered by its Special Water Master.

During 1983, 4,345 irrigable acres (1,758 ha) were allotted Rio Grande water in the river reach between the gaging station near Brownsville and the mouth of the Rio Grande. Such irrigable area was 0.6% of the total irrigable acres (ha) below Falcon Dam allotted Rio Grande water.

The total diversion during 1983 in this river reach was 2,343.5 acre-feet (2,891,000 m^3), or 0.2% of the total water diverted from the Rio Grande below Falcon Dam. All records of diversions in this river reach, which were determined by means of flow meters, were furnished by the Rio Grande Watermaster. More than one crop per year is often grown on parts of this land.

EXTREME FLOWS FROM RECORDS:

		Average Flow in Second-Feet (Cubic Meters per Second)			
Daily:	Max. 40.4 (1.14)	June 17, 1965	Min. 0		Frequently
Monthly:	Max. 23.4 (0.66)	June 1965	Min. 0		Occasionally
Yearly:	Max. 7.0 (0.20)	1965	Min. 0.7 (0.02)		1976

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	18.9	0	0	4.4	12.7	10.8	0	5.2	0	0	0
2	0	18.9	0	0	4.4	15.2	5.0	0	5.2	0	0	0
3	0	15.1	0	0	4.5	3.3	1.9	0	5.2	0	0	0
4	0	11.4	0	2.6	9.9	1.1	1.9	0	5.2	0	0	0
5	0	11.4	0	2.6	9.9	1.1	1.9	0	5.2	0	0	.8
6	0	10.6	0	2.6	12.8	6.2	3.8	0	0	0	0	.8
7	0	10.7	0	2.6	17.0	6.2	6.7	0	.3	0	0	.8
8	0	9.7	2.8	2.6	16.2	4.5	6.7	0	.3	0	0	.8
9	0	4.2	2.8	2.6	16.1	4.5	6.7	1.9	.3	0	0	.8
10	3.5	3.7	2.8	2.6	14.7	8.1	6.7	1.9	0	0	0	.8
11	6.5	3.7	2.8	3.1	20.9	4.5	10.4	1.9	0	0	0	.8
12	6.5	3.7	2.8	.7	12.6	3.6	7.5	1.9	0	0	0	.8
13	6.5	0	2.8	.7	9.3	7.2	7.5	0	0	0	0	0
14	6.5	1.2	2.8	.7	9.3	7.2	5.6	0	0	3.8	0	2.4
15	5.0	1.2	3.0	1.4	6.4	3.6	2.6	0	0	3.8	3.3	2.4
16	5.0	1.2	.2	1.4	6.4	5.7	1.9	0	0	3.8	3.3	2.4
17	6.1	0	.2	1.4	6.6	5.7	1.9	0	0	3.8	3.3	2.4
18	1.1	0	0	6.7	5.0	5.7	1.9	0	0	0	3.3	2.4
19	1.1	0	0	6.0	5.1	5.7	1.9	0	.8	0	3.3	2.4
20	1.1	0	0	8.9	12.0	10.7	1.9	.5	.8	0	3.3	2.4
21	1.1	0	.3	8.9	15.8	8.2	1.9	.5	.8	0	3.3	2.4
22	.3	0	.3	8.9	12.5	6.6	1.9	.5	.8	0	4.3	0
23	.3	0	.3	12.5	14.9	3.6	1.9	.5	.8	0	1.0	0
24	.3	0	0	12.5	15.8	2.1	1.9	.5	.8	0	1.0	0
25	.3	0	0	19.1	15.8	.8	1.9	0	0	0	1.0	0
26	7.0	0	0	11.8	13.9	.8	1.9	0	0	0	0	0
27	7.0	0	0	14.4	24.8	.8	1.9	0	0	0	0	0
28	7.0	0	0	14.4	19.2	.8	1.9	0	0	0	0	0
29	7.0		0	14.4	14.6	.8	1.9	0	0	0	0	0
30	7.0		0	12.7	16.3	.8	1.9	0	0	0	0	0
31	7.0		0		16.3		1.9	0		0		0
Sum	93.2	125.6	23.9	178.8	383.4	147.8	116.1	10.1	31.7	15.2	30.4	25.6

Current Year 1983 — **Period 1957-1983**

Month	Average Rainfall Inches** 1957-1983	Average Rainfall Inches** 1983	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.	1.71	2.62	!26	7.0	! 1	0	3.0	185	385	1,275	0
Feb.	1.76	2.34	! 1	18.9	!13	0	4.5	249	227	902	0
Mar.	.66	.77	15	3.0	! 1	0	.8	47.4	131	634	0
Apr.	1.90	0	25	19.1	! 1	0	6.0	355	254	962	0
May	2.71	1.76	27	24.8	! 1	4.4	12.4	760	367	1,356	0
June	2.85	1.40	2	15.2	!25	.8	4.9	293	435	1,393	0
July	2.07	7.59	1	10.8	! 3	1.9	3.7	230	190	778	0
Aug.	3.09	2.15	! 9	1.9	! 1	0	.3	20.0	110	317	13.7
Sept.	5.55	7.18	! 1	5.2	! 6	0	1.1	62.9	52.6	190	0
Oct.	2.98	2.19	!14	3.8	! 1	0	.5	30.1	64.1	218	0
Nov.	1.58	.50	22	4.3	! 1	0	1.0	60.3	64.6	252	0
Dec.	1.60	1.24	14	2.4	! 1	0	.8	50.8	82.4	335	0
Yearly	28.46	29.74		24.8		0	3.2	2,343.5	2,362.7	5,036.3	543.2
	Millimeters		Cubic Meters per Second					Thousands of Cubic Meters			
	723	755		0.70		0	0.09	2,891	2,914	6,212	670

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

DIVERSIONS FROM THE RIO GRANDE
UNITED STATES SIDE, FALCON DAM TO THE GULF OF MEXICO

Beginning June 1971 the Texas Water Rights Commission, now the Texas Department of Water Resources, assumed control of the United States portion of the water in Falcon Reservoir and in the Rio Grande below Falcon Dam, the disposition of such waters being made by its Rio Grande Watermaster. Previous to that, since June 1956, such waters had been under the jurisdiction of the 93rd District Court of Texas administered by its Special Water Master.

In 1983, 730,675 irrigable acres (295,733 ha), several towns and many rural homes were allotted Rio Grande water between Falcon Dam and the Gulf of Mexico. The total diversion from the river was 1,061,626 acre-feet (1,309,516,000 m^3). About 91% of the water diverted was determined through records of discharge obtained by means of flow meters, by open channel rating stations, and by deflection meters developed by the Commission. The records for the balance of the diversions were furnished by the Rio Grande Watermaster and were determined from records of discharge obtained by means of flow meters. Drainage from more than 90% of this area does not return to the Rio Grande, but some of it is reused within 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 in 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.

EXTREME FLOWS FROM RECORDS:

Average Flow in Second-Feet (Cubic Meters per Second)

Daily:	Max.	5,380 (152)	June 20 & 21, 1960	Min.	2.8 (0.08)	Aug. 10, 1980
Monthly:	Max.	4,350 (123)	June 1960	Min.	102 (2.89)	March 1957
Yearly:	Max.	1,830 (51.7)	1982	Min.	880 (24.9)	1970

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	294	1,420	360	966	2,830	1,810	3,810	1,040	2,240	930	1,910	1,260
2	533	1,600	513	808	3,260	1,420	2,980	1,160	2,170	750	1,910	1,370
3	903	1,830	324	791	3,760	1,090	2,670	1,150	1,660	1,060	1,890	1,030
4	930	1,650	194	1,250	3,930	745	2,930	1,040	1,510	1,080	1,660	776
5	1,010	920	153	1,550	3,960	525	3,470	900	1,940	1,240	1,230	1,880
6	1,030	768	131	1,650	3,740	806	3,750	685	2,130	1,450	911	2,190
7	1,090	1,260	388	1,780	3,630	538	3,660	573	2,070	1,430	1,130	2,070
8	707	1,540	480	1,790	3,260	738	3,230	1,160	2,080	989	969	1,880
9	692	1,500	452	1,450	3,880	641	2,750	1,550	1,630	880	989	1,420
10	1,390	1,490	475	1,350	3,990	488	2,350	1,540	1,110	1,480	911	955
11	1,670	1,130	630	2,440	3,870	415	2,590	1,680	999	1,530	754	810
12	1,660	462	402	2,930	3,800	316	2,250	1,530	1,250	958	242	1,280
13	1,550	370	317	3,140	3,530	823	1,790	1,130	1,130	761	202	1,280
14	1,540	647	726	3,390	3,080	990	1,600	1,120	872	873	657	1,710
15	1,200	728	833	3,390	2,910	874	620	1,590	846	577	834	1,740
16	1,210	975	696	2,940	3,420	1,600	182	1,590	897	505	829	1,550
17	1,820	1,430	535	2,790	3,580	1,030	188	1,690	675	1,010	964	1,170
18	1,790	1,250	595	3,500	3,540	900	318	1,580	551	943	984	884
19	1,890	772	396	3,760	3,520	757	377	1,540	871	1,080	683	1,330
20	1,470	602	157	3,750	3,470	1,220	469	1,230	1,020	1,110	664	1,090
21	1,300	1,040	351	3,730	2,870	1,610	502	1,110	992	955	923	816
22	908	1,330	567	3,530	2,640	2,100	365	2,270	922	679	1,020	659
23	816	1,240	825	2,980	3,320	2,150	387	2,550	1,020	634	1,140	745
24	1,210	1,190	883	2,920	3,520	2,030	304	2,570	941	1,080	767	428
25	1,080	749	1,050	3,670	3,720	1,880	636	2,610	950	1,280	1,060	186
26	1,140	56.2	839	3,720	3,490	1,800	512	2,240	911	1,240	810	314
27	1,140	94.2	797	3,620	2,860	2,340	765	1,450	791	1,160	653	894
28	1,120	218.	1,360	3,460	2,100	2,830	1,060	544	820	1,180	1,250	1,150
29	850		1,400	3,300	1,460	2,810	775	2,030	932	864	1,230	1,270
30	839		1,280	2,860	1,730	3,220	717	2,260	887	844	1,080	1,260
31	1,270		1,230		1,900		632	2,210		1,190		1,130
Sum	36,052	28,261.4	19,339	79,205	100,570	40,496	48,649	47,322	36,817	31,742	30,256	36,527

Month	Average Rainfall Inches**		Current Year 1983 Ø Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Period 1957-1983 Acre-Feet		
			High		Low						
	1957-1983	1983	Day		Day				Average	Maximum	Minimum
Jan.	1.39	1.10	19	1,890	1	294	1,160	71,508	74,648	182,403	9,717
Feb.	1.47	5.40	3	1,830	26	56.2	1,010	56,056	52,389	126,230	11,785
Mar.	.70	1.18	29	1,400	6	131	624	38,358	71,168	149,000	6,280
Apr.	1.57	0	19	3,760	3	791	2,640	157,101	106,240	209,970	25,100
May	2.68	1.36	10	3,990	29	1,460	3,240	199,478	112,613	228,833	16,071
June	2.82	2.40	30	3,220	12	316	1,350	80,323	136,617	259,000	31,931
July	1.77	6.00	1	3,810	16	182	1,570	96,494	102,030	196,205	31,502
Aug.	2.65	2.00	25	2,610	28	544	1,530	93,862	79,940	143,286	36,208
Sept.	4.46	3.68	1	2,240	18	551	1,230	73,025	58,346	136,000	12,709
Oct.	2.79	2.07	11	1,530	16	505	1,020	62,959	62,491	124,598	12,991
Nov.	1.24	1.29	! 1	1,910	13	202	1,010	60,012	50,081	97,969	12,674
Dec.	1.13	.84	6	2,190	25	186	1,180	72,450	49,872	84,500	14,034
Yearly	24.67	27.32		3,990		56.2	1,470	1,061,626	956,435	1,322,498	636,835
	Millimeters		Cubic Meters per Second					Thousands of Cubic Meters			
	627	694		113		1.59	41.6	1,309,516	1,179,763	1,631,304	785,536

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

OUTFALLS FROM SEWERS INTO THE RIO GRANDE

In Acre-Feet

EL PASO SEWAGE OUTFALL

Treated sewage effluent enters the Rio Grande through the outfall of the Haskell Street Wastewater Treatment Plant located 7.1 river miles downstream from the American Dam. The outfall from this plant consists of flows measured by a Sparling propeller outfall meter and estimates of amounts which bypass the meter. The effluent from the Socorro Treatment Plant, located 17.6 miles below the American Dam, after treatment in oxidation ponds is discharged to the Riverside Canal to be used for irrigation. This effluent is also measured by a Sparling propeller outfall meter, does not enter the Rio Grande, and is not included in the table below. Both 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
1983	2,369	2,059	2,261	2,174	2,355	2,382	2,453	2,435	2,437	2,359	2,090	2,090	27,464
* Average	2,053	1,912	2,048	2,048	2,205	2,179	2,299	2,277	2,213	2,130	2,017	2,052	25,433

EAGLE PASS SEWAGE OUTFALL

This sewage outfall enters the Rio Grande at river mile 495.8 and about 600 feet upstream from the Eagle Pass-Piedras Negras International Railroad Bridge. The records are based on weekly current meter measurements and estimates by personnel of the International Boundary and Water Commission.

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Yearly
1983	191	139	156	207	193	201	196	186	162	193	218	200	2,242
* Average	147	128	148	142	156	163	168	175	163	172	159	160	1,881

LAREDO SEWAGE OUTFALL

This sewage outfall enters the Rio Grande at river mile 360.0 and 356.0, 0.9 and 4.9 river miles downstream from the old international highway bridge between Laredo, Texas and Nuevo Laredo, Tamaulipas. The South Laredo Treatment Plant began operating during September 1983. The record is furnished by Laredo Waterworks System.

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Yearly
1983	801	748	818	780	901	877	895	828	914	887	815	814	10,078
* Average	698	605	675	675	764	752	786	791	780	769	729	724	8,748

NUEVO LAREDO SEWAGE OUTFALL

This sewage outfall enters the Rio Grande at river mile 358.7 and 357.7, 2.2 and 3.2 miles downstream from the old international highway bridge between Laredo, Texas and Nuevo Laredo, Tamaulipas. The records are computed by the International Boundary and Water Commission based on current meter measurements, the weir discharge table, and a continuous record of gage heights. Discharge measurements for other outfalls in the area are on file with the International Boundary and Water Commission.

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Yearly
1983	700	585	574	387	399	618	448	575	503	430	485	516	6,220
# Average	914	802	832	751	870	782	755	762	768	880	864	911	9,891

BROWNSVILLE SEWAGE OUTFALL

This sewage outfall enters the Rio Grande at river mile 52.2, 3.5 river miles downstream from the Gateway Bridge between Brownsville, Texas and Matamoros, Tamaulipas and 3.5 river miles upstream from the Brownsville Gaging Station. Records are furnished by the city of Brownsville.

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Yearly
1983	550	516	566	540	572	559	687	585	607	564	492	493	6,731
* Average	731	666	706	683	735	719	760	741	756	759	701	705	8,662

* Period averages are for past 10 years

\# Period 1976-1983

MUNICIPAL AND INDUSTRIAL WATER USES

In Acre-Feet

Tabulated below are monthly and yearly amounts of water pumped from the Rio Grande directly into municipal distribution systems of cities along the border, except for the city of Del Rio, whose main supply is derived from San Felipe Springs; and the city of El Paso, whose supply is derived mainly from deep wells. The amount shown below for the city of El Paso is Rio Grande water pumped from the Franklin Canal at the El Paso Water Plant for municipal use. Ciudad Acuna, Coahuila, whose municipal diversion from the Rio Grande started in 1971, may at times use an alternate source from Arroyo Las Vacas, which was its previous source of supply. Such use would be reflected in the tabulations below.

All Rio Grande water used by U. S. municipalities below Falcon Dam is also included in the figures shown under "Diversions from the Rio Grande - United States Side..." (by river reaches and total below Falcon Dam) on pages 65, 68, 72, 73, 75, 77, and 78 herein. Population data for all cities are estimates based on the 1980 official census except for Falcon Village (estimated by the International Boundary and Water Commission); and Del Mar and San Ignacio, which are based on utilities connections.

In United States

Month	EL PASO (Pop. 462,754)				DEL RIO Ø (Pop. 38,000)			
	1983	Period 1974-1983			1983	Period 1974-1983		
		Average	Maximum	Minimum		Average	Maximum	Minimum
Jan.	0	50.6	337	0	524.3	474.8	600.7	396.4
Feb.	36.7	87.5	477	0	462.5	478.1	611.4	364.6
Mar.	676	344.0	1,256	0	682.9	667.7	916.8	495.2
Apr.	1,440	1,035.0	2,317	0	1,007.3	723.2	1,099.7	493.3
May	3,853	2,683.1	3,853	0	979.9	682.4	979.9	466.3
June	4,216	3,385.9	4,216	0	929.9	924.2	1,358.3	700.5
July	4,332	3,281.8	4,332	2,200	763.8	1,051.3	1,618.2	472.3
Aug.	3,748	3,234.9	3,953	2,067	823.6	1,021.8	1,529.5	745.7
Sept.	3,867	2,196.8	3,867	863	702.2	767.7	1,119.1	484.4
Oct.	251	200.8	540	0	451.9	607.6	942.6	451.9
Nov.	0	76.9	334	0	360.5	456.7	608.2	360.5
Dec.	0	49.0	329	0	539.8	462.9	584.5	360.3
Yearly	22,419.7	16,626.3	22,419.7	7,229.0	8,228.6	8,318.4	11,098.9	7,073.6

Month	EAGLE PASS (Pop. 23,000)				DEL MAR (Pop. 5,840)			
	1983	Period 1974-1983			1983	Period 1974-1983		
		Average	Maximum	Minimum		Average	Maximum	Minimum
Jan.	263.4	258.1	305.1	190.7	74.3	45.8	74.3	26.5
Feb.	243.8	253.3	331.9	188.2	65.0	45.8	65.0	26.3
Mar.	312.7	314.9	394.9	217.0	93.3	66.6	93.3	37.2
Apr.	401.4	319.1	407.7	238.2	142.4	72.4	142.4	37.4
May	390.0	322.3	390.0	270.5	136.0	75.7	136.0	46.2
June	369.7	383.5	433.0	294.3	125.0	87.4	140.4	57.0
July	428.2	467.8	582.1	281.9	148.5	100.4	192.9	37.3
Aug.	466.6	461.1	564.3	326.8	159.9	95.4	193.4	33.2
Sept.	386.6	388.6	544.5	228.3	120.3	76.0	155.0	32.5
Oct.	335.1	356.6	506.9	269.7	109.0	67.2	109.0	36.7
Nov.	290.4	282.8	345.1	223.8	97.5	59.0	97.5	27.0
Dec.	286.6	263.2	296.8	202.1	90.9	52.9	90.9	18.9
Yearly	4,174.5	4,071.3	4,611.0	3,256.6	1,362.1	844.6	1,362.1	465.6

Month	LAREDO (POP. 99,300)				LAREDO POWER STATION			
	1983	Period 1974-1983			1983	Period 1974-1983		
		Average	Maximum	Minimum		Average	Maximum	Minimum
Jan.	1,452.2	1,248.6	1,523.8	1,042.0	97.6	76.3	134.1	40.1
Feb.	1,264.7	1,170.4	1,421.4	944.2	88.9	77.0	122.7	35.1
Mar.	1,536.6	1,452.2	1,899.8	1,087.5	105.3	91.2	181.3	47.3
Apr.	1,818.9	1,516.0	2,016.6	1,015.9	68.1	97.9	143.4	62.5
May	1,810.0	1,637.3	1,860.7	1,212.0	122.5	107.2	159.0	72.2
June	1,882.7	1,851.2	2,378.8	1,574.7	153.5	130.4	170.4	84.2
July	2,085.4	2,086.6	2,693.6	1,434.1	137.7	138.5	177.8	73.7
Aug.	2,129.2	2,024.1	2,510.3	1,625.0	164.1	143.8	175.8	98.2
Sept.	1,825.0	1,677.9	2,224.3	1,162.4	129.8	116.0	147.8	50.0
Oct.	1,602.3	1,582.7	2,048.5	1,231.6	98.5	107.5	215.7	58.6
Nov.	1,473.9	1,387.2	1,693.2	931.7	83.0	80.8	125.6	35.0
Dec.	1,508.6	1,302.3	1,540.6	964.4	94.6	79.7	120.9	32.4
Yearly	20,389.5	18,936.5	22,595.6	15,275.7	1,343.6	1,246.3	1,686.2	855.6

Ø Includes Laughlin Air Force Base

MUNICIPAL AND INDUSTRIAL WATER USES

In Acre-Feet

In United States

Month	SAN YGNACIO (Pop. 950)				NEW ZAPATA (Pop. 6,600)			
	1983	Period 1974-1983			1983	Period 1974-1983		
		Average	Maximum	Minimum		Average	Maximum	Minimum
Jan.	12.2	5.0	12.2	2.3	82.5	52.5	82.5	33.5
Feb.	11.4	5.1	11.4	3.4	77.9	52.5	77.9	38.8
Mar.	14.4	6.2	14.4	3.4	91.9	67.8	91.9	44.4
Apr.	17.3	7.2	17.3	4.7	120.2	71.2	120.2	36.4
May	17.7	7.5	17.7	4.2	120.5	74.2	120.5	47.4
June	13.2	7.5	13.2	3.6	116.2	78.7	116.2	45.7
July	13.5	8.0	13.5	3.7	115.1	87.4	125.2	43.1
Aug.	16.5	8.3	16.5	4.5	119.1	86.8	141.8	49.9
Sept.	19.8	8.5	19.8	3.7	121.2	74.5	122.3	33.1
Oct.	11.0	6.4	11.3	2.7	107.7	68.8	107.7	36.6
Nov.	10.0	5.9	11.6	3.1	95.9	62.3	95.9	33.8
Dec.	9.3	5.7	14.7	3.1	85.0	55.5	86.7	32.9
Yearly	166.3	81.3	166.3	44.3	1,253.2	832.2	1,253.2	520.7

Month	FALCON VILLAGE (Pop. 85)				ROMA * (Pop. 3,780)			
	1983	Period 1974-1983			1983	Period 1974-1983		
		Average	Maximum	Minimum		Average	Maximum	Minimum
Jan.	9.5	9.2	10.6	8.2	68.0	51.7	74.5	29.1
Feb.	7.7	8.6	9.9	7.6	62.8	56.9	107.0	39.0
Mar.	8.5	10.4	11.5	8.5	80.7	61.7	85.0	42.4
Apr.	10.7	11.0	13.8	9.8	96.8	67.8	96.8	45.3
May	12.5	11.0	12.5	9.1	108.7	70.3	108.7	44.3
June	10.9	11.3	17.6	6.6	89.4	74.4	104.1	45.8
July	10.1	12.8	18.0	8.9	92.4	77.8	125.1	43.8
Aug.	11.6	12.6	15.6	10.1	107.4	79.0	121.0	38.2
Sept.	11.3	10.1	13.0	7.0	97.9	69.0	100.8	35.2
Oct.	10.8	10.2	11.6	7.3	90.8	63.4	90.8	22.3
Nov.	10.8	9.4	10.8	6.6	88.7	63.1	88.7	29.0
Dec.	9.6	9.8	11.6	8.5	84.2	57.1	84.2	25.1
Yearly	124.0	126.4	146.9	115.2	1,067.8	792.2	1,075.0	507.9

Month	RIO GRANDE CITY (Pop. 6,900)				BROWNSVILLE (Pop. 92,800)			
	1983	Period 1974-1983			1983	Period 1974-1983		
		Average	Maximum	Minimum		Average	Maximum	Minimum
Jan.	152.7	126.2	163.1	76.9	1,298.3	1,193.3	1,467.3	967.0
Feb.	140.5	117.2	140.5	73.8	1,221.6	1,117.8	1,283.6	988.2
Mar.	154.7	142.0	177.4	72.7	1,379.5	1,342.6	1,501.0	1,216.8
Apr.	156.2	145.8	185.7	89.1	1,608.9	1,386.5	1,608.9	1,151.6
May	262.3	157.2	262.3	70.2	1,587.1	1,444.5	1,708.5	1,210.4
June	196.5	159.5	223.7	60.2	1,521.9	1,527.5	1,907.0	1,327.3
July	183.0	181.9	235.0	100.0	1,480.9	1,686.4	2,221.3	1,275.6
Aug.	169.8	173.7	268.7	48.4	1,517.7	1,685.5	2,008.3	1,232.8
Sept.	173.1	167.0	296.9	114.7	1,270.0	1,406.0	1,794.4	1,076.2
Oct.	184.6	163.3	288.7	112.3	1,331.4	1,429.6	1,664.5	1,200.8
Nov.	174.5	140.6	181.4	94.1	1,333.4	1,299.8	1,503.4	1,060.9
Dec.	154.9	134.2	159.2	89.5	1,337.0	1,241.4	1,411.4	962.6
Yearly	2,102.8	1,808.6	2,376.4	1,222.3	16,887.7	16,760.9	19,017.2	14,576.8

* Includes Los Saenz and Escobares, Texas

MUNICIPAL AND INDUSTRIAL WATER USES

In Acre-Feet

In Mexico

Month	CD. ACUNA, COAHUILA (Pop. 44,211)				PIEDRAS NEGRAS, COAHUILA (Pop. 79,793)			
	1983	Period 1974-1983			1983	Period 1974-1983		
		Average	Maximum	Minimum		Average	Maximum	Minimum
Jan.	221.4	163.5	222.1	58.4	499.8	384.0	499.8	273.2
Feb.	200.9	163.3	218.2	79.0	459.3	340.9	459.3	267.8
Mar.	222.1	180.6	226.3	96.9	466.8	401.4	491.0	344.4
Apr.	214.2	170.9	216.8	88.3	468.8	377.8	468.8	297.2
May	221.6	178.0	225.0	88.1	520.6	404.5	520.6	295.2
June	214.9	184.8	238.3	85.1	551.0	409.1	551.0	285.1
July	222.4	196.3	278.0	89.7	612.7	435.9	612.7	301.7
Aug.	222.1	207.1	279.0	93.0	663.5	479.2	711.2	427.6
Sept.	215.3	196.8	270.0	82.9	702.2	448.6	702.2	321.3
Oct.	222.4	192.5	225.4	81.6	647.5	444.2	647.5	347.5
Nov.	215.0	177.6	219.1	70.9	637.9	394.8	637.9	295.2
Dec.	221.2	174.2	223.8	67.6	609.2	392.3	609.2	327.3
Yearly	2,613.5	2,185.6	2,662.4	1,029.0	6,839.3	4,912.7	6,839.3	4,345.0

Month	NUEVO LAREDO, TAMPS. (Pop. 247,000)				NUEVA CD. GUERRERO, TAMPS. (Pop. 3,338)			
	1983	Period 1974-1983			1983	Period 1974-1983		
		Average	Maximum	Minimum		Average	Maximum	Minimum
Jan.	2,208.0	1,873.1	2,208.0	1,516.7	44.3	39.8	59.3	25.4
Feb.	1,972.3	1,709.8	1,972.3	1,488.5	39.3	38.4	50.2	24.7
Mar.	2,244.8	2,009.2	2,278.8	1,716.6	45.6	40.9	54.3	26.0
Apr.	2,254.3	1,965.3	2,254.3	1,627.4	40.0	43.1	61.0	24.7
May	2,869.8	2,201.9	2,869.8	1,736.2	45.8	43.7	60.3	23.3
June	2,768.3	2,263.8	2,768.3	1,782.2	43.3	42.6	60.1	25.6
July	2,934.6	2,417.4	2,934.6	1,964.0	40.5	43.3	59.0	25.1
Aug.	2,743.3	2,468.5	2,933.5	2,070.2	41.3	42.8	53.2	19.3
Sept.	2,719.8	2,244.4	2,719.8	1,856.0	43.9	37.2	49.2	15.7
Oct.	2,696.9	2,271.4	2,733.4	1,775.0	46.0	41.2	54.8	20.5
Nov.	2,850.0	2,187.6	2,850.0	1,689.8	44.8	39.7	56.7	22.8
Dec.	2,736.1	2,043.8	2,736.1	1,484.5	40.1	37.2	58.5	20.5
Yearly	30,998.2	25,656.2	30,998.2	22,148.8	514.9	489.9	616.8	282.8

Month	CD. MIER, TAMPS. (Pop. 6,663)				CD. MIGUEL ALEMAN, TAMPS. (Pop. 19,838)			
	1983	Period 1974-1983			1983	Period 1974-1983		
		Average	Maximum	Minimum		Average	Maximum	Minimum
Jan.	39.4	41.0	69.1	11.8	41.2	43.8	55.7	34.4
Feb.	33.3	31.3	50.0	11.2	109.3	48.3	109.3	34.0
Mar.	40.7	45.1	76.5	28.7	119.4	56.0	119.4	38.8
Apr.	52.5	41.0	52.5	14.9	106.0	53.7	106.0	39.8
May	57.2	44.6	57.2	20.3	107.2	57.5	107.2	42.0
June	44.2	42.9	57.5	27.5	119.7	61.2	119.7	47.3
July	30.8	44.3	73.6	28.6	121.6	61.6	121.6	47.2
Aug.	59.0	46.0	59.4	33.2	107.2	63.4	107.2	49.2
Sept.	53.7	40.9	53.7	29.0	111.4	57.9	111.4	41.7
Oct.	55.9	47.8	101.3	27.8	108.7	57.1	108.7	42.3
Nov.	56.9	44.1	72.2	23.2	107.2	57.2	107.2	46.2
Dec.	35.4	43.7	60.6	33.6	86.8	50.8	86.8	38.4
Yearly	559.0	512.7	660.1	312.2	1,245.7	668.5	1,245.7	526.1

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 Development Board, originally had a capacity of 18,800 acre-feet; and Sanchez Reservoir on Culebra Creek that had a capacity, in 1980, of 103,200 acre-feet. There are no monthly storage data available for these reservoirs. Also presented on pages 86 and 87 are data for International Amistad and Falcon Reservoirs 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. Monthly storage data for Sanchez Reservoir is available from 1926 through 1980.

The reservoirs and the agencies providing the data are: Rio Grande, Continental, Santa Maria, Terrace, Mountain Home, and Platoro from the State of Colorado, Division of Water Resources; Abiquiu, Cochiti, and Santa Rosa from the United States Corps of Engineers; Costilla, Bluewater, Lake Sumner, McMillan, and Avalon from the United States Geological Survey; Storrie from the State Engineer Office of New Mexico; Heron, El Vado, Elephant Butte, and Caballo from the United States Bureau of Reclamation; Red Bluff from the Red Bluff Water Power Control District; Delta from the Willacy County Water Control and Improvement District No. 1; La Boquilla, La Colina, and Rosetilla from the Federal Power Commission of Mexico; Francisco I. Madero, Chihuahua, Luis L. Leon, Centenario, San Miguel, Venustiano Carranza, Laguna de Salinillas, La Boca, Marte R. Gomez, Culebron, Villa Cardenas, and Palito Blanco from the Ministry of Agriculture and Hydraulic Resources of Mexico; Lake Casa Blanca, Amistad Reservoir (International) and Falcon Reservoir (International) from the International Boundary and Water Commission.

In 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)	
	1983	# Average 1927-1983	1983	# Average 1928-1983	1983	# Average 1928-1983	1983	# Average 1925-1983	1983	# Average 1924-1983
Jan.	8.4	14.2	2.9	4.7	24.5	6.9	11.5	3.8	8.0	3.6
Feb.	10.2	15.4	3.5	5.1	24.0	7.4	13.6	4.1	8.3	3.9
Mar.	12.1	16.7	4.3	5.5	23.6	8.2	14.3	4.5	9.1	4.3
Apr.	14.2	17.1	5.1	6.1	23.3	9.3	14.2	5.4	9.3	4.8
May	24.4	20.9	5.2	7.7	15.6	12.2	11.8	6.9	10.4	6.3
June	33.9	22.2	6.3	8.0	15.5	13.8	12.1	8.1	11.9	6.6
July	16.3	13.4	3.1	5.3	11.0	9.6	8.4	5.6	10.2	4.9
Aug.	13.7	7.7	0	3.6	7.5	5.7	8.0	3.6	7.5	3.1
Sept.	14.3	8.0	0	3.5	7.5	5.5	6.0	3.2	6.1	2.7
Oct.	13.1	8.8	0	3.4	6.7	5.6	5.6	3.3	5.8	2.8
Nov.	15.3	11.3	1.0	3.8	7.1	6.2	6.0	3.3	6.0	3.0
Dec.	17.0	13.0	1.9	4.3	7.5	6.6	6.6	3.7	6.0	3.3
Avg.	16.1	14.1	2.8	5.1	14.5	8.1	9.8	4.6	8.2	4.1
Max.	33.9	52.1	6.3	26.7	24.5	42.1	14.3	17.7	11.9	16.4
Min.	8.4	0	0	0	6.7	0	5.6	0	5.8	0

Month	PLATORO (Capacity 60.0)		COSTILLA (Capacity 15.7)		HERON (Capacity 401.3)		EL VADO (Capacity 196.5)		ABIQUIU (Capacity 1,212.0)	
	1983	Average 1952-1983	1983	# Average 1922-1983	1983	Average 1971-1983	1983	Average 1935-1983	1983	Average 1965-1983
Jan.	19.6	9.2	8.4	4.3	321.0	166.4	127.1	43.3	82.4	15.8
Feb.	14.0	9.0	8.8	4.7	321.6	166.8	127.1	41.4	81.1	15.7
Mar.	14.3	9.3	9.2	5.2	320.9	166.9	127.7	42.0	80.9	16.1
Apr.	14.2	9.9	10.9	6.4	328.8	172.7	127.4	75.5	86.0	21.6
May	14.2	11.4	11.4	8.2	362.0	201.5	129.8	113.9	127.2	57.0
June	16.0	17.3	13.1	7.6	400.4	231.0	133.9	105.9	166.5	51.9
July	15.9	16.0	12.9	5.1	400.4	235.6	153.0	89.0	196.2	39.2
Aug.	14.3	14.9	9.4	3.4	400.7	234.1	148.2	69.6	195.8	38.7
Sept.	14.4	15.0	7.5	3.0	398.8	232.3	125.2	58.0	195.1	39.0
Oct.	14.2	14.9	8.4	3.3	396.4	232.1	121.8	53.8	194.8	37.6
Nov.	14.3	10.7	9.0	3.7	389.6	231.0	121.6	45.0	193.9	26.7
Dec.	14.3	10.7	9.6	4.0	368.0	196.0	129.6	44.9	191.8	23.3
Avg.	15.0	12.4	9.9	4.9	367.4	205.5	131.0	65.2	194.3	31.9
Max.	19.6	54.0	13.1	15.1	400.7	401.1	153.0	203.5	166.5	194.0
Min.	14.0	0	7.5	0	320.9	0.6	121.6	0	80.9	0

Some months missing

STORED WATER IN LARGE RESERVOIRS OF THE RIO GRANDE BASIN

In Thousands of Acre-Feet

In United States

Month	COCHITI (Capacity 505.7)		BLUEWATER (Capacity 43.5)		ELEPHANT BUTTE (Capacity 2,110.3)		CABALLO (Capacity 331.5)		STORRIE (Capacity 23.3)	
	1983	# Average 1973-1983	1983	# Average 1927-1983	1983	Average 1915-1983	1983	# Average 1938-1983	1983	# Average 1939-1983
Jan.	42.6	38.5	15.8	7.4	942.2	735.6	87.5	94.8	6.7	7.1
Feb.	42.5	38.4	16.8	8.1	932.6	739.7	137.5	117.7	6.7	7.1
Mar.	42.7	38.6	28.8	11.8	1,015.7	720.7	57.5	96.0	8.6	7.9
Apr.	49.4	40.0	41.3	15.4	968.4	711.7	115.8	94.4	11.5	8.2
May	62.8	47.8	39.1	13.8	1,002.3	799.2	149.2	99.0	14.0	8.6
June	49.7	54.4	36.4	11.6	1,293.7	828.9	123.2	84.4	14.0	7.4
July	46.2	42.3	34.0	10.1	1,337.3	776.0	84.1	66.0	13.1	7.4
Aug.	46.2	42.4	32.2	9.1	1,271.7	721.5	58.8	38.9	12.3	8.0
Sept.	45.9	42.3	30.3	8.6	1,236.4	669.1	34.4	27.9	9.9	7.4
Oct.	45.7	43.1	30.3	8.2	1,251.8	699.6	38.0	40.9	8.6	7.1
Nov.	46.0	39.7	29.7	8.0	1,269.9	717.7	43.5	54.8	9.3	7.1
Dec.	46.5	40.8	29.4	7.9	1,322.7	738.3	45.8	73.1	9.3	6.7
Avg.	47.2	42.4	30.3	10.0	1,161.2	738.2	81.3	74.0	10.3	7.5
Max.	62.8	175.2	41.3	47.1	Ø 1,359.1	Ø 2,302.8	Ø 149.2	Ø 346.6	14.0	26.3
Min.	42.5	3.6	15.8	0	Ø 918.3	Ø 3.3	Ø 34.4	Ø 0.1	6.7	0

Month	SANTA ROSA (Capacity 447.1)		LAKE SUMNER (Capacity 101.6)		McMILLAN & AVALON (Capacity 37.4)		RED BLUFF (Capacity 310.0)		LAKE CASA BLANCA (Capacity 19.1)	
	1983	Average 1980-1983	1983	# Average 1937-1983	1983	# Average 1908-1983	1983	# Average 1936-1983	1983	Average 1962-1983
Jan.	34.2	18.7	32.8	63.1	24.8	25.6	55.0	92.5	13.4	13.4
Feb.	35.0	18.9	37.3	67.1	25.5	25.8	56.5	94.1	13.2	13.1
Mar.	37.9	19.7	38.2	56.5	18.9	25.4	57.2	91.4	12.6	12.8
Apr.	49.2	23.2	37.3	48.9	6.6	17.0	50.0	79.6	11.8	13.0
May	65.9	31.9	5.8	50.3	18.5	18.9	46.2	81.4	11.0	13.9
June	71.6	35.0	22.3	44.9	4.9	18.1	43.3	81.7	10.5	14.0
July	40.6	15.8	6.1	42.6	23.0	17.8	39.0	72.8	10.0	13.3
Aug.	25.7	25.2	12.8	46.7	7.1	16.3	36.7	68.6	9.8	13.6
Sept.	8.7	19.3	5.5	48.6	15.2	17.8	34.4	72.8	9.5	14.8
Oct.	8.7	20.2	8.7	51.2	19.7	19.5	39.2	81.4	9.8	14.2
Nov.	9.9	20.7	14.3	53.9	26.1	21.2	41.9	84.3	9.3	13.9
Dec.	11.3	21.2	19.0	58.5	27.4	24.2	44.2	88.4	9.1	13.7
Avg.	33.2	22.5	20.0	52.7	18.1	20.6	45.3	82.4	10.8	13.6
Max.	71.6	71.6	38.2	156.3	27.4	85.5	57.2	327.5	13.4	28.2
Min.	8.7	0	5.5	0.4	4.9	0	34.4	10.0	9.1	3.5

Month	DELTA LAKE (Capacity 25.0)								TOTAL IN U. S. RESERVOIRS (Capacity 6,007.2)	
	1983	# Average 1939-1983							1983	Estimated ! Average
Jan.	18.0	15.4							1,886.8	1,384.3
Feb.	15.1	14.7							1,930.9	1,418.2
Mar.	15.3	14.1							1,949.8	1,373.6
Apr.	13.8	14.2							1,988.5	1,394.4
May	15.8	14.9							2,232.6	1,625.7
June	14.3	14.8							2,493.5	1,667.6
July	17.0	14.7							2,387.8	1,502.5
Aug.	14.7	13.8							2,243.1	1,388.5
Sept.	17.3	15.0							2,132.4	1,313.8
Oct.	14.1	15.3							2,151.4	1,366.3
Nov.	16.2	15.2							2,189.9	1,381.2
Dec.	15.1	14.9							2,242.1	1,397.5
Avg.	15.6	14.8							2,152.3	1,434.5
Max.	18.0	22.6							2,493.5	
Min.	13.8	0							1,886.8	

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 282.1)		CHIHUAHUA (Capacity 25.9)	
	1983	# Average 1914-1983	1983	Average 1940-1983	1983	Average 1940-1983	1983	# Average 1948-1983	1983	Average 1961-1983
Jan.	1,917.3	1,495.3	20.1	18.0	13.9	12.7	54.0	223.3	6.6	8.8
Feb.	1,895.4	1,459.5	20.3	18.5	13.9	12.6	57.6	218.6	6.1	8.5
Mar.	1,928.0	1,407.0	20.2	18.6	13.9	12.0	64.5	204.1	5.5	8.0
Apr.	1,784.8	1,333.1	20.3	19.0	13.9	11.7	63.7	170.8	8.0	7.6
May	1,639.8	1,264.0	20.1	18.7	13.9	11.8	48.6	141.9	4.1	6.9
June	1,513.6	1,181.4	20.3	18.8	13.9	12.1	44.7	123.3	3.6	6.3
July	1,371.5	1,212.0	20.2	18.8	13.9	12.0	32.4	134.2	2.6	6.4
Aug.	1,494.2	1,377.0	20.3	18.5	13.9	12.9	105.7	169.2	3.1	7.7
Sept.	1,449.8	1,551.7	19.9	18.3	13.9	13.2	82.6	212.6	2.6	10.1
Oct.	1,486.2	1,561.6	19.8	18.1	13.9	13.1	89.3	220.2	2.4	9.9
Nov.	1,510.5	1,528.8	19.8	16.5	13.9	12.5	95.1	220.8	2.1	9.5
Dec.	1,534.5	1,514.9	19.8	18.2	13.9	13.0	98.3	221.9	1.7	9.1
Avg.	1,627.1	1,407.2	20.1	18.3	13.9	12.5	69.7	188.4	4.0	8.2
Max.	1,928.0	2,758.1	20.3	22.5	13.9	19.4	105.7	366.6	8.0	26.5
Min.	1,371.5	16.9	19.8	11.6	13.9	0	32.4	1.4	1.7	0.2

Month	LUIS L. LEON (Capacity 689.1)		CENTENARIO and SAN MIGUEL (Capacity 19.9)		VENUSTIANO CARRANZA (Capacity 1,122.8)		LAGUNA DE SALINILLAS (Capacity 15.4)		RODRIGO GOMEZ (LA BOCA) (Capacity 33.2)	
	1983	Average 1968-1983	1983	Average 1934-1983	1983	Average 1930-1983	1983	Average 1931-1983	1983	Average 1963-1983
Jan.	355.0	411.3	14.3	13.4	748.4	489.0	7.5	7.5	18.6	28.1
Feb.	359.5	406.9	14.2	13.2	761.3	468.8	7.0	9.2	18.2	28.0
Mar.	361.2	379.8	16.9	10.3	715.6	444.2	9.6	7.4	17.7	27.4
Apr.	341.5	345.1	13.2	8.9	664.0	431.8	8.5	8.8	16.5	26.4
May	279.9	316.4	10.4	9.4	607.3	414.0	8.7	8.8	18.9	26.0
June	277.5	310.0	8.4	7.9	569.7	393.5	7.9	8.0	20.2	25.8
July	275.3	321.6	5.7	7.4	527.8	401.9	8.7	7.5	21.2	25.8
Aug.	278.7	330.2	5.8	8.1	511.3	407.7	6.8	7.6	22.0	26.5
Sept.	278.5	394.5	5.8	10.1	485.1	458.2	8.5	8.4	33.1	28.5
Oct.	303.1	421.4	10.9	12.4	472.3	493.4	7.3	7.8	35.0	29.6
Nov.	310.3	426.8	15.2	12.7	468.7	501.7	8.9	7.2	35.3	29.4
Dec.	319.7	434.5	15.8	13.1	425.5	499.2	8.2	7.0	33.6	29.1
Avg.	311.7	374.9	11.4	10.6	579.8	450.3	8.1	7.9	24.2	27.6
Max.	Ø 365.6	Ø 753.1	16.9	20.7	Ø 765.1	Ø 1,167.8	Ø 9.6	15.8	35.3	36.8
Min.	Ø 274.3	Ø 3.8	5.7	0	Ø 425.5	* 1.0	Ø 5.1	0	16.5	0

Month	MARTE R. GOMEZ (Capacity 889.3)		CULEBRON and VILLA CARDENAS (Capacity 90.0)		PALITO BLANCO (Capacity 124.0)				TOTAL IN MEXICAN RESERVOIRS (Capacity 5,744.1)	
	1983	# Average 1943-1983	1983	# Average 1939-1983	1983	Average 1942-1983			1983	Estimated ! Average
Jan.	380.5	615.8	0	29.0	0	30.3			3,536.2	3,382.5
Feb.	387.1	571.7	0	26.8	0	26.3			3,540.6	3,268.6
Mar.	389.6	544.2	0	25.0	0	26.0			3,542.7	3,114.0
Apr.	304.6	504.9	0	26.3	0	24.1			3,239.0	2,918.5
May	316.7	470.0	0	27.9	0	24.2			2,968.4	2,740.0
June	401.4	469.8	0	29.5	0	26.3			2,881.2	2,612.7
July	455.8	460.9	0	25.9	0	25.3			2,735.1	2,659.7
Aug.	500.6	502.1	0	28.0	0	23.5			2,962.4	2,919.0
Sept.	757.0	625.4	0	34.3	0	33.2			3,136.8	3,398.5
Oct.	890.7	665.3	0	35.6	0	36.7			3,330.9	3,525.1
Nov.	889.3	667.2	0	29.9	0	35.2			3,369.1	3,498.2
Dec.	876.4	664.7	0	33.1	0	33.8			3,347.4	3,491.6
Avg.	545.8	563.5	0	29.3	0	28.7			3,215.8	3,127.4
Max.	Ø 909.4	Ø 1,465.4	0	116.8	0	140.1			3,542.7	
Min.	Ø 213.1	** 17.8	0	0	0	0			2,735.1	

\# Some months missing Ø Daily extremes * Minimum since full reservoir in 1932
! Total of period averages in all reservoirs ** Minimum since full reservoir in 1947

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 573.9, 12.9 river miles upstream from Del Rio, Texas and Cd. Acuna, Coahuila.

