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WATER BULLETIN NUMBER 30

Flow of the Rio Grande and Related Data

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

1960

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

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FOREWORD

This bulletin presents the thirtieth compilation of the stream discharges and related data concerning the international portion of the Rio Grande, prepared jointly by the United States and Mexican Sections of the International Boundary and Water Commission. The stream flow data and kindred subjects pertain to the Rio Grande and its important tributaries near their confluence with the main stream from Elephant Butte, New Mexico to the Gulf of Mexico. The first publication in the series was Water Bulletin No. 1 for the year 1931. The present volume contains the information for the year 1960.

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 1960, the United States Section of the Commission operated the stream-gaging stations on the Rio Grande at El Paso, American Dam, Island, County Line, Fort Quitman, Upper Presidio, Lower Presidio, Johnson Ranch, Langtry, Below Amistad Dam Site, San Antonio Crossing, Fort Ringgold, San Benito, and Lower Brownsville. The Mexican Section operated the stream-gaging stations on the main stream at Below Maverick Dam, at Eagle Pass, Palafox, Laredo, Below Anzalddas Dam, and Progreso. The station at Falcón Dam was operated jointly by the two sections. Each Section operated the gaging stations on tributary streams, floodways, and diversions within its own country.

The total drainage area within the outer rim of the Rio Grande Basin is 335,500 square miles. However, nearly half of this area yields no runoff to the river, the estimated productive area of the watershed being 182,215 square miles. Reservoirs in the basin have a total storage capacity of approximately 8,822,000 acre-feet, in addition to the International Falcón Reservoir, which has a conservation capacity of 2,400,000 acre-feet. In the Rio Grande Basin a rounded total of 2,310,000 acres is irrigated below Elephant Butte Dam on the Rio Grande and below Glavin on the Pecos River. The residual flow from the Rio Grande that escaped to the Gulf of Mexico prior to construction of Falcón Dam averaged 2,600,000 acre-feet per year for the period 1934-1952. For the period 1954-1960, the residual flow has averaged 525,500 acre-feet per year.

Acknowledgments

Other agencies which have contributed to some part of the data published herein include: The Agricultural Research Service, the Soil Conservation Service of the U. S. Department of Agriculture; the Bureau of Reclamation and the Geological Survey of the U. S. Department of the Interior; the Weather Bureau of the U. S. Department of Commerce; the Texas Board of Health; Texas Board of Water Engineers; the Colorado State Engineer; the New Mexico State Engineer; the Red Bluff Water Power Control District; the Willacy County Water Control and Improvement District No. 1; the El Paso Department of Water and Sewerage; the Maverick County Water Control and Improvement District No. 1; the Laredo City Water Department; the Special Water Master of the 93rd District Court of Texas; the Ministry of Hydraulic Resources of Mexico; the Meteorological Service of Mexico; National Finance, S. A. of Mexico; the Federal Board of Public Improvement Works of Nuevo Laredo, Tamaulipas and the Water and Drainage Board of Matamoros, Tamaulipas.

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

Period Averages

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

Beginning with this issue for 1960, these periods have been revised to include only the years following completion of major projects below which the flow of the Rio Grande or a major tributary was modified, or later when records became available. The revised periods are based on the completion of Caballo Dam in 1938; the completion in 1947 of irrigation projects on the Río Conchos and its tributaries; and the construction of International Falcón Dam which was completed in 1953.

For purposes of comparison with the average flows passing below Caballo Dam Station records of average discharge Below Elephant Butte Dam Station 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 Falcón Dam published herein began with 1957, the first complete year of record after United States waters in Falcón Reservoir were placed under the jurisdiction of the 93rd District Court of Texas.

Units of Measure

Data collected by the Mexican Section are initially computed in metric units but are reported in this Bulletin in English units. The monthly volumes in cubic meters reported by the Mexican Section are converted to acre-feet by multiplying thousands of cubic meters by 0.81071 and rounding the result.

GENERAL HYDROLOGIC CONDITIONS FOR 1960

Along and Adjacent to the International Portion of the Rio Grande

During the year 1960, temperatures were 99% of normal on the watershed of the Rio Grande below El Paso, Texas. Evaporation averaged 93% of normal. Precipitation was 102% of normal from El Paso to Amistad Dam Site, 104% of normal from Amistad Dam Site to Falcón Dam, 125% of normal from Falcón Dam to Rio Grande City, and 117% of normal in the Lower Rio Grande Valley on the United States side.

The yearly volume of flow of the Rio Grande was below normal from El Paso, Texas to Upper Presidio Stations, ranging from 23% of normal at County Line and Upper Presidio Stations to 87% of normal at El Paso Station; above normal from Lower Presidio to Langtry Stations, ranging from 133% of normal at Langtry Station to 151% of normal at Lower Presidio Station; and below normal from Below Amistad Dam Site Station to Falcón Dam, ranging from 89% of normal at San Antonio Crossing Station to 99% of normal at Laredo Station. All flows passing Rio Grande gaging stations below Falcón Dam were partly regulated by releases from Falcón Reservoir. Such releases in 1960 were 81% of the average for the years of operations, 1954 through 1960. The volume of flow wasted to the Gulf of Mexico was 68% of the seven-year average.

The total annual flow of all measured tributaries below Fort Quitman was 79% of normal. The total flow of these tributaries in the United States was 731,800 acre-feet or 73% of normal. For Mexico, the measured tributary flow, excluding Río Alamo and Río San Juan, was 1,059,200 acre-feet or 95% of normal.

Return flow to the Rio Grande at Maverick Power Plant near Eagle Pass was 667,200 acre-feet or 120% of the 12 year average. Return flow to the Rio Grande through various drains, in the Maverick County irrigation district amounted to 199,270 acre-feet, excluding storm inflow. The return flow of 101,076 acre-feet at Poniente Drain during the first six months in 1960 consisted largely of Rio Grande water by-passed to facilitate construction of Anzalddas Dam.

No floods of consequence occurred on the Rio Grande in 1960. On October 16, a peak flow of 70,200 second-feet at San Antonio Crossing Station was the highest recorded in 1960. No flood damage occurred. On October 23 and 24 unusually heavy rains fell on the watershed of Los Olmos Creek near Rio Grande City, Texas resulting in the creek overflowing its banks and causing serious flooding and damage to approximately three hundred homes and business establishments in the northeast section of Rio Grande City. There was no loss of lives.

For all reservoirs in the Rio Grande basin having capacity greater than 15,000 acre-feet, excepting Falcón International Reservoir, the average amount of water in storage in 1960 was 4,531,800 acre-feet or 120% of the normal 3,761,200 acre-feet. In the United States, stored water in these reservoirs average 68% of normal while in Mexico the average was 149% of normal. There was a decrease in storage of 47,200 acre-feet in International Falcón Reservoir. Storage varied from a high of 2,603,100 acre-feet on January 1 to a low of 1,472,300 acre-feet on July 10 and averaged 2,136,100 acre-feet during the year or 130% of the average for the seven years of operations, 1954 through 1960.

Diversions from the Rio Grande in the United States were, on the average, 112% of normal. Diversions into the American Canal were 99% of normal; into Maverick Canal 113% of normal; and in the United States below Falcón Dam 115% of the four-year average. In Mexico, diversions averaged 113% of normal. Diversions into the Acequia Madre were 120% of normal while diversions through the Anzalddas Canal for irrigation in Mexico were 114% of the seven-year average.

In 1960, the total reported irrigated acreage from the Rio Grande and its tributaries below El Paso, Texas showed an increase of 7% from the previous year. However, this increase was due to approximately 135,000 acres, irrigated from tributaries to the Río Conchos below Boquilla Dam which had not previously been reported. Other than this, there was practically no change in the United States or Mexico.

The 1960 investigation of the quality of Rio Grande water extended from El Paso to Lower Brownsville. The annual tonnage of salts carried by the river above Falcón Dam was 74% of the 1935-1960 normal. The volume of suspended silt transported by the Rio Grande in 1960 was 91% of average for sampling stations above Falcón Dam; and 44% of average for sampling stations below Falcón Dam, ranging from 29% of average at Lower Brownsville to 69% of average for Falcón Reservoir releases.

RIO GRANDE BELOW ELEPHANT BUTTE DAM, NEW MEXICO

DESCRIPTION: Water-stage recorder, 3, 800 feet below Elephant Butte Dam, and cable with sit-down cable car and winch 100 feet below the recorder. Elephant Butte Dam is 135.1 river miles above the American Dam at El Paso, Texas. The zero of the gage is 4,242.09 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 32 current meter measurements during the year and a continuous record of gage heights. Records, marked "Subject to Revision", were furnished by the United States Geological Survey. Records available: January 1915 through December 1960.

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

EXTREME FLOWS FROM RECORDS:

Average Flow in Second-Feet

Daily:	Max. 8, 220	May 22, 1942	Min. 0	Occasionally
Monthly:	Max. 7, 600	May 1942	Min. 2. 7	Sept. 1954
Yearly:	Max. 2, 510	1942	Min. 293	1955

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	8. 8	695	1, 660	1, 710	1, 720	1, 790	1, 720	810	1, 300	74. 0	129	5. 6
2	8. 2	691	1, 690	1, 720	1, 710	1, 780	1, 740	800	1, 310	84. 0	127	5. 6
3	7. 7	691	1, 690	1, 720	1, 720	1, 780	1, 730	797	1, 320	64. 0	50. 0	6. 1
4	279	699	1, 690	1, 710	1, 730	1, 790	1, 740	799	1, 320	5. 6	6. 6	6. 6
5	569	695	1, 690	1, 730	1, 730	1, 800	1, 750	798	1, 280	5. 2	6. 1	7. 7
6	584	691	1, 690	1, 700	1, 730	1, 800	1, 760	839	732	4. 7	6. 1	10. 0
7	637	691	1, 690	1, 730	1, 740	1, 700	1, 740	774	152	5. 2	6. 1	6. 6
8	628	695	1, 690	1, 710	1, 760	1, 770	1, 820	720	114	5. 2	6. 1	7. 1
9	629	695	1, 690	1, 720	1, 710	1, 790	1, 720	779	278	5. 2	6. 6	7. 1
10	633	695	1, 720	1, 730	1, 760	1, 820	1, 660	760	943	5. 6	5. 2	7. 1
11	632	687	1, 580	1, 730	1, 760	1, 770	1, 730	760	924	4. 7	3. 9	7. 0
12	681	687	1, 810	1, 740	1, 760	1, 760	1, 240	757	924	3. 1	3. 5	6. 0
13	681	687	1, 680	1, 730	1, 760	1, 760	1, 250	736	924	3. 1	3. 5	6. 0
14	677	691	1, 670	1, 730	1, 760	1, 760	1, 230	732	928	3. 1	3. 9	6. 0
15	679	683	1, 680	1, 740	1, 760	1, 770	1, 240	748	373	3. 9	3. 1	6. 0
16	686	683	1, 670	1, 740	1, 740	1, 780	1, 220	742	18. 0	3. 9	3. 1	6. 0
17	679	695	1, 670	1, 740	1, 770	1, 760	1, 220	750	14. 0	14. 0	2. 8	5. 5
18	677	691	1, 670	1, 730	1, 740	1, 780	1, 220	736	14. 0	7. 7	3. 1	5. 5
19	670	719	1, 670	1, 720	1, 750	1, 790	1, 240	736	14. 0	4. 3	3. 5	5. 6
20	688	691	1, 680	1, 720	1, 750	1, 790	1, 240	733	19. 0	3. 9	3. 5	5. 5
21	682	683	1, 700	1, 730	1, 740	1, 790	1, 260	739	11. 0	4. 7	3. 5	5. 5
22	672	687	1, 690	1, 740	1, 740	1, 830	1, 270	1, 180	9. 4	4. 7	3. 1	5. 6
23	670	675	1, 690	1, 730	1, 730	1, 820	1, 270	1, 540	9. 4	3. 9	3. 5	5. 6
24	675	683	1, 680	1, 740	1, 740	1, 810	1, 270	1, 540	18. 0	3. 9	3. 5	5. 6
25	681	683	1, 680	1, 730	1, 730	1, 800	1, 260	1, 560	7. 7	5. 2	3. 1	5. 6
26	677	671	1, 680	1, 710	1, 750	1, 820	860	1, 550	7. 7	4. 7	3. 5	5. 6
27	682	671	1, 690	1, 730	1, 750	1, 800	797	1, 570	8. 2	6. 1	4. 3	5. 6
28	680	675	1, 710	1, 710	1, 760	1, 780	796	1, 570	8. 8	5. 2	3. 9	5. 2
29	623	687	1, 680	1, 730	1, 760	1, 780	799	1, 570	10. 0	5. 6	3. 9	5. 6
30	686		1, 710	1, 720	1, 760	1, 720	800	1, 580	11. 0	5. 2	4. 3	5. 6
31	690		1, 720	1, 730	1, 730		806	1, 270		68. 0		5. 6
Sum	18, 151. 7	19, 967	52, 310	51, 770	54, 050	53, 490	41, 398	30, 975	13, 002. 2	427. 6	419. 3	189. 7
Current Year 1960												
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.			31	690	3	7. 7	586	36, 000	40, 347	86, 500	294	
Feb.			19	719	† 26	671	689	39, 600	42, 118	83, 600	188	
Mar.			12	1, 810	11	1, 580	1, 690	104, 000	62, 797	119, 000	1, 520	
Apr.			† 12	1, 740	6	1, 700	1, 730	103, 000	77, 100	162, 000	24, 000	
May			17	1, 770	† 2	1, 710	1, 740	107, 000	81, 157	467, 000	512	
June			22	1, 830	7	1, 700	1, 780	106, 000	94, 204	363, 000	34, 900	
July			8	1, 820	28	796	1, 340	82, 100	93, 352	211, 000	42, 200	
Aug.			30	1, 580	8	720	999	61, 400	77, 453	134, 000	9, 530	
Sept.			† 3	1, 320	† 25	7. 7	433	25, 800	44, 372	129, 000	163	
Oct.			2	84. 0	† 12	3. 1	848	29, 066	72, 100		241	
Nov.			1	129	17	2. 8	832	28, 769	158, 000		196	
Dec.			6	10. 0	28	5. 2	6. 1	376	30, 095	87, 300	179	
Yearly				1, 830		2. 8	919	666, 956	700, 830	1, 818, 800	212, 333	

† And other days Ø Mean daily

RIO GRANDE BELOW CABALLO DAM, NEW MEXICO

DESCRIPTION: Water-stage recorder and cable with sit-down cable car equipped for winch and heavy weights, located .8 river mile below Caballo Dam, and 106.8 river miles above the American Dam at El Paso, Texas. The zero of the gage is 4,140.90 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 140 meter 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: January 1938 through December 1960.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station. In addition to the outflow from Caballo Dam listed below, 1,166 acre-feet of water were diverted in 1960 into Bonita Lateral, a small irrigation canal just below Caballo Dam. Prior to 1938, discharge records were kept at Percha Dam, a low diversion dam about 1.5 miles downstream from this station. Small accretions to the river take place between this station and Percha Dam.

EXTREME FLOWS FROM RECORDS:

Average Flow in Second-Feet

Daily:	Max.	7,650	May 20, 1942	Min.	.1	Oct. 31-Nov. 14, 1954; Nov. 7-Dec. 31, 1955.
Monthly:	Max.	6,710	May 1942	Min.	.1	Nov. & Dec. 1955
Yearly:	Max.	2,480	1942	Min.	303	1955

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1.2	1.1	1.2	2,090	746	1,460	2,670	2,880	1,910	2.0	1.5	1.6
2	1.2	1.1	486	1,850	841	1,420	2,750	2,540	1,940	2.0	1.5	1.6
3	1.2	1.1	971	1,850	973	1,410	2,650	2,230	2,000	1.9	1.5	1.6
4	1.2	1.2	1,020	1,780	1,080	1,440	2,540	2,250	1,990	1.8	1.5	1.6
5	1.2	1.2	1,200	1,550	1,110	1,440	2,230	2,360	1,960	1.8	1.5	1.5
6	1.2	1.2	1,690	1,340	1,110	1,450	1,770	2,410	2,120	1.8	1.5	1.5
7	1.2	1.2	1,840	1,340	1,140	1,540	1,070	2,400	2,270	1.8	1.5	1.5
8	1.2	1.2	2,020	1,230	1,140	1,640	633	2,240	2,280	1.8	1.5	1.5
9	1.2	1.2	2,200	1,160	1,130	1,600	493	2,120	2,260	1.8	1.5	1.5
10	1.2	1.2	2,260	1,170	1,270	1,630	493	1,870	2,280	1.8	1.5	1.5
11	1.2	1.2	2,260	1,180	1,440	1,370	493	1,720	2,010	1.8	1.5	1.5
12	1.2	1.2	2,290	1,100	1,440	1,300	948	1,600	1,440	1.8	1.5	1.5
13	1.2	1.2	2,430	1,010	1,680	1,390	1,340	1,510	936	1.7	1.5	1.5
14	1.2	1.3	2,420	988	1,690	1,430	1,200	1,430	807	1.7	1.5	1.5
15	1.2	1.3	2,460	984	1,690	1,660	1,040	1,320	738	1.8	1.5	1.5
16	1.2	1.3	2,580	1,020	1,820	1,760	979	1,520	* 157	1.8	1.5	1.4
17	1.3	1.2	2,580	1,020	1,640	1,970	971	1,830	16.0	1.9	1.5	1.4
18	1.3	1.2	2,630	1,020	1,560	2,260	1,000	1,930	14.0	1.9	1.5	1.4
19	1.3	1.2	2,680	1,010	1,480	2,340	1,460	2,190	12.0	1.8	1.6	1.4
20	1.3	1.2	2,680	1,050	1,330	2,340	1,880	2,360	* 10.0	1.7	1.6	1.4
21	1.2	1.2	2,680	1,170	1,220	2,540	1,890	2,340	8.3	1.7	1.6	1.4
22	1.2	1.2	2,900	1,260	1,200	2,720	2,040	2,340	6.4	1.7	1.6	1.4
23	1.2	1.2	3,130	1,310	1,200	2,630	2,430	2,200	4.5	1.7	1.6	1.3
24	1.2	1.2	3,010	1,320	1,280	2,600	2,750	2,110	2.6	1.7	1.6	1.3
25	1.2	1.2	2,710	1,310	1,380	2,590	2,850	2,180	2.6	1.7	1.6	1.3
26	1.2	1.2	2,580	1,120	1,440	2,570	2,870	2,240	2.5	1.7	1.6	1.2
27	1.3	1.2	2,650	985	1,520	2,580	2,860	2,290	2.4	1.6	1.6	1.2
28	1.3	1.2	2,740	888	1,590	2,460	2,960	2,230	2.3	1.6	1.6	1.2
29	1.3	1.2	2,500	764	1,610	2,320	2,990	2,130	2.2	1.6	1.6	1.2
30	1.3		2,280	748	1,540	2,450	3,000	1,930	2.1	1.6	1.6	1.2
31	1.3		2,280		1,480		3,010	1,900		1.6		1.2
Sum	38.1	34.8	68,158.2	36,617	42,170	58,310	58,260	64,600	27,185.9	54.6	46.2	43.8
Current Year 1960									Period 1938-1960			
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Low	Day			Average	Maximum	Minimum	
Jan.			† 17	1.3	† 1	1.2	1.2	75.6	717	4,850	19.2	
Feb.			† 14	1.3	† 1	1.1	1.2	69.0	10,765	64,300	13.0	
Mar.			23	3,130	1	1.2	2,200	135,000	77,357	135,000	24,900	
Apr.			1	2,090	30	748	1,220	72,600	95,909	212,000	29,300	
May			† 14	1,890	1	746	1,360	83,600	88,675	412,000	75.2	
June			22	2,720	12	1,300	1,940	116,000	113,091	354,000	37,000	
July			31	3,010	† 9	493	1,880	116,000	118,643	234,000	28,200	
Aug.			1	2,880	15	1,320	2,080	128,000	113,870	179,000	20,500	
Sept.			† 8	2,280	30	2.1	906	53,900	57,297	181,000	7,730	
Oct.			† 1	2.0	† 27	1.6	1.8	108	7,230	35,400	15.5	
Nov.			† 19	1.6	† 1	1.5	1.5	91.6	3,857	14,400	7.0	
Dec.			† 1	1.6	† 26	1.2	1.4	86.9	4,002	19,100	6.0	
Yearly				3,130		1.1	972	705,531.1	691,413	1,795,670	219,127	

* Partly estimated † And other days ‡ Mean daily

RIO GRANDE AT EL PASO, TEXAS

DESCRIPTION: Water-stage recorder located on the downstream side of the Courchesne Bridge, 5.6 miles upstream from the Santa Fe Street-Juárez Avenue Bridge between El Paso, Texas and Cd. Juárez, Chihuahua and 1.7 miles above the American Dam. Measurements are made from the Courchesne Bridge. The zero of the gage is 3,722.30 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Mean daily discharges in 1960 were computed by taking the sum of the flows in the American Canal and the flows at the river station below American Dam. Extreme discharges are those passing the El Paso Station. Records available: 1889 through December 1960.

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

EXTREME FLOWS FROM RECORDS: Momentary: Max. 24,000 second-feet on June 12, 1905, with a gage height of 6.0 feet at the lower gage. Min. occasionally no flow. Since Elephant Butte Dam was closed in 1915, the largest peak flow to pass this station was 13,500 second-feet on September 3, 1925.

Average Flow in Second-Feet

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

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	106	88.7	57.6	834	598	870	882	1,480	830	241	138	115
2	99.4	84.0	62.5	834	565	800	980	1,320	808	239	135	117
3	93.9	76.6	65.7	757	567	757	1,230	1,230	832	237	132	124
4	99.5	73.3	69.8	762	530	716	1,210	1,050	883	236	133	125
5	101	70.5	106	769	511	708	1,190	895	854	223	128	119
6	91.5	72.9	498	740	504	710	1,360	948	871	213	125	119
7	91.1	69.5	675	724	525	725	1,260	1,070	885	210	130	118
8	88.4	69.2	719	642	584	804	1,130	1,170	910	206	141	120
9	85.3	70.7	758	637	614	763	1,010	1,110	1,020	194	127	138
10	87.4	71.7	951	592	597	769	901	1,120	1,080	180	123	128
11	113	71.6	1,100	596	631	809	1,010	1,160	1,180	171	127	120
12	108	65.1	1,090	615	625	1,010	735	1,090	1,040	168	130	119
13	99.2	63.6	1,190	677	711	881	593	1,040	842	173	129	128
14	95.7	66.0	1,210	663	741	659	609	1,070	537	168	123	134
15	93.3	64.5	1,110	556	820	674	1,030	916	565	168	122	129
16	97.8	64.6	1,030	570	916	599	904	838	606	158	122	128
17	96.3	64.5	1,140	628	914	646	820	721	591	186	121	125
18	85.8	62.4	1,070	562	887	756	716	715	587	176	122	130
19	91.4	61.8	1,090	584	823	830	610	722	413	171	122	128
20	81.9	62.4	1,090	540	786	981	536	823	368	161	116	128
21	79.6	60.9	1,020	516	741	1,060	554	945	335	162	117	130
22	83.9	60.5	1,030	516	716	1,210	762	1,000	311	158	120	131
23	85.5	58.9	1,070	558	622	1,300	766	975	319	158	116	99.0
24	88.0	62.5	1,260	652	640	1,160	833	894	287	158	124	97.9
25	89.5	59.0	1,120	682	630	1,070	1,040	888	264	153	125	97.9
26	98.3	60.4	884	709	614	1,080	1,300	934	255	153	124	95.4
27	99.5	58.2	708	711	604	1,020	1,300	952	251	152	120	95.4
28	92.3	57.3	745	676	653	1,090	1,260	1,060	250	149	113	97.7
29	85.8	56.3	1,000	589	723	1,140	1,280	1,060	240	147	113	95.0
30	87.9		936	601	760	1,010	1,390	1,050	243	137	114	102
31	85.8		710		810		1,480	916		137		105
Sum	2,882.0	1,927.6	25,565.6	19,492	20,962	26,607	30,681	31,162	18,457	5,543	3,732	3,638.3

Current Year 1960								Period 1938-1960			
Month	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Low			Average	Maximum	Minimum	
Jan.	2.89	2.74	11	133	18	73.3	93.0	5,720	7,544	15,100	220
Feb.	2.77	2.58	1	94.3	29	49.2	66.5	3,820	10,026	52,200	136
Mar.	5.67	2.60	24	1,360	1	50.2	825	50,700	32,987	62,500	1,790
Apr.	4.97	4.17	2	1,010	22	491	650	38,700	50,279	139,000	6,820
May	5.24	4.16	15	952	4	497	676	41,600	57,395	357,000	542
June	5.88	4.37	23	1,370	16	580	887	52,800	61,720	304,000	6,020
July	5.99	3.85	31	1,510	13	470	990	60,900	65,844	198,000	9,920
Aug.	5.85	4.40	1	1,510	19	676	1,010	61,800	64,690	158,000	4,870
Sept.	5.65	3.19	11	1,260	30	229	615	36,600	47,510	171,000	2,430
Oct.	3.22	2.92	1	250	31	130	179	11,000	17,962	57,900	151
Nov.	2.97	2.83	8	155	29	110	124	7,400	10,541	21,300	229
Dec.	2.90	2.74	9	143	29	90.3	117	7,220	10,162	25,600	206
Yearly	5.99	2.58		1,510		49.2	521	378,260	436,660	1,559,200	57,481

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

DESCRIPTION: An open channel rating station in a concrete-lined canal with a water-stage recorder located 2,350 feet below the headgates at the American Dam near El Paso, Texas. Measurements are made at the downstream end of the first covered section of this Canal, 835 feet below the recorder. The zero of the gage is 3,712.09 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 23 meter measurements during the year, a stable rating curve at medium and high flows, and a continuous record of gage heights. After May 7, 1954 computations for flows below gage height 2.80 feet (discharge approximately 30 second-feet) are based on auxiliary recorder 400 feet below headgates. Records available: June 2, 1938 through December 1960.

REMARKS: This canal diverts water from the Rio Grande at the American Dam near El Paso, Texas, 2.1 river miles above the International Dam near Juárez, Chihuahua. Water from this canal discharges into the Franklin Canal from which water is frequently returned to the Rio Grande at spillways 2.2, 2.7 and 3.6 river miles below the American Dam.

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

Average Flow in Second-Feet

Daily:	Max. 1,510	Aug. 13, 1945	Min. 0	
Monthly:	Max. 1,210	Aug. 1943	Min. 0	Frequently since 1952
Yearly:	Max. 748	1943	Min. 65.3	1956

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	106	39.5	52.6	708	418	672	694	709	650	240	138	115
2	99.2	67.2	53.4	685	366	607	792	403	619	238	135	117
3	93.7	66.2	59.0	620	362	565	1,050	889	647	236	132	124
4	99.3	68.5	64.8	624	326	524	1,030	842	708	235	133	125
5	101	65.8	101	625	313	520	1,010	690	683	222	128	119
6	91.3	68.0	492	594	310	522	1,170	777	690	212	125	119
7	90.9	65.2	483	576	332	531	1,070	879	701	210	130	118
8	88.2	65.8	451	491	392	613	938	974	724	205	141	120
9	85.1	68.6	750	488	426	573	668	913	837	194	127	138
10	87.2	71.1	943	443	407	583	516	921	905	131	123	128
11	113	71.1	1,090	443	436	625	823	954	1,000	94.4	127	120
12	108	64.6	1,080	465	431	770	542	892	866	163	130	119
13	99.0	63.1	1,180	528	512	701	396	840	674	173	129	128
14	95.5	65.5	1,200	509	545	474	405	866	364	168	123	134
15	93.1	64.0	1,100	406	626	486	840	720	392	168	122	129
16	97.6	64.1	1,020	428	722	411	708	649	601	158	122	128
17	96.1	64.0	1,130	488	720	457	630	520	588	186	121	125
18	85.6	58.7	1,060	423	699	571	527	505	584	176	122	130
19	91.2	55.0	1,090	443	628	645	419	522	411	171	122	128
20	81.7	56.2	1,090	400	592	792	348	621	367	161	116	128
21	79.4	55.4	1,010	378	553	861	366	746	334	162	117	130
22	83.7	55.4	1,020	368	524	1,020	571	810	310	158	120	131
23	85.3	53.8	1,060	416	431	1,110	575	784	318	158	116	39.0
24	87.8	56.7	1,020	506	445	980	642	697	286	158	124	0
25	89.3	54.2	884	533	433	889	848	692	263	153	125	0
26	65.7	55.6	868	557	428	905	1,100	734	254	153	124	0
27	0	53.9	697	559	414	835	1,100	755	250	152	120	0
28	0	53.0	736	524	459	908	1,060	858	249	149	113	0
29	0	52.0	991	447	529	954	1,080	861	239	147	113	0
30	0		926	465	571	830	1,200	850	242	137	114	0
31	0		702		619		1,290	718		137		0
Sum	1,762.2		15,140		20,934		23,591		5,405.4		2,792.0	
	2,393.9		24,403.8		14,969		24,408		15,756		3,732	

Current Year 1960								Period 1939-1960			
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total	Acre-Feet		
	High	Low	Day	High	Low	Day	Acre-Feet	Acre-Feet	Average	Maximum	Minimum
Jan.	4.30		11	133	↑ 26	0	77.2	4,750	1,511	8,110	0
Feb.	3.90		11	79.9	1	0	60.8	3,500	6,266	19,500	0
Mar.	9.98	3.46	24	1,360	2	37.5	787	48,400	29,886	50,100	1,700
Apr.	8.09	5.75	1	807	22	338	505	30,000	39,724	70,900	4,560
May	8.08	5.44	16	797	4	294	483	29,700	33,518	69,000	517
June	9.47	6.08	23	1,190	17	389	698	41,500	40,834	65,700	5,990
July	9.87	5.00	31	1,320	10	238	787	48,400	47,857	70,700	8,950
Aug.	9.57	5.45	1	1,220	2	296	761	46,800	47,994	74,600	4,840
Sept.	9.10	4.93	11	1,080	30	228	525	31,300	32,555	63,100	2,230
Oct.	5.09		1	249	↑ 10	0	174	10,700	14,701	39,000	0
Nov.	4.39	3.95	8	155	29	110	124	7,400	8,495	21,000	0
Dec.	4.28		9	143	↑ 23	0	90.1	5,540	8,644	25,500	0
Yearly	9.98			1,360		0	424	307,990	311,985	541,610	47,397.4

† And other days

RIO GRANDE BELOW AMERICAN DAM

DESCRIPTION: Water-stage recorder and cable with sit-down cable car equipped for winch and heavy weights, located 3,200 feet below the American Dam and 1.5 miles above the International Dam, west of El Paso, Texas. The American Dam is 1,248.2 river miles above the Gulf of Mexico. The zero of the gage is 3,712.30 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 61 meter measurements and frequent estimates by hydrographer at extreme low flows during the year and a continuous record of gage heights. Computations by shifting channel methods. Records available: June 1938 through December 1960.

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

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

Average Flow in Second-Feet

Daily:	Max.	6,040	May 20, 1942	Min.	0	Several days 1956 & 1959
Monthly:	Max.	4,880	May 1942	Min.	.2	Nov. 1958, Dec. 1959 & Nov. 1960
Yearly:	Max.	1,510	1942	Min.	13.8	1956

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	.2	49.2	5.0	126	180	198	188	769	180	1.1	.2	.2
2	.2	* 16.8	9.1	149	199	193	188	916	189	1.1	.2	.2
3	.2	* 10.4	6.7	137	205	192	182	340	185	1.1	.2	.2
4	.2	4.8	5.0	138	204	192	182	205	175	1.3	.2	.2
5	.2	4.7	4.7	144	198	188	184	205	171	1.1	.2	.2
6	.2	4.9	6.4	146	194	188	187	171	181	.6	.2	.2
7	.2	4.3	192	148	193	194	187	187	184	.4	.2	.3
8	.2	3.4	268	151	192	191	194	196	186	.4	.2	.3
9	.2	2.1	7.8	149	188	190	340	199	186	.4	.2	.4
10	.2	.6	8.4	149	190	186	385	204	179	48.7	.2	.3
11	.2	.5	9.0	153	195	184	190	201	179	76.6	.2	.2
12	.2	.5	7.3	150	194	244	193	194	172	5.0	.2	.2
13	.2	.5	7.3	149	199	180	197	204	168	.4	.2	.3
14	.2	.5	5.8	154	196	185	204	208	173	.3	.2	.2
15	.2	.5	6.1	150	194	188	187	196	173	.3	.2	.2
16	.2	.5	6.1	142	194	188	196	189	5.2	.3	.2	.2
17	.2	.5	5.8	140	194	189	190	201	3.4	.4	.2	.2
18	.2	3.7	5.4	139	188	185	189	210	2.7	.3	.2	.2
19	.2	6.8	5.0	141	195	185	191	200	2.0	.2	.2	.2
20	.2	6.2	5.0	140	194	189	188	202	1.5	.2	.2	.2
21	.2	5.5	7.3	138	188	194	188	199	1.4	.2	.2	.2
22	.2	5.1	5.8	148	192	191	191	191	1.3	.2	.2	.2
23	.2	5.1	5.4	142	191	185	191	191	1.1	.2	.2	60.0
24	.2	5.8	242	146	195	179	191	197	1.0	.2	.2	97.9
25	.2	4.8	233	149	185	179	194	196	1.0	.2	.2	97.9
26	32.6	4.8	15.6	152	186	178	199	200	1.2	.2	.2	95.4
27	99.5	4.3	10.9	152	190	180	198	197	1.2	.2	.2	95.4
28	92.3	4.3	9.2	152	194	182	196	201	1.2	.2	.2	97.7
29	85.8	4.3	13.9	142	194	182	199	194	1.2	.2	.2	95.0
30	87.9		10.0	136	189	176	194	202	1.2	.2	.2	102
31	85.8		7.9	191	191		188	198		.2		105
Sum	488.9	165.4	1,136.9	4,352	5,981	5,655	6,271	7,563	2,707.6	142.4	6.0	851.3
Current Year 1960									Period 1939-1960			
Month	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet				
	High	Low	Day	High	Low			Average	Maximum	Minimum		
Jan.	4.27		26	112	† 1	15.8	970	5,889	12,000	220		
Feb.	4.15	3.20	1	82.8	† 11	5.7	328	3,439	32,800	31.3		
Mar.	6.17	3.23	8	* 4,570	7	36.7	2,260	2,602	17,500	81.9		
Apr.	4.28	3.25	1	180	1	145	8,630	9,832	74,500	2,230		
May	4.68	4.20	16	245	1	193	11,900	23,244	300,000	25.2		
June	5.15	4.36	12	374	12	188	11,200	20,115	250,000	35.5		
July	5.81	4.51	10	528	10	202	12,400	17,417	155,000	967		
Aug.	6.30	4.50	1	1,270	3	244	15,000	16,482	114,000	37.5		
Sept.	4.85	3.54	4	248	25	90.3	5,370	14,362	124,000	198		
Oct.	4.68	3.40	10	176	† 18	4.6	282	2,835	19,000	18.0		
Nov.	3.43	3.41	† 1	.2	† 1	.2	11.9	1,766	8,700	11.9		
Dec.	4.47	3.42	30	110	† 1	27.5	1,690	1,274	7,760	13.1		
Yearly	6.30			* 4,570		96.5	70,041.9	119,257	1,093,553	10,001.1		

* Partly estimated † And other days ‡ Mean daily

DIVERSIONS FROM THE RIO GRANDE ACEQUIA MADRE NEAR JUAREZ, CHIHUAHUA

DESCRIPTION: Water-stage recorder and bridge for meter measurements located about 260 feet below the canal intake at the International Dam at Juárez, Chihuahua, which is 2.1 river miles below the American Dam at El Paso, Texas.