Maximum storage for period of record: 4,859,900 acre-feet on September 22, 1974 with an elevation of 1,135.66 feet above mean sea level, U. S. C. & G. S. datum. The elevation-area-capacity table, based on the 1980 survey, became effective on November 1, 1981.

Storage Capacities

(1980 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		
930.0	Lowest Outlet (United States Penstocks)	0	0	0	
1,117.0	Top of Conservation Storage *	3,383,848	64,860	3,383,848	Silt & Conservation
1,140.4	Top of Spillway Gates	5,128,000	84,358	1,744,152	Ordinary Flood
1,144.3	Maximum Water Surface	5,464,000	88,127	336,000	Surcharge

Storage in Thousands of Acre-Feet at 24:00 Hours 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	3,093.6	3,090.6	3,081.6	2,998.1	2,968.6	2,926.7	2,796.7	2,689.0	2,638.9	2,558.2	2,653.4	2,698.2
2	3,093.6	3,088.6	3,080.6	2,997.1	2,967.6	2,921.8	2,793.9	2,686.3	2,638.0	2,555.6	2,653.4	2,699.1
3	3,092.6	3,085.6	3,080.6	2,996.1	2,964.7	2,916.0	2,790.1	2,682.6	2,635.3	2,554.7	2,654.3	2,701.0
4	3,092.6	3,085.6	3,080.6	2,997.1	2,962.7	2,910.2	2,785.5	2,682.6	2,631.7	2,556.4	2,653.4	2,701.9
5	3,092.6	3,086.6	3,079.6	2,996.1	2,960.8	2,904.4	2,783.6	2,678.9	2,628.9	2,556.4	2,663.4	2,702.8
6	3,092.6	3,085.6	3,079.6	2,995.1	2,960.8	2,906.4	2,780.8	2,676.2	2,625.3	2,556.4	2,668.0	2,700.0
7	3,092.6	3,083.6	3,078.5	2,995.1	2,960.8	2,898.7	2,777.0	2,673.5	2,621.7	2,555.6	2,675.3	2,701.0
8	3,092.6	3,083.6	3,077.5	2,993.1	2,959.8	2,891.9	2,774.2	2,669.8	2,619.0	2,560.0	2,677.1	2,702.8
9	3,093.6	3,083.6	3,077.5	2,993.1	2,962.7	2,884.2	2,770.4	2,666.2	2,615.4	2,566.2	2,679.9	2,703.7
10	3,093.6	3,083.6	3,076.5	2,992.2	2,962.7	2,877.5	2,766.7	2,663.4	2,612.7	2,567.1	2,680.8	2,705.5
11	3,093.6	3,083.6	3,074.5	2,990.2	2,966.6	2,870.8	2,763.9	2,660.7	2,610.0	2,567.1	2,680.8	2,705.5
12	3,093.6	3,083.6	3,073.5	2,992.2	2,967.6	2,866.0	2,760.2	2,659.8	2,608.2	2,565.3	2,683.5	2,706.5
13	3,093.6	3,081.6	3,073.5	2,991.2	2,969.6	2,860.2	2,756.5	2,659.8	2,607.3	2,561.8	2,685.4	2,706.5
14	3,094.6	3,081.6	3,073.5	2,988.2	2,971.5	2,858.3	2,752.7	2,662.5	2,604.6	2,558.2	2,688.1	2,706.5
15	3,093.6	3,080.6	3,073.5	2,985.3	2,969.6	2,850.7	2,749.0	2,662.5	2,601.0	2,557.3	2,688.1	2,706.5
16	3,092.6	3,079.6	3,072.5	2,982.3	2,968.6	2,846.9	2,745.3	2,662.5	2,598.3	2,555.6	2,688.1	2,703.7
17	3,091.6	3,079.6	3,069.5	2,981.3	2,968.6	2,843.1	2,741.6	2,660.7	2,597.4	2,555.6	2,689.0	2,701.9
18	3,091.6	3,079.6	3,064.5	2,980.3	2,968.6	2,839.3	2,736.9	2,658.9	2,595.7	2,554.7	2,689.0	2,700.0
19	3,091.6	3,078.5	3,056.5	2,980.3	2,974.5	2,836.4	2,734.2	2,657.1	2,595.7	2,565.3	2,689.0	2,698.2
20	3,093.6	3,077.5	3,046.6	2,979.4	2,975.4	2,833.6	2,730.5	2,654.3	2,593.0	2,627.2	2,689.0	2,696.4
21	3,093.6	3,077.5	3,034.6	2,978.4	2,977.4	2,829.8	2,726.8	2,652.5	2,588.5	2,643.4	2,689.9	2,697.3
22	3,093.6	3,075.5	3,026.7	2,977.4	2,978.4	2,826.0	2,723.1	2,649.8	2,584.0	2,648.9	2,690.8	2,698.2
23	3,093.6	3,075.5	3,015.8	2,976.4	2,978.4	2,823.2	2,719.4	2,648.0	2,579.5	2,650.7	2,690.8	2,699.1
24	3,093.6	3,074.5	3,007.9	2,974.5	2,975.4	2,821.3	2,715.7	2,645.2	2,576.9	2,650.7	2,691.8	2,700.0
25	3,093.6	3,081.6	3,005.9	2,972.5	2,969.6	2,818.4	2,712.9	2,644.3	2,574.2	2,652.5	2,691.8	2,693.6
26	3,093.6	3,081.6	3,005.9	2,971.5	2,963.7	2,813.7	2,709.2	2,644.3	2,572.4	2,653.4	2,693.6	2,689.9
27	3,090.6	3,081.6	3,004.0	2,971.5	2,957.8	2,811.8	2,705.5	2,643.4	2,569.8	2,652.5	2,693.6	2,690.8
28	3,091.6	3,081.6	3,002.0	2,969.6	2,952.0	2,809.0	2,701.9	2,643.4	2,567.1	2,652.5	2,694.5	2,689.9
29	3,091.6		3,002.0	2,969.6	2,948.1	2,805.2	2,698.2	2,641.6	2,564.4	2,653.4	2,695.4	2,688.1
30	3,091.6		3,000.0	2,968.6	2,940.3	2,801.4	2,695.4	2,640.7	2,560.9	2,653.4	2,697.3	2,684.4
31	3,091.6		3,000.0		2,934.5		2,691.8	2,638.9		2,653.4		2,684.4

Month	1983							Period 1969-1983		
	MOMENTARY MAXIMUM			MOMENTARY MINIMUM			Average Storage	Mean Monthly Storage		
	Elevation	Storage	Day	Elevation	Storage	Day		Average	Maximum	Minimum
Jan.	1,112.42	3,094.6	14	1,112.35	3,090.6	27	3,092.9	3,064.6	4,030.4	722.6
Feb.	1,112.37	3,091.6	1	1,112.09	3,074.5	24	3,081.8	3,044.9	4,014.7	787.7
Mar.	1,112.20	3,081.6	1	1,110.86	3,000.0	!30	3,050.8	3,014.1	4,016.4	861.7
Apr.	1,110.86	3,000.0	1	1,110.33	2,968.6	30	2,984.5	3,007.9	3,981.0	962.8
May	1,110.50	2,978.4	!22	1,109.76	2,934.5	31	2,964.8	2,980.8	3,829.5	1,038.6
June	1,109.76	2,934.5	1	1,107.48	2,801.4	30	2,856.8	2,929.5	3,807.8	914.4
July	1,107.48	2,801.4	1	1,105.54	2,691.8	31	2,744.8	2,894.1	3,847.3	949.6
Aug.	1,105.54	2,691.8	1	1,104.59	2,638.9	31	2,660.0	2,975.3	3,941.3	963.9
Sept.	1,104.59	2,638.9	1	1,103.17	2,560.9	30	2,600.5	3,022.4	4,117.2	1,034.0
Oct.	1,104.86	2,653.4	!26	1,103.05	2,554.7	! 3	2,594.2	3,154.0	4,471.2	1,207.2
Nov.	1,105.64	2,697.3	30	1,104.86	2,653.4	! 1	2,681.9	3,176.3	4,241.4	1,263.2
Dec.	1,105.81	2,706.5	!12	1,105.41	2,684.4	!30	2,698.8	3,185.6	4,029.7	1,290.4
Yearly	1,112.42	3,094.6		1,103.05	2,554.7		2,832.9	3,037.4	3,950.8	1,047.6

* When necessary, the Commission may set temporary conservation levels ! And other days

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 86.1 river miles downstream from the old international highway bridge between Laredo, Texas and Nuevo Laredo, Tamaulipas and 274.8 river miles upstream from the Gulf of Mexico.

Maximum storage for period of record: 3,490,600 acre-feet on October 19, 1958 with an elevation of 308.11 feet above mean sea level, U. S. C. & G. S. datum.

Storage Capacities

(1971-1972 Survey)

Elevation	Description	At Indicated Elevation		Between Indicated Elevations	
		Reservoir Capacity Acre-Feet	Reservoir Area Acres	Storage Volume Acre-Feet	Type of Storage
175.0	Original River Bed at Dam Axis	0	0	67	Dead
203.3	Lowest Outlet (Mexican Penstock)	67	89	2,667,521	Silt & Conservation
301.2	Top of Conservation Storage *	2,667,588	86,843	509,505	Ordinary Flood
306.7	Top of Spillway Gates	3,177,093	98,512	801,323	Surcharge
314.2	Maximum Water Surface	3,978,416	115,406		

Storage in Thousands of Acre-Feet at 24:00 Hours 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2,019.5	1,912.8	1,908.6	1,980.5	1,433.8	964.1	1,036.8	1,040.4	1,006.2	1,088.3	1,184.2	1,245.0
2	2,015.3	1,906.5	1,913.4	1,979.8	1,409.8	966.2	1,031.9	1,039.5	1,003.5	1,088.8	1,182.7	1,244.0
3	2,011.0	1,900.3	1,916.9	1,978.4	1,386.0	968.8	1,025.2	1,038.2	1,000.5	1,089.3	1,182.2	1,243.0
4	2,011.7	1,896.9	1,921.1	1,974.9	1,363.7	971.4	1,019.0	1,038.2	997.4	1,090.7	1,182.7	1,242.0
5	2,009.6	1,893.4	1,923.8	1,970.0	1,338.9	971.4	1,017.2	1,041.8	994.8	1,090.7	1,183.2	1,241.0
6	2,006.0	1,890.0	1,928.0	1,963.6	1,313.4	978.3	1,015.0	1,045.8	990.4	1,089.7	1,186.6	1,239.0
7	2,005.3	1,887.9	1,932.2	1,955.2	1,289.3	984.3	1,012.3	1,049.0	987.4	1,088.8	1,197.0	1,238.5
8	2,004.6	1,885.2	1,934.3	1,946.4	1,265.5	990.4	1,010.1	1,051.2	986.1	1,087.4	1,207.4	1,238.5
9	2,002.5	1,883.1	1,936.4	1,934.3	1,246.1	998.7	1,007.9	1,049.4	986.1	1,097.6	1,217.4	1,239.0
10	1,998.9	1,881.1	1,937.1	1,921.8	1,223.9	1,004.9	1,004.9	1,046.7	986.5	1,098.6	1,218.4	1,240.0
11	1,998.2	1,887.9	1,938.5	1,907.9	1,204.9	1,011.0	1,004.9	1,043.6	988.3	1,112.1	1,221.9	1,240.0
12	1,993.3	1,883.1	1,940.5	1,890.0	1,187.1	1,015.9	1,006.6	1,044.9	988.3	1,123.9	1,225.9	1,239.0
13	1,990.4	1,878.3	1,941.2	1,868.7	1,169.5	1,019.0	1,008.8	1,047.2	992.6	1,125.8	1,229.9	1,238.0
14	1,986.2	1,881.1	1,942.6	1,845.6	1,149.7	1,023.9	1,011.0	1,049.4	996.5	1,128.2	1,233.9	1,236.4
15	1,980.5	1,883.8	1,944.0	1,818.5	1,130.6	1,028.3	1,014.1	1,051.2	998.7	1,130.6	1,235.9	1,234.9
16	1,974.9	1,882.4	1,946.1	1,793.7	1,110.7	1,035.5	1,016.3	1,052.6	1,001.3	1,133.0	1,236.9	1,233.4
17	1,970.0	1,878.3	1,947.5	1,768.5	1,092.5	1,041.8	1,019.0	1,052.6	1,004.4	1,133.9	1,238.0	1,231.4
18	1,965.8	1,878.3	1,948.9	1,744.2	1,077.7	1,048.1	1,022.5	1,050.3	1,005.7	1,133.0	1,239.0	1,231.9
19	1,962.2	1,879.0	1,950.3	1,722.2	1,061.7	1,053.0	1,027.0	1,047.2	1,007.0	1,133.0	1,240.5	1,231.9
20	1,958.7	1,879.7	1,948.9	1,700.9	1,047.2	1,056.2	1,030.5	1,043.1	1,050.8	1,139.6	1,241.5	1,232.9
21	1,955.9	1,877.6	1,944.0	1,677.4	1,031.4	1,057.1	1,033.2	1,040.4	1,060.8	1,138.7	1,243.0	1,234.4
22	1,953.8	1,876.9	1,946.8	1,652.8	1,015.4	1,056.2	1,035.5	1,037.3	1,065.3	1,154.5	1,244.5	1,236.4
23	1,951.0	1,874.9	1,949.6	1,628.5	999.6	1,049.6	1,037.3	1,033.7	1,070.8	1,176.4	1,245.0	1,239.0
24	1,949.6	1,872.8	1,952.4	1,601.4	983.5	1,051.7	1,039.1	1,027.4	1,074.5	1,184.2	1,244.0	1,240.0
25	1,945.4	1,886.5	1,959.4	1,576.5	971.0	1,051.7	1,040.0	1,023.4	1,077.3	1,186.6	1,243.5	1,235.9
26	1,941.2	1,891.4	1,965.8	1,552.5	957.3	1,050.8	1,039.5	1,019.4	1,079.1	1,187.1	1,245.0	1,230.4
27	1,934.3	1,898.2	1,972.8	1,530.0	946.7	1,048.5	1,039.1	1,016.8	1,079.6	1,187.6	1,246.1	1,231.4
28	1,930.1	1,903.1	1,974.9	1,504.2	949.2	1,045.8	1,039.5	1,018.1	1,083.7	1,187.1	1,245.6	1,232.9
29	1,928.0		1,977.0	1,482.8	951.7	1,043.6	1,042.2	1,014.1	1,086.9	1,186.6	1,245.0	1,233.9
30	1,924.5		1,978.4	1,459.3	954.3	1,039.1	1,042.7	1,011.9	1,088.3	1,186.2	1,245.0	1,234.4
31	1,919.7		1,979.8		961.1		1,042.7	1,007.9		1,185.2		1,234.9

Month	1983						Average Storage	Period 1954-1983		
	MOMENTARY MAXIMUM			MOMENTARY MINIMUM				Mean Monthly Storage		
	Elevation	Storage	Day	Elevation	Storage	Day		Average	Maximum	Minimum
Jan.	292.96	2,020.3	1	291.53	1,919.7	31	1,974.1	2,213.1	3,070.8	218.7
Feb.	291.53	1,919.7	1	290.85	1,872.8	24	1,886.8	2,108.2	3,009.6	156.2
Mar.	292.39	1,979.8	31	291.29	1,903.1	1	1,945.2	2,087.7	2,990.8	226.7
Apr.	292.40	1,980.5	1	284.26	1,459.3	30	1,777.7	1,991.2	2,954.6	325.6
May	284.26	1,459.3	1	273.85	946.7	27	1,136.2	1,865.6	2,869.9	490.1
June	276.37	1,057.1	21	274.19	961.1	1	1,020.8	1,793.6	2,789.1	273.7
July	276.05	1,042.7	!30	275.20	1,004.9	!10	1,024.9	1,874.8	2,692.7	209.9
Aug.	276.27	1,052.6	!16	275.27	1,007.9	31	1,037.8	1,851.2	2,771.4	208.0
Sept.	277.05	1,088.3	30	274.77	986.1	! 8	1,024.6	1,945.0	2,871.1	256.2
Oct.	279.13	1,187.6	27	277.03	1,087.4	8	1,134.3	2,168.3	3,250.2	308.3
Nov.	280.30	1,246.1	27	279.02	1,182.2	3	1,224.4	2,235.6	3,124.5	390.9
Dec.	280.28	1,245.0	1	279.99	1,230.4	26	1,236.9	2,263.2	3,129.7	343.4
Yearly	292.96	2,020.3		273.85	946.7		1,365.6	2,033.0	2,764.2	544.3

* When necessary, the Commission may set temporary conservation levels ! And other days

QUALITY OF WATER - 1983

Rio Grande at El Paso, Texas

LOCATION: At gaging station on Courchesne Bridge at river mile 1,255.7 (2,020.8 km); 5.5 river miles (8.9 km) upstream from Paso del Norte Bridge between El Paso, Texas and Cd. Juarez, Chihuahua.
RECORDS: Chemical analyses, February 1930 through 1983; biochemical analyses, September 1943 through 1972 and February 1976 through 1983; specific conductance 1930 through 1932 and 1937 through 1983; suspended silt, 1947 through 1976.
REMARKS: Sampling by International Boundary and Water Commission; chemical analyses by U.S. Geological Survey, biochemical analyses by Waste Water Treatment Plant Laboratory; specific conductance and silt determinations by International Boundary and Water Commission. Additional water quality parameters, including heavy metals, nutrients, pesticides, and biological indices, determined and published by U. S. Geological Survey.

1983 Date	Time Standard	Streamflow, Momentary Second-Feet	Specific Conductance Micromhos	pH Units	Temperature Deg C	Hardness, Total (as CaCO3) mg/L	Hardness, Noncarbonate (as CaCO3) mg/L	Calcium ion (Ca), Dissolved mg/L	Magnesium ion (Mg), Dissolved mg/L
Jan. 17	0930	72.0	2,330	8.2	9.0	520	240	150	34
Feb. 14	0915	266	1,360	8.0	9.0	300	98	86	20
Mar. 15	1530	634	939	7.8	13.5	240	78	70	15
Apr. 19	1540	725	1,000	8.1	18.5	250	77	74	15
May 17	1530	671	1,040	8.1	19.0	250	72	76	15
June 14	0915	600	1,110	7.9	19.0	280	90	84	17
July 20	0945	835	1,100	7.9	22.0	260	72	77	17
Aug. 17	1515	889	1,130	8.1	28.0	260	95	78	17
Sep. 19	1010	368	1,530	8.1	22.0	370	140	110	24
Oct. 18	0825	215	1,920	8.3	16.5	440	180	130	29
Nov. 28	1325	91.0	2,070	8.1	9.0	430	170	120	32
Dec. 21	0845	77.7	2,140	8.1	4.5	450	170	130	30

Samples taken at American Dam

1983 Date	Sodium ion (Na), Dissolved mg/L	Sodium Adsorption Ratio(SAR)	Potassium ion (K), Dissolved mg/L	Alkalinity Total (as CaCO3) mg/L	Sulfate ion (SO4), Dissolved mg/L	Chloride ion (Cl), Dissolved mg/L	Silica (SiO2), Dissolved mg/L	Solids Dissolved (Calculated) mg/L
Jan. 17	340	6.5	11	280	550	290	25	1,570
Feb. 14	180	4.8	7.0	200	280	160	21	874
Mar. 15	110	3.3	6.7	160	190	92	18	598
Apr. 19	120	3.5	7.1	170	210	99	14	641
May 17	120	3.5	7.0	180	200	97	14	637
June 14	130	3.6	7.4	190	220	100	16	689
July 20	130	3.7	8.1	190	240	100	17	703
Aug. 17	140	4.0	7.7	170	260	110	18	733
Sep. 19	200	4.8	8.9	230	350	170	23	1,020
Oct. 18	260	5.7	11	260	450	210	25	1,270
Nov. 28	300	6.3	10	260	490	260	27	1,400
Dec. 21	310	6.4	10	280	480	260	25	1,410

Samples taken at American Dam

1983 Date	Temperature Deg C	Oxygen, Dissolved (DO) mg/L	pH Units	Coliform, Fecal Colonies /100 mL	Oxygen Demand, Biochemical (BOD) mg/L
Jan. 4	10.0	10.8	7.5	75	2
11	7.8	10.0	8.4	310	3
18	7.8	8.0	8.3	80	2
25	6.1	9.6	8.1	70	3
Feb. 1	7.2	9.2	7.2	60	2
8	8.9	9.1	8.3	2	4
15	7.8	9.3	7.3	90	2
21	10.0	8.9	8.2	2,600	3
Mar. 1	12.2	8.3	8.2	380	6
8	12.2	9.0	8.3	50	5
15	9.4	7.6	8.3	380	5
22	12.2	9.2	8.3	220	2
29	12.2	8.2	8.2	150	2
Apr. 5	10.0	8.7	7.9		2
12	13.9	7.3	7.1	17,000	2
19	15.0	7.4	7.1	1,700	
26	17.8	8.1	7.1	1,400	5
May 3	12.2	8.7	8.3	300	5
10	16.7	8.0	7.5	210	1
17	16.7	7.7	8.3	190	2
24	18.9	6.7	8.1		4
31	22.2		8.1	190	5
June 7	22.8	7.5	8.2	400	3
14	18.9	7.4	8.0	100	
21	22.8	6.5	8.2	400	5
28	23.9	6.9	8.2	700	4

1983 Date	Temperature Deg C	Oxygen Dissolved (DO) mg/L	pH Units	Coliform, Fecal Colonies /100 mL	Oxygen Demand, Biochemical (BOD) mg/L
July 5	21.1	6.7	8.1	400	6
12	21.1	7.1	8.1	280	6
19	22.2	6.7	8.1		5
26	23.3	6.7	8.2	340	5
Aug. 2	22.2	6.5	8.4	270	3
9	22.2	6.8	8.2	1,100	5
16	23.3	7.0	8.3	1,500	5
23	25.0	7.1	7.9	1,800	2.5
30	24.4	7.0	8.4	1,900	6
Sep. 8	22.2	7.3	8.3	1,500	3.5
13	21.7	6.3	8.0	4,800	2
20	21.7	6.5	8.5	2,000	3
27	19.4	6.7	8.0	1,400	1.0
Oct. 4	17.8	7.7	8.0	1,400	1
11	17.8	7.7	8.0	1,400	4
18	16.7	7.8	8.0	1,400	5
25	11.1	8.6	8.1	2,000	3
Nov. 1	16.1	8.0	8.1	900	3
8	14.4	7.9	7.9	6,900	3
15	11.1	8.7	8.2	890	1
22	7.8	8.8	8.1	100	2
Dec. 6	5.6	9.2	8.1	440	3
13	3.9	9.9	8.3	32	2
20	3.9	10.0	8.3	610	2
27	5.6	9.2	8.2	400	3

QUALITY OF WATER - 1983

Rio Grande at El Paso, Texas

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROMHOS/CM @ 25 DEG C - 1983

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1		2,500	1,360	1,020		1,100	1,160	1,070	1,130		1,940	2,100
2		2,460	1,000		1,200	1,210		1,090	1,040		1,930	2,100
3	2,140	2,600	1,000		1,290	1,030		1,070		1,420	1,960	
4	2,250	2,460	991	1,040	966			1,090		1,360	1,960	
5	2,160			1,040	1,090		1,040	1,050		1,280		2,100
6	2,260			951	1,000	1,050	1,030		1,130	1,410		2,120
7		1,910	997	882		1,060	1,070		1,150	1,600	1,690	2,110
8		1,430	1,010	942		993	996	1,080	1,170		1,520	2,090
9		1,380	1,030		1,060	1,020		1,100	1,200		1,650	2,100
10	2,120	1,360	930		1,010	1,020		1,110			1,820	
11	2,090	1,350	1,020	1,180	1,030		1,040	1,050		1,780		
12	2,270			1,350	1,050		1,060	970	866	1,870		2,130
13	2,270			1,480	951	1,070	1,040		1,070	1,900		2,190
14	2,250	3,360	939	1,540		1,070	1,070		1,160	1,860	2,020	2,180
15		1,420	904	1,530		1,060		1,030	1,320		2,040	2,160
16		1,670	952		923	1,080		1,050	1,340		2,040	2,180
17	2,330	1,870	929		1,000	1,060		1,070		1,920	2,020	
18	2,180	2,000	990	994	979			1,080		1,910	2,060	
19	2,270			928	1,000		1,060	1,110	1,500	1,770		2,170
20	2,220			957	1,080	1,010	1,070		1,620	1,800		2,170
21	2,250		1,050	992		1,050	1,090		1,590	1,830	2,060	2,110
22		2,100	1,000	1,070		1,040	1,070	1,090	1,640		2,040	2,080
23		2,280	990		1,040	1,050		1,060	1,630		2,040	2,080
24	2,180	2,360	984		1,030	1,020		1,090		1,920		
25	2,320	2,530	977	1,060	1,000		996	1,080		1,910	2,060	
26	2,410			1,050	1,030		984	983	1,130	1,930		
27	2,450			1,040	1,080	1,020	1,010		1,170	1,920		2,130
28	2,480	2,350	975	1,040		1,060	1,000		1,230	1,870	2,070	2,120
29			1,100	962		1,040	1,080	1,060	1,190		2,100	2,030
30			1,050			1,090		1,130	1,000		2,120	2,110
31	2,400		1,070		1,110			1,130		1,930		

Samples taken at American Dam

Rio Grande at Riverside Canal Heading near El Paso, Texas and Cd. Juarez, Chihuahua

LOCATION: At river mile 1,237.3 (1,991.2 km), 9.5 miles (15.3 km) downstream from the Haskell R. Street Waste Water Treatment Plant and 16.7 river miles (26.8 km) downstream from the American Dam at El Paso, Texas.
RECORDS: Biochemical analyses, February 1976 through 1983. Samples also collected quarterly by the Texas Department of Water Resources one mile upstream at Ysleta-Zaragoza Bridge, 1937 through 1972 and May 1975 through 1983.
REMARKS: Sampling by International Boundary and Water Commission. Analyses by the Waste Water Treatment Plant Laboratory in El Paso.

1983 Date	Temperature Deg C	Oxygen, Dissolved (DO) mg/L	pH Units	Coliform, Fecal Colonies /100 mL	Oxygen Demand, Biochemical (BOD) mg/L
Jan. 4	7.8	9.0	7.8	0	4
11	7.8	8.2	7.9	10	6
18	12.2	5.2	7.6	16,100	26
25	8.9	8.3	7.6	0	3
Feb. 1			7.8	80	5
8	12.2	8.7	7.9	2,700	6
15	11.1	8.3	7.7	20	2
21	14.4	9.2	7.4	40	6
Mar. 1	13.9	7.5	7.9	10	5
8	12.2	8.4	8.1	30	6
15	14.4	7.4	7.9	1,800	7
22	11.1	8.3	8.1	130	4
29	15.6	9.6	7.9	10	2
Apr. 5	8.9	8.6	7.3	120	4
12	14.4	7.2	7.6	190	3
19			7.8	420	5
26	17.8		7.8	120	4
May 3	15.6	8.7	7.6	240	7
10	20.0	7.8	7.9	400	2
17	15.6	7.4	7.9	620	3
24	19.4	5.9	7.6		5
31	23.9		7.8	650	4
June 7	21.1	6.4	7.6	250	2
14	22.2	8.5	8.1	430	
21	25.0	8.1	8.7	450	13
28	23.9	5.4	8.0	600	2

1983 Date	Temperature Deg C	Oxygen, Dissolved (DO) mg/L	pH Units	Coliform, Fecal Colonies /100 mL	Oxygen Demand, Biochemical (BOD) mg/L
July 5	24.4	7.2	8.0	1,500	2
12	22.2	7.3	8.0	200	3.5
19	23.3	7.1	8.2		5
26	24.4	9.6	8.3	200	10
Aug. 2	26.7	6.6	8.2	360	2
9	23.3	6.4	8.0	1,500	.5
16	25.0	7.1	8.0	1,200	2
23	26.1	6.0	7.8	20,800	4
30	26.1	6.0	7.8	1,600	6
Sep. 8	24.4	6.9	8.1	1,200	7
13	22.2	6.4	7.9	6,800	3.5
20	22.2	10.4	8.9	1,100	11
27	22.2	7.2	7.7	1,000	4
Oct. 4	18.9	7.4	8.0	11,700	4
11	20.0	7.4	7.7	1,500	4
18	19.4	8.6	7.7	300	7
25	15.0	7.7	7.7	4,000	2
Nov. 1	17.8	6.4	7.7	200	3
8	16.7	6.7	7.6	1,700	7
15	11.7	7.6	7.9	80	5
22	11.1	7.4	7.6	1,400	5
Dec. 6	6.7	8.5	7.9	600	5
13	7.8	8.5	7.7	10	7
20	6.1	8.7	7.7	40	4
27	7.8	7.9	7.7	25,000	15

QUALITY OF WATER - 1983

Rio Grande at Fort Quitman, Texas near Colonia Luis Leon, Chihuahua

LOCATION: Gaging station at river mile 1,173.2 (1,888.1 km), 1.5 river miles (2.4 km) downstream from old Fort Quitman.
RECORDS: Chemical analyses, February 1938 through 1983; biochemical analyses, October 1974 through 1983; specific conductance (daily), October 1974 through 1977.
REMARKS: Sampling and analyses by U. S. Geological Survey. Additional water quality parameters, including heavy metals, nutrients, pesticides, and biological indices, determined and published by the U. S. Geological Survey. Sampling prior to 1977 by the International Boundary and Water Commission.

1983 Date	Time Std.	Streamflow, Momentary Sec.-Ft.	Specific Conductance Micromhos	pH Units	Temperature Deg C	Hardness, Total (as CaCO3) mg/L	Hardness, Noncarbonate (as CaCO3) mg/L	Calcium ion (Ca), Dissolved mg/L	Magnesium ion (Mg) mg/L	Sodium ion (Na), Dissolved mg/L	Sodium Adsorption Ratio (SAR)	Potassium ion (K), Dissolved mg/L
Jan. 6	1400	148	3,800	8.4	4.0	730	455	210	51	550	9.2	13
Feb.												
Mar. 3	1000	32.1	6,600	7.6	11.0	1,200	897	310	95	1,000	13	13
Apr.												
May 5	0800	53.0	5,100	8.3	16.0	940	675	260	70	810	12	12
June												
July 2	0800	19.3	6,800	8.0	24.0	1,200	919	320	90	1,000	13	13
Aug.												
Sep. 2	0800	60.3	5,000	8.0	24.0	950	727	260	72	860	13	12
Oct.												
Nov. 2	1000	185	3,850	7.9	18.0	680	429	190	50	550	9.5	12
Dec.												

1983 Date	Sulfate ion (SO4), Dissolved mg/L	Chloride ion (Cl), Dissolved mg/L	Silica (SiO2), Dissolved mg/L	Oxygen Dissolved (DO) mg/L	Coliform Fecal Cols./100 mL	Turbidity NTU	Solids, Dissolved (calculated) mg/L	Solids, Dissolved (Residue @ 180 Deg C) mg/L	Suspended Sediment mg/L
Jan. 6	650	780	29	11.4	930	18	2,460	2,430	87
Feb.									
Mar. 3	1,100	1,400	24	8.6	100	4.5	4,110	4,440	41
Apr.									
May 5	890	1,100	21	8.6	140	56	3,320	3,300	140
June									
July 2	1,100	1,600	23	9.2	100	6.6	4,310	4,380	39
Aug.									
Sep. 2	910	1,300	28	8.2	210	100	3,580	3,660	190
Oct.									
Nov. 2	620	750	27	7.4	210	90	2,360	2,520	355
Dec.									

QUALITY OF WATER - 1983

Rio Grande above Rio Conchos near Presidio, Texas and Ojinaga, Chihuahua

LOCATION: Gaging station at river mile 966.4 (1,555.3 km); 5.1 river miles (10.5 km) upstream from the Rio Conchos.
RECORDS: Chemical analyses, February 1933 through 1981; specific conductance, 1931; 1935 through 1983.
REMARKS: Sampling by the International Boundary and Water Commission; chemical analyses by the U.S. Geological Survey; determinations for specific conductance by International Boundary and Water Commission. Results of biochemical analyses by Texas Department of Water Resources, November 1977 through 1983, available on request.

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROMHOS/CM @ 25 DEG C - 1983

January		March		May		June		August		October		November	
4	3,930	8	3,990	3	4,010	28	1,770	16	1,190	4	1,710	21	3,040
10	3,890	14	4,460	9	1,450	29	2,350	22	1,260	11	1,310	29	3,260
18	3,480	22	4,790	17	3,540	July		30	1,300	18	2,080	December	
24	3,620	April		23	2,040	5	2,070	September		24	1,780	1	3,110
February		1	5,640	31	2,880	11	1,720	7	1,370	31	3,190	5	3,440
1	3,500	5	4,760	June		19	1,490	12	1,150	November		12	3,190
8	3,660	11	2,980	6	2,200	25	1,110	20	1,620	2	3,040	20	2,930
14	4,020	19	3,480	14	2,580	August		26	1,340	7	2,880	27	2,930
23	4,490	25	3,350	20	1,880	2	1,320	28	1,320	15	2,960		
28	4,100					8	1,210	30	676				

Rio Conchos near Ojinaga, Chihuahua

LOCATION: At gaging station, 1.5 river miles (2.5 km) from the confluence with the Rio Grande, which is located at river mile 961.4 (1,547.2 km).
RECORDS: Chemical analyses, February 1935 through 1981; suspended silt, 1956 through 1979, specific conductance, 1935 through 1983.
REMARKS: Sampling and determinations for suspended silt and specific conductance by the International Boundary and Water Commission; chemical analyses by the U. S. Geological Survey.

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROMHOS/CM @ 25 DEG C - 1983

January		March		April		May		July		October		November	
17	1,330	2	1,390	12	1,430	27	1,310	8	1,570	3	1,150	21	1,370
19	1,310	4	1,490	14	1,350	30	1,300	12	1,600	7	1,310	24	1,230
21	1,270	8	1,530	19	1,310	June		13	1,700	10	1,080	28	1,290
24	1,260	9	1,550	21	1,460	1	1,300	15	1,650	13	1,360	December	
26	1,320	11	1,460	25	1,540	4	1,100	September		17	1,350	5	1,500
28	1,380	14	1,560	29	1,250	6	1,310	5	1,390	20	695	9	1,520
31	1,350	18	1,460	May		8	1,280	7	1,370	25	1,290	12	1,460
February		23	1,380	2	1,210	13	1,390	9	1,350	28	1,240	14	1,560
2	1,320	25	1,550	4	1,220	15	1,540	13	1,380	November		16	1,490
4	1,300	28	1,480	9	1,290	29	1,410	19	1,320	1	1,280	19	1,510
7	1,390	30	1,440	11	1,150	July		23	1,380	7	910	21	1,590
9	1,320	April		17	1,220	1	1,800	27	1,400	10	1,250	26	1,570
11	1,350	5	1,360	20	1,240	4	1,900	28	1,410	14	1,340	28	1,520
		6	1,520	23	1,250	7	1,590	29	1,350	17	1,330	30	1,540
		8	1,410	25	1,050								

Rio Grande below Rio Conchos near Presidio, Texas and Ojinaga, Chihuahua

LOCATION: Gaging station at river mile 949.8 (1,258.5 km); 0.4 river mile (0.6 km) downstream from Alamito Creek and 11.6 river miles (18.7 km) downstream from the Rio Conchos.
RECORDS: Specific conductance, 1956 through 1983.
REMARKS: Sampling and determinations for specific conductance by the International Boundary and Water Commission. Results of biochemical analyses by Texas Department of Water Resources, November 1977 through 1983, available on request.

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROMHOS/CM @ 25 DEG C - 1983

January		March		May		June		August		October		November	
4	2,650	8	1,990	3	1,820	20	1,620	11	1,200	1	1,030	15	1,710
11	1,970	14	1,950	9	1,660	28	1,570	16	1,040	4	1,230	21	1,650
18	1,930	23	2,050	12	1,320	July		22	1,220	11	1,320	29	1,910
25	2,040	28	1,830	17	1,330	5	1,870	30	1,280	18	1,500	December	
February		April		23	1,340	11	1,630	September		24	1,380	1	2,010
1	1,970	1	2,060	31	1,540	19	1,520	7	1,410	31	1,600	6	2,050
8	1,930	5	2,130	June		25	1,530	12	1,450	November		12	2,140
14	1,990	11	1,940	6	1,420	August		20	1,390	2	1,600	20	2,040
25	2,430	19	2,080	14	1,520	2	1,500	27	1,420	7	1,200	28	2,100
		25	2,470			8	1,520						

QUALITY OF WATER - 1983

Rio Grande at Foster Ranch near Langtry, Texas and Rancho Santa Rosa, Coahuila

LOCATION: Gaging station at river mile 657.5 (1,058.2 km), about 12.3 miles (19.8 km) west of Langtry, Texas.
RECORDS: Chemical analyses, March 1969 through 1970 and October 1974 through 1983; biochemical, October 1974 through 1983; suspended silt, 1969 through 1983; specific conductance, 1969 through 1981, 1983.
REMARKS: Sampling and analyses by U. S. Geological Survey; sampling and determinations for suspended silt and specific conductance by the International Boundary and Water Commission. Additional water quality parameters, including heavy metals, nutrients, pesticides, and biological indices, determined and published by the U. S. Geological Survey.

1983 Date	Time Std.	Stream-flow, Momen-tary Sec.-Ft.	Specific Conduct-ance Micromhos	pH Units	Temper-ature Deg C	Hard-ness, Total (as CaCO3) mg/L	Hard-ness, Noncar-bonate (as CaCO3) mg/L	Calcium ion (Ca), Dis-solved mg/L	Magne-sium ion (Mg) mg/L	Sodium ion (Na), Dis-solved mg/L	Sodium Adsor-ption Ratio (SAR)	Potassium ion (K), Dissolved mg/L
Jan.												
Feb. 2	1250	569	1,220	7.6	14.0	310	145	85	22	150	3.9	5.2
Mar.												
Apr.												
May												
June 8	1210	774	1,200	7.3	26.0	290	148	83	19	160	4.3	6.9
July												
Aug. 3	1215	529	965	7.7	28.0	260	118	73	18	99	2.8	3.2
Sep.												
Oct. 12	1330	1,060	700	7.5	23.0	180	48	58	7.7	78	2.7	5.6
Nov.												
Dec.												

1983 Date	Alka-linity Total (as CaCO3) mg/L	Sulfate ion (SO4), Dis-solved mg/L	Chlo-ride ion (Cl), Dis-solved mg/L	Silica (SiO2), Dis-solved mg/L	Oxygen, Dis-solved (DO) mg/L	Coli-form, Fecal Cols./ 100 mL	Oxygen Demand, Bio-Chemical (BOD) 5 Day mg/L	Tur-bidity NTU	Solids Dis-solved (Calcu-lated) mg/L	Solids Dis-solved (Residue @ 180 Deg C) mg/L	Sus-pended Sedi-ment mg/L
Jan.											
Feb. 2	160	280	120	23	8.8	30	1.2	340	785	801	368
Mar.											
Apr.											
May											
June 8	140	340	93	27	8.6	660	1.2	310	817	824	522
July											
Aug. 3	140	240	60	21	8.5	80	1.2	400	601	639	327
Sep.											
Oct. 12	130	170	34	20	8.6	3,300	6.7	2,900	454	443	
Nov.											
Dec.											

SUSPENDED SILT - 1983

Date	Time Std.	Stream-flow, Momen-tary Sec.-Ft.	Gravimetric Percent	Date	Time Std.	Stream-flow, Momen-tary Sec.-Ft.	Gravimetric Percent	Date	Time Std.	Stream-flow, Momen-tary Sec.-Ft.	Gravimetric Percent
Jan. 3	0945	498	0.003200	May 2	1300	529	0.01400	Oct. 3	1015	594	0.07860
17	0955	604	.002240	June 6	0845	759	.05644	17	1015	849	.02512
Feb.22	0955	533	.008680	July 5	0920	438	.02140	20	1145	7,460	.6868
Mar. 8	1045	604	.02404	18	0905	519	.02444	Nov. 7	0940	3,700	1.0249
21	1115	498	.01504	Aug. 1	0955	628	.03032	21	1005	916	.02392
Apr. 4	1015	498	.01052	15	1000	2,040	2.1265	Dec. 5	0955	747	.01104
16	1030	533	.1413	Sep. 6	1010	971	.03284	19	0915	628	.003680
18	1035	569	.01772	19	0915	722	.04744				

QUALITY OF WATER - 1983

Rio Grande at Foster Ranch near Langtry, Texas and Rancho Santa Rosa, Coahuila

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROMHOS/CM @ 25 DEG C - 1983

January		March		April		June		August		October		November	
3	1,110	8	1,180	16	1,280	6	1,190	1	1,210	3	1,110	7	1,370
17	1,190	21	1,200	18	1,270	July		15	939	17	1,140	21	1,290
February		April		May		5	1,230	September		20	470	December	
22	1,210	4	1,380	2	1,280	18	990	6	1,150			5	1,250
								19	1,750			19	1,420

Pecos River near Langtry, Texas

LOCATION: At gaging station, 15.0 river miles (24.1 km) from the confluence with the Rio Grande, which is located at river mile 616.0 (991.4 km).
RECORDS: Chemical analyses, 1967 through 1983; biochemical analyses, October 1974 through 1983; suspended silt, November 1954 through 1976; specific conductance, 1969 through 1983.
REMARKS: Sampling and analyses by U. S. Geological Survey; sampling and determinations for specific conductance by the International Boundary and Water Commission. Additional water quality parameters, including heavy metals, nutrients, pesticides, and biological indices, determined and published by the U. S. Geological Survey.