RECORDS: Based on 112 meter measurements during the year, 64 by the Mexican and 48 by the United States Section of this Commission, and a continuous record of gage heights. Computations by shifting channel methods. Records available: 1938 through December 1960. These records, showing the water actually diverted by Mexico, do not necessarily reflect the quantities of water made available to Mexico in the bed of the river by the United States under terms of the Convention of 1906. Such quantities of water are included in the record of "Rio Grande below American Dam," see page 9 in this Water Bulletin.

REMARKS: In 1960, all of the 60,320 acre-feet tabulated below were distributed to land irrigated in the first unit under the canal.

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

Average Flow in Second-Feet

Daily:	Max. 339	May 10, 1942	Min. 0	Several months each year
Monthly:	Max. 283	May 1938	Min. 0	Several months each year
Yearly:	Max. 116	1942	Min. 10.8	1956

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	0	93.6	149	187	186	197	173	0	0	0
2	0	0	0	132	187	185	185	219	177	0	0	0
3	0	0	0	133	191	188	183	189	177	0	0	0
4	0	0	0	135	191	191	184	217	176	0	0	0
5	0	0	0	137	191	186	188	207	172	0	0	0
6	0	0	0	136	194	184	192	212	178	0	0	0
7	0	0	0	136	195	187	190	198	181	0	0	0
8	0	0	0	142	199	187	192	209	182	0	0	0
9	0	0	0	138	193	187	191	203	185	0	0	0
10	0	0	0	137	185	185	191	208	187	0	0	0
11	0	0	0	139	186	185	191	206	187	0	0	0
12	0	0	0	136	186	192	186	200	186	0	0	0
13	0	0	0	137	191	183	183	210	182	0	0	0
14	0	0	0	137	198	183	189	216	182	0	0	0
15	0	0	0	136	191	186	183	206	179	0	0	0
16	0	0	0	135	189	190	188	203	92.2	0	0	0
17	0	0	0	134	187	192	191	202	0	0	0	0
18	0	0	0	132	178	186	189	206	0	0	0	0
19	0	0	0	137	184	184	184	203	0	0	0	0
20	0	0	0	134	185	190	184	201	0	0	0	0
21	0	0	0	136	179	189	182	204	0	0	0	0
22	0	0	0	137	179	189	183	204	0	0	0	0
23	0	0	0	143	180	186	183	201	0	0	0	0
24	0	0	0	143	183	183	182	201	0	0	0	0
25	0	0	0	145	182	182	185	202	0	0	0	0
26	0	0	0	143	178	183	203	199	0	0	0	0
27	0	0	0	145	181	183	196	204	0	0	0	0
28	0	0	0	143	178	184	195	208	0	0	0	0
29	0	0	0	141	178	182	204	209	0	0	0	0
30	0	0	0	138	176	180	209	210	0	0	0	0
31	0		0		179		182	209		0		0
Sum	0	0	0	4,090.6	5,723	5,579	5,854	6,363	2,796.2	0	0	0
Current Year 1960									Period 1938-1960			
Month	Average Rainfall Inches **		Extreme Second-Feet				Average Second- Feet	Total Acre-Feet	Acre-Feet			
			High		Low				Average	Maximum	Minimum	
	1938-1960	1960	Day		Day							
Jan.	.40	.69		0		0	0	0	0	0	0	
Feb.	.29	.29		0		0	0	0	0	0	0	
Mar.	.27	.23		0		0	0	0	1,029	5,540	0	
Apr.	.18	.07	23	152	1	0	136	8,120	6,304	11,720	2,020	
May	.43	.10	8	207	1	98.5	185	11,350	10,390	17,380	0	
June	.69	.77	28	195	28	173	186	11,070	8,685	15,700	0	
July	1.62	3.75	†30	237	1	172	189	11,610	8,796	15,170	856	
Aug.	1.40	1.05	†4	231	3	164	205	12,620	8,725	12,620	0	
Sept.	.92	.17	1	200	†17	0	93.2	5,550	6,133	12,380	0	
Oct.	.90	1.36		0		0	0	0	67.1	328	0	
Nov.	.24	.11		0		0	0	0	0	0	0	
Dec.	.47	1.48		0		0	0	0	0	0	0	
Yearly	7.81	10.07		237		0	83.1	60,320	50,129.1	83,930	7,864	

† And other days ** Average for valley floor from El Paso to Island Station.

RIO GRANDE AT ISLAND STATION

DESCRIPTION: Water-stage recorder and cable with sit-down cable car equipped for winch and heavy weights, located near Clint, Texas, and San Agustín, Chihuahua. This station is on the rectified channel of the Rio Grande, 27.1 river miles below the American Dam at El Paso, Texas. The zero of the gage is 3,608.99 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 53 meter measurements during the year and a continuous record of gage heights. Computations by shifting channel methods. Records available: August 17, 1938 through December 1960.

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

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

Average Flow in Second-Feet

Daily:	Max.	6,140	May 19, 1942	Min.	0	Frequently
Monthly:	Max.	4,880	May 1942	Min.	0	Frequently
Yearly:	Max.	1,490	1942	Min.	.3	1956

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	69.7	44.0	3.3	10.6	12.3	9.9	12.4	65.2	11.6	12.3	96.6	50.9
2	63.9	10.2	3.6	10.0	12.2	9.7	12.4	61.4	11.3	12.4	101	53.5
3	65.8	6.5	3.1	10.5	12.1	9.6	12.4	54.1	11.0	13.1	101	60.2
4	66.6	4.5	3.6	10.4	9.8	9.4	13.4	3.9	10.7	13.2	95.3	66.5
5	70.7	4.2	3.1	11.3	9.8	9.3	156	4.0	14.4	12.3	94.9	35.2
6	68.2	4.3	26.4	10.7	8.4	9.1	221	5.5	12.6	12.9	91.5	10.6
7	68.4	4.3	14.9	10.3	9.8	10.1	430	7.8	12.9	13.4	100	7.7
8	68.7	4.0	13.7	10.3	9.8	10.9	620	10.7	12.3	14.0	94.7	6.0
9	65.6	3.7	8.8	14.8	9.8	13.2	592	14.3	11.7	13.0	87.5	21.9
10	65.8	4.2	7.5	14.8	9.8	16.7	814	15.8	11.1	12.4	84.8	33.5
11	91.8	4.9	6.5	14.1	9.8	15.2	547	32.6	12.7	12.4	86.5	24.1
12	89.0	3.7	6.4	13.4	8.4	13.7	322	57.7	82.1	21.5	81.6	19.4
13	75.4	3.6	21.2	11.2	8.3	38.0	229	18.1	35.8	37.2	82.3	24.6
14	70.8	3.6	89.5	11.1	7.8	12.7	273	21.1	25.9	8.5	64.3	28.8
15	67.5	3.5	44.9	11.1	7.7	9.7	194	52.3	11.2	7.6	65.2	22.5
16	69.6	3.9	10.7	10.5	8.2	8.0	216	14.7	10.0	5.8	68.9	32.6
17	68.4	3.8	9.2	9.1	8.8	7.5	194	12.7	10.1	8.6	79.4	49.5
18	66.2	3.4	9.3	9.5	9.5	6.9	130	11.4	41.8	69.0	78.6	48.8
19	62.2	3.8	13.1	10.4	8.9	6.4	19.2	11.0	34.1	124	76.6	48.1
20	54.2	3.5	13.1	9.9	10.5	6.3	16.3	10.7	12.5	122	81.7	51.0
21	68.1	3.5	11.0	9.7	12.0	6.3	16.3	42.1	12.1	106	67.2	51.2
22	67.9	3.5	11.6	9.8	12.1	6.7	17.3	11.7	11.6	79.9	50.8	61.6
23	68.9	3.6	12.2	15.9	17.1	7.1	14.3	11.3	10.0	81.3	53.8	68.6
24	69.9	3.6	81.1	13.5	12.3	11.1	12.9	10.5	9.6	90.0	64.2	72.5
25	70.9	3.6	74.7	14.7	10.2	9.4	12.9	9.8	9.1	99.6	68.4	75.4
26	74.1	3.3	12.5	13.0	9.9	9.2	12.9	9.2	9.2	94.3	50.4	73.7
27	68.4	3.1	8.8	12.1	10.5	9.6	14.3	10.5	8.8	102	41.2	77.7
28	75.1	3.1	8.3	12.0	10.2	10.4	13.6	10.4	8.3	90.9	55.9	78.3
29	74.0	3.1	39.6	11.1	10.0	11.9	12.9	49.2	7.7	96.0	35.2	83.9
30	72.8		29.9	10.2	9.7	12.4	12.9	11.0	7.0	103	46.7	94.6
31	72.8		13.7		10.2		13.6	17.1		101		90.2

Sum 2,171.4 158.0 615.3 346.0 315.9 326.4 5,178.0 677.8 489.2 1,589.6 2,246.2 1,523.1

Current Year 1960								Period 1939-1960			
Month	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Low			Average	Maximum	Minimum	
Jan.	9.38	8.56	11	143	20	29.9	70.0	4,310	5,909	11,900	0
Feb.	9.05	8.18	1	83.1	† 27	3.1	5.4	313	4,295	37,000	0
Mar.	9.58	8.15	6	170	5	2.3	19.8	1,220	3,065	21,000	0
Apr.	8.75	8.56	23	22.6	30	8.8	11.5	686	5,285	70,500	0
May	9.06	8.59	23	74.8	15	7.7	10.2	627	15,499	299,800	0
June	9.27	8.60	13	100	20	5.8	10.9	647	13,154	241,000	0
July	12.35	8.54	14	1,170	† 1	12.4	167	10,300	10,941	118,500	0
Aug.	10.10	8.45	29	319	4	1.8	21.9	1,340	10,171	99,400	0
Sept.	10.23	8.35	12	353	30	6.6	16.3	970	11,319	119,200	0
Oct.	9.56	8.35	18	153	16	5.4	51.3	3,150	5,688	42,800	0
Nov.	9.77	9.17	3	120	29	25.6	74.9	4,460	1,507	7,270	0
Dec.	9.99	8.79	30	115	8	4.6	49.1	3,020	2,573	12,900	0
Yearly	12.35	8.15		1,170		1.8	42.8	31,043	89,406	1,079,340	238.1

† Estimated * Partly estimated † And other days

RIO GRANDE AT COUNTY LINE STATION

DESCRIPTION: Water-stage recorder and cable with sit-down cable car equipped for winch and heavy weights, located .8 mile downstream from the El Paso-Hudspeth County Line. This station is on the rectified channel of the Rio Grande 47.3 river miles below the American Dam at El Paso, Texas. The zero of the gage is 3,547.59 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 25 meter measurements, frequent inspections of the station during the year, and a continuous record of gage heights. Records available: January 1938 through December 1960.

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

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

Average Flow in Second-Feet

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

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	0	12.3	4.9	0	0	0	0	29.1	69.0	72.2
2	0	0	0	55.1	38.1	0	0	4.0	0	63.2	70.4	69.7
3	0	0	0	70.2	1.4	0	0	5.0	0	101	73.1	65.6
4	0	0	0	130	0	0	0	4.0	0	90.1	73.8	71.8
5	0	0	0	127	0	0	3.8	3.0	0	64.0	69.1	71.3
6	0	0	0	50.3	0	0	28.3	2.0	0	63.2	71.5	70.6
7	0	0	0	.3	11.6	0	354	0	2.7	53.3	87.3	63.2
8	0	0	0	0	33.2	0	705	0	0	61.6	78.6	19.1
9	0	0	0	0	35.5	0	789	16.8	0	62.5	63.6	28.0
10	0	0	0	0	35.5	0	1,200	33.0	0	73.6	32.7	50.9
11	0	0	0	0	4.1	23.4	709	77.4	2.9	59.2	19.8	96.9
12	0	0	0	0	0	115	528	119	129	38.1	41.0	115
13	0	0	0	0	0	359	291	94.4	97.8	37.2	39.9	115
14	0	0	0	0	0	137	385	119	47.8	54.5	30.6	115
15	0	0	0	0	0	4.1	260	176	8.9	89.7	* 14.1	*119
16	0	0	0	0	0	0	383	67.8	.2	85.2	* 18.3	117
17	0	0	0	0	0	0	286	5.5	31.3	115	30.1	81.5
18	0	0	0	0	.7	0	264	.2	134	121	35.6	107
19	0	0	0	0	0	0	155	0	198	105	38.9	104
20	0	0	0	0	0	0	8.6	0	146	109	40.1	87.8
21	0	0	0	0	0	0	0	0	139	104	63.9	95.6
22	0	0	0	0	3.4	0	0	0	128	81.8	41.2	96.4
23	0	0	0	0	33.2	0	0	0	86.8	78.3	35.1	81.1
24	0	0	0	0	6.1	0	0	0	70.7	80.6	63.1	80.2
25	0	0	0	0	0	0	0	0	67.3	88.4	58.0	82.7
26	0	0	0	0	0	0	0	0	72.3	86.9	60.5	78.5
27	0	0	0	9.2	0	0	0	0	79.1	88.3	85.2	77.5
28	0	0	0	15.3	0	0	0	0	62.0	100	67.2	76.6
29	0	0	0	0	0	0	0	0	74.2	97.5	61.8	75.8
30	0	0	.7	0	0	0	0	0	46.2	90.9	67.8	99.2
31	0	0	7.8	0	0	0	0	0	0	86.4	0	107
Sum	0	0	8.5	469.7	207.7	638.5	6,349.7	727.1	1,624.2	2,458.6	*2,591.2	
Current Year 1960									Period 1938-1960			
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum	
Jan.				0		0	0	0	8,608	20,000	0	
Feb.				0		0	0	0	7,435	47,900	0	
Mar.	2.54		31	23.9	† 1	0	.3	16.9	6,525	38,900	0	
Apr.	3.15		5	158	† 1	0	15.7	932	9,903	84,200	0	
May	2.67		23	48.9	† 3	0	6.7	412	19,027	303,000	0	
June	3.57		13	425	† 1	0	21.3	1,270	16,848	239,000	0	
July	5.08		10	1,480	† 1	0	205	12,600	15,999	140,000	0	
Aug.	3.20		15	199	† 1	0	23.5	1,440	15,034	123,000	0	
Sept.	3.46		19	237	† 1	0	54.1	3,220	17,912	140,000	0	
Oct.	3.09	2.45	4	131	12	25.7	79.3	4,880	11,570	61,400	0	
Nov.	2.90	2.20	7	91.1	11	4.6	53.4	3,180	7,720	20,400	0	
Dec.	3.27	2.38	13	150	8	19.1	* 83.6	* 5,140	8,593	29,700	0	
Yearly	5.08			1,480		0	45.6	33,090.9	145,174	1,247,500	0	

u Estimated * Partly estimated † And other days Ø Mean daily

RIO GRANDE AT FORT QUITMAN, TEXAS

DESCRIPTION: Water-stage recorder and cable with sit-down cable car equipped for winch and heavy weights, located on the rectified channel of the Rio Grande, 1.5 miles below Old Fort Quitman and 81.1 river miles below the American Dam at El Paso, Texas. The zero of the gage is 3,450.57 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on frequent estimates during low flow, 50 meter measurements during the year, and a continuous record of gage heights. Computations by shifting channel methods. Records available: January 1889 through December 1960.

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

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

Average Flow in Second-Feet †

Daily:	Max.	5,890	May 19, 1942	Min.	0	Frequently
Monthly:	Max.	5,030	May 1942	Min.	0	Several months 1952 & 1955-1959
Yearly:	Max.	1,750	1942	Min.	6.7	1957

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1.0	1.6	1.8	1.1	6.0	3.2	0	13.2	23.3	21.3	70.7	105
2	1.0	1.6	1.8	1.2	10.5	.2	2.7	10.1	18.2	16.0	70.2	107
3	1.1	2.6	2.0	1.5	14.0	.2	.2	6.8	22.6	23.6	* 57.7	112
4	1.0	2.8	1.6	1.7	9.5	2.9	43.1	7.0	43.2	78.0	* 58.1	109
5	1.1	1.9	1.7	1.8	7.0	2.6	67.9	8.7	53.9	83.9	* 58.4	110
6	1.4	1.7	1.7	2.9	5.2	3.5	147	50.1	50.6	49.3	* 71.5	112
7	1.5	1.5	1.7	4.5	1.7	2.7	379	139	46.4	44.9	* 71.8	105
8	1.5	1.6	1.6	3.2	2.0	1.4	* 1,140	74.7	46.2	40.0	* 72.2	94.2
9	1.8	1.6	1.6	2.8	2.9	2.0	* 1,210	* 46.9	27.0	47.3	* 75.1	56.1
10	2.5	1.8	1.2	2.7	1.7	26.1	953	35.8	33.8	62.7	* 82.1	85.0
11	9.9	1.2	1.1	3.2	.2	43.3	919	42.9	33.6	59.3	* 94.8	124
12	9.9	.9	.7	2.7	.2	16.4	784	73.4	67.8	49.4	* 107	139
13	8.4	1.2	.7	2.3	.2	11.5	503	60.4	83.2	38.3	* 143	121
14	11.5	1.4	1.0	2.9	.2	42.1	422	54.6	94.2	30.0	* 140	116
15	11.8	1.6	1.0	3.2	.2	40.8	373	50.3	55.6	29.1	* 136	111
16	6.2	1.4	.9	4.0	.2	6.7	470	74.6	41.8	452	* 77.6	116
17	11.3	1.4	.7	6.0	.2	0	431	84.6	54.3	* 3,080	44.4	119
18	10.6	1.4	.1	7.6	.2	0	398	64.5	92.7	574	53.7	100
19	11.6	1.0	.1	9.5	.2	0	310	27.6	223	281	69.5	108
20	15.3	.6	.4	8.2	.3	0	192	27.2	234	161	58.9	102
21	18.8	1.2	.7	10.3	5.8	0	199	37.3	198	152	66.5	84.8
22	12.3	1.1	.4	7.6	.5	0	183	44.8	127	141	70.0	91.5
23	5.5	1.1	.8	4.3	.3	0	112	39.2	143	134	65.5	93.5
24	4.1	1.1	1.0	4.6	.2	3.1	80.0	35.6	107	83.7	68.1	89.1
25	3.2	1.1	1.1	3.7	.2	14.0	64.2	30.4	86.0	84.0	101	86.5
26	2.2	1.2	1.0	2.1	.2	1.1	52.0	27.2	75.7	79.1	69.3	86.9
27	1.9	1.2	1.1	3.5	.2	0	* 18.6	29.0	67.3	78.6	69.9	84.3
28	1.9	1.4	1.1	2.8	3.8	4.5	15.6	32.2	34.3	67.7	103	84.7
29	1.3	1.6	1.2	3.3	.4	10.6	16.4	38.7	14.8	85.2	111	83.2
30	1.2		1.4	3.7	20.2	1.0	18.3	* 154	24.0	71.8	91.0	90.8
31	1.3		1.0		9.0		14.4	61.2		71.4		102
Sum	174.1	41.8	34.2	118.9	103.4	239.9	9,518.4	1,482.0	2,222.5	* 6,269.6	* 2,428.0	3,128.6
Current Year 1960									Period 1938-1960			
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Low	Day			Average	Maximum	Minimum	
Jan.	5.46	5.05	20	21.3	1	.7	5.6	345	8,743	20,900	0	
Feb.	5.15	4.93	3	3.4	20	.6	1.4	82.9	8,065	50,100	0	
Mar.	5.10		3	2.1	† 18	.1	1.1	67.8	6,309	38,900	0	
Apr.	5.37	5.00	19	13.5	26	.8	4.0	236	7,850	77,000	0	
May	6.25		30	132	† 11	.2	3.3	205	19,194	309,000	0	
June	6.15		10	112	† 17	0	8.0	476	17,164	240,000	0	
July	9.90		9	* 2,460	1	0	307	18,900	17,603	140,000	235	
Aug.	7.40	4.81	30	794	4	4.2	47.8	2,940	15,973	127,000	185	
Sept.	5.98	4.9	20	281	29	12.2	74.1	4,410	20,469	147,000	0	
Oct.	12.60	4.86	17	* 6,440	2	14.1	* 202	* 12,400	16,239	66,500	51.6	
Nov.	5.15	4.77	13	166	17	41.2	* 80.9	* 4,820	9,550	24,500	0	
Dec.	5.52	4.77	11	170	9	45.2	101	6,210	9,878	31,000	0	
Yearly	12.60			* 6,440	0	0	* 70.4	* 51,092.7	157,037	1,270,400	4,843	

* Partly estimated † And other days ‡ Mean daily § Period 1924-1960

RIO GRANDE AT UPPER PRESIDIO STATION

DESCRIPTION: Water-stage recorder and cable with sit-down cable car equipped for winch and heavy weights, located 7.8 river miles above the confluence of the Río Conchos, about 10 miles northwest of Presidio, Texas and Ojinaga, Chihuahua, and 285.7 river miles below the American Dam at El Paso, Texas. The zero of the gage is 2,576.66 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 44 meter measurements during the year and a continuous record of gage heights. Computations by shifting channel methods. Records available: January 1889 through December 1960.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station. During 1960, a small earth and brush dam one-half mile downstream caused backwater frequently which affected the gage heights at the station.

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

Average Flow in Second-Feet

Daily:	Max.	13,700	June 13 & 14, 1905	Min.	0	Frequently
Monthly:	Max.	10,150	June 1905	Min.	0	Frequently
Yearly:	Max.	1,970	1907	Min.	3.5	1956

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	0	0	0	0	0	15.5	296	0	160	41.7
2	0	0	0	0	0	0	0	18.7	300	0	95.9	37.8
3	0	0	0	0	0	0	0	.5	223	0	79.5	40.4
4	0	0	0	0	0	0	0	11.1	93.7	0	76.0	51.0
5	0	0	0	0	0	0	0	.7	44.5	0	70.1	51.8
6	0	0	0	0	0	0	0	0	18.7	0	62.7	53.7
7	0	0	0	0	0	0	87.4	5.3	1.5	0	58.2	46.8
8	0	0	0	0	0	0	13.7	5.8	1.3	0	52.2	38.0
9	0	0	0	0	0	0	4.0	70.9	1.0	0	51.4	76.8
10	0	0	0	0	0	0	5.7	65.1	.7	0	49.7	64.1
11	0	0	0	0	0	0	56.1	168	.4	0	46.6	62.7
12	0	0	0	0	0	0	110	198	.1	0	42.3	70.3
13	0	0	0	0	0	0	159	539	0	0	39.6	71.4
14	0	0	0	0	0	0	169	523	0	0	41.8	62.1
15	0	0	0	0	0	0	217	162	0	0	40.5	84.3
16	0	0	0	0	0	0	225	50.6	0	0	38.7	103
17	0	0	0	0	0	0	223	33.0	0	0	41.9	93.6
18	0	0	0	0	0	0	264	236	0	8.7	48.1	89.4
19	0	0	0	0	0	0	342	463	0	64.6	49.9	89.2
20	0	0	0	0	0	0	343	326	0	* 140	55.0	86.8
21	0	0	0	0	0	0	307	399	0	* 160	92.4	89.2
22	0	0	0	0	0	0	293	300	0	* 199	50.5	79.8
23	0	0	0	0	0	0	271	123	0	232	48.0	70.0
24	0	0	0	0	0	0	270	69.5	0	248	49.9	70.7
25	0	0	0	0	0	0	261	42.4	0	277	48.5	72.1
26	0	0	0	0	0	0	226	17.7	0	277	47.7	65.5
27	0	0	0	0	0	0	231	15.6	0	318	46.2	67.7
28	0	0	0	0	0	0	152	58.5	0	378	44.1	68.2
29	0	0	0	0	0	0	55.2	104	0	218	39.4	65.9
30	0	0	0	0	0	0	16.4	269	0	241	40.6	73.6
31	0	0	0	0	0	0	5.7	287	0	261		68.9
Sum		0		0		0		4,577.9		3,022.3		2,106.5
	0		0		0		4,307.2		980.9		1,707.4	
Current Year 1960									Period 1938-1960			
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum	
Jan.				0		0	0	0	8,336	24,400	0	
Feb.				0		0	0	0	7,167	40,800	0	
Mar.				0		0	0	0	5,362	39,100	0	
Apr.				0		0	0	0	3,992	41,600	0	
May				0		0	0	0	14,037	240,000	0	
June				0		0	0	0	14,661	216,000	0	
July	10.85		19	355	† 1	0	139	8,540	19,025	156,000	13.1	
Aug.	12.21		13	568	† 3	0	148	9,080	17,515	133,000	29.4	
Sept.	9.87		2	305	† 13	0	32.7	1,950	21,000	151,000	0	
Oct.	10.82		28	392	† 1	0	97.5	5,990	19,353	105,000	0	
Nov.	9.07	6.59	1	228	16	35.6	56.9	3,390	8,003	34,500	0	
Dec.	8.03	6.45	9	135	2	32.2	68.0	4,180	8,436	30,900	0	
Yearly	12.21			568		0	45.6	33,130	146,887	1,176,700	2,514.4	

* Partly estimated † And other days ‡ Period June 1900, March 1914, September 1919, March 1920, and 1924-1960.

RIO CONCHOS NEAR OJINAGA, CHIHUAHUA

DESCRIPTION: Water-stage recorder and cable with stand-up cable car and winch, located 1.9 miles west of Ojinaga, Chihuahua, 3.7 miles west of Presidio, Texas, and 1.5 miles upstream from the confluence with the Rio Grande. The Rio Concho enters the Rio Grande 13.8 miles above the Lower Presidio gaging station on the Rio Grande and 293.5 river miles below the American Dam at El Paso, Texas. The zero of the gage is 2,568.04 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 299 meter measurements during the year, 290 by the Mexican and 9 by the United States Section of this Commission, a continuous record of gage heights and a rating curve which, above 15,000 second-feet, was defined previously by related gage height and records of discharge at Lower Presidio Station. Computations by shifting channel methods. Records available: January 1896 through December 1960. Records of stage and measured discharge at this station began April 4, 1954.

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

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

Average Flow in Second-Feet

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

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	689	1,120	1,150	473	312	272	161	848	5,790	540	727	999
2	551	1,200	1,080	473	344	299	130	717	6,500	565	607	1,070
3	498	1,000	1,240	463	315	289	141	607	5,690	537	501	1,080
4	561	1,220	1,560	470	301	274	323	509	3,990	526	459	1,150
5	890	1,350	1,420	484	288	283	569	498	3,410	569	434	1,230
6	675	1,290	1,080	519	247	287	908	459	3,070	547	431	1,240
7	537	1,240	1,040	424	232	438	5,050	809	2,880	501	477	763
8	480	1,280	1,080	448	239	406	4,310	1,460	2,380	477	569	876
9	448	1,310	982	403	243	396	3,570	1,350	1,970	470	569	992
10	667	1,040	932	385	239	392	3,600	1,070	1,910	484	463	1,270
11	904	1,350	901	367	249	392	2,720	2,020	1,730	516	498	1,140
12	1,050	1,360	780	371	266	1,270	2,340	5,120	1,730	540	533	1,150
13	710	1,340	724	367	247	597	1,910	3,270	1,580	487	512	1,360
14	572	1,360	763	353	237	491	2,320	2,370	1,260	470	509	784
15	480	1,350	812	385	251	396	2,160	1,420	1,200	456	646	925
16	434	1,300	731	413	261	364	4,450	2,220	1,150	438	675	982
17	494	950	629	353	266	323	2,770	2,380	1,100	685	685	1,040
18	837	1,320	682	337	258	299	2,410	2,190	985	533	759	1,020
19	1,040	1,660	724	337	282	296	1,960	2,810	851	498	699	1,150
20	883	1,050	780	319	247	364	2,570	2,910	865	438	791	1,100
21	1,060	992	805	318	239	272	2,680	1,930	791	459	2,120	727
22	1,210	1,630	766	385	263	233	3,850	3,990	727	494	1,840	883
23	1,200	1,550	657	339	258	226	1,810	7,560	692	576	1,650	982
24	1,120	1,190	554	307	260	196	1,550	9,040	671	650	1,640	946
25	1,190	1,150	625	325	244	174	2,630	9,040	675	1,210	1,230	964
26	1,120	1,250	717	338	248	284	2,500	4,410	636	770	1,090	1,010
27	978	1,190	629	328	248	218	1,280	4,100	614	678	1,200	1,170
28	1,100	1,200	583	299	246	200	1,630	7,770	614	939	1,290	727
29	1,280	1,190	590	301	271	189	1,280	5,370	544	869	1,360	788
30	1,290		537	336	258	167	1,040	5,540	519	650	837	904
31	1,140		417		245		901	7,840		625		999

Sum 26,088 36,432 25,970 11,420 8,104 10,287 65,523 101,627 56,524 18,197 25,801 31,421

Current Year 1960							Period 1948-1960			
Month	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet		
	High	Low	Day	High	Day			Average	Maximum	Minimum
Jan.	7.68	5.84	29	1,480	† 16	424	842	51,750	27,382	52,200
Feb.	8.43	6.63	22	2,000	17	848	1,260	72,270	30,759	72,270
Mar.	8.04	5.71	† 3	1,760	31	360	838	51,530	24,722	51,530
Apr.	6.10	5.38	† 5	597	† 28	274	381	22,650	9,129	22,650
May	5.68	5.15	2	378	27	215	261	16,070	12,985	31,600
June	10.24	4.89	21	3,360	30	155	343	20,410	18,765	47,600
July	14.73	4.72	7	9,220	1	122	2,110	130,000	58,407	201,000
Aug.	16.27	5.68	12	11,340	† 5	381	3,280	201,600	73,848	201,600
Sept.	13.85	6.30	1	7,520	30	516	1,880	112,100	106,604	686,400
Oct.	7.55	6.10	† 17	1,430	16	420	587	36,100	116,008	971,300
Nov.	9.84	6.10	21	3,600	6	420	860	51,200	35,582	107,400
Dec.	8.07	6.43	13	1,800	29	600	1,010	62,380	28,640	62,380
Yearly	16.27	4.72		11,340		122	1,140	828,060	542,831	1,892,940

† And other days

ALAMITO CREEK NEAR PRESIDIO, TEXAS

DESCRIPTION: Water-stage recorder about 1,800 feet above the confluence with the Rio Grande. Measurements of high flows are made from the highway bridge, 200 feet downstream from the recorder. This creek enters the Rio Grande near the lower end of Presidio Valley, 9.7 river miles below the international highway bridge between Presidio, Texas and Ojinaga, Chihuahua, and 306.9 river miles below the American Dam at El Paso, Texas. The zero of the gage is 2,541.61 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 99 meter measurements made 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 channel methods. Records available: January 1932 through December 1960.

REMARKS: A small irrigation reservoir (San Esteban) 10.5 miles south of Marfa, Texas and irrigation diversions below the reservoir modify the flow of this spring-fed creek. On September 28, 1958 backwater from the Rio Grande reached a gage height of 9.57 feet at this station. This is the highest recorded gage height.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 16,400 second-feet on September 24, 1955, with a gage height of 7.33 feet. Min. $\varnothing$ 1 second-foot on July 25, 1953 and several days in August 1958.