1983 Date	Time Std.	Stream-flow, Momen-tary Sec.-Ft.	Specific Conduct-ance Micromhos	pH Units	Temper-ature Deg C	Hard-ness, Total (as CaCO3) mg/L	Hard-ness, Noncar-bonate (as CaCO3) mg/L	Calcium ion (Ca), Dis-solved mg/L	Magne-sium ion (Mg) mg/L	Sodium ion (Na), Dis-solved mg/L	Sodium Adsor-ption Ratio (SAR)	Potassium ion (K), Dissolved mg/L
Jan.												
Feb. 2	0940	183	4,000	7.7	13.0	820	686	180	88	570	9.0	8.7
Mar.												
Apr. 6	0945	153	3,860	7.9	18.0	740	608	160	82	550	9.1	8.3
May												
June 8	0930	139	2,320	7.1	27.0	480	339	110	49	330	6.8	6.1
July												
Aug. 3	0830	94.2	2,500	7.5	28.5	450	338	96	50	340	7.2	6.4
Sep.												
Oct. 12	0930	106	1,960	7.8	23.0	390	283	86	43	270	6.1	5.7
Nov.												
Dec. 6	1515	183	2,630	7.8	14.0	570	412	130	60	370	6.9	6.4

1983 Date	Alka-linity Total (as CaCO3) mg/L	Sulfate ion (SO4), Dis-solved mg/L	Chlo-ride ion (Cl), Dis-solved mg/L	Silica (SiO2), Dis-solved mg/L	Oxygen, Dis-solved (DO) mg/L	Coli-form, Fecal Cols./ 100 mL	Oxygen Demand, Bio-Chemical (BOD) 5 Day mg/L	Tur-bidity NTU	Solids Dis-solved (Calcu-lated) mg/L	Solids Dis-solved (Residue @ 180 Deg C) mg/L	Sus-pended Sedi-ment mg/L
Jan.											
Feb. 2	130	540	1,000	11	8.7	10	8.0	0.6	2,480	2,530	7
Mar.											
Apr. 6	130	510	930	9.7	9.3	10	1.3	.6	2,330	2,490	12
May											
June 8	140	310	540	11	9.2	21	1.1	3.0	1,440	1,490	5
July											
Aug. 3	110	290	540	15	9.4	23	.8	.8	1,410	1,510	4
Sep.											
Oct. 12	110	250	460	11	9.8	11	.3	.8	1,190	1,210	
Nov.											
Dec. 6	160	350	640	14	11.6	13	1.6	.2	1,670	1,690	

QUALITY OF WATER - 1983

Pecos River near Langtry, Texas

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROMHOS/CM @ 25 DEG C - 1983

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	3,670	4,000	3,570	3,850	3,640	2,990	2,360	2,660	2,590	2,490	2,190	2,480
2	3,680	4,030	3,780	3,880	3,610	3,000	2,460	2,650	2,560	2,440	2,360	2,500
3	3,680	4,030	3,840	3,770	3,580	3,000	2,530	2,500	2,570	2,400	2,420	2,520
4	3,720	4,060	3,720	3,910	3,570	2,980	2,550	2,530	2,590	2,300	2,440	2,550
5	3,740	4,040	3,870	3,890	3,570	2,970	2,600	2,520	2,600	2,260	1,750	2,580
6	3,770	4,040	3,880	3,910	3,570	2,910	2,610	2,500	2,600	2,220	1,810	2,630
7	3,780	4,010	3,900	3,920	3,580	2,800	2,610	2,510	2,600	2,210	1,830	2,640
8	3,800	4,020	3,980	3,900	3,550	2,340	2,610	2,540	2,600	2,190	1,850	2,620
9	3,810	4,040	4,000	3,870	3,450	2,670	2,620	2,540	2,600	2,180	1,890	2,610
10	3,800	4,040	4,000	3,840	3,420	2,830	2,630	2,540	2,590	2,170	1,910	2,600
11	3,810	4,040	3,990	3,810	3,340	2,820	2,640	2,550	2,590	2,130	1,940	2,610
12	3,820	4,040	3,970	3,830	3,160	2,810	2,660	2,540	2,580	2,070	1,980	2,680
13	3,840	4,030	3,990	3,830	3,240	2,890	2,660	2,540	2,570	2,080	2,000	2,740
14	3,860	3,950	3,980	3,840	3,270	2,920	2,640	2,550	2,550	2,100	2,040	2,720
15	3,890	3,950	3,980	3,840	3,280	2,940	2,640	2,540	2,540	2,090	2,060	2,730
16	3,910	4,000	3,970	3,830	3,280	2,940	2,700	2,550	2,540	2,080	2,070	2,730
17	3,920	3,970	3,960	3,830	3,280	2,910	2,640	2,560	2,540	2,060	2,100	2,730
18	3,930	4,000	3,970	3,810	3,270	2,880	2,700	2,570	2,540	2,070	2,110	2,740
19	3,930	4,020	3,810	3,810	3,230	2,840	2,630	2,570	2,540	1,850	2,150	2,750
20	3,910	4,040	3,990	3,800	3,100	2,790	2,630	2,570	2,540	450	2,180	2,770
21	3,870	4,050	3,990	3,790	1,840	2,720	2,630	2,580	2,550	570	2,210	2,770
22	3,800	4,050	4,000	3,790	1,070	2,780	2,630	2,580	2,550	750	2,240	2,760
23	3,800	4,050	4,000	3,780	1,320	2,770	2,630	2,580	2,550	950	2,260	2,770
24	3,890	4,050	3,790	3,770	2,480	2,790	2,630	2,580	2,550	1,200	2,300	2,770
25	3,940	3,980	3,840	3,750	2,960	2,480	2,650	2,590	2,550	1,150	2,320	2,800
26	3,960	3,900	3,940	3,740	3,030	1,780	2,660	2,590	2,540	1,400	2,330	2,820
27	3,970	2,850	3,890	3,720	3,050	1,680	2,660	2,590	2,540	1,560	2,360	2,850
28	3,980	2,760	3,850	3,710	3,040	2,040	2,660	2,590	2,550	1,980	2,390	2,860
29	3,990		3,790	3,700	3,040	2,110	2,660	2,580	2,550	2,240	2,420	2,840
30	4,000		3,830	3,660	3,040	2,270	2,660	2,590	2,540	2,060	2,440	2,850
31	4,000		3,820		3,000		2,660	2,590		2,090		2,860

QUALITY OF WATER - 1983

Devils River at Pafford Crossing near Comstock, Texas

LOCATION: At gaging station 25.5 river miles (41.0 km) from the confluence with the Rio Grande, which is located at river mile 574.6 (924.7 km).
RECORDS: Specific conductance, 1968 through 1983.
REMARKS: Sampling and determinations for specific conductance by the U. S. Geological Survey. Sampling prior to 1978 by the International Boundary and Water Commission. Chemical and biochemical analyses, 1978 through 1983 available from U. S. Geological Survey.

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROMHOS/CM @ 25 DEG C - 1983

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	399	415	415	404	377	378	355	356	358	355	359	370
2	400	413	415	400	376	377	355	357	358	350	360	370
3	402	415	415	395	374	377	352	350	358	353	359	370
4	404	416	415	390	380	377	351	348	359	349	357	371
5	403	417	415	384	378	378	348	348	359	345	334	371
6	405	415	415	389	377	375	356	355	359	350	308	371
7	405	419	415	392	371	376	350	351	359	355	350	371
8	401	420	415	395	377	370	356	350	359	347	366	376
9	403	416	415	397	376	369	360	354	359	340	358	374
10	402	412	415	400	376	367	361	357	359	345	357	377
11	399	415	415	398	376	366	360	358	359	352	368	383
12	404	408	415	392	376	363	355	358	358	351	367	389
13	404	413	415	388	377	363	354	358	358	355	359	390
14	406	412	415	384	377	362	355	358	358	357	356	395
15	406	415	415	391	377	366	359	358	358	354	359	402
16	410	413	415	392	377	369	361	358	358	356	367	404
17	410	415	416	393	377	367	359	358	359	354	367	410
18	411	413	416	393	377	371	354	358	358	353	368	418
19	415	415	416	381	377	372	356	358	358	350	367	427
20	412	415	416	388	375	362	358	358	358	164	370	431
21	408	415	416	381	369	368	355	359	359	168	371	435
22	411	415	416	378	367	362	351	359	359	237	369	440
23	411	415	416	379	374	358	354	359	359	285	367	446
24	413	415	416	383	375	360	357	359	359	350	365	452
25	417	415	416	385	376	355	359	359	359	413	370	463
26	413	415	416	385	376	365	358	358	358	431	368	463
27	418	415	415	385	376	361	358	358	359	401	365	465
28	418	415	414	384	376	361	357	358	358	355	367	468
29	414		412	380	377	360	356	358	358	357	369	474
30	420		410	380	377	357	352	358	358	360	370	485
31	416		408		377		345	358		359		483

QUALITY OF WATER - 1983

Rio Grande below Amistad Dam near Cd. Acuna, Coahuila and Del Rio, Texas

LOCATION: Gaging station at river mile 571.8 (920.3 km), 2.2 river miles (3.4 km) downstream from Amistad Dam.
RECORDS: Chemical analyses, July 1968 through 1983; suspended silt, 1969 through 1976; specific conductance 1968 through 1983.
REMARKS: Sampling for chemical analyses by the International Boundary and Water Commission, analyses by the U. S. Geological Survey. Sampling and determinations for specific conductance by the International Boundary and Water Commission.

1983 Date	Time Standard	Streamflow, Momentary Second-Feet	Specific Conductance Micromhos	pH Units	Temperature Deg C	Hardness, Total (as CaCO3) mg/L	Hardness, Noncarbonate (as CaCO3) mg/L	Calcium ion (Ca), Dissolved mg/L	Magnesium ion (Mg), Dissolved mg/L
Jan. 19	0820	1,120	1,010	8.1	11.5	250	130	72	18
Feb. 16	0825	1,420	988	8.3	11.0	250	120	70	18
Mar. 16	0820	1,420	982	8.0	13.5	260	130	73	19
Apr. 20	0800	1,470	1,010	8.2	16.5	260	130	73	19
May 18	0755	1,550	1,040	8.2	20.5	260	130	74	19
June 15	0710	3,710	1,060	8.0	20.0	270	140	75	20
July 20	0725	2,220	1,070	8.0	18.0	260	120	71	19
Aug. 17	0920	2,220	1,070	7.9	18.0	280	140	78	20
Sep. 21	0710	1,970	1,080	7.9	19.0	270	130	77	20
Oct. 20	0725	1,880	898	7.9	21.0	230	120	65	16
Nov. 16	0800	727	1,060	7.9	14.0	270	160	73	21
Dec. 21	0800	396	1,090	8.0	11.5	270	150	74	20

1983 Date	Sodium ion (Na), Dissolved mg/L	Sodium Adsorption Ratio(SAR)	Potassium ion (K), Dissolved mg/L	Alkalinity Total (as CaCO3) mg/L	Sulfate ion (SO4), Dissolved mg/L	Chloride ion (Cl), Dissolved mg/L	Silica (SiO2), Dissolved mg/L	Solids Dissolved (Calculated) mg/L
Jan. 19	120	3.5	4.7	120	220	120	18	645
Feb. 16	110	3.2	4.3	130	210	110	18	618
Mar. 16	110	3.2	5.0	130	200	110	17	612
Apr. 20	110	3.2	4.7	130	210	110	17	622
May 18	110	3.1	4.6	130	210	120	17	633
June 15	120	3.4	4.8	130	220	120	17	655
July 20	120	3.5	5.2	140	210	130	17	656
Aug. 17	120	3.3	4.9	140	220	120	18	665
Sep. 21	120	3.4	4.5	140	230	130	18	684
Oct. 20	99	3.0	4.6	110	190	99	15	555
Nov. 16	120	3.4	5.0	110	230	130	18	663
Dec. 21	120	3.4	5.0	120	240	130	18	679

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROMHOS/CM @ 25 DEG C - 1983

January		February		April		June		July		September		November	
3	978	23	1,000	13	1,030	1	1,040	22	1,050	12	1,060	7	1,080
5	1,000	25	973	15	1,000	3	980	25	1,030	14	1,060	10	1,050
7	994	28	1,020	18	1,020	6	1,060	27	1,040	16	1,070	14	1,060
10	1,010	March		20	1,010	8	1,050	29	1,010	19	1,060	16	1,070
12	1,010	3	1,000	22	1,020	9	1,050	August		21	1,020	18	1,070
14	1,010	4	1,010	25	1,030	10	1,060	1	1,050	23	1,070	21	1,060
17	1,010	7	1,010	27	1,040	13	1,060	3	1,060	26	1,070	23	1,070
19	1,010	9	1,010	29	1,040	15	1,060	5	1,070	28	1,060	25	1,060
21	1,020	11	1,010	May		17	1,060	8	1,380	October		28	1,060
24	1,010	14	1,020	2	1,030	20	1,040	10	1,060	4	1,080	30	1,070
26	1,010	16	994	4	1,010	22	1,060	12	1,060	5	1,060	December	
28	1,000	18	1,020	6	1,050	24	1,060	15	1,050	7	1,080	2	1,070
31	1,020	22	1,030	9	1,050	27	1,060	17	1,040	11	1,080	5	1,070
February		23	1,030	11	1,040	29	1,060	19	1,060	20	902	7	1,070
3	1,010	25	1,030	13	1,040	July		22	1,020	21	977	9	1,070
4	1,020	28	1,030	16	1,020	1	1,050	24	1,040	24	1,070	12	1,070
7	1,010	30	1,030	18	1,050	5	1,050	26	1,030	25	1,080	14	1,070
9	1,020	April		20	1,050	8	1,040	29	1,060	28	1,080	16	1,070
11	1,020	1	1,030	23	1,040	11	1,050	31	1,060	31	1,080	19	1,070
14	1,020	4	1,030	25	1,060	13	1,040	September		November		21	1,070
16	1,010	6	1,040	27	1,080	15	1,050	6	1,060	2	1,080	23	1,070
18	1,010	8	1,020	31	1,040	18	1,020	9	1,050	4	1,080	27	1,070
22	1,010	11	1,020			20	1,040					30	1,070

QUALITY OF WATER - 1983

Rio Grande near Jimenez, Coahuila and Quemado, Texas

LOCATION: Near gaging station at Maverick Canal Headgates. The canal intake is at river mile 543.6 (874.9 km), 13.3 river miles (21.5 km) above the gaging station.
RECORDS: Specific conductance, 1954 through 1983.
REMARKS: Sampling and determinations by the International Boundary and Water Commission.

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROMHOS/CM @ 25 DEG C - 1983

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	946	967	976	1,010	1,010	1,030		1,030	1,050	1,060	1,050	640
2	946	951	958	1,010	1,050	1,040	1,040	1,050	1,030	1,050	1,040	599
3	944	966	947	963	1,040	1,050	1,040	1,050	1,020	1,040	1,040	605
4	934	958	975	982	1,040	1,060	1,040	1,060	1,070	1,050	1,040	790
5	929	963	973	971	1,030	1,040	1,030	1,050	1,060	1,050	1,030	895
6	938	957	944	969	1,050	1,050	1,030	1,060	1,060	1,050	860	551
7	942	962	957	969	1,050	1,020	1,040	1,050	1,060	1,040	1,010	582
8	945	969	960	969	1,040	1,030	1,030	1,050	1,050	512	1,030	588
9	941	969	960	970	1,040	1,040	1,030	1,050	1,050	525	1,030	664
10	931	964	955	970	1,050	1,050	1,040	1,020	1,060	830	1,000	856
11	930	956	958	966	1,070	1,050	998	1,060	1,070	682	998	522
12	930	960	963	966	1,050	1,040	1,040	1,060	1,040	1,020	988	916
13	932	957	975		1,040	1,050	1,040	1,060	1,050	1,040	994	599
14	936	950	980	975	1,060	1,050	1,040	1,050	1,040	1,050	998	606
15	938	968	975	980	1,070	1,050	1,030	1,060	1,050	1,040	997	922
16	942	955	971	978	1,050	1,050	1,040	1,060	1,050	1,050	1,000	672
17	938	954	966	984	1,040	1,080	1,050	1,050	1,060	1,050	1,000	589
18	936	954	967	993	1,040	1,040	1,040	1,050	1,010	1,020	998	737
19	949	960	1,010	998	1,030	1,040	1,050	1,050	1,030	1,050	1,000	758
20	946	952	1,000	1,000	943	1,040	1,050	1,060	1,040	461	993	962
21	939	959	993	978	1,040	1,040	1,040	1,060	1,060	396	992	528
22	950	963	995	1,000	1,050	1,050	1,040	1,050	1,060	1,020	1,000	899
23	953	954	1,010	989	1,050	1,030	1,050	1,060	1,060	996	1,000	894
24	946	956	1,010	970	1,080	1,030	1,040	1,060	1,050	1,010	991	650
25	948	954	1,000	965	1,050	1,040	1,060	1,050	1,060	1,020	970	854
26	951	942	982	976	1,050	1,020	1,050	1,050	1,050	1,040	964	969
27	960	950	989	988	1,050	1,020	1,060	1,060	1,050	1,040	951	1,030
28	952	953	986	979	1,040	1,020	1,050	1,060	1,050	1,030	969	964
29	953		984	990	1,040	1,030	1,060	1,060	1,050	1,040	949	1,020
30	955		985	1,000	1,060	1,040	1,050	1,050	1,050	1,040	955	1,020
31	951		983				1,050	1,060		1,030		1,020

Rio Grande near El Indio, Texas and Villa Guerrero, Coahuila

LOCATION: Gaging station at river mile 460.4 (741.0 km), 35.9 river miles (57.8 km) downstream from the international highway bridge between Eagle Pass, Texas and Piedras Negras, Coahuila.
RECORDS: Specific conductance 1954 through 1983.
REMARKS: Sampling and determinations by the International Boundary and Water Commission.

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROMHOS/CM @ 25 DEG C - 1983

January		March		May		July		August		October		November	
5	966	2	798	3	1,040	6	1,040	16	1,050	4	1,060	15	899
18	983	16	982	19	470	22	1,070	September		21	470	December	
February		April		June		August		7	1,130	November		13	934
1	999	6	1,020	2	1,050	3	1,090	19	322	2	1,050		
15	996	19	1,030	14	1,060								

QUALITY OF WATER - 1983

Rio Grande at Nuevo Laredo, Tamaulipas and Laredo, Texas

LOCATION: Samples for biochemical analyses, specific conductance, and suspended silt collected at the Laredo Water Plant, river mile 364.0 (585.8 km); for chemical and biochemical analyses at International Bridge II, river mile 360.6 (580.3 km).
RECORDS: Chemical analyses, 1955 through 1976: chemical and biochemical analyses, 1973 through 1983; biochemical analyses, September 1968 through 1983; suspended silt, 1953 through 1983; specific conductance, 1948-1949 and 1955 through 1983.
REMARKS: Samples for chemical and biochemical analyses collected and analyzed by the U. S. Geological Survey; sampling and determinations for suspended silt and specific conductance by the International Boundary and Water Commission and the Texas Department of Water Resources. Additional water quality parameters, including heavy metals, nutrients, pesticides, and biological indices, determined and published by the U. S. Geological Survey.

1983 Date	Time Std.	Stream-flow, Momen-tary Sec.-Ft.	Specific Conduct-ance Micromhos	pH Units	Temper-ature Deg C	Hard-ness, Total (as CaCO3) mg/L	Hard-ness, Noncar-bonate (as CaCO3) mg/L	Calcium ion (Ca), Dis-solved mg/L	Magne-sium ion (Mg) mg/L	Sodium ion (Na), Dis-solved mg/L	Sodium Adsor-ption Ratio (SAR)	Potassium ion (K), Dissolved mg/L
Jan. 25	0920	1,750	1,000	8.2	11.5	280	129	78	20	100	2.7	3.8
Feb.												
Mar. 16	1540	1,750	990	8.4	19.0	260	133	74	19	98	2.7	3.7
Apr.												
May 11	0914	1,260	1,200	8.2	25.0	280	148	76	21	120	3.3	4.8
June												
July 28	1308	1,940	1,110	8.3	28.0	270	153	74	21	120	3.3	4.9
Aug.												
Sep. 7	1115	2,080	1,060	8.2	29.0	270	138	74	20	120	3.3	4.7
Oct.												
Nov. 8	1452	6,110	785	8.1	23.0	230	109	68	14	71	2.1	4.2
Dec.												

1983 Date	Alka-linity Total (as CaCO3) mg/L	Sulfate ion (SO4), Dis-solved mg/L	Chlo-ride ion (C1), Dis-solved mg/L	Silica (SiO2), Dis-solved mg/L	Oxygen, Dis-solved (DO) mg/L	Coli-form, Fecal Cols./ 100 mL	Oxygen Demand, Bio-Chemical (BOD) 5 Day mg/L	Tur-bidity NTU	Solids Dis-solved (Calcu-lated) mg/L	Solids Dis-solved (Residue @ 180 Deg C) mg/L	Sus-pended Sedi-ment mg/L
Jan. 25	150	210	100	12	10.7	280	1.0	4.4	616	637	16
Feb.											
Mar. 16	130	200	100	13	9.5	3,800	1.0	17	587	589	37
Apr.											
May 11	130	240	130	17	7.0	55,000	2.4	26	690	679	53
June											
July 28	120	230	130	18	7.2		1.6	22	672	677	41
Aug.											
Sep. 7	130	230	140	17	10.3	14	1.2	22	685	684	
Oct.											
Nov. 8	120	150	73	14	7.6	67,000	2.9	180	468	489	
Dec.											

1983 Date	Time Std.	Stream-flow, Momen-tary Sec-Ft.	Specific Conduct-ance Micro-mhos	pH Units	Tem-pera-ture Deg C	Oxygen, Dis-solved (DO) mg/L	Coli-form, Fecal Cols./ 100 mL	Oxygen Demand, Bio-Chemical (BOD) 5 Day mg/L	Alkalinity Total (as CaCO3) mg/L	Sulfate ion (SO4), Dis-solved mg/L	Chloride ion (C1), Dis-solved mg/L	Solids, Dis-solved (Residue @ 180 Deg C mg/L	Sus-pended Sedi-ment mg/L
Jan. 18	0910	1,500	1,040	8.6	14.5	9.5	10	1.0	128	217	104	620	20
Feb. 22	0900	1,740	1,000	8.1	15.5	9.9	0	1.0	130	235	109	680	40
Mar. 8	1150	2,010	902	8.4	19.7	9.6	20		144	181	78		30
Apr. 12	0845	1,000	1,000	8.5	21.0	8.4	0	1.0	125	240	124	674	14
May 18	0710	1,600	1,030	8.6	25.0	8.2	110	1.0	146	234	121	696	57
June 9	1045	4,520	1,060	8.0	26.8	7.5	60		138	214	122		126
July 18	0705	1,950	1,090	8.1	28.0	7.5	20						
Aug.													
Sep. 7	0940	2,100	999	8.9	29.0	5.9	30		139	228	132		46
Oct. 25	0645	2,760	470	8.6	21.5	7.7	100	1.5	160	51	33	308	306
Nov. 15	1420	1,920	970	8.5	19.0	9.5	60	1.0	154	183	94	500	49
Dec. 20	1125	1,650	829	8.4	8.7	10.7	10		140	195	99		10

QUALITY OF WATER - 1983

Rio Grande at Nuevo Laredo, Tamaulipas and Laredo, Texas

SUSPENDED SILT - 1983

Month	Tons		Number of Samples	Gravimetric Percentages			Acre-Feet at 1,452 Tons/Ac.Ft.	1968-1983 Period of Record		
	Water	Silt		Average	Maximum Sample	Minimum Sample		Average	Maximum	Minimum
Jan.	134,560,000	6,140	31	0.004560			4.2	4.7	11.0	0.93
Feb.	143,232,000	5,900	28	.004120			4.1	12.3	109	.88
Mar.	221,732,000	14,100	31	.006360			9.7	11.5	62.7	1.8
Apr.	86,438,000	1,000	30	.001160			.69	30.7	251	.69
May	148,326,000	1,600	31	.001080			1.1	50.0	165	1.1
June	293,005,000	11,300	30	.003840			7.8	67.9	688	.56
July	175,486,000	7,090	31	.004040			4.9	63.8	418	1.3
Aug.	173,763,000	4,800	31	.002760			3.3	56.2	313	2.3
Sep.	253,689,000	7,200	30	.002840			5.0	76.3	700	5.0
Oct.	282,362,000	99,600	31	.03528			68.6	58.1	286	1.7
Nov.	184,033,000	17,900	30	.009720	0.06050	0.003900	12.3	7.8	27.3	1.6
Dec.	121,642,000	4,620	31	.003800			3.2	5.4	15.2	.83
Year	2,218,268,000	181,250	365	0.008171	0.06050		124.89	444.7	1,626.9	124.0

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROMHOS/CM @ 25 DEG C - 1983

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	991	1,020	1,020	1,090	1,100	1,080	990	1,100	1,090	1,120	1,050	942
2	979	972	1,020	1,090	912	1,090	1,030	1,100	1,080	1,110	1,060	947
3	986	974	1,000	1,070	1,080	1,080	1,010	1,100	1,090	1,120	1,070	935
4	941	980	897	1,040	1,100	1,080	1,040	1,090	1,080	1,110	1,070	920
5	978	994	847	1,050	1,110	1,080	1,050	1,090	1,090	1,070	1,070	771
6	980	1,020	880	1,070	1,120	1,080	1,060	1,090	1,100	1,080	1,060	910
7	982	1,010	872	1,080	1,100	1,070	1,070	1,100	1,080	1,100	962	856
8	976	1,020	906	1,080	1,100	1,100	1,060	1,090	1,090	1,100	586	885
9	974	1,020	915	1,090	1,110	1,060	1,060	1,090	1,090	1,080	483	886
10	985	1,010	924	1,090	1,100	1,060	1,060	1,080	1,080	1,030	732	881
11	972	986	933	1,080	1,100	1,040	1,040	1,090	1,080	865	847	905
12	980	1,010	941	1,070	1,090	1,050	1,050	1,090	1,110	686	854	916
13	968	1,020	949	1,080	1,090	1,070	1,040	1,130	1,100	738	886	914
14	965	995	947	1,090	1,100	1,070	1,050	1,060	1,090	704	922	905
15	970	1,020	908	1,080	1,080	1,090	1,060	1,090	1,080	599	933	891
16	981	994	947	1,090	1,080	1,070	1,060	1,040	1,080	715	965	959
17	972	1,020	980	1,090	1,030	1,080	1,060	1,070	1,080	893	960	1,020
18	975	1,010	986	1,070	1,080	1,020	1,070	1,060	1,080	1,000	918	933
19	931	999	972	1,080	1,080	1,020	1,050	1,060	1,070	1,040	883	938
20	965	1,020	978	1,060	1,080	1,020	1,070	1,020	570	1,070	899	932
21	992	1,010	1,000	1,070	1,070	1,050	1,080	1,070	361	1,080	892	940
22	984	1,020	999	1,040	1,070	1,060	1,070	1,080	545	923	894	953
23	988	1,010	994	1,090	1,070	1,060	1,050	1,090	611	451	928	971
24	1,010	1,020	1,040	1,080	1,060	1,070	1,060	1,090	731	451	837	995
25	977	1,010	1,020	1,080	1,070	1,060	1,070	1,090	903	480	953	1,010
26	987	1,020	1,030	1,080	1,060	1,050	1,080	1,080	1,010	588	939	1,010
27	1,010	1,010	1,040	1,090	1,050	1,060	1,080	1,090	1,100	690	945	1,030
28	985	1,010	1,050	1,090	1,020	1,060	1,070	1,100	1,130	836	944	1,010
29	969		1,060	1,100	1,010	1,020	1,080	1,090	1,100	952	946	990
30	989		1,060	1,110	1,040	986	1,080	1,100	1,100	1,030	926	980
31	980		1,060		1,060		1,070	1,090		1,050		949

QUALITY OF WATER - 1983

Rio Grande below Falcon Dam near Falcon, Texas and Nueva Cd. Guerrero, Tamaulipas

LOCATION: Chemical sampling at the Falcon Village Water Plant, river mile 274.8 (442.3 km), and biochemical sampling at the Chapeno gaging station 2.5 river miles (4.1 km) below Falcon Dam; latitude 26°31'45", longitude 99°09'30".
RECORDS: Chemical analyses, July 1955 through 1983; biochemical analyses, July 1975 through 1983; suspended silt, July 1955 through 1976; specific conductance 1955 through 1983.
REMARKS: Sampling for chemical analyses by the International Boundary and Water Commission, analyses by the U. S. Geological Survey; sampling and determinations for specific conductance by the International Boundary and Water Commission; biochemical analyses, collected and analyzed by the International Boundary and Water Commission and the Texas Department of Water Resources.

1983 Date	Time Standard	Streamflow, Momentary Second-Feet	Specific Conductance Micromhos	pH Units	Temperature Deg C	Hardness, Total (as CaCO3) mg/L	Hardness, Noncarbonate (as CaCO3) mg/L	Calcium ion (Ca), Dissolved mg/L	Magnesium ion (Mg), Dissolved mg/L
Jan. 18	1130	7,270	1,110	8.0	14.0	280	180	73	23
Feb. 22	1550	3,710	1,130	8.1	15.5	280	170	74	23
Mar. 14	1120	119	1,120	7.4	18.0	290	180	78	24
Apr. 18	1000	13,800	1,150	8.0	20.5	290	180	77	24
May 16	1030	12,500	1,180	7.9	24.5	300	190	79	24
June 13	0930	107	1,200	7.6	26.0	310	200	82	26
July 22	1130	118	1,200	7.7	28.0	290	180	73	25
Aug. 15	1000	215	1,200	7.7	28.0	290	190	77	24
Sep. 19	0915	440	1,220	7.7	28.0	290	190	75	25
Oct. 25	1545	425	1,180	8.0	25.0	290	190	76	25
Nov. 22	0930	512	1,150	7.8	23.0	290	190	76	24
Dec. 20	0945	18.0	1,190	7.8	16.5	280	180	73	24

1983 Date	Sodium ion (Na), Dissolved mg/L	Sodium Adsorption Ratio(SAR)	Potassium ion (K), Dissolved mg/L	Alkalinity Total (as CaCO3) mg/L	Sulfate ion (SO4), Dissolved mg/L	Chloride ion (Cl), Dissolved mg/L	Silica (SiO2), Dissolved mg/L	Solids Dissolved (Calculated) mg/L
Jan. 18	130	3.7	5.0	100	280	130	12	713
Feb. 22	130	3.6	4.9	110	270	130	13	711
Mar. 14	130	3.6	5.2	110	300	130	13	746
Apr. 18	130	3.6	5.0	110	290	130	12	734
May 16	130	3.5	5.0	110	290	140	12	746
June 13	140	3.7	5.2	110	300	140	13	772
July 22	140	3.9	5.5	110	300	140	13	763
Aug. 15	140	3.8	5.4	100	280	150	13	750
Sep. 19	140	3.9	5.3	100	300	150	13	768
Oct. 25	140	3.8	5.5	100	280	140	13	740
Nov. 22	130	3.6	5.4	100	280	140	13	727
Dec. 20	130	3.6	5.9	100	280	150	12	735

1983 Date	Time Std.	Stream-flow, Momen-tary Sec.-Ft.	Specific Conduct-ance Micro-mhos	pH Units	Tem-pera-ture Deg C	Oxygen Dis-solved (DO) mg/L	Coli-form, Fecal Cols./ 100 mL	Alkalinity Total (as CaCO3) mg/L	Sulfate ion (SO4), Dis-solved mg/L	Chloride ion (Cl), Dis-solved mg/L	Solids, Dis-solved (Residue @ 180 Deg C) mg/L	Sus-pended Sedi-ment mg/L
Jan. 11	1200	2,920	1,030	8.4	14.2	11.1	10	109	280	130	708	10
Feb. 22	1200	3,420	1,060	8.4	18.6	8.9	10	104	269	139	754	11
Mar. 23	1420	6,710	1,060	8.2	19.7	7.1	10	108	283	131	754	19
Apr. 27	1000	13,400	1,120	7.8	23.5	9.2	30	112	290	134	760	10
May 31	1140	4,360	1,180	7.6	27.7	6.4	60	116	298	137	784	28
June 14	0912	194						110	307	140	792	10
July 18	1410	86.0	1,080	7.9	29.6	8.3	60					
Aug. 9	1110	20.1	1,100	7.9	30.1	5.5	20					
Sep. 13	1010	360	1,100	8.0	28.8	4.5	20	100	302	140	804	25
Oct. 4	1115	988	1,050	8.0	27.6	6.4	10	100	290	137	744	10
Nov. 29	1025	1,600	1,160	6.8	19.0	6.5	10	100	267	136	776	15
Dec. 28	1350	1,990	1,060	8.2	13.3	8.5	10	105	289	135	800	10

QUALITY OF WATER - 1983

Rio Grande below Falcon Dam near Falcon, Texas and Nueva Cd. Guerrero, Tamaulipas

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROMHOS/CM @ 25 DEG C - 1983

January		February		April		June		August		September		November	
3	1,110	23	1,130	18	1,160	8	1,190	1	1,210	21	1,220	9	1,190
5	1,110	25	1,130	20	1,160	10	1,200	3	1,200	23	1,220	11	1,200
7	1,110	28	1,120	22	1,160	13	1,190	5	1,220	25	1,220	14	1,190
10	1,110	March		25	1,160	15	1,200	8	1,200	28	1,210	16	1,170
12	1,110	2	1,140	27	1,160	17	1,200	10	1,200	30	1,210	18	1,170
14	1,110	4	1,140	29	1,160	20	1,200	12	1,200	October		21	1,170
17	1,110	9	1,140	May		22	1,200	15	1,200	3	1,190	23	1,160
19	1,110	11	1,170	2	1,180	24	1,210	17	1,210	5	1,190	25	1,160
21	1,110	14	1,140	4	1,180	27	1,210	19	1,220	7	1,180	28	1,160
24	1,120	16	1,140	6	1,180	29	1,200	22	1,210	11	1,180	30	1,170
26	1,110	18	1,140	9	1,180	July		24	1,210	12	1,190	December	
28	1,110	21	1,150	11	1,180	1	1,190	26	1,210	14	1,190	2	1,160
31	1,110	23	1,150	13	1,180	3	1,200	29	1,230	17	1,190	5	1,170
February		25	1,150	16	1,190	6	1,230	31	1,210	19	1,180	7	1,170
2	1,120	28	1,150	18	1,190	8	1,200	September		21	1,180	9	1,160
4	1,140	30	1,140	20	1,190	11	1,200	2	1,230	23	1,180	12	1,170
7	1,130	April		23	1,190	13	1,200	6	1,220	26	1,220	14	1,170
9	1,130	1	1,150	25	1,190	15	1,200	7	1,220	28	1,180	16	1,170
11	1,130	4	1,150	27	1,200	18	1,200	9	1,220	31	1,180	19	1,160
14	1,120	6	1,150	31	1,200	20	1,230	12	1,220	November		21	1,170
16	1,130	8	1,160	June		22	1,220	14	1,220	2	1,200	23	1,170
18	1,120	11	1,150	1	1,180	25	1,200	16	1,220	4	1,180	26	1,160
20	1,120	13	1,150	3	1,190	27	1,200	19	1,220	7	1,180	28	1,150
		15	1,150	6	1,180	29	1,200					30	1,160

Rancherias Drain near Camargo, Tamaulipas

LOCATION: At a point about 1,950 feet (600 m) from the confluence with the Rio Grande, which is located at river mile 241.6 (388.8 km). This drain carries wastewater from the Lower Rio San Juan Irrigation District in Mexio.
RECORDS: Specific conductance, 1948 and 1960 through 1983.
REMARKS: Sampling and determinations by the International Boundary and Water Commission.

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROMHOS/CM @ 25 DEG C - 1983

January		March		May		June		August		October		November	
4	6,360	8	7,060	3	3,280	21	6,090	2	4,700	4	6,180	22	6,720
18	6,500	23	6,250	17	4,380	July		23	6,330	26	6,310	December	
February		April		31	5,790	5	6,170	September		November		7	6,840
1	4,050	5	6,320			21	6,210	13	6,080	1	6,750	14	6,620
22	5,790	19	6,360					27	5,980	8	6,680		

QUALITY OF WATER - 1983

Rio San Juan at Camargo, Tamaulipas

LOCATION: At gaging station, 3.1 river miles (5 km) from the confluence with the Rio Grande, which is located at river mile 238.7 (384.1 km).
RECORDS: Specific conductance, 1960 through 1983.
REMARKS: Sampling and determinations by the International Boundary and Water Commission.

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROMHOS/CM @ 25 DEG C - 1983

January	March	May	July	September	November	November
4 # 2,230	8 # 2,270	3 # 2,400	5 # 2,060	13 # 1,250	1 # 917	25 849
18 # 2,280	23 # 2,300	7 # 2,610	21 # 1,820	27 # 2,880	8 771	30 # 885
February	April	31 # 1,710	August	October	11 773	December
1 # 2,310	5 # 2,600	June	2 # 1,160	4 # 3,350	15 775	7 # 804
22 # 2,120	19 # 2,070	21 # 1,840	23 # 2,570	26 # 1,240	18 823	14 # 838
					22 807	

Below Marte R. Gomez

Rio Grande at Rio Grande City, Texas near Camargo, Tamaulipas

LOCATION: Gaging station at river mile 235.0 (378.1 km), 3.7 river miles (6.0 km) downstream from Rio San Juan.
RECORDS: Chemical analyses, 1959 through 1983; specific conductance, 1958 through 1983; suspended silt, 1959 through 1977.
REMARKS: Sampling by the International Boundary and Water Commission; chemical analyses by the U.S. Geological Survey; specific conductance determinations by the International Boundary and Water Commission.

1983 Date	Time Standard	Streamflow, Momentary Second-Feet	Specific Conductance Micromhos	pH Units	Temperature Deg C	Hardness, Total (as CaCO3) mg/L	Hardness, Noncarbonate (as CaCO3) mg/L	Calcium ion (Ca), Dissolved mg/L	Magnesium ion (Mg), Dissolved mg/L
Jan. 17	1345	2,870	1,150	7.9	14.0	280	180	74	23
Feb. 14	1400	3,410	1,130	7.9	18.0	290	180	75	24
Mar. 16	1110	1,420	1,480	7.5	19.0	330	210	89	27
Apr. 18	1330	12,400	1,160	7.8	24.5	300	190	79	24
May 16	1215	11,100	1,180	7.7	22.0	290	180	78	24
June 21	1015	2,630	1,340	7.5	28.0	320	210	85	27
July 19	1100	3,220	1,700	7.7	21.0	350	220	94	29
Aug. 16	1400	2,670	667	7.8	30.5	180	75	52	11
Sep. 19	1220	1,250	1,470	7.5	30.0	340	240	95	24
Oct. 17	1400	1,430	1,250	7.8	25.0	300	190	80	25
Nov. 14	1400	1,030	907	7.6	26.5	250	140	70	18
Dec. 19	1145	2,480	1,230	7.6	11.0	290	190	75	25

1983 Date	Sodium ion (Na), Dissolved mg/L	Sodium Adsorption Ratio(SAR)	Potassium ion (K), Dissolved mg/L	Alkalinity Total (as CaCO3) mg/L	Sulfate ion (SO4), Dissolved mg/L	Chloride ion (Cl), Dissolved mg/L	Silica (SiO2), Dissolved mg/L	Solids Dissolved (Calculated) mg/L
Jan. 17	130	3.6	5.0	100	280	140	12	724
Feb. 14	130	3.6	4.8	110	270	140	12	722
Mar. 16	190	4.9	5.3	120	340	210	12	945
Apr. 18	130	3.5	5.1	110	290	130	12	736
May 16	130	3.5	5.0	110	290	140	12	745
June 21	170	4.4	5.4	110	330	170	13	867
July 19	220	5.5	5.9	130	360	260	12	1,060
Aug. 16	65	2.3	4.8	100	130	69	7.6	400
Sep. 19	190	4.8	5.7	100	280	250	11	916
Oct. 17	150	4.0	5.5	110	310	160	13	810
Nov. 14	96	2.8	4.2	110	200	110	9.1	573
Dec. 19	140	3.9	5.8	100	290	160	11	767

QUALITY OF WATER - 1983

Rio Grande at Rio Grande City, Texas near Camargo, Tamaulipas

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROMHOS/CM @ 25 DEG C - 1983

January		February		April		June		August		September		November	
3	1,190	25	1,200	18	1,280	8	1,610	1	1,510	21	937	9	1,050
5	1,170	28	704	20	1,270	10	1,720	3	1,790	23	1,310	11	1,180
7	1,170	March		22	1,230	13	1,700	5	1,110	26	1,590	14	1,040
10	1,160	2	1,170	25	1,270	15	1,480	8	1,210	28	1,470	16	1,020
12	1,180	4	1,460	27	1,280	17	1,300	10	1,630	30	1,670	18	1,320
14	1,180	7	1,880	29	1,280	20	1,340	12	1,460	October		21	1,200
17	1,150	9	1,900	May		22	1,500	15	1,600	3	1,460	23	1,230
19	1,160	11	1,600	2	1,290	24	1,510	17	1,450	5	1,430	25	1,330
21	1,190	14	1,480	4	1,240	27	1,350	19	1,390	7	1,400	28	1,380
24	1,150	16	1,310	6	1,250	29	1,290	22	1,320	10	887	30	1,460
26	1,170	18	1,580	9	1,290	July		24	1,360	12	1,370	December	
28	1,180	21	1,320	11	1,290	1	1,340	26	1,360	14	1,480	2	1,420
31	1,180	23	1,310	13	1,300	4	1,370	29	1,380	17	1,450	5	1,290
February		25	1,350	16	1,220	6	1,340	31	1,400	19	1,410	7	1,390
2	1,170	28	1,540	18	1,260	8	1,520	September		21	755	12	1,520
4	1,160	30	1,550	20	1,310	9	1,420	2	1,410	24	1,620	14	1,310
7	1,190	April		23	1,320	13	1,570	5	1,330	26	1,550	16	1,270
9	1,200	1	1,450	25	1,260	15	1,800	7	1,340	28	1,330	19	1,520
11	1,160	4	1,330	27	1,420	18	1,740	9	1,610	31	1,300	21	1,530
14	1,170	6	1,280	30	1,360	20	1,750	12	1,470	November		23	1,530
16	1,430	8	1,270	June		22	1,960	14	1,550	2	1,300	26	1,280
18	1,260	11	1,310	1	1,330	25	1,660	16	1,600	4	1,310	28	1,290
23	1,210	13	1,290	3	1,400	27	1,540	19	1,330	7	1,150	30	1,310
		15	1,260	6	1,350	29	1,450						

Puertecitos Drain and Los Indios Drain near Cd. Diaz Ordaz, Tamaulipas

LOCATION: For Puertecitos Drain, at a point about 8,500 feet (2,600 m) from the confluence with the Rio Grande, which is located at river mile 219.3 (352.9 km); and, for Los Indios Drain, at a point about 2,150 feet (650 m) from its confluence with Puertecitos Drain. These two drains join at a point about 4,250 feet (1,300 m) from the confluence with the Rio Grande. These drains carry wastewater from the Lower Rio San Juan Irrigation District in Mexico.
RECORDS: Specific conductance, 1960 through 1983.
REMARKS: Sampling and determinations by the International Boundary and Water Commission.

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROMHOS/CM @ 25 DEG C - 1983

Date	Puerte-citos Drain	Los Indios Drain	Date	Puerte-citos Drain	Los Indios Drain	Date	Puerte-citos Drain	Los Indios Drain	Date	Puerte-citos Drain	Los Indios Drain
Jan. 4	3,060	2,360	Apr. 5	3,670	2,700	July 5	3,340	2,420	Oct. 4	3,010	2,390
18	3,030		19	2,820	2,570	21	3,420	2,500	26	2,880	2,400
Feb. 1	3,290	1,830	May 3	3,170	2,050	Aug. 2	3,310	2,470	Nov. 1	2,950	2,350
22	3,350	2,620	17	2,800	2,680	23	3,290		8	3,060	2,390
Mar. 8	3,580	2,640	31	3,360	2,430	24		2,370	22	2,400	2,400
23	3,590	2,700	June 21	3,350	2,590	Sep. 13	3,170	2,520	Dec. 7	2,880	2,290
						27	2,970	2,500	14	3,040	2,330

QUALITY OF WATER - 1983

Rio Grande at Los Ebanos, Texas near Cd. Diaz Ordaz, Tamaulipas

LOCATION: Gaging station at river mile 204.3 (328.8 km) 34.0 river miles (54.7 km) upstream from Anzalduas Dam.
RECORDS: Chemical analyses, June 1977 through 1983; specific conductance, 1956 through 1983.
REMARKS: Sampling by the International Boundary and Water Commission; chemical analyses by the U.S. Geological Survey; specific conductance determinations by the International Boundary and Water Commission.