Average Flow in Second-Feet

Daily:	Max.	3,290	Oct. 24, 1941	Min.	.1	July 25, 1953 & several days in August 1958
Monthly:	Max.	418	Sept. 1958	Min.	.6	Oct., Nov., & Dec. 1953 & May 1960
Yearly:	Max.	55.9	1941	Min.	4.3	1951

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1.3	1.6	1.5	1.3	.8	.4	.4	.4	* 12.2	1.2	1.1	1.5
2	1.3	1.6	1.4	1.3	.8	.5	.4	.4	* 1.7	1.3	1.1	1.5
3	1.3	1.6	1.4	1.3	.7	.5	.4	.5	* 1.7	1.4	1.2	1.5
4	* 2.2	1.7	1.3	1.2	.7	.5	164	.5	1.7	1.3	1.2	1.6
5	* 6.0	1.7	1.4	1.2	.6	.4	254	.5	1.7	1.2	1.2	1.6
6	* 2.1	1.6	1.6	1.2	.6	.4	* 943	.5	1.6	1.2	1.3	1.6
7	1.8	1.6	1.7	1.2	.6	45.5	435	* 181	1.4	1.1	1.4	1.6
8	1.7	1.5	1.5	1.2	.7	26.4	48.0	* 1.4	* 2.9	1.1	1.4	1.6
9	1.7	1.4	1.4	1.2	.7	.3	1.5	78.7	46.7	1.0	1.4	1.6
10	1.6	1.4	1.2	1.2	.7	.2	.8	* 2.4	2.3	1.0	1.5	1.6
11	1.6	1.4	1.3	1.2	.6	2.6	.8	* 596	1.5	1.0	1.5	1.6
12	1.6	1.4	1.4	1.2	.6	58.0	1.0	* 30.0	1.5	1.0	1.6	1.6
13	1.6	1.5	1.5	1.2	.6	2.2	2.2	* 20.9	1.4	1.0	1.6	1.9
14	1.5	1.5	1.6	1.1	.5	.4	14.0	1.2	1.4	1.0	1.7	2.1
15	1.5	1.5	1.6	1.1	.5	.4	.6	1.2	1.3	1.1	1.7	2.4
16	1.5	1.5	1.6	1.1	.5	.4	.6	5.0	1.2	1.3	1.8	2.2
17	1.5	1.5	1.5	1.0	.4	.4	.5	14.5	1.2	1.4	1.8	2.0
18	1.5	1.5	1.5	1.0	.4	.4	.5	76.7	1.2	52.9	1.9	1.7
19	1.5	1.5	1.5	1.0	.4	.4	13.9	45.5	1.2	1.1	1.9	1.5
20	1.5	1.6	1.4	1.0	.5	.4	* .6	* 2.0	1.2	1.1	2.0	1.6
21	1.4	1.6	1.4	.9	.5	.4	19.3	1.0	1.3	1.2	2.0	1.6
22	1.4	1.7	1.4	.9	.6	.4	109	1.0	1.3	1.2	1.8	1.7
23	1.4	1.8	1.4	.8	.6	.3	2.6	22.4	1.2	1.2	1.7	1.8
24	1.4	1.8	1.4	.8	.6	.3	* .5	* 422	1.2	1.3	1.7	1.8
25	1.4	1.7	1.4	.8	.6	12.2	114	4.8	1.2	1.2	1.7	1.8
26	1.4	1.7	1.4	.7	.5	6.9	235	1.5	1.1	1.1	1.7	1.9
27	1.5	1.6	1.4	.8	.5	.3	95.4	* 275	1.1	1.0	1.7	1.9
28	1.6	1.6	1.4	.8	.5	.3	.5	190	1.1	.9	1.7	2.0
29	1.7	1.6	1.4	.9	.4	.3	.5	70.5	1.1	1.0	1.6	2.2
30	1.7	1.6	1.4	.9	.4	.3	.5	23.9	1.1	1.0	1.5	2.3
31	1.6	1.3	1.3	.4	.4	.4	.4	* 668	1.0	1.0	2.2	2.2
Sum	52.8	45.7	44.6	31.5	17.5	162.4	* 2,459.9	* 2,739.4	98.7	86.8	47.4	55.5

Month	Current Year 1960							Period 1932-1960			
	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet			
			High	Day	Low			Average	Maximum	Minimum	
	High	Low	Day	High	Day	Low	Acre-Feet	Average	Maximum	Minimum	
Jan.		4.18	5	6.0	1	1.3	105	162	273	46.4	
Feb.	4.22	4.20	23	1.8	9	1.4	90.6	254	3,120	41.5	
Mar.	4.22	4.19	7	1.7	10	1.2	88.5	164	270	46.4	
Apr.	4.20	4.15	† 1	1.3	26	.7	62.5	260	1,070	57.9	
May	4.17	4.12	† 1	.8	† 17	.4	34.7	1,019	8,520	34.7	
June	4.79	3.96	7	223	10	.2	5.4	322	6,360	50.8	
July	6.50	3.98	6	* 3,650	† 1	.4	* 79.4	* 4,880	3,219	18,500	46.8
Aug.	6.57	3.93	11	* 4,100	† 1	.4	* 88.4	* 5,430	3,017	16,330	73.0
Sept.	4.73	4.25	9	270	† 26	1.1	3.3	197	3,657	24,900	128
Oct.	4.80	4.13	18	358	28	.9	2.8	172	1,858	19,200	36.9
Nov.	4.25	4.14	21	5.4	† 1	1.1	1.6	94.0	187	807	35.7
Dec.	4.24	4.16	† 9	4.9	† 1	1.5	1.8	110	173	408	39.3
Yearly	6.57	3.93		* 4,100		.2	* 16.0	* 11,586.3	15,838	40,444	3,109.2

$\dagger$ Estimated * Partly estimated $\dagger$ And other days $\varnothing$ Mean daily

RIO GRANDE AT LOWER PRESIDIO STATION

DESCRIPTION: Water-stage recorder and cable with stand-up cable car equipped for winch and heavy weights, located about 10.1 river miles below the international highway bridge between Presidio, Texas, and Ojinaga, Chihuahua, .4 mile below the confluence of Alamito Creek with the Rio Grande, and 307.3 river miles below American Dam at El Paso, Texas. The zero of the gage is 2,527.99 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 110 meter measurements during the year, 106 by the United States and 4 by the Mexican Section of this Commission and a continuous record of gage heights. Computations by shifting channel methods. Records available: January 1955 through December 1960 at this location. Period records shown below include monthly volumes for the period 1948 through 1954, at this location, which are based on discharge records at Alamito Creek Station and at a station on the Rio Grande 11.4 river miles above the Alamito Creek confluence, and estimated irrigation diversions and arroyo inflow between the two river stations. Records, published under this same station name, are also available from January 1896 through June 13, 1932 for a station located about 12.1 miles (erroneously reported in Water Bulletin Number 1 as 7.5 miles) below the confluence of the Rio Conchos and 1.3 miles above Alamito Creek; and from June 14, 1932 through December 31, 1954 for a station about 2.0 miles below the Rio Conchos confluence and 11.4 miles above the confluence of Alamito Creek.

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

EXTREME FLOWS FROM RECORDS †: Momentary: Max. 54,300 second-feet on October 1, 1958, with a gage height of 20.37 feet. Min. .2 second-foot several days in July 1955, and on June 30, 1958.

Average Flow in Second-Feet ‡

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

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	732	1,290	1,280	456	314	253	137	799	6,830	516	935	1,110
2	641	1,280	1,170	480	318	280	122	809	6,660	539	801	1,180
3	550	1,070	1,140	474	342	293	112	548	6,540	539	654	1,200
4	573	1,190	1,470	487	302	279	334	455	4,530	537	620	1,240
5	858	1,320	1,520	461	292	302	707	400	3,630	560	607	1,310
6	793	1,380	1,150	490	265	304	1,690	416	3,250	575	577	1,350
7	601	1,290	1,090	442	247	470	5,330	858	2,900	549	571	915
8	554	1,300	1,080	434	241	410	4,400	1,230	2,470	529	641	958
9	525	1,380	997	403	253	402	4,020	1,770	2,220	511	704	1,100
10	632	1,060	894	400	239	349	3,830	1,280	2,060	507	591	1,360
11	1,010	1,350	887	380	249	372	2,860	2,830	1,950	576	603	1,350
12	1,190	1,390	817	382	271	1,350	2,330	3,670	1,760	598	624	1,220
13	812	1,370	735	370	254	642	2,010	4,980	1,830	553	611	1,520
14	598	1,390	763	364	239	536	2,370	3,260	1,280	527	583	962
15	502	1,390	798	376	255	436	2,220	1,800	1,190	518	666	1,060
16	462	1,360	772	404	268	355	4,220	2,040	1,130	517	757	1,170
17	438	1,020	601	362	272	290	3,460	2,440	1,100	703	714	1,210
18	770	1,350	635	329	264	273	2,780	2,380	972	640	785	1,170
19	1,030	1,700	691	315	281	258	2,360	3,130	849	565	785	1,290
20	877	1,210	714	312	256	333	2,820	3,600	815	574	849	1,250
21	1,070	1,100	718	320	239	288	3,320	2,610	810	630	2,040	891
22	1,290	1,450	669	361	270	221	4,300	3,480	746	679	1,890	966
23	1,280	1,770	644	344	273	192	2,340	7,140	719	763	1,470	1,100
24	1,150	1,300	534	316	259	172	2,010	8,390	668	868	1,720	1,080
25	1,210	1,270	513	304	242	171	2,830	8,560	656	1,430	1,450	1,100
26	1,160	1,320	659	306	241	212	4,070	6,220	646	1,220	1,230	1,180
27	984	1,290	597	288	248	217	1,720	4,430	608	980	1,290	1,320
28	1,060	1,280	546	308	232	168	1,970	7,280	621	1,190	1,310	927
29	1,230	1,310	482	290	258	149	1,620	6,310	568	1,220	1,500	888
30	1,290		538	321	266	145	1,190	5,680	533	948	1,000	1,100
31	1,300		455		252		958	8,210		902		1,190
Sum	27,172	38,180	25,559	11,279	8,202	10,122	74,440	107,005	60,541	21,963	28,578	35,667

Current Year 1960									Period ** 1948-1960		
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
	High	Low	Day	High	Low	Day			Average	Maximum	Minimum
Jan.	6.53	5.51	22	1,480	17	431	877	53,900	30,531	61,900	11,700
Feb.	6.92	5.98	23	2,070	17	931	1,320	75,700	33,023	75,700	10,700
Mar.	6.72	5.46	5	1,740	31	416	824	50,700	25,052	52,600	4,690
Apr.	5.65	5.17	6	548	29	274	376	22,400	8,840	22,400	309
May	5.34	5.03	3	366	25	221	265	16,300	13,440	31,800	219
June	7.65	4.81	12	3,080	30	132	337	20,100	21,564	57,100	2,600
July	9.44	4.72	7	7,930	3	104	2,400	148,000	67,638	236,000	4,680
Aug.	10.17	5.38	24	9,160	6	318	3,450	212,000	82,308	212,000	11,900
Sept.	9.61	5.62	1	7,780	30	520	2,020	120,000	106,200	582,000	11,900
Oct.	6.53	5.53	25	1,600	15	488	708	43,600	129,099	1,051,000	6,090
Nov.	7.65	5.60	21	3,270	11	562	953	56,700	39,119	111,100	9,550
Dec.	6.74	5.82	13	1,800	29	740	1,150	70,700	31,668	70,700	9,980
Yearly	10.17	4.72		9,160		104	1,230	690,100	588,482	1,876,260	120,283

† Period 1955-1960 ** See explanation in "RECORDS" above

TERLINGUA CREEK NEAR TERLINGUA, TEXAS

DESCRIPTION: Bubbler-type water-stage recorder, operated with bottled nitrogen gas, and cable with stand-up cable car equipped for winch and heavy weights, located 2.7 miles above the confluence with the Rio Grande. This creek enters the Rio Grande at the lower end of Santa Helena Canyon, 371.6 river miles below the American Dam at El Paso, Texas. The zero of the gage is 2,200.64 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 106 meter measurements during the year and a continuous record of gage heights. Computations by shifting channel methods. Records available: January 1932 through December 1960.

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

EXTREME FLOWS FROM RECORDS: Momentary: Max, 34,900 second-feet on May 24, 1935, with a gage height of 17.59 feet on a gage .3 mile downstream. Min, no flow on September 29-30, 1937.

Average Flow in Second-Feet

Daily:	Max, 17,200	June 1, 1937	Min, 0	Sept. 29-30, 1937
Monthly:	Max, 921	June 1937	Min, .8	Oct. 1934
Yearly:	Max, 146	1937	Min, 5.5	1943

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2.1	2.6	1.9	2.1	1.2	1.4	1.3	2.2	176	2.7	11.6	3.0
2	2.1	2.6	2.0	2.3	1.2	1.4	* 1.3	2.4	45.0	2.5	4.4	2.9
3	2.1	2.6	2.1	2.5	1.2	1.3	* 1.3	4.4	13.2	2.4	3.1	2.8
4	2.1	2.7	2.1	2.7	1.3	1.3	5.0	3.8	6.6	2.3	3.0	2.7
5	148	2.7	2.2	2.5	1.4	1.3	* 1,360	* 144	4.0	2.2	2.9	2.6
6	171	2.8	2.3	2.3	1.4	1.3	935	* 43.9	3.4	2.2	2.8	2.5
7	32.5	2.8	2.4	2.1	1.4	141	* 1,280	* 140	3.2	2.1	2.7	2.4
8	11.2	2.9	2.3	2.1	1.5	31.2	* 109	* 62.1	3.1	2.2	2.6	136
9	5.2	2.9	2.2	2.1	1.5	12.0	37.0	* 109	2.9	2.2	2.6	16.7
10	3.9	2.8	2.2	2.1	1.4	4.5	9.2	* 158	2.6	2.3	2.5	8.1
11	3.2	2.8	2.1	2.1	1.4	3.3	11.8	* 168	2.1	2.4	2.6	9.9
12	3.3	2.8	2.2	2.1	1.4	242	10.8	25.8	1.9	2.4	2.7	8.4
13	3.4	2.8	2.4	2.1	1.3	57.9	* 673	10.2	1.6	2.3	2.7	8.5
14	3.5	2.7	2.5	2.1	1.3	20.2	* 1,060	27.9	1.6	2.3	2.8	25.5
16	3.3	2.7	2.4	2.1	1.3	3.2	522	11.8	1.7	* 2.3	2.9	13.8
16	3.2	2.6	2.4	2.1	1.3	2.1	130	6.0	1.7	* 2.3	2.8	11.3
17	3.0	2.6	2.4	2.1	1.3	1.9	526	8.8	1.8	* 31.5	2.7	7.4
18	2.8	2.6	2.3	2.1	1.3	1.6	11.2	* 361	1.8	* 530	2.6	5.4
19	2.7	2.5	2.3	2.2	1.3	1.4	94.1	45.0	1.9	* 68.0	2.6	4.8
20	2.6	2.4	2.2	2.2	1.3	1.2	130	5.7	1.9	10.7	2.6	4.1
21	2.5	2.4	2.2	2.3	1.3	1.3	131	3.5	2.0	3.9	38.9	3.9
22	2.6	2.4	2.1	* 50.1	1.4	1.5	1,150	192	2.0	3.4	18.6	3.8
23	2.6	2.3	2.1	* 1.1	1.4	1.6	145	79.5	2.1	2.8	10.2	3.6
24	2.6	2.3	2.0	1.1	1.3	1.6	532	2,470	2.0	2.3	3.2	3.5
25	2.7	2.3	2.0	1.1	1.2	1.6	185	2,260	2.0	321	2.7	3.3
26	2.8	2.3	2.0	1.1	1.2	1.6	629	1,320	2.0	179	2.7	3.1
27	2.8	2.2	2.0	1.1	1.1	1.6	278	1,070	1.9	* 1,150	2.7	3.0
28	2.9	2.1	2.0	1.1	1.2	1.3	42.1	* 2,780	2.2	29.5	2.7	2.8
29	2.8	2.0	2.0	1.1	1.3	1.4	8.8	* 1,850	2.5	379	2.7	2.8
30	2.8		2.0	1.1	1.4	1.4	3.6	144	2.8	140	2.8	2.9
31	2.7		2.1		1.5		2.0	532		27.5		3.0
Sum	441.0	74.2	67.4	* 105.2	41.0	546.6	* 10,014.5	* 14,041	299.5	* 2,915.7	152.4	314.5
Current Year 1960									Period 1932-1960			
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.	5.27	4.06	5	405	† 1	0	2.1	14.2	875	203	875	82.7
Feb.	4.08	4.05	† 8	0	29	0	2.0	2.6	147	288	4,400	73.4
Mar.	4.11	4.08	14	0	1	0	1.9	2.2	134	240	2,410	72.4
Apr.	4.92	4.01	22	173	† 23	0	1.1	* 3.5	* 209	1,120	15,500	55.1
May	4.02	4.01	† 8	0	27	0	1.1	1.3	81.3	4,266	26,000	81.3
June	5.50	4.00	7	644	20	0	1.2	18.2	* 1,080	6,282	54,800	59.5
July	9.30	3.65	13	* 12,200	13		.8	* 323	* 19,900	8,510	28,700	51.8
Aug.	10.80	3.43	29	* 23,600	3	1.9	* 453	* 27,900	4,472	27,900	123	123
Sept.	4.06	3.08	1	300	† 13	0	1.6	10.0	594	6,961	42,200	123
Oct.	8.98	3.08	27	* 10,200	7	0	2.1	* 94.1	* 5,780	2,754	15,400	50.8
Nov.	4.15	3.21	21	195	10	0	2.5	5.1	302	312	2,980	64.9
Dec.	5.04	3.21	8	741	7	0	2.4	10.1	624	327	3,080	90.0
Yearly	10.80	3.08		* 23,600			.8	* 79.4	* 57,626.3	35,735	105,807	3,958.0

* Partly estimated † And other days 0 Mean daily

RIO GRANDE AT JOHNSON RANCH, TEXAS

DESCRIPTION: Water-stage recorder and cable with stand-up cable car equipped for winch and heavy weights, located about 2 miles above Johnson Ranch, 14 miles below Castolon, Brewster County, Texas and Santa Elena Ranch, Chihuahua, and 392.9 river miles below the American Dam at El Paso, Texas. The zero of the gage is 2,045.30 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 99 meter measurements during the year and a continuous record of gage heights. Computations by shifting channel methods. Records available: April 1936 through December 1960.

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

EXTREME FLOWS FROM RECORDS: Momentary: Max. 61,900 second-feet on September 27, 1958 with a gage height of 24.70 feet. An estimated 97,000 second-feet flow with a stage of 24.6 feet occurred at this station site on October 3, 1932. Min. zero several days in 1953, 1955, 1957, and 1958.

Average Flow in Second-Feet

Daily:	Max.	56,920	Sept. 10, 1942	Min.	0	Several days 1953, 1955, 1957 & 1958
Monthly:	Max.	23,600	Sept. 1942	Min.	0	May 1953
Yearly:	Max.	4,780	1942	Min.	167	1953

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	524	1,170	1,140	441	243	240	110	835	7,910	603	979	977
2	586	1,170	1,090	401	285	248	100	764	6,140	591	993	1,010
3	629	1,170	1,050	427	282	346	90.1	789	6,370	592	908	1,060
4	558	1,020	1,040	145	279	301	83.8	611	5,590	598	740	1,090
5	652	1,120	1,460	464	270	255	3,020	599	4,260	570	670	1,140
6	856	1,290	1,470	454	253	563	2,750	541	3,570	565	639	1,240
7	852	1,300	1,110	468	252	517	4,690	884	3,120	564	609	1,290
8	648	1,210	1,010	456	233	837	5,650	1,070	2,840	544	603	1,080
9	579	1,220	968	387	216	461	4,680	1,300	2,510	525	651	917
10	537	1,280	916	354	229	334	3,680	1,960	2,260	522	665	1,070
11	548	1,030	818	518	232	264	3,690	2,350	* 2,120	554	600	1,350
12	850	1,230	823	376	228	1,320	2,820	2,360	* 1,890	1,470	568	1,470
13	1,020	1,300	789	288	242	1,310	2,960	4,710	1,790	694	584	1,270
14	849	1,280	719	291	245	641	3,980	3,970	1,760	608	585	1,540
15	649	1,330	703	299	233	509	3,520	2,720	1,380	584	562	1,070
16	567	1,330	724	304	214	412	2,650	1,860	1,310	582	602	1,010
17	506	1,310	751	324	232	356	5,010	2,320	1,250	748	719	1,150
18	459	1,030	658	338	237	297	2,930	2,340	1,210	1,070	722	1,180
19	587	1,270	636	324	230	259	2,700	2,590	1,110	905	766	1,190
20	890	1,610	664	310	229	247	2,470	3,280	995	642	836	1,330
21	831	1,260	689	309	240	240	3,320	3,940	898	590	904	1,280
22	897	1,120	723	387	229	287	4,030	2,740	910	657	2,050	1,070
23	1,120	1,450	715	297	211	228	4,120	4,260	790	748	1,920	1,030
24	1,110	1,680	675	319	221	178	2,610	7,900	745	882	1,650	1,140
25	1,020	1,220	563	310	216	156	2,820	9,370	701	1,560	1,820	1,130
26	1,090	1,160	521	291	203	143	4,410	8,680	703	1,620	1,550	1,120
27	1,050	1,180	588	270	194	145	3,160	5,860	699	2,480	1,290	1,180
28	961	1,160	621	268	188	160	1,730	7,260	663	1,210	1,290	1,320
29	1,000	1,110	561	263	203	193	1,830	7,860	678	1,530	1,260	1,040
30	1,140		504	254	197	141	1,490	8,590	649	1,480	1,460	894
31	1,170		516		219		1,090	7,670		1,080		1,050
Sum	24,735	36,010	25,215	10,387	7,185	11,588	88,193.9	111,983	66,621	27,368	29,198	35,688

Current Year 1960							Period 1948-1960				
Month	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Low			Day	Average	Maximum	Minimum
Jan.	3.74	2.59	31	1,270	18	449	798	49,100	30,515	63,600	11,300
Feb.	4.30	3.25	24	1,930	18	958	1,240	71,400	33,605	71,400	9,460
Mar.	4.07	2.60	6	1,600	31	480	813	50,000	25,647	52,300	4,440
Apr.	2.83	2.02	22	614	30	238	346	20,600	11,486	23,900	457
May	2.17	1.85	2	296	27	182	232	14,300	19,268	56,000	0
June	6.72	1.67	6	5,160	30	114	386	23,000	30,136	70,400	3,270
July	9.47	1.47	7	10,200	4	70.2	2,840	175,000	82,218	300,000	5,930
Aug.	10.86	2.53	30	12,500	7	460	3,610	222,000	92,985	222,000	12,300
Sept.	8.69	2.61	1	8,450	30	614	2,230	133,000	117,050	603,000	9,350
Oct.	7.31	2.49	27	6,230	10	517	883	54,300	142,242	1,157,000	4,940
Nov.	4.84	2.60	22	2,830	† 12	556	973	57,900	41,075	132,000	8,600
Dec.	3.96	2.95	14	1,720	30	815	1,150	70,800	33,139	70,800	9,510
Yearly	10.86	1.47		12,500		70.2	1,300	941,400	659,366	2,059,290	120,747

* Partly estimated † And other days

RIO GRANDE AT LANGTRY, TEXAS

DESCRIPTION: Water-stage recorder and cable with stand-up cable car equipped for winch and heavy weights, located at Langtry, Texas, 24.1 river miles above the confluence of the Pecos River and 614.1 river miles below the American Dam at El Paso, Texas. The zero of the gage is 1,091.69 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 47 meter measurements during the year and a continuous record of gage heights. Computations by shifting channel methods. Records available: May 1900 to October 1914; December 1919 through March 1920; January 1924 through December 1960.

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

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

Average Flow in Second-Feet †

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

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	782	1,430	1,680	884	527	438	397	1,910	8,190	986	2,000	1,560
2	767	1,590	1,640	835	523	444	397	1,600	8,040	998	1,740	1,680
3	824	1,640	1,620	844	526	496	397	1,440	7,720	992	1,430	1,690
4	868	1,620	1,640	831	534	707	397	1,250	6,290	967	1,360	1,360
5	890	1,620	1,590	768	530	495	386	1,240	6,590	951	1,380	1,410
6	997	1,580	1,540	750	526	467	2,570	1,220	5,650	954	1,300	1,460
7	935	1,440	1,620	759	531	643	9,320	1,100	4,540	973	1,160	1,460
8	960	1,540	1,900	760	518	2,030	7,880	1,210	4,080	945	1,090	1,520
9	1,130	1,680	1,820	753	523	1,830	5,590	982	3,640	927	1,050	1,630
10	1,170	1,660	1,550	726	516	1,250	4,980	1,180	3,450	936	1,000	1,640
11	1,030	1,610	1,450	740	510	1,050	4,620	1,540	3,080	927	1,030	1,440
12	954	1,660	1,300	712	498	762	3,730	2,610	2,850	936	1,020	1,340
13	903	1,660	1,240	686	480	721	4,070	2,710	2,690	1,040	1,060	1,460
14	868	1,460	1,180	673	479	675	3,230	2,910	2,600	1,480	1,020	1,780
15	1,080	1,650	1,160	632	483	1,370	4,390	5,060	2,350	1,470	992	1,680
16	1,300	1,690	1,110	617	477	1,380	4,990	4,250	2,380	4,000	989	1,750
17	1,200	1,690	1,100	578	470	941	4,530	3,240	2,090	1,330	998	1,780
18	1,040	1,690	1,090	563	469	756	3,970	2,890	1,900	4,880	1,010	1,390
19	968	1,670	1,080	549	474	675	5,320	2,800	1,800	4,460	1,000	1,400
20	913	1,670	1,110	559	456	617	3,520	3,290	1,660	2,800	1,110	1,480
21	884	1,470	1,030	595	444	574	4,470	3,370	1,600	1,840	1,120	1,500
22	912	1,720	987	599	454	527	3,040	3,590	1,510	1,230	1,130	1,520
23	1,240	1,960	997	589	459	504	3,680	5,320	1,430	950	1,190	1,600
24	1,230	1,650	1,010	591	459	481	4,400	3,190	1,680	851	1,640	1,560
25	1,320	1,570	1,050	624	474	470	4,200	5,130	1,320	2,620	2,360	1,300
26	1,520	2,050	1,030	608	473	470	3,710	8,810	1,210	2,710	1,940	1,310
27	1,520	1,970	989	566	445	459	3,140	15,800	1,150	1,580	2,120	1,410
28	1,460	1,740	931	568	435	438	4,780	10,200	1,060	5,560	1,940	1,390
29	1,510	1,680	865	564	458	417	3,530	6,400	1,020	7,250	1,710	1,400
30	1,480		874	542	459	406	2,220	8,290	1,020	2,200	1,540	1,480
31	1,380		921		448		1,970	10,400		1,860		1,580
Sum	34,035	48,060	39,104	20,065	15,058	22,493	113,824	124,932	94,590	61,603	40,429	46,960

Month	Current Year 1960						Period 1948-1960				
	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet			
			High	Low				Average	Maximum	Minimum	
	High	Low	Day	Day	Day	Day	Average	Maximum	Minimum		
Jan.	2.01	1.16	27	1,560	2	760	1,100	67,500	47,154	79,400	27,300
Feb.	2.50	1.77	26	2,230	1	1,370	1,660	95,300	49,254	95,300	25,000
Mar.	2.37	1.25	8	1,960	30	838	1,260	77,600	45,238	77,600	23,300
Apr.	1.37	.83	1	922	30	531	669	39,800	41,685	112,000	16,700
May	.84	.67	4	546	27	434	486	29,900	58,331	192,000	16,200
June	4.83	.60	8	4,680	30	406	750	44,600	77,031	258,000	15,800
July	9.40	.57	8	12,700	5	381	3,670	226,000	108,015	325,000	20,200
Aug.	14.98	1.29	27	24,100	10	899	4,030	248,000	118,362	248,000	31,100
Sept.	8.45	1.46	1	11,000	30	1,000	3,150	188,000	145,454	513,000	19,600
Oct.	16.21	1.28	28	26,700	13	778	1,990	122,000	187,415	1,335,000	23,200
Nov.	2.78	1.37	25	2,480	15	943	1,350	80,200	61,231	184,000	22,600
Dec.	2.33	1.72	17	1,920	26	1,220	1,510	93,100	50,523	93,100	24,800
Yearly	16.21	.57		26,700		381	1,810	1,312,000	989,693	2,363,800	326,100

† Period 1931-1960

PECOS RIVER NEAR SHUMLA, TEXAS

DESCRIPTION: Bubbler-type water-stage recorder, operated with bottled nitrogen gas, on top of rock ledge about 125 feet above river bed, and light cable, (which-operated, for carrying current meter and light weights only), located 13.0 river miles upstream from the Pecos High Bridge and 18.5 river miles above the confluence with the Rio Grande. This confluence is 638.2 river miles below the American Dam at El Paso, Texas. On January 1, 1958 the zero of the gage was changed to 1,159.46 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 47 measurements made at low and medium stages during the year, and a continuous record of gage heights. Computations by shifting channel methods. Records available: October 8, 1954 through December 1960 at this station. Records are also available for Pecos River near Comstock, 13.0 river miles downstream, from March 17 to December 3, 1898 and May 1900 through October 7, 1954.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station. The flood of June 1954, which had a discharge of 948,000 second-feet at the gaging station near the railroad bridge 13 miles downstream, reached an elevation of 1,281.2 feet above mean sea level at this station.

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	252	254	239	228	171	145	108	161	144	130	227	170
2	244	252	236	225	169	147	108	158	145	130	216	168
3	243	259	234	223	169	154	105	152	147	134	201	170
4	245	255	231	220	167	150	106	149	150	136	191	170
5	279	262	230	215	161	147	108	145	148	139	187	179
6	287	260	233	212	159	143	135	142	149	140	186	179
7	277	260	235	207	157	144	1,760	138	145	137	182	185
8	272	255	230	206	155	141	1,150	135	144	139	178	183
9	270	251	228	206	150	133	690	133	144	142	184	183
10	268	251	226	205	152	130	408	982	143	147	183	188
11	271	256	229	205	150	129	292	367	149	156	179	193
12	278	318	228	206	151	130	240	251	146	159	178	188
13	278	300	231	204	151	138	210	222	144	159	177	195
14	285	285	234	206	151	128	211	203	139	234	178	194
15	279	277	232	204	153	128	241	195	133	279	176	189
16	276	257	229	198	154	140	346	192	129	369	178	184
17	276	253	233	196	156	140	401	186	125	263	177	180
18	274	250	229	191	156	133	294	188	122	291	176	177
19	261	241	225	188	153	128	262	180	122	258	177	177
20	256	237	219	187	157	125	300	172	123	227	178	180
21	251	244	218	187	154	122	279	168	121	210	181	180
22	249	239	217	186	152	120	235	164	118	201	180	176
23	253	235	219	188	149	120	214	158	128	195	177	179
24	265	239	219	187	149	118	199	154	199	213	176	179
25	273	238	235	184	150	123	188	156	143	216	173	179
26	277	234	268	183	148	123	181	156	134	207	168	178
27	272	235	240	183	145	119	175	158	137	217	167	180
28	266	238	265	179	140	116	171	156	137	296	166	179
29	262	238	248	177	143	113	168	152	139	221	170	183
30	259		236	171	145	110	166	147	133	212	170	186
31	257		228		146		163	148		231		194
Sum	8,255	7,373	7,204	5,957	4,763	3,937	9,614	6,168	4,180	6,188	5,437	5,625
Current Year 1960									Period 1955-1960			
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum	
Jan.	1.78	1.55	6	296	3	238	266	16,400	12,782		16,400	8,890
Feb.	1.89	1.56	12	331	26	229	254	14,600	11,630		14,600	9,880
Mar.	1.75	1.48	26	284	21	210	232	14,300	11,717		14,300	10,000
Apr.	1.57	1.35	1	233	30	169	199	11,800	15,052		39,900	8,040
May	1.36	1.17	1	171	28	137	154	9,450	43,088		173,000	9,450
June	1.31	1.03	7	162	30	105	131	7,810	17,322		41,300	5,820
July	6.75	1.02	7	4,790	3	102	310	19,100	20,970		38,900	5,520
Aug.	5.76	1.19	10	3,600	9	131	199	12,200	13,853		26,500	5,220
Sept.	2.08	1.14	24	378	22	116	139	8,290	27,500		79,000	6,410
Oct.	2.33	1.18	16	504	† 1	130	200	12,300	35,467		101,000	12,300
Nov.	1.59	1.30	1	232	28	162	181	10,800	14,950		21,600	9,100
Dec.	1.47	1.32	31	204	3	165	181	11,200	12,883		16,300	9,100
Yearly	6.75	1.02		4,790		102	204	148,250	237,214		390,670	114,790

† And other days

GOODENOUGH SPRING NEAR COMSTOCK, TEXAS

DESCRIPTION: Water-stage recorder, located 4,000 feet above the confluence with the Rio Grande and 11.75 miles south-west of Comstock, Val Verde County, Texas. The stream from this spring enters the Rio Grande 664.9 river miles below the American Dam at El Paso, Texas. The zero of the gage is 967.42 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 29 meter measurements during the year and a continuous record of gage heights. Computations by shifting channel methods. From June 23, 1946, when recorder installation became inoperable, to October 12, 1954, discharges were estimated between measurements. Prior to June 23, 1946 records were based on continuous records of gage heights. Records available: January 1924 through December 1960.

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

EXTREME FLOWS FROM RECORDS: Momentary: Max. 1,210 second-feet on October 3, 1959 with a gage height of 6.62 feet. Min. 65.8 second-feet on February 27, 1957.

Average Flow in Second-Feet

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

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	183	165	164	158	160	138	135	147	148	148	194	156
2	181	166	164	157	159	138	134	144	148	148	192	156
3	180	167	162	155	157	136	134	144	148	148	188	157
4	180	165	164	156	157	135	133	144	149	149	178	156
5	179	165	164	156	154	135	133	144	148	149	171	155
6	177	166	164	156	151	139	144	143	148	149	168	154
7	176	165	164	156	149	142	148	143	149	151	167	155
8	175	165	163	155	150	143	145	142	146	152	166	155
9	174	166	163	153	149	143	145	141	145	153	164	155
10	174	167	163	153	149	143	142	140	148	154	163	155
11	174	166	162	152	148	144	141	144	150	154	164	153
12	174	168	162	152	148	144	139	146	151	156	165	152
13	173	167	162	152	149	143	139	149	149	157	166	151
14	172	168	161	152	149	143	147	149	149	159	167	153
15	170	168	161	151	147	143	144	150	148	159	165	151
16	170	167	161	150	147	142	145	153	147	160	165	149
17	170	168	157	149	147	141	155	154	146	171	166	148
18	168	168	157	149	147	141	157	155	145	190	167	148
19	168	168	158	148	146	140	156	155	145	201	167	149
20	167	167	157	147	146	140	156	155	145	205	166	148
21	167	166	157	148	147	140	158	155	145	201	166	148
22	167	165	158	148	148	141	157	154	145	194	165	148
23	167	164	160	146	147	141	155	152	154	189	162	147
24	167	163	161	145	146	140	154	151	154	187	163	146
25	167	163	160	145	145	140	151	151	147	185	163	148
26	167	165	160	145	143	138	149	151	148	179	161	148
27	165	164	160	148	143	137	147	149	147	177	161	148
28	165	163	158	151	143	137	147	151	147	180	159	149
29	164	163	160	166	141	136	149	149	148	214	157	147
30	165		158	164	140	136	147	148	148	207	157	148
31	166		160		140		146	148	199			148
Sum	4,808			4,563		4,199		4,601		5,325		4,681
	5,312		4,985		4,592		4,532		4,435		5,023	
Current Year 1960									Period 1930-1960			
Month	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet				
	High	Low	Day	High	Low			Day	Average	Maximum	Minimum	
Jan.	1.47	1.33	1	183	29	164	171	10,500	7,891	19,620	4,450	
Feb.	1.37	1.26	2	170	28	162	166	9,540	7,023	17,030	3,860	
Mar.	1.27	1.22	† 1	164	† 17	157	161	9,890	7,617	17,770	4,340	
Apr.	1.38	1.16	29	168	26	144	152	9,050	7,444	16,580	4,820	
May	1.33	1.16	1	162	† 30	139	148	9,110	8,166	16,840	4,870	
June	1.24	1.12	10	145	4	134	140	8,330	8,094	16,040	4,470	
July	1.45	1.11	† 5	166	5	132	146	8,990	8,575	16,460	4,500	
Aug.	1.71	1.27	11	188	10	140	148	9,130	8,215	15,840	4,840	
Sept.	3.37	1.39	23	361	23	144	148	8,800	9,144	25,000	5,120	
Oct.	2.75	1.50	28	306	1	147	172	10,600	9,649	25,870	4,820	
Nov.		1.47	1	194	29	156	167	9,960	8,589	21,850	4,540	
Dec.	1.58	1.32	8	165	† 24	146	151	9,280	8,367	20,470	4,500	
Yearly	3.37	1.11		361		132	156	113,180	98,774	192,840	60,320	

† And other days ‡ Mean daily

DEVILS RIVER AT PAFFORD CROSSING

DESCRIPTION: Bubbler-type water-stage recorder operated with bottled nitrogen gas and control wall with notch opening of 440 second-feet capacity, located 25.5 miles above the confluence with the Rio Grande. This confluence is 680.1 river miles below the American Dam at El Paso, Texas. The zero of the gage is 1,131.88 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 32 meter measurements by wading during the year, a continuous record of gage heights and a stable rating curve. The rating curve for discharge above the capacity of the notch is estimated. Records available: January through December 1960. For additional records see "Devils River Near Mouth" on following page.