1983 Date	Time Standard	Streamflow, Momentary Second-Feet	Specific Conductance Micromhos	pH Units	Temperature Deg C	Hardness, Total (as CaCO3) mg/L	Hardness, Noncarbonate (as CaCO3) mg/L	Calcium ion (Ca), Dissolved mg/L	Magnesium ion (Mg), Dissolved mg/L
Jan. 18	1130	3,290	1,150	7.9	14.5	290	190	76	24
Feb.									
Mar. 16	1205	922	1,580	7.6	19.0	370	240	99	29
Apr. 18	1430	12,100	1,160	7.7	25.0	300	190	79	24
May 16	1315	10,700	1,200	7.6	21.5	300	190	79	24
June 21	1130	1,560	1,330	7.6	29.0	300	180	84	22
July 19	1230	400	1,900	7.8	23.0	450	290	120	37
Aug. 16	1445	2,010	1,280	7.7	31.0	300	190	81	23
Sep. 19	1333	1,330	1,440	7.5	31.0	330	200	93	23
Oct. 18	1245	1,280	1,410	7.8	25.0	340	230	92	28
Nov. 14	1530	1,060	1,180	7.6	25.0	310	190	85	23
Dec. 19	1245	1,340	1,240	7.8	12.0	310	200	82	25

1983 Date	Sodium ion (Na), Dissolved mg/L	Sodium Adsorption Ratio(SAR)	Potassium ion (K), Dissolved mg/L	Alkalinity Total (as CaCO3) mg/L	Sulfate ion (SO4), Dissolved mg/L	Chloride ion (Cl), Dissolved mg/L	Silica (SiO2), Dissolved mg/L	Solids Dissolved (Calculated) mg/L
Jan. 18	130	3.6	5.0	100	280	140	13	728
Feb.								
Mar. 16	200	4.9	5.7	130	370	220	13	1,010
Apr. 18	130	3.5	5.1	110	300	130	13	747
May 16	130	3.5	5.4	110	300	140	12	757
June 21	170	4.5	6.3	120	270	190	12	826
July 19	230	5.1	6.2	160	400	300	15	1,200
Aug. 16	150	4.1	6.0	110	310	160	13	809
Sep. 19	180	4.6	5.1	130	270	230	12	891
Oct. 18	170	4.3	5.6	120	320	190	14	892
Nov. 14	130	3.4	4.7	120	240	170	11	736
Dec. 19	140	3.7	5.5	110	280	170	11	780

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROMHOS/CM @ 25 DEG C - 1983

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,280	1,180	690	1,670	1,200	1,460	1,230	1,640	1,270	1,630	1,260	1,330
2	1,270	1,160	742	1,670	1,190	1,380	1,250	1,370	1,250	1,780	1,260	1,330
3	1,270	1,150	1,140	1,630	1,190	1,440	1,240	1,360	1,280	1,770	1,270	1,300
4	1,240	1,160	1,500	1,710	1,190	1,300	1,240	1,480	1,320	1,400	1,230	1,300
5	1,220	1,170	1,690	1,420	1,190	1,370	1,230	1,280	1,350	1,390	1,020	1,300
6	1,280	1,170	1,820	1,220	1,190	1,300	1,240	773	1,310	1,390	1,030	1,300
7	1,190	1,210	2,060	1,220	1,190	1,290	1,250	787	1,270	1,440	1,030	1,290
8	1,160	1,210	1,960	1,200	1,190	1,320	1,260	844	1,270	1,410	1,050	1,290
9	1,160	1,200	2,120	1,190	1,190	1,460	1,260	974	1,360	1,220	1,090	1,250
10	1,200	1,200	2,410	1,190	1,190	1,650	1,250	1,380	1,280	1,210	1,080	1,250
11	1,210	1,200	2,350	1,190	1,200	1,880	1,260	1,230	1,360	1,210	1,240	1,260
12	1,190	1,190	2,270	1,190	1,200	2,110	1,240	1,260	1,370	752	1,240	1,290
13	1,250	1,190	2,010	1,180	1,200	2,270	1,220	1,250	1,440	1,510	1,240	1,290
14	1,170	1,160	1,710	1,180	1,200	2,160	1,540	1,380	1,460	1,660	1,170	1,330
15	1,150	1,200	1,610	1,180	1,210	1,700	1,500	1,430	1,570	1,050	1,170	1,260
16	1,140	1,240	1,640	1,180	1,200	1,410	1,700	1,340	1,570	1,010	1,170	1,260
17	1,150	1,360	1,700	1,170	1,210	1,430	1,710	1,110	1,240	1,310	1,150	1,260
18	1,140	1,360	1,680	1,180	1,210	1,460	1,900	842	1,320	1,410	1,140	1,300
19	1,140	1,360	1,660	1,170	1,220	1,460	2,070	1,260	1,320	1,420	1,160	1,300
20	1,150	1,320	1,950	1,180	1,210	1,320	2,080	1,260	1,320	1,320	1,300	1,310
21	1,160	1,330	2,120	1,180	1,210	1,320	1,890	1,250	1,320	1,350	1,290	1,310
22	1,160	1,330	1,470	1,180	1,210	1,360	2,040	1,240	652	611	1,290	1,730
23	1,190	1,340	1,190	1,180	1,210	1,390	2,350	1,250	811	616	1,290	1,740
24	1,180	1,340	1,180	1,180	1,220	1,270	2,540	1,260	1,200	673	1,230	1,740
25	1,190	1,350	1,180	1,180	1,220	1,310	2,590	1,270	1,380	570	1,230	1,750
26	1,180	435	1,210	1,200	1,220	1,150	2,560	1,260	1,520	708	1,240	1,740
27	1,150	366	1,300	1,190	1,220	1,100	2,350	1,250	2,230	1,540	1,270	1,210
28	1,170	622	1,540	1,180	1,310	1,250	1,610	1,270	1,400	1,550	1,050	1,210
29	1,160		1,600	1,170	1,400	1,240	1,390	1,290	1,640	1,310	1,260	1,210
30	1,170		1,620	1,180	1,410	1,250	1,500	1,380	1,670	1,260	1,310	1,280
31	1,170		1,620				1,900	1,380		1,220		1,280

QUALITY OF WATER - 1983

Rio Grande at Penitas, Texas and Reynosa Diaz, Tamaulipas

LOCATION: At the H.C.W.C. & I. District No. 1 (Edinburg) pumping plant, river mile 186.6 (300.4 km), 16.3 river miles (26.2 km) upstream from Anzalduas Dam.
RECORDS: Specific conductance, 1963 through 1983.
REMARKS: Sampling and determinations by the International Boundary and Water Commission.

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROMHOS/CM @ 25 DEG C - 1983

January		February		April		June		August		September		November	
3	1,310	25	1,400	18	1,180	10	1,370	1	1,890	21	1,500	9	1,230
5	1,280	28	996	20	1,170	13	1,690	3	1,450	23	783	11	1,210
7	1,260	March		22	1,170	15	2,190	5	1,470	26	800	14	1,180
10	1,230	2	686	25	1,170	18	1,460	8	780	28	1,240	16	1,190
12	1,290	4	844	27	1,180	20	1,470	10	817	30	1,870	18	1,220
14	1,240	7	1,440	29	1,190	22	1,640	12	1,210	October		21	1,450
17	1,180	9	1,670	May		24	1,340	15	1,280	3	1,620	23	1,450
19	1,350	11	1,990	2	1,220	27	1,390	17	1,360	5	1,510	25	1,420
21	1,180	14	2,170	4	1,200	29	1,280	19	943	7	1,470	28	1,380
24	1,210	16	2,000	6	1,200	July		22	1,270	10	1,330	30	1,370
26	1,280	18	1,960	9	1,200	1	1,340	24	1,300	12	840	December	
28	1,240	21	1,840	11	1,190	4	1,270	26	1,320	14	915	2	1,460
31	1,230	23	1,870	13	1,200	6	1,250	29	1,290	17	1,400	5	1,310
February		25	1,310	16	1,200	8	1,270	31	1,350	19	1,410	7	1,290
2	1,210	28	1,240	18	1,210	11	1,300	September		21	1,380	9	1,260
4	1,190	30	1,540	20	1,220	13	1,260	2	1,300	24	649	12	1,330
7	1,190	April		23	1,220	15	1,260	5	1,360	26	704	14	1,330
9	1,250	1	1,660	25	1,220	18	1,470	7	1,330	28	1,710	16	1,370
11	1,250	4	1,830	27	1,240	20	1,640	9	1,270	31	1,290	19	1,320
14	1,210	6	1,420	June		22	1,810	12	1,290	November		21	1,330
16	1,220	8	1,230	1	1,340	25	2,140	14	1,360	2	1,280	23	1,320
18	1,380	11	1,190	3	1,430	27	2,320	16	1,490	4	1,230	26	1,640
21	1,360	13	1,190	6	1,360	29	2,210	19	1,330	7	1,210	28	1,590
23	1,360	15	1,180	8	1,340							30	1,240

Morillo Drain near Anzalduas Dam

LOCATION: At the Morillo Drain Project pumping plant located about 0.4 river mile (0.6 km) from the confluence with the Rio Grande or at the gaging station on the bypass channel 0.4 mile (0.6 km) from the pumping plant. Morillo Drain enters the Rio Grande at river mile 179.1 (288.3 km), 8.8 river miles (14.2 km) upstream from Anzalduas Dam. This drain carries wastewater from the Lower Rio San Juan Irrigation District in Mexico and surface runoff during periods of heavy precipitation.
RECORDS: Chemical analyses, 1962 through 1983; specific conductance, 1956 through 1983.
REMARKS: Sampling by the International Boundary and Water Commission and chemical analyses by the U. S. Geological Survey. Determinations for specific conductance by the International Boundary and Water Commission.

1983 Date	Time Standard	Streamflow, Momentary Second-Feet	Specific Conductance Micromhos	pH Units	Temperature Deg C	Hardness, Total (as CaCO3) mg/L	Hardness, Noncarbonate (as CaCO3) mg/L	Calcium ion (Ca), Dissolved mg/L	Magnesium ion (Mg), Dissolved mg/L
Jan. 20	1420	53.0	4,940	7.9	13.5	870	670	220	77
Feb. 17	1510	106	6,490	8.0	20.0	1,100	890	290	97
Mar. 17	0820	88.3	8,190	7.9	15.5	1,200	1,000	300	120
Apr. 20	0945	106	5,410	7.7	24.5	890	680	220	83
May 20	0920	102	5,240	7.8	26.0	860		220	76
June 22	0820	106	7,210	7.7	28.5	1,100	890	270	110
July 21	0830	106	3,340	7.6	28.5	490	340	130	40
Aug. 19	0755	53.0	6,780	7.9	27.0	980	790	230	100
Sep. 22	1045	2,120	508	7.8	20.0	120	26	39	4.6
Oct. 21	0930	70.6	6,730	8.1	23.5	1,000	820	250	100
Nov. 22	0920	53.0	6,050	7.7	23.5	840	630	190	89
Dec. 23	1115	35.3	7,030	7.9	9.5	900	650	210	92

1983 Date	Sodium ion (Na), Dissolved mg/L	Sodium Adsorption Ratio(SAR)	Potassium ion (K), Dissolved mg/L	Alkalinity Total (as CaCO3) mg/L	Sulfate ion (SO4), Dissolved mg/L	Chloride ion (Cl), Dissolved mg/L	Silica (SiO2), Dissolved mg/L	Solids Dissolved (Calculated) mg/L
Jan. 20	820	12	6.5	200	1,000	1,000	28	3,270
Feb. 17	1,100	14	6.5	240	1,300	1,400	34	4,370
Mar. 17	1,500	19	8.6	250	1,500	1,800	41	5,420
Apr. 20	940	14	7.6	210	1,100	1,100	26	3,600
May 20	870	13	7.4		1,200	1,100	30	
June 22	1,300	17	8.1	240	1,500	1,600	39	4,970
July 21	550	11	7.4	150	640	660	21	2,140
Aug. 19	1,200	17	8.2	200	1,300	1,500	37	4,500
Sep. 22	59	2.5	5.9	90	79	57	11	310
Oct. 21	1,200	16	8.2	220	1,300	1,500	35	4,530
Nov. 22	1,100	15	7.7	210	1,200	1,300	32	4,050
Dec. 23	1,300	19	7.6	250	1,300	1,600	37	4,700

QUALITY OF WATER - 1983

Morillo Drain near Anzalduas Dam

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROMHOS/CM @ 25 DEG C - 1983

Date	Bypass Canal	Pumping Plant	Date	Bypass Canal	Pumping Plant	Date	Bypass Canal	Pumping Plant	Date	Bypass Canal	Pumping Plant
Jan. 3	7,190		Apr. 7	7,950		July 4	7,640		Oct. 3	6,950	
6	6,880		11	7,500		7	7,870		6	7,520	
10	5,080	4,410	14	6,420		11	7,870		10	5,530	5,400
13	4,920	4,860	18	5,530	5,340	14	2,250	2,070	13	5,360	
17	5,050	5,100	20		5,410	18	7,290		17	5,910	
20		4,940	21	5,310	5,420	21		3,340	20	6,760	
20	5,260	5,070	25	4,850	4,820	21	3,060		21	6,730	
24	5,230	5,360	28	5,580	5,640	25	7,390		24	1,980	
27	5,660	5,650	May 2	5,220	5,090	28	7,840		27	5,860	
31	5,950	5,810	5	4,930	5,070	Aug. 1	7,880		31	6,480	
Feb. 3	6,050	6,020	9	5,140	5,100	4	4,060		Nov. 3	6,800	
7	5,680	5,740	12	5,190	5,160	8	6,500		7	1,020	1,070
10	6,230	6,330	16	5,030	5,040	11	6,460		10	5,100	
14	6,370	6,370	19	4,990	4,940	15	6,830		14	5,840	
17	6,660	6,530	20		5,240	18	7,010		17	6,500	
17		6,490	23	5,260	5,060	19		6,780	21	7,110	
21	7,210		26	5,960	5,990	22	6,060		22		6,050
24	7,330		30	4,910	4,950	25	6,310		24	7,310	
28	2,980		June 2	6,820		29	6,350		28	7,320	
Mar. 3	7,180	7,480	3		6,790	Sep. 1	6,600		Dec. 1	7,320	
7	7,930	8,040	6	6,090	6,350	5	6,650		5	7,350	
10	8,100	7,140	9	5,300	5,280	8	6,860		8	6,930	
14	8,320		13	7,200	7,400	12		7,620	12	6,900	
17	8,330	8,190	16	7,440		15		3,210	15	7,410	
22	8,510		20	7,400	6,880	19	6,340		19	7,210	
24	8,330		22		7,210	22		508	22	7,210	
28	8,210		23	7,260	7,300	22	563	500	23		7,030
31	8,660		27	7,340		26	2,870		26	6,740	
Apr. 4	8,140		30	7,180		29	6,570		29	6,880	

Rio Grande below Anzalduas Dam near Reynosa, Tamaulipas and Mission, Texas

LOCATION: At Anzalduas Dam, 0.5 river mile (0.8 km) above the gaging station, located at river mile 169.8 (273.3 km)
RECORDS: Chemical analyses, March 1959 through 1983; specific conductance 1948 and 1956 through 1983; suspended silt, May 1956 through 1977.
REMARKS: Sampling by the International Boundary and Water Commission; chemical analyses by the U.S. Geological Survey; determinations for specific conductance by the International Boundary and Water Commission.

1983 Date	Time Standard	Streamflow, Momentary Second-Feet	Specific Conductance Micromhos	pH Units	Temperature Deg C	Hardness, Total (as CaCO3) mg/L	Hardness, Noncarbonate (as CaCO3) mg/L	Calcium ion (Ca), Dissolved mg/L	Magnesium ion (Mg), Dissolved mg/L
Jan. 20	1400	1,400	1,270	8.0	13.5	300	190	79	25
Feb. 17	1530	750	1,340	7.9	18.0	330	210	87	27
Mar. 17	0845	380	2,470	8.0	19.0	600	410	170	43
Apr. 20	1000	2,740	1,190	7.7	23.0	300	190	80	24
May 20	0945	2,700	1,270	7.7	25.5	310	200	81	25
June 22	0805	1,500	1,640	7.5	31.0	370	260	97	32
July 21	1000	250	1,340	7.8	29.5	300	160	79	25
Aug. 19	0825	950	1,400	7.9	29.5	330	220	88	27
Sep. 22	1205	5,100	1,190	7.7	24.5	270	160	75	20
Oct. 21	0930	500	1,220	7.7	24.5	300	180	84	22
Nov. 22	0820	530	1,260	7.7	24.0	330	210	93	25
Dec. 23	1130	550	1,330	7.9	11.0	320	210	84	26

1983 Date	Sodium ion (Na), Dissolved mg/L	Sodium Adsorption Ratio(SAR)	Potassium ion (K), Dissolved mg/L	Alkalinity Total (as CaCO3) mg/L	Sulfate ion (SO4), Dissolved mg/L	Chloride ion (Cl), Dissolved mg/L	Silica (SiO2), Dissolved mg/L	Solids Dissolved (Calculated) mg/L
Jan. 20	160	4.3	5.0	110	300	170	13	818
Feb. 17	170	4.4	4.9	120	310	180	13	864
Mar. 17	330	5.9	7.0	190	450	460	15	1,590
Apr. 20	130	3.5	5.2	110	290	140	12	747
May 20	150	4.0	5.0	110	310	160	12	809
June 22	210	5.1	5.7	110	390	230	14	1,040
July 21	160	4.3	5.5	110	300	180	12	828
Aug. 19	170	4.4	5.7	110	340	190	14	901
Sep. 22	150	4.2	4.8	110	240	180	12	748
Oct. 21	140	3.7	5.7	120	230	170	12	736
Nov. 22	140	3.6	4.9	130	260	180	11	792
Dec. 23	150	3.9	5.9	110	310	170	11	823

QUALITY OF WATER - 1983

Rio Grande below Anzalduas Dam near Reynosa, Tamaulipas and Mission, Texas

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROMHOS/CM @ 25 DEG C - 1983

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,620	1,360	550	1,330	1,220	1,490	1,360	2,660	1,350	909	1,370	1,370
2	1,370	1,370	619	1,510	1,210	1,650	1,330	1,800	1,410	858	1,320	1,370
3	1,290	1,320	663	1,660	1,220	1,630	1,320	1,660	1,380	873	1,300	1,400
4	1,300	1,290	829	1,750	1,210	1,700	1,290	1,770	1,300	1,230	1,290	1,480
5	1,330	1,300	1,020	1,810	1,220	1,620	1,260	1,510	1,270	1,850	1,280	1,350
6	1,370	1,310	1,380	1,940	1,220	1,530	1,230	1,350	1,300	1,630	1,250	1,260
7	1,370	1,310	1,250	1,740	1,220	1,540	1,230	1,320	1,330	1,880	1,820	1,340
8	1,290	1,360	1,080	1,260	1,220	1,620	1,260	1,230	1,380	1,500	1,110	1,330
9	1,320	1,410	1,090	1,240	1,230	1,520	1,340	1,390	1,360	1,480	1,290	1,280
10	1,240	1,440	1,040	1,240	1,250	1,540	1,320		1,320	1,440	1,220	1,270
11	1,250	1,490	1,040	1,220	1,240	1,570	1,310	753	1,290	1,370	1,290	1,280
12	1,270	1,430	1,110	1,220	1,240	1,700	1,300	823	1,370	1,220	1,010	1,250
13	1,320	1,440	1,290	1,230	1,260	1,950	1,440	1,110	1,270	1,250	1,210	1,230
14	1,370	1,400	1,830	1,220	2,260	2,000	1,360	1,300	1,340	912	1,130	1,310
15	1,360	1,290	2,110	1,210	1,260	1,970	1,420	1,290	1,460	1,010	1,120	1,390
16	1,320	1,480	2,330	1,210	1,310	2,280	1,390	1,290	1,420	1,220	1,160	1,360
17	1,270	1,300	2,500	1,200	1,270	2,490	1,320	1,310	1,490	1,180	1,160	1,350
18	1,230	1,350	2,610	1,210	1,280	2,360	1,360	1,490	1,510	959	1,160	1,350
19	1,270	1,340	2,490	1,220	1,290	1,900	1,410	1,440	1,540	1,540	1,160	1,360
20	1,270	1,510	2,040	1,210	1,280	1,660	1,400	1,110	1,530	1,450	1,200	1,330
21	1,280	1,710	1,840	1,210	1,300	1,520	1,320	1,410	1,550	1,200	1,270	1,300
22	1,320	1,590	1,890	1,190	1,290	1,640	1,290	1,350	1,430	1,500	1,270	1,280
23	1,330	1,440	1,850	1,190	1,280	1,580	1,330	1,330	1,110	1,290	1,230	1,300
24	1,390	1,460	1,290	1,190	1,290	1,460	1,570	1,300	900	1,050	1,240	1,270
25	1,390	1,360	1,310	1,200	1,280	1,440	1,690	1,330	687	761	1,210	1,270
26	1,420	1,440	1,250	1,200	1,280	1,470	1,860	1,340	700	717	1,380	1,300
27	1,510	392	1,260	1,210	1,300	1,380	1,920	1,300	710	623	1,450	1,320
28	1,400	499	1,260	1,200	1,310	1,370	2,010	1,270	766	618	1,370	1,680
29	1,370		1,220	1,220	1,330	1,200	2,180	1,270	891	844	1,440	1,790
30	1,370		1,240	1,210	1,390	1,260	2,370	1,280	973	1,720	1,410	1,460
31	1,340		1,270		1,560		2,690	1,330		1,430		1,240

QUALITY OF WATER - 1983

Rio Grande at Mercedes Irrigation District Pumps near Mercedes, Texas and Rio Rico, Tamaulipas

LOCATION: At river mile 117.8 (189.5 km) 52.6 river miles (84.6 km) downstream from Anzalduas Dam.
RECORDS: Specific conductance, 1945 through 1983.
REMARKS: Sampling and determinations by the International Boundary and Water Commission.

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROMHOS/CM @ 25 DEG C - 1983

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,600	1,420	476	1,480		1,420	1,270	2,110	1,290	1,070	1,700	1,500
2	1,590	1,400	571	1,390	1,210	1,470	1,310	2,290	1,360	1,100	1,610	1,600
3	1,580	1,400	617	1,440	1,230	1,550	1,370	2,380	1,350	1,170	1,460	1,610
4	1,570	1,390	682	1,450	1,090	1,640	1,330	2,500	1,400	1,200	1,380	1,410
5	1,820	1,350	788	1,500	1,240	1,690	1,310	1,740	1,460	1,150	1,340	1,440
6	1,410	1,350	895	1,620	1,220	1,690	1,270	1,630	1,420	1,110	1,290	1,490
7	1,390	1,340	906	1,770	1,240	1,540	1,240	1,490	1,360	1,090	1,300	1,460
8	1,390	1,320	1,010	1,820	1,230	1,580	1,260	1,330	1,370	1,380	1,230	1,370
9	1,440	1,330	1,130	1,950	1,230	1,590	1,240	1,750	1,370	1,820	1,540	1,340
10	1,430	1,370	1,100	1,950	1,230	1,620	1,270	1,360	1,400	1,920	1,130	1,370
11	1,320	1,400	1,090	1,350	1,240	1,650	1,320	1,330	1,410	1,590	1,300	1,390
12	1,330	1,440	1,300	1,270	1,240	1,650	1,330	1,070	1,410	1,550	1,370	1,410
13	1,280	1,460	1,310	1,270	1,240	1,650	1,320	843	1,360	1,520	1,380	1,410
14	1,280	1,460	1,310	1,230	1,250	1,670	1,360	845	1,330	1,510	1,380	1,370
15	1,300	1,480	1,240	1,210	1,260	1,720	1,120	906	1,340	1,530	1,390	1,340
16	1,350	1,420	1,220	1,220	1,280	1,980	1,340	1,200	1,220	1,530	1,370	1,290
17	1,350	1,330	1,320	1,210	1,270	1,970	1,350	1,320	1,420	1,530	1,370	1,380
18	1,320	1,320	1,890	1,210	1,260	2,010	1,360	1,320	1,410	1,570	1,280	1,440
19	1,280	1,510	2,100	1,200	1,260	2,450	1,510	1,330	1,500	1,290	1,360	1,410
20	1,250	1,480	2,150	1,250	1,280	2,450	1,450	1,350	1,450	1,390	1,340	1,430
21	1,260	1,490	2,150	1,220	1,280	2,260	1,450	1,560	1,590	1,220	1,240	1,450
22	1,280	1,500	2,140	1,230	1,290	1,940	1,480	1,270	1,610	1,290	1,260	1,470
23	1,300	1,470	1,830	1,210	1,290	1,650	1,570	1,160	1,630	1,420	1,280	1,390
24	1,330	1,620	2,000	1,230	1,300	1,570	1,580	1,360	1,600	1,510	1,460	1,440
25	1,390	1,780	1,580	1,210	1,300	1,620	1,570	1,340	1,560	1,360	1,500	1,410
26	1,400	1,420	1,340	1,210	1,300	1,640	1,580	1,290	1,560	1,190	1,410	1,450
27	1,410	1,380	1,280	1,210	1,290	1,530	1,580	1,310	1,520	1,190	1,420	1,450
28	1,450	475	1,320	1,240	1,290	1,520	1,610	1,350	1,080	966	1,470	1,570
29	1,460		1,310	1,220	1,300	1,400	1,720	1,350	1,080	878	1,460	1,400
30	1,510		1,400	1,220	1,300	1,380	1,860	1,290	1,160	782	1,370	1,800
31	1,520		1,490		1,330		1,940	1,270		752		1,300

QUALITY OF WATER - 1983

Rio Grande near Brownsville, Texas and Matamoros, Tamaulipas

LOCATION: Gaging station at river mile 48.7 (78.3 km), 0.2 river mile (0.3 km) downstream from El Jardin pumping plant and 7.0 river miles (11.2 km) downstream from the international highway bridge between Brownsville, Texas and Matamoros, Tamaulipas.
RECORDS: Chemical and biochemical analyses, October 1967 through January 1968 and October 1974 through 1983; biochemical, December 1976 through 1983; specific conductance, 1955 through September 1983; suspended silt, 1955 through 1977.
REMARKS: Sampling and analyses by the U. S. Geological Survey. Additional water quality parameters, including heavy metals, nutrients, pesticides, and biological indices, determined and published by the U. S. Geological Survey. Sampling and determinations for specific conductance prior to 1978 by the International Boundary and Water Commission.

1983 Date	Time Std.	Stream-flow, Momen-tary Sec.-Ft.	Specific Conduct-ance Micromhos	pH Units	Temper-ature Deg C	Hard-ness, Total (as CaCO3) mg/L	Hard-ness, Noncar-bonate (as CaCO3) mg/L	Calcium ion (Ca), Dis-solved mg/L	Magne-sium ion (Mg) mg/L	Sodium ion (Na), Dis-solved mg/L	Sodium Adsor-ption Ratio (SAR)	Potassium ion (K), Dissolved mg/L
Jan. 26	1030	73.4	1,350	8.4	16.0	330	203	88	27	160	4.0	5.2
Feb.												
Mar.												
Apr.												
May 12	0756	165	1,400	8.3	26.0	330	213	88	27	150	3.7	5.2
June												
July 27	1205	218	1,600	8.1	30.5	360	205	94	31	180	4.3	6.5
Aug.												
Sept.												
Oct.												
Nov. 9	1425	991	1,510	8.4	24.5	360	227	96	28	170	4.1	5.8
Dec.												

1983 Date	Alka-linity Total (as CaCO3) mg/L	Sulfate ion (SO4), Dis-solved mg/L	Chlo-ride ion (Cl), Dis-solved mg/L	Silica (SiO2), Dis-solved mg/L	Oxygen, Dis-solved (DO) mg/L	Coli-form, Fecal Cols./ 100 mL	Oxygen Demand, Bio-Chemical (BOD) 5 Day mg/L	Tur-bidity NTU	Solids Dis-solved (Calcu-lated) mg/L	Solids Dis-solved (Residue @ 180 Deg C) mg/L	Sus-pended Sedi-ment mg/L
Jan. 26	130	310	180	10	11.3	140	2.8	8.7	861	881	18
Feb.											
Mar.											
Apr.											
May 12	120	300	160	12	8.0	270	3.0	4.1	817	810	16
June											
July 27	160	330	220	15	8.2	400	4.0	18	975	978	33
Aug.											
Sept.											
Oct.											
Nov. 9	130	300	210	9.7	9.0	8,400	3.1	43	900	953	
Dec.											

QUALITY OF WATER - 1983

Rio Grande near Brownsville, Texas and Matamoros, Tamaulipas

SPECIFIC CONDUCTANCE OF WATER SAMPLES IN MICROMHOS/CM @ 25 DEG C - 1983

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,580	1,590	462	1,450	2,010	1,330	2,140	1,610	1,490			
2	1,660	1,610	512	1,490	1,920	1,400	2,480	1,610	1,510			
3	1,580	1,610	494	1,520	1,740	1,340	2,510	1,620	1,510			
4	1,610	1,610	551	1,550	1,300	1,610	2,310	1,620	1,470			
5	1,670	1,090	1,090	1,560	1,460	1,370	2,240	1,620	1,440			
6	1,940	1,090	607	1,540	1,310	1,600	2,310	1,630	1,480			
7	2,060	1,090	653	1,620	1,460	1,610	2,340	1,620	1,420			
8	1,950	1,090	685	1,660	1,310	1,630	1,260	1,620	1,500			
9	1,870	1,090	709	1,710	1,340	1,630	1,270	1,620	1,470			
10	2,000	1,090	790	1,780	1,320	1,560	1,270	1,620	1,420			
11	1,840	1,090	827	1,750	1,360	1,640	1,270	1,620	1,500			
12	1,720	1,090	910	1,770	1,310	1,540	1,060	1,629	1,480			
13	1,980	1,090	982	1,710	1,320	1,540	1,060	1,590	1,490			
14	1,880	1,090	1,090	1,680	1,310	1,690	1,070	1,550	1,450			
15	1,900	1,090	1,100	2,620	1,320	1,520	1,060	1,500	1,580			
16	1,460	1,090	1,190	1,270	1,420	1,690	1,440	1,500	1,290			
17	1,450	1,090	1,220	1,240	1,310	1,690	1,440	1,490	1,270			
18	1,410	1,090	1,270	1,380	1,380	1,690	1,440	1,500	1,280			
19	1,410	1,090	1,420	1,310	1,340	1,690	1,440	1,490	1,290			
20	1,410	1,090	1,410	1,270	1,330	1,730	1,440	1,490	1,280			
21	1,390	1,090	1,540	1,260	1,310	1,720	1,440	1,370	1,290			
22	1,390	1,090	1,320	1,270	1,360	1,560	1,440	1,470	1,290			
23	1,390	1,090	2,200	1,280	1,340	1,900	1,440	1,470	1,290			
24	1,390	1,090	2,560	1,270	1,330	1,930	1,610	1,500	1,240			
25	1,400	1,100	2,050	1,330	1,330	1,910	1,610	1,480	1,250			
26	1,410	1,120	1,860	2,570	1,350	1,940	1,620	1,500	1,220			
27	1,410	800	2,050	2,640	1,380	2,050	1,610	1,460	1,260			
28	1,420	600	1,640	2,080	1,370	2,060	1,620	1,500	1,250			
29	1,420		1,430	3,140	1,360	2,190	1,440	1,500	1,250			
30	1,620		1,410	1,710	1,340	2,180	1,600	1,470	1,200			
31	1,620		1,400				1,600	1,500				

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 with averages for their periods of record. With the exception of Las Cruces, New Mexico, all stations are located in Texas. 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 135 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 the 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 1970 may be found under "Index to Precipitation Records" in Water Bulletins 10, 14, 26, and Supplement 40A.

Month	Las Cruces, New Mexico		American Dam		Clint Station		Acala Station		Fort Hancock Bridge	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	0.79	0.76	0.22	0.42	0.04	0.31		0.30	0.36	0.38
Feb.	.67	.41	.28	.39	.28	.28	0.14	.21	.49	.31
Mar.	.24	.21	.31	.31	.53	.21		.23	1.20	.26
Apr.	.50	.34	.58	.23	.37	.15		.18	1.25	.30
May	.16	.53	.25	.26		.30	.20	.34	.02	.49
June	.25	.74	.21	.52		.49	.26	.57	.21	.80
July	.50	1.03	.04	1.46	1.00	1.00	.42	1.06	.84	1.28
Aug.	.65	2.45	2.22	1.38	.42	1.13	.21	1.15	1.28	1.62
Sept.	.39	1.48	.30	1.13	1.01	.89	.20	.85	2.01	1.48
Oct.	1.50	.84	1.62	.77	.98	.63	.14	.79	1.95	.95
Nov.	1.13	.79	.47	.29	.75	.24	.17	.24	.67	.36
Dec.	.26	.63	.10	.40	0	.38	.01	.33	.15	.43
Yearly	7.04	10.21	6.60	7.56		6.01		6.25	10.43	8.66

Month	Guayuco Arroyo		Fort Quitman		Neely Ranch		96 Ranch Headquarters		La Macolla Farm	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	1.16	0.30	0.41	0.35	0.42	0.34	1.10	0.69	0.74	0.44
Feb.	.28	.20	.31	.23	.25	.20	.20	.49	1.87	.59
Mar.	.79	.22	.44	.21	.25	.18	.90	.30	.18	.14
Apr.	.52	.20	.67	.23	.52	.18	.40	.20	0	.64
May	.16	.41	0	.38	.21	.35	.90	1.16	.51	.80
June	.06	.58	.90	.75	.36	.81	.80	1.96	.12	1.24
July	.44	1.31	.22	1.40	.88	1.67	1.00	4.12	0	1.33
Aug.	.40	1.62	.38	1.51		1.78	2.20	2.96	2.23	2.84
Sept.	2.15	1.24	.24	1.01	1.13	1.60	2.60	4.65	1.35	2.43
Oct.	1.25	.95	1.64	.79		.97	3.10	1.27	2.38	1.22
Nov.	.78	.24	.85	.29	.70	.28	1.10	.60	.45	.40
Dec.	.01	.36	.02	.41	.10	.42	.10	.66	0	.29
Yearly	8.00	7.63	6.08	7.56		8.78	14.40	19.06	9.83	12.36

Month	Bill Shannon Ranch		Adobes Ranch		Shafter		Presidio (IB&WC Gage)		Presidio Evaporation Station	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	1.00	0.46	0.80	0.37	0.45	0.24	0.43	0.29		
Feb.	.50	.38	.50	.24	.52	.38	.17	.20		
Mar.	.30	.34	.80	.19	.66	.35	.15	.17		
Apr.	.30	.32	.25	.12	.26	.73	.12	.25		
May	1.50	.75	1.15	.66	.86	.80	.63	.52		
June	.30	1.61	.50	1.30	.92	2.48	.53	1.23		
July	.95	2.14	.30	2.03	.67	3.29	.24	1.45		
Aug.	1.30	2.63	1.50	1.84	2.64	3.24	1.61	1.38		
Sept.	.70	2.66	2.10	2.20	5.50	3.81	1.00	1.49		
Oct.	2.65	1.28	1.00	.75	1.79	1.38	1.15	.74		
Nov.	1.15	.46	1.10	.29	.79	.42	1.18	.32		
Dec.	.10	.41	.30	.28	.10	.27	T	.26		
Yearly	10.75	13.44	10.30	10.27	15.16	17.39	7.21	8.30		

T Trace

RAINFALL ON THE RIO GRANDE WATERSHED IN THE UNITED STATES

In Inches

Month	Kerr Mitchell Ranch		H. T. Fletcher Ranch		La Mota Ranch		Redford		Study Butte	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	3.00	0.52	1.60	0.71	1.00	0.73	0.40	0.30	0.77	0.66
Feb.	.61	.35	.95	.35	.30	.15	.50	.21	.09	.18
Mar.	.25	.21	.50	.35		.29	.20	.20	.42	.14
Apr.	.20	.47	0	.43	.01	.70	.05	.32	.25	.64
May	1.05	1.06	1.00	1.03	.09	.91	.50	.47	.98	1.33
June	.65	1.81	.75	1.72	1.50	1.87	.35	1.02	1.05	1.72
July	.15	1.99	.95	2.91	0	1.13	.50	1.44	.52	1.49
Aug.	.85	2.28	2.60	3.24	.20	1.77	1.50	1.32	.40	1.53
Sept.	1.75	2.07	1.70	2.60	1.00	2.06	1.50	1.89	.07	1.17
Oct.	2.00	1.32	1.70	1.47	1.22	.87	2.09	.92	2.61	1.01
Nov.	.70	.37	.75	.46	.66	.40	1.10	.37	.56	.25
Dec.	0	.39	0	.40	0	.30	.30	.26	0	.23
Yearly	11.21	12.84	12.50	15.67		11.18	8.99	8.72	7.72	10.35

Month	Terlingua Creek Station		Johnson Ranch		Yarborough Ranch		Buttrill Ranch		Harold Wynne Ranch Headquarters	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	0.40	0.31	0.60	0.31	0.94	0.30	1.00	0.50		0.23
Feb.	.70	.22	.80	.23	.17	.42	0	.20		.16
Mar.	.20	.14	0	.17	.78	.31	.40	.18	1.00	.38
Apr.	.20	.39	.40	.42	.10	.35	.10	.57	.30	.58
May	.40	.74	.05	1.02	.59	.87	1.01	1.26	1.20	1.01
June	.60	1.07	.40	1.18	1.11	1.80	1.20	1.42	.40	1.51
July	.60	1.25	.10	1.14	.22	2.57	0	1.54	.30	1.48
Aug.	1.40	1.22	1.60	.92	1.32	2.89	.70	1.54	1.00	3.18
Sept.	.20	1.31	.10	1.36	.89	3.05	2.50	1.99	0	1.90
Oct.	2.20	.78		.69	5.21	1.57	3.50	1.19	.50	1.69
Nov.	.50	.21	.60	.22	1.42	.61	1.90	.34	.50	.34
Dec.	.20	.25	.30	.29	0	.49	0	.34	.20	.45
Yearly	7.60	7.89		7.95	12.75	15.23	12.31	11.07		12.91

Month	White V-Ranch		Lewis James Ranch		Bricker Ranch		Ross Foster Ranch		W. A. Arledge Ranch	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	0.80	0.54	0.99	0.46	0.46	0.34	0.75	0.39	0.75	0.60
Feb.	1.65	.66	1.32	.59	1.15	.62	2.20	.56	2.61	.62
Mar.	.40	.39	0	.36	.81	.45	0	.28	.40	.48
Apr.	.20	1.45	.37	1.22	.17	.96	0	1.00	0	1.41
May	T	1.47	.42	1.48	.55	1.22	.15	1.20	1.17	1.85
June	.50	1.48	1.58	1.12	2.31	1.29	3.10	1.26	2.87	1.58
July	.10	1.23	.31	1.32	0	.71	0	.61	0	1.22
Aug.	.40	1.68	.58	2.14	0	1.01	0	1.27	.54	1.52
Sept.	1.13	2.76	1.42	2.99	.48	2.12	.95	1.67	.11	1.99
Oct.	6.80	1.79	4.76	1.59	2.72	1.12	4.41	1.14	4.96	1.64
Nov.	1.10	.76	1.00	.77	.53	.40	1.29	.44	1.13	.49
Dec.	T	.47	0	.43	0	.37	0	.38	0	.51
Yearly	13.08	14.68	12.75	14.47	9.18	10.61	12.85	10.20	14.54	13.91

Month	Owens Ranch		Prosser Ranch No. 3		Ranchita (Continental)		Rio Grande near Dryden		Pecos River near Langtry Station	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	0.80	0.39	0.82	0.39	0.85	0.41	1.70	.59	0.40	0.36
Feb.	.74	.65	1.75	.87	.40	.73	.75	.23	1.86	.84
Mar.	1.66	.99	0	.59	.50	.70	.35	.22	.18	.51
Apr.	.20	2.14	0	1.50	.80	1.50	.25	1.05	0	1.15
May	1.00	2.10	1.91	2.18	3.80	2.06	1.57	1.29	.88	1.22
June	3.10	2.20	3.29	1.50	2.90	2.11	1.90	.88	2.92	1.99
July	1.10	1.12	0	1.42	0	1.52	.32	.72	0	1.39
Aug.	.80	1.90	0	1.94	.10	2.52	2.51	2.38	.10	1.61
Sept.	1.30	2.53	.48	3.19	.80	2.64	.73	1.78	.70	2.24
Oct.	6.65	2.41	3.46	2.21	5.55	2.42	2.35	.56	5.10	1.73
Nov.	1.82	1.33	1.19	.68	0	.59	.73	.76	1.00	.73
Dec.	.20	.57	0	.43	0	.44	.04	.38	T	.37
Yearly	19.37	18.33	12.90	16.90	15.70	17.64	13.20	10.84	13.14	14.14

T Trace

RAINFALL ON THE RIO GRANDE WATERSHED IN THE UNITED STATES

In Inches

Month	Dead Mans Canyon near Comstock		Prosser Ranch No. 1		Continental Ranch		Martin King Ranch		Brotherton Ranch	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	0.72	0.43	0.77	0.36	0.80	0.52	0.57	0.48	0.44	0.59
Feb.	1.15	.76	2.10	.80	.40	.86	1.58	.77	1.70	.91
Mar.	.40	.63	.20	.52	.50	.72	.20	.34	.33	.55
Apr.	0	1.34	0	1.44	.60	1.72	.10	1.04	.14	1.07
May	1.45	1.93	3.80	2.23	4.70	2.83	1.18	1.50	.77	1.54
June	4.80	2.29	4.30	1.82	4.60	2.09	1.01	1.67	.77	1.80
July	0	2.22	.20	2.01	0	2.46	.05	1.41	1.30	1.52
Aug.	.40	1.84	.40	1.96	.50	2.44	.22	1.53	.63	1.83
Sept.	1.10	2.52	.82	2.84	.80	3.66	.83	2.49	1.02	2.44
Oct.	2.08	1.97	2.27	2.10	3.30	2.53	2.61	2.19	2.12	1.85
Nov.	1.12	.80	.80	.67	0	.62		.56	.64	.56
Dec.	0	.44	0	.37	0	.45	.02	.45	0	.38
Yearly	13.22	17.17	15.66	17.12	16.20	20.90		14.43	9.86	15.04

Month	Walker Ranch		Zuberbueler Ranch		P. W. Kelly Ranch		Comstock		Cow Creek near Comstock	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	0.51	0.34	0.52	0.40	0.45	0.45	0.49	0.55	0.50	0.32
Feb.	1.25	.76	1.95	1.04	1.59	.86	1.20	.82	.55	.49
Mar.	0	.53	.38	.48	.24	.74	.41	.60	.58	.44
Apr.	.10	1.22	.20	1.32	0	1.25	.27	1.40	.16	1.26
May	3.30	2.10	1.32	1.93	2.67	2.17	1.35	1.84	0	.99
June	5.31	2.45	1.69	1.90	2.66	2.19	2.25	2.13	0	1.40
July	.10	1.54	1.10	2.32	0	2.04	.12	1.32		1.52
Aug.	.58	1.31	.16	1.23	2.43	2.02	.25	1.80	.10	1.90
Sept.	1.26	3.26	2.35	1.83		2.93	1.34	2.31	1.00	2.05
Oct.	2.02	1.92	2.93	1.43	1.81	1.75	2.85	1.84		1.53
Nov.	.70	.70	.91	.78	.68	.78	1.55	.62		.58
Dec.	0	.39	0	.55		.34	.02	.63		.33
Yearly	15.13	16.52	13.51	15.21		17.52	12.10	15.86		12.81

Month	Amistad Reservoir near Comstock		Feely		Line Store		W. E. Sawyer Ranch		Whitehead Brothers Ranch	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	0.45	0.26	0.14	0.36	1.79	0.59	1.00	0.39	1.20	0.53
Feb.	2.25	.64	.76	.75	1.11	.98	.78	.96	.80	.78
Mar.	.70	.46	.81	.50	.97	.76	.50	.96	.20	.71
Apr.	T	1.58	.22	1.44	.72	1.90	1.10	2.00	.30	1.62
May	1.22	1.46	1.57	1.81	.52	2.18	2.40	2.49	3.71	2.62
June	1.03	1.54	2.18	1.95	1.95	1.77	.55	1.96	2.69	1.96
July	.10	1.22	.65	1.39	.07	1.97	.06	2.00	.30	1.87
Aug.	1.60	1.79	.08	1.81	.20	2.44	.93	2.91	1.15	2.42
Sept.	.35	1.65	1.33	2.08	.64	3.46	.65	3.13	.50	2.68
Oct.	2.65	1.73	1.00	1.82	3.12	2.02	4.33	2.17	2.59	3.03
Nov.	2.80	.62	.40	.55	1.23	.90	2.65	.92	.90	.89
Dec.	0	.27	.10	.33	.14	.46	0	.54	.06	.41
Yearly	13.15	13.22	9.24	14.79	12.46	19.43	14.95	20.43	14.40	19.52

Month	Prosser Ranch No. 2		Devils Ranch at Cauthorn Ranch		Bakers Crossing		Vinegarone		Eugene Miller Ranch	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	0.85	0.36	0.48	0.41	1.01	0.67	1.10	0.51	0.59	0.48
Feb.	1.95	.93	.78	.81	1.68	1.00	.90	.92	.35	.65
Mar.	0	.63	.35	.56	.38	.67	.40	.81	.72	.73
Apr.	0	1.50	.10	1.29	.04	1.29	.20	1.63	.40	1.88
May	2.33	2.27	1.20	2.30	3.63	2.51	3.71	2.70	.59	3.31
June	2.74	1.85	4.11	1.86	2.55	2.18	3.61	2.20	.93	1.87
July	.50	1.74	.74	.50	1.26	1.65	0	2.12	.17	2.92
Aug.	.29	2.25	1.19	1.08	1.87	2.08	1.80	2.97	.63	2.30
Sept.	.34	3.15	.30	1.18	.42	3.47	1.16	2.60	T	2.99
Oct.	2.89	2.11	2.65	2.57	2.61	2.10	4.96	2.72	5.96	2.65
Nov.	.99	.70	.42	.38	1.07	.56	1.70	.95	.68	.95
Dec.	0	.37	0	.33	0	.59	.05	.45	.01	.36
Yearly	12.88	17.86	12.32	13.27	16.52	18.77	19.59	20.58	11.03	21.09

T Trace

RAINFALL ON THE RIO GRANDE WATERSHED IN THE UNITED STATES

In Inches

Month	Dolan Springs		H. K. Fawcett Ranch		Ed Crane Ranch		H. T. Miers Ranch Headquarters		H. T. Miers Ranch No. 2	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	1.10	0.51	0.75	0.65	0.81	0.75	0.50	0.57	0.60	0.45
Feb.	.50	.83	.33	.79	.61	1.08	.70	1.08	.75	.93
Mar.	.20	.76	1.00	.78	.28	.60	1.20	.81	.45	.94
Apr.	.30	1.69	.46	1.73	.42	1.70	.05	1.85	.20	1.66
May	1.80	2.15	3.12	2.37	2.15	2.60	1.02	2.60	.94	2.50
June	1.10	2.20	.96	1.65	2.15	2.19	.88	2.67	1.99	2.20
July	0	1.90	.49	1.68	1.46	1.79	.15	1.67	.79	1.46
Aug.	2.10	2.66	2.00	2.27	.95	1.17	.05	2.02	2.45	2.58
Sept.	1.60	3.54	1.10	2.99	2.85	2.57	.95	2.44	1.02	2.59
Oct.	3.25	2.66	4.41	2.39	2.92	2.11	8.35	2.90	7.03	2.31
Nov.	1.12	.76	2.21	.82	1.39	.80	1.95	.89	2.50	.94
Dec.	.05	.42	0	.45	.02	.62	.03	.55	.07	.55
Yearly	13.12	20.08	16.83	18.57	16.01	17.98	15.83	20.05	18.79	19.11