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.

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	245	240	226	216	190	185	165	189	199	185	268	189
2	245	240	226	209	193	172	165	189	199	182	254	189
3	245	235	229	212	193	175	161	172	196	182	249	189
4	245	235	229	212	196	172	165	172	196	178	239	196
5	245	230	229	212	196	172	165	172	196	182	234	196
6	245	230	229	212	187	172	178	168	196	185	229	196
7	245	230	229	209	187	182	185	168	192	178	222	210
8	245	230	229	209	187	182	168	168	192	178	222	218
9	245	230	229	209	187	178	165	168	192	175	222	207
10	245	224	229	209	190	175	165	* 1,070	189	175	210	199
11	245	224	226	209	190	168	165	1,160	189	175	210	196
12	245	262	219	206	190	168	165	443	189	178	207	185
13	245	258	216	212	190	172	165	317	189	178	210	192
14	247	235	219	219	193	172	185	291	185	189	207	192
15	249	235	212	212	196	172	178	276	185	189	210	192
16	248	240	216	209	193	168	380	281	185	199	207	192
17	246	235	209	209	190	172	286	267	185	214	203	189
18	245	230	209	199	190	168	222	248	185	214	203	189
19	240	218	212	199	190	165	* 1,170	238	185	214	203	189
20	245	224	212	199	222	165	337	238	189	199	199	192
21	245	230	212	196	216	165	257	234	189	196	207	192
22	245	230	212	196	206	165	234	229	189	196	192	192
23	245	224	212	196	203	165	218	225	199	196	196	192
24	245	218	212	199	203	165	210	222	222	196	196	192
25	245	218	222	199	206	168	199	218	203	207	196	189
26	245	218	241	203	203	165	203	210	199	203	196	189
27	245	218	241	203	196	165	196	207	199	199	196	189
28	245	218	229	203	193	165	196	207	199	* 880	192	189
29	245	218	226	203	193	165	189	199	196	* 2,120	189	189
30	245		226	190	199	161	196	203	189	328	189	189
31	240		226		196		199			278		192
Sum		6,677	6,893	6,170	6,064	5,104	7,232	8,752	5,797	* 8,748	6,357	5,991

Month	Current Year 1960							Period		
	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Acre-Feet		
	High	Low	Day	High	Low	Day		Average	Maximum	Minimum
Jan.			15	249	240	19	245			
Feb.	1.69	1.55	12	270	200	19	230			
Mar.	1.65	1.53	25	258	206	15	222			
Apr.	1.60	1.47	17	229	187	30	206			
May	1.65	1.46	20	258	183	6	196			
June	1.51	1.39	1	196	155	23	170			
July	3.15	1.41	19	* 3,990	161	1	233			
Aug.	3.06	1.42	10	* 3,480	165	5	282			
Sept.	1.69	1.46	23	271	185	14	193			
Oct.	4.14	1.45	28	* 14,200	175	9	* 282			
Nov.	1.68	1.48	1	268	185	29	212			
Dec.	1.57	1.48	8	218	185	3	193			
Yearly	4.14	1.39		* 14,200	155		222	161,400		

* Partly estimated † And other days ‡ Mean daily § Estimated

DEVILS RIVER NEAR MOUTH

DESCRIPTION: Water-stage recorder and rock and concrete low-flow station control, located 3.7 river miles downstream from U. S. 90 highway bridge and .8 mile above the confluence with the Rio Grande. This confluence is 680.1 river miles below the American Dam at El Paso, Texas. The zero of the gage is 911.00 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 34 meter measurements by wading during the year, a continuous record of gage heights, and a stable rating curve for discharges up to 600 second-feet; above 600 second-feet, and when affected by backwater from the Rio Grande, records are based on discharges at a station 3.7 miles upstream. Records available: August 1954 through December 1960. Records are also available from May 1900 to March 1914 for a point .9 mile upstream; from December 1923 to September 1, 1932 for a site 1.9 miles upstream; from September 2, 1932 through August 31, 1957, for a station 3.7 miles upstream; and from August 7, 1954 to January 31, 1958 at a site 30.1 miles upstream. A graph of Devils River flow from 1871 through 1939 may be found in Water Bulletin No. 9.

REMARKS: The monthly flow of this spring-fed stream is not modified, but the daily flow is modified by two power dams, with a combined hydroelectric generating capacity of 3,100 kva, the operation of which began in 1929. During the flood of June 1954, the peak flow of Devils River, affected by backwater from the Rio Grande, reached an elevation of 969.00 feet at the steam electric plant located approximately 2,000 feet upstream from this station.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 86,500 second-feet on September 24, 1955, with a gage height of 21.02 feet. Min. 51.9 second-feet on February 7, 1957, with a gage height of .70 foot. Extreme flow data for Devils River prior to 1954 may be found in previous water bulletins.

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	538	469	430	403	340	353	306	334	351	364	628	376
2	502	458	424	444	369	345	304	297	369	364	620	452
3	486	525	408	366	374	349	279	318	353	364	614	410
4	498	514	403	418	382	345	277	328	372	362	471	383
5	482	439	422	405	359	345	290	315	357	383	360	381
6	489	454	397	390	358	348	317	318	337	358	471	397
7	471	449	427	396	332	352	289	317	360	360	428	414
8	466	449	420	401	341	353	307	312	335	348	462	426
9	468	465	420	397	344	359	305	306	353	348	419	405
10	463	455	419	402	353	354	291	364	349	366	428	416
11	465	460	424	393	347	347	276	1,460	357	337	435	390
12	471	539	393	398	368	346	301	845	361	347	429	373
13	478	516	388	390	313	324	301	621	357	352	436	396
14	476	500	401	399	380	326	306	521	346	357	452	406
15	442	483	410	396	353	349	397	435	348	348	439	292
16	436	441	386	385	366	284	373	435	343	356	406	353
17	451	482	366	420	360	387	532	420	369	396	396	369
18	425	414	408	342	339	334	413	419	347	419	435	372
19	423	434	384	358	316	333	731	404	354	421	425	375
20	429	444	387	351	421	333	872	420	340	384	399	382
21	428	444	380	374	372	316	552	411	360	368	432	356
22	422	427	406	356	348	324	434	417	347	371	419	362
23	417	422	393	390	340	304	411	416	388	373	404	360
24	427	485	386	397	345	316	359	351	458	380	405	364
25	417	392	408	390	355	314	382	398	367	410	386	364
26	420	421	471	420	352	311	366	353	369	452	394	362
27	431	432	436	428	358	313	369	423	356	420	403	360
28	448	456	448	374	341	308	362	508	420	404	408	457
29	445	425	424	385	350	298	365	380	359	* 4,980	353	418
30	442		416	374	266	307	369	346	370	902	377	368
31	439		406		434		343	347		657		400
Sum	13,294		11,742		9,977		13,539		* 17,051		11,939	
14,095		12,691		10,976		11,779		10,852		13,134		
Current Year 1960									Period 1955-1960			
Month	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet				
	High	Low	Day	High	Low			Day	Average	Maximum	Minimum	
Jan.	2.41	1.80	2	577	25	296	455	28,000	24,783	39,200	9,700	
Feb.	2.90	2.27	10	639	25	303	458	26,400	23,492	38,000	8,950	
Mar.	2.78	1.97	1	558	17	185	409	25,200	22,750	34,500	10,400	
Apr.	3.01	1.93	26	721	21	183	391	23,300	23,417	30,400	12,600	
May	2.94	1.48	31	667	30	111	354	21,800	77,350	347,000	11,500	
June	2.73	1.88	17	552	30	191	333	19,800	46,100	127,000	10,100	
July	3.80	1.93	19	1,690	7	182	380	23,400	26,452	34,700	9,710	
Aug.	3.88	1.94	11	1,830	† 8	190	437	26,900	25,210	32,100	9,760	
Sept.	3.05	1.81	23	768	29	165	362	21,500	47,208	118,000	9,650	
Oct.		1.97	29	* 15,500	11	188	* 550	* 33,800	50,000	92,500	13,600	
Nov.	2.90	1.80	9	684	29	146	438	26,100	28,117	41,900	10,100	
Dec.	3.04	1.79	2	763	16	138	385	23,700	26,730	40,800	9,980	
Yearly	1.48			* 15,500		111	413	299,900	421,609	718,350	145,600	

* Partly estimated † And other days

RIO GRANDE BELOW AMISTAD DAM SITE

DESCRIPTION: Bubbler-type water-stage recorder, operated with bottled nitrogen gas, and cable with stand-up cable car equipped for winch and heavy weights, located 10.5 river miles above the international highway bridge between Del Rio, Texas and Cd. Acuña, Coahuila, 2.9 river miles below the confluence of the Devils River, and 683.0 river miles below the American Dam at El Paso, Texas. The zero of the gage is 893.79 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 56 meter measurements during the year and a continuous record of gage heights. Computations by shifting channel methods. Records available: September 1, 1954 through December 1960. Records are also available from May 1900 to April 1915 for a station 1.9 miles upstream; from December 1919 to March 1920 for a station 1.6 miles downstream near McKee's Switch; from December 1923 to July 2, 1941 for a station approximately 10.3 miles downstream and from July 2, 1941 through August 1954 for the station at the international highway bridge 10.5 miles downstream.

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

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

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2,080	2,380	2,680	1,970	1,360	1,190	1,070	3,160	10,000	1,950	3,000	2,520
2	2,020	2,410	2,670	1,970	1,390	1,140	1,060	3,020	8,220	1,990	3,220	2,600
3	1,970	2,670	2,600	1,890	1,370	1,140	1,040	2,600	8,870	1,960	2,920	2,660
4	2,040	2,670	2,570	1,940	1,380	1,140	1,020	2,390	8,060	1,900	2,580	2,570
5	2,080	2,600	2,580	1,920	1,350	1,500	1,050	2,230	7,410	1,880	2,320	2,550
6	2,140	2,600	2,520	1,810	1,350	1,260	1,340	2,080	7,160	1,830	2,460	2,440
7	2,240	2,560	2,490	1,770	1,300	1,230	5,560	2,030	6,060	1,800	2,350	2,560
8	2,150	2,440	2,590	1,770	1,330	1,410	12,400	1,950	5,170	1,770	2,270	2,540
9	2,130	2,600	2,830	1,770	1,320	2,890	7,350	2,020	4,750	1,740	2,080	2,550
10	2,280	2,690	2,690	1,770	1,320	2,580	7,560	1,870	4,340	1,760	2,060	2,650
11	2,360	2,710	2,470	1,740	1,330	2,180	5,380	4,230	4,090	1,790	2,020	2,600
12	2,290	2,860	2,370	1,780	1,330	1,980	5,080	3,380	3,790	1,810	2,030	2,440
13	2,150	2,900	2,320	1,750	1,250	1,700	4,660	3,880	3,660	1,790	2,020	2,430
14	2,110	2,840	2,300	1,720	1,280	1,570	6,800	3,770	3,470	2,010	2,040	2,540
15	1,980	2,670	2,240	1,690	1,280	1,570	4,280	4,170	3,320	2,540	1,950	2,680
16	2,210	2,790	2,210	1,620	1,300	2,110	6,070	6,140	3,100	4,150	1,910	2,620
17	2,430	2,850	2,120	1,720	1,290	2,290	6,100	4,680	3,150	3,350	1,850	2,740
18	2,310	2,960	2,100	1,540	1,250	1,830	5,240	3,840	2,880	3,710	1,890	2,700
19	2,150	2,770	2,040	1,500	1,220	1,610	5,840	3,550	2,750	5,560	1,830	2,420
20	2,060	2,750	2,040	1,460	1,350	1,510	6,290	3,630	2,590	4,860	1,820	2,440
21	1,990	2,710	2,080	1,470	1,280	1,430	5,070	4,310	2,490	3,360	1,980	2,450
22	1,930	2,510	2,020	1,500	1,230	1,360	5,230	4,030	2,380	2,730	2,000	2,420
23	1,920	2,810	1,970	1,520	1,240	1,290	4,250	4,730	2,950	2,300	2,010	2,450
24	2,280	2,970	1,970	1,510	1,240	1,240	4,910	5,810	3,540	2,120	2,080	2,470
25	2,300	2,580	2,070	1,500	1,260	1,210	5,440	3,860	2,560	2,090	2,590	2,430
26	2,400	2,520	2,180	1,560	1,230	1,180	4,500	7,370	2,210	4,380	3,120	2,220
27	2,560	2,950	2,130	1,590	1,230	1,210	4,820	10,300	2,060	3,290	2,740	2,210
28	2,560	2,840	2,090	1,440	1,180	1,170	4,050	15,100	2,060	2,680	3,040	2,370
29	2,490	2,660	2,000	1,430	1,190	1,120	5,410	8,880	1,950	23,000	2,800	2,340
30	2,520		1,940	1,420	1,120	1,100	3,900	7,720	1,930	5,620	2,630	2,300
31	2,480		1,920		1,260		3,090	9,630		3,530		2,400
Sum	68,610	78,200	70,800	50,040	39,810	46,140	145,860	146,360	126,970	105,250	69,610	77,110

Month	Current Year 1960						Period 1955-1960		
	Extreme Gage Feet		Extreme Second-Feet				Acre-Feet		
	High	Low	High		Low		Average	Maximum	Minimum
			Day	Day	Day	Day			
Jan.	2.68	2.10	28	2,670	23	1,760	2,210	136,000	100,533
Feb.	2.87	2.42	27	3,100	† 1	2,260	2,700	155,000	97,233
Mar.	2.82	2.10	9	2,920	30	1,800	2,280	140,000	90,300
Apr.	2.32	1.74	† 2	2,170	21	1,320	1,670	99,300	96,933
May	1.93	1.43	2	1,500	31	928	1,280	79,000	226,783
June	3.42	1.39	9	4,200	30	937	1,540	91,500	144,383
July	6.50	1.36	8	13,300	3	905	4,700	289,000	162,183
Aug.	6.10	1.92	28	19,300	10	1,630	4,720	290,000	174,250
Sept.	5.72	2.02	1	10,900	30	1,680	4,230	252,000	306,983
Oct.	11.99	1.90	29	36,200	9	1,560	3,400	209,000	439,833
Nov.	2.95	2.00	26	3,320	20	1,580	2,320	138,000	139,533
Dec.	2.78	2.23	18	2,980	26	2,000	2,490	153,000	116,000
Yearly	11.99	1.36		36,200		905	2,800	2,031,800	2,094,947

† And other days

ARROYO LAS VACAS NEAR CD. ACUNA, COAHUILA

DESCRIPTION: Water-stage recorder and cable with sit-down cable car, and control wall with notch opening capacity of 777 second-feet, located 1.5 miles upstream from Cd. Acuña, Coahuila and 1.8 miles upstream from the confluence of Arroyo Las Vacas with the Rio Grande. This confluence is just above the Del Rio-Cd. Acuña International Bridge, and 693.5 river miles below the American Dam at El Paso, Texas. The zero of the gage is 885.82 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 96 meter measurements during the year, a stable rating curve up to 777 second-feet, and a continuous record of gage heights. Computations by shifting channel methods for flows above notch capacity. Records available: Occasional estimates from June 1935 to March 19, 1938 and continuous records from March 20, 1938 through December 1960.

REMARKS: The low flow of this stream is from springs and is modified by irrigation diversions upstream. The reinforced concrete control wall, 52 feet downstream from the recorder, was built in January 1955 and the zero of the gage was changed to coincide with the notch elevation. On June 28, 1954 backwater from the Rio Grande reached an elevation of 902.49 feet at this station.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 25,780 second-feet with a gage height of 16.14 feet on September 30, 1954. Min. no flow several occasions September and December 1956, January 1957, and June, July and August 1960.

Average Flow in Second-Feet †

Daily:	Max.	4,030	Apr. 28, 1957	Min.	0	Several days Dec. 1956 & Jan. 1957
Monthly:	Max.	279	Apr. 1957	Min.	.4	Several months 1952, 1953 & 1954
Yearly:	Max.	44.1	1954	Min.	2.8	1952

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1	3.9	3.9	10.6	3.9	1.4	1.4	1.4	1.4	1.4	1.4	6.7	3.5	
2	3.9	19.4	10.6	6.7	3.9	1.4	1.4	1.4	1.4	1.4	6.7	3.5	
3	3.9	39.6	6.7	6.7	3.9	1.4	1.4	1.4	1.4	1.4	3.5	3.5	
4	3.9	10.6	6.7	6.7	3.9	1.4	1.4	1.4	1.4	1.4	3.5	3.5	
5	3.9	3.9	6.7	3.9	1.4	1.4	1.4	1.4	1.4	1.4	3.5	3.5	
6	3.9	3.9	6.7	3.9	1.4	1.4	1.4	1.4	1.4	1.4	3.5	6.7	
7	3.9	3.9	6.7	6.7	1.4	1.4	1.4	1.4	1.4	1.4	3.5	10.6	
8	3.9	3.9	6.7	6.7	1.4	1.4	1.4	1.4	1.4	1.4	3.5	10.6	
9	3.9	3.9	6.7	6.7	1.4	1.4	1.4	1.4	1.4	1.4	3.5	10.6	
10	3.9	3.9	6.7	6.7	1.4	1.4	1.4	1.4	1.4	1.4	3.5	10.6	
11	3.9	6.7	3.9	3.9	1.4	1.4	1.4	63.9	1.4	1.4	3.5	6.7	
12	3.9	14.8	6.7	3.9	1.4	1.4	1.4	1.4	1.4	1.4	3.5	6.7	
13	3.9	10.6	6.7	3.9	1.4	1.4	1.4	1.4	1.4	1.4	3.5	10.6	
14	3.9	10.6	6.7	3.9	1.4	1.4	1.4	1.4	1.4	1.4	3.5	10.6	
15	3.9	6.7	3.9	3.9	1.4	1.4	17.7	1.4	1.4	1.4	3.5	10.6	
16	3.9	6.7	3.9	3.9	1.4	1.4	3.9	1.4	1.4	1.4	3.5	6.7	
17	3.9	6.7	6.7	3.9	1.4	1.4	1.4	1.4	1.4	10.6	3.5	6.7	
18	3.9	6.7	6.7	3.9	1.4	1.4	1.4	1.4	12.4	1,400	3.5	6.7	
19	3.9	10.6	6.7	3.9	1.4	1.4	18.0	1.4	1.4	41.7	3.5	6.7	
20	3.9	10.6	3.9	3.9	1.4	1.4	254	1.4	1.4	10.6	3.5	6.7	
21	3.9	6.7	3.9	3.9	1.4	1.4	14.8	1.4	1.4	3.9	3.5	6.7	
22	3.9	10.6	3.9	3.9	1.4	1.4	3.9	1.4	1.4	3.9	3.5	6.7	
23	3.9	10.6	3.9	3.9	1.4	1.4	1.4	1.4	1.4	3.9	3.5	6.7	
24	3.9	6.7	6.7	3.9	1.4	1.4	1.4	1.4	1.4	3.9	3.5	6.7	
25	3.9	10.6	10.6	3.9	1.4	1.4	1.4	1.4	1.4	3.9	3.5	6.7	
26	3.9	10.6	10.6	3.9	1.4	1.4	1.4	1.4	1.4	3.9	3.5	6.7	
27	3.9	10.6	6.7	3.9	1.4	1.4	1.4	1.4	1.4	3.9	3.5	6.7	
28	3.9	10.6	6.7	3.9	1.4	1.4	1.4	1.4	1.4	10.6	1.4	6.7	
29	3.9	6.7	3.9	3.9	1.4	1.4	1.4	1.4	1.4	223	1.4	6.7	
30	3.9		3.9	1.4	1.4	1.4	1.4	1.4	1.4	10.6	1.4	6.7	
31	3.9		3.9		1.4		1.4	1.4		6.7		6.7	
Sum	271.3		134.1		50.9		347.3		105.9		1,763.5		219.0
	120.9		195.3						53.0		105.1		
Current Year 1960									Period 1938-1960				
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.	.07	.07	† 1	3.9	† 1	3.9	3.9	239	345	910	31.5		
Feb.	1.15	.07	3	385	† 1	3.9	9.4	538	587	5,950	33.3		
Mar.	.20	.07	25	19.4	† 11	3.9	6.3	388	716	2,600	59.3		
Apr.	.10	.03	† 1	6.7	† 29	1.4	4.5	265	1,577	16,610	75.4		
May	.07	.03	† 2	3.9	† 1	1.4	1.6	101	1,815	9,080	90.0		
June	.07		14	3.9	† 3	0	1.4	84.3	1,332	12,290	43.8		
July	2.79	0	20	1,590	† 28	0	11.2	688	1,184	8,230	26.8		
Aug.	1.18	0	11	403	† 3	0	3.4	211	677	3,850	42.2		
Sept.	.66	.03	23	147	† 1	1.4	1.8	105	1,614	6,850	37.3		
Oct.	4.99	.03	18	4,130	† 10	1.4	56.9	3,500	1,413	9,390	22.6		
Nov.	.10	.03	† 1	6.7	† 16	1.4	3.5	216	339	1,670	21.0		
Dec.	.16	.03	7	14.8	† 1	1.4	7.1	435	303	780	22.0		
Yearly	4.99	0		4,130		0	9.3	6,770.3	11,902	31,995.7	2,066.7		

† And other days ‡ Period 1938-1960

SAN FELIPE CREEK NEAR DEL RIO, TEXAS

DESCRIPTION: Bubbler-type water-stage recorder, operated with bottled nitrogen gas, and cable with stand-up cable car equipped for winch and heavy weights, at Silos Farm road bridge 1.75 miles south of Del Rio, Texas, and 2 miles above the confluence with the Rio Grande. This stream enters the Rio Grande 695.1 river miles below the American Dam at El Paso, Texas and 12.1 river miles below the gaging station on the Rio Grande below Amistad Dam Site. The zero of the gage is 877.43 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 49 meter measurements during the year, and a continuous record of gage heights. Computations by shifting channel methods. Records available: September 1, 1931 through December 1960.

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

EXTREME FLOWS FROM RECORDS: Momentary: Max. 45,000 second-feet on June 14, 1935, with a gage height of 23.20 feet. Min. .4 second-foot on July 20, 1953.

Average Flow in Second-Feet

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

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	112	121	108	88.1	90.0	84.0	61.4	68.0	78.9	77.5	108	99.7
2	113	124	101	88.5	86.6	81.4	63.9	67.5	78.4	77.2	108	99.8
3	111	143	108	92.8	89.6	80.2	72.3	67.0	99.9	79.2	108	95.7
4	112	126	112	94.7	86.3	81.4	74.0	68.6	111	76.4	108	99.8
5	112	125	113	95.1	83.6	82.7	78.0	73.7	92.0	80.8	111	98.5
6	109	125	114	98.2	92.4	87.7	81.0	75.3	90.1	84.8	116	101
7	112	122	114	104	104	91.5	80.1	88.3	88.3	86.2	114	119
8	120	121	115	102	108	86.4	78.9	87.5	88.0	89.0	115	123
9	119	120	112	99.6	103	85.1	76.4	85.4	88.9	89.2	114	127
10	120	120	112	101	102	84.0	76.5	89.8	90.0	86.7	115	127
11	122	130	115	99.2	98.6	85.3	72.0	163	91.1	89.5	115	128
12	124	140	112	99.0	95.7	85.4	74.4	109	86.7	95.5	110	132
13	128	122	109	98.8	94.2	83.0	79.2	104	85.1	93.5	110	132
14	127	121	107	97.2	91.4	83.1	80.6	101	82.2	94.2	108	121
15	133	119	87.0	92.1	86.2	77.1	87.3	87.5	77.8	86.1	100	113
16	132	116	90.9	83.7	76.4	70.6	81.8	94.4	76.1	84.3	93.1	110
17	129	119	97.5	89.2	80.9	68.8	77.3	89.9	75.7	87.5	95.1	109
18	130	123	96.0	92.1	82.0	65.7	78.0	89.3	77.5	362	96.4	110
19	128	124	97.0	95.2	83.2	67.2	284	89.2	75.9	112	102	112
20	127	120	96.8	99.8	96.2	72.2	142	90.0	82.8	121	106	115
21	127	120	102	106	96.1	72.5	98.3	91.9	89.9	118	107	118
22	124	114	107	110	100	75.4	95.5	96.8	87.6	116	106	115
23	123	107	98.9	108	98.9	73.3	95.2	92.0	254	115	103	115
24	122	115	93.2	108	100	77.1	94.8	89.8	107	110	107	115
25	120	117	105	104	91.9	77.1	91.7	84.8	95.2	108	106	118
26	120	117	103	106	93.2	82.2	88.6	86.2	95.6	104	106	116
27	117	114	103	107	88.0	78.5	89.6	87.6	94.6	106	105	114
28	119	114	103	103	94.6	77.2	89.4	91.8	93.6	106	103	114
29	120	114	102	104	101	75.9	88.9	90.4	91.6	160	102	114
30	121	100	103	101	101	72.3	89.6	94.6	85.6	114	101	115
31	122		95.7		94.5		87.9	89.4		114		114
Sum	3,513		2,969.3		2,364.3		2,783.7		3,211.1	3,323.6		3,540.5
	3,755		3,230.0		2,889.5		2,808.6		2,811.1		3,198.6	

Current Year 1960							Period 1932-1960				
Month	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Day			Low	Average	Maximum	Minimum
Jan.	1.84	1.65	16	135	7	99.3	121	7,450	3,934	7,450	934
Feb.	3.41	1.62	3	484	22	99.2	121	6,970	3,087	8,630	487
Mar.	1.80	1.52	10	120	31	81.3	104	6,410	2,781	6,510	689
Apr.	1.79	1.47	22	120	1	74.5	99.0	5,890	3,232	10,400	566
May	1.86	1.40	20	128	27	67.7	93.2	5,730	4,712	17,600	739
June	1.67	1.35	7	101	30	56.9	78.8	4,690	5,204	47,900	301
July	6.99	1.30	19	2,350	1	52.1	90.6	5,570	3,374	8,800	285
Aug.	3.69	1.37	11	565	2	62.1	89.8	5,520	3,082	6,300	350
Sept.	5.79	1.42	23	1,540	17	67.7	93.7	5,580	4,291	19,100	872
Oct.	7.25	1.45	18	2,560	4	71.8	107	6,590	4,281	8,470	1,000
Nov.	1.73	1.53	8	121	17	88.7	107	6,340	3,401	7,000	526
Dec.	2.00	1.57	7	154	1	93.1	114	7,020	3,417	7,020	496
Yearly	7.25	1.30		2,560		52.1	102	73,760	44,796	98,137	18,201

DIVERSIONS FROM THE RIO GRANDE

MAVERICK CANAL AT MILE 13 NEAR QUEMADO, TEXAS

DESCRIPTION: For power generation and irrigation use, water is diverted into the main Maverick Canal from the Rio Grande at a point 17.3 river miles below the international bridge between Del Rio, Texas and Cd. Acuña, Coahuila, and 710.8 river miles below the American Dam at El Paso, Texas. At a point 31.8 canal miles below the headworks of this canal, a portion of the diverted water returns to the river through the Maverick Power Plant and the remainder enters the Maverick Canal extension. The discharges shown below are based on the continuous record of a bubbler-type water-stage recorder, operated with bottled nitrogen gas, and measurements of discharge at a point approximately 13 canal miles below the diversion point. Gage heights at this station are affected by gate operation at Las Moras Siphon, 2.4 miles downstream. These gates did not operate in 1960.

RECORDS: Based on 49 meter measurements during the year and a continuous record of gage heights. Computations by shifting channel methods. Records available: June 21, 1949 through December 1960.

REMARKS: In 1960 a total of 32,985 acres of land was irrigated from this canal and its extension. Of this total, 8,514 acres were between this point and the Power Plant and 24,471 acres were irrigated from the Maverick Canal extension. A total of 667,200 acre-feet of water returned to the Rio Grande at the Power Plant and some returned through the irrigation system.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 1,650 second-feet on May 27, 1952. Min. no flow several days in June, July and November 1954.

Average Flow in Second-Feet

Daily:	Max.	1,620	July 13, 1952	Min.	0	June 28 thru July 11 and Nov. 2, 1954
Monthly:	Max.	1,530	July 1952	Min.	319	July 1954
Yearly:	Max.	1,390	1950	Min.	914	1956

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,230	1,270	1,330	1,200	1,240	1,200	1,060	1,430	1,450	1,310	1,450	1,380
2	1,230	1,280	1,330	1,190	1,220	1,170	1,040	1,440	1,440	1,320	1,470	1,370
3	1,220	1,290	1,340	1,180	1,220	1,160	1,040	1,400	1,460	1,330	1,460	1,390
4	1,210	1,290	1,340	1,170	1,230	1,150	1,010	1,380	1,460	1,320	1,460	1,400
5	1,190	1,330	1,350	1,170	1,230	1,200	1,010	1,380	1,450	1,270	1,420	1,360
6	1,230	1,330	1,350	1,170	1,230	1,250	1,070	1,360	1,450	1,310	1,430	1,390
7	1,230	1,340	1,350	1,160	1,220	1,200	1,210	1,350	1,410	1,260	1,430	1,410
8	1,230	1,320	1,350	1,170	1,240	1,200	1,380	1,330	1,430	1,310	1,390	1,410
9	1,170	1,310	1,380	1,180	1,250	1,250	1,360	1,330	1,430	1,330	1,240	1,410
10	1,180	1,330	1,390	1,180	1,250	1,350	1,400	1,330	1,430	1,240	1,240	1,420
11	1,200	1,340	1,370	1,180	1,250	1,330	1,400	1,370	1,440	1,230	1,220	1,430
12	1,260	1,350	1,350	1,180	1,250	1,340	1,400	1,380	1,440	1,230	1,320	1,430
13	1,090	1,330	1,340	1,180	1,250	1,290	1,410	1,430	1,440	1,230	1,340	1,420
14	285	1,320	1,340	1,190	1,220	1,260	1,390	1,440	1,300	1,220	1,240	1,430
15	1,210	1,310	1,330	1,200	1,240	1,250	1,380	1,440	1,300	1,350	1,360	1,460
16	1,240	1,330	1,320	1,200	1,230	1,250	1,390	1,440	1,300	1,450	1,390	1,460
17	1,240	1,340	1,310	1,210	1,230	1,340	1,370	1,430	1,410	1,310	1,380	1,450
18	1,230	1,340	1,300	1,210	1,220	1,330	1,380	1,410	1,420	1,240	1,370	1,470
19	1,230	1,350	1,300	1,200	1,210	1,280	1,390	1,430	1,310	1,330	1,370	1,450
20	1,230	1,350	1,300	1,210	1,190	1,260	1,370	1,430	1,280	1,490	1,360	1,440
21	1,240	1,350	1,300	1,210	1,220	1,250	1,380	1,440	1,280	1,430	1,350	1,430
22	1,240	1,340	1,300	1,230	1,190	1,250	1,390	1,450	1,280	1,430	1,360	1,440
23	1,230	1,330	1,290	1,240	1,180	1,230	1,390	1,430	1,270	1,400	1,350	1,450
24	1,250	1,360	1,270	1,250	1,160	1,200	1,420	1,430	1,350	1,360	1,350	1,460
25	1,270	1,360	1,270	1,250	1,180	1,180	1,430	1,410	1,380	1,350	1,360	1,460
26	1,260	1,330	1,250	1,250	1,180	1,170	1,410	1,440	1,260	1,390	1,400	1,440
27	1,280	1,350	1,260	1,260	1,160	1,160	1,410	1,450	1,210	1,440	1,410	1,430
28	1,290	1,360	1,250	1,260	1,170	1,130	1,390	1,450	1,220	1,440	1,410	1,450
29	1,280	1,330	1,240	1,250	1,160	1,120	1,410	1,410	1,280	1,490	1,430	1,460
30	1,280		1,220	1,250	1,180	1,080	1,430	1,420	1,210	1,380	1,400	1,450
31	1,280		1,200		1,150		1,420	1,440		1,390		1,460
Sum	37,235	38,560	40,620	36,180	37,550	36,830	40,940	43,700	40,790	41,580	41,160	44,310
Current Year 1960									Period 1950-1960			
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	High		Low				Average	Maximum	Minimum	
			Day		Day							
Jan.	4.29		† 27	1,290	14	9*	285	1,200	73,900	72,900	89,500	61,900
Feb.	4.56	4.14	† 24	1,370	† 1		1,260	1,330	76,500	65,664	82,500	52,700
Mar.	4.51	3.69	10	1,400	31		1,190	1,310	80,600	69,482	90,700	52,000
Apr.	4.10	3.60	27	1,280	† 5		1,150	1,210	71,800	62,782	81,000	45,400
May	4.04	3.31	15	1,270	31		1,100	1,210	74,500	67,936	82,200	39,400
June	4.46	2.91	10	1,360	30		1,030	1,230	73,100	68,864	86,800	34,400
July	4.77	2.56	† 12	1,440	5		969	1,320	81,200	68,709	93,900	19,600
Aug.	4.80	4.20	† 27	1,470	9		1,320	1,410	86,700	73,700	88,500	53,000
Sept.	4.80	2.50	1	1,470	30		923	1,360	80,900	71,927	84,500	47,000
Oct.	4.94	2.97	29	1,520	18		1,050	1,340	82,500	73,355	87,500	54,300
Nov.	4.81	2.66	2	1,490	9		992	1,370	81,600	70,818	81,700	55,900
Dec.	4.60	3.92	18	1,480	5		1,280	1,430	87,900	73,082	87,900	58,600
Yearly	4.94			1,520	9*	285	1,310	951,200	839,219	1,004,200	663,500	

* Partly estimated † And other days ‡ Mean daily

RIO GRANDE BELOW MAVERICK DAM

DESCRIPTION: Water-stage recorder located 4.7 miles below the Maverick Irrigation District diversion dam, 30.0 miles above the Maverick Hydro Plant and 716.7 river miles below the American Dam at El Paso, Texas. The zero of the gage is at 804.79 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 57 meter measurements, by wading, during the year, 45 by the Mexican and 12 by the United States Section of the Commission. Computation by shifting channel methods. There are no facilities for measuring high flows at this station. In the Period records shown below, the Monthly Averages having no corresponding Maximums are based only on those monthly records wherein flow did not exceed measurable limits. Records available: January 1, 1956 through December 1960.