Month	A. A. Baker Ranch		Harlow Ranch		Goldwire Ranch		Pafford Crossing		Big Satan Creek Station	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	0.66	0.40	0.47	0.32	0.80	0.55	0.65	0.51	0.80	0.52
Feb.	1.04	.78	.65	.61	.55	.77	.70	.80	.90	.73
Mar.	.43	.58	0	.36	.65	.83	.80	.59	.50	.95
Apr.	.38	1.32	.10	1.28	.10	1.76	0	1.37	.20	1.77
May	1.65	1.75	2.52	1.89	1.98	2.53	1.18	1.98	2.57	2.39
June	1.98	1.89	3.43	2.41	1.22	2.05	.62	2.08	1.38	1.91
July	.06	1.54	1.00	1.39	.05	2.37	0	1.79	.90	2.16
Aug.	.12	1.87	1.10	1.78	T	3.08	0	1.92	2.20	2.91
Sept.	1.79	2.88	1.90	2.47	T	2.25	1.25	2.86	1.75	2.21
Oct.	2.49	1.87	1.75	2.05	6.25	2.43	5.95	2.23	5.70	2.51
Nov.	1.44	.65	.65	.58	2.30	.93	1.42	.74	1.97	.96
Dec.	0	.39	0	.33	.05	.46	.05	.47	.03	.54
Yearly	12.04	15.92	13.57	15.47	13.95	20.01	12.62	17.34	18.90	19.56

Month	Cliff Lowry Ranch No. 1		Lowry Ranch No. 2		Tuffy Whitehead Ranch		Stewart Ranch		Rough Canyon near Del Rio	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	0.69	0.45	0.54	0.37	0.48	0.35	0.53	0.42	0.45	0.35
Feb.	.35	1.08	.37	.93	.86	.81	.45	.90	.80	.97
Mar.	1.81	.84	1.59	.83	1.10	.64	1.40	.68	1.10	.73
Apr.	.10	1.78	.08	1.75	.15	1.42	.09	1.70	.05	1.54
May	1.26	2.44	2.04	2.11	1.43	1.63	1.31	1.84	1.85	1.91
June	1.97	2.19	2.47	2.04	1.97	1.96	1.76	2.28	1.40	2.13
July	.65	1.79	.65	1.91	.59	1.39	.62	1.71	.35	2.08
Aug.	1.30	2.37	1.96	2.45	.07	1.68	.55	1.86	.30	2.40
Sept.	1.17	2.85	.48	2.12	1.01	2.65	1.50	2.35	.95	1.98
Oct.	5.18	2.39	4.78	2.25	3.09	1.78	4.80	2.18	4.80	2.52
Nov.	2.34	1.01	2.39	.96	.65	.63	1.80	.84	1.45	.94
Dec.	.03	.50	.02	.50	0	.38	.10	.50	.05	.49
Yearly	16.85	19.69	17.37	18.22	11.40	15.32	14.91	17.26	13.55	18.04

Month	Devils Lake		Sellers Ranch		Evans Creek near Comstock		J. G. Brite Ranch		Hutto Ranch No. 1	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	0.48	0.60	0.35	0.35	0.35	0.24	0.54	0.36	0.52	0.48
Feb.	.55	.85	1.00	.79	1.55	.88	.97	.91	.53	.92
Mar.	.56	.62	.45	.53	.25	.61	.54	.71	.82	.74
Apr.	.07	1.64	.10	1.36	.10	1.30	.10	1.56	.10	2.03
May	2.06	1.86	1.34	1.67	1.76	1.48	1.48	1.97	1.36	1.96
June	2.09	2.31	2.16	2.42	2.44	2.21	2.25	2.25	3.28	2.26
July	.31	1.32	.20	1.28	0	1.84	.36	1.60	.15	2.02
Aug.	.70	1.78	.55	1.78	.44	2.59	2.77	2.16	0	2.08
Sept.	2.00	2.25	0	2.33	.10	2.59	.49	3.01		2.47
Oct.	5.39	1.99	6.90	2.06	6.40	2.13	6.12	2.20	7.82	2.41
Nov.	1.60	.74	1.50	.72	2.10	.97	1.29	.80	1.12	.89
Dec.	.05	.67	0	.44	0	.42	0	.48	.10	.50
Yearly	15.86	16.63	14.55	15.73	15.49	17.26	16.91	18.02		18.76

T Trace

RAINFALL ON THE RIO GRANDE WATERSHED IN THE UNITED STATES

In Inches

Month	Hutto Ranch No. 2		Middle Fork San Pedro		North Fork San Pedro		Long Ranch		Buoy No. 11	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	0.62	0.50	0.35	0.41	0.40	0.40	0.68	0.46	0.45	0.35
Feb.	.85	1.00	1.00	.96	.55	.83	1.00	.84	2.15	.68
Mar.	.69	.72	.60	.82	.80	.82	.70	.78	.40	.49
Apr.	.25	2.12	.20	1.93	.15	1.86	.16	1.74	0	1.88
May	1.19	1.76	1.50	2.08	1.50	1.92	1.30	1.93	1.89	1.79
June	2.86	2.33	2.85	2.30	2.60	2.27	1.93	2.24	1.61	2.04
July	.66	2.02	.60	2.63	.55	2.59	.06	2.16		1.76
Aug.	.78	2.16	.10	2.31	.30	2.33	1.30	1.65	T	2.02
Sept.	1.53	3.05	1.85	1.56	1.35	1.73	.93	1.71	.25	2.11
Oct.	5.13	2.14	5.50	2.86	4.70	2.61	4.39	2.31	3.30	1.64
Nov.	1.54	1.00	1.26	1.07	1.25	1.04	1.68	.92	1.70	.68
Dec.	.10	.46	.04	.58	.04	.53	.03	.45	0	.38
Yearly	16.20	19.26	15.85	19.51	14.19	18.93	14.16	17.19		15.82

Month	Amistad Dam		Laughlin Air Force Base		Gillis Headquarters Ranch		Lewis Ranch		Maverick County Canal Headgate	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	0.70	0.46	0.51	0.47	1.17	0.59	0.52	0.54	0.52	0.52
Feb.	1.42	.89	.68	.92	.48	1.06	.80	1.28	1.15	.95
Mar.	.32	.75	.79	.54	1.10	.91	.90	.86	.35	.58
Apr.	.10	1.88	.12	1.97	T	2.10	.12	2.23	0	1.63
May	1.82	1.99	1.21	2.00	2.07	2.73	1.50	2.41	1.10	2.10
June	1.56	2.13	2.38	2.73	3.25	2.56	7.50	2.70	1.18	2.20
July	.08	1.78	.90	2.39	T	2.36	.60	1.54	0	1.71
Aug.	.76	2.24	.35	1.84	.50	2.86	.25	2.31	.72	1.56
Sept.	.89	3.41	.86	2.29	.72	1.81	1.65	2.79	2.65	2.65
Oct.	6.43	2.08	7.09	2.70	6.67	2.87	10.00	3.01	5.00	2.12
Nov.	1.74	.89	1.60	1.05	2.21	1.27	3.95	1.24	1.96	1.00
Dec.	.06	.52	.04	.53	0	.67	0	.64	0	.55
Yearly	15.88	19.02	16.53	19.43	18.17	21.79	27.79	21.55	14.63	17.57

Month	Wardlaw Standart Ranch		Pinto Creek Station		Las Moras Creek		Wipff Ranch		Lateral No. 2 Spill	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	0.62	0.48	0.50	0.53	0.48	0.69	0.55	0.62	0.42	0.59
Feb.	.45	1.08	.75	.75	.95	1.01	1.25	.83	1.95	.77
Mar.	.75	1.40	.25	.51	.23	.62	.50	.60	.65	.65
Apr.	0	1.82	.10	1.50	0	1.43	0	1.78	0	1.90
May	1.59	2.01	1.05	1.95	.67	2.11	1.10	2.34	.75	2.64
June	3.56	3.04	.40	2.29	2.52	2.56	3.65	2.32	2.90	2.35
July	.64	.68	0	1.38	.42	1.31	.20	1.50	0	1.73
Aug.	.94	.75	0	1.58	1.00	1.92	1.20	1.94	.20	1.99
Sept.	3.33	1.84	3.25	2.72	5.90	3.30	6.35	2.79	7.40	3.03
Oct.	5.25	1.71	1.70	1.90	1.91	2.28	2.20	2.00	1.85	1.98
Nov.	1.33	2.32	1.40	1.22	2.00	1.12	1.60	1.24	1.60	1.13
Dec.	.02	.38	0	.53	0	.65	.10	.57	0	.51
Yearly	18.48	17.51	9.40	16.86	16.08	19.00	18.70	18.53	17.72	19.27

Month	Normandy		Lateral No. 12 Headgate		Lateral 15 Spill		Maverick Power Plant		Cooper Ranch	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	0.82	0.72	0.42	0.54	0.40	0.57	0.69	0.67	0.70	0.52
Feb.	1.94	.83	1.38	.65	1.82	.69	1.24	.81	1.50	.71
Mar.	.38	.71	.30	.56	.35	.52	.49	.75	.55	.66
Apr.	.15	2.02	0	1.85	0	1.82	.12	1.98	0	1.83
May	1.20	2.84	.80	2.62	.35	2.41	.60	2.66	1.10	2.49
June	2.33	2.26	2.10	2.16	3.15	2.13	2.57	2.47	3.25	2.80
July	.27	1.92	.30	1.54	0	1.81	.82	1.62	1.60	1.88
Aug.	.88	2.05	.80	1.76	.80	1.68	1.07	1.89	3.70	2.11
Sept.	6.82	3.03	4.60	2.80	8.40	2.58	8.44	2.85	9.30	3.40
Oct.	1.45	2.22	1.70	2.31	2.40	2.30	2.35	2.33	2.65	2.26
Nov.	2.14	1.12	2.10	.95	1.50	.89	.98	.88	2.20	1.01
Dec.	0	.65	.10	.54	T	.52	.17	.59	.15	.57
Yearly	18.38	20.37	14.60	18.28	19.17	17.92	19.54	19.50	26.70	20.24

T Trace

RAINFALL ON THE RIO GRANDE WATERSHED IN THE UNITED STATES

In Inches

Month	Coal Mine		Elm Creek Station		Chittim Ranch		Eagle Pass		Canyon Diablo	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	0.45	0.54	0.40	0.50	0.62	0.53	0.59	0.65	0.40	0.52
Feb.	.90	.74	1.25	.65	1.00	.77	1.22	.86	.85	.70
Mar.	.70	.70	.30	.52	.45	.55	.52	.76	.84	.62
Apr.	.10	1.79	0	1.90	0	2.12	.11	1.92	0	1.94
May	.20	2.69	.30	2.99	1.00	3.35	1.06	3.91	1.15	3.79
June	1.90	2.05	1.20	2.32	1.70	2.18	1.63	2.92	2.60	2.80
July	.90	2.03	0	1.73	5.20	2.03	2.14	1.89	1.60	1.44
Aug.	1.55	1.78	1.00	2.01	1.10	2.18	.79	2.83	1.05	2.38
Sept.	8.73	3.21	8.60	2.85	4.85	2.82	3.55	3.11	3.45	3.17
Oct.	2.20	2.30	2.65	2.28	1.50	2.35	1.98	2.17	1.25	1.92
Nov.	1.40	.86	1.15	.82	1.30	.80	1.70	1.03	1.70	.95
Dec.	0	.45	T	.54	T	.56	.20	.72	.10	.57
Yearly	19.03	19.14	16.85	19.11	18.72	20.24	15.49	22.77	14.99	20.80

Month	Rosita Creek Siphon		Weyrich Farm		Trees Farm		Rosita Creek Station		Farias Ranch	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	0.18	0.46	0.40	0.46	0.30	0.50	0.40	0.45	0.45	0.62
Feb.	1.10	.75	1.20	.73	.79	.76	.80	.68	1.55	.96
Mar.	0	.54	.10	.41	.48	.43	.92	.51	.90	.54
Apr.	0	1.94	0	2.06	.10	1.99	0	2.02	.10	2.12
May	0	2.70	0	2.98	1.24	2.89	1.40	2.82	1.25	3.14
June	3.00	2.25	2.70	1.88	1.57	1.98	2.50	2.29	2.50	2.26
July	0	1.70	0	1.10	.99	1.67	.90	1.36	.45	2.03
Aug.	.20	1.82	1.00	1.89	1.32	1.87	.65	1.74	1.60	2.08
Sept.	4.70	2.71	2.10	2.54	3.73	2.65	3.95	2.77	2.85	3.55
Oct.	1.25	2.03	.70	1.58	1.90	2.69	2.05	2.43	2.10	2.67
Nov.	.50	.86	0	.78	1.17	.89	1.00	.85	.50	.87
Dec.	.10	.62	0	.56	.04	.60	.10	.58	.25	.75
Yearly	11.03	18.38	8.20	16.97	13.63	18.92	14.67	18.50	14.50	21.59

Month	Indio Ranch		El Indio		Van Dalsem Farm		Wuensche Farm		Keisling Farm	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	0.40	0.61	0.80	0.72	0.75	0.56	0.60	0.65	0.50	0.57
Feb.	1.06	.80	2.36	.93	1.72	.86	1.55	.92	1.80	.88
Mar.	1.39	.58	.76	.55	.10	.46	.45	.58	.39	.64
Apr.	0	2.17	.02	1.89	.25	2.20	0	1.94	.05	2.06
May	2.26	2.99	1.84	3.36	2.00	3.26	1.85	3.05	1.84	2.92
June	1.62	2.45	2.88	2.20	2.75	1.98	2.10	2.41	.87	2.64
July	.75	1.83	1.11	1.27	1.70	1.50	1.65	1.30	.46	1.38
Aug.	1.72	1.76	2.48	2.01	4.10	1.79	2.30	1.81	1.88	1.81
Sept.	2.08	3.33	1.95	3.02	1.50	3.15	1.30	2.94	.73	2.78
Oct.	1.50	2.42	1.87	2.21	2.50	2.32	2.20	2.12	2.25	2.25
Nov.	.57	.86	.37	.77	.60	.80	.60	.77	.60	.72
Dec.	.11	.67	.04	.65	.10	.66	.10	.62	.10	.80
Yearly	13.46	20.47	16.48	19.58	18.07	19.54	14.70	19.11	11.47	19.45

Month	Cuervo Creek Station		Laredo Water Plant		Fort McIntosh (Laredo)		Corralitos Ranch		Huisache Ranch	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	0.40	0.59	0.35	0.73	0.60	0.73	1.30	0.62	1.40	0.72
Feb.	1.15	.69	3.40	.84	2.92	.89	1.30	.74	1.40	.90
Mar.	0	.43	.35	.59	.58	.70	0	.51	.75	.57
Apr.	0	1.84	0	1.21	0	1.34	0	1.11	0	1.30
May	1.48	2.42	.70	2.44	1.04	2.76	4.50	2.09	1.15	2.16
June	0	2.30	.52	2.18	1.78	2.29	0	2.18	0	2.44
July	.35	1.23	1.04	1.15	.93	1.45	.50	1.27	1.70	1.41
Aug.	1.10	1.59	1.02	1.93	1.08	1.96	.80	1.82	.60	1.57
Sept.	.60	2.87	1.12	2.98	1.48	2.90	.80	3.21	1.05	4.04
Oct.	3.00	2.15	1.40	1.82	1.36	1.81	.80	1.69	1.05	1.96
Nov.	.60	.74	.28	.89	.68	1.14	0	.86	0	.84
Dec.	.10	.57	.28	.84	.32	.86	.28	.59	.28	.73
Yearly	8.78	17.42	10.46	17.60	12.77	18.83	10.28	16.69	9.38	18.64

T Trace

RAINFALL ON THE RIO GRANDE WATERSHED IN THE UNITED STATES

In Inches

Month	Zapata Water Plant		Arroyo Tigre Chiquito		Falcon Dam		Roma (International Bridge)		Garciasville	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	1.72	0.75	0.64	0.69	0.82	0.82	0	0.84	0.57	0.88
Feb.	1.25	.85	3.17	.90	6.03	.99	5.28	1.08	4.95	.98
Mar.	.79	.53	.05	.30	.66	.62	.40	.62	1.05	.51
Apr.	0	1.45	0	1.09	0	1.17	0	1.36	0	1.12
May	.50	2.65	.70	2.10	1.27	2.49	1.75	1.78	.80	2.39
June	2.15	2.30	2.29	1.96	2.24	2.62	5.65	2.24	2.86	2.44
July	2.90	1.53	.09	1.19	3.48	1.24	2.44	1.33	3.16	1.33
Aug.	1.70	1.97	1.86	2.06	4.25	2.58	3.34	1.94	2.32	1.99
Sept.	.91	4.41	.57	4.27	2.10	4.40	1.21	4.44	1.89	3.52
Oct.	2.50	1.79	.80	1.79	1.60	2.11		2.03	0	2.01
Nov.	0	.91	0	.98	.65	1.11		.73	2.19	.99
Dec.	3.40	.88	1.00	.59	1.12	.74	.95	.47	1.20	.77
Yearly	17.82	20.02	11.17	17.92	24.22	20.89		18.86	20.99	18.93

Month	Los Ebanos		La Joya		Penitas (Edinburg Pumping Plant)		New Mission Pumping Plant		HCWCID #15 (Edinburg Office)	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	0.99	1.04	0.42	0.96	0.68	1.27	1.00	1.06	0.70	1.30
Feb.	4.27	.96	6.64	1.12	4.30	1.04	6.05	1.09	4.80	1.15
Mar.	.83	.44	.70	.47	.60	.50	7.50	1.03	1.88	.64
Apr.	0	1.45	0	1.00	0	1.32	0	1.33	0	1.72
May	1.06	2.28	.80	2.34	.25	2.38	0	2.88	1.50	2.48
June	.44	2.23	3.58	2.78	3.51	3.07	4.00	2.70	2.70	2.41
July	2.72	1.26	1.16	1.18	3.85	1.56	3.50	1.57	6.04	1.50
Aug.	1.67	2.04	.90	1.59	1.13	2.45	2.40	2.36	1.33	2.60
Sept.	2.62	3.20	2.08	3.09	4.62	3.45	.75	2.83	2.74	4.28
Oct.	1.77	2.01	.10	1.77	1.33	2.72	2.61	2.60	.84	2.61
Nov.	2.47	.73	.42	.80	1.32	.95	2.00	.75	1.74	1.03
Dec.	.85	.79	.76	.88	.64	.95	.70	.87	.38	.92
Yearly	19.69	18.43	17.56	17.98	22.23	21.66	30.51	21.07	24.65	22.64

Month	Edinburg Filtration Plant		La Feria Pumping Plant		La Feria Materials Yard		CCWCID #19 (Adams Gardens)		San Benito Pump	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	0.47	1.46	2.32	1.57	1.80	1.54	0.40	1.26	0.79	1.36
Feb.	5.03	1.23	4.90	1.82	14.45	2.11	7.38	1.66	4.33	1.07
Mar.	1.63	.72	.80	.82	.40	.82	1.84	.79	.50	.82
Apr.	0	1.70	0	2.13	0	1.63	0	1.54	0	1.45
May	1.48	2.32	1.00	3.08	1.70	2.60	1.21	2.64	1.43	2.68
June	2.30	2.64	2.78	3.42	3.50	3.76	3.10	2.68	.79	2.47
July	5.71	1.42	10.40	2.49	18.85	2.54	13.94	1.91	8.10	1.81
Aug.	1.77	2.55	.60	3.80	.50	3.48	.72	3.17	2.02	2.46
Sept.	2.64	3.66	1.60	6.20	2.10	4.74	5.96	4.08	3.79	4.38
Oct.	1.67	2.62		4.02	2.85	3.42	2.18	2.94	1.95	2.74
Nov.	1.22	1.09	1.70	1.89	1.60	1.53	1.63	1.51	2.35	1.17
Dec.	.60	1.00	0	1.56	1.10	1.54	.99	1.15	.56	1.33
Yearly	24.52	22.41		32.80	48.85	29.71	39.35	25.33	26.61	23.74

Month	Whipple Farm		* CCWID #11 (Bayview Dist. Off.)							
	1983	Average	1983	Average						
Jan.	3.65	1.93	6.00	1.56						
Feb.	4.62	1.84	2.01	1.59						
Mar.	2.90	.79	1.34	.70						
Apr.	0	2.13	0	1.90						
May	.75	3.06	2.48	2.69						
June	1.10	3.31	1.52	2.34						
July	15.25	2.77	5.06	2.05						
Aug.	1.07	3.20	2.57	2.84						
Sept.	6.30	6.01	6.50	5.57						
Oct.	3.60	3.22	1.35	2.30						
Nov.	1.44	1.64	0	1.39						
Dec.	2.11	1.70	2.49	1.42						
Yearly	42.79	31.60	31.32	26.35						

* 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 period. For location, elevation, period of record, type of gage in use, watershed subdivision in which the station is located, and the observer, see alphabetical listing of these stations shown on pages 136 through 139 in this bulletin. These rainfall records have not been published elsewhere. Records of daily rainfall amounts, where available, are on file in the offices of the Mexican Section of the Commission.

Detailed listings of the months and years for which records are available through 1970 may be found under "Index to Precipitation Records" in Water Bulletins 10, 14, 22, 26, and Supplement 40A.

	Juarez, Chihuahua		El Sauzal D. B., Chihuahua		Garita Km. 28, Chihuahua		Samalayuca, Chihuahua		San Agustin, Chihuahua	
Month	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	0.35	0.43	0.20	0.51	1.73	0.64	0.20	0.48	0.24	0.40
Feb.	.63	.45	.39	.37	.08	.46	.43	.49	.24	.32
Mar.	.35	.35	.31	.14	.04	.26	1.34	.38	.55	.23
Apr.	.79	.30	.43	.15	1.97	.21	.59	.18	.67	.13
May	.47	.35	T	.31	.51	.34	.04	.26	.08	.31
June	.51	.59	.79	.38	.71	.68	.08	.69	.16	.60
July	.28	1.54	.31	1.13	.87	1.72	1.02	1.97	.59	1.44
Aug.	2.09	1.51	.28	1.20	1.38	1.70	1.65	1.78	.16	1.24
Sept.	.39	1.46	.63	1.67	1.02	1.89	.79	2.00	.94	1.50
Oct.	1.61	1.02	1.61	1.12	.83	.90	2.28	.78	.83	.85
Nov.	.63	.48	.39	.19	.08	.53	2.09	.45	.87	.30
Dec.	.08	.55	T	.47	.83	.57	.08	.39	0	.49
Yearly	8.18	9.03	5.34	7.64	10.05	9.90	10.59	9.85	5.33	7.81

	Escuela Agropecuaria * Chihuahua		Campo Agricola ** Experimental, Chihuahua		Porvenir, Chihuahua		Vado de Cedillos, Chihuahua		Los Barriles, Chihuahua	
Month	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	0.08	0.41	0.35	0.33	0.16	0.36	0.20	0.39	0.04	0.31
Feb.		.36	.47	.25	.35	.36	.24	.33	T	.20
Mar.		.30	.83	.23	1.22	.25	1.06	.23	.08	.18
Apr.		.18	1.89	.19	2.44	.23	1.30	.28	T	.11
May		.37	.28	.34	0	.46	.16	.41	T	.32
June		.71	.71	.59	.43	.77	.35	1.00	T	.85
July		1.72	1.42	1.74	.24	1.58	.24	1.56	T	1.61
Aug.		1.55	.79	1.31	2.01	1.80	1.30	1.81	T	1.81
Sept.		1.65	2.80	1.65	2.32	1.92	.83	1.98	.35	1.41
Oct.	.71	.97	1.57	.91	1.81	.92	2.36	.98	.04	.91
Nov.		.33	.71	.38	.59	.44	.83	.44	.28	.42
Dec.	.16	.37		.40	0	.48	.04	.54	T	.28
Yearly		8.92		8.32	11.57	9.57	8.91	9.95	0.79	8.41

	Escuela de Agricultura Escobar, Chihuahua		Banderas, Chihuahua		Carichic, Chihuahua		San Juanito, Chihuahua		El Vergel, Chihuahua	
Month	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	0.24	0.85	0	0.11	1.18	0.56	1.10	1.91	3.54	1.42
Feb.	.75	.55	0	.22	.55	.45	.63	1.09	.71	.74
Mar.	.39	.24	.08	.15	2.13	.30	2.95	.75	2.28	.65
Apr.	1.57	.93	0	.08	.24	.20	1.93	1.05	.31	.50
May	.12	.38	0	.18	.51	.37	.98	.62	1.93	.78
June	.79	.38	0	.67	1.02	1.60	1.42	1.73	2.09	2.94
July	.59	1.17	0	.99	4.53	5.85	4.37	9.38	4.69	6.77
Aug.	1.54	1.54	0	1.53	7.72	4.97	6.46	7.05	9.13	7.02
Sept.	.79	2.05	0	1.70	2.32	3.89	3.54	4.48	.79	4.76
Oct.	1.97	1.33	.67	.80	2.72	1.14	2.91	2.52	2.60	2.00
Nov.	.59	.53	0	.25	1.10	.61	2.95	1.45	2.40	.71
Dec.	.12	.67	0	.19	.71	.72		1.82	.87	1.26
Yearly	9.46	10.62	0.75	6.87	24.73	20.66		33.85	31.34	29.55

T Trace * Formerly titled "Guadalupe, Chihuahua"
** Formerly titled "Praxedis G. Guerrero, Chihuahua"

RAINFALL ON THE RIO GRANDE WATERSHED IN MEXICO

In Inches

Month	Balleza, Chihuahua		El Sitio, Chihuahua		La Boquilla, Chihuahua		San Antonio, Durango		Estacion Rosario, Durango	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	1.06	0.37	0.79	0.28	0.59	0.28	1.89	0.35	0.87	0.32
Feb.	.39	.33	0	.30	0	.18	0	.15	0	.25
Mar.	1.38	.17	1.77	.18	.39	.15	.59	.10	.47	.15
Apr.	T	.21	.20	.20	0	.22	0	.27	0	.28
May	.24	.24		.40	.12	.54	.43	.57	0	.70
June	.39	1.52	.43	1.53	.04	1.39	.71	1.91	.51	2.22
July	2.32	4.60	1.81	4.19	.08	2.90	.31	4.49	1.06	4.24
Aug.	7.48	4.91	5.63	4.88	3.50	2.96	5.98	4.24	4.09	5.03
Sept.	2.28	3.46	2.24	3.58	1.77	3.01	2.99	4.34	1.26	4.78
Oct.	2.17	.93	1.73	.93	.59	.89	.71	1.19	1.14	1.21
Nov.	.75	.47	.20	.37	.59	.33	.08	.27	.55	.37
Dec.	.35	.45	T	.33	0	.34	0	.26	0	.40
Yearly	18.81	17.66		17.17	7.67	13.19	13.69	18.14	9.95	19.95

Month	Villa Coronado, Chihuahua		Ojo Caliente, Chihuahua		Valle Allende, Chihuahua		Escalon, Chihuahua		Jimenez, Chihuahua	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	1.65	0.42	0.79	0.23	1.06	0.22	1.02	0.35	0.55	0.23
Feb.	0	.27	0	.22	T	.18	0	.18	T	.15
Mar.	.51	.20	.35	.16	.87	.10	.08	.11	.63	.12
Apr.	0	.36	.04	.18	T	.18	0	.37	.04	.13
May	1.26	.68	.20	.50	.79	.72	.71	.68	.28	.50
June	1.77	2.86	.16	1.62	1.10	1.71	1.50	1.65	.16	1.20
July	2.60	3.70	.83	3.27	.47	3.81	.63	2.36	1.06	3.21
Aug.	5.87	5.26	4.84	2.88	6.30	4.88	6.14	3.00	6.54	2.62
Sept.	1.46	4.13	1.73	2.82	1.93	3.74	1.65	2.71	2.20	2.36
Oct.	1.42	1.23	.91	1.13	1.38	.89	1.26	1.21	.51	1.18
Nov.	1.34	.47	1.30	.24	.24	.30	.87	.32	.35	.25
Dec,	0	.50	0	.25	0	.30	0	.36	T	.23
Yearly	17.88	20.08	11.15	13.50	14.14	17.03	13.86	13.30	12.32	12.18

Month	Camargo, Chihuahua		Nonoava, Chihuahua		El Maguey, Chihuahua		San Lorenzo, Chihuahua		Villalba, Chihuahua	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	0.51	0.40	1.34	0.36	1.14	0.31	0.79	0.32	0.24	0.33
Feb.	T	.26	.67	.38	0	.30	.20	.17	0	.14
Mar.	.47	.13	2.87	.35	1.69	.20	1.22	.16	.98	.08
Apr.	T	.20	.04	.19	.20	.24	.28	.14	.16	.21
May	.51	.59	.16	.37		.37	.20	.40	.87	.37
June	.08	1.55	.55	1.68	1.30	1.46	1.02	1.47	1.14	1.26
July	.63	3.15	1.97	4.91	1.89	3.57	1.65	4.12	.71	3.40
Aug.	4.37	2.97	4.53	3.84	4.84	4.20	5.20	4.81	6.89	3.16
Sept.	1.89	3.12	2.20	2.84	1.34	3.51	2.17	4.77	1.69	2.95
Oct.	.79	1.04	1.73	1.07	1.93	.94	2.28	.97	1.50	.98
Nov.	1.02	.39	.79	.49	.47	.26	.12	.43	1.26	.30
Dec.	T	.33	.31	.43	T	.29	0	.44	0	.35
Yearly	10.27	14.13	17.16	16.91		15.65	15.13	18.20	15.44	13.53

Month	Las Virgenes, Chihuahua		Km. 135, Chihuahua		Delicias, Chihuahua		Meoqui, Chihuahua		Lazaro Cardenas, Chihuahua	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	0.16	0.28	0.63	0.21	0.39	0.33	0.31	0.25	0.31	0.20
Feb.	0	.12	0	.20	0	.15	T	.18	T	.24
Mar.	1.18	.09	.51	.11	.71	.13	.79	.14	.47	.12
Apr.	.04	.24	.12	.36	.04	.30	.08	.43	.16	.21
May	.31	.32	.08	.47	.20	.32	.08	.47	.04	.46
June	1.06	1.16	.08	1.11	.08	1.13	.16	1.19	.04	1.16
July	.39	2.48	.39	2.27	.28	2.41	.08	2.44	.55	2.79
Aug.	2.91	2.70	1.22	2.73	2.76	2.54	1.42	2.76	1.46	2.69
Sept.	2.52	2.50	1.93	3.17	1.73	2.33	1.73	2.59	1.93	2.85
Oct.	1.18	.88	.79	.99	1.65	.85	1.65	1.02	.71	.86
Nov.	1.22	.25	1.97	.36	1.26	.27	1.46	.27	.79	.37
Dec.	0	.34	0	.34	0	.36	T	.34	0	.18
Yearly	10.97	11.36	7.72	12.32	9.10	11.12	7.76	12.08	6.46	12.13

T Trace

RAINFALL ON THE RIO GRANDE WATERSHED IN MEXICO

In Inches

Month	Las Burras, Chihuahua		Cd. Guerrero, Chihuahua		Bachiniva, Chihuahua		La Trasquila, Chihuahua		Cuauhtemoc, Chihuahua	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	0.31	0.28	1.38	0.64	0.71	0.52	0.31	0.35	1.18	0.36
Feb.	.16	.18	.51	.41	.28	.19	0	.30	.12	.15
Mar.	.24	.12	2.95	.26	1.06	.32	.91	.15	1.61	.16
Apr.	.12	.23	.39	.19	.31	.15	1.02	.21	.24	.19
May	.28	.43	.08	.32	.43	.26	.12	.33	.24	.35
June	.94	1.10	.67	1.50	.79	1.44	.16	1.16	.31	1.43
July	.63	2.77	4.25	4.89	2.68	5.31	2.36	3.54	3.74	4.67
Aug.	3.94	2.66	5.39	5.11	5.04	4.65	1.61	2.71	3.98	4.24
Sept.	1.97	2.43	2.99	3.18	2.44	2.77	1.10	3.18	2.17	2.92
Oct.	.94	.80	2.32	1.20	1.69	1.14	2.68	.89	2.40	1.17
Nov.	.87	.24	1.42	.50	1.22	.35	.87	.32	.67	.31
Dec.	0	.33	.24	.72	.47	.46	0	.33		.44
Yearly	10.40	11.57	22.59	18.92	17.12	17.56	11.14	13.47		16.39

Month	Colonia Anahuac, Chihuahua		Presa Chihuahua, Chihuahua		Chihuahua, Chihuahua		Majalca, Chihuahua		Posta Zootecnica, Chihuahua	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	0.79	0.39	0.63	0.30	0.59	0.27	0.94	0.49	0.67	0.28
Feb.	.20	.27	.04	.18	.39	.20	.31	.33	.59	.22
Mar.	1.61	.21	.51	.16	.47	.19	2.17	.36	.51	.16
Apr.	.28	.28	.51	.22	.91	.20	1.06	.36	.39	.32
May	.35	.54	.43	.78	.83	.47	.12	.76	.47	.66
June	.28	1.42	.55	2.05	.63	1.45	.75	2.31	.31	1.42
July	2.01	4.53	1.61	4.05	1.97	3.53	2.28	5.91	.55	3.41
Aug.	4.02	4.91	4.09	4.35	4.37	3.38	7.60	6.36	2.60	3.93
Sept.	1.38	3.72	.55	3.53	1.34	2.89	2.17	4.80	.47	3.21
Oct.	2.40	1.14	2.24	1.01	3.90	.89	3.46	1.15	2.95	1.17
Nov.	.55	.35	.47	.36	.71	.42	.91	.45	.55	.34
Dec.	.04	.30	.04	.35	.04	.39	.08	.39	0	.30
Yearly	13.91	18.06	11.67	17.34	16.15	14.28	21.85	23.67	10.06	15.42

Month	Villa Aldama, Chihuahua		Presa Luis L. Leon, Chihuahua		Maclovio Herrera (Falomir), Chih.		Parrita, Chihuahua		Maijoma, Chihuahua	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	0.16	0.26	0.43	0.20	0.59	0.34	0.79	0.26		0.42
Feb.	1.06	.20	.71	.16	.63	.20	.12	.23	0.04	.33
Mar.	.16	.26	.28	.14	.12	.13		.10	.79	.20
Apr.	.43	.29	.16	.26	.24	.35		.44	.20	.35
May	.31	.46	.51	.47	.87	.58	.35	.42		.81
June	.63	1.59	.71	1.17	.28	1.13	0	1.60	.43	1.55
July	T	2.72	.79	2.12	.08	2.61	1.26	2.39	.16	2.86
Aug.	1.34	2.91	1.85	2.96	3.54	2.75	4.25	3.26	2.52	3.28
Sept.	1.10	3.36	1.02	2.58	1.26	3.18		3.30	1.54	2.80
Oct.	1.73	.86	.94	.72	1.38	.80		1.01	1.85	1.10
Nov.	.63	.32	1.50	.33	1.69	.36		.33	1.85	.41
Dec.	T	.35	T	.30	0	.56		.26	T	.38
Yearly	7.55	13.58	8.90	11.41	10.68	12.99		13.60		14.49

Month	Coyame, Chihuahua		Gallego, Chihuahua		Ojinaga (IB&WC), Chihuahua		Ojinaga (M.S. of Mexico), Chihuahua		Manuel Benavides, Chihuahua	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.		0.24		0.37	0.16	0.32		0.32		0.21
Feb.	0.31	.31	0.39	.37	.12	.23	T	.23	0.51	.24
Mar.	.16	.16	.83	.21	.08	.17	.08	.20		.24
Apr.	.12	.35	1.10	.25	.08	.35	.12	.30	.20	.37
May	.55	.56		.37	1.42	.51	.51	.61		1.14
June	.43	1.47	.31	1.01	.75	1.28	.39	1.14	.59	1.41
July	1.34	2.34	.43	3.15	.16	1.64	.31	1.59	.04	2.07
Aug.	.75	2.29	1.81	3.19		1.74	2.68	1.65	2.72	2.32
Sept.	1.89	2.87	1.22	2.96	.87	1.69	.39	1.61	.79	2.83
Oct.	1.10	.93	1.30	1.23	1.26	1.01	1.42	1.02	2.95	1.07
Nov.	.98	.44	.94	.34	1.22	.44	1.34	.39		.28
Dec.	0	.21		.28	0	.33	.04	.39		.30
Yearly		12.17		13.73		9.71		9.45		12.48

T Trace

RAINFALL ON THE RIO GRANDE WATERSHED IN MEXICO

In Inches

Month	Sierra Mojada, Coahuila		Ejido Eutimias, Coahuila		Ejido La Rosita, Coahuila		San Fernando, Coahuila		Hda. San Miguel, Coahuila	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	1.89	0.57	1.02	0.29	1.14	0.38	0.98	0.35	1.02	0.35
Feb.	.63	.30	.83	.18		.09	1.22	.67	1.93	.73
Mar.		.27	.39	.14		.14	0	.39	.16	.59
Apr.	0	.31	.24	.78	0	.62	0	1.18	0	1.80
May	.20	.99	.39	.94	0	.56	.75	1.46	.47	2.45
June		2.22	.75	1.23		.91	.20	1.08	1.54	2.08
July	0	2.85	.67	1.72		1.16	0	1.15	0	1.61
Aug.	3.27	2.89	2.17	1.09	1.14	.92	1.18	2.00	0	1.54
Sep.	1.10	3.01	0	1.16	0	.56	0	2.67	.98	2.82
Oct.	1.38	1.32	3.58	1.04	1.57	.72	1.93	1.60	2.91	1.53
Nov.	1.02	.55	.39	.36		.29	1.26	.73	1.93	.68
Dec.		.67	0	.55		.97	.63	.40	0	.38
Yearly		15.95	10.43	9.48		7.32	8.15	13.68	10.94	16.56

Month	La Chuparrosa, Coahuila		Presa Centenario, Coahuila		Amistad Res. near Tlaloc, Coahuila		La Amistad, Coahuila		Represa Amistad, Coahuila	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	0.42	0.21	0.59	0.48	0.65	0.45	0.83	0.53	0.51	0.31
Feb.	1.25	.57	.28	.77	1.45	.80	1.30	1.00	1.22	.73
Mar.	.32	.44	.55	.59	.80	.82	.31	.73	.31	.56
Apr.	.09	1.36	0	1.55	.10	1.18	.08	2.05	.08	1.15
May	.60	1.16	1.42	1.94	.70	1.66	2.24	1.73	1.22	1.39
June	.51	1.44	.94	2.21	.15	2.32	1.30	2.67	1.06	1.57
July	.03	1.61	0	1.40	.60	2.25	0	.75	1.06	1.97
Aug.		2.31	.71	2.48	.45	2.40	.47	.58	.67	1.85
Sep.	.25	2.08	1.26	3.45	1.10	2.70	.43	1.47	.04	2.27
Oct.	1.80	1.69	3.43	2.55	4.96	2.16	7.56	2.48	4.17	2.30
Nov.	1.06	.54	2.36	1.11	1.40	.81	1.30	1.52	1.54	.87
Dec.	0	.27	0	.49	0	.44	.04	.42	0	.32
Yearly		13.68	11.54	19.02	12.36	17.99	15.86	15.93	11.88	15.29

Month	Cd. Acuna, Coahuila		Presa Cabeceras, Coahuila		Presa San Miguel, Coahuila		Palestina, Coahuila		Ejido San Miguel, Coahuila	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	0.83	0.53	0.47	0.49	0.47	0.47	0.63	0.82	1.93	0.69
Feb.	1.77	.92	2.60	.80	2.32	.82	1.50	.97	.35	.19
Mar.	.71	.72	0	.61	.12	.65	.08	.72	.47	.16
Apr.	.12	1.75	0	1.73	0	1.44	0	1.83	.39	.94
May	1.46	2.25	0	2.41	0	2.23	1.30	2.36	0	1.16
June	1.02	2.17	4.57	2.50	4.17	2.66	1.65	2.35	1.42	1.47
July	.08	1.61	0	2.48	.39	1.62	.04	1.90	.31	.78
Aug.	.75	1.79	4.33	3.09	.12	2.77	.75	2.35	1.26	2.35
Sep.	1.69	2.90	1.57	4.23	3.66	3.56	1.97	3.15		1.51
Oct.	5.35	2.65	2.83	2.59	5.59	2.34	3.82	2.25		.65
Nov.	1.57	.78	.98	1.20	2.05	1.22	1.81	.89		.50
Dec.	T	.55	0	.48	0	.45	0	.71	.04	.27
Yearly	15.35	18.62	17.35	22.61	18.89	20.23	13.55	20.30		10.67

Month	Emiliano Zapata, Coahuila		Jimenez, Coahuila		El Remolino, Coahuila		Piedras Negras, Coahuila		Zaragoza, Coahuila	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	0.47	1.20	0.59	0.67	2.60	0.49	0.43	0.67	0.63	0.55
Feb.	.98	.84	.67	.90	2.68	.68	1.38	.93	2.48	1.09
Mar.	.24	.74	.08	.70	0	.40	.51	.64		.86
Apr.	0	2.09	.12	1.74	0	1.61	.08	2.06	0	3.02
May	0	3.21	.94	2.44	0	1.99	2.28	3.52	2.28	4.31
June	3.82	3.14	1.61	2.55	3.15	3.29	2.24	2.53	2.52	2.36
July	.35	2.26	T	1.59	0	2.28	1.57	2.04	2.24	1.12
Aug.	.24	2.26	.79	1.73	0	1.83	.47	2.48	.55	1.89
Sep.	4.92	1.81	4.02	2.88	0	3.74	6.02	3.13	.94	1.26
Oct.	2.87	1.69	1.65	2.37	.98	2.46	1.54	2.65	.79	.99
Nov.	2.83	2.15	1.18	1.16	1.50	.63	1.97	.93	2.17	1.57
Dec.	0	.61	.24	.64	0	.41	.08	.64	T	.54
Yearly	16.72	22.00	11.89	19.37	10.91	19.81	18.57	22.22		19.56

T Trace

RAINFALL ON THE RIO GRANDE WATERSHED IN MEXICO

In Inches

Month	Guerrero, Coahuila		Rancho San Diego, Coahuila		Villa Hidalgo, Coahuila		Colombia (IB&WC), Nuevo Leon		Colombia (SARH), Nuevo Leon	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	0.51	0.54	0	0.20	0.20	0.70	0.79	0.45	0.63	1.00
Feb.	1.81	.72	.79	.49	1.14	.91	1.10	.77	1.46	.63
Mar.	.35	.52	.39	.31	.20	.70	.12	.85	.24	.67
Apr.	.20	1.97	0	1.12	0	1.73	0	1.85	0	2.02
May	1.14	3.07	0	2.35	.75	2.86	1.38	3.34	.51	2.56
June	0	2.67	1.57	1.62	.43	2.20	.98	2.17	1.77	1.59
July	0	1.55	.79	1.19	.31	1.17	.20	1.46	.31	.43
Aug.	.98	2.13	0	1.12	.71	2.34	1.18	2.99		.38
Sep.	0	3.47	0	2.63	1.89	3.53	.71	3.72	.31	1.52
Oct.	1.77	2.53	0	1.14	1.30	2.07	1.30	2.00	.59	3.25
Nov.	0	.71	0	.60	1.54	.97	.98	1.06	1.50	.95
Dec.	0	.60	0	.42	.20	.74	.91	.80	0	.91
Yearly	6.76	20.48	3.54	13.19	8.67	19.92	9.65	21.46		15.91

Month	Rancho Vidrios, Tamaulipas		Nv. Laredo (M. S. of Mexico), Tamps.		Nv. Laredo (IB&WC), Tamaulipas		Jarita, Nuevo Leon		Nuevo Laredo (Sur), Tamaulipas	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	0.39	0.73	0.43	0.77	0.59	0.66	0.59	0.45	0.59	0.59
Feb.	1.89	.89	2.87	.93	3.31	1.00		.92	2.95	1.02
Mar.	.20	.49	.55	.63	.87	.51	.24	.55	.39	.52
Apr.	0	1.58	0	1.30	0	1.34	0	1.47	0	2.13
May	1.77	3.22	1.10	2.53	.98	3.02	2.20	3.29	2.36	3.75
June	1.18	2.06	1.85	2.27	2.64	2.71	1.50	1.70	3.11	2.17
July	.39	1.46	.71	1.29	.71	1.38	.24	.63	.83	2.02
Aug.	1.42	2.36	.79	1.68	1.18	2.37	.87	2.34	1.22	1.79
Sep.	T	3.31	1.73	2.89	2.72	3.22	.55	3.11	1.65	2.23
Oct.	1.97	2.55	1.34	1.73	1.65	2.10	1.46	1.83	1.18	2.54
Nov.	.51	1.14	1.14	.98	.83	1.02	1.34	1.25	1.26	1.09
Dec.	.79	.87	.24	.85	.31	.74	.24	.62	.31	.64
Yearly	10.51	20.66	12.75	17.85	15.79	20.07		18.16	15.85	20.49

Month	Nuevo Laredo Km. 26 SSW, Tamaulipas		Las Espuelas, Tamaulipas		San Ignacio, Tamaulipas		Muzquiz, Coahuila		Conchos, Coahuila	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	0.59	0.69	1.18	0.82	1.06	0.63	1.46	0.80	0.79	0.30
Feb.	1.89	1.02	2.99	1.12	2.95	1.07	2.40	.61	3.19	.83
Mar.	.39	.46	.59	.83	.98	.51	.39	.77	0	.28
Apr.	0	1.98	0	1.67	0	1.43	.08	1.14	0	1.46
May	2.56	2.95	5.98	4.23	5.71	3.17	3.19	3.67	1.85	2.24
June	2.76	2.29	1.18	2.79	.20	2.26	2.99	3.32	1.22	2.63
July	.20	1.60	.51	2.78	1.42	1.29	.47	2.68	0	1.74
Aug.	1.26	2.21	1.18	1.88	1.77	2.41		2.66	3.35	2.09
Sep.	1.65	3.16	2.20	3.67	1.97	3.36	1.02	4.85		3.28
Oct.	1.97	2.03	3.70	2.58	2.56	2.72	.55	2.09		2.17
Nov.	T	1.13	1.50	1.24	1.65	1.19	3.19	1.15		.54
Dec.	.04	.65	.31	.90	.79	.82	0	.85		.44
Yearly	13.31	20.17	21.32	24.51	21.06	20.86		24.59		18.00

Month	Sabinas, Coahuila		Ejido lo. de Mayo, Coahuila		Cuatro Cienegas, Coahuila		Ocampo, Coahuila		Progreso, Coahuila	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	0.43	0.58	2.01	1.09	1.06	0.32	0.31	0.37	1.02	0.50
Feb.	1.02	.70		.20	T	.35		.26	5.59	.65
Mar.	.24	.38	0	.00		.12	.35	.18	.24	.36
Apr.	.04	1.33	.24	1.69	0	.35	.04	.83		1.23
May	.98	2.48	1.46	1.60	.91	.80	.12	1.24	.04	2.13
June	2.20	2.09	.31	.90	.55	.74	2.60	1.60	3.43	1.74
July	.04	1.37	1.30	1.30	0	.83	.28	1.61	.16	1.08
Aug.	1.89	2.08	.83	.83	.28	1.11	2.64	1.55	2.01	1.94
Sep.	2.40	3.38	0	.09	0	1.42	.16	2.01	1.69	2.90
Oct.	1.69	1.73	0	1.36	.12	.73	1.18	1.10	1.85	1.79
Nov.	.47	.65	0	.39	.35	.45	.75	.51	.59	.63
Dec.	T	.53	0	.03		.46	.24	.49	.12	.49
Yearly	11.40	17.30		9.48		7.68		11.75		15.44

T Trace

RAINFALL ON THE RIO GRANDE WATERSHED IN MEXICO

In Inches

Month	San Buenaventura, Coahuila		Castanos, Coahuila		Los Americanos, Coahuila		Presa Carranza, Coahuila		Lag. de Salinillas, Nuevo Leon	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	1.73	0.59		0.54	1.26		1.10	0.69	1.06	0.63
Feb.	.79	.49		.52	.28		2.87	.67	4.06	.71
Mar.	.63	.36	0	.24	0		.28	.48	.20	.55
Apr.	.16	.86	0	.93			T	1.31	0	1.29
May		1.47	10.55	2.02	0	.65	.31	2.12	2.05	2.25
June		1.54		1.86	0	.55	2.13	1.80	4.21	2.04
July		1.58	1.57	1.41	0	.63	.43	1.04	.63	1.02
Aug.		1.76	4.17	2.43	0	.12	.67	1.95	.43	2.30
Sep.	.43	2.29	.39	2.66			1.73	2.92	.20	3.17
Oct.	.51	1.40	.04	1.76			1.22	1.70	.94	2.03
Nov.		.55	0	.35			.16	.60	0	.72
Dec.	.16	.71	0	.29			.12	.63	.24	.59
Yearly		13.60		15.01			11.02	15.91	14.02	17.30

Month	Candela, Coahuila		Lampazos, Nuevo Leon		San Nicolas, Nuevo Leon		Anahuac, Nuevo Leon		Rio Salado Hwy. 85, Nuevo Leon	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	1.85	0.64	1.10	0.65	0.98	0.92	0.51	0.69	2.52	0.64
Feb.	.94	.57	1.42	.82	.71	.87	2.83	.67	3.15	.83
Mar.	.04	.12	.28	.49	.28	.88	.12	.50	2.72	.50
Apr.	0	1.26	0	1.14	0	2.13	0	1.16	0	1.32
May	3.27	1.53	2.56	2.28	1.30	3.08	1.73	2.33	5.20	2.62
June	4.53	2.04	1.34	2.86		2.95	2.40	2.03	1.02	2.66
July	1.57	2.35	.08	1.90	.94	.42	1.42	1.35	.79	2.20
Aug.	2.99	2.21	2.36	1.89	1.26	2.49	1.85	2.37	5.83	2.02
Sep.	.24	2.69	.71	4.83	.83	2.06	.08	3.15	1.73	4.13
Oct.	0	1.24	2.05	2.04	1.26	2.08	1.77	1.72	1.54	1.79
Nov.	0	.64	.12	.77		.67	.87	.70	0	.90
Dec.	0	.56	.39	.63	.43	.96	.24	.73	0	.64
Yearly	15.43	15.85	12.41	20.30		19.51	13.82	17.40	24.50	20.25

Month	Espinazo, Nuevo Leon		Bustamante, Nuevo Leon		Villaldama, Nuevo Leon		Fresnillo, Nuevo Leon		El Alamo, Nuevo Leon	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	1.42	1.39		0.61	2.09	1.27	1.93	0.96		1.32
Feb.	.94	.69	.87	.80	1.42	.61	2.36	1.24		1.06
Mar.	.16	.28	0	.85	.12	.33	2.24	1.28		1.02
Apr.	0	1.49	0	.90	0	2.17	0	.44	0	1.65
May	3.62	2.06		1.37	1.85	1.69	1.89	1.54		3.98
June		1.14	1.42	2.96	.79	2.15		.43	.79	3.14
July	2.60	1.37	.67	1.95	1.30	1.53	1.34	.69		1.22
Aug.		1.45	3.07	3.40	2.64	3.36		.31	3.58	2.56
Sep.		.59	.71	5.74	2.68	4.72	.87	.96	2.36	2.15
Oct.	.55	1.35	1.06	2.14	.79	1.13	0	.24	1.89	1.83
Nov.	0	.70	.08	.93	.04	.73		1.18	.31	.42
Dec.	.04	.44	.12	.55	.12	.73	.31	.94	.24	.24
Yearly		12.95		22.20	13.84	20.42		10.21		20.59

Month	Ojo de Agua (Sabinas), N. L.		Sabinas Hidalgo, Nuevo Leon		Garza Ayala, Nuevo Leon		Vallecillo, Nuevo Leon		Las Tortillas, Tamaulipas	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	2.72	1.40	1.85	0.62	2.05	0.59	1.81	0.68	1.77	0.66
Feb.	2.76	1.04	2.76	.83	1.89	.65		.76	2.76	1.09
Mar.	.91	.56	.47	.66	.12	.51	1.14	.52	.79	.53
Apr.	0	2.05	0	1.31		2.00	0	1.79	0	1.38
May	.94	2.68	2.24	2.50	1.93	1.80	1.57	2.03	2.36	3.50
June	1.77	1.49	.43	3.57	.16	1.71	.75	3.01	1.02	3.08
July	4.84	2.26	3.98	2.73	3.94	4.70	.98	1.73	.31	1.16
Aug.	3.43	3.34	2.52	2.44	1.57	2.33		1.90	4.13	2.22
Sep.	1.50	2.55	1.06	6.37	1.89	4.23	1.65	4.19	.79	3.73
Oct.	1.65	1.36	1.50	2.51	.79	2.94	.98	1.97	3.15	1.88
Nov.	.20	.67	.28	.99	.08	2.06	.12	.89	T	1.14
Dec.	.24	.17	.24	.63	.71	.34	.16	.68	.98	.83
Yearly	20.96	19.57	17.33	25.16		23.86		20.15	18.06	21.20

T Trace

RAINFALL ON THE RIO GRANDE WATERSHED IN MEXICO

In Inches

Month	Rancho Bonanza, Tamaulipas		Rancho San Rafael, Bustamante, Tamps.		Rio Salado Riberena, Tamps.		Aniego 166, Tamaulipas		La Bandera, Tamaulipas	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	1.89	0.96	1.18	0.74	1.77	0.59	0.94	0.78	1.02	0.76
Feb.	4.21	1.25	2.56	1.19	2.56	.91	5.35	1.11	6.73	1.05
Mar.	.71	.76	1.38	.62	.79	.49	.87	.55	.55	.64
Apr.	0	1.09	0	1.25	0	1.24	0	1.12	0	1.37
May	1.61	3.37	2.76	3.30	.98	2.76	.98	3.28	1.77	3.18
June	1.10	2.39	2.56	3.28	2.36	2.35	2.95	2.99	2.20	3.37
July	.51	2.47	.43	1.66	2.17	1.52	1.02	1.42	.94	1.74
Aug.	.39	1.85	1.77	2.71	1.57	2.36	.59	2.33	.71	2.23
Sep.	0	2.83	2.44	3.90	.31	4.29	2.83	5.13	2.28	4.83
Oct.	2.60	1.95	2.36	2.86	3.54	2.01	1.26	2.02	1.10	1.87
Nov.	1.18	.98	.08	1.18	1.65	1.20	.31	1.04	.28	1.00
Dec.	.79	.92	.79	.71	1.02	.85	.91	.77	.71	.81
Yearly	14.99	20.82	18.31	23.40	18.72	20.57	18.01	22.54	18.29	22.85

Month	Nueva Cd. Guerrero, Tamaulipas		La Escondida, Nuevo Leon		Hacienda El Alamo, Nuevo Leon		Agualeguas, Nuevo Leon		General Trevino, Nuevo Leon	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	1.02	0.89	0.71	0.98	2.17	1.01	4.88	1.76	1.65	1.21
Feb.	5.71	1.01	3.39	1.07	3.74	1.03	3.23	1.09	7.64	1.77
Mar.	.43	.54	.55	.95	1.14	.48	.39	.82	.31	.63
Apr.	0	1.19	0	2.02	0	1.12		2.16	0	1.79
May	1.02	2.48	3.78	2.79	1.26	2.30	2.28	3.21	3.54	4.11
June	1.77	2.62		2.85	.94	3.58	1.42	2.04	1.42	1.90
July	2.91	1.28		.85	3.74	2.51		.76	1.69	.83
Aug.	1.81	2.12	3.39	4.58	5.08	3.47	.75	2.01	4.80	2.60
Sep.	5.71	4.14	2.05	2.19	2.60	4.80	2.91	1.68	5.04	5.01
Oct.	3.19	2.12	1.34	1.20	1.77	2.54	2.60	2.34	2.44	1.64
Nov.	.20	.98	.79	.50	.39	1.01	.08	.92	.24	.92
Dec.	.75	.71	.43	1.60	.59	.80	.31	.47	.39	1.15
Yearly	24.52	20.08		21.58	23.42	24.65		19.26	29.16	23.56

Month	Paras, Nuevo Leon		San Javier, Nuevo Leon		Cd. Mier, Km. 8 SW, Tamaulipas		Cd. Mier, Tamaulipas		Miguel Aleman, Tamaulipas	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.		0.57	1.50	0.80	1.65	0.80	2.01	0.98	1.61	0.84
Feb.	4.49	.72	10.51	1.33	16.06	1.63	6.42	1.23	7.91	1.22
Mar.	.31	.61		.63	1.57	.68	.94	.62	.79	.40
Apr.	0	.88	0	1.60	0	1.35	0	1.35	0	1.70
May	.39	1.93	.31	3.39	1.18	2.95	.98	2.71	1.89	2.09
June	2.60	2.92	2.24	3.37	5.16	3.20	3.78	2.44	6.30	2.84
July	.71	1.35	2.05	2.07	1.06	1.71	2.17	1.22	4.37	1.97
Aug.	2.36	2.26	2.05	2.88	2.56	2.71	5.94	2.63	2.95	2.06
Sep.	1.06	3.52	1.73	5.31	2.09	4.76	1.61	4.50	2.24	5.34
Oct.	1.65	2.28	.20	2.17	9.53	2.76	2.76	2.15	5.91	2.10
Nov.	2.32	.94	.24	1.04	.16	1.00	0	1.06	.08	.91
Dec.	.28	.57	.63	.84	.67	.83	.71	.80	1.30	.76
Yearly		18.55		25.43	41.69	24.38	27.32	21.69	35.35	22.23

Month	Parras, Coahuila		San Juan de Vaqueria, Coahuila		General Cepeda, Coahuila		Hipolito, Coahuila		Reata, Coahuila	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	0.87	0.55	0.39	1.15	0.51	0.49	0.31	0.38	T	0.33
Feb.	.35	.36	.55	.51	1.02	.49	1.18	.72	.83	.23
Mar.	.08	.30	1.10	.43	.12	.27		.31	.28	.28
Apr.	0	.39	0	1.04	0	.44	0	.73	0	.44
May	3.39	1.18	4.65	2.27	1.97	.88	1.02	.80	1.81	.85
June	.91	1.75	1.14	1.20	.67	2.07	0	.26	1.10	1.01
July	1.02	2.48	2.56	3.03	2.60	3.15	.43	.78	.20	1.02
Aug.	3.31	2.86	5.51	3.49	2.17	3.00	2.80	1.76	.28	1.47
Sep.	2.01	2.72	4.69	2.42	4.96	2.79	.47	.78	1.57	1.52
Oct.	.08	1.26	1.06	1.39	.31	1.22	.59	.86	.79	.74
Nov.	0	.66	.08	.58	T	.51	0	.58	T	.51
Dec.	0	.73	0	.11	0	.54		.16	T	.39
Yearly	12.02	15.24	21.73	17.62	14.33	15.85		8.12	6.86	8.79

T Trace

RAINFALL ON THE RIO GRANDE WATERSHED IN MEXICO

In Inches

Month	Saltillo, Coahuila		Ramos Arizpe, Coahuila		Huachichil, Coahuila		Huizachal, Coahuila		Icamole, Nuevo Leon	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	0.87	0.59	0.79	0.47	1.46	3.37	1.65	0.82	1.10	0.32
Feb.	.55	.54	.28	.37	.16	.71			1.14	.32
Mar.	.59	.39	.51	.29	.67	.75	0	.04	.39	.16
Apr.	0	.78	0	.48	0	1.30	0	.20	0	.36
May	3.54	1.21	1.93	.91	4.45	4.19	1.26	.84	1.73	.79
June	.47	2.13	.35	1.04	2.60	1.48	1.85	1.93	.47	.94
July	1.50	2.53	.31	1.32		2.14	0	.22	1.34	.59
Aug.	3.98	2.50	2.60	1.35		2.06			1.22	.92
Sep.	3.78	2.66	.98	1.70	5.24	3.70	1.18	1.26	.79	2.06
Oct.	.67	1.26	.79	.76	.51	.51	1.46	.77	1.18	1.04
Nov.	T	.80	0	.48	1.10	.94	.16	.34	0	.71
Dec.	.04	.63	0	.50		.02	0	1.06		.47
Yearly	15.99	16.02	8.54	9.67		21.17				8.68

Month	Mina, Nuevo Leon		La Popa, Nuevo Leon		La Arena, Nuevo Leon		Cienega de Flores, Nuevo Leon		Hacienda Mamulique, Nuevo Leon	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	1.42	0.47	0.71	0.47	1.18	0.64	1.42	1.26	2.01	0.82
Feb.	.94	.41	.43	.65	1.30	.84		.95	1.34	.44
Mar.	.47	.17	0	.25	.71	.63	.98	1.03	.79	.37
Apr.	0	.64		.59	0	1.22	0	1.52	0	.99
May	3.94	.81	1.06	.96	5.91	2.57	3.66	2.59	2.44	1.60
June	.31	1.51		1.65	1.38	3.25	.63	3.21	1.18	2.49
July	2.44	1.18		1.21	3.62	3.20	1.97	2.28	4.25	3.50
Aug.	2.05	1.68	0	1.85	5.08	3.81	7.91	4.55	6.69	3.40
Sep.	2.99	3.08	1.26	3.06	7.72	5.50	3.27	5.79	1.93	4.64
Oct.	1.22	1.03	.28	.73	1.77	2.60	2.17	2.57	2.52	1.35
Nov.	T	.70		.70	0	.84	.04	1.18	0	1.16
Dec.	T	.46	0	.73	.51	.55		1.15	.12	.83
Yearly	15.78	12.14		12.85	29.18	25.65		28.08	23.27	21.59

Month	La Pomona, Nuevo Leon		Cola de Caballo, Nuevo Leon		Ejido Marin, Nuevo Leon		La Huasteca, Nuevo Leon		Vaqueria, Nuevo Leon	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	1.18	1.36	2.05	1.62	1.26	1.10	0.94	0.48	0.98	1.41
Feb.	1.10	.78	1.65	.98	1.81	1.21		.27	1.50	1.16
Mar.	2.68	1.63	1.22	.86	.55	.69	.39	.12	3.27	1.97
Apr.		2.59	0	2.53	0	1.18	0	.52	0	1.69
May	7.01	5.71	10.20	4.53	5.39	2.78	1.85	1.40	5.83	3.99
June	1.69	3.13	1.61	4.79	1.18	1.84	.83	1.68	.87	2.71
July	3.90	2.22	10.43	4.05	2.09	1.52	1.97	1.43	3.98	1.62
Aug.	8.03	3.46	11.14	8.15		2.65	1.14	1.68	5.31	2.79
Sep.	3.98	4.32	17.24	15.14	3.46	3.90	5.20	4.19	4.33	3.39
Oct.	1.50	1.32	2.91	4.76	1.10	.95	1.18	1.45	.39	1.96
Nov.	1.30	.92	.63	.60	0	.59	0	.24	1.61	1.11
Dec.	.91	.95	.51	.55	.35	1.10	0	.42		2.15
Yearly		28.39	59.59	48.56		19.51		13.88		25.95

Month	Topo Chico, Nuevo Leon		Tepehuaje, Nuevo Leon		Gomez Farias, Coahuila		Higueras, Nuevo Leon		Los Ramones, Nuevo Leon	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	1.10	0.46	1.65	1.39	1.02	1.23	1.18	0.69	1.14	0.69
Feb.	1.54	.57	1.14	.70	0	.40	1.93	.63	1.81	.76
Mar.	.67	.47	.87	.64	.35	.18	.75	.70	.94	.60
Apr.	0	1.09	.04	2.24	0	1.48	0	1.28	0	1.48
May	6.65	1.59	7.83	5.52		1.81	3.70	2.07	6.50	2.71
June	.59	2.29	.24	2.58	1.10	1.61	1.10	2.61	.55	3.10
July	5.47	1.59	3.70	2.34	1.85	1.47	4.09	2.25	2.05	1.87
Aug.	.87	3.10	7.56	3.82	3.43	2.17	4.72	3.45	5.04	3.49
Sep.	9.09	4.85	11.69	5.57	3.15	1.97	5.59	4.81	12.76	5.81
Oct.	2.52	2.64	2.83	1.70	0	1.31	1.18	1.83	3.15	2.73
Nov.	0	.74	.55	.72	.47	.32	.04	.80	T	.71
Dec.	.16	.49	.67	1.10	0	.87	.24	.70	.39	.56
Yearly	28.66	19.88	38.77	28.32		14.82	24.52	21.82	34.33	24.51

T Trace

RAINFALL ON THE RIO GRANDE WATERSHED IN MEXICO

In Inches

Month	Cerro Prieto, Nuevo Leon		Los Herrera, (La Tableta), N.L.		El Brasil, Nuevo Leon		Rinconada, Nuevo Leon		Santa Catarina, Nuevo Leon	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.		0.59	1.18	0.62	0.47	0.84	1.26	0.34	1.02	0.66
Feb.		.58	1.65	.66	4.17	1.38	.28	.28		.42
Mar.		.52	.71	.62	.47	.43	.39	.21		.33
Apr.	.20	1.19	0	1.34	0	2.35	0	.47		.73
May	6.30	4.85	7.05	2.89	3.78	3.70		.57		.98
June	.98	3.43	3.43	2.61	2.09	1.66	.28	1.09	.59	1.94
July	1.73	2.22		1.84	3.03	1.54		.58		1.21
Aug.	8.70	3.41	4.96	2.70	3.62	2.42	2.95	1.25		2.72
Sep.	3.39	4.95	4.53	4.88	5.39	2.79		1.83	6.34	4.31
Oct.	3.62	2.89	1.77	2.31	4.53	1.58		.88	1.77	1.69
Nov.	3.23	.84	.12	.65	.91	.66	0	.39	0	.54
Dec.	.24	.70	.31	.53	.67	1.02	0	.34	0	.50
Yearly		26.17		21.65	29.13	20.37		8.23		16.03

Month	Monterrey, Nuevo Leon		Apodaca, Nuevo Leon		La Cruz, Nuevo Leon		Tunel San Fco., Nuevo Leon		Las Comitas, Nuevo Leon	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	0.55	0.60	1.02	0.65	2.40	0.91	2.13	1.13	0.94	0.34
Feb.	0	.69	1.89	.83	1.65	.58	1.61	1.17	1.10	.43
Mar.		.72	.87	.65	.35	.38	1.46	1.45	T	.22
Apr.		1.14	0	1.24	0	1.10	0	2.29	0	.70
May	9.72	1.70	4.41	2.24	5.20	1.81	9.72	3.51		1.08
June	.20	2.77	.83	2.74	1.30	2.41	1.54	6.31	.71	2.37
July		2.41		2.17	1.85	3.10	8.78	4.24		1.83
Aug.	1.57	3.26	3.90	3.28	4.53	3.92	9.37	7.26	3.46	3.31
Sep.	5.94	5.97	2.52	5.39	5.71	6.07	18.50	11.45	4.41	4.72
Oct.	3.90	3.15	1.42	2.07		2.11	3.27	6.07	1.34	1.81
Nov.	.12	1.18	.16	.86		.78	.43	1.72	.16	.50
Dec.	.28	.70	.16	.71	0	.34	.67	.96	0	.40
Yearly		24.29		22.83		23.51	57.48	47.56		17.71

Month	Rodrigo Gomez Res., Nuevo Leon		Las Enramadas, Nuevo Leon		Villa Allende, Nuevo Leon		Pobladores, Nuevo Leon		Cerritos, Nuevo Leon	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	1.61	0.90	1.42	0.87	2.13	1.04	0.59	0.30	2.09	0.83
Feb.	1.61	.97	2.28	.71	1.65	1.26	2.32	1.60	1.06	.95
Mar.	1.38	1.09	1.46	.71	2.01	1.28	1.61	.86		.55
Apr.	0	1.79	0	1.81	0	2.64	.39	3.42		1.64
May	8.39	2.77	2.28	2.91	10.63	3.88	1.10	1.04	10.39	3.65
June	.47	5.59	0	3.19	2.48	5.24	1.22	.61		6.52
July	7.83	3.75	4.13	2.31	7.44	3.62	4.21	2.10		5.84
Aug.	6.57	6.30	4.53	3.78	4.69	5.56	2.36	1.18	2.91	5.79
Sep.	21.18	9.76	10.00	6.50	15.35	9.14	4.09	3.34	14.13	12.17
Oct.	3.39	5.03	1.61	2.57	3.86	5.28	.16	.20	2.91	3.92
Nov.	.12	1.33	0	.76	2.17	1.63	.28	.89	.24	.67
Dec.	.24	.89	.24	.76	.55	1.01			.75	.51
Yearly	52.79	40.17	27.95	26.88	52.96	41.58				43.04

Month	Casillas, Nuevo Leon		Cienega del Toro, Nuevo Leon		Mimbres, Nuevo Leon		Rayones, Nuevo Leon		Iturbide, Nuevo Leon	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	1.65	0.65	1.34	1.02	2.83	1.32	1.46	0.39	1.06	0.56
Feb.	.59	.63	.55	.56	1.26	1.22	.20	.41	.31	.65
Mar.	.79	.54	.91	.77	.94	1.08	1.18	.34	1.61	.61
Apr.		1.04	0	1.55	0	1.64	0	1.05	0	1.21
May	4.37	2.25	5.59	2.63	5.63	2.72	1.42	1.83	4.96	2.16
June	2.56	3.22	5.35	2.31	3.35	2.91		2.08	1.89	3.44
July	5.51	2.57	5.79	3.15	4.92	2.96	4.49	1.22	6.42	2.71
Aug.	3.54	3.01	3.58	3.12	4.41	3.55	3.50	2.81	4.88	4.25
Sep.	4.25	4.51	3.39	3.44	6.38	3.97		3.37	6.22	5.99
Oct.	1.14	2.44	1.02	2.11	.75	2.11	.31	1.60	1.02	2.48
Nov.	0	.70	.83	.91	.67	1.22		.44	.67	.54
Dec.		.49	0	.75	0	1.01		.38	0	.58
Yearly		22.05	28.35	22.32	31.14	25.71		15.92	29.04	25.18

T Trace

RAINFALL ON THE RIO GRANDE WATERSHED IN MEXICO

In Inches

Month	Cabezones, Nuevo Leon		Linares, Nuevo Leon		Montemorelos, Nuevo Leon		El Realito, Nuevo Leon		Cienega de La Purisima, Coahuila	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	1.26	0.89	1.34	0.91	1.57	0.82		0.74		
Feb.	1.26	.85	2.20	.85	1.38	.96	1.38	.55		
Mar.	2.09	1.14	1.81	1.05	2.05	1.15	0	.56		
Apr.	0	2.43	0	2.32	0	2.26	.35	1.60		
May	7.76	3.80	10.47	3.78	8.90	3.37	8.35	3.10		
June	.55	4.08	.39	3.84	.55	3.98	.16	2.58	2.36	2.40
July	5.75	3.15	7.32	2.68	10.43	2.34	3.86	2.58	3.50	3.74
Aug.	5.24	5.35	5.43	3.80	4.76	4.22	5.63	4.03	4.65	3.62
Sep.	7.68	8.50	5.16	6.41	9.80	6.41	0	5.96	7.28	6.04
Oct.	2.60	3.49	1.93	3.43	2.01	3.85	0	1.86	.98	2.36
Nov.	1.81	1.02	1.54	1.14	4.17	1.63	0	.49	0	2.96
Dec.		.83	.39	1.05	.55	.91	.31	.77	0	.98
Yearly		35.53	37.98	31.26	46.17	31.90		24.82		

Month	El Cuchillo, Nuevo Leon		General Bravo, Nuevo Leon		Cerralvo, Nuevo Leon		El Cuervito, Nuevo Leon		Comales, Tamaulipas	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	0.75	0.66	0.75	0.77	1.42	0.69		2.42	0.63	0.84
Feb.	2.40	.57	4.57	.61	4.72	.70	3.35	1.59	5.08	.81
Mar.	1.42	.50	.94	.55	.87	.58		1.77	.87	.63
Apr.	.04	1.37	0	1.49	0	1.70		2.68	0	1.61
May	5.20	2.42	6.54	2.96		3.27		3.92	2.64	2.09
June	2.52	2.56	2.13	2.56	1.77	3.14	3.03	3.72	4.33	2.14
July	2.05	1.90	1.06	2.19	2.36	1.85			3.39	1.39
Aug.	5.04	2.86	4.57	2.71	3.62	3.37			4.33	2.72
Sep.	6.61	4.59	11.26	4.52	5.83	5.14	5.08	2.21	4.80	4.10
Oct.	1.14	1.96	1.97	2.02	4.72	2.65	2.99	3.21	4.96	2.40
Nov.	.16	.57	.83	.87	1.54	.73	.35	.90	.91	.74
Dec.	.35	.53	.43	.75	.24	.50	.79	.42	.98	.77
Yearly	27.68	20.49	35.05	22.00		24.32			32.92	20.24

Month	Camargo, Tamaulipas		Valadeces, Tamaulipas		Bajo Rio San Juan, Tamps., No. 2-29		Cd. Diaz Ordaz, Tamaulipas		Reynosa Km. 22 SW, Tamaulipas	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	0.75	0.93	0.63	1.11	0.94	1.21	0.71	1.01	1.57	1.20
Feb.	5.83	1.01	4.29	.99	4.61	1.04	5.39	1.04	2.76	.84
Mar.	.35	.54	.55	.57	.39	.50	.63	.59	.79	.68
Apr.	0	1.61	0	1.48	0	1.46	0	1.50	0	1.58
May	1.89	2.38	2.40	2.71	1.46	3.37	1.93	2.63	1.18	2.90
June	2.28	2.45	1.93	3.02	3.03	2.74	2.60	2.42	.59	2.81
July	3.23	1.39	3.66	1.58	3.03	1.49	3.82	1.34	.79	1.88
Aug.	3.78	2.28	1.26	2.41	.59	2.61	2.40	2.32	.39	2.45
Sep.	3.07	4.61	8.23	4.64	2.91	4.00	3.31	3.73	5.91	4.04
Oct.	3.46	2.12	1.81	2.37	1.69	2.37	1.73	2.58	2.76	2.12
Nov.	1.06	1.03	1.77	1.12	1.57	.95	1.73	1.00	.79	1.06
Dec.	.94	.74	.91	.88	.94	.93	1.42	.93	.59	1.10
Yearly	26.64	21.09	27.44	22.88	21.16	22.67	25.67	21.09	18.12	22.66

Month	Bajo Rio San Juan, Tamps., No. 2-38		Bajo Rio San Juan, Tamps., No. 2-33		Arguelles, Tamaulipas		Presa Anzalduas, Tamaulipas		Reynosa, Tamaulipas	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	0.75	1.21	0.75	1.24	0.79	1.17	0.59	0.83	0.67	1.09
Feb.	2.68	.88	3.31	.98	4.33	1.22	5.71	.80	6.97	1.05
Mar.	.43	.51	.59	.53	.79	.57	.55	.54	1.77	.73
Apr.	0	1.44	0	1.64	0	1.56	0	1.50	0	1.27
May	2.01	3.39	1.54	3.89	1.18	3.16	.67	2.68	.98	2.56
June	.67	3.07	4.96	2.96	.47	2.49	2.64	2.33	2.76	2.24
July	3.15	1.80	1.69	1.83	1.97	1.56	2.24	1.53	3.66	1.63
Aug.	.98	3.46	1.65	3.11	.39	2.20	1.18	2.51	.43	1.98
Sep.	3.66	3.79	1.77	4.06	2.36	3.65	3.58	3.52	6.57	3.64
Oct.	3.07	1.91	2.83	2.34	2.36	1.86	1.97	2.33	2.91	2.29
Nov.	2.24	1.14	1.97	1.06	.39	.99	1.57	.69	1.30	.92
Dec.	.67	.94	.63	1.04	.39	1.01	.16	.63	1.06	.84
Yearly	20.31	23.54	21.69	24.68	15.42	21.44	20.86	19.89	29.08	20.24

RAINFALL ON THE RIO GRANDE WATERSHED IN MEXICO

In Inches

Month	Bajo Rio San Juan, Tamps., No. 3-55		Bajo Rio San Juan, Tamps., No. 3-58		Bajo Rio San Juan, Tamps., No. 3-60		Bajo Rio San Juan, Tamps., No. 3-47		Bajo Rio San Juan, Tamps., No. 3-63	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	0.91	1.58	1.22	1.40	1.06	1.27	0.43	1.64	0.91	1.41
Feb.	5.20	1.65	4.88	1.42	3.35	1.32	4.61	1.36	4.41	1.40
Mar.	.55	.71	.51	.66	.55	.65	.67	.61	1.18	.61
Apr.	0	2.06	0	1.66	0	1.60	0	1.68	0	1.38
May	.63	2.62	.83	2.76	1.18	2.49	.94	3.32	2.40	2.41
June	3.74	3.18	2.83	2.83	2.76	3.22	2.95	3.26	2.87	3.53
July	2.13	2.68	4.13	2.89	1.85	2.08	2.60	2.62	1.73	2.14
Aug.	.79	2.80	.79	2.73	1.22	2.64	.24	2.65	1.42	2.95
Sep.	2.01	4.28	3.03	4.81	5.31	4.70	1.93	4.24	3.74	4.78
Oct.	2.28	2.88	2.95	2.77	1.50	2.74	1.85	2.33	1.97	2.48
Nov.	.59	.88	.39	1.00	.51	1.01	.83	.95	.63	.87
Dec.	1.14	1.00	1.02	.97	1.14	.95	.39	1.07	.75	.98
Yearly	19.97	26.32	22.58	25.90	20.43	24.67	17.44	25.73	22.01	24.94

Month	Retamal, Tamaulipas		Bajo Rio Bravo, Tamps., No. 3-15		Bajo Rio Bravo, Tamps., No. 4-16		Bajo Rio Bravo, Tamps., No. 3-14		Bajo Rio Bravo, Tamps., No. 3-17	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	0.91	0.98	1.14	1.55	1.30	1.32	1.02	1.30	1.61	1.51
Feb.	4.33	1.12	2.36	1.50	3.15	1.38	5.63	1.35	2.64	1.41
Mar.	.31	.65	.83	.79	1.22	.74	.47	.56	1.06	.69
Apr.	0	1.48	0	2.13	0	1.99	0	1.54	0	1.55
May	1.02	2.69	.98	2.72	1.30	2.86	3.39	3.17	1.14	2.63
June	1.38	2.51	5.87	3.95	2.95	4.03	3.54	2.87	4.29	3.17
July	2.56	1.59	2.99	2.67	3.07	2.23	5.12	2.51	5.35	2.60
Aug.	1.42	2.71	3.74	3.48	3.74	3.88	1.81	2.78	3.19	3.53
Sep.	2.05	3.41	3.70	4.24	2.91	4.82	2.24	3.80	2.99	4.50
Oct.	.43	2.52	.75	2.74	1.30	2.66	.71	2.48	.91	2.51
Nov.	1.50	1.19	0	1.22	.59	1.42	0	.93	1.65	1.33
Dec.	.39	.99	1.65	1.40	1.06	1.09	.59	1.19	1.81	1.36
Yearly	16.30	21.84	24.01	28.39	22.59	28.42	24.52	24.48	26.64	26.79

Month	Bajo Rio Bravo, Tamps., No. 4-8		Bajo Rio Bravo, Tamps., No. 2-6		Bajo Rio Bravo, Tamps., No. 4-10		Valle Hermoso, Tamaulipas		Control, Tamaulipas	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	0.98	1.51	0.59	1.82	0.98	1.35		1.11	0.98	1.26
Feb.	3.15	1.37	2.83	1.52	3.11	1.78	2.68	1.25	2.09	1.11
Mar.	.91	.89	.98	.82	.55	1.02	.67	.71	.55	.64
Apr.	0	2.23	0	1.78	0	2.10	0	1.96	0	1.67
May	1.30	3.24	2.24	2.83	.75	2.67	1.73	2.59	.47	2.93
June	6.77	3.11		2.88	1.97	2.94	2.87	3.18	.75	2.85
July	3.07	2.86	3.43	2.56	3.15	2.54	5.94	2.12	4.29	1.81
Aug.	4.45	4.26	1.18	3.42	2.17	3.36	2.60	2.71	.47	3.31
Sep.	5.83	5.29	3.70	4.45	7.64	5.41	5.87	5.13	6.06	4.87
Oct.	.91	2.85	2.24	2.92	1.22	2.51	1.50	2.60	1.54	2.72
Nov.	.51	1.42	1.73	1.48	1.14	1.27	.94	1.41	2.28	1.29
Dec.	.79	1.17	1.10	1.19	1.10	1.02	.79	1.00	.83	1.07
Yearly	28.67	30.20		27.67	23.78	27.97		25.77	20.31	25.53

Month	Bajo Rio Bravo, Tamps., No. 2-5		Bajo Rio Bravo, Tamps., No. 2-11		Bajo Rio Bravo Tamps., No. 1-2		Bajo Rio Bravo, Tamps., No. 2-7		Bajo Rio Bravo, Tamps., No. 1-4	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	1.42	1.69	1.65	1.46	0.71	1.48	1.38	1.37	0.63	1.60
Feb.	2.56	1.41	2.20	1.48	2.87	1.79	2.09	1.33	2.83	1.28
Mar.	.55	1.06	1.46	.71	.91	.58	2.17	.79	.98	.75
Apr.	0	1.77	0	2.62	0	1.64	0	2.69	0	2.13
May	1.73	2.82	.87	2.76	.91	3.39	.98	2.75	.79	2.76
June	3.50	3.00		4.01	1.50	3.28	2.48	3.48	3.11	3.22
July	4.49	2.20		2.72	4.80	2.01	3.50	2.38	7.40	2.07
Aug.	.87	3.50	4.76	3.88	.51	3.68	3.50	4.10	1.30	3.32
Sep.	4.84	4.51	5.83	5.18	3.58	4.60	4.25	4.85	2.68	4.67
Oct.	1.57	2.76	1.18	2.75	3.78	2.87	1.89	2.46	2.36	2.71
Nov.	.59	1.33	1.61	1.29	1.89	1.40	.16	1.42	.87	1.21
Dec.	.94	1.33	1.14	1.32	.20	1.14	.31	1.09	1.46	1.36
Yearly	23.06	27.38		30.18	21.66	27.86	22.71	28.71	24.41	27.08

RAINFALL ON THE RIO GRANDE WATERSHED IN MEXICO

In Inches

Month	Bajo Rio Bravo, Tamps., No. 1-18		Bajo Rio Bravo, Tamps., No. 1-3		Bajo Rio Bravo, Tamps., No. 1-13		Bajo Rio Bravo, Tamps., No. 1-12		Matamoros, Tamaulipas	
	1983	Average	1983	Average	1983	Average	1983	Average	1983	Average
Jan.	1.22	1.48	0.87	1.48	0.39	1.34	1.34	1.71	0.75	1.69
Feb.	2.20	1.33	2.44	1.28	2.13	1.25	2.36	1.40	2.40	1.78
Mar.	.51	.59	.28	.56	.59	.57	.55	.62	.35	.55
Apr.	.16	1.86	0	1.95	0	1.82	0	2.14	0	2.13
May	1.89	2.69	1.97	2.62	1.06	1.92	1.93	3.09	1.38	2.66
June	2.87	3.02	2.87	3.01	1.73	3.08	2.05	2.97	.91	3.50
July	11.02	2.41		1.78	5.28	1.97	13.62	2.78	11.61	2.63
Aug.	3.50	3.46	2.40	2.93	3.62	3.52	1.10	3.24	1.54	4.17
Sep.	5.94	4.52	6.89	5.10	4.88	4.91	2.80	5.10	6.42	5.94
Oct.	1.85	3.18	1.85	2.76	1.54	2.44	1.77	3.45	2.68	3.57
Nov.	.83	1.36	1.65	1.46	.55	1.02	1.38	1.34	.98	1.55
Dec.	.71	1.36	.87	1.47	.91	1.14	.63	1.39	.75	1.81
Yearly	32.70	27.26		26.40	22.68	24.98	29.53	29.23	29.77	31.98

AVERAGE RAINFALL ON SUBDIVISIONS OF THE RIO GRANDE WATERSHED

With Averages for the 113 Years 1871 - 1983, Inclusive

In Inches

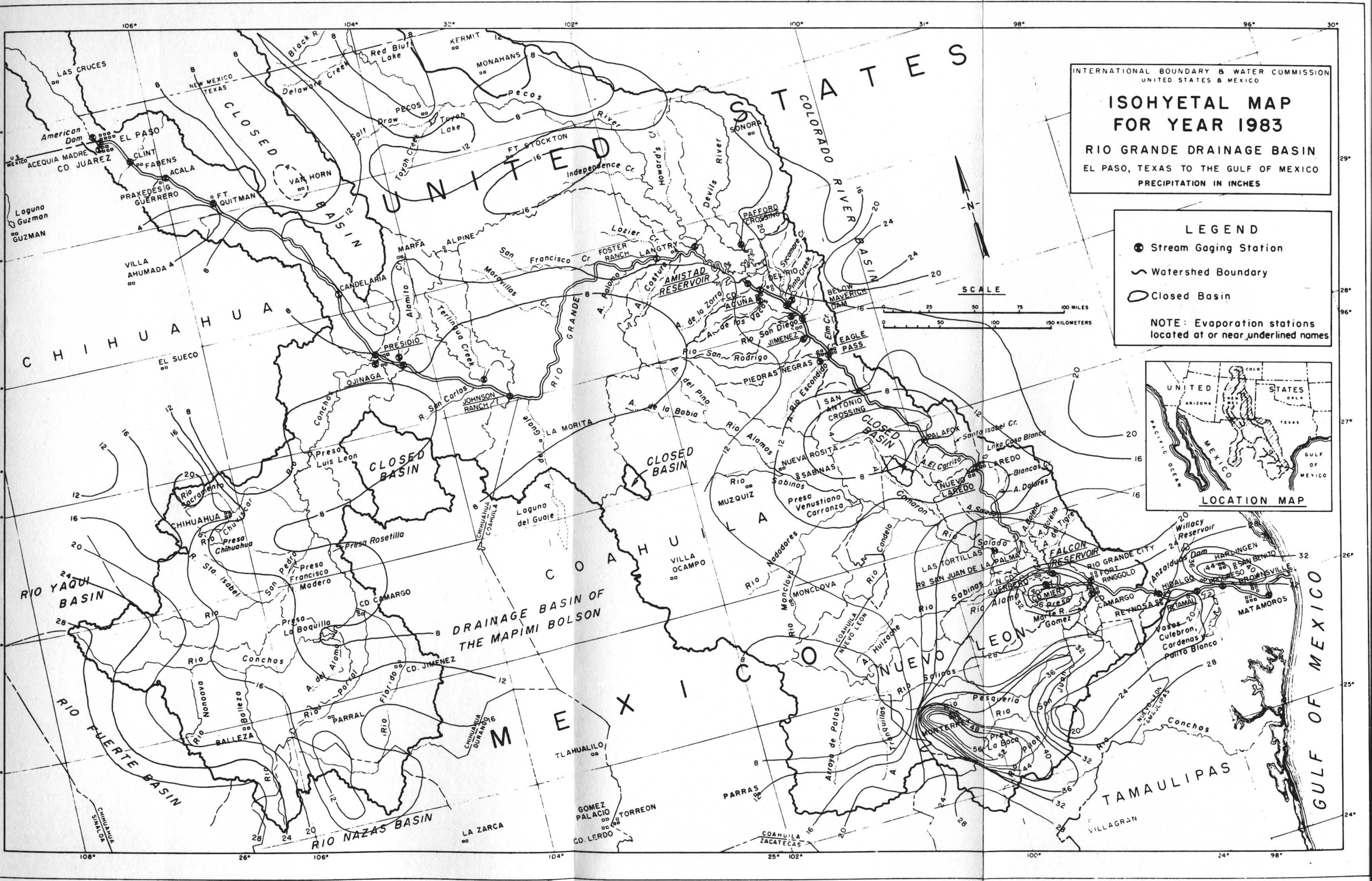
The precipitation records of all stations on or adjacent to the watershed subdivisions listed below have been used, with proper weighting for area, in calculating the average rainfalls shown here. The drainage area for each subdivision is shown in parentheses. The hundreds of individual records are delineated in the various "Indexes to Precipitation Records" shown in Water Bulletins Nos. 10, 14, 22, 26, and Supplement 40A.