REMARKS: This station was placed in operation on November 26, 1955. Irrigation diversions 5.9 miles upstream largely control the flow at this station.

EXTREME FLOWS FROM RECORDS: Maximum flow not recorded. Min. 2.8 second-feet several days June, July and August 1956.

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,010	1,320	1,540	848	311	162	152	1,670		622	1,780	1,090
2	975	1,370	1,540	816	258	152	152	1,630		593	1,830	1,120
3	904	1,670	1,540	848	258	152	152	1,280		565	1,630	1,240
4	904	1,590	1,500	713	275	152	141	1,050		565	1,410	1,280
5	1,050	1,500	1,500	784	275	244	141	848		593	1,010	1,120
6	1,010	1,450	1,500	713	247	261	212	713		516	1,090	1,050
7	1,160	1,500	1,410	650	212	180		650		540	1,050	1,160
8	1,160	1,410	1,450	618	212	180		565		491	971	1,200
9	1,160	1,410	1,730	618	212	650		622		491	925	1,160
10	1,280	1,500	1,780	650	212	1,880		540		565	886	1,240
11	1,410	1,590	1,500	590	212	848			2,840	593	848	1,240
12	1,240	1,730	1,370	590	194	848			2,480	593	749	1,160
13	1,570	1,730	1,280	590	212	516		2,150	2,190	593	713	1,050
14	1,950	1,730	1,280	533	152	339		2,310	2,140	650	925	1,090
15	1,010	1,500	1,200	509	194	339			2,030	946	784	1,240
16	1,010	1,540	1,160	480	177	381			1,830		682	1,200
17	1,370	1,590	1,120	480	177	886			1,670		650	1,200
18	1,370	1,590	1,010	431	162	650		2,770	1,500		622	1,370
19	1,160	1,590	975	346	152	403		2,310	1,370		650	1,120
20	1,050	1,590	1,050	325	141	297		2,140	1,280		622	1,010
21	975	1,590	975	346	177	244		2,600	1,200	2,540	650	1,090
22	904	1,410	865	388	152	180			1,200	1,590	713	1,090
23	865	1,450	795	388	152	162			1,160	1,240	713	1,090
24	1,090	1,670	795	413	162	141			0	971	749	1,160
25	1,320	1,540	865	388	162	131			1,320	848	848	1,160
26	1,280	1,320	1,050	388	162	131			1,160		1,670	1,010
27	1,500	1,630	1,010	431	162	152			925		1,450	925
28	1,500	1,830	1,010	388	177	152			886	1,500	1,450	1,010
29	1,450	1,590	939	346	162	152			784		1,370	1,090
30	1,410		865	325	162	152			650		1,200	1,050
31	1,410		795		152					2,910		1,090
Sum	44,930		15,933		11,117		30,640		35,105			
	37,457		37,399		6,027							
Current Year 1960									Period # 1956-1960			
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.	3.18	1.87	14	2,600	† 3	759	1,210	74,330	40,704	74,330	7,570	
Feb.	2.82	2.26	3	1,980	† 22	1,200	1,550	89,080	46,530	89,080	19,720	
Mar.	2.79	1.80	10	1,930	† 23	706	1,210	74,210	33,016	74,210	11,420	
Apr.	2.10	1.25	3	1,010	30	275	531	31,600	19,025		2,480	
May	1.38	.82	1	346	20	113	194	11,960	9,795		7,630	
June	3.38	.89	9	2,990	25	124	371	22,050	14,110		6,170	
July	6.66	.92	8		† 1	131			18,980		1,360	
Aug.	8.10	1.48	28		11	424			30,863		13,220	
Sept.	6.04	1.64	1		30	540			31,710		20,250	
Oct.	10.76	1.38	29		8	360						
Nov.	2.95	1.57	1	2,190	† 17	491	1,020	60,800	45,832		14,860	
Dec.	2.53	1.90	5	1,540	† 26	784	1,130	69,630	52,806	96,660	9,910	
Yearly	10.76	.82				113						

† And other days # Some months missing ** See explanation in RECORDS above.

PINTO CREEK NEAR DEL RIO, TEXAS

DESCRIPTION: Bubbler-type water-stage recorder, operated with bottled nitrogen gas, on top of a ledge 45 feet above the creek bed, a solid rock and concrete station control, and a cable with stand-up cable car equipped for winch and heavy weights located 1.6 miles above the confluence with the Rio Grande. This creek enters the Rio Grande 718.1 river miles below the American Dam at El Paso, Texas. The zero of the gage is 813.68 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 49 meter measurements during the year and a continuous record of gage heights. Records available: September 1955 through December 1960 at this station, and November 22, 1928 through August 1955 at a site 3.9 miles upstream.

REMARKS: Small irrigation diversions modify the flow of this spring-fed creek at this station. When the flow in the Rio Grande at the confluence of this creek exceeds about 80,000 second-feet, backwater may reach this station. Backwater from the Rio Grande flood of June 1954 reached a gage height of 28.8 feet, or an elevation of 842.50 at this station.

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

Average Flow in Second-Feet

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

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	43.1	33.8	23.2	21.3	13.8	4.4	.7	.3	.5	.7	9.1	10.6
2	41.8	33.5	23.7	21.2	13.6	4.4	.6	.3	.5	.7	8.0	10.6
3	40.6	46.1	24.1	21.0	13.4	4.2	.4	.2	.5	.7	7.5	11.0
4	41.6	38.2	25.3	20.0	13.8	3.6	.3	.2	.6	.7	7.2	11.3
5	39.2	32.7	24.1	20.3	13.1	3.5	.2	.1	.6	.7	7.3	11.5
6	39.1	32.4	24.5	19.7	11.7	4.2	.2	.1	.6	.7	6.8	11.6
7	39.0	32.1	24.9	18.4	10.5	4.0	.2	0	.6	.8	6.6	15.4
8	37.8	31.8	26.5	18.0	9.6	3.3	.2	0	.6	.8	6.9	20.2
9	37.7	30.6	27.0	18.2	9.2	2.9	.1	0	.6	.8	8.0	17.7
10	37.5	29.4	26.5	17.8	9.0	2.6	.1	0	.6	.8	7.9	15.3
11	37.4	28.2	27.0	17.1	8.6	2.4	.1	0	.7	u .8	7.7	13.7
12	36.2	39.1	27.0	18.2	8.2	2.3	.1	0	.7	u .8	7.9	12.6
13	36.1	39.3	26.0	17.8	7.8	2.3	.1	.8	.6	u .8	7.7	13.0
14	34.9	34.5	26.0	16.8	7.9	2.3	.1	2.3	.6	u .8	8.2	13.9
15	36.0	30.5	26.0	16.1	7.8	2.6	.2	2.7	.6	u .8	8.6	14.3
16	35.9	30.6	24.7	14.2	7.7	1.8	.3	6.7	.5	u 11.1	8.8	14.4
17	34.7	29.4	24.4	15.5	7.4	1.6	17.7	4.7	.5	u 12.9	8.9	14.2
18	33.5	28.1	23.6	14.2	7.7	1.7	8.2	2.5	.5	* 7.2	8.8	14.4
19	32.8	26.8	23.8	14.0	7.1	1.7	3.6	1.9	.5	5.0	8.9	14.1
20	33.3	26.9	23.5	13.7	6.5	1.5	2.1	1.6	.4	4.2	9.3	14.3
21	34.8	27.0	21.0	13.2	6.4	1.3	1.7	1.6	.4	3.9	10.1	14.6
22	35.3	27.2	18.1	12.7	5.5	1.1	1.4	1.6	.4	4.0	10.4	15.3
23	35.7	27.3	18.4	13.1	5.2	1.0	1.0	2.3	.7	4.4	10.6	16.0
24	36.2	27.2	20.1	13.6	5.6	1.0	.7	11.8	3.0	5.0	10.3	16.4
25	35.5	22.7	36.0	14.0	5.7	1.1	.3	2.6	2.2	5.3	9.9	16.9
26	35.9	23.4	27.2	13.7	5.3	1.1	.3	1.8	1.3	21.3	10.0	17.2
27	34.8	24.2	24.7	23.2	4.9	1.1	.3	1.0	.8	5.9	10.2	17.7
28	35.2	24.1	23.7	17.2	4.5	1.1	.3	.6	.7	5.7	10.8	17.2
29	35.5	24.1	23.6	16.9	4.4	1.1	.3	.4	.7	11.1	10.7	16.8
30	35.9		22.0	15.3	5.1	.8	.3	.4	.7	14.2	10.5	16.6
31	34.8		21.5		4.8		.3	.4		11.5		17.5
Sum	1,137.8	881.2	758.1	506.4	251.8	68.0	42.4	48.9	22.2	* 343.9	263.6	456.3

Month	Current Year 1960						Period 1929-1960					
	Extreme Gage Feet		Extreme Second-Feet				Acre-Feet					
	High	Low	Day	High	Day	Low	Average Second-Feet	Total Acre-Feet	Average	Maximum	Minimum	
Jan.	2.18	2.08	1	43.1	19	32.8	36.7	2,260	483	2,270	0	
Feb.	2.22	1.97	2	51.3	25	21.8	30.4	1,750	616	5,760	0	
Mar.	2.39	1.76	25	77.1	23	17.4	24.5	1,500	550	2,500	0	
Apr.	2.15	1.56	27	43.4	22	12.4	16.9	1,000	1,485	27,100	0	
May	1.58	1.06	1	14.0	† 28	4.2	8.1	499	2,943	29,400	0	
June	1.08	.67	1	4.5	30	.8	2.3	135	5,169	56,700	0	
July	2.24	.44	17	54.5	† 9	.1	1.4	84.1	2,137	30,000	0	
Aug.	2.04		24	32.7	† 7	0	1.6	97.0	1,944	48,700	0	
Sept.	1.14	.62	24	5.5	† 19	.4	.7	44.0	1,731	17,300	0	
Oct.			† 16	u 11.1	† 1	u .7	* 11.1	* 6.2	1,112	8,940	0	
Nov.	1.35	1.18	28	11.0	7	6.6	8.8	523	452	2,590	0	
Dec.	1.92	1.31	7	24.1	1	10.3	14.7	905	533	2,470	0	
Yearly				u 111		0	13.1	9,479.1	19,155	76,259.3	1,325.2	

u Estimated * Partly estimated † And other days u Mean daily

RIO SAN DIEGO AT JIMENEZ, COAHUILA

DESCRIPTION: Water-stage recorder and cable with sit-down cable car and masonry and concrete Cipolletti weir control for measuring flows up to 706 second-feet, located 4.4 miles west of Jiménez, Coahuila, and 5.0 miles above the confluence with the Rio Grande. This stream enters the Rio Grande 723.0 river miles below the American Dam at El Paso, Texas. The zero of the gage is 831.52 feet above mean sea level, U.S.C. & G.S. datum.

RECORDS: Based on 8 meter measurements during the year, the weir discharge table, and a continuous record of gage heights. Records available: 1922 through December 1960. The records from 1922 to September 1932 are considered doubtful.

REMARKS: Reservoirs above and irrigation diversions above and below this station modify the flow of this spring-fed stream. On December 24, 1955, the zero of the gage was raised 2.62 feet to make it coincide with the crest of the weir.

EXTREME FLOWS FROM RECORDS †: Momentary: Max. about 75,200 second-feet on September 18, 1941, with a gage height of 20.96 feet. Min. no flow occurred on several occasions during April, May and June 1939, May and August 1952, and July and August 1953.

Average Flow in Second-Feet ‡

Daily:	Max.	23,200	Sept. 18, 1941	Min.	0	Occasionally
Monthly:	Max.	2,380	Oct. 1932	Min.	8.0	July 1956
Yearly:	Max.	527	1935	Min.	24.0	1956

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	143	114	143	52.3	159	42.0	24.0	87.2	114	87.2	325	175
2	143	114	143	63.2	129	42.0	24.0	74.9	100	87.2	304	175
3	129	204	143	63.2	100	42.0	32.8	74.9	100	100	284	159
4	114	143	143	63.2	87.2	32.8	24.0	63.2	100	114	245	159
5	114	129	129	63.2	74.9	24.0	24.0	52.3	100	129	265	159
6	129	129	129	63.2	63.2	24.0	16.2	42.0	100	129	245	143
7	129	129	129	63.2	63.2	32.8	16.2	52.3	100	114	245	159
8	129	143	129	63.2	52.3	42.0	24.0	52.3	100	114	245	159
9	114	143	114	52.3	63.2	42.0	32.8	52.3	100	114	265	159
10	114	143	114	52.3	52.3	32.8	24.0	52.3	143	114	245	159
11	114	143	114	52.3	52.3	32.8	24.0	164	114	114	245	143
12	114	175	114	52.3	52.3	32.8	24.0	100	87.2	114	227	129
13	114	175	114	52.3	52.3	32.8	24.0	74.9	100	114	227	143
14	114	175	114	63.2	52.3	32.8	24.0	52.3	114	100	227	143
15	114	175	114	63.2	52.3	32.8	24.0	242	129	87.2	227	129
16	114	175	114	52.3	52.3	32.8	42.0	242	129	2,800	227	129
17	114	159	114	158	42.0	24.0	159	114	129	209	227	129
18	114	159	114	87.2	42.0	24.0	159	100	143	1,530	209	129
19	114	159	114	63.2	42.0	24.0	114	100	129	1,010	209	143
20	114	143	100	63.2	42.0	32.8	114	100	129	639	209	129
21	114	143	87.2	52.3	42.0	24.0	114	87.2	114	533	227	114
22	114	143	63.2	52.3	42.0	24.0	114	100	114	484	209	129
23	114	143	63.2	52.3	42.0	24.0	114	114	114	413	209	129
24	114	143	63.2	63.2	42.0	24.0	114	100	129	388	209	129
25	114	143	100	63.2	42.0	24.0	114	100	114	388	209	129
26	100	143	87.2	63.2	42.0	32.8	114	100	114	325	209	129
27	100	143	74.9	63.2	42.0	32.8	114	100	100	284	209	114
28	100	143	63.2	74.9	42.0	32.8	114	100	100	265	209	114
29	100	143	63.2	929	42.0	32.8	100	100	100	1,020	192	114
30	114		63.2	284	42.0	32.8	74.9	114	100	434	175	100
31	114		52.3		42.0		74.9	114		367		100
Sum	3,596	4,316	3,222.8	3,004.1	1,788.1	942.0	2,111.8	3,022.1	3,359.2	12,720.6	6,959.0	4,253

Month	Current Year 1960							Period 1933-1960			
	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
	High	Low	Day	High	Day	Low					
									Average	Maximum	Minimum
Jan.	.46	.36	† 1	143	† 26	100	116	7,140	7,319	36,430	1,860
Feb.	.66	.36	3	245	2	100	149	8,570	5,831	25,760	1,060
Mar.	.82	.20	25	346	31	42.0	104	6,390	5,359	27,040	1,340
Apr.	2.82	.20	29	2,200	1	42.0	100	5,960	6,511	40,270	1,110
May	.59	.20	1	209	† 17	42.0	57.7	3,550	14,217	120,200	861
June	.20	.10	† 1	42.0	† 21	16.2	31.4	1,870	9,948	62,240	543
July	1.02	.10	17	484	† 6	16.2	68.1	4,190	8,054	34,430	490
Aug.	2.33	.20	15	1,590	† 5	42.0	97.5	6,000	7,050	32,180	738
Sept.	.49	.33	10	159	† 12	87.2	112	6,670	14,794	84,620	1,230
Oct.	8.04	.33	16	14,760	† 1	87.2	410	25,230	14,472	71,830	1,720
Nov.	.82	.52	† 1	346	30	175	232	13,810	10,501	64,060	803
Dec.	.52	.36	† 1	175	† 30	100	137	8,430	7,146	45,320	1,130
Yearly	8.04	.10		14,760		16.2	135	97,810	111,202	381,720	17,430

† And other days ‡ Period October 1932-1960

RIO SAN RODRIGO NEAR EL MORAL, COAHUILA

DESCRIPTION: Water-stage recorder and cable with sit-down cable car and reinforced concrete control weir for measuring flows up to 177 second-feet. This station is located 10.6 miles west of the town of El Moral, Coahuila, 19.3 miles northwest from Piedras Negras, Coahuila and 11.2 river miles above the confluence with the Rio Grande. The stream enters the Rio Grande 736.2 river miles below the American Dam at El Paso, Texas. The zero of the gage is 879.95 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 3 meter measurements during the year, the weir discharge table, and a continuous record of gage heights. Records available: 1922 through December 1960. The records from 1922 to 1931 are considered doubtful.

REMARKS: The flow of this spring-fed stream is modified by irrigation diversions above and below this station.

EXTREME FLOWS FROM RECORDS †: Momentary: Max. * 81,200 second-feet on September 7, 1932, with a gage height of 16.08 feet on the original gage (See Water Bulletin No. 16). Min. frequently no flow, which occurs at a gage height of 0.0 foot.

Average Flow in Second-Feet ‡

Daily:	Max.	27,900	Sept. 7, 1932	Min.	0	Frequently
Monthly:	Max.	4,270	Sept. 1932	Min.	0	Frequently
Yearly:	Max.	576	1932	Min.	3,2	1956

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	43.8	31.4	37.4	16.2	26.1	12.0	0	4.9	16.2	31.4	105	96.1
2	43.8	31.4	31.4	16.2	21.2	21.2	0	4.9	16.2	31.4	105	105
3	43.8	31.4	26.1	16.2	21.2	21.2	0	2.1	16.2	31.4	113	96.1
4	43.8	31.4	26.1	16.2	21.2	16.2	0	0	16.2	37.4	105	96.1
5	43.8	31.4	26.1	16.2	16.2	16.2	0	0	16.2	37.4	105	87.6
6	43.8	31.4	26.1	12.0	12.0	12.0	0	0	16.2	31.4	96.1	87.6
7	43.8	31.4	26.1	12.0	12.0	12.0	0	0	16.2	31.4	105	87.6
8	43.8	31.4	26.1	12.0	12.0	12.0	0	0	16.2	31.4	105	87.6
9	43.8	26.1	21.2	12.0	12.0	12.0	0	0	16.2	31.4	105	87.6
10	43.8	26.1	21.2	16.2	12.0	8.1	0	0	16.2	31.4	105	87.6
11	43.8	26.1	21.2	16.2	12.0	8.1	0	16.2	16.2	31.4	105	87.6
12	37.4	37.4	21.2	16.2	12.0	4.9	0	4.9	16.2	37.4	105	87.6
13	37.4	31.4	21.2	16.2	12.0	4.9	0	4.9	21.2	43.8	96.1	87.6
14	37.4	31.4	21.2	12.0	8.1	4.9	0	2.1	21.2	43.8	96.1	87.6
15	37.4	26.1	21.2	12.0	8.1	4.9	0	8.1	16.2	37.4	96.1	87.6
16	37.4	26.1	21.2	12.0	8.1	4.9	0	21.2	16.2	1,910	87.6	87.6
17	31.4	21.2	21.2	12.0	8.1	4.9	0	16.2	16.2	501	87.6	87.6
18	31.4	21.2	21.2	12.0	4.9	4.9	0	16.2	21.2	252	96.1	87.6
19	31.4	21.2	21.2	12.0	4.9	4.9	2.1	16.2	21.2	162	96.1	87.6
20	37.4	21.2	21.2	12.0	4.9	2.1	64.3	16.2	21.2	277	96.1	87.6
21	31.4	21.2	21.2	12.0	4.9	2.1	37.4	26.1	21.2	328	96.1	87.6
22	31.4	21.2	16.2	12.0	13.8	0	21.2	31.4	21.2	314	96.1	79.5
23	37.4	21.2	16.2	12.0	43.8	0	16.2	31.4	31.4	277	96.1	79.5
24	37.4	21.2	16.2	12.0	26.1	0	12.0	37.4	37.4	230	96.1	79.5
25	31.4	21.2	21.2	21.2	21.2	0	12.0	31.4	21.2	194	96.1	79.5
26	31.4	21.2	21.2	31.4	16.2	0	8.1	31.4	21.2	194	96.1	79.5
27	31.4	21.2	21.2	31.4	12.0	0	8.1	21.2	21.2	173	96.1	79.5
28	31.4	21.2	21.2	87.9	12.0	0	8.1	21.2	21.2	132	87.6	79.5
29	31.4	31.4	21.2	50.1	12.0	0	4.9	21.2	21.2	162	87.6	79.5
30	31.4		21.2	37.4	12.0	0	4.9	21.2	31.4	142	87.6	79.5
31	31.4		21.2		12.0		4.9	21.2		123		79.5
Sum	1,157.8	767.7	698.0	867.8	435.0	194.4	204.2	429.2	597.6	5,890.8	2,946.4	2,677.5

Current Year 1960								Period 1932-1960				
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High		Low			Average	Maximum	Minimum	
				Day								
Jan.	.33	.26	† 1	43.8	† 15	31.4	37.3	2,300	3,260	14,880	0	
Feb.	.30	.20	12	37.4	† 17	21.2	26.5	1,520	2,578	11,580	0	
Mar.	.30	.16	1	37.4	† 19	16.2	22.5	1,380	2,320	9,900	418	
Apr.	2.20	.13	27	77.7	† 6	12.0	28.9	1,720	3,016	21,160	104	
May	.85	.07	† 22	184	† 18	4.9	14.0	863	5,658	42,330	0	
June	.26	J	2	31.4	† 21	0	6.5	387	5,231	41,660	0	
July	.92	0	20	207	† 1	0	6.6	405	3,152	12,170	0	
Aug.	.39	0	11	57.2	† 4	0	13.8	852	3,878	23,580	0	
Sept.	.49	.16	† 23	79.5	† 1	16.2	19.9	1,190	22,232	253,960	0	
Oct.	5.71	.26	16	4,700	† 1	31.4	190	11,680	11,396	99,910	0	
Nov.	.62	.52	† 1	113	† 16	87.6	98.2	5,830	5,662	43,650	0	
Dec.	.59	.49	† 1	105	† 21	79.5	86.4	5,310	4,078	19,460	0	
Yearly	5.71	0		4,700		0	46.1	33,437	72,461	414,310	2,309	

* Partly estimated † And other days ‡ Period 1932-1960

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

DESCRIPTION: A part of the water diverted from the river into the Maverick Canal is returned to the Rio Grande through the hydroelectric power plant near Eagle Pass, Texas, at a point about 32.2 canal miles below the point of diversion, and about 746.7 river miles below the American Dam at El Paso, Texas.

RECORDS: Based on records furnished by the Maverick County Water Control and Improvement District No. 1, showing hourly manometer readings of discharge, in cubic feet per second, 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 flow made under stable flow conditions by hydrographers of this Commission. There were 47 meter measurements made during the year. Records available: January 1949 through December 1960.

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, however, it has operated continuously except for 44 days in 1953 when shortage of water prevented operation, and from June 30 to July 20, during flood of 1954, and while the canal was being repaired.

Average Flow in Second-Feet

Daily:	Max. 1, 390	May 27, 1951	Min. 0	Frequently 1953 & 1954
Monthly:	Max. 1, 160	June 1950 & Dec. 1960	Min. 14.1	June 1953
Yearly:	Max. 1, 020	1950	Min. 443	1953 & 1956

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	852	962	981	736	815	710	397	1,070	1,080	865	1,190	1,060
2	837	956	973	742	801	679	424	1,080	1,090	902	1,250	1,070
3	826	939	996	749	810	632	431	1,040	1,080	898	1,260	1,090
4	855	922	994	741	833	628	388	996	1,100	879	1,260	1,110
5	860	947	997	749	843	661	345	896	1,090	844	1,250	1,080
6	906	959	998	733	836	675	384	871	1,080	828	1,220	1,070
7	913	974	992	668	833	596	522	869	1,040	817	1,220	1,130
8	915	973	957	646	828	526	695	835	1,030	772	1,190	1,180
9	865	964	962	662	833	547	747	824	1,030	831	1,060	1,190
10	852	971	964	675	816	645	776	819	1,030	782	976	1,200
11	848	971	956	648	805	685	761	962	1,030	714	1,000	1,200
12	943	1,050	931	632	791	708	755	1,050	1,000	731	1,070	1,200
13	928	1,110	932	667	765	669	794	1,090	977	792	1,110	1,200
14	295	1,090	932	686	749	620	789	1,090	883	800	1,090	1,220
15	709	1,080	926	678	775	575	827	1,110	828	872	1,000	1,230
16	948	1,090	903	681	760	539	998	1,130	832	1,110	1,090	1,230
17	945	1,100	906	697	755	600	1,040	1,140	900	1,080	1,090	1,200
18	941	1,090	902	724	731	646	1,090	1,140	950	1,020	1,050	1,220
19	931	1,090	910	703	684	828	1,120	1,150	908	1,040	1,070	1,190
20	927	1,100	913	713	645	602	1,140	1,150	853	1,250	1,070	1,180
21	914	1,100	908	729	683	576	1,160	1,140	857	1,230	1,110	1,180
22	929	1,050	875	729	715	549	1,180	1,100	834	1,230	1,130	1,180
23	929	996	766	733	868	518	1,180	1,030	824	1,190	1,140	1,180
24	934	996	709	761	854	540	1,160	1,020	895	1,140	1,130	1,180
25	948	1,010	769	756	857	550	1,070	1,010	979	1,130	1,140	1,170
26	937	979	790	762	852	560	1,060	1,030	938	1,110	1,170	1,120
27	964	996	801	802	797	518	1,050	1,040	888	1,190	1,180	1,140
28	963	1,050	752	819	794	458	1,020	1,050	888	1,240	1,160	1,150
29	966	1,010	720	824	707	422	1,040	1,010	877	1,260	1,160	1,170
30	976		699	841	697	389	1,080	1,010	853	1,210	1,120	1,200
31	987		698		724		1,090	1,050		1,190		
Sum	27,543	29,525	27,512	21,686	24,256	17,851	26,513	31,802	28,644	30,947	33,956	36,110
Current Year 1960									Period 1949-1960			
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High		Day			Average	Maximum	Minimum	
Jan.			31	987	14	295	888	54,600	50,842	65,500	34,400	
Feb.			13	1,110	4	922	1,020	58,600	45,475	59,900	24,900	
Mar.			6	998	31	698	887	54,600	43,983	65,400	18,900	
Apr.			30	841	12	632	723	43,000	36,223	58,600	6,080	
May			23	868	20	645	782	48,100	44,640	64,900	2,280	
June			19	828	30	389	595	35,400	41,537	68,900	841	
July			↑ 22	1,180	5	345	855	52,600	39,815	63,000	2,880	
Aug.			↑ 19	1,150	10	819	1,030	63,100	47,742	68,900	22,600	
Sept.			4	1,100	23	824	955	56,800	50,500	67,500	18,500	
Oct.			29	1,260	11	714	998	61,400	51,525	69,000	23,000	
Nov.			↑ 3	1,260	10	976	1,130	67,400	50,083	67,400	27,300	
Dec.			16	1,230	1	1,060	1,160	71,600	52,125	71,600	34,300	
Yearly				1,260		295	919	667,200	554,490	740,000	320,701	

† And other days † Mean daily

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

DESCRIPTION: The main Maverick Canal divides into two branches at a point about 31.8 canal miles below 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. The other branch forms this Maverick Canal Extension, which is used to transmit irrigation water. The water-stage recorder is located at a wooden pile bridge about 1 mile below the heading of this canal extension. Meter measurements are made from the bridge.

RECORDS: Based on 48 meter measurements during the year, and a continuous record of gage heights. Computations by shifting channel methods. Records available: 1939 through December 1960.

REMARKS: Irrigation from this canal extension began in June 1938. In 1960, 24,471 acres of land north and south of Eagle Pass were irrigated. Some water from this canal extension returns to the river through the irrigation system which extends approximately 67 canal miles downstream.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 549 second-feet on June 28, 1956. Min. occasionally no flow.

Average Flow in Second-Feet

Daily:	Max. 522	June 28, 1956	Min. 0	Occasionally
Monthly:	Max. 448	July 1955	Min. 18.7	Mar. 1939
Yearly:	Max. 321	1952 & 1956	Min. 62.1	1939

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	297	224	244	333	323	314	410	214	257	250	184	200
2	303	226	236	330	322	331	382	224	258	250	183	198
3	309	249	243	331	306	350	372	226	258	264	148	182
4	302	265	225	322	295	364	378	225	258	264	147	183
5	254	268	223	307	285	352	413	278	256	261	144	180
6	251	263	222	311	283	364	419	300	256	264	144	181
7	250	265	219	332	285	380	420	307	254	260	144	167
8	248	266	234	344	284	416	432	329	261	285	144	142
9	239	263	256	346	286	436	399	331	260	302	141	147
10	244	262	256	351	292	420	396	331	260	299	144	144
11	245	265	252	350	300	399	414	273	266	302	148	145
12	250	225	255	352	304	402	398	222	280	305	147	149
13	245	185	259	351	320	400	396	229	282	268	151	147
14	144	185	256	349	323	400	378	225	288	245	157	147
15	222	185	253	349	326	416	367	214	293	249	164	147
16	250	187	255	349	319	432	255	203	295	191	179	149
17	245	189	252	349	324	429	220	201	299	141	177	149
18	244	188	251	322	332	442	182	203	299	143	178	160
19	243	183	253	310	365	279	163	205	291	145	178	163
20	238	187	252	332	396	384	150	204	295	146	179	147
21	243	184	242	341	396	436	147	205	299	145	160	149
22	231	204	252	345	367	432	144	223	302	144	146	152
23	223	235	320	348	228	447	144	271	310	146	148	152
24	227	260	392	351	229	433	154	284	293	146	143	154
25	227	261	344	352	226	401	214	286	275	145	143	155
26	228	260	324	354	223	397	210	292	267	146	144	153
27	228	264	326	334	251	413	204	288	246	148	141	171
28	227	266	344	323	254	412	206	288	237	146	145	183
29	226	261	366	323	305	425	205	289	239	150	156	179
30	229		368	322	370	422	202	289	241	144	157	179
31	226		361		309		201	268		144		164
Sum	7,538	6,725	8,535	10,113	9,428	11,928	8,975	7,927	8,175	6,438	5,018	
Current Year 1960									Period 1939-1960			
Month	Average Rainfall Inches **		Extreme Second-Feet				Average Second- Feet	Total Acres-Feet	Acres-Feet			
	1939-1960	1960	High		Low				Average	Maximum	Minimum	
			Day		Day							
Jan.	.92	.25	† 1	323	15	123	243	15,000	11,697	19,800	2,140	
Feb.	1.00	1.25	5	302	19	176	232	13,300	10,559	18,200	2,120	
Mar.	.70	.08	24	428	8	209	275	16,900	12,787	22,500	1,150	
Apr.	1.57	1.06	26	361	† 5	298	337	20,100	13,110	22,200	3,430	
May	3.09	1.03	20	424	26	159	304	18,700	11,413	21,800	2,840	
June	1.89	.18	23	453	19	181	398	23,700	12,790	26,600	3,750	
July	1.48	5.39	8	440	23	140	290	17,800	14,235	27,100	4,510	
Aug.	2.22	1.13	8	339	17	197	256	15,700	13,084	24,100	3,480	
Sept.	2.74	1.78	24	316	28	216	272	16,200	11,131	18,300	4,600	
Oct.	2.14	8.22	12	317	17	136	208	12,800	12,165	21,800	5,130	
Nov.	.68	.96	1	215	9	133	155	9,250	11,917	20,000	4,170	
Dec.	.69	1.24	2	203	8	140	162	9,950	12,622	20,200	4,280	
Yearly	19.12	22.57		453		123	261	189,400	147,510	233,300	44,950	

* Estimated † And other days ** On United States side from Maverick Power Plant to Cuervo Creek.

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

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

RECORDS: Based on the weir discharge table and a continuous record of head. All storm flow occurring at these stations is deducted from the records and is not shown below. Records available: April 1, 1959 through December 1960.

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

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	132	113	93.1	127	106	112	143	127	119	126	94.4	131
2	130	115	97.6	115	107	122	157	118	115	136	92.3	125
3	132	134	95.4	126	105	112	153	129	123	127	88.4	130
4	108	110	84.4	120	111	118	141	127	119	127	87.9	129
5	109	98.8	88.7	116	105	127	126	149	118	122	91.8	122
6	113	91.0	106	110	103	127	124	154	112	118	86.7	125
7	114	91.1	99.0	123	99.8	110	128	147	115	126	85.4	131
8	121	87.4	97.9	135	108	114	137	150	117	118	93.3	129
9	120	94.0	109	134	104	120	134	126	112	120	97.1	122
10	118	92.0	114	149	105	135	144	138	113	131	81.1	116
11	128	91.9	111	149	106	148	146	185	117	117	81.7	113
12	111	110	120	145	102	136	156	133	122	128	82.6	108
13	119	81.6	125	139	110	124	159	115	130	125	82.7	109
14	83.5	95.1	128	136	130	125	164	99.7	132	116	83.2	106
15	61.9	86.5	124	132	123	116	176	126	118	114	82.8	108
16	80.6	90.8	118	131	120	111	175	121	122	157	93.3	101
17	91.3	90.2	112	149	119	128	162	103	133	164	90.7	103
18	82.1	86.8	106	131	117	134	129	105	136	152	94.4	101
19	89.1	89.6	104	127	120	139	127	96.1	136	113	105	103
20	95.2	98.8	113	115	112	124	122	97.7	120	85.3	108	103
21	95.9	103	117	119	111	126	119	107	122	94.1	111	99.6
22	94.1	100	106	130	123	129	115	103	122	94.6	104	102
23	106	102	114	135	142	124	112	92.9	135	98.1	82.6	111
24	110	93.3	125	136	97.9	123	102	105	179	102	89.7	117
25	109	95.7	123	125	93.3	126	114	104	144	100	94.0	126
26	107	96.8	116	116	107	128	112	102	126	104	95.4	122
27	116	100	117	129	110	118	111	102	114	106	105	111
28	110	99.5	116	129	105	131	114	115	115	102	111	109
29	104	92.6	119	148	108	133	123	118	121	149	119	113
30	114		122	108	121	132	131	116	124	153	124	105
31	112		122		119		130	111		109		111
Sum	2,830.5		3,884		3,752		3,722.4		3,734.1		3,541.6	
3,316.7		3,443.1		3,450.0		4,186		3,731		2,838.5		
Current Year 1960									Period Apr. 1959-1960			
Month	Extreme Gage Feet		g		Extreme Second-Feet		Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Low	Average			Maximum	Minimum		
											Day	
Jan.			† 1	132	15	61.9	107	6,580				
Feb.			3	134	13	81.6	97.6	5,610				
Mar.			14	128	4	84.4	111	6,830				
Apr.			† 10	149	30	108	129	7,700	7,670	7,700	7,640	
May			23	142	25	93.3	111	6,840	7,180	7,520	6,840	
June			11	148	7	110	125	7,440	7,475	7,510	7,440	
July			15	176	24	102	135	8,300	8,230	8,300	8,160	
Aug.			11	185	23	92.9	120	7,380	7,795	8,210	7,380	
Sept.			24	179	† 6	112	124	7,400	7,975	8,550	7,400	
Oct.			17	164	20	85.3	120	7,410	7,670	7,930	7,410	
Nov.			30	124	10	81.1	94.6	5,630	5,945	6,260	5,630	
Dec.			† 1	131	21	99.6	114	7,020	7,350	7,680	7,020	
Yearly				185		61.9	116	84,140				

† And other days † Mean daily

RIO GRANDE AT EAGLE PASS, TEXAS

DESCRIPTION: Water-stage recorder and cable with stand-up cable car and winch, located .5 mile above the international highway bridge between Eagle Pass, Texas, and Piedras Negras, Coahuila and 756.4 river miles below the American Dam at El Paso, Texas. The zero of the gage is 682.91 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 235 meter measurements during the year, 197 by the Mexican and 38 by the United States Section of this Commission, and a continuous record of gage heights. Computations by shifting channel methods. Records available: May 1900 to March 1914; August 1914 to 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 January 1924 through December 1960.

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

EXTREME FLOWS FROM RECORDS: The greatest recorded flow was **964,100 second-feet, which occurred June 29, 1954, with a gage height of 53.51 feet. Well-authenticated information indicates the occurrence of a flood in June 1865 with an estimated discharge of 1,236,000 second-feet and a gage height of 56.00 feet on the present gage and also that these were the only floods since 1745 with flows greater than 825,000 second-feet. The lowest recorded flow was 24.4 second-feet, which occurred June 22, 1953 with a gage height of .07 foot.

Average Flow in Second-Feet †

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

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2,040	2,510	2,660	1,620	1,570	961	572	2,890	9,530	1,820	3,880	2,660
2	2,000	2,460	2,660	1,700	1,480	961	604	2,780	8,930	1,780	3,470	2,560
3	1,920	2,800	2,660	1,700	1,420	876	667	2,600	8,480	1,700	3,570	2,660
4	1,890	2,870	2,550	1,650	1,390	848	604	2,240	8,650	1,700	3,270	2,750
5	1,960	2,730	2,550	1,620	1,390	876	512	1,990	7,240	1,700	2,960	2,750
6	2,040	2,610	2,610	1,600	1,330	985	512	1,830	7,240	1,700	2,660	2,500
7	2,040	2,610	2,550	1,550	1,300	961	667	1,720	6,500	1,670	2,710	2,660
8	2,170	2,610	2,490	1,510	1,260	819	5,760	1,650	5,540	1,600	2,660	2,860
9	2,170	2,510	2,660	1,510	1,240	819	9,460	1,540	4,940	1,600	2,560	2,810
10	2,170	2,510	2,870	1,510	1,180	1,780	5,830	1,570	4,590	1,560	2,400	2,860
11	2,340	2,610	2,770	1,530	1,180	1,900	6,360	2,060	4,060	1,560	2,340	2,860
12	2,390	2,990	2,440	1,510	1,110	1,530	4,630	4,800	3,780	1,630	2,340	2,860
13	2,300	3,190	2,340	1,530	1,080	1,460	4,520	3,250	3,470	1,630	2,290	2,750
14	2,580	3,120	2,340	1,530	1,080	1,200	5,230	3,460	3,270	1,670	2,250	2,660
15	2,000	2,990	2,290	1,510	1,080	1,010	5,260	3,520	3,110	1,780	2,450	2,750
16	2,040	2,730	2,150	1,480	1,080	961	5,050	5,190	2,960	11,510	2,340	2,910
17	2,200	2,870	2,100	1,530	1,030	1,110	7,350	5,440	2,810	6,750	2,250	2,810
18	2,420	2,990	2,010	1,600	1,030	1,530	8,020	4,480	2,860	5,260	2,190	2,910
19	2,330	2,870	1,930	1,420	989	1,460	5,260	3,640	2,560	7,490	2,190	2,860
20	2,160	2,870	1,930	1,330	943	1,110	6,920	3,410	2,410	6,110	2,190	2,660
21	2,070	2,930	1,890	1,300	943	961	6,040	3,410	2,270	5,230	2,250	2,610
22	2,040	2,730	1,850	1,330	1,010	901	5,120	4,030	2,240	3,990	2,340	2,610
23	2,040	2,510	1,740	1,330	1,770	791	4,770	3,670	2,240	3,470	2,340	2,660
24	2,040	2,730	1,670	1,390	1,180	791	4,130	5,050	4,200	3,070	2,290	2,660
25	2,330	2,930	1,700	1,390	1,110	791	4,660	4,800	3,090	2,750	2,340	2,710
26	2,330	2,510	1,930	1,390	1,180	791	5,260	3,850	2,450	2,750	2,860	2,660
27	2,420	2,460	1,970	1,450	1,080	727	4,310	8,050	2,120	4,770	3,370	2,450
28	2,590	3,050	1,890	1,510	1,060	667	4,480	13,170	2,040	3,640	3,070	2,450
29	2,550	2,870	1,820	3,510	1,010	604	4,170	11,090	2,000	12,540	3,170	2,610
30	2,500		1,740	2,090	968	604	5,160	7,240	1,890	17,300	2,910	2,610
31	2,550		1,630		989		3,740	7,840		5,090		2,660
Sum	68,620	80,170	68,390	47,630	36,462	30,785	135,628	132,260	127,470	126,820	79,910	83,790
Current Year 1960									Period 1948-1960			
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.	2.89	1.90	14	2,960	15	1,680	2,210	136,100	96,854	199,100	42,690	
Feb.	2.95	2.43	† 12	3,250	27	2,330	2,760	159,100	112,652	398,200	33,320	
Mar.	2.82	1.77	† 10	2,990	31	1,510	2,210	135,600	89,926	211,100	26,970	
Apr.	4.10	1.41	29	5,190	† 21	1,240	1,590	94,500	115,282	414,600	14,770	
May	2.76	1.08	23	2,870	20	922	1,180	72,320	205,469	1,108,000	8,430	
June	2.72	.69	10	2,820	30	512	1,030	61,060	416,678	2,794,000	4,530	
July	6.40	.62	9	10,810	5	459	4,380	269,000	211,434	629,800	17,380	
Aug.	8.37	1.61	28	17,370	9	1,430	4,270	262,300	174,563	519,100	35,730	
Sept.	6.17	1.77	1	10,420	30	1,650	4,250	252,800	260,378	940,800	27,050	
Oct.	10.56	1.57	30	28,390	11	1,440	4,090	251,500	309,148	1,768,000	31,560	
Nov.	3.61	2.17	1	4,270	† 18	2,050	2,660	158,500	130,670	451,200	35,630	
Dec.	2.85	2.30	† 18	3,110	27	2,250	2,700	166,100	105,563	245,100	41,000	
Yearly	10.56	.62		28,390		459	2,780	2,018,880	2,228,617	4,518,490	631,520	

† And other days ‡ Period 1924-1960 ** Determined by slope-area calculations

RIO ESCONDIDO AT VILLA DE FUENTE, COAHUILA

DESCRIPTION: Water-stage recorder and reinforced concrete weir for measuring flows up to 45.9 second-feet located immediately below the highway bridge over Rio Escondido on the outskirts of Villa de Fuente, 3.1 miles southwest of Piedras Negras, Coahuila and 3.7 miles above the confluence with the Rio Grande. The cable and cable-car are located 1.2 miles upstream at the previous station site. This stream enters the Rio Grande 760, 0 river miles below the American Dam at El Paso, Texas. The zero of the gage is 708.78 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 76 meter measurements during the year, the weir discharge table and a continuous record of gage heights. Computations by shifting channel methods for flows greater than 45.9 second-feet. Records available: 1922 through December 1960. Records from 1922 to September 1932 are considered doubtful.

REMARKS: Diversions and drainage returns modify the flow of this spring-fed stream at this station. Backwater from the Rio Grande reached an elevation of 729.92 feet during the flood of June 1954.

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

Average Flow in Second-Feet ‡

Daily:	Max.	7,700	May 27, 1957	Min.	0	Several days 1956, 1957 & 1958
Monthly:	Max.	647	Oct. 1932	Min.	0.6	Aug. & Sept. 1957
Yearly:	Max.	115	1958	Min.	2.4	1956

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	24.7	21.9	40.3	12.0	33.5	6.0	1.4	2.8	1.4	4.2	57.6	30.4
2	27.5	21.9	40.3	7.8	30.4	26.8	1.4	2.8	1.4	4.2	47.0	30.4
3	27.5	19.1	40.3	7.8	24.7	12.0	1.4	2.8	1.4	6.0	47.0	27.5
4	27.5	19.1	36.7	7.8	16.6	6.0	1.4	2.8	1.4	6.0	47.0	27.5
5	27.5	16.6	33.5	7.8	14.1	4.2	1.4	1.4	1.4	7.8	47.0	27.5
6	27.5	16.6	19.1	7.8	9.9	4.2	1.4	1.4	1.4	7.8	43.4	27.5
7	27.5	16.6	19.1	7.8	7.8	9.9	1.4	1.4	1.4	7.8	43.4	30.4
8	27.5	16.6	21.9	7.8	6.0	12.0	1.4	1.4	1.4	7.8	40.3	30.4
9	27.5	27.5	21.9	6.0	6.0	4.2	1.4	1.4	1.4	7.8	40.3	30.4
10	33.5	27.5	19.1	7.8	6.0	4.2	1.4	3.5	1.4	7.8	40.3	30.4
11	36.7	27.5	19.1	7.8	6.0	4.2	1.4	107	1.4	7.8	33.5	30.4
12	36.7	33.5	12.0	7.8	6.0	4.2	1.4	19.1	1.4	29.7	24.7	30.4
13	36.7	33.5	12.0	12.0	6.0	4.2	1.4	4.2	2.8	189	21.9	30.4
14	36.7	30.4	12.0	7.8	6.0	4.2	1.4	2.8	4.2	43.4	21.9	33.5
15	36.7	30.4	9.9	7.8	6.0	2.8	24.0	7.8	4.2	1,470	21.9	33.5
16	33.5	36.7	7.8	7.8	4.2	2.8	11.7	9.9	2.8	2,080	19.1	33.5
17	33.5	36.7	7.8	7.8	4.2	2.8	63.9	2.8	2.8	289	19.1	33.5
18	33.5	40.3	7.8	7.8	4.2	2.8	175	2.8	2.8	156	19.1	33.5
19	33.5	40.3	7.8	7.8	4.2	2.8	28.3	1.4	2.8	185	19.1	33.5
20	33.5	40.3	6.0	7.8	4.2	2.8	107	1.4	2.8	149	19.1	33.5
21	40.3	40.3	6.0	7.8	4.2	2.8	55.8	1.4	2.8	63.2	19.1	30.4
22	40.3	40.3	6.0	7.8	10.6	2.8	12.0	1.4	2.8	27.5	19.1	27.5
23	40.3	40.3	6.0	7.8	148	1.4	6.0	2.1	2.8	21.9	16.6	27.5
24	36.7	40.3	6.0	71.7	40.3	1.4	2.8	63.2	4.2	21.9	16.6	27.5
25	36.7	36.7	6.0	142	21.9	1.4	2.8	21.9	1.4	19.1	16.6	27.5
26	40.3	36.7	6.0	229	16.6	1.4	2.8	9.9	1.4	33.5	16.6	27.5
27	40.3	40.3	6.0	317	9.9	1.4	2.8	6.0	1.4	40.3	16.6	27.5
28	36.7	40.3	6.0	63.2	7.8	1.4	4.2	4.2	1.4	40.3	14.1	27.5
29	33.5	40.3	6.0	40.3	4.2	1.4	2.8	2.8	4.2	335	12.0	27.5
30	27.5	6.0	40.3	4.2	1.4	2.8	1.4	4.2	1.4	135	16.6	30.4
31	21.9	9.9	4.2	4.2	2.8	1.4	2.8	1.4	1.4	79.1	30.4	30.4
Sum	1,023.7	908.5	1,089.5	477.9	139.9	296.6	68.6	5,482.9	836.6	929.3		

Current Year 1960								Period 1933-1960			
Month	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Low			Average	Maximum	Minimum	
Jan.	.59	.39	†21	40.3	31	21.9	33.0	2,030	2,233	15,990	43.8
Feb.	.62	.33	†20	43.4	†4	16.6	31.3	1,800	1,526	9,990	38.9
Mar.	.59	.13	†1	40.3	28	4.2	15.0	920	1,280	6,910	92.4
Apr.	5.05	.16	26	2,120	†8	6.0	36.3	2,160	2,229	21,950	81.1
May	1.87	.10	23	333	†20	2.8	15.4	949	4,392	25,470	154
June	1.08	.07	2	121	†23	1.4	4.7	279	2,438	19,730	60.3
July	2.99	.03	17	795	15	.7	17.0	1,050	1,811	9,740	96.5
Aug.	2.76	.07	11	685	†5	1.4	9.6	589	1,965	20,830	34.9
Sept.	.13	.03	†14	4.2	9	.7	2.3	137	3,139	21,590	34.1
Oct.	14.11	.13	15	14,660	†1	4.2	177	10,870	2,413	20,530	43.8
Nov.	.79	.26	1	68.5	†28	12.0	27.9	1,660	1,788	25,730	43.8
Dec.	.52	.46	†14	33.5	†3	27.5	30.0	1,840	1,636	3,580	67.3
Yearly	14.11	.03		14,660		.7	33.5	24,284	26,850	83,164	1,755.3

† And other days ‡ Period October 1932-1960

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

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

RECORDS: Based on the weir discharge table, stable station control rating tables, and a continuous record of gage heights. All storm flow occurring at these stations is deducted from the records and is not shown below. Records available: April 1, 1959 through December 1960.

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	217	170	187	196	188	156	173	128	177	150	129	114
2	215	183	171	182	174	166	185	112	171	160	128	116
3	199	173	164	213	179	128	204	111	161	167	151	160
4	211	154	146	195	188	127	192	119	180	169	167	173
5	226	164	154	202	178	171	180	128	170	155	143	158
6	211	164	165	185	144	146	186	132	166	135	128	154
7	192	160	159	159	147	142	175	150	160	124	131	147
8	178	166	143	156	153	144	155	168	151	120	126	149
9	181	156	145	168	139	126	150	165	132	125	128	139
10	174	140	148	195	127	127	192	171	159	126	114	123
11	182	152	148	199	120	171	185	180	177	132	113	121
12	191	207	166	210	138	181	176	186	167	211	113	116
13	191	192	182	191	132	166	181	159	158	187	116	117
14	186	176	177	183	148	159	210	169	158	194	115	126
15	148	152	156	188	163	149	214	184	160	188	115	131
16	107	144	160	194	146	144	* 248	178	163	240	122	127
17	135	129	152	235	142	154	* 253	157	163	235	117	122
18	175	126	144	222	148	188	* 315	154	155	191	126	120
19	174	136	151	170	139	302	* 221	145	142	180	134	120
20	152	121	173	183	158	136	* 165	146	136	140	146	122
21	126	134	157	184	147	116	* 122	145	124	121	154	126
22	146	124	141	182	187	156	* 103	145	121	112	164	117
23	150	120	125	187	261	154	* 89.7	149	130	123	147	118
24	137	132	126	200	205	156	* 66.8	125	261	125	128	121
25	148	141	152	209	156	156	* 115	134	248	134	123	127
26	150	162	205	192	147	183	149	145	208	140	120	119
27	143	165	205	207	140	169	200	156	190	143	118	130
28	141	178	207	197	147	153	173	189	186	122	120	141
29	134	181	178	181	169	157	162	194	159	149	112	130
30	136		176	194	180	158	146	158	137	154	110	131
31	148		189		170		148	164		136		138
Sum	5,204	4,502	5,052	5,759	4,960	4,741	*5,434.5	4,746	4,970	4,788	3,858	4,053
Current Year 1960									Period April 1959-1960			
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	High		Low				Average	Maximum	Minimum	
			Day		Day							
Jan.			5	226	16	107	168	10,300				
Feb.			12	207	23	120	155	8,930				
Mar.			28	207	23	125	163	10,000				
Apr.			17	235	8	156	192	11,400	10,390	11,400	9,380	
May			23	261	11	120	160	9,840	9,610	9,840	9,380	
June			19	302	21	116	158	9,400	9,750	10,100	9,400	
July			18	* 315	24	* 66.8	* 175	* 10,800	10,370	10,800	9,940	
Aug.			29	194	3	111	153	9,410	9,755	10,100	9,410	
Sept.			24	261	22	121	166	9,860	9,385	9,860	8,910	
Oct.			16	240	22	112	154	9,500	8,980	9,500	8,460	
Nov.			4	167	30	110	129	7,650	8,070	8,490	7,650	
Dec.			4	173	1	114	131	8,040	8,865	9,690	8,040	
Yearly				* 315		* 66.8	159	115,130				

* Partly estimated Ø Mean daily

RIO GRANDE AT SAN ANTONIO CROSSING NEAR VILLA GUERRERO, COAHUILA

DESCRIPTION: Bubble-type water-stage recorder, operated with bottled nitrogen gas, located on high ground about 1,000 feet from the river at San Antonio Crossing, .5 mile below Cuervo Creek which marks the lower end of the Maverick Irrigation District, 35.5 river miles below Eagle Pass, Texas, and Piedras Negras, Coahuila, 5 miles northeast of Villa Guerrero, Coahuila, and 792.4 river miles below the American Dam at El Paso, Texas. The zero of the gage is 581.61 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 27 meter measurements by boat during the year and a continuous record of gage heights. Computations for discharges up to about 11,000 second-feet are based on a relatively stable rating curve defined by meter measurements. Computations for higher discharges are based on an extension of the curve. Records available: March, April, May, October, November and December 1952, with some days missing; January 1 through August 20, 1953; September 23, 1953 through June 14, 1954; and May 27, 1955 through December 1960 with some days missing prior to September 1955.

REMARKS: The June 1954 flood reached an elevation of 624.31 feet at this station, with a discharge of 912,000 second-feet, determined by slope-area computations.

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2,650	2,860	3,010	1,910	2,030	1,210	750	3,270	9,340	1,900	4,470	2,970
2	2,630	2,790	2,970	1,900	1,770	1,230	750	2,920	9,450	1,850	3,700	2,850
3	2,580	2,880	2,840	1,990	1,620	1,140	824	2,960	8,090	1,850	3,790	2,940
4	2,480	3,160	2,920	1,940	1,640	1,000	834	2,530	8,720	1,810	3,680	3,070
5	2,430	3,070	2,830	1,870	1,540	1,040	740	2,210	7,590	1,810	3,300	3,130
6	2,530	3,090	2,840	1,870	1,400	1,080	663	1,950	7,150	1,770	2,830	2,870
7	2,460	3,010	2,810	1,790	1,420	1,180	688	1,850	6,920	1,740	2,760	2,970
8	2,600	3,070	2,740	1,640	1,410	1,120	1,780	1,800	5,980	1,690	2,730	3,070
9	2,580	2,970	2,700	1,600	1,420	925	10,300	1,720	5,310	1,650	2,660	3,020
10	2,540	2,860	3,010	1,660	1,340	947	6,270	1,690	4,920	1,660	2,490	3,000
11	2,650	2,940	3,030	1,680	1,260	2,480	6,560	1,780	4,440	1,640	2,440	3,040
12	2,860	3,160	2,770	1,660	1,300	1,870	5,080	4,890	4,160	2,140	2,380	3,000
13	2,790	3,360	2,630	1,710	1,270	1,820	4,890	3,890	3,760	1,880	2,320	2,990
14	2,770	3,320	2,560	1,710	1,280	1,560	4,410	3,680	3,490	1,970	2,240	2,870
15	2,880	3,220	2,530	1,700	1,300	1,330	6,470	3,830	3,340	1,870	2,350	2,950
16	2,430	2,950	2,410	1,610	1,310	1,170	6,960	4,950	3,220	30,300	2,480	2,940
17	2,480	2,940	2,330	1,600	1,300	1,150	7,100	6,180	3,040	8,210	2,480	3,000
18	2,830	3,070	2,350	1,770	1,270	1,580	15,000	5,060	2,960	5,380	2,380	3,110
19	2,860	3,160	2,290	1,590	1,220	1,780	8,070	4,090	2,840	7,860	2,290	3,040
20	2,670	3,070	2,250	1,410	1,180	1,670	6,870	3,710	2,530	6,830	2,320	2,840
21	2,530	3,130	2,210	1,410	1,130	1,170	7,600	3,490	2,360	5,790	2,360	2,770
22	2,480	3,050	2,150	1,430	1,230	1,150	5,110	4,190	2,310	4,470	2,430	2,740
23	2,460	2,840	2,060	1,460	1,760	1,060	5,400	4,040	2,280	3,600	2,520	2,820
24	2,430	2,750	1,870	1,490	1,780	958	4,190	4,860	4,460	3,180	2,460	2,840
25	2,510	3,070	1,890	1,690	1,380	958	4,950	5,840	4,960	3,000	2,460	2,850
26	2,750	3,010	2,100	1,580	1,350	969	5,460	3,920	2,750	2,820	2,520	2,820
27	2,700	2,750	2,220	2,040	1,340	958	4,840	6,810	2,390	4,110	3,500	2,670
28	2,900	2,970	2,210	1,740	1,300	864	4,630	11,400	2,180	4,040	3,420	2,600
29	2,920	3,300	2,100	3,130	1,300	796	4,020	13,000	2,070	8,130	3,340	2,770
30	2,880		2,010	3,070	1,180	750	5,520	8,090	1,980	20,400	3,260	2,790
31	2,860		1,940		1,180		4,240	7,730		6,340		2,850
Sum	82,120	87,820	76,580	53,650	43,210	36,915	150,969	138,330	134,990	151,690	84,360	90,190
Current Year 1960									Period 1956-1960			
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.	3.01	2.41	15	3,300	15	2,240	2,650	163,000	126,560	219,000	63,200	
Feb.	3.12	2.64	13	3,530	24	2,610	3,030	174,000	118,320	174,000	72,600	
Mar.	2.96	2.11	11	3,200	25	1,810	2,470	152,000	104,740	152,000	60,600	
Apr.	4.16	1.78	29	6,120	21	1,400	1,790	106,000	154,000	433,000	42,600	
May	2.78	1.53	23	2,860	21	1,070	1,390	85,700	310,040	1,054,000	50,500	
June	2.74	1.15	11	2,790	30	688	1,230	73,200	196,900	335,000	35,300	
July	6.36	1.02	18	20,600	6	584	4,870	299,000	159,460	299,000	27,400	
Aug.	5.72	1.92	28	16,800	10	1,570	4,460	274,000	143,580	274,000	44,200	
Sept.	4.88	2.11	1	10,500	30	1,870	4,500	268,000	323,240	871,000	81,200	
Oct.	12.38	1.89	16	70,200	11	1,530	4,890	301,000	553,600	1,741,000	141,000	
Nov.	3.68	2.30	1	4,980	14	2,210	2,810	167,000	192,600	454,000	59,000	
Dec.	2.83	2.37	5	3,230	28	2,470	2,910	179,000	150,760	263,000	60,800	
Yearly	12.38	1.02		70,200		584	3,090	2,241,900	2,533,800	4,441,400	756,800	

† And other days

RIO GRANDE AT PALAFOX, TEXAS

DESCRIPTION: Water-stage recorder located on the outskirts of Palafox, Texas and Villa Hidalgo, Coahuila, 44.7 river miles upstream from the international highway bridge between Laredo, Texas and Nuevo Laredo, Tamaulipas and 845.2 river miles below the American Dam at El Paso, Texas. The zero of the gage is 436.02 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 78 meter measurements by boat during the year and a continuous record of gage heights. Computations by shifting channel methods. There are no facilities for measuring high flows at this station. Records available: August 5, 1959 through December 1960.

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

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2,330	2,750	3,050	1,890		1,060	802	3,670		2,040	5,160	3,070
2	2,420	2,790	2,880	1,810	2,050	1,070	784	3,020		1,970	4,240	2,830
3	2,330	2,710	2,880	1,930	1,780	1,030	763	2,780		1,930	3,710	2,730
4	2,280	2,790	2,790	1,960	1,650	1,060	784	2,730		1,930	3,850	2,870
5	2,280	2,970	2,790	1,960	1,600	992	823	2,430		1,890	3,530	3,020
6	2,330	2,880	2,750	1,810	1,580	992	763	2,190		1,890	3,210	2,920
7	2,370	2,840	2,790	1,810	1,480	1,030	643	1,970		1,820	2,920	2,780
8	2,370	2,790	2,790	1,700	1,450	1,030	629	1,890		1,790	3,020	2,830
9	2,510	2,840	2,710	1,590	1,430	953		1,890		1,720	2,920	3,020
10	2,470	2,750	2,710	1,590	1,380	918		2,350	5,160	1,680	3,020	2,920
11	2,420	2,710	2,970	1,630	1,300	1,010			4,730	1,720	2,690	2,920
12	2,610	2,880	2,880	1,630	1,250	2,130			4,380		2,650	3,020
13	2,710	3,100	2,710	1,660	1,250	1,640	4,700		3,880		2,560	2,970
14	2,610	3,140	2,610	1,660	1,210	1,680	4,700	* 3,530	3,530	2,270	2,560	2,920
15	2,790	3,140	2,510	1,700	1,200	1,430		* 3,960	3,320	2,080	2,560	2,780
16	2,330	3,050	2,420	1,700	1,330	1,220		* 3,780	3,120		2,600	2,870
17	2,220	2,920	2,330	1,660	1,250	1,170			3,020		2,510	2,920
18	2,280	2,920	2,240	1,660	1,920	1,130			2,870		2,470	2,870
19	2,610	2,970	2,200	1,890	1,250	1,510		4,560	2,870		2,430	2,970
20	2,560	2,970	2,130	1,660	1,180	1,720		3,780	2,650		2,430	2,970
21	2,420	2,970	2,100	1,450	1,130	1,450		3,530	2,560		2,870	2,780
22	2,280	2,840	2,060	1,360	1,110	1,110		* 3,490	2,430		2,970	2,730
23	2,240	2,920	2,030	1,330	1,350	1,130		* 4,060	2,350	4,870	2,650	2,730
24	2,240	2,710	1,940	1,450	1,870	1,070	4,480	3,880	5,370	4,380	2,560	2,730
25	2,240	2,790	1,850	1,520	1,620	1,010	4,270			3,380	2,510	2,730
26	2,420	2,970	1,870	1,740	1,410	953	4,800		3,780	3,020	2,560	2,830
27	2,510	2,750	2,060	1,700	1,300	897	5,190		2,730	2,970	2,920	2,830
28	2,560	2,660	2,170	2,090	1,280	897	4,200		2,390		3,430	2,690
29	2,710	3,050	2,170	1,810	1,210	840	4,410		2,230	3,780	3,170	2,600
30	2,710		2,030		1,210	802	4,170		2,120		3,210	2,690
31	2,710		1,970		1,170		4,940					2,780
Sum	83,570				34,934						88,320	
	75,850		75,390								89,890	
Current Year 1960									Period # Aug. 1959-1960			
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Low	Average			Maximum	Minimum		
											Day	
Jan.	3.22	2.46	15	3,050	16	2,060	2,450	150,500				
Feb.	3.31	2.85	14	3,190	24	2,560	2,880	165,800				
Mar.	3.28	2.17	1	3,140	25	1,830	2,430	149,600				
Apr.	5.58	1.74	30		23	1,300						
May	4.00	1.15	1		22	1,080						
June	2.76	.69	12	2,420	30	763	1,160	69,300				
July	9.58	.30	19		8	586						
Aug.	7.81	2.26	29		9	1,890						
Sept.	6.30	2.36	1		30	2,010						
Oct.	29.13	1.97	16		12	1,590						
Nov.	4.79	2.62	1		19	2,310	3,000	178,200	171,650	178,200	165,100	
Dec.	3.28	2.82	1	3,210	† 28	2,560	2,850	175,100	159,250	175,100	143,400	
Yearly	29.13	.30				586						

* Partly estimated † And other days # Some months missing

RIO GRANDE AT LAREDO, TEXAS

DESCRIPTION: Bubble-type water-stage recorder operated with bottled nitrogen gas, and cable with stand-up cable car located .9 mile downstream from the highway bridge between Laredo, Texas and Nuevo Laredo, Tamaulipas, and 890.8 river miles below the American Dam at El Paso, Texas. The zero of the gage is 347.90 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 376 meter measurements during the year, 325 by the Mexican and 51 by the United States Section of this Commission and a continuous record of gage heights. Computations by shifting channel methods. Records available: May 1900 through December 1913; May, June and October 1914; September 1916; September and October 1917; October 1918; September and October 1919; August and September 1920; June, November and December 1922; and January 1923 through December 1960. Gage height records are available for January, February and March 1914.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station. This station was established in January 1955 to replace the station 1.5 miles upstream which was destroyed by the June-July 1954 flood.

EXTREME FLOWS FROM RECORDS: The greatest recorded flow was ** 716,900 second-feet, with a gage height of 61.35 feet, which occurred June 30, 1954. Much well-authenticated information establishes the occurrence of a greater flood in June 1865 with a gage height of 62.5 feet on the same gage and discharge of approximately 950,000 second-feet and also that these were the only floods since 1745 with flows greater than 600,000 second-feet. The lowest recorded flow was zero which occurred various days in June and July 1953 and on July 24, 1956.