	El Paso to Fort Quitman (2,677 Square Miles)		Fort Quitman to Above Rio Conchos (3,056 Square Miles)		* Above Rio Conchos to Johnson Ranch (3,782 Square Miles)		Johnson Ranch to Foster Ranch (12,982 Square Miles)	
Month	1983	Period Average	1983	Period Average	1983	Period Average	1983	Period Average
Jan.	0.66	0.45	0.71	0.40	0.72	0.35	1.05	0.48
Feb.	.41	.37	.32	.27	.39	.28	.80	.37
Mar.	.77	.32	.56	.25	.58	.20	.39	.40
Apr.	1.07	.27	.40	.35	.20	.41	.31	.80
May	.25	.41	.72	.61	.51	.78	.92	1.50
June	.61	.79	.78	1.20	.53	1.15	.87	1.69
July	.50	2.23	1.29	2.91	.34	1.87	.62	1.84
Aug.	1.37	1.88	1.26	2.41	2.13	1.92	1.50	2.09
Sept.	1.38	1.46	1.49	2.00	1.30	1.63	.57	2.18
Oct.	1.56	.91	2.22	1.03	2.21	.88	3.43	1.23
Nov.	.75	.43	.89	.42	1.43	.35	.85	.59
Dec.	.12	.58	.10	.53	.08	.40	.07	.54
Yearly	9.45	10.10	10.74	12.38	10.42	10.22	11.38	13.71

	Pecos River below Sheffield (3,390 Square Miles)		# Foster Ranch to Amistad Dam (2,799 Square Miles)		Devils River (4,305 Square Miles)		+ Amistad Dam to Eagle Pass (1,625 Square Miles)	
Month	1983	Period Average	1983	Period Average	1983	Period Average	1983	Period Average
Jan.	0.96	0.68	0.86	0.51	1.25	0.67	0.64	0.73
Feb.	.83	.86	1.54	.65	.89	.74	1.18	.91
Mar.	.52	.76	.20	.75	.69	1.05	.61	.98
Apr.	.13	1.85	.03	1.35	.54	1.78	.06	1.72
May	.78	1.84	.90	1.96	2.19	2.59	1.19	2.88
June	1.66	2.42	1.30	2.17	2.33	2.64	3.15	2.50
July	.21	1.83	.08	1.24	.21	1.77	.56	1.86
Aug.	.58	1.99	.59	1.66	.89	2.13	.74	1.96
Sept.	.68	2.48	.58	2.33	.78	2.94	3.59	3.03
Oct.	5.18	1.87	2.79	1.45	4.31	2.21	4.61	2.07
Nov.	1.15	.93	1.42	.77	1.41	1.49	1.98	1.05
Dec.	1.67	.73	.22	.61	.03	.96	.04	.84
Yearly	14.35	18.24	10.51	15.45	15.52	20.97	18.35	20.53

	! Eagle Pass to Laredo (3,795 Square Miles)		** 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)	
Month	1983	Period Average	1983	Period Average	1983	Period Average	1983	Period Average
Jan.	0.33	0.71	0.98	0.75	0.81	0.88	1.14	1.26
Feb.	1.18	.80	2.56	.81	5.02	.86	5.32	1.13
Mar.	.30	.91	.55	.78	.38	.91	1.29	1.02
Apr.	.04	1.63	0	1.41	0	1.20	0	1.40
May	.87	3.12	1.75	3.19	1.19	2.41	1.36	2.82
June	1.02	2.45	1.69	2.01	3.02	2.11	2.21	2.53
July	.47	1.46	1.20	2.06	1.79	1.89	6.58	1.81
Aug.	.80	2.28	1.44	1.88	2.62	2.14	1.70	2.40
Sept.	1.05	3.01	1.35	3.06	1.40	3.53	3.86	4.34
Oct.	1.40	1.87	1.82	1.66	2.56	1.95	2.03	2.56
Nov.	.66	.95	.36	1.51	.31	.78	1.39	1.36
Dec.	.21	.96	.98	.83	.99	.68	.81	1.24
Yearly	8.33	20.15	14.68	19.95	20.09	19.34	27.69	23.87

* Excluding Rio Conchos, Alamito Creek, and Terlingua Creek
\# Excluding Pecos and Devils Rivers
\+ Excluding Arroyo Las Vacas, San Felipe Creek, Pinto Creek, Rio San Diego, and Rio San Rodrigo
! Excluding Rio Escondido
** Excluding Rio Salado above old Cd. Guerrero
Excluding Rio Alamo and Rio San Juan


INTERNATIONAL BOUNDARY & WATER COMMISSION
UNITED STATES & MEXICO
ISOHYETAL MAP
FOR YEAR 1983
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
MILES
KILOMETERS
LOCATION MAP
UNITED STATES
MEXICO
PACIFIC OCEAN
GULF OF MEXICO
TEXAS
N
UNITED STATES
MEXICO
CHIHUAHUA
COAHUILA
NUEVO LEON
TAMAULIPAS
GULF OF MEXICO
CLOSED BASIN
DRAINAGE BASIN OF THE MAPIMI BOLSON
RIO YAQUI BASIN
RIO FUERTE BASIN
RIO NAZAS BASIN
COLORADO RIVER BASIN
LAS CRUCES
NEW MEXICO
TEXAS
EL PASO
CD. JUAREZ
American Dam
ACEQUIA MADRE
CLINT
FABENS
ACALA
PRAXEDES G. GUERRERO
FT. QUITMAN
Laguna Guzman
GUZMAN
VILLA AHUMADA
VAN HORN
KERMIT
MONAHANS
Red Bluff Lake
Black R.
Delaware Creek
PECOS
Pecos River
Toyah Lake
Toyah Creek
Salt Draw
FT. STOCKTON
Independence Cr.
MARFA
ALPINE
CANDELARIA
PRESIDIO
OJINAGA
EL SUECO
JOHNSON RANCH
San Francisco Cr.
Terlingua Creek
Alamito Cr.
RIO GRANDE
Lozier Cr.
FOSTER RANCH
LANGTRY
AMISTAD RESERVOIR
Howard's Cr.
Devils River
SONORA
PAFFORD CROSSING
DEL RIO
CD. ACUÑA
Sycamore Cr.
Pinto Creek
BELOW MAVERICK DAM
EAGLE PASS
PIEDRAS NEGRAS
JIMENEZ
Rio San Diego
Rio San Rodrigo
Elm Cr.
A. del Pino
A. de la Bobia
Rio Alamos
Rio Escondido
SAN ANTONIO CROSSING
NUEVA ROSITA
SABINAS
MUZQUIZ
Presa Venustiano Carranza
PALAFOX
Santa Isabel Cr.
Lake Casa Blanca
LAREDO
NUEVO LAREDO
A. El Carrizo
Blancas Cr.
A. Dolores
FALCON RESERVOIR
RIO GRANDE CITY
FORT RINGGOLD
CAMARGO
REYNOSA
HIDALGO
Willacy Reservoir
Anzalduas Dam
HARLINGEN
SAN BENITO
PROGRESO
BROWNSVILLE
MATAMOROS
RETAMAL
Vasos Culebron, Cardenas, Palito Blanco
LAS TORTILLAS
RIO SAN JUAN DE LA PALMA
N. CD. GUERRERO
CD. MIER
Marte R. Gomez
Rio Alamo
Rio Sabinas
Rio Salado
VILLA OCAMPO
MONCLOVA
Rio Nadadores
Rio Monclova
Rio Candela
LA MORITA
Laguna del Guaje
Presa Luis Leon
Rio Conchos
R. San Carlos
Rio Sacramento
CHIHUAHUA
Presa Chihuahua
Rio Chuviscar
R. Sta. Isabel
Rio San Pedro
Presa Rosetilla
Presa Francisco I. Madero
CD. CAMARGO
Presa La Boquilla
A. del Alamo
CD. JIMENEZ
Rio Parral
PARRAL
Rio Florido
Rio Balleza
BALLEZA
Rio Nonoava
CHIHUAHUA DURANGO
CHIHUAHUA SINALOA
TLAHUALILO
GOMEZ PALACIO
TORREON
CD. LERDO
LA ZARCA
PARRAS
COAHUILA ZACATECAS
COAHUILA NUEVO LEON
NUEVO LEON TAMAULIPAS
A. Huizache
Arroyo de Patos
MONTERREY
Rio Pesqueria
Rio San Juan
Presa La Boca
Rio Pilon
Rio Conchos
VILLAGRAN

LOCATION OF RAINFALL STATIONS ON THE RIO GRANDE WATERSHED

The precipitation records of stations listed below began on the date shown and extend through 1983. 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, 26, and Supplement 40A. With the exception of Las Cruces, New Mexico, 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
Acala Station	R	31° 23'	105° 59'	3,550	# 1983	El Paso - Fort Quitman	I. B. & W. C.
Adobes Ranch	S	29° 46'	104° 34'	2,550	# 1950	Fort Quitman - Above Rio Conchos	T. C. Davis
American Dam	S	31° 47'	106° 32'	3,730	# 1938	El Paso - Fort Quitman	I. B. & W. C.
Amistad Dam	R	29° 28'	101° 02'	1,150	July 1962	Foster Ranch - Amistad Dam	I. B. & W. C.
Amistad Reservoir near Comstock	C	29° 33'	101° 13'	1,130	# 1970	Foster Ranch - Amistad Dam	I. B. & W. C.
Apache Ranch	C	27° 56'	99° 56'	500	# 1953	Eagle Pass - Laredo	Ranch Foreman
Arledge, W. A. Ranch	S	29° 58'	101° 38'	1,950	#June 1933	Foster Ranch - Amistad Dam	Joe Brown
Arroyo Tigre Chiquito	C	26° 41'	99° 07'	314	#Apr. 1954	Laredo - Falcon Dam	I. B. & W. C.
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	Mrs. Mary Hughey
Big Satan Creek Station	C	29° 40'	100° 58'	1,150	Nov. 1968	Devils River	I. B. & W. C.
Bricker Ranch	S	29° 59'	101° 52'	1,680	# 1952	Johnson Ranch - Foster Ranch	Lena Mae Bricker
Brite, J. G. Ranch	R	29° 33'	101° 01'	1,150	#Sep. 1952	Devils River	I. B. & W. C.
Brotherton Ranch	V	29° 42'	101° 19'	1,400	1961	Foster Ranch - Amistad Dam	Perry Calk
Buoy No. 11	C	29° 31'	101° 10'	¢¢	#Dec. 1969	Foster Ranch - Amistad Dam	I. B. & W. C.
Buttrill Ranch	S	30° 00'	103° 16'	3,500	Mar. 1952	Johnson Ranch - Foster Ranch	Tom B. Leary
Canon Diablo	C	28° 39'	100° 27'	700	# 1964	Eagle Pass - Laredo	I. B. & W. C.
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	Amistad Dam - Eagle Pass	I. B. & W. C.
Clint Station	R	31° 32'	106° 14'	3,630	# 1939	El Paso - Fort Quitman	I. B. & W. C.
Coal Mine	R	28° 48'	100° 28'	770	#Mar. 1959	Amistad Dam - Eagle Pass	I. B. & W. C.
Comstock	R	29° 41'	101° 10'	1,530	May 1939	Foster Ranch - Amistad Dam	I. B. & W. C.
Continental Ranch	S	29° 51'	101° 18'	1,560	# 1965	Pecos River below Sheffield	Julio Crowder
Cooper Ranch	C	28° 50'	100° 27'	800	Mar. 1959	Amistad Dam - Eagle Pass	I. B. & W. C.
Corralitos Ranch	C	27° 07'	99° 25'	346	1953	Laredo - Falcon Dam	I. B. & W. C.
Cow Creek near Comstock	C	29° 37'	101° 12'	1,310	Apr. 1965	Foster Ranch - Amistad Dam	I. B. & W. C.
Crane, Ed Ranch	S	29° 51'	101° 05'	1,630	# 1955	Devils River	Ed Crane
Cuervo Creek Station	C	28° 21'	100° 19'	620	1954	Eagle Pass - Laredo	I. B. & W. C.
Dead Mans Canyon near Comstock	C	29° 47'	101° 19'	1,320	Sep. 1967	Pecos River below Sheffield	I. B. & W. C.
Devils Lake	R	29° 35'	100° 59'	1,158	#May 1939	Devils River	I. B. & W. C.
Devils River at Cauthorn Ranch	S	30° 05'	101° 07'	1,656	#Apr. 1976	Devils River	I. B. & W. C.
Dolan Springs	C	29° 54'	100° 59'	1,360	Feb. 1966	Devils River	I. B. & W. C.
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	Amistad Dam - Eagle Pass	I. B. & W. C.
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	C	29° 52'	100° 54'	1,550	# 1941	Devils River	I. B. & W. C.
Feely	C	29° 34'	101° 07'	1,250	#Apr. 1965	Foster Ranch - Amistad Dam	I. B. & W. C.
H. T. Fletcher Ranch	S	30° 12'	104° 16'	5,100	# 1939	Alamito Creek	H. 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)	S	27° 30'	99° 31'	410	# 1850	Eagle Pass - Laredo	I. B. & W. C.
Fort Quitman	R	31° 06'	105° 35'	3,430	# 1937	Fort Quitman - Above Rio Conchos	I. B. & W. C.
Foster, Ross Ranch	C	29° 47'	101° 45'	1,230	May 1961	Johnson Ranch - Foster Ranch	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
Goldwire Ranch	C	29° 44'	100° 57'	1,685	Nov. 1968	Devils River	I. B. & W. C.
Guayuco Arroyo	R	31° 10'	105° 40'	3,600	#May 1940	El Paso - Fort Quitman	I. B. & W. C.
Harlow Ranch	C	29° 50'	101° 11'	1,695	Mar. 1969	Devils River	I. B. & W. C.

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
HCWCID #6, Goodwin Pump No. 3	S	26° 16'	98° 24'	175	# 1953	Lower Rio Grande Valley	HCWCID #6
HCWCID #15 (Edinburg Office)	S	26° 23'	98° 09'	85	1952	Lower Rio Grande Valley	HCWCID #15
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	1964	Devils River	I. B. & W. C.
Hutto Ranch No. 2	R	29° 29'	100° 54'	1,210	1964	Devils River	I. B. & W. C.
Indio Ranch	S	28° 31'	100° 22'	700	1959	Eagle Pass - Laredo	Earnest Scales
James, Lewis Ranch	S	30° 11'	102° 07'	2,275	1966	Johnson Ranch - Foster Ranch	Lewis James
Johnson Ranch	C	29° 01'	103° 23'	2,050	#July 1933	Johnson Ranch - Foster Ranch	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	Foster Ranch - Amistad Dam	Bobby Kelly
King, Martin Ranch	R	29° 44'	101° 22'	1,460	Nov. 1954	Foster Ranch - Amistad Dam	I. B. & W. C.
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
La Joya	C	26° 15'	98° 29'	150	# 1957	Lower Rio Grande Valley	I. B. & W. C.
La Macolla Farm	S	30° 00'	104° 41'	2,750	Apr. 1977	Fort Quitman - Above Rio Conchos	Tom Pelton
La Mota Ranch	S	29° 33'	103° 59'	3,854	# 1943	Alamito Creek	John Rice
Laredo Water Plant	S	27° 33'	99° 31'	410	# 1930	Eagle Pass - Laredo	Laredo Water Plant
Las Cruces, New Mexico	S	32° 19'	106° 47'	3,893	1975	Caballo Dam - El Paso	I. B. & W. C.
Las Moras Creek	S	29° 00'	100° 38'	800	1958	Amistad Dam - Eagle Pass	Lou McGee
Lateral No. 2 Spill	C	28° 56'	100° 38'	760	Mar. 1959	Amistad Dam - Eagle Pass	I. B. & W. C.
Lateral No. 12 Headgate	C	28° 54'	100° 34'	800	1959	Amistad Dam - Eagle Pass	I. B. & W. C.
Lateral 15 Spill	C	28° 51'	100° 34'	740	# 1959	Amistad Dam - Eagle Pass	I. B. & W. C.
Laughlin Air Force Base	S	29° 21'	100° 47'	1,080	Dec. 1958	Amistad Dam - Eagle Pass	U. S. A. F.
Lewis, Billie C., Jr. Ranch	S	29° 33'	100° 40'	1,400	# 1964	Amistad Dam - Eagle Pass	Billie C. Lewis, Jr.
Line Store	S	30° 40'	100° 57'	2,400	#Oct. 1962	Devils River	C. Lee Conoway
Long Ranch	R	29° 28'	100° 57'	1,140	Oct. 1971	Devils River	I. B. & W. C.
Los Ebanos	C	26° 14'	98° 34'	150	#Apr. 1957	Lower Rio Grande Valley	I. B. & W. C.
Lowry, Cliff Ranch	R	29° 39'	100° 52'	1,490	June 1962	Devils River	I. B. & W. C.
Lowry Ranch No. 2	R	29° 37'	100° 56'	1,160	May 1965	Devils River	I. B. & W. C.
Maverick County Canal Headgate	S	29° 10'	100° 46'	870	#Mar. 1948	Amistad Dam - Eagle Pass	MCWCID #1
Maverick Power Plant	S	28° 50'	100° 33'	800	June 1952	Amistad Dam - Eagle Pass	C. P. & L. Co.
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.
Miller, Eugene Ranch	S	30° 26'	101° 10'	2,150	July 1975	Devils River	Eugene Miller
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 Rio Conchos	Mrs. Tom Neely
New Mission Pumping Plant	S	26° 11'	98° 24'		#Aug. 1961	Lower Rio Grande Valley	HCWCID #14
96 Ranch Headquarters	V	30° 40'	104° 50'	3,870	1972	Fort Quitman - Above Rio Conchos	Walter Paschal
Normandy	S	28° 55'	100° 36'	780	#Dec. 1958	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.
Owens Ranch	S	30° 45'	101° 40'	2,170	#July 1963	Pecos River below Sheffield	Mrs. W.W. 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
Pinto Creek Station	C	29° 09'	100° 43'	870	#Dec. 1958	Amistad Dam - Eagle Pass	I. B. & W. C.
Presidio (IB&WC Gage)	S	29° 34'	104° 23'	2,550	#Oct. 1949	Above Rio 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.
Ranchita (Continental)	S	20° 50'	101° 20'	1,540	# 1969	Pecos River below Sheffield	Julio Crowder
Redford	C	29° 29'	104° 13'	2,500	July 1954	Above Rio Conchos - Johnson Ranch	I. B. & W. C.
Rio Grande near Dryden	S	29° 49'	102° 09'	1,350	May 1976	Johnson Ranch - Foster Ranch	I. B. & W. C.
Roma (International 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 nr. 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. 1933	Lower Rio Grande Valley	I. B. & W. C.

S Standard R Recording C Cumulative V Visual

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
Sawyer, W. E. Ranch	S	30° 28'	100° 47'	2,100	#July 1966	Devils River	Zane Powers and Kenneth Hayes
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 Rio Conchos - Johnson Ranch	Raymond Wylie
Shannon, Bill Ranch	C	29° 57'	104° 40'	2,680	#July 1956	Fort Quitman - Above Rio Conchos	Bill Shannon
Stewart Ranch	R	29° 35'	100° 52'	1,330	#Feb. 1960	Devils River	I. B. & W. C.
Study Butte	S	29° 19'	103° 32'	2,550	July 1977	Terlingua Creek	Shirley Willard
Terlingua Creek Station	C	29° 12'	103° 36'	2,215	Mar. 1952	Above Rio Conchos - Johnson Ranch	I. B. & W. C.
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.
Vinegarone	C	29° 57'	100° 46'	1,780	May 1966	Devils River	I. B. & W. C.
Walker Ranch	C	29° 50'	101° 14'	1,530	July 1969	Devils River	I. B. & W. C.
Wardlaw Standart Ranch	S	29° 19'	100° 38'	1,070	Apr. 1977	Pinto Creek	Hadly Wardlaw
Weyrich Farm	C	28° 40'	100° 24'	760	Sep. 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	C	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.
White V- Ranch	S	30° 18'	102° 09'	2,650	#Apr. 1952	Johnson Ranch - Foster Ranch	Mrs.Tucker White
Wipff Ranch	C	29° 00'	100° 35'	840	Mar. 1959	Amistad Dam - Eagle Pass	I. B. & W. C.
Wuensche Farm	S	28° 24'	100° 19'	670	# 1952	Eagle Pass - Laredo	I. B. & W. C.
Wynne, Harold Ranch Headquarters	S	29° 29'	103° 23'	3,610	# 1974	Johnson Ranch - Foster Ranch	Harold Wynne
Yarborough Ranch	S	30° 06'	103° 36'	4,550	# 1966	Johnson Ranch - Foster Ranch	H. D. Smith
Zapata Water Plant	S	26° 54'	99° 16'	380	#May 1953	Laredo - Falcon Dam	Zapata Water Plant
Zuberbueler Ranch	S	29° 41'	101° 14'	1,460	Feb. 1975	Foster Ranch - Amistad Dam	J.U. Zuberbueler

S Standard R Recording C Cumulative V Visual
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
Agualeguas, Nuevo Leon	S	26° 18'	99° 33'	!	# 1979	Rio Alamo	S. A. R. H.
Amistad Reservoir near Tlaloc, Coahuila	C	29° 26'	101° 07'	1,250	1970	Foster Ranch - Amistad Dam	I. B. & W. C.
Anahuac, Nuevo Leon	S	27° 15'	100° 08'	656	#June 1933	Rio Salado	S. A. R. H.
Aniego 166, Tamaulipas	C	26° 46'	99° 15'	310	1964	Laredo - Falcon Dam	I. B. & W. C.
Apodaca, Nuevo Leon	S	25° 46'	100° 11'	1,330	#Feb. 1964	Rio San Juan	S. A. R. H.
Arguelles, 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 Rio Conchos	Meteor. Service of Mexico
Bajo Rio Bravo, Tamps.							
No. 1-2	S	25° 56'	97° 46'	!	1964	Lower Rio Grande Valley	S. A. R. H.
No. 1-3	S	25° 50'	97° 42'	!	1964	Lower Rio Grande Valley	S. A. R. H.
No. 1-4	S	25° 51'	97° 45'	!	1964	Lower Rio Grande Valley	S. A. R. H.
No. 1-12	S	25° 56'	97° 38'	!	1964	Lower Rio Grande Valley	S. A. R. H.
No. 1-13	S	25° 44'	97° 40'	!	1964	Lower Rio Grande Valley	S. A. R. H.
No. 1-18	S	25° 49'	97° 42'	!	1964	Lower Rio Grande Valley	S. A. R. H.
No. 2-5	S	25° 48'	97° 49'	!	1964	Lower Rio Grande Valley	S. A. R. H.
No. 2-6	S	25° 44'	97° 53'	!	1964	Lower Rio Grande Valley	S. A. R. H.
No. 2-7	S	25° 39'	97° 42'	!	1964	Lower Rio Grande Valley	S. A. R. H.
No. 4-8	S	25° 40'	97° 55'	!	1964	Lower Rio Grande Valley	S. A. R. H.
No. 4-10	S	25° 36'	97° 52'	!	1964	Lower Rio Grande Valley	S. A. R. H.
No. 2-11	S	25° 35'	97° 46'	!	# 1964	Lower Rio Grande Valley	S. A. R. H.
No. 3-14	S	25° 56'	97° 59'	!	1964	Lower Rio Grande Valley	S. A. R. H.
No. 3-15	S	25° 46'	98° 01'	!	1964	Lower Rio Grande Valley	S. A. R. H.
No. 3-17	S	25° 49'	97° 58'	!	1964	Lower Rio Grande Valley	S. A. R. H.
No. 4-16	S	25° 35'	98° 00'	!	1964	Lower Rio Grande Valley	S. A. R. H.
Bajo Rio San Juan, Tamps.							
No. 2-29	S	26° 10'	98° 38'	!	1964	Lower Rio Grande Valley	S. A. R. H.
No. 2-33	S	26° 10'	98° 28'	!	1964	Lower Rio Grande Valley	S. A. R. H.
No. 2-38	S	26° 06'	98° 34'	!	1964	Lower Rio Grande Valley	S. A. R. H.
No. 3-47	S	25° 58'	98° 07'	!	1964	Lower Rio Grande Valley	S. A. R. H.
No. 3-55	S	25° 52'	98° 12'	!	1964	Lower Rio Grande Valley	S. A. R. H.
No. 3-58	S	25° 50'	98° 11'	!	1964	Lower Rio Grande Valley	S. A. R. H.
No. 3-60	S	25° 46'	98° 10'	!	1964	Lower Rio Grande Valley	S. A. R. H.
No. 3-63	S	25° 41'	98° 06'	!	1964	Lower Rio Grande Valley	S. A. R. H.
Balleza, Chihuahua	S	26° 57'	106° 21'	5,870	# 1903	Rio Conchos	Meteor. Service of Mexico
Banderas, Chihuahua	S	31° 01'	105° 35'	!	# 1963	Fort Quitman - Above Rio Conchos	S. A. R. H.
Bustamante, Nuevo Leon	S	26° 31'	100° 31'	1,450	# 1958	Rio Salado	S. A. R. H.
Cabezones, Nuevo Leon	S	24° 59'	99° 45'	!	# 1962	Adjacent to Rio San Juan	S. A. R. H.
Camargo, Chihuahua	S	27° 42'	105° 10'	3,950	#Oct. 1956	Rio Conchos	S. A. R. H.
Camargo, Tamaulipas	S	26° 19'	98° 50'	230	# 1953	Falcon Dam - Rio Grande City	S. A. R. H.
Campo Agricola Experimental, Chihuahua *	S	31° 22'	106° 00'	3,560	# 1958	El Paso - Ft. Quitman	I. B. & W. C.
Candela, Coahuila	S	26° 50'	100° 40'	!	# 1970	Rio Salado	S. A. R. H.
Carichic, Chihuahua	S	27° 55'	107° 04'		#May 1961	Rio Conchos	Meteor. Service of Mexico
Casillas, Nuevo Leon	S	25° 12'	100° 12'	4,060	# 1958	Rio San Juan	S. A. R. H.
Castanos, Coahuila	S	26° 47'	101° 27'	2,440	# 1932	Rio Salado	Meteor. Service of Mexico
Cd. Acuna, Coahuila	S	29° 20'	100° 57'	900	1951	Amistad Dam - Eagle Pass	I. B. & W. C.
Cd. Diaz Ordaz, Tamaulipas	S	26° 14'	98° 36'	130	# 1953	Lower Rio Grande Valley	S. A. R. H.
Cd. Guerrero, Chihuahua	S	28° 33'	107° 29'	6,560	#May 1903	Adjacent to Rio 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	Rio Alamo	I. B. & W. C.
Cerralvo, Nuevo Leon	R	26° 05'	99° 37'	1,130	#Nov. 1938	Rio San Juan	S. A. R. H.
Cerritos, Nuevo Leon	S	25° 31'	100° 12'	!	# 1958	Rio San Juan	S. A. R. H.
Cerro Prieto, Nuevo Leon	S	25° 56'	99° 23'	890	#May 1958	Rio San Juan	S. A. R. H.
Chihuahua, Chihuahua	S	28° 38'	106° 04'	4,690	# 1900	Rio Conchos	Meteor. Service of Mexico
Cienega de Flores, Nuevo Leon	R	25° 57'	100° 10'	1,770	#Apr. 1938	Rio San Juan	S. A. R. H.
Cienega de La Purisima, Coahuila	S	25° 20'	100° 32'	!	1982	Rio San Juan	S. A. R. H.
Cienegas del Toro, Nuevo Leon	S	25° 05'	100° 20'	7,010	# 1958	Rio San Juan	S. A. R. H.
Cola de Caballo, Nv. Leon	S	25° 41'	100° 25'	!	# 1978	Rio San Juan	S. A. R. H.
Colombia, Nuevo Leon	C	27° 42'	99° 46'	!	# 1964	Eagle Pass - Laredo	I. B. & W. C.
Colombia, Nuevo Leon	S	27° 42'	99° 45'		#Sept. 1976	Eagle Pass - Laredo	S. A. R. H.
Colonia Anahuac, Chihuahua	S	28° 29'	106° 44'	6,550	1961	Rio Conchos	Celulosa de Chih. S.A.
Comales, Tamaulipas	R	26° 11'	98° 55'	260	#Mar. 1938	Rio San Juan	S. A. R. H. of Chihuahua

S Standard C Cumulative R Recording ! Not available # Some months or years missing

* Formerly titled "Praxedis G. Guerrero, Chihuahua"

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
Conchos, Coahuila	S	28° 00'	101° 19'	!	#Oct. 1950	Rio Salado	S. A. R. H.
Control, Tamaulipas	S	25° 58'	97° 49'	59	#June 1942	Lower Rio Grande Valley	S. A. R. H.
Coyame, Chihuahua	S	29° 28'	105° 06'	!	#Nov. 1961	Rio Conchos	Meteor. Service of Chihuahua
Cuatro Cienegas, Coahuila	S	26° 59'	102° 04'	2,430	#June 1923	Rio Salado	S. A. R. H.
Cuauhtemoc, Chihuahua	S	28° 24'	106° 52'	7,250	#June 1923	Adjacent to Rio Conchos	Meteor. Service of Mexico
Delicias, Chihuahua	S	28° 11'	105° 28'	3,710	#Aug. 1933	Rio Conchos	S. A. R. H.
Ejido Eutimias, Coahuila	S	28° 20'	102° 45'	3,440	#Apr. 1972	Johnson Ranch - Foster Ranch	S. A. R. H.
Ejido La Rosita, Coahuila	S	28° 27'	103° 18'	3,440	# 1974	Johnson Ranch - Foster Ranch	S. A. R. H.
Ejido Marin, Nuevo Leon	S	25° 50'	100° 00'	!	Mar. 1979	Rio San Juan	S. A. R. H.
Ejido 1o. de Mayo, Coahuila	S	27° 13'	101° 13'	!	# 1980	Rio Salado	S. A. R. H.
Ejido San Miguel, Coahuila	S	29° 02'	100° 58'		#Feb. 1976	Eagle Pass - Laredo	S. A. R. H.
El Alamo, Nuevo Leon	S	26° 24'	100° 23'		1981	Rio Salado	S. A. R. H.
El Brasil, Nuevo Leon	S	25° 53'	98° 59	!	# 1979	Rio San Juan	S. A. R. H.
El Cuchillo, Nuevo Leon	S	25° 43'	99° 16'	590	#June 1938	Rio San Juan	S. A. R. H.
El Cuervito, Nuevo Leon	S	25° 54'	98° 40'	!	# 1980	Rio San Juan	S. A. R. H.
El Maguey, Chihuahua	S	27° 37'	106° 09'	4,380	#July 1955	Rio Conchos	Meteor. Service of Chihuahua
El Realito, Nuevo Leon	S	25° 18'	99° 21'	!	# 1970	Rio San Juan	S. A. R. H.
El Remolino, Coahuila	S	28° 45'	101° 05'	1,310	June 1958	Rio San Rodrigo	I. B. & W. C.
El Sauzal D.B., Chihuahua	S	31° 35'	106° 18'	3,650	July 1970	El Paso - Ft. Quitman	S. A. R. H.
El Sitio, Chihuahua	S	27° 34'	106° 16'	!	July 1955	Rio Conchos	Meteor. Service of Chihuahua
El Vergel, Chihuahua	S	26° 22'	106° 30'	7,350	# 1957	Rio Conchos	Meteor. Service of Mexico
Emiliano Zapata, Coahuila	S	29° 01'	100° 49'	!	#Mar. 1976	Eagle Pass - Laredo	S. A. R. H.
Escalon, Chihuahua	S	26° 45'	104° 20'	4,160	# 1957	Adjacent to Rio Conchos	S. A. R. H.
Escuela Agropecuaria, * Chihuahua	S	31° 23'	106° 06'	3,650	1958	El Paso - Ft. Quitman	I. B. & W. C.
Escuela de Agricultura Escobar, Chihuahua	S	31° 42'	106° 27'	3,690	1980	El Paso - Ft. Quitman	S. A. R. H.
Espinazo, Nuevo Leon	S	26° 15'	101° 05'	!	1980	Rio Salado	S. A. R. H.
Estacion Rosario, Durango	S	26° 30'	105° 38'	!	#July 1962	Rio Conchos	S. A. R. H.
Fresnillo, Nuevo Leon	S	26° 26'	99° 53'	!	1982	Rio Alamo	S. A. R. H.
Gallego, Chihuahua	S	29° 50'	106° 23'	5,100	1958	Adjacent to Rio 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.
Garza Ayala, Nuevo Leon	S	26° 29'	100° 03'	!	# 1968	Rio Salado	S. A. R. H.
General Trevino, Nv. Leon	S	26° 13'	99° 29'	!	#Oct. 1976	Rio Alamo	S. A. R. H.
Gral. Bravo, Nuevo Leon	S	25° 48'	99° 11'	590	#Sept.1906	Rio San Juan	S. A. R. H.
Gral. Cepeda, Coahuila	S	25° 23'	101° 29'	4,920	#Aug. 1926	Rio San Juan	S. A. R. H.
Gomez Farias, Coahuila	S	24° 58'	101° 53'	!	June 1979	Rio San Juan	S. A. R. H.
Guerrero, Coahuila	S	28° 19'	100° 23'	690	#June 1958	Eagle Pass - Laredo	I. B. & W. C.
Hacienda El Alamo, N.Leon	S	26° 29'	99° 46'	!	# 1968	Rio Alamo	I. B. & W. C.
Hacienda Mamulique, N.Leon	S	26° 07'	100° 14'	!	#Sept.1973	Rio San Juan	S. A. R. H.
Hacienda San Miguel, Coahuila	S	29° 13'	101° 30'	!	# 1961	Foster Ranch - Amistad Dam	I. B. & W. C.
Higueras, Nuevo Leon	S	25° 58'	100° 01'	1,640	#Sept.1906	Rio San Juan	Meteor. Service of Mexico
Hipolito, Coahuila	S	25° 42'	101° 24'	!	# 1980	Rio San Juan	S. A. R. H.
Huachichil, Coahuila	S	25° 12'	100° 50'	!	# 1980	Rio San Juan	S. A. R. H.
Huizachal, Coahuila	S	25° 42'	100° 57'	!	1982	Rio San Juan	S. A. R. H.
Icamole, Nuevo Leon	S	25° 55'	100° 43'	4,900	# 1958	Rio San Juan	S. A. R. H.
Iturbide, Nuevo Leon	S	24° 44'	99° 54'	!	1941	Adjacent to Rio San Juan	S. A. R. H.
Jarita, Nuevo Leon	C	27° 26'	99° 48'	680	#Mar. 1961	Laredo - Falcon Dam	S. A. R. H.
Jimenez, Chihuahua	S	27° 08'	104° 55'	4,490	# 1951	Rio Conchos	S. A. R. H.
Jimenez, Coahuila	S	29° 04'	100° 40'	810	# 1951	Amistad Dam - Eagle Pass	I. B. & W. C.
Juarez, Chihuahua	S	31° 44'	106° 28'	3,740	# 1903	El Paso - Ft. Quitman	I. B. & W. C.
Km. 135, Chihuahua	S	28° 22'	105° 37'	3,940	# 1962	Rio Conchos	S. A. R. H.
La Amistad, Coahuila	S	29° 27'	101° 05'	!	Feb. 1977	Amistad Dam - Eagle Pass	I. B. & W. C.
La Arena, Nuevo Leon	S	25° 46'	100° 01'	!	# 1968	Rio San Juan	S. A. R. H.
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	Rio Conchos	Elec. Industry of Mexico
Cienega de Flores, La Cruz, Nuevo Leon	S	25° 28'	100° 26'	!	# 1958	Rio San Juan	S. A. R. H.
La Escondida, Nuevo Leon	S	26° 16'	99° 46'	!	# 1979	Rio San Juan	S. A. R. H.
La Huasteca, Nuevo Leon	S	25° 30'	100° 30'	!	# 1978	Rio San Juan	S. A. R. H.
La Pomona, Nuevo Leon	S	24° 59'	99° 12'	!	Mar. 1979	Rio San Juan	S. A. R. H.
La Popa, Nuevo Leon	S	26° 10'	100° 50'	3,230	# 1958	Rio San Juan	S. A. R. H.
La Trasquila, Chihuahua	S	29° 08'	107° 08'	!	# 1962	Adjacent to Rio Conchos	S. A. R. H.
Laguna de Salinillas, Nuevo Leon	S	27° 26'	100° 23'	750	# 1940	Rio Salado	S. A. R. H.
Lampazos, Nuevo Leon	S	27° 02'	100° 30'	1,120	# 1958	Rio Salado	S. A. R. H.
Las Burras, Chihuahua	S	28° 31'	105° 26'	3,590	July 1949	Rio Conchos	S. A. R. H.

S Standard C Cumulative ! Not available # Some months or years missing

* Formerly titled "Guadalupe,Chihuahua"

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 Comitas, Nuevo Leon	S	25° 30'	100° 24'	1,670	# 1940	Rio San Juan	S. A. R. H
Las Enramadas, Nuevo Leon	S	25° 30'	99° 31'	730	#Sept.1926	Rio San Juan	S. A. R. H.
Las Tortillas, Tamaulipas	C	26° 50'	99° 34'	360	#May 1961	Rio Salado	I. B. & W. C.
Las Virgenes, Chihuahua	S	28° 10'	105° 38'	4,070	# 1943	Rio Conchos	S. A. R. H.
Lazaro Cardenas, Chihuahua	S	28° 23'	105° 37'	3,940	# 1961	Rio Conchos	Meteor. Service of Mexico
Linares, Nuevo Leon	R	24° 52'	99° 34'	1,180	# 1900	Adjacent to Rio San Juan	S. A. R. H.
Los Americanos, Coahuila	S	27° 11'	103° 17'	!	1982	Adjacent Rio Salado	S. A. R. H.
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 Leon	R	25° 54'	99° 24'	820	#Sept.1939	Rio San Juan	S. A. R. H.
Los Ramones, Nuevo Leon	R	25° 42'	99° 38'	260	#Sept.1939	Rio San Juan	S. A. R. H.
Maclovio Herrera (Falomir), Chihuahua	S	29° 04'	105° 09'	3,220	# 1924	Rio Conchos	Meteor. Service of Mexico
Maijoma, Chihuahua	S	28° 55'	104° 21'	4,270	Aug. 1955	Rio Conchos	Meteor. Service of Chihuahua
Majalca, Chihuahua	S	28° 53'	106° 21'	6,860	June 1963	Rio Conchos	Meteor. Service of Mexico
Manuel Benavides, Chihuahua	S	29° 06'	103° 54'	!	#Oct. 1961	Above Rio Conchos - Johnson Ranch	Meteor. Service of Chihuahua
Matamoros, Tamaulipas	S	25° 52'	97° 30'	33	# 1958	Lower Rio Grande Valley	Meteor. Service of Mexico
Meoqui, Chihuahua	S	28° 16'	105° 29'	3,790	1961	Rio Conchos	Meteor. Service of Chihuahua
Miguel Aleman, Tamaulipas	S	26° 24'	99° 02'	180	1964	Falcon Dam - Rio Grande City	S. A. R. H.
Mimbres, Nuevo Leon	S	24° 58'	100° 16'	!	# 1958	Rio San Juan	S. A. R. H.
Mina, Nuevo Leon	S	26° 00'	100° 32'	!	# 1958	Rio San Juan	S. A. R. H.
Montemorelos, Nuevo Leon	S	25° 12'	99° 50'	1,420	#Aug. 1904	Rio San Juan	S. A. R. H.
Monterrey, Nuevo Leon	S	25° 40'	100° 18'	1,740	# 1896	Rio San Juan	S. A. R. H.
Muzquiz, Coahuila	S	27° 53'	101° 31'	1,650	# 1923	Rio Salado	S. A. R. H.
Nonoava, Chihuahua	S	27° 29'	106° 44'	!	# 1963	Rio Conchos	Meteor. Service of Chihuahua
Nueva Cd. Guerrero, Tamaulipas	S	26° 34'	99° 14'	350	#May 1954	Laredo - Falcon Dam	I. B. & W. C.
Nuevo Laredo, Tamaulipas	S	27° 30'	99° 30'	430	1950	Eagle Pass - Laredo	I. B. & W. C.
Nuevo Laredo, Tamaulipas	S	27° 30'	99° 30'	430	# 1909	Eagle Pass - Laredo	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 (Sur), Tamaulipas	S	27° 26'	99° 32'	413	#May 1975	Laredo - Falcon Dam	I. B. & W. C.
Ocampo, Coahuila	S	27° 19'	102° 24'	3,770	#May 1960	Adjacent to Rio Salado	S. A. R. H.
Ojinaga, Chihuahua	S	29° 34'	104° 24'	2,590	#Apr. 1954	Rio Conchos	I. B. & W. C.
Ojinaga, Chihuahua	S	29° 34'	104° 25'	2,620	#Nov. 1906	Rio Conchos	Meteor. Service of Mexico
Ojo Caliente, Chihuahua	S	27° 41'	105° 12'	4,010	1942	Rio Conchos	S. A. R. H.
Ojo de Agua (Sabinas), Nuevo Leon	S	26° 30'	100° 11'	!	1980	Rio Salado	S. A. R. H.
Palestina, Coahuila	S	29° 09'	100° 59'	1,080	# 1931	Rio San Diego	S. A. R. H.
Paras, Nuevo Leon	S	26° 30'	99° 31'	541	# 1958	Rio Alamo	S. A. R. H.
Parras, Coahuila	S	25° 27'	102° 10'	5,510	1958	Adjacent to Rio San Juan	S. A. R. H.
Parrita, Chihuahua	S	29° 25'	106° 29'	!	# 1958	Adjacent to Rio Conchos	S. A. R. H.
Piedras Negras, Coahuila	S	28° 43'	100° 31'	820	# 1951	Amistad Dam - Eagle Pass	Meteor. Service of Mexico
Pobladores, Nuevo Leon	S	25° 31'	99° 24'	!	1982	Rio San Juan	S. A. R. H.
Porvenir, Chihuahua	S	31° 14'	105° 52'	3,530	1958	El Paso - Ft. Quitman	I. B. & W. C.
Posta Zootecnica, Chihuahua	S	28° 41'	106° 04'	4,740	# 1957	Rio Conchos	Meteor. Service of Mexico
Presa Anzalduas, Tamps.	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	Amistad Dam - Eagle Pass	S. A. R. H.
Presa Carranza, Coahuila	S	27° 31'	100° 37'	790	#June 1927	Rio Salado	S. A. R. H.
Presa Centenario, Coah.	S	29° 13'	100° 57'	!	# 1954	Arroyo Las Vacas	S. A. R. H.
Presa Chihuahua, Chih.	S	28° 34'	106° 10'	5,230	Oct. 1961	Rio Conchos	S. A. R. H.
Presa Luis L. Leon, Chih.	S	28° 57'	105° 17'	!	Oct. 1964	Rio Conchos	S. A. R. H.
Presa Rodrigo Gomez, Nuevo Leon	S	25° 25'	100° 09'	1,460	# 1923	Rio San Juan	S. A. R. H.
Presa San Miguel, Coah.	S	29° 02'	100° 57'	1,000	# 1964	Rio San Diego	S. A. R. H.
Progreso, Coahuila	S	27° 25'	101° 00'	1,210	#Feb. 1943	Rio Salado	S. A. R. H.
Ramos Arizpe, Coahuila	S	25° 32'	100° 57'	4,590	#Apr. 1907	Rio San Juan	Meteor. Service of Mexico
Rancho Bonanza, Tamps.	S	26° 50'	99° 26'	!	1973	Laredo - Falcon Dam	Delfino Garcia P.
Rancho La Chuparrosa, Coahuila	R	29° 30'	101° 15'	1,150	# 1970	Foster Ranch - Amistad Dam	I. B. & W. C.
Rancho Las Espuelas, Tamaulipas	S	27° 07'	99° 27'	!	Nov. 1971	Laredo - Falcon Dam	Delfino Garcia P.
Rancho Vidrios, Tamps.	C	27° 35'	99° 37'	450	#Sept.1956	Eagle Pass - Laredo	I. B. & W. C.

S Standard C Cumulative ! Not available # Some months or years missing
R Recording V Visual

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
Rancho San Diego, Coah.	S	28° 03'	100° 35'	!	May 1959	Eagle Pass - Laredo	I. B. & W. C.
Rancho San Rafael Bustamante, Tamps.	C	26° 54'	99° 30'	!	Nov. 1967	Rio Salado	I. B. & W. C.
Rayones, Nuevo Leon	S	25° 01'	100° 05'	1,970	#Oct. 1926	Rio San Juan	S. A. R. H.
Reata, Coahuila	S	26° 08'	101° 05'	3,070	#July 1944	Rio San Juan	S. A. R. H.
Represa Amistad, Coahuila	R	29° 26'	101° 02'	918	#June 1969	Amistad Dam - Eagle Pass	I. B. & W. C.
Retamal, Tamaulipas	S	26° 02'	98° 03'	82	#Oct. 1949	Lower Rio Grande Valley	I. B. & W. C.
Reynosa, Tamaulipas	R	26° 06'	98° 19'	130	# 1941	Lower Rio Grande Valley	S. A. R. H.
Reynosa Km. 22, SW, Tamaulipas	C	26° 00'	98° 30'	!	# 1962	Lower Rio Grande Valley	I. B. & W. C.
Rinconada, Nuevo Leon	S	25° 41'	100° 42'	4,790	#Apr. 1944	Rio San Juan	S. A. R. H.
Rio Salado Carr. 85, Nuevo Leon	S	26° 53'	99° 49'	390	#May 1958	Rio Salado	I. B. & W. C.
Rio Salado Riberena, Tamaulipas	S	26° 48'	99° 25'	330	July 1964	Laredo - Falcon Dam	I. B. & W. C.
Sabinas, Coahuila	S	27° 51'	101° 07'	1,120	#May 1922	Rio Salado	S. A. R. H.
Sabinas Hidalgo, Nv. Leon	S	26° 30'	100° 10'	1,030	May 1958	Rio Salado	I. B. & W. C.
Saltillo, Coahuila	S	25° 26'	101° 00'	5,280	# 1886	Rio San Juan	S. A. R. H.
Samalayuca, Chihuahua	S	31° 21'	106° 28'	4,180	1958	El Paso - Ft. Quitman	Meteor. Service of Mexico
San Agustin, Chihuahua	S	31° 31'	106° 15'	3,650	1958	El Paso - Ft. Quitman	I. B. & W. C.
San Antonio, Durango	S	26° 25'	105° 21'	5,430	# 1943	Rio Conchos	S. A. R. H.
San Buenaventura, Coahuila	S	27° 04'	101° 33'	2,300	#Dec. 1926	Rio Salado	Meteor. Service of Mexico
San Fernando, Coahuila	S	29° 25'	101° 43'	!	Aug. 1961	Foster Ranch - 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 Leon	C	26° 16'	99° 25'	!	1962	Rio Alamo	I. B. & W. C.
San Juan de Vaqueria, Coahuila	S	25° 15'	101° 13'	!	# 1980	Rio San Juan	S. A. R. H.
San Juanito, Chihuahua	S	27° 58'	107° 36'	!	# 1959	Adjacent to Rio Conchos	Meteor. Service of Mexico
San Lorenzo, Chihuahua	S	28° 10'	106° 29'	3,770	# 1961	Rio Conchos	S. A. R. H.
San Nicolas, Nuevo Leon	S	27° 26'	100° 02'	!	# 1978	Rio San Juan	S. A. R. H.
Santa Catarina, Nv. Leon	R	25° 40'	100° 29'	2,230	#Oct. 1937	Rio San Juan	S. A. R. H.
Santa Rosa, Coahuila	V	29° 38'	101° 28'	!	# 1958	Foster Ranch - Amistad Dam	Ind. Co-operator
Sierra Mojada, Coahuila	S	27° 17'	103° 42'	4,120	# 1897	Adjacent to Johnson Ranch - Foster Ranch	S. A. R. H.
Tepehuaje, Nuevo Leon	S	25° 32'	100° 15'	!	#June 1979	Rio San Juan	S. A. R. H.
Topo Chico, Nuevo Leon	R	25° 44'	100° 20'	1,640	#Aug. 1939	Rio San Juan	S. A. R. H.
Tunel San Francisco, Nuevo Leon	S	25° 25'	100° 10'	!	# 1958	Rio San Juan	S. A. R. H.
Una de Gato, Nuevo Leon	S	25° 58'	99° 41'	!	1979	Rio San Juan	S. A. R. H.
Vado de Cedillos, Chih.	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	S. A. R. H.
Vallecillo, Nuevo Leon	S	26° 40'	99° 59'	900	#June 1958	Rio Salado	S. A. R. H.
Valle Allende, Chihuahua	S	26° 56'	105° 23'	!	#Mar. 1962	Rio Conchos	Meteor. Service of Chihuahua
Valle Hermoso, Tamaulipas	S	25° 41'	97° 48'	52	#June 1949	Lower Rio Grande Valley	S. A. R. H.
Vaqueria, Nuevo Leon	S	25° 08'	99° 04'	!	#Mar. 1979	Rio San Juan	S. A. R. H.
Villa Aldama, Chihuahua	S	28° 50'	105° 55'	4,140	1961	Ro Conchos	Meteor. Service of Mexico
Villaldama, Nuevo Leon	S	26° 30'	100° 25'	1,540	#Apr. 1979	Rio Salado	Meteor. Service of Mexico
Villa Allende, Nuevo Leon	S	25° 17'	100° 01'	2,210	#Nov. 1938	Rio San Juan	S. A. R. H.
Villa Coronado, Chihuahua	S	26° 44'	105° 08'	4,790	#Aug. 1964	Rio Conchos	S. A. R. H.
Villa Hidalgo, Coahuila	S	27° 47'	99° 52'	660	1951	Eagle Pass - Laredo	I. B. & W. C.
Villalba, Chihuahua	S	27° 59'	105° 47'	3,940	Oct. 1940	Rio Conchos	S. A. R. H.
Zaragoza, Coahuila	S	28° 29'	100° 55'	1,210	#Aug. 1977	Eagle Pass - Laredo	S. A. R. H.

S Standard C Cumulative ! Not available # Some months or years missing
R Recording V Visual

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 the 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 vegetaion 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 135 in this bulletin.

Records were obtained by means of:

1. Standard National Weather Service 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 and Eagle Pass.

3. An evaporometer, developed by the United States Section of the Commission and calibrated against a 2-foot pan described above, was in operation at Presidio, Johnson Ranch, Long Ranch, and at a site 7 miles east of Brownsville.

Month	Presidio		Johnson Ranch		Martin King Ranch		Long Ranch	
	1983	Average 1950-1983	1983	Average 1950-1983	1983	#Average 1956-1983	1983	Average October 1971-1983
Jan.	2.87	3.71	2.15	3.22	2.91	3.06	2.24	2.29
Feb.	1.62	4.96		4.75	3.92	3.58	2.16	2.68
Mar.	7.46	7.90		7.99	6.36	6.09	4.31	4.47
Apr.	9.63	9.76	9.75	10.05	9.43	7.42	6.83	5.48
May	7.07	11.23	10.96	11.49	9.61	8.12	7.06	5.58
June	8.15	12.31	11.29	11.87	9.42	9.98	8.10	7.36
July	7.85	11.58	11.89	11.82	12.45	11.12	9.80	8.48
Aug.	7.18	10.63	10.76	10.74	11.57	10.54	7.50	7.49
Sept.	7.46	8.97	9.25	8.68	9.34	7.81	6.61	6.14
Oct.	3.62	7.11		6.77	8.48	5.75	4.21	3.99
Nov.	2.91	4.81	5.06	4.30	5.03	3.89	3.13	2.92
Dec.	3.68	3.52	3.18	3.18		3.09	2.83	2.22
Total	69.50	96.49		94.86		80.45	64.78	59.10

Month	Amistad Dam		Eagle Pass		Falcon Dam				Brownsville	
					2-Foot Pan		4-Foot Pan			
	1983	Average March 1963-1983	1983	#Average 1964-1983	1983	#Average 1950-1983	1983	#Average 1956-1983	1983	#Average 1958-1983
Jan.	3.35	3.82	2.50	3.18	2.91	3.43	3.07	3.93	3.37	2.77
Feb.	3.95	4.76	3.35	3.55	3.31	4.22	4.59	5.15	4.39	3.51
Mar.	7.12	8.17	5.38	5.60	5.52	6.44	7.62	8.22	7.29	4.85
Apr.	11.28	9.95	8.82	6.99	8.32	7.75	10.92	10.18	7.21	5.73
May	12.65	10.66	9.58	7.26	7.80	9.18	10.39	11.51	7.69	5.72
June	10.97	12.89	9.92	9.73	9.08	10.61	12.22	13.30	8.93	6.40
July	14.90	14.86	11.13	11.02	9.24	10.62	11.49	15.16	9.47	7.19
Aug.	12.74	13.35	9.42	9.96	10.61	11.11	12.07	13.32	8.87	6.85
Sept.	11.06	9.88	9.71	7.59	9.09	7.90	9.47	9.74	7.67	5.38
Oct.	8.94	7.40	6.37	6.19	7.11	6.35	7.78	7.38	6.49	4.64
Nov.	5.05	4.83	5.74	4.21	5.74	4.77	6.24	5.29	5.74	3.64
Dec.	3.71	3.74	4.24	3.47	3.77	3.67	3.55	3.89	4.02	2.93
Total	105.72	104.31	86.16	78.75	82.50	86.05	99.41	107.07	81.14	59.61

Some months missing

EVAPORATION IN THE RIO GRANDE BASIN IN MEXICO

In Inches

Tabulated below are records of evaporation observed at ten stations operated and maintained by the Mexican Section of the Commission. Nine stations are along the Rio Grande from Cd. Juarez, Chihuahua to Retamal, Tamaulipas, and one is located on the Rio 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 Rio Conchos stream gaging station are in the north end of the enclosure. Inside the enclosures, all vegetation has been eradicated or 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 136 through 139 in this bulletin.

The type of pan used at all these stations was a standard National Weather Service-type 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 No. 53 published by the Mexican Section of the Commission.

	Cd. Juarez, Chihuahua		Ojinaga, Chihuahua		Cd. Acuna, Coahuila		La Amistad, Coahuila		Jimenez, Coahuila	
Month	1983	# Average 1969-1983	1983	#Avg. Apr. 1954-1983	1983	# Average 1951-1983	1983	#Avg. Feb. 1977-1983	1983	# Average 1951-1983
Jan.		3.14	2.20	3.61	2.44	3.36	3.70	3.74	3.54	3.64
Feb.	6.57	4.65	3.82	5.02	3.07	4.50	4.49	4.75	4.29	4.59
Mar.	6.50	7.96	6.10	8.49	6.14	7.65	4.53	7.32	7.91	7.26
Apr.	10.87	9.77	8.03	10.90	9.49	8.72	12.13	9.78	12.20	7.96
May	11.02	11.20	9.25	12.98	10.39	9.63	13.35	10.00	11.89	8.98
June	12.09	12.38	12.28	13.60	9.80	11.50	12.36	12.40	12.44	10.87
July	10.12	11.05	14.25	13.06	12.95	13.09	15.20	15.22	13.70	12.30
Aug.	8.78	9.93		11.12	10.59	11.79	14.13	14.22	12.80	11.16
Sept.	5.08	8.05	9.02	8.80	8.70	8.58	11.85	10.62	10.16	8.15
Oct.		6.27	5.59	6.91	5.67	6.11	8.50	8.22	7.32	5.90
Nov.		4.17	3.27	4.29	3.66	3.85	5.91	5.24	5.31	3.91
Dec.		3.37	3.11	3.31	2.48	3.06	3.98	3.97	3.15	3.26
Total		91.94		102.09	85.38	91.84	110.13	105.48	104.71	87.98

	Hidalgo, Coahuila		Nuevo Laredo, Tamaulipas		Nueva Cd. Guerrero, Tamaulipas		Cd. Mier, Tamaulipas		Retamal, Tamaulipas	
Month	1983	# Average 1951-1983	1983	Avg. Aug. 1964-1983	1983	#Avg.June 1954-1983	1983	#Avg. Oct. 1955-1983	1983	# Average 1951-1983
Jan.	2.17	3.74	4.69	4.21	2.56	3.38	2.80	3.63	2.68	3.98
Feb.	3.23	5.02	5.91	5.22	3.78	4.22	4.13	4.76	4.41	4.57
Mar.	3.46	7.59	10.83	8.63	7.05	7.13	6.93	7.77	6.73	6.54
Apr.	4.09	9.33	15.59	10.57	10.00	8.80	9.53	9.43	8.27	7.79
May	6.81	10.85	13.46	11.59	8.82	10.02	8.74	10.61	6.73	8.35
June	7.32	12.85	15.28	13.76	10.59	11.46	10.43	12.25	8.27	8.96
July	9.45	14.49	17.05	15.28	9.88	13.07	10.04	13.99	7.13	9.84
Aug.	8.50	13.12	18.15	14.04	10.87	12.02	10.87	12.82	8.74	9.55
Sept.		9.58	13.66	10.56	8.07	8.76	8.39	9.49	6.54	7.33
Oct.	8.15	7.22	10.98	8.12	6.26	6.51	6.61	7.30	5.35	6.01
Nov.	6.30	4.73	8.70	5.52	5.08	4.57	5.08	4.83	5.55	4.38
Dec.	4.84	3.67	4.96	4.24	2.68	3.37	2.68	3.66	3.31	3.82
Total		102.19	139.26	111.74	85.64	93.31	86.23	100.54	73.71	81.12

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 National Weather Service evaporation station.

Temperature - Degrees Fahrenheit

In United States

Month	Amistad Dam, Texas				Eagle Pass, Texas				Falcon Dam, Texas			
	Mean 1983	Average March 1963-1983	1983 Max.	1983 Min.	Mean 1983	# Average 1964-1983	1983 Max.	1983 Min.	Mean 1983	# Average July 1950-1983	1983 Max.	1983 Min.
Jan.	50.6	50.0	77	33	52.3	51.3	79	32	51.7	55.1	80	36
Feb.	54.7	53.4	79	37	55.8	55.2	84	38	56.7	59.2	89	41
Mar.	61.5	62.5	82	41	64.9	64.4	86	40	65.6	66.7	95	45
Apr.	68.5	71.0	96	38	70.7	72.7	95	38	71.5	74.6	98	42
May	77.1	71.7	98	51	78.8	77.5	101	58	78.9	79.4	109	58
June	80.7	82.0	106	60	82.8	83.0	107	62	84.2	83.4	105	65
July	86.2	84.8	103	69	85.7	86.1	102	68	83.1	85.3	103	70
Aug.	85.0	83.7	105	71	86.4	85.1	105	69	83.4	85.0	103	65
Sept.	79.8	78.7	113	52	81.5	79.6	105	53	80.7	80.6	103	61
Oct.	72.2	69.8	96	50	74.2	70.6	95	49	74.7	73.0	98	52
Nov.	61.1	59.7	87	33	64.2	60.9	90	31	69.8	63.7	94	41
Dec.	44.7	51.7	80	13	46.3	53.5	85	13	50.9	56.9	87	15
Yearly	68.5	68.2	113	13	70.3	70.0	107	13	70.9	71.9	109	15

In Mexico

Month	Cd. Juarez, Chihuahua				Ojinaga, Chihuahua				La Amistad, Coahuila			
	Mean 1983	# Average July 1960-1983	1983 Max.	1983 Min.	Mean 1983	# Average April 1954-1983	1983 Max.	1983 Min.	Mean 1983	# Average 1977-1983	1983 Max.	1983 Min.
Jan.	42.8	45.5	64	19	66.2	49.9	77	18	51.8	48.2	81	32
Feb.	50.0	50.1	72	30	53.6	54.1	82	25	55.4	52.1	84	36
Mar.	55.4	57.0	79	36	59.0	61.5	90	30	62.6	62.3	82	43
Apr.	57.2	64.3	84	28	62.6	70.5	99	32	71.6	69.8	102	37
May	69.8	73.0	95	48	73.4	78.9	102	39	78.8	77.0	102	55
June	78.8	81.5	102	55	84.2	85.3	113	54	84.2	83.7	109	54
July	84.2	83.2	102	64	89.6	86.1	113	66	87.8	87.3	106	64
Aug.	82.4	80.9	97	68		84.1			89.6	87.2	108	70
Sept.	78.8	75.4	100	54	82.4	77.0	109	52	84.2	82.4	111	54
Oct.	66.2	64.9	90	46	71.6	70.0	100	43	73.4	71.9	100	46
Nov.	55.4	53.1	81	27	50.0	57.5	86	23	64.4	61.8	91	34
Dec.	46.4	46.5	72	14	48.2	50.5	81	12	44.6	51.5	84	12
Yearly	64.0	64.6	102	14		68.8	113	12	70.7	69.6	111	12

Month	Cd. Acuna, Coahuila				Jimenez, Coahuila				El Remolino, Coahuila			
	Mean 1983	# Average April 1951-1983	1983 Max.	1983 Min.	Mean 1983	# Average March 1951-1983	1983 Max.	1983 Min.	Mean 1983	Average June 1958-1983	1983 Max.	1983 Min.
Jan.	46.4	48.9	75	27	51.8	52.5	79	32	62.6	57.2	102	34
Feb.	51.8	54.0	81	30	57.2	56.3	86	36	66.2	60.4	102	34
Mar.	57.2	62.8	84	37	64.4	63.3	88	41	69.8	66.6	97	34
Apr.	66.2	71.5	93	34	69.8	71.4	99	36	71.6	74.4	100	45
May	77.0	78.0	97	57	80.6	77.4	102	55	77.0	78.6	108	46
June	80.6	84.1	104	57	84.2	83.4	108	61	80.6	83.5	108	57
July	86.0	86.9	100	68	87.8	85.9	106	70	80.6	85.6	108	54
Aug.	84.2	86.3	104	66	87.8	85.4	109	68	82.4	85.2	108	50
Sept.	81.8	80.2	111	52	84.2	80.6	111	54	80.6	81.8	108	55
Oct.	69.8	71.0	93	46	75.2	71.8	104	50	75.2	74.2	104	43
Nov.	59.0	58.7	86	30	64.4	61.0	93	30	62.6	67.8	102	34
Dec.	41.0	50.8	79	9	48.2	53.9	86	16	51.8	60.4	99	14
Yearly	64.2	69.4	111	9	71.3	70.2	111	16	71.8	73.0	108	14

Some months missing

TEMPERATURE, HUMIDITY, AND WIND

Temperature - Degrees Fahrenheit

In Mexico

Month	Piedras Negras, Coahuila				Guerrero, Coahuila				Villa Hidalgo, Coahuila			
	Mean 1983	# Average April 1951-1983	1983 Max.	1983 Min.	Mean 1983	# Average 1958-1983	1983 Max.	1983 Min.	Mean 1983	# Average August 1951-1983	1983 Max.	1983 Min.
Jan.	51.8	51.1	79	30	55.4	52.3	86	32	66.2	53.7	75	30
Feb.	57.2	55.8	86	36	60.8	56.5	90	41	55.4	57.1	84	36
Mar.	69.8	63.5	97	41	68.0	66.8	95	41	64.4	65.4	88	41
Apr.	73.4	72.0	100	37	75.2	74.6	100	43	68.0	74.6	97	32
May	80.6	77.8	104	57	86.0	80.4	104	59	82.4	79.7	106	50
June	84.2	83.9	109	63	86.0	85.1	104	66	82.4	84.8	108	57
July	87.8	86.6	106	72	89.6	87.3	104	75	84.2	86.5	102	57
Aug.	87.8	85.9	106	72	91.4	87.0	104	77	86.0	86.7	104	68
Sept.	82.4	80.3	108	54	84.2	82.1	104	61	82.4	81.8	104	50
Oct.	75.2	70.9	99	48	78.8	72.6	102	50	73.4	73.2	95	45
Nov.	64.4	59.7	90	34	69.8	62.7	97	41	64.4	61.3	95	39
Dec.	46.4	52.7	86	12	73.4	56.3	91	14	48.2	55.3	86	21
Yearly	71.8	70.0	109	12	76.6	72.0	104	14	71.4	71.7	108	21

Month	Nuevo Laredo, Tamps., C.I.L.A.				Nuevo Laredo, Tamps., M.S. of M.				Sabinas Hidalgo, Nuevo Leon			
	Mean 1983	Average August 1964-1983	1983 Max.	1983 Min.	Mean 1983	# Average 1945-1983	1983 Max.	1983 Min.	Mean 1983	Average October 1961-1983	1983 Max.	1983 Min.
Jan.	57.2	55.6	88	34	53.6	55.5	75	32	51.8	55.9	81	37
Feb.	59.0	59.7	91	39	59.0	60.6	82	39	62.6	59.4	91	41
Mar.	66.2	69.3	97	43	68.0	67.7	93	45	64.4	68.0	86	46
Apr.	73.4	77.3	99	43	84.2	75.9	102	43	69.8	74.9	100	45
May	80.6	82.1	109	59	82.4	80.8	108	52	82.4	79.9	108	52
June	84.2	86.4	104	64	87.8	84.9	106	66	86.0	84.3	104	68
July	86.0	88.4	102	72	87.8	88.1	104	75	86.0	85.0	104	68
Aug.	87.8	88.1	104	68	89.6	87.4	106	73	86.0	84.9	100	66
Sept.	84.2	84.2	106	54	84.2	81.8	106	55	80.6	80.1	102	46
Oct.	77.0	76.2	100	54	78.8	73.3	102	54	80.6	73.3	97	63
Nov.	69.8	66.5	97	37	66.2	64.2	90	39	75.2	64.5	102	46
Dec.	69.8	60.3	90	12	51.8	51.3	82	14	53.6	58.7	100	12
Yearly	74.6	74.5	109	12	74.4	72.6	108	14	73.2	72.4	108	12

Month	Nueva Cd. Guerrero, Tamaulipas				Cd. Mier, Tamaulipas				Retamal, Tamaulipas			
	Mean 1983	Average 1958-1983	1983 Max.	1983 Min.	Mean 1983	# Average October 1955-1983	1983 Max.	1983 Min.	Mean 1983	# Average 1951-1983	1983 Max.	1983 Min.
Jan.	57.2	55.5	82	37	57.2	55.3	82	34	60.8	59.9	81	36
Feb.	62.6	59.3	91	45	60.8	59.4	90	37	64.4	62.5	90	43
Mar.	69.8	67.4	99	50	69.8	67.7	97	45	71.6	69.4	99	48
Apr.	75.2	75.9	100	52	75.2	75.9	100	45	75.2	76.2	104	48
May	82.4	80.8	111	59	82.4	80.7	108	55	80.6	79.9	97	57
June	86.0	85.0	106	68	86.0	85.0	104	64	86.0	83.7	108	68
July	87.8	86.5	104	73	86.0	86.8	102	72	86.0	85.2	102	68
Aug.	89.6	86.5	106	72	89.6	86.7	104	75	87.8	86.0	108	72
Sept.	86.0	82.5	106	59	86.0	82.4	104	61	84.2	83.0	106	59
Oct.	80.6	75.1	99	55	78.8	74.8	99	54	78.8	76.9	102	54
Nov.	71.6	65.8	97	41	71.6	65.3	95	41	71.6	68.0	97	46
Dec.	53.6	57.9	90	19	55.4	58.2	102	23	55.4	61.7	102	23
Yearly	75.2	73.2	111	19	74.9	73.2	108	23	75.2	74.4	108	23

Some months missing

TEMPERATURE, HUMIDITY, AND WIND

Mean Wind Speed - Miles per Hour

In United States

Month	Martin King Ranch, Texas		Amistad Dam, Texas		Eagle Pass, Texas		Falcon Dam, Texas	
	1983	Average 1957-1983	1983	# Average March 1963-1983	1983	# Average December 1963-1983	1983	# Average July 1950-1983
Jan.	3.5	3.8	2.4	3.2	3.5	2.7	2.4	3.6
Feb.	4.3	4.6	2.7	3.6	4.0	3.3	3.2	4.2
Mar.	5.9	6.0	3.4	4.3	4.5	3.7	3.4	4.6
Apr.	5.9	6.2	4.1	4.4	5.6	3.9	3.6	5.2
May	6.6	6.6	4.2	4.4	5.2	3.8	4.0	5.3
June	7.1	7.1	3.9	4.7	4.9	3.8	4.0	5.5
July	5.9	6.6	4.1	4.4	5.1	3.8	3.7	5.8
Aug.	7.9	6.0	3.0	3.8	3.8	3.4	4.8	4.9
Sept.	6.9	5.1	3.8	3.5	4.4	2.9	3.3	3.8
Oct.	7.6	4.8	3.5	3.3	4.0	2.6	3.2	3.4
Nov.	4.5	4.0	2.9	3.0	3.7	2.4	2.9	3.6
Dec.	3.7	3.5	3.2	3.0	3.6	2.4	2.7	3.4
Yearly	5.8	5.4	3.4	3.8	4.4	3.2	3.4	4.4

Mean Relative Humidity - Percent

In United States

Month	Amistad Dam, Texas		Eagle Pass, Texas		Falcon Dam, Texas	
	1983	Average March 1963-1983	1983	# Average 1964-1983	1983	Average # July 1950-1983
Jan.	71.4	62.9	64.8	64.8	77.2	67.5
Feb.	72.1	61.4	65.3	61.1	77.1	64.9
Mar.	61.9	55.7	53.2	57.3	68.4	62.7
Apr.	49.3	59.0	43.4	60.0	61.3	62.9
May	63.3	65.6	59.8	66.5	74.5	66.2
June	71.9	64.1	59.5	64.4	71.6	64.6
July	63.8	60.6	57.6	60.5	75.7	61.6
Aug.	64.6	61.8	56.7	62.2	72.0	62.6
Sept.	65.8	66.7	58.1	67.6	73.2	67.1
Oct.	75.0	66.5	63.9	67.1	74.6	66.8
Nov.	55.6	64.2	59.4	67.0	69.1	67.2
Dec.	42.6	62.5	56.0	65.1	76.6	66.6
Yearly	63.1	62.6	58.1	63.6	72.6	65.1

In Mexico

Month	Nueva Cd. Guerrero, Tamaulipas	
	1983	Average August 1961-1983
Jan.	86	77
Feb.	84	75
Mar.	61	70
Apr.	72	71
May	82	76
June	80	74
July	84	71
Aug.	78	71
Sept.	82	77
Oct.	81	76
Nov.	77	76
Dec.	77	77
Yearly	79	74

Some months missing

DRAINAGE BASIN AND IRRIGATED AREAS

Along the Rio Grande and Tributaries - 1983

The total area within the outer rim of the Rio Grande basin is about 335,500 square miles, but it contains large areas, especially along its southwestern boundary, that contribute no surface runoff to the Rio Grande. Such noncontributing areas constitute about 47 percent 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.

On the United States side, only the areas irrigated in 1983 are shown, except that in the reaches below Falcon Dam, the figures shown represent acreages which were subject to irrigation in 1983 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 1983. The irrigated area data tabulated are the best data that could be obtained.

DESIGNATION 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 American Dam	2,053	0	2,053	79,027	0	79,027
Above American Dam	29,271	0	29,271	79,027	0	79,027
American Dam to Acala Station	672	544	1,216	57,187	14,757	71,944
Above Acala Gaging Station	29,943	544	30,487	136,214	14,757	150,971
Acala Station to Fort Quitman Station	663	794	1,457	11,671	0	11,671
Above Fort Quitman Gaging Station	30,606	1,338	31,944	147,885	14,757	162,642
Fort Quitman Station to Above Presidio Station	1,646	1,410	3,056	a) 1,492	a) 188	1,680
Above Presidio Station above Rio Conchos	32,252	2,748	35,000	149,377	14,945	164,322
Rio Conchos above Boquilla Dam	0	8,131	8,131	0	b) 2,041	2,041
Rio Conchos above Luis L. Leon Dam	0	22,992	22,992	0	343,184	343,184
Rio Conchos - Total	0	26,404	26,404	0	345,225	345,225
Alamito Creek above Gaging Station	1,504	0	1,504	35	0	35
Presidio Station above Rio Conchos to Presidio Station below Rio Conchos - excluding above tributaries	340	91	431	2,855	356	3,211
Presidio Station above Rio Conchos to Presidio Station below Rio Conchos - Total	1,844	26,495	28,339	2,890	345,581	348,471
Above Presidio Station below Rio Conchos	34,096	29,243	63,339	152,267	360,526	512,793
Terlingua Creek above Gaging Station	1,070	0	1,070	5	0	5
Presidio Station below Rio Conchos to Johnson Ranch Station - excluding Terlingua Creek	1,093	2,258	3,351	782	2,511	3,293
Presidio Station below Rio Conchos to Johnson Ranch Station - Total	2,163	2,258	4,421	787	2,511	3,298
Above Johnson Ranch Gaging Station	36,259	31,501	67,760	153,054	363,037	516,091
Johnson Ranch Station to Foster Ranch Station	6,412	6,570	12,982	c) 178	0	178
Above Foster Ranch Gaging Station	42,671	38,071	80,742	153,232	363,037	516,269
Foster Ranch Station to Langtry Station	182	505	687	0	0	0
Above Langtry Gaging Station (Discontinued)	42,853	38,576	81,429	153,232	363,037	516,269
Pecos River above Girvin	29,562	0	29,562		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 (Discontd.)	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
Above Amistad Dam	82,683	40,451	123,134	153,232	363,037	516,269
Amistad Dam to Below Amistad Dam Gaging Station	5	4	9	0	0	0
Above the Below Amistad Dam Gaging Station	82,688	40,455	123,143	153,232	363,037	516,269
Below Amistad Dam Station to Del Rio Station	60	100	160	234	0	234
Above Del Rio Gaging Station	82,748	40,555	123,303	153,466	363,037	516,503
Arroyo Las Vacas above Gaging Station	0	350	350	0	740	740
San Felipe Creek above Gaging Station	46	0	46	2,118	0	2,118
Pinto Creek above Gaging Station	249	0	249	400	0	400
Rio San Diego above Gaging Station	0	853	853	0	23,077	23,077
Rio San Diego - Total	0	859	859	0	23,972	23,972

DRAINAGE BASIN AND IRRIGATED AREAS
Along the Rio Grande and Tributaries – 1983

DESIGNATION OF AREAS AND GAGING STATIONS	Drainage Basin Square Miles			Irrigated Areas - Acres		
	United States	Mexico	Total	United States	Mexico	Total
Del Rio Station to Jimenez Station - excluding above tributaries	669	110	779	d)38,970	3,996	42,966
Del Rio Station to Jimenez Station - Total	964	1,319	2,283	41,488	28,708	70,196
Above the Jimenez Gaging Station	83,712	41,874	125,586	194,954	391,745	586,699
Rio San Rodrigo above Gaging Station	0	1,049	1,049	0	5,313	5,313
Rio San Rodrigo - Total	0	1,049	1,049	0	5,313	5,313
Jimenez Station to Maverick Power Plant - excluding Rio San Rodrigo	287	114	401	1,510	0	1,510
Jimenez Station to Maverick Power Plant - Total	287	1,163	1,450	1,510	5,313	6,823
Above Maverick Power Plant	83,999	43,037	127,036	196,464	397,058	593,522
Maverick Power Plant to Piedras Negras Station	244	32	276	160	746	906
Above Piedras Negras Gaging Station	84,243	43,069	127,312	196,624	397,804	594,428
Rio Escondido above Gaging Station	0	1,459	1,459	0	10,216	10,216
Rio Escondido - Total	0	1,471	1,471	0	10,216	10,216
Piedras Negras Station to El Indio Station - excluding Rio Escondido	237	206	443	320	904	1,224
Piedras Negras Station to El Indio Station - Total	237	1,677	1,914	320	11,120	11,440
Above El Indio Gaging Station	84,480	44,746	129,226	196,944	408,924	605,868
El Indio Station to Villa Hidalgo Station	629	1,683	2,312	1,628	3,185	4,813
Above Villa Hidalgo Gaging Station	85,109	46,429	131,538	198,572	412,109	610,681
Villa Hidalgo Station to Nuevo Laredo Station	607	433	1,040	2,861	7,198	10,059
Above Nuevo Laredo Gaging Station	85,716	46,862	132,578	201,433	419,307	620,740
Rio Salado above Venustiano Carranza Dam	0	15,831	15,831	0	41,964	41,964
Rio Salado above Las Tortillas Gaging Station	0	23,155	23,155	0	115,107	115,107
Rio Salado above River Road Crossing	0	23,323	23,323	0	115,107	115,107
Nuevo Laredo Station to Falcon Dam - excluding Rio Salado	2,042	1,327	3,369	e) 6,762	5,698	12,460
Nuevo Laredo Station to Falcon Dam - Total	2,042	24,650	26,692	6,762	120,805	127,567
Amistad Dam to Falcon Dam - excluding above tributaries	4,780	4,009	8,789	52,445	21,727	74,172
Above Falcon Dam	87,758	71,512	159,270	208,195	540,112	748,307
Rio Alamo above Gaging Station	0	1,675	1,675	0	7,660	7,660
Rio San Juan above Marte Gomez Dam	0	12,745	12,745	0	102,549	102,549
Rio San Juan - Marte Gomez Dam to Camargo Gaging Station	0	195	195	0	164,550	164,550
Rio San Juan - Total	0	12,949	12,949	0	267,099	267,099
Falcon Dam to Rio Grande City Station - excluding above tributaries	222	246	468	5,691	5,619	11,310
Falcon Dam to Rio Grande City Station - Total	222	14,870	15,092	5,691	280,378	286,069
Above the Rio Grande City Gaging Station	87,980	86,382	174,362	213,886	820,490	1,034,376
Rio Grande City Station to Anzalduas Dam	952	798	1,750	181,217	489,960	671,177
Above Anzalduas Dam	88,932	87,180	176,112	395,103	1,310,450	1,705,553
Anzalduas Dam to Progreso Station	13	163	176	137,314	4,690	142,004
Above Progreso Gaging Station	88,945	87,343	176,288	532,417	1,315,140	1,847,557
Progreso Station to San Benito Station	7	9	16	312,230	3,687	315,917
Above San Benito Gaging Station	88,952	87,352	176,304	844,647	1,318,827	2,163,474
San Benito Station to Brownsville Station	14	15	29	89,968	2,678	92,646
Falcon Dam to Brownsville Station - excluding Rio Alamo and Rio San Juan	1,208	1,231	2,439	726,420	506,634	1,233,054
Above Brownsville Gaging Station	88,966	87,367	176,333	934,615	1,321,505	2,256,120
Brownsville Station to Gulf of Mexico				4,345	0	4,345
Falcon Dam to Gulf of Mexico - excluding Rio Alamo and Rio San Juan				730,765	506,634	1,237,399
Amistad Dam to Gulf of Mexico - excluding above tributaries				783,210	528,361	1,311,571
Above Gulf of Mexico				938,960	1,321,505	2,260,465

a) Total area irrigated from the Rio Grande at least once during the year; additional irrigations from this source dependent on availability of river water in this reach
b) Includes area above Madero Reservoir
c) Includes 50 acres irrigated by spreader dams
d) Includes 37,710 acres irrigated from the Maverick Canal below Mile 13 gaging station
e) Includes 110 acres irrigated from small reservoirs

SUPPLEMENTARY DATA—INTERNATIONAL AMISTAD RESERVOIR

Deduced Inflows

Considering that a knowledge of the mean daily inflows reaching the International Amistad Reservoir would serve a useful purpose, such data have been deduced for 1983 showing the flows as closely as they can be approximated. These data are based on the daily operation of the International Amistad Reservoir, taking into account: a) record of gage heights at the dam; b) releases; c) filtrations; d) elevation-area-capacity tables based on 1981 survey; and e) rate of evaporation measured at the dam.

Flow contributions from different sources, 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 Foster Ranch, Pecos River near Langtry, and Devils River at Pafford Crossing.

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 Amistad Reservoir.

Mean Daily Discharge in Second-Feet 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,280	1,480	2,350	1,470	2,050	1,410	1,170	1,700	2,610	1,300	2,250	1,590
2	1,260	1,400	2,190	1,540	1,890	1,770	1,380	1,610	2,560	1,260	2,160	1,490
3	1,190	1,290	2,240	1,410	1,760	1,590	1,300	1,560	2,350	1,860	2,330	1,520
4	1,280	1,300	1,790	1,680	1,450	1,950	1,240	2,070	1,730	2,830	2,280	1,480
5	1,260	1,390	1,820	1,520	1,180	1,890	1,420	1,910	1,450	2,490	3,450	1,510
6	1,260	1,510	1,820	1,550	1,670	3,270	1,610	2,070	1,360	2,420	6,280	1,390
7	1,260	1,380	1,770	1,650	2,010	2,980	1,860	1,590	1,360	2,500	5,770	1,430
8	1,380	1,400	1,710	1,580	2,160	2,620	1,690	1,540	1,360	3,000	3,930	1,470
9	1,470	1,410	1,770	1,560	2,730	993	1,370	1,410	1,340	3,840	3,560	1,470
10	1,410	1,390	1,660	1,570	3,480	1,260	1,440	1,400	1,440	3,800	3,120	1,460
11	1,380	1,450	1,520	1,440	3,960	1,200	1,420	1,630	1,470	3,270	2,860	1,420
12	1,380	1,570	1,520	1,600	2,770	1,530	1,410	2,250	1,760	2,920	2,190	1,420
13	1,430	1,620	1,530	1,690	3,320	1,590	1,490	4,230	1,990	2,270	2,340	1,360
14	1,480	1,620	1,590	1,490	3,120	1,980	1,330	4,040	1,940	1,410	2,280	1,360
15	1,480	1,520	1,660	1,400	2,600	1,520	1,270	2,740	1,560	1,370	2,150	1,370
16	1,500	1,540	1,570	1,430	2,150	1,780	1,270	2,780	1,240	1,240	1,930	1,300
17	1,440	1,620	1,390	1,230	1,870	1,620	1,320	2,410	1,580	1,420	1,960	1,260
18	1,440	1,640	1,340	1,260	2,220	2,300	1,230	2,530	2,190	1,720	1,990	1,160
19	1,390	1,600	1,420	1,520	3,450	2,120	1,280	2,480	2,100	3,340	1,810	1,140
20	1,550	1,530	1,250	1,680	3,680	1,930	1,300	2,100	1,730	28,700	1,680	1,040
21	1,570	1,500	972	1,850	4,080	1,900	1,510	2,010	1,460	11,100	1,560	1,120
22	1,570	1,400	992	1,820	3,020	1,730	1,350	1,650	754	7,480	1,630	1,130
23	1,650	1,510	865	1,760	2,740	1,650	1,370	2,110	444	6,260	1,600	1,160
24	1,620	1,460	935	1,530	2,410	1,960	1,320	2,080	786	4,460	1,540	1,160
25	1,570	1,920	1,180	1,380	2,370	2,380	1,500	2,310	1,080	3,200	1,520	986
26	1,620	2,250	1,220	1,320	2,300	1,670	1,530	2,550	1,520	2,940	1,620	1,110
27	1,490	1,980	1,250	1,420	2,190	1,610	1,540	2,750	1,470	2,700	1,560	1,210
28	1,580	2,020	1,400	1,340	2,530	1,840	1,470	2,980	1,500	2,510	1,520	1,250
29	1,570		1,430	1,590	2,690	2,020	1,420	2,680	1,380	2,550	1,460	1,240
30	1,480		1,540	1,760	1,920	1,530	1,510	2,680	1,280	2,350	1,580	1,180
31	1,480		1,640		2,030		1,540	2,330		2,270		1,240
Sum	44,720	43,700	47,334	46,040	77,800	55,593	43,860	70,180	46,794	120,780	71,910	40,426

Month	Current Year 1983								Period 1973-1983		
	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.			23	1,650	3	1,190	1,440	88,701	107,082	136,708	72,708
Feb.			26	2,250	3	1,290	1,560	86,678	109,771	172,088	73,688
Mar.			1	2,350	23	865	1,530	93,886	151,009	304,417	93,840
Apr.			21	1,850	17	1,230	1,530	91,319	171,106	354,458	86,703
May			21	4,080	5	1,180	2,510	154,314	194,301	260,890	103,515
June			6	3,270	9	993	1,850	110,267	184,168	418,612	103,948
July			7	1,860	1	1,170	1,410	86,995	211,132	689,085	86,995
Aug.			13	4,230	10	1,400	2,260	139,200	248,926	515,925	129,570
Sept.			1	2,610	23	444	1,560	92,815	399,500	2,091,428	92,815
Oct.			20	28,700	16	1,240	3,900	239,564	318,102	950,737	89,772
Nov.			6	6,280	29	1,460	2,400	142,631	153,755	454,512	67,616
Dec.			1	1,590	25	986	1,300	80,184	110,077	163,332	58,459
Yearly				28,700		444	1,940	1,406,554	2,358,929	4,328,998	1,406,554
	Meters		Cubic Meters per Second					Thousands of Cubic Meters			
				813		12.6	54.9	1,734,984	2,909,739	5,339,819	1,734,984

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 1983 showing the flows as closely 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 1971-1972 surveys; and d) rate of evaporation measured at the dam and 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 Rio Salado at Las Tortillas.

In site 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 1983 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,060	2,250	3,310	1,850	547	4,170	3,210	1,930	2,170	1,960	2,550	1,620
2	1,450	2,310	3,250	2,220	1,560	4,200	3,090	2,170	1,350	2,150	3,290	1,120
3	1,120	1,760	2,570	2,300	1,360	4,130	2,060	2,610	1,320	2,120	2,520	1,100
4	1,270	2,280	3,210	1,640	2,330	4,520	2,240	3,570	1,660	2,220	2,170	1,260
5	1,770	1,770	3,070	1,670	1,010	4,240	2,870	1,960	1,780	2,020	1,880	1,410
6	1,310	1,650	2,910	1,360	477	5,930	2,500	2,240	1,910	1,880	1,900	1,390
7	2,050	2,050	2,150	968	858	3,850	1,940	2,030	2,630	2,050	6,000	1,120
8	1,620	1,790	2,040	657	848	4,200	2,330	1,920	1,940	2,240	5,900	1,110
9	1,490	2,290	1,870	1,170	4,380	4,060	2,540	2,020	1,760	7,950	5,300	1,450
10	1,570	2,220	2,150	738	1,660	3,850	2,130	2,000	1,580	3,160	2,070	2,050
11	890	4,100	1,740	710	1,990	4,240	2,380	1,900	2,250	7,770	2,060	1,790
12	1,620	3,410	1,520	1,030	1,720	3,810	2,740	2,220	1,850	6,710	2,360	812
13	2,260	2,300	1,640	939	1,720	3,880	1,730	3,180	3,640	2,160	2,310	1,260
14	1,830	2,280	1,890	985	1,810	4,060	2,450	2,900	2,190	2,960	2,220	1,170
15	1,710	2,600	1,890	618	2,160	5,230	2,140	2,920	1,500	2,480	2,090	1,260
16	1,610	2,080	2,320	724	1,590	4,870	2,000	2,500	2,620	2,550	1,460	1,100
17	2,080	1,800	1,650	911	1,580	4,030	2,000	2,360	2,700	2,180	1,410	477
18	2,100	1,780	1,680	2,580	2,550	4,170	2,010	2,120	2,020	1,640	1,190	1,900
19	1,820	2,040	1,730	3,960	1,920	4,060	2,990	2,310	2,190	2,170	1,600	964
20	1,290	2,100	2,240	3,990	2,490	3,710	1,760	2,290	20,900	4,410	1,320	530
21	1,860	2,060	1,950	2,550	1,740	2,950	1,970	2,030	8,330	1,330	1,380	1,780
22	1,680	1,210	5,650	2,340	1,970	3,670	1,840	2,030	3,850	9,220	2,450	1,410
23	1,740	1,050	5,830	2,730	1,470	643	1,980	1,940	3,080	12,300	1,750	1,300
24	2,210	1,550	5,160	1,030	1,430	2,920	1,850	1,790	2,250	4,340	788	957
25	1,580	8,190	5,160	1,120	2,060	3,380	1,850	1,790	2,770	2,600	978	1,270
26	2,300	2,680	4,940	1,030	2,220	3,370	2,220	1,700	2,260	2,570	1,900	1,490
27	1,680	3,670	5,010	636	2,590	2,750	1,910	1,790	2,300	2,190	1,350	1,590
28	1,640	2,780	2,630	501	6,040	2,480	1,720	2,700	2,180	2,160	964	2,390
29	2,020		2,570	2,150	4,200	2,770	1,830	1,940	2,120	2,430	1,440	1,890
30	2,300		2,170	1,440	4,340	2,520	1,980	1,980	1,910	2,360	1,600	1,820
31	2,560		2,070		4,520		2,000	1,650		2,250		1,770
Sum	53,490	68,050	87,970	46,547	67,140	112,663	68,260	68,490	91,010	106,530	66,200	42,560

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 1983					Period 1968-1983		
Jan.			31	2,560	11	890	1,720	106,034	130,340	245,376	50,635
Feb.			25	8,190	23	1,050	2,430	135,033	159,155	453,053	54,934
Mar.			23	5,830	12	1,520	2,840	174,469	163,253	431,073	53,064
Apr.			20	3,990	28	501	1,550	92,320	166,700	571,717	49,911
May			28	6,040	6	477	2,160	133,170	308,843	768,748	101,854
June			6	5,930	23	643	3,740	223,458	303,145	770,709	46,609
July			1	3,210	28	1,720	2,200	135,432	306,444	1,056,340	33,481
Aug.			4	3,570	31	1,650	2,210	135,853	275,457	1,023,293	64,413
Sept.			20	20,900	3	1,320	3,030	180,542	410,180	1,442,682	137,408
Oct.			23	12,300	21	1,330	3,440	211,249	350,875	1,365,884	56,661
Nov.			7	6,000	24	788	2,210	131,251	175,666	538,929	40,660
Dec.			28	2,390	17	477	1,370	84,412	137,623	304,865	42,870
Yearly				20,900		477	2,410	1,743,223	2,887,681	6,234,950	1,280,067
	Meters			Cubic Meters per Second				Thousands of Cubic Meters			
				592		13.5	68.2	2,150,244	3,561,915	7,690,727	1,578,946

a Mean daily

CORRECTIONS TO PREVIOUS WATER BULLETINS

Water Bulletin and Page Number	Heading	Reference	Published As	Correction
52 - 12	Diversions from Rio Grande Acequia Madre at Cd. Juarez, Chihuahua	Period of Record, Column headed Average Aug.	9,394	8,394
44 - 30 45 - 28 46 - 29 47 - 29 48 - 29 49 - 29 50 - 29 51 - 29 52 - 29	Middle Fork San Pedro Creek near Del Rio, Texas	DESCRIPTION paragraph, last sentence	The zero of the gage is 1,132.02 feet (345.04 m) above mean sea level,	The zero of the gage is 1,137.02 feet (346.56 m) above mean sea level,
34 - 37 35 - 39 36 - 40 37 - 45 38 - 42 39 - 39 40 - 39 41 - 43 42 - 43 43 - 39 44 - 45 45 - 43 46 - 44 47 - 44 48 - 44 49 - 44 50 - 44 51 - 44 52 - 44	San Felipe Springs at Del Rio, Texas	DESCRIPTION paragraph, eighth line	2.9 creek miles (4.7 km) from the confluence	3.9 creek miles (6.3 km) from the confluence
46 - 46 47 - 46 48 - 46 49 - 46 50 - 46 51 - 46 52 - 46	Diversions from Rio Grande Maverick Canal at Mile 13 near Quemado, Texas	REMARKS paragraph, third line	were irrigated between canal mile 31.8 (51.2 km) and the power plant,	were irrigated between this station and the power plant,
50 - 78 51 - 78 52 - 78	Diversions from the Rio Grande, United States Side, Falcon Dam to Gulf of Mexico	EXTREME FLOWS FROM RECORDS Daily Min.	3.5 (0.10) on Oct. 31, 1976	2.8 (0.08) on Aug. 10, 1980
51 - 86 52 - 86	Stored Water in Large Reservoirs of Rio Grande Basin, International Amistad Reservoir	Reservoir Capacity in Acre-Feet Maximum Water Surface	5,535,000	5,464,000
		Reservoir Area in Acres Maximum Water Surface	88,978	88,127
		Type of Storage, Surcharge	407,000	336,000