Average Flow in Second-Feet †

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

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2,560	2,840	3,400	1,680	5,190	950	643	4,380	7,590	1,960	6,640	3,390
2	2,490	2,840	3,200	1,680	2,700	918	579	3,420	9,360	1,910	4,870	3,110
3	2,600	2,750	3,100	1,770	1,940	950	579	2,880	9,290	1,820	4,030	2,730
4	2,490	2,750	2,990	2,000	1,660	918	579	2,830	8,160	1,820	4,030	2,730
5	2,450	3,220	2,920	2,000	1,560	918	614	2,610	8,690	1,790	3,880	3,020
6	2,540	3,130	2,850	1,890	1,560	840	614	2,280	7,490	1,760	3,640	3,280
7	2,450	2,930	2,990	1,680	1,480	865	579	2,060	7,100	1,730	3,240	4,170
8	2,450	2,840	2,850	1,680	1,300	890	491	1,910	6,890	1,730	3,080	3,440
9	2,540	2,930	2,780	1,580	1,300	918	491	1,910	6,000	1,700	3,140	3,230
10	2,690	2,980	2,700	1,540	1,300	865	9,010	1,960	5,300	1,700	3,240	3,280
11	2,540	2,770	2,990	1,490	1,300	773	5,930	3,160	4,870	1,670	3,180	3,180
12	2,690	2,970	3,100	1,540	1,240	1,320	6,140	3,670	4,450	1,670	2,810	3,230
13	2,920	3,300	2,990	1,490	1,160	1,890	4,910	4,410	4,240	5,010	2,760	3,490
14	2,840	3,600	2,780	1,540	1,090	1,630	4,940	4,270	3,850	2,340	2,710	3,490
15	2,770	3,530	2,700	1,540	1,090	1,630	4,450	3,880	3,600	2,460	2,660	3,110
16	3,160	3,340	2,520	1,730	1,090	1,310	6,460	4,130	3,430	2,840	2,660	2,940
17	2,230	3,030	2,520	1,730	1,340	989	6,960	4,870	3,280	51,560	2,710	3,180
18	2,230	2,930	2,330	1,680	1,790	918	7,770	6,140	3,140	15,790	2,610	3,230
19	2,540	3,030	2,110	1,620	1,540	961	16,700	4,980	3,040	8,790	2,570	3,110
20	2,840	3,030	2,000	1,620	1,540	1,430	8,160	4,170	2,890	9,890	2,520	3,280
21	2,620	3,030	2,000	1,430	1,020	1,530	6,990	3,710	2,660	7,240	3,040	3,110
22	2,430	3,130	2,000	1,290	961	1,130	7,420	3,480	2,490	6,140	4,030	2,730
23	2,370	3,030	1,890	1,250	918	936	5,050	3,920	2,340	5,050	3,240	2,730
24	2,370	2,980	1,890	1,250	1,310	1,000	5,370	4,100	3,390	4,480	2,810	2,730
25	2,370	2,830	1,790	1,330	1,990	936	4,200	4,700	7,730	4,030	2,710	2,790
26	2,370	3,000	1,790	1,520	1,470	848	4,730	5,760	6,000	3,600	2,710	2,860
27	2,790	3,000	1,840	1,680	1,230	819	5,190	4,030	3,230	3,440	2,810	2,940
28	2,720	2,660	2,220	1,730	1,150	759	4,870	6,640	2,660	4,380	3,640	2,790
29	2,870	2,850	2,220	1,840	1,150	759	4,480	12,040	2,260	4,660	3,640	2,600
30	2,970		2,000	3,270	1,080	675	4,200	12,290	2,070	9,920	3,430	2,600
31	2,970		1,840		1,080		5,300	7,980		17,270		2,860
Sum	80,780	87,250	77,300	50,070	46,139	31,275	144,399	138,570	147,490	190,150	99,140	95,360

Month	Current Year 1960						Period 1948-1960			
	Extreme Gage Feet		Extreme Second-Feet				Average Acre-Feet	Acre-Feet		
	High	Low	Day	High	Day	Low		Average	Maximum	Minimum
Jan.	2.49	1.90	16	3,530	†17	2,120	2,610	160,100	110,089	219,200
Feb.	2.56	2.00	14	3,670	28	2,600	3,010	173,100	122,505	423,700
Mar.	2.49	1.67	1	3,530	†25	1,750	2,490	153,400	98,729	223,400
Apr.	4.72	1.21	30	7,520	24	1,210	1,670	99,310	128,821	464,000
May	4.89	.92	1	7,880	†22	918	1,490	91,530	246,840	1,351,000
June	1.57	.52	12	2,190	30	614	1,040	62,020	358,641	1,994,000
July	9.71	.33	19	20,340	†8	431	4,660	286,400	240,558	655,500
Aug.	8.07	1.4†	29	16,140	†9	1,800	4,470	274,800	189,538	534,400
Sept.	5.81	1.67	3	9,960	30	1,960	4,920	292,500	291,700	855,500
Oct.	22.80	1.35	17	62,510	12	1,610	6,130	377,200	335,886	1,822,000
Nov.	5.15	1.64	1	8,690	†19	2,520	3,300	196,600	146,503	488,900
Dec.	3.02	1.77	7	4,730	29	2,480	3,080	189,100	119,888	266,400
Yearly	22.80	.33		62,510		431	3,250	2,356,060	2,389,698	4,571,770

† And other days ** Determined by slope-area calculations ‡ Period 1924-1960

RIO SALADO AT LAS TORTILLAS, TAMAULIPAS

DESCRIPTION: Water-stage recorder and cable with stand-up cable car, and control wall with notch opening of 2,500 second-foot capacity located 6.2 miles southeast of the town of Las Tortillas, Tamaulipas, 2 miles below the confluence of the Rio Sabinas with the Rio Salado and 24.8 miles above the confluence of the Rio Salado with the Rio Grande. This confluence is 949.8 river miles below the American Dam at El Paso, Texas. The zero of the gage is 325.72 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 73 meter measurements during the year, a stable rating curve up to 2,500 second-feet and a continuous record of gage heights. Computations by shifting channel methods for flows greater than 2,500 second-feet. Records available: September 9, 1953 through December 1960. Records are also available for a station at Cd. Guerrero, 18.6 miles downstream, from 1900 through 1913 and 1923 through September 8, 1953.

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

EXTREME FLOWS FROM RECORDS: Momentary: Max. 27,720 second-feet on October 16, 1958 with a gage height of 23.79. Min. frequently no flow. Extreme flow data for the Rio Salado at Cd. Guerrero prior to 1954 may be found in previous bulletins.

Average Flow in Second-Feet ‡

Daily:	Max.	25,600	Oct. 18, 1958	Min.	0	Frequently
Monthly:	Max.	8,500	Oct. 1958	Min.	0	Frequently
Yearly:	Max.	2,020	1958	Min.	56.8	1956

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	42.4	36.4	42.4	0	42.4	9.2	16.6	6.4	72.7	16.6	42.4	48.4
2	42.4	31.4	42.4	0	48.4	6.4	9.2	3.9	530	16.6	42.4	42.4
3	42.4	42.4	36.4	0	55.1	3.2	3.9	3.2	1,030	16.6	42.4	42.4
4	48.4	31.4	31.4	0	36.4	2.5	3.2	3.2	1,160	16.6	42.4	55.1
5	48.4	26.5	26.5	0	31.4	1.4	16.6	3.2	1,010	12.7	42.4	55.1
6	48.4	21.5	31.4	0	31.4	1.4	9.2	3.2	558	12.7	36.4	103
7	48.4	26.5	55.1	0	21.5	2,010	6.4	1.4	452	12.7	36.4	69.6
8	42.4	31.4	55.1	3.9	16.6	985	9.2	1.4	206	12.7	36.4	55.1
9	42.4	26.5	36.4	6.4	16.6	222	6.4	6.4	166	12.7	31.4	62.2
10	48.4	21.5	31.4	3.9	16.6	113	3.2	344	103	12.7	31.4	69.6
11	55.1	21.5	26.5	3.2	16.6	69.6	3.2	388	299	12.7	36.4	62.2
12	55.1	31.4	31.4	2.5	16.6	42.4	3.2	2,120	848	12.7	48.4	62.2
13	55.1	42.4	31.4	.7	12.7	31.4	3.2	773	1,770	12.7	48.4	55.1
14	48.4	69.6	36.4	9.2	16.6	31.4	6.4	1,380	333	21.5	69.6	55.1
15	31.4	85.5	31.4	12.7	16.6	21.5	9.2	749	133	16.6	69.6	133
16	36.4	85.5	21.5	21.5	12.7	12.7	40.6	639	85.5	31.1	62.2	123
17	42.4	55.1	16.6	99.2	12.7	9.2	77.7	222	69.6	537	55.1	133
18	42.4	48.4	16.6	93.9	12.7	3.2	55.1	123	55.1	678	48.4	85.5
19	42.4	42.4	16.6	62.2	9.2	3.2	445	85.5	42.4	198	166	77.0
20	42.4	31.4	6.4	55.1	6.4	1.4	463	69.6	42.4	253	123	62.2
21	36.4	31.4	3.2	31.4	6.4	1.4	155	55.1	42.4	374	93.9	62.2
22	31.4	31.4	2.5	36.4	6.4	.7	85.5	55.1	36.4	254	77.0	55.1
23	36.4	31.4	1.4	31.4	9.2	0	55.1	95.0	31.4	144	69.6	62.2
24	42.4	36.4	.7	31.4	6.4	0	42.4	316	26.5	103	69.6	55.1
25	42.4	36.4	0	36.4	9.2	0	42.4	178	26.5	77.0	113	55.1
26	48.4	36.4	0	87.2	12.7	113	31.4	103	21.5	62.2	103	62.2
27	42.4	36.4	0	93.9	77.3	126	21.5	194	21.5	55.1	77.0	62.2
28	42.4	31.4	0	36.4	21.5	48.4	12.7	144	21.5	48.4	62.2	55.1
29	31.4	31.4	0	31.4	16.6	31.4	9.2	85.5	21.5	55.1	55.1	48.4
30	31.4	0	0	31.4	12.7	21.5	6.4	31.4	21.5	62.2	48.4	55.1
31	31.4	0	0	12.7	12.7	6.4	31.4	31.4	31.4	55.1	55.1	55.1
Sum	1,111.3 821.7 3,922.5 8,213.9 3,206.0 2,079.0											
	1,321.5	631.1		640.3		1,658.5		9,236.4		1,879.9		
Current Year 1960									Period 1954-1960			
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.	.52	.36	† 4	55.1	† 29	26.5	42.6	2,620	9,521	57,070	0	
Feb.	.72	.30	† 15	103	† 5	16.6	38.3	2,200	10,160	66,880	0	
Mar.	.52	0	† 7	55.1	† 26	0	20.4	1,250	4,576	29,690	0	
Apr.	1.31	0	† 17	348	† 1	0	27.4	1,630	5,003	19,300	0	
May	1.02	.16	27	206	† 19	3.9	20.7	1,270	16,724	45,230	1,270	
June	3.51	0	7	2,870	† 23	0	131	7,780	8,164	18,890	0	
July	2.36	.07	19	1,230	12	1.4	53.3	3,290	5,076	18,650	0	
Aug.	3.51	.07	12	2,870	† 7	1.4	265	16,290	9,093	31,700	0	
Sept.	3.22	.33	13	2,400	† 25	21.5	308	18,320	83,089	359,000	2,860	
Oct.	2.40	.26	18	1,270	† 1	12.7	103	6,360	78,867	522,800	110	
Nov.	1.15	.39	19	269	† 8	31.4	62.7	3,730	50,152	338,000	0	
Dec.	1.15	.46	6	269	† 2	42.4	67.1	4,120	26,105	176,100	0	
Yearly	3.51	0		2,870		0	94.9	68,860	306,530	1,463,797	41,238.2	

† And other days ‡ Period September 1953-1960

RIO GRANDE BELOW FALCON DAM

DESCRIPTION: The discharges reported below represent water measured as it leaves Falcón Reservoir through turbine penstocks, by-pass valves, spillway gates, and leakage. Falcón Dam, astride the Rio Grande, is located 84.5 river miles downstream from Laredo, Texas and Nuevo Laredo, Tamaulipas; 974.4 river miles below the American Dam at El Paso, Texas; and 273.8 river miles above the Gulf of Mexico. A water-stage recorder and a cable with stand-up cable car located 2.5 and 3.5 river miles downstream, respectively, are used to measure the flow of this station at those 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 by-pass valves, estimates of gate leakage, measurements of flow at the cable during spillgate operations, and 21 current meter measurements during the year, 13 by the United States and 8 by the Mexican Section of this Commission. Records available: January 1, 1958 through December 1960. Records are also available from December 17, 1952 through December 31, 1957 for a station at Chapéño, 2.5 miles downstream, where discharges included arroyo inflow below Falcón Dam, which inflow is eliminated from the records reported below.

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

EXTREME FLOWS FROM RECORDS: Momentary: Max. 48,900 second-feet on November 9, 1958. Min. no flow occurs at times.

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	3,110	9,720	940	1,850	803	5,970	3,410	712	801	784	729	330
2	2,730	8,840	753	2,040	801	6,240	3,440	2,660	802	1,660	498	506
3	2,090	8,710	539	2,610	803	6,690	3,620	3,080	226	1,610	531	932
4	2,380	9,210	332	1,610	1,290	7,050	4,140	2,340	34.0	2,800	757	444
5	2,800	8,580	528	2,400	1,200	8,120	4,290	2,870	431	2,830	1,420	437
6	3,120	7,950	713	2,670	889	9,170	3,940	1,980	386	2,930	1,430	552
7	2,580	7,960	548	3,420	1,340	9,580	4,100	2,250	401	3,020	1,280	914
8	2,530	7,080	1,140	2,300	1,410	9,520	5,300	1,220	393	3,000	1,030	475
9	2,510	5,690	1,180	3,410	1,370	10,100	5,530	1,330	107	2,450	838	927
10	2,410	5,500	1,240	3,520	2,420	10,100	5,720	3,590	34.0	1,910	293	821
11	2,270	5,960	942	3,500	2,780	10,800	4,140	1,870	34.0	1,920	241	979
12	3,040	3,760	945	2,630	3,270	11,500	4,900	869	34.0	2,870	219	354
13	3,600	1,310	545	2,810	3,450	11,600	4,540	799	34.0	3,250	238	223
14	4,190	2,600	551	3,810	3,790	11,800	4,360	821	524	3,380	409	179
15	4,590	2,800	861	3,610	4,510	12,700	4,380	834	527	3,440	1,180	755
16	6,440	3,260	696	5,740	5,200	13,100	4,600	1,240	519	2,900	1,620	358
17	6,860	3,520	696	3,980	6,640	13,600	4,130	789	783	974	853	178
18	6,840	3,180	692	1,170	7,700	14,500	3,840	805	851	725	529	182
19	8,780	2,840	733	740	8,380	14,800	983	800	1,130	340	640	356
20	7,860	1,920	1,040	1,150	6,670	13,700	983	796	331	700	640	350
21	8,910	1,740	1,030	1,870	3,950	11,400	2,530	787	523	693	327	354
22	9,180	1,890	628	2,050	4,640	10,900	1,960	801	851	278	185	348
23	8,400	1,520	1,430	2,630	5,790	7,950	1,660	772	1,140	141	154	359
24	9,560	1,510	1,870	2,010	7,130	3,970	531	881	1,200	82.0	217	177
25	7,610	1,200	1,410	1,270	6,920	4,190	1,050	1,110	2,290	34.0	504	180
26	6,740	1,170	2,100	1,390	4,910	5,110	1,690	781	1,070	34.0	383	361
27	8,400	1,160	1,710	731	4,390	6,090	1,680	1,020	773	35.0	323	357
28	10,200	1,150	1,690	962	4,390	6,860	1,700	425	1,140	135	1,420	985
29	9,700	1,150	1,520	801	4,750	5,840	1,680	788	803	224	1,150	1,410
30	9,700		2,040	783	5,480	4,860	1,490	821	783	223	995	1,350
31	9,900		2,500		6,000		683	797		473		2,550
Sum	122,880	69,467	123,066	277,810	40,638	18,955.0	45,845	21,033	18,683			
	179,030	33,542										

Current Year 1960							Period # 1954-1960				
Month	Extreme Gate Feet		β Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	High		Low			Average	Maximum	Minimum	
			Day			Day					
Jan.			28	10,200	3	2,090	5,780	355,000	241,586	368,000	46,100
Feb.			1	9,720	† 28	1,150	4,240	244,000	218,457	349,000	16,600
Mar.			31	2,500	4	332	1,080	66,500	149,356	347,000	2,390
Apr.			16	5,740	27	731	2,320	138,000	167,504	347,000	19,530
May			19	8,380	2	801	3,970	244,000	301,543	526,000	217,000
June			19	14,800	24	3,970	9,260	551,000	348,057	551,000	164,000
July			10	5,720	24	531	3,130	192,000	115,167	229,000	18,300
Aug.			10	3,590	28	425	1,310	80,600	129,629	206,000	25,900
Sept.			25	2,290	† 4	34.0	632	37,600	128,643	274,000	15,300
Oct.			15	3,440	† 25	34.0	1,480	90,900	362,439	1,997,000	27,100
Nov.			16	1,620	23	154	701	41,700	214,030	1,128,000	30,100
Dec.			31	2,550	24	177	603	37,100	178,586	465,000	37,100
Yearly				14,800		34.0	2,860	2,078,400	2,554,997	5,016,800	1,482,330

† And other days β Mean daily # Values prior to 1958 are Chapéño discharges less arroyo inflow.

RIO ALAMO AT CD. MIER, TAMAULIPAS

DESCRIPTION: Water-stage recorder and cable with sit-down cable car and reinforced concrete weir for measuring flows up to 177 second-feet, located 5.0 miles above the confluence of the Rio Alamo with the Rio Grande and .6 mile north of Cd. Mier, Tamaulipas, at a point called "El Paso del Cántaro". This stream enters the Rio Grande 986.8 river miles below the American Dam at El Paso, Texas. The zero of the gage is 188.35 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 12 meter 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 channel methods. Records available: July 1, 1923 through December 1960.

REMARKS: Small reservoirs and irrigation diversions modify the flow of this spring-fed stream at this station. On June 11, 1952 the recorder was moved 515 feet downstream to a point 312 feet above the weir, and the zero of the gage changed to coincide with the weir crest elevation.

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

Average Flow in Second-Feet ‡

Daily:	Max.	87,230	Sept. 11, 1948	Min.	0	Frequently
Monthly:	Max.	5,170	Sept. 1948	Min.	0	Frequently
Yearly:	Max.	536	1953	Min.	16.4	1929

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	12.0	2.5	10.6	4.2	8.1	1.1	0	53.3	237	1.1	2.5	2.5
2	12.0	2.5	10.6	4.2	6.0	1.1	0	31.8	1,500	1.1	2.5	2.5
3	13.1	2.5	10.6	4.2	4.9	0	0	6.7	1,350	1.1	2.5	1.1
4	12.0	2.5	10.6	4.2	3.5	0	0	3.2	1,270	0	2.5	1.1
5	10.6	2.5	9.2	2.5	1.8	0	0	1.4	1,610	0	2.5	1.1
6	9.2	3.5	10.6	2.5	.7	0	0	.7	597	0	1.1	1.1
7	6.0	3.5	10.6	2.5	0	0	0	0	180	0	1.1	1.1
8	6.0	2.5	10.6	2.5	0	0	0	0	91.8	0	1.1	1.8
9	7.1	3.5	12.0	2.5	0	0	0	0	71.7	0	1.1	2.5
10	7.1	3.5	12.0	2.5	0	0	0	1,000	347	0	1.1	2.5
11	7.1	3.5	10.6	1.1	0	0	0	1,350	1,960	0	3.5	4.2
12	8.1	4.2	9.2	1.1	0	21.5	0	2,810	473	0	13.8	4.2
13	10.6	7.1	9.2	1.1	0	21.5	0	713	117	0	8.1	4.2
14	10.6	10.6	9.2	1.1	0	0	0	316	53.3	0	4.9	8.1
15	8.1	17.3	8.1	1.1	0	3.5	0	194	31.4	0	3.5	10.6
16	6.0	13.1	8.1	1.1	0	39.2	33.2	74.9	17.3	.7	2.5	12.0
17	6.0	10.6	8.1	653	0	15.9	46.3	187	13.1	1,830	2.5	13.1
18	6.0	9.2	9.2	484	0	6.0	8.1	85.1	10.6	1,280	2.5	12.0
19	4.9	8.1	8.1	44.1	0	1.1	6,820	33.2	7.1	298	2.5	9.2
20	4.9	8.1	7.1	13.8	0	.7	1,270	19.1	6.0	161	2.5	8.1
21	4.2	9.2	7.1	6.0	0	0	90.4	13.1	6.0	90.4	37.1	8.1
22	2.5	9.2	7.1	4.2	0	0	30.7	8.5	4.2	36.7	35.3	8.1
23	2.5	8.1	6.0	2.5	0	0	14.5	5.7	3.5	19.1	18.7	8.1
24	3.5	8.1	4.9	2.5	0	0	8.1	3.9	2.5	87.6	10.6	8.1
25	4.2	8.1	6.0	1.8	8.1	0	4.2	2.5	161	38.8	6.0	8.1
26	4.2	8.1	6.0	501	176	7.1	2.5	2.5	84.0	16.6	6.0	8.1
27	4.9	8.1	6.0	519	40.6	614	2.5	2.5	14.8	9.5	4.2	9.2
28	6.0	8.1	6.0	61.8	12.0	78.0	1.1	72.0	8.1	7.1	4.2	9.2
29	4.9	9.2	6.0	22.2	6.0	13.8	.7	19.8	4.2	6.0	3.5	9.2
30	4.9		6.0	12.7	4.2	6.7	0	8.5	1.1	5.6	2.5	9.2
31	2.5		6.0		1.1		0	6.0		4.2		10.6
Sum		197.0		2,367.0		831.2		7,024.4		10,232.7	3,894.6	192.4
	211.7		261.4		273.0		8,332.3					

Current Year 1960							Period 1924-1960				
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.	.23	.07	3	13.1	† 22	2.5	6.8	420	3,678	34,920	0
Feb.	.26	.07	15	17.3	† 1	2.5	6.8	391	2,660	25,550	0
Mar.	.20	.13	† 9	12.0	24	4.9	8.4	518	2,704	19,830	0
Apr.	4.79	.03	17	4,100	† 11	1.1	78.9	4,700	7,304	36,210	0
May	1.74	0	26	403	† 7	0	8.8	542	13,840	137,000	0
June	2.40	0	27	961	† 3	0	27.7	1,650	12,101	83,240	0
July	9.78	0	19	12,780	† 1	0	269	16,520	6,784	37,590	0
Aug.	4.92	0	12	4,310	† 7	0	227	13,940	18,624	205,700	0
Sept.	4.59	.03	11	3,880	30	1.1	341	20,290	36,223	307,900	135
Oct.	4.07	0	17	3,020	† 4	0	126	7,720	19,177	193,700	0
Nov.	.59	.03	† 21	54.7	† 6	1.1	6.4	381	3,740	21,940	0
Dec.	.23	.03	17	13.1	† 3	1.1	6.4	394	3,191	15,000	0
Yearly	9.78	0		12,780		0	92.9	67,466	130,026	387,800	11,898.7

† And other days ‡ Period 1924-1960

CONTRIBUTIONS FROM RIO SAN JUAN ABOVE FORT RINGGOLD STATION

DESCRIPTION: The Lower Río San Juan Irrigation District in Mexico lies along the Río Grande between Ciudad Miguel Alemán and Río Bravo, Tamaulipas and is irrigated with water impounded by Marte R. Gómez Dam situated on the Río San Juan 12.4 river miles above the confluence with the Río Grande. The Río San Juan enters the Río Grande 1,010.4 river miles below the American Dam at El Paso, Texas. Drain water from this irrigation district enters the Río Grande through the Río San Juan Channel, Rancherías Drain, and Los Fresnos Drain above Fort Ringgold Gaging Station; and through Puertecitos, Los Indios, Huizache and Morillo Drains between this station and Anzaldúas Dam. Only the portion of water reaching the Río Grande via channels above Fort Ringgold Gaging Station is shown below. The portion of drain water from this irrigation district reaching the Río Grande below Fort Ringgold Gaging Station is shown on page 49 of this Bulletin.

RECORDS: Water entering the Río Grande through the Río San Juan Channel, included in the tabulation below and composed of releases, spills and leakage from Marte R. Gómez Dam, and storm inflow and drainage below the dam, was measured at Río San Juan at Camargo, Tamaulipas Gaging Station located 3.1 river miles above the confluence with the Río Grande. (See next page for station description and separate tabulation of discharge for this station). The discharge through Rancherías Drain was determined by prorating between 46 current meter measurements made during the year. There was no drainage flow through Los Fresnos Drain in 1960. All storm water measured at these two drains was deducted and is not included in the tabulation below. Records available: 1953 through December 1960.

REMARKS: In 1960, there were 162,775 irrigable acres in the Lower Río San Juan Irrigation District.

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	7.5	8.3	11.5	5.3	7.6	12.3	15.8	6.8	649	7.4	7.9	11.8
2	7.5	8.5	11.9	5.3	7.9	12.8	14.3	5.8	772	7.0	7.7	11.7
3	7.4	9.0	11.9	5.3	8.5	12.2	13.5	5.1	1,140	6.3	7.0	12.1
4	7.1	8.8	11.9	5.3	8.9	11.5	12.4	4.5	1,170	5.9	6.7	12.1
5	7.0	9.0	12.3	5.3	9.6	10.9	11.5	3.8	648	5.4	6.0	11.7
6	7.0	8.8	12.3	5.3	9.9	10.6	10.4	3.8	686	4.7	8.1	11.8
7	7.0	8.9	12.3	5.7	10.6	10.0	9.6	3.8	378	4.3	9.8	11.4
8	7.0	9.0	13.0	5.7	9.9	9.3	8.4	3.9	296	3.9	11.5	11.4
9	6.6	8.8	13.7	6.0	9.2	9.0	7.6	3.9	268	3.8	13.2	11.1
10	6.2	9.0	14.8	6.0	8.5	9.6	6.4	3.9	143	4.1	14.9	11.1
11	6.2	9.1	15.6	6.3	7.8	10.2	7.0	88.0	132	4.4	16.6	10.7
12	5.8	9.0	16.3	6.6	7.2	10.7	7.9	2,040	251	4.3	15.9	10.7
13	5.8	9.3	17.0	6.7	7.4	11.3	8.5	531	252	4.6	14.9	10.7
14	52.6	9.6	17.8	6.7	8.1	11.9	9.1	127	192	4.5	14.2	10.4
15	11.8	9.5	18.9	6.8	8.3	12.4	9.6	88.0	131	4.8	13.1	10.4
16	6.7	9.8	19.6	6.9	8.6	12.6	10.8	74.7	70.5	5.2	12.1	10.1
17	6.9	10.1	20.3	828	8.8	13.2	11.7	83.5	10.0	5.9	11.4	10.1
18	6.8	10.0	18.8	591	9.1	12.9	12.9	36.9	9.7	6.4	10.4	9.7
19	7.0	10.3	17.6	104	8.9	12.6	13.7	8.3	9.5	6.7	9.7	10.1
20	7.2	10.6	16.0	60.5	9.0	12.3	14.9	7.9	9.3	7.5	9.7	10.1
21	7.4	10.6	14.5	41.2	8.8	12.0	16.1	7.5	9.4	7.9	10.0	10.1
22	7.3	10.8	13.3	21.8	8.9	11.7	17.0	7.1	9.2	8.3	10.0	10.1
23	7.5	11.1	11.8	2.5	9.0	12.4	16.0	7.1	9.0	8.6	10.4	10.2
24	7.7	11.1	10.2	2.4	8.8	12.7	14.6	6.6	9.0	8.9	10.4	10.2
25	7.5	11.3	9.1	2.4	8.9	13.3	13.6	6.3	8.6	8.9	10.8	10.2
26	7.7	11.3	7.5	32.8	8.7	13.6	12.2	7.0	8.2	9.1	10.8	10.2
27	7.9	11.5	7.1	139	9.3	13.9	10.8	451	8.2	9.1	11.1	10.2
28	7.8	11.5	6.7	59.5	10.1	14.5	9.8	1,060	8.2	9.4	11.1	10.3
29	8.0	11.5	6.3	33.4	10.7	14.9	8.5	386	7.8	9.3	11.4	10.6
30	8.2		6.2	6.9	11.2	15.1	7.5	299	7.5	9.0	11.1	11.0
31	8.1		5.8		11.8		7.5	334		8.6		11.3
Sum	272.2	286.1	402.0	2,020.6	280.0	362.4	349.6	5,702.2	7,302.1	204.2	327.9	333.6
Current Year 1960									Period 1954-1960			
Month	Extreme Gage Feet		Q	Extreme Second-Feet		Average Second-Feet	Total Acre-Feet	Acre-Feet				
	High	Low		High	Day			Low	Average	Maximum	Minimum	
Jan.			14	52.6	† 12	5.8	8.8	539	8,201	51,360	379	
Feb.			† 17	11.5	1	8.3	9.9	568	4,285	26,250	246	
Mar.			17	20.3	31	5.8	13.0	797	3,487	20,360	464	
Apr.			17	828	† 24	2.4	67.4	4,010	3,151	8,480	222	
May			31	11.8	12	7.2	9.0	555	3,030	8,510	555	
June			30	15.1	9	9.0	12.1	719	2,837	9,110	559	
July			22	17.0	10	6.4	11.3	694	1,212	1,930	424	
Aug.			12	2,040	† 5	3.8	184	11,310	3,140	11,310	260	
Sept.			4	1,170	30	7.5	243	14,490	6,653	14,490	298	
Oct.			28	9.4	9	3.8	6.6	405	130,112	901,800	252	
Nov.			11	16.6	5	6.0	10.9	650	33,972	230,400	405	
Dec.			† 3	12.1	18	9.7	10.8	662	10,293	68,580	317	
Yearly				2,040		2.4	48.8	35,399	210,373	1,231,907	18,151	

† And other days Q Mean daily

RIO SAN JUAN AT CAMARGO, TAMAULIPAS

DESCRIPTION: Water-stage recorder and cable with stand-up cable car equipped for winch and heavy weights, located opposite Camargo, Tamaulipas, 9.3 river miles below Marte R. Gómez Dam and 3.1 river miles above the confluence with the Rio Grande. This stream enters the Rio Grande 1,010.4 river miles below the American Dam at El Paso, Texas, and 3.9 river miles above Fort Ringgold Station. The zero of the gage is 130.45 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 43 meter measurements during the year and a continuous record of gage heights. Computations by shifting channel methods. Discharge prorated between measurements during times of extremely low flow. Records available: 1954 through December 1960.

REMARKS: Except for storm inflow, diversions, and drainage returns below Marte R. Gómez Dam, the flow at this station is controlled by releases from Marte R. Gómez Reservoir. Backwater from the Rio Grande frequently reaches this station. Flow passing this station, combined with drain water entering the Rio Grande through Rancherías and Los Fresnos drains, is also published under heading "Contributions from Rio San Juan - Above Fort Ringgold Station" (See previous page).

EXTREME FLOWS FROM RECORDS: Momentary: Max. 49,800 second-feet on October 17, 1958 with a gage height of 33.53 feet. Min. .7 second-foot several days in April 1960.

Average Flow in Second-Feet

Daily:	Max.	49,400	Oct. 17, 1958	Min.	.7	Apr. 23, 24 & 25, 1960
Monthly:	Max.	14,660	Oct. 1958	Min.	3.0	April 1958
Yearly:	Max.	1,700	1958	Min.	23.7	1956

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	6.4	3.5	9.2	4.2	6.0	3.2	11.3	5.7	643	5.7	7.1	10.9
2	6.4	3.5	9.5	4.2	6.4	3.2	10.2	4.6	766	5.3	6.7	10.9
3	6.4	3.9	9.5	4.2	7.1	3.2	9.5	3.9	1,130	4.6	6.0	11.3
4	6.0	3.9	9.5	4.2	7.4	3.2	8.5	3.2	1,170	4.2	5.7	11.3
5	6.0	4.2	9.9	4.2	8.1	3.2	7.8	2.5	643	3.9	4.9	10.9
6	6.0	4.2	9.9	4.2	8.5	3.5	6.7	2.5	682	3.2	7.1	10.9
7	6.0	4.6	9.9	4.6	9.2	3.5	6.0	2.5	374	2.8	8.8	10.6
8	6.0	4.9	10.6	4.6	8.1	3.5	4.9	2.5	292	2.5	10.6	10.6
9	5.6	4.9	11.3	4.9	7.1	3.9	4.2	2.5	265	2.5	12.4	10.2
10	5.3	5.3	12.4	4.9	6.0	3.9	3.2	2.5	140	2.8	14.1	10.2
11	5.3	5.7	13.1	5.3	4.9	3.9	3.9	86.5	130	3.2	15.9	9.9
12	4.9	5.7	13.8	5.7	3.9	3.9	4.9	2,030	249	3.2	15.2	9.9
13	4.9	6.0	14.5	5.7	3.9	3.9	5.7	530	251	3.5	14.1	9.9
14	51.6	6.4	15.2	5.7	4.2	3.9	6.4	125	190	3.5	13.4	9.5
15	10.6	6.4	16.2	5.7	4.2	3.9	7.1	86.5	130	3.9	12.4	9.5
16	5.3	6.7	17.0	5.7	4.2	3.5	8.1	73.1	69.2	4.2	11.3	9.2
17	5.3	7.1	17.7	826	4.2	3.5	8.8	81.9	8.8	4.9	10.6	9.2
18	4.9	7.1	16.2	590	4.2	3.5	9.9	35.3	8.5	5.3	9.5	8.8
19	4.9	7.4	15.2	102	3.9	3.5	10.6	6.7	8.1	5.7	8.8	9.2
20	4.9	7.8	13.8	59.0	3.9	3.5	11.7	6.4	7.8	6.4	8.8	9.2
21	4.9	7.8	12.4	39.6	3.5	3.5	12.7	6.0	7.8	6.7	9.2	9.2
22	4.6	8.1	11.3	20.1	3.5	3.5	13.4	5.7	7.4	7.1	9.2	9.2
23	4.6	8.4	9.9	.7	3.5	4.6	12.7	5.7	7.1	7.4	9.5	9.2
24	4.6	8.5	8.5	.7	3.2	5.3	11.7	5.3	7.1	7.8	9.5	9.2
25	4.2	8.8	7.4	.7	3.2	6.4	10.9	4.9	6.7	7.8	9.9	9.2
26	4.2	8.8	6.0	31.1	2.8	7.1	9.9	4.9	6.4	8.1	9.9	9.2
27	4.2	9.2	5.7	137	2.8	7.8	8.8	448	6.4	8.1	10.2	9.2
28	3.9	9.2	5.3	57.9	3.2	8.8	8.1	1,060	6.4	8.5	10.2	9.2
29	3.9	9.2	4.9	31.8	3.2	9.5	7.1	381	6.0	8.5	10.6	9.5
30	3.9		4.9	5.3	3.2	10.2	6.4	294	5.7	8.1	10.2	9.9
31	3.5		4.6		3.2		6.4	328		7.8		10.2
Sum	209.2	187.2	335.3	1,979.9	150.7	138.0	257.5	5,637.3	7,224.4	167.2	301.8	305.3
Current Year 1960												
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.	4.30		14	120	31	3.5	6.7	415	8,134	51,270		336
Feb.			† 27	9.2	† 1	3.5	6.5	371	4,210	26,170		203
Mar.			17	17.7	31	4.6	10.8	665	3,412	20,270		429
Apr.	11.94		17	4,100	† 23	.7	66.0	3,930	3,076	8,380		178
May			7	9.2	† 26	2.8	4.9	299	2,812	8,280		299
June			30	10.2	† 1	3.2	4.6	274	2,585	8,930		274
July			22	13.4	10	3.2	8.3	511	1,077	1,870		329
Aug.	10.47		27	2,990	† 5	2.5	182	11,190	3,069	11,190		234
Sept.	10.30		3	2,780	30	5.7	241	14,330	6,559	14,330		226
Oct.			† 28	8.5	† 8	2.5	5.4	332	130,026	901,500		233
Nov.			11	15.9	5	4.9	10.1	599	33,901	230,100		386
Dec.			† 3	11.3	18	8.8	9.8	606	10,228	68,360		272
Yearly	11.94			4,100		.7	46.2	33,522	209,089	1,229,922		17,186

† And other days ‡ Mean daily

DIVERSIONS FROM THE RIO GRANDE

UNITED STATES SIDE-FALCON DAM TO FORT RINGGOLD STATION

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

During 1960, 9,019 irrigable acres, several towns and rural homes in this river reach were served Río Grande water under the jurisdiction of this Court. The area irrigated from the Río Grande in this river reach was 1.2% of the total irrigable acres below Falcón Dam.

The total diversion during 1960 in this river reach was 14,754 acre-feet, or 1.4% of the total water diverted from the Río Grande below Falcón Dam. All the records of diversions in this river reach were furnished by the Special Water Master. About 32% of the water diverted was measured by means of flow meters and the balance was determined by periodic current meter measurements of pump discharges and recorded pump operating time. More than one crop per year is often grown on parts of this land.

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	22.0	21.0	12.0	24.0	12.0	46.0	25.0	22.0	14.0	24.0	25.0	13.0
2	22.0	34.0	21.0	25.0	13.0	43.0	22.0	23.0	14.0	29.0	29.0	10.0
3	14.0	36.0	19.0	11.0	14.0	39.0	17.0	24.0	6.0	30.0	29.0	8.0
4	24.0	36.0	12.0	30.0	12.0	35.0	22.0	24.0	2.0	33.0	28.0	1.0
5	19.0	36.0	13.0	29.0	13.0	45.0	30.0	20.0	4.0	36.0	28.0	7.0
6	14.0	36.0	13.0	36.0	21.0	54.0	33.0	20.0	3.0	35.0	17.0	7.0
7	20.0	23.0	20.0	38.0	22.0	61.0	35.0	16.0	4.0	27.0	12.0	3.0
8	17.0	32.0	20.0	35.0	25.0	61.0	32.0	16.0	3.0	36.0	13.0	2.0
9	16.0	45.0	24.0	31.0	27.0	61.0	32.0	16.0	2.0	26.0	13.0	6.0
10	14.0	46.0	23.0	29.0	28.0	46.0	19.0	16.0	1.0	26.0	12.0	5.0
11	23.0	39.0	28.0	36.0	42.0	41.0	25.0	16.0	9.0	25.0	8.0	1.0
12	26.0	16.0	28.0	36.0	57.0	40.0	30.0	7.0	9.0	26.0	3.0	2.0
13	24.0	8.0	3.0	37.0	60.0	52.0	34.0	5.0	9.0	22.0	3.0	4.0
14	25.0	22.0	5.0	38.0	59.0	60.0	29.0	4.0	18.0	18.0	5.0	4.0
15	25.0	22.0	12.0	33.0	32.0	62.0	28.0	4.0	17.0	18.0	7.0	4.0
16	24.0	26.0	5.0	27.0	40.0	64.0	21.0	4.0	15.0	7.0	6.0	5.0
17	14.0	30.0	5.0	9.0	44.0	66.0	21.0	3.0	11.0	10.0	2.0	1.0
18	23.0	28.0	6.0	11.0	46.0	56.0	16.0	8.0	19.0	6.0	2.0	4.0
19	26.0	25.0	4.0	12.0	46.0	36.0	13.0	8.0	22.0	7.0	5.0	11.0
20	26.0	16.0	12.0	14.0	46.0	42.0	12.0	3.0	22.0	7.0	3.0	11.0
21	29.0	19.0	8.0	13.0	47.0	44.0	14.0	11.0	23.0	5.0	4.0	7.0
22	16.0	21.0	16.0	13.0	34.0	45.0	12.0	16.0	22.0	4.0	8.0	10.0
23	11.0	21.0	19.0	4.0	45.0	38.0	10.0	16.0	22.0	3.0	5.0	6.0
24	5.0	21.0	23.0	7.0	52.0	42.0	13.0	16.0	24.0	5.0	4.0	4.0
25	11.0	18.0	17.0	8.0	44.0	29.0	18.0	16.0	23.0	6.0	3.0	4.0
26	20.0	18.0	19.0	7.0	41.0	10.0	18.0	9.0	28.0	4.0	5.0	11.0
27	21.0	16.0	13.0	5.0	43.0	14.0	17.0	10.0	27.0	5.0	12.0	10.0
28	22.0	17.0	24.0	6.0	34.0	27.0	16.0	8.0	27.0	5.0	13.0	12.0
29	20.0	18.0	24.0	5.0	35.0	28.0	17.0	16.0	27.0	5.0	13.0	13.0
30	21.0		25.0	4.0	35.0	28.0	16.0	17.0	26.0	4.0	13.0	3.0
31	13.0		24.0		37.0		20.0	17.0		9.0		3.0
Sum	607.0	746.0	497.0	613.0	1,106.0	1,315.0	667.0	411.0	453.0	503.0	330.0	192.0
Current Year 1960									Period 1957-1960			
Month	Average Rainfall Inches **		Ø	Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet			
	1957-1960	1960		Day	High	Low			Day	Average	Maximum	Minimum
Jan.	1.84	.98	21	29.0	24	5.0	19.6	1,200	602	1,200	377	
Feb.	1.92	1.31	10	46.0	13	8.0	25.7	1,480	560	1,480	250	
Mar.	.84	.52	↑ 11	28.0	13	3.0	16.0	986	508	986	158	
Apr.	1.92	2.13	↑ 7	38.0	↑ 23	4.0	20.4	1,220	926	1,220	369	
May	2.00	.50	13	60.0	↑ 1	12.0	35.7	2,190	1,380	2,220	535	
June	2.50	.78	17	66.0	26	10.0	43.8	2,610	1,535	2,610	449	
July	.88	.76	7	35.0	23	10.0	21.5	1,320	1,006	1,620	466	
Aug.	1.81	2.90	↑ 3	24.0	↑ 17	3.0	13.3	815	798	884	716	
Sept.	2.86	3.57	26	28.0	10	1.0	15.1	899	810	1,230	496	
Oct.	3.67	3.12	↑ 5	36.0	23	3.0	16.2	998	810	1,220	131	
Nov.	1.57	1.57	↑ 2	29.0	↑ 17	2.0	11.0	655	645	1,170	305	
Dec.	.66	1.67	↑ 1	13.0	↑ 4	1.0	6.2	381	946	1,580	381	
Yearly	22.47	19.81		66.0		1.0	20.3	14,754	10,526	14,754	6,859	

† And other days ‡ Mean daily ** United States side. Average of several stations in the reach.

RIO GRANDE AT FORT RINGGOLD, RIO GRANDE CITY, TEXAS

DESCRIPTION: Water-stage recorder and cable with stand-up cable car equipped for winch and heavy weights, located about 1 river mile below Rio Grande City, Texas, 3.9 river miles below the confluence of the Rio San Juan with the Rio Grande, and 1,014.3 river miles below the American Dam at El Paso, Texas. The zero of the gage is 100.00 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 51 meter measurements during the year and a continuous record of gage heights. Computations by shifting channel methods. Records available: January 1955 through December 1960. 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 January 1924 through December 1931. Records are also available for the station "Rio Grande Near Rio Grande City" 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 Falcón Dam, flow at this station is controlled largely by releases from Falcón Reservoir, 39.9 river miles upstream.

EXTREME FLOWS FROM RECORDS: The greatest recorded flow was 198,800 second-feet, which occurred September 5, 1932, at an elevation of 157.4 feet at the station 3 miles downstream. Zero flow occurred several days in June and July 1953.

Average Flow in Second-Feet †

Daily:	Max.	101,000	Oct. 17-18, 1958	Min.	14.6	April 13, 1957
Monthly:	Max.	49,600	Oct. 1958	Min.	235	March 1957
Yearly:	Max.	9,140	1958	Min.	2,260	1957

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	4,030	9,790	1,230	2,480	922	6,130	4,280	886	1,090	827	385	1,100
2	3,060	9,140	1,060	1,870	932	5,970	3,630	859	1,950	823	738	485
3	2,910	8,300	857	2,060	941	6,330	3,880	2,800	2,800	1,520	654	472
4	2,220	8,890	664	2,570	927	6,580	3,570	2,930	2,870	1,520	597	968
5	2,450	8,480	551	1,650	1,370	7,780	4,120	2,540	2,550	2,600	745	521
6	2,880	8,480	612	2,400	1,280	8,300	3,950	2,770	3,180	2,680	1,490	479
7	3,160	7,310	814	2,920	986	9,130	3,900	2,220	1,030	2,750	1,440	528
8	2,640	7,500	717	3,210	1,390	9,280	4,320	2,170	822	2,800	1,270	911
9	2,610	6,440	1,140	2,610	1,500	9,410	5,450	1,400	669	2,830	984	565
10	2,760	5,180	1,220	3,460	1,450	9,710	5,320	2,020	973	2,280	814	900
11	2,470	5,500	1,280	3,500	2,510	9,750	5,050	4,160	1,590	1,840	438	862
12	2,540	6,340	1,010	3,410	2,980	10,600	4,330	6,380	1,340	1,860	281	1,010
13	2,950	2,890	1,000	2,790	3,560	11,400	4,490	3,590	593	2,770	258	485
14	3,960	1,580	685	3,010	3,690	11,700	4,470	1,360	380	3,010	251	365
15	4,310	2,880	676	3,620	3,950	12,500	4,050	1,390	414	3,260	315	306
16	4,890	3,040	913	4,230	4,430	13,500	4,350	1,360	611	3,130	981	567
17	6,740	3,460	796	6,330	6,000	13,900	4,430	1,510	612	3,480	1,620	462
18	6,740	3,840	802	5,630	7,350	14,400	4,020	1,100	779	2,240	1,010	321
19	7,770	3,200	792	1,690	8,110	15,800	5,760	964	854	1,490	631	243
20	8,130	2,930	830	945	8,130	15,800	5,910	940	1,060	792	706	278
21	8,390	2,080	1,060	1,250	4,620	13,500	1,760	916	528	822	762	351
22	9,370	1,950	1,070	2,050	4,390	11,200	2,850	873	561	825	565	351
23	8,690	1,980	747	2,430	4,920	10,600	2,240	925	826	584	373	359
24	9,100	1,590	1,400	2,760	7,020	4,780	1,790	882	1,090	1,940	278	357
25	9,350	1,590	1,910	2,130	6,810	4,580	762	945	1,250	1,410	251	306
26	6,140	1,300	1,450	1,620	5,330	4,480	1,100	1,180	2,330	660	392	236
27	8,040	1,220	2,060	2,530	5,170	6,370	1,680	957	1,120	307	501	281
28	9,060	1,210	1,730	1,110	4,380	7,360	1,750	2,100	807	239	369	352
29	10,000	1,200	1,740	1,120	4,500	6,340	1,790	837	1,110	217	1,260	893
30	9,590		1,530	944	5,100	5,040	1,740	963	831	208	1,160	1,450
31	9,750		2,080		5,040		1,560	1,080		311		1,460
Sum	176,700	129,290	34,426	78,359	119,688	282,220	108,302	55,007	36,620	52,025	21,519	18,224
Current Year 1960												
Period # 1954-1960												
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.	32.99	27.21	29	10,200	11	1,190	5,700	350,000	245,157	350,000	70,100	
Feb.	32.79	26.58	1	9,840	29	658	4,460	256,000	227,643	364,000	25,500	
Mar.	29.06	26.27	31	3,620	5	472	1,110	68,300	153,686	378,000	14,400	
Apr.	33.72	26.50	17	11,400	30	606	2,610	155,000	181,586	340,000	75,100	
May	32.03	26.45	20	8,390	1	576	3,860	237,000	311,429	521,000	231,000	
June	35.82	27.84	† 19	16,000	24	1,850	9,410	560,000	358,143	560,000	197,000	
July	33.00	26.53	20	10,000	25	626	3,490	215,000	124,514	233,000	22,300	
Aug.	31.49	26.46	12	7,300	22	582	1,770	109,000	135,000	198,000	25,000	
Sept.	29.75	25.92	3	4,630	15	305	1,220	72,600	156,000	276,000	72,600	
Oct.	29.93	25.75	15	4,890	30	196	1,680	103,000	518,357	3,047,000	30,000	
Nov.	28.97	26.12	17	2,820	14	226	717	42,700	263,471	1,442,000	30,000	
Dec.	28.62	26.03	30	2,260	26	210	588	36,100	186,871	540,000	36,100	
Yearly	35.82	25.75		16,000		196	3,040	2,204,700	2,861,857	6,619,700	1,637,900	

† And other days † Period 1955-1960 * 1954 values are Rio Grande City station discharges less arroyo inflow.

CONTRIBUTIONS FROM RIO SAN JUAN BELOW FORT RINGGOLD STATION

DESCRIPTION: The Lower Río San Juan Irrigation District in Mexico lies along the Río Grande between Ciudad Miguel Alemán and Río Bravo, Tamaulipas and is irrigated with water impounded by Marte R. Gómez Dam situated on the Río San Juan 12.4 river miles above the confluence with the Río Grande. The Río San Juan enters the Río Grande 1,010.4 river miles below the American Dam at El Paso, Texas. Drain water from this irrigation district enters the Río Grande through the Río San Juan Channel, Rancherías Drain, and Los Fresnos Drain above Fort Ringgold Gaging Station; and through Puertecitos, Los Indios, Huizache and Morillo Drains between this station and Anzalddas Dam. Only the portion of drain water from this irrigation district reaching the Río Grande via drains below Fort Ringgold Gaging Station is shown below. The portion of water reaching the Río Grande via channels above Fort Ringgold Gaging Station is shown on page 45 of this Bulletin.

RECORDS: Drain water reaching the Río Grande through Puertecitos, Los Indios, Huizache and Morillo Drains was determined by prorating between frequent current meter measurements. In 1960, 46 meter measurements were made at each of the first three drains and 44 were made at Morillo Drain. All storm water measured at these drains was deducted and is not included in the tabulation below. In 1960, 73% of the drain water reaching the Río Grande below Fort Ringgold Gaging Station from this irrigation district was contributed by Morillo Drain. Records available: 1953 through December 1960.

REMARKS: In 1960, there were 162,775 irrigable acres in the Lower Río San Juan Irrigation District.

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	25.4	126	84.9	56.1	53.1	143	88.5	48.4	44.4	30.1	42.2	27.2
2	25.8	131	83.8	54.5	53.3	146	90.3	46.7	44.7	30.7	39.6	25.8
3	26.1	129	82.8	52.7	53.5	148	92.1	45.1	45.0	31.4	36.9	24.4
4	26.5	128	81.7	51.0	53.7	147	93.9	43.4	45.2	32.0	34.2	25.4
5	26.7	127	80.7	49.3	53.8	144	95.7	41.8	45.5	32.7	31.5	26.4
6	27.1	125	79.6	47.6	54.0	141	97.6	45.1	45.8	33.4	33.4	27.4
7	27.4	124	78.6	45.9	54.2	138	99.3	48.3	46.1	34.0	35.4	28.3
8	28.2	122	77.5	45.8	55.9	135	101	51.6	46.4	34.7	37.3	29.3
9	29.0	121	76.4	45.3	57.6	132	103	54.9	46.6	34.8	39.2	30.3
10	29.8	119	72.3	44.8	59.3	129	99.2	58.2	46.9	34.9	37.6	31.2
11	30.7	120	68.1	44.2	61.0	133	95.1	61.4	46.7	35.1	43.0	32.2
12	31.5	120	64.0	43.7	62.7	136	91.0	64.7	46.5	35.2	41.4	33.2
13	32.3	120	59.8	44.1	66.8	140	86.8	68.0	46.3	35.3	39.9	34.1
14	34.5	120	55.7	44.5	70.9	143	82.7	71.3	46.1	35.4	38.4	35.1
15	36.7	120	51.5	44.9	75.0	147	78.6	74.6	45.8	35.6	36.8	36.1
16	42.2	121	47.4	45.3	79.1	150	76.8	77.8	45.6	37.9	35.3	37.0
17	47.6	122	43.3	45.7	83.2	154	74.9	81.1	45.4	40.3	33.8	38.0
18	53.2	118	44.2	46.1	87.3	157	73.0	84.4	43.9	42.6	32.2	39.0
19	58.7	115	45.3	46.5	91.9	160	71.2	87.7	42.4	45.0	30.6	38.4
20	64.2	111	46.2	46.9	96.4	162	69.3	79.4	41.0	47.3	31.1	37.6
21	69.7	108	47.3	47.3	101	156	67.4	71.1	39.6	49.7	31.6	36.9
22	75.2	105	48.2	47.7	106	149	65.5	62.8	38.1	52.0	32.1	36.3
23	80.7	101	49.2	48.1	110	142	63.6	54.4	36.6	51.0	32.6	35.7
24	86.2	98.1	50.2	48.4	115	136	61.6	46.1	35.8	50.0	33.2	35.0
25	91.7	94.7	51.2	48.7	119	129	59.7	37.8	35.0	49.0	33.6	34.3
26	96.6	91.4	52.2	49.5	124	122	57.8	38.8	34.1	48.0	34.1	33.7
27	102	88.0	53.7	50.4	127	115	55.8	39.7	33.3	47.0	32.8	33.0
28	106	87.0	55.2	51.3	130	109	53.9	40.6	32.5	45.9	31.4	32.3
29	111	85.9	56.7	52.1	133	102	51.9	41.6	31.7	45.0	30.0	32.3
30	116		57.0	52.9	137	95.2	50.0	42.5	30.9	45.0	28.6	32.3
31	121		57.3		140		50.0	43.4		45.0		32.3
Sum	3,298.1		1,441.3		2,664.7		4,140.2		1,752.7		1,246.0	
	1,759.7		1,902.0		2,664.7		2,397.2		1,253.9		1,049.8	
Current Year 1960									Period 1954-1960			
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	High		Low				Average	Maximum	Minimum	
Jan.			31	121	1	25.4	56.8	3,490	1,983	3,490	661	
Feb.			2	131	29	85.9	114	6,540	3,204	6,540	1,230	
Mar.			1	84.9	17	43.3	61.4	3,770	2,216	3,770	1,050	
Apr.			1	56.1	12	43.7	48.0	2,860	2,689	4,630	1,350	
May			31	140	1	53.1	86.0	5,290	4,490	7,240	1,900	
June			20	162	30	95.2	138	8,210	5,450	8,210	2,570	
July			9	103	† 30	50.0	77.3	4,760	3,423	4,760	2,190	
Aug.			19	87.7	25	37.8	56.5	3,480	2,220	3,480	1,010	
Sept.			10	46.9	30	30.9	41.8	2,490	2,036	3,130	1,190	
Oct.			22	52.0	1	30.1	40.2	2,470	2,080	3,980	1,160	
Nov.			11	43.0	30	28.6	35.0	2,080	1,598	2,730	845	
Dec.			18	39.0	3	24.4	32.6	2,000	1,567	3,110	753	
Yearly				162		24.4	65.3	47,440	32,956	47,440	20,051	

† And other days Ø Mean daily

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

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

During 1960, 185,480 irrigable acres, several towns and rural homes in this river reach were served Rio Grande water under the jurisdiction of this Court. The area irrigated from the Rio Grande in this river reach was 23.9% of the total irrigable acres below Falcón Dam.

The total diversion during 1960 in this river reach was 256,960 acre-feet or 23.9% of the total water diverted from the Rio Grande below Falcón Dam. About 88% of the water diverted in this river reach was determined by this Commission through continuous records of discharge at open channel rating stations and at deflection meter stations developed by this Commission. The records for the balance of these diversions were furnished by the Special Water Master and were either measured by flow meters or were determined from periodic current meter measurements of pump discharges and recorded pump operating time. More than one crop per year is often grown on parts of this land.

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	241	439	131	400	83.0	956	869	632	226	218	38.0	145
2	253	504	171	324	47.0	979	669	487	153	150	51.0	183
3	199	476	179	261	115	998	356	375	110	249	168	84.0
4	353	483	119	601	34.0	943	466	761	60.0	398	59.0	20.0
5	304	413	64.0	698	44.0	754	704	661	47.0	417	51.0	90.0
6	263	293	29.0	736	49.0	1,060	722	479	220	437	58.0	204
7	242	273	174	805	31.0	1,130	702	406	156	363	239	177
8	218	500	225	826	31.0	1,140	702	660	64.0	271	387	53.0
9	191	544	186	651	89.0	1,160	619	707	10.0	187	346	123
10	156	565	129	640	209	1,180	557	703	7.0	507	200	79.0
11	274	540	140	926	321	1,020	914	699	5.0	583	138	10.0
12	376	171	159	982	241	914	951	369	32.0	616	94.0	4.0
13	439	74.0	126	959	263	1,160	917	89.0	130	566	29.0	0
14	406	137	140	949	260	1,190	836	17.0	65.0	494	64.0	0
15	390	42.0	177	895	260	1,170	778	47.0	66.0	344	89.0	59.0
16	307	66.0	107	682	717	1,210	609	74.0	55.0	353	85.0	0
17	262	171	148	376	778	1,190	490	137	153	484	121	0
18	534	193	103	204	741	1,120	766	78.0	133	476	111	0
19	607	209	141	172	852	996	744	80.0	177	321	116	10.0
20	575	207	96.0	150	726	1,210	739	83.0	205	141	20.0	11.0
21	522	212	213	115	665	1,220	699	40.0	238	142	69.0	6.0
22	393	298	234	120	603	1,170	611	132	274	109	186	133
23	275	363	212	113	835	969	414	263	262	29.0	154	2.0
24	188	299	146	126	908	730	339	260	194	51.0	6.0	0
25	249	267	126	240	859	568	680	217	179	59.0	100	0
26	216	174	129	196	834	438	571	225	302	53.0	55.0	11.0
27	281	52.0	214	142	791	825	420	184	376	30.0	9.0	35.0
28	300	45.0	449	76.0	620	917	463	72.0	281	25.0	68.0	16.0
29	272	157	463	84.0	481	921	555	249	268	104	135	48.0
30	257		473	85.0	831	946	476	343	273	16.0	90.0	93.0
31	218		475		902		581	317		40.0		157
Sum	9,761	8,167.0	5,878.0	13,534.0	14,220.0	30,184	19,919	9,846.0	4,721.0	8,233.0	3,336.0	1,753.0
Current Year 1960									Period 1957-1960			
Month	Average Rainfall Inches **		Extreme Second-Feet				Average Second- Feet	Total Acre-Feet	Acre-Feet			
			High		Low				Average	Maximum	Minimum	
	1957-1960	1960	Day		Day							
Jan.	2.00	.94	19	607	10	156	315	19,400	8,188	19,400	2,950	
Feb.	2.02	1.28	10	565	15	42.0	282	16,200	6,232	16,200	1,640	
Mar.	.92	.74	31	475	6	29.0	190	11,700	6,752	11,700	637	
Apr.	1.99	3.04	12	982	28	76.0	451	26,800	21,790	29,100	5,760	
May	1.14	1.06	24	908	† 7	31.0	459	28,200	32,075	48,400	20,600	
June	1.83	1.19	21	1,220	26	438	1,010	59,900	40,025	59,900	18,900	
July	.50	.25	12	951	24	439	643	39,500	33,075	45,400	23,000	
Aug.	1.26	3.05	4	761	14	17.0	318	19,500	23,575	30,000	19,500	
Sept.	2.32	3.92	27	376	11	5.0	157	9,360	18,340	35,000	9,360	
Oct.	3.47	2.57	12	616	30	16.0	266	16,300	14,382	20,800	2,830	
Nov.	1.58	1.79	8	387	24	6.0	111	6,620	9,702	12,800	6,620	
Dec.	1.02	2.17	6	204	† 13	0	56.5	3,480	10,695	16,400	3,480	
Yearly	20.05	22.00		1,220		0	354	256,960	224,831	284,610	159,677	

† And other days ‡ Mean daily ** United States side. Average of several stations in the reach.

DIVERSIONS FROM THE RIO GRANDE

ANZALDUAS CANAL NEAR REYNOSA, TAMAULIPAS

DESCRIPTION: Water-stage recorder and cable with stand-up cable car, located, 5 mile below the canal intake. The zero of the gage is 86.32 feet above mean sea level, U. S. C. & G. S. datum. This canal diverts water from the Rio Grande at a point 12.7 river miles above the international bridge between Hidalgo, Texas and Reynosa, Tamaulipas, 1,076.6 river miles below the American Dam at El Paso, Texas and 171.6 river miles upstream from the Gulf of Mexico.

RECORDS: Based on 170 meter measurements during the year, 140 by the Mexican and 30 by the United States Section of this Commission and a continuous record of gage heights at Puente Monterrey, a station 5.2 canal miles downstream. Computations by shifting channel methods. Discharges in 1960 were computed by taking the sum of the flows measured at Puente Monterrey 5.2 canal miles downstream and the return flow at Poniente Drain Station. Records available: 1952 through December 1960.

REMARKS: Diversions by this canal are for irrigation and domestic use in Mexico and for conveying water for storage in Culebrón, Villa Cárdenas, and Palito Blanco reservoirs about 23 canal miles below this station. During 1960, 475,057 acres were irrigated with water delivered through this canal. Flow at this canal station is affected by backwater from the operation of canal gates 4.5 miles, 11.3 miles and 22.5 miles below this station. During 1960, in order to facilitate final construction of Anzaldúas Dam, major portions of the Rio Grande flow were temporarily diverted into this canal and returned to the river through Poniente Drain. (See page 54.)

EXTREME FLOWS FROM RECORDS: Momentary: Max. 10,950 second-feet on June 2, 1957 with a gage height of 16.01 feet. Zero flow occurs frequently.

Average Flow in Second-Feet

Daily:	Max. 9,350	May 29, 1957	Min. 0	Frequently
Monthly:	Max. 4,550	June 1960	Min. 0	Several months
Yearly:	Max. 1,980	1959	Min. 150	1952

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	908	6,640	968	243	773	4,270	1,280	0	225	0	0	23.3
2	908	6,780	1,240	1,150	657	4,590	1,240	0	350	0	0	23.3
3	908	6,710	1,230	784	501	5,010	992	0	770	0	0	23.3
4	893	6,570	1,020	186	614	4,730	908	438	901	0	0	23.3
5	908	6,850	756	37.8	724	2,690	992	629	438	254	0	23.3
6	918	6,750	448	0	558	2,980	1,080	576	0	494	0	17.7
7	901	6,570	308	0	463	3,300	1,180	540	221	664	0	4.2
8	756	5,470	301	0	431	3,640	1,540	452	466	713	0	1.8
9	579	5,090	297	0	802	3,750	1,460	547	466	742	0	1.8
10	484	4,450	118	0	837	4,100	1,370	544	466	735	0	1.8
11	629	3,880	0	0	876	4,130	1,390	657	182	809	0	1.8
12	554	3,710	0	0	1,100	4,450	1,470	2,060	0	1,050	0	1.8
13	756	3,940	0	0	1,640	5,090	1,410	3,920	0	1,170	0	1.8
14	1,170	2,770	0	0	1,800	5,650	1,400	4,100	0	1,210	0	1.8
15	1,580	1,650	0	0	1,790	6,540	1,410	2,050	0	1,220	0	1.8
16	1,740	2,070	157	0	1,790	7,100	1,370	1,510	53.7	1,230	0	1.8
17	2,230	3,200	0	809	1,980	7,210	1,310	957	202	1,210	0	265
18	3,260	3,530	184	2,050	3,060	7,000	1,300	978	154	1,210	0	324
19	3,230	3,570	280	2,300	3,810	7,220	1,340	526	77.7	1,210	0	274
20	4,070	3,140	125	1,810	3,740	7,220	3,340	403	0	844	23.3	196
21	4,990	2,560	0	1,050	4,030	7,040	3,420	410	0	622	23.3	1.8
22	5,590	1,930	0	657	3,670	6,790	1,330	374	0	706	23.3	1.8
23	5,980	1,880	0	491	2,220	5,910	812	523	0	351	23.3	1.8
24	5,730	1,790	0	607	2,510	4,530	0	304	0	328	23.3	1.8
25	5,870	1,490	0	699	4,770	3,050	0	225	0	1,700	23.3	1.8
26	5,870	1,490	38.5	749	5,930	2,050	0	77.3	0	3,390	23.3	1.8
27	5,550	1,240	88.3	840	4,770	1,820	0	80.9	0	939	177	1.8
28	6,050	1,170	91.8	1,430	3,920	1,610	0	67.8	0	293	21.2	103
29	6,360	1,070	77.7	1,230	3,780	1,510	0	780	0	795	21.2	146
30	6,610		63.6	1,080	3,920	1,500	0	367	0	530	21.2	1.1
31	6,610		45.9		4,100		0	364		24.0		1.1
Sum	107,960		18,202.8		71,566	136,480		24,460.0		24,443.0		1,477.4
	92,592		7,837.8				33,344		4,972.4		403.7	

Current Year 1960										Period 1954-1960			
Month	Average Rainfall Inches **		Extreme Second-Feet				Average Second- Feet	Total Acre-Feet	Acre-Feet				
			High		Low				Average	Maximum	Minimum		
	1954-1960	1960	Day		Day								
Jan.	.99	.39	† 30	0	6,610	10	0	484	2,990	183,600	127,514	183,600	73,290
Feb.	2.01	1.38	5	0	6,850	29	0	1,070	3,720	214,100	134,873	245,000	29,290
Mar.	.70	.71	2	0	1,240	† 11	0	253	15,550	52,846	147,600	10,270	20,770
Apr.	2.16	3.35	19	0	2,300	† 7	0	607	36,070	91,227	165,600	26,370	26,370
May	1.14	1.06	26	0	5,930	† 8	0	431	2,310	142,000	172,594	260,800	47,420
June	2.36	1.50	† 19	0	7,220	30	0	1,500	4,550	270,700	186,500	270,700	110,200
July	1.01	.08	21	0	3,420	† 24	0	1,080	66,160	65,630	162,400	15,270	15,270
Aug.	1.76	4.72	13	0	4,340	† 1	0	789	48,520	81,090	155,400	21,220	21,220
Sept.	3.97	6.30	3	0	1,110	† 6	0	166	9,860	87,457	165,800	9,860	9,860
Oct.	3.46	2.40	26	0	3,710	† 1	0	788	48,460	54,454	162,400	8,870	8,870
Nov.	1.55	1.10	27	0	530	† 1	0	13.5	800	21,393	83,690	0	0
Dec.	.86	2.24	17	0	713	† 30	1.1	47.7	2,930	59,719	166,700	1,970	1,970
Yearly	21.97	25.23		0	7,220		0	1,430	1,038,750	1,135,297	1,434,920	744,800	

† And other days ‡ Mean daily ** Average of several stations

RIO GRANDE BELOW ANZALDUAS DAM

DESCRIPTION: Water-stage recorder and cable with stand-up cable car equipped for winch and heavy weights located .5 mile below Anzalduas Dam, 12.2 river miles above the International highway bridge between Hidalgo, Texas and Reynosa, Tamaulipas, 1,077.1 river miles below the American Dam at El Paso, Texas, and 171.1 river miles from the Gulf of Mexico. An auxiliary recorder 575 feet upstream is used for extremely low flows. The zero of both gages is 82.61 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 113 meter measurements during the year, 111 by the Mexican and 42 by the United States Section of this Commission, and a continuous record of gage heights. Computations by shifting channel methods. Records available: January 1, 1952 through December 31, 1960.

REMARKS: Except during local storms, flow at this station is controlled largely by releases from Falcón Reservoir and by diversions into Anzalduas Canal. Excessive upstream flood flows are partly diverted into the Mission Inlet of the United States floodway system before reaching this station.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 63,920 second-feet on October 19, 1958 with a gage height of 28.87 feet. Min. periods of no flow have occurred on several occasions in 1953, 1954, 1956 and 1957.

Average Flow in Second-Feet

Daily:	Max. 63,570	Oct. 19, 1958	Min. 0	Occasionally
Monthly:	Max. 37,830	Oct. 1958	Min. 5.5	Max. 1957
Yearly:	Max. 6,410	1958	Min. 158	1957

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	3,040	2,680	1.1	1,120	320	17.7	3,310	1,320	784	540	1,930	470
2	2,770	2,500	1.1	678	339	14.8	2,450	1,350	883	901	572	657
3	1,990	2,140	1.1	1,130	466	12.4	1,710	985	1,610	904	431	629
4	1,610	1,670	1.1	1,600	509	643	2,160	953	2,860	1,100	696	321
5	1,110	1,460	9.9	1,830	509	3,380	3,670	1,410	4,590	1,200	664	713
6	1,270	1,470	49.1	1,240	727	4,100	2,790	1,380	4,270	1,020	646	872
7	1,680	1,550	124	1,550	869	4,200	2,530	1,070	3,570	1,200	950	777
8	1,990	1,530	410	1,940	876	4,170	1,910	1,070	1,410	1,100	1,140	484
9	1,800	1,850	639	2,430	667	4,520	2,270	1,600	710	1,100	971	583
10	1,860	1,480	745	2,180	593	4,560	2,810	795	540	1,100	929	604
11	1,940	1,030	1,080	2,690	420	4,130	2,770	1,130	996	939	953	554
12	1,550	1,631	1,150	2,710	565	4,770	2,760	1,470	1,810	1,120	830	424
13	1,420	2,010	1,110	2,600	886	4,630	2,670	2,850	1,660	1,380	604	572
14	1,410	791	1,030	2,120	1,320	4,100	2,500	1,500	858	1,300	466	420
15	1,870	270	865	2,240	1,590	4,130	2,310	565	487	1,340	381	214
16	2,140	682	498	2,850	1,620	4,060	2,380	561	325	911	334	273
17	2,610	219	773	2,870	1,590	4,380	1,900	795	243	614	438	237
18	2,690	36.7	664	4,770	1,650	5,050	1,860	735	371	1,460	713	325
19	2,970	27.5	523	3,000	2,340	5,160	1,710	611	512	978	675	417
20	3,130	23.3	636	731	3,570	5,690	2,790	452	660	473	466	417
21	2,330	22.2	724	374	3,360	5,610	1,830	501	745	250	533	285
22	2,260	19.4	777	586	2,770	4,520	1,300	424	297	281	639	259
23	2,520	20.5	911	1,190	2,070	3,990	1,270	438	392	216	463	300
24	2,510	19.4	918	1,480	1,460	4,520	1,170	470	378	1,620	463	225
25	2,890	18.4	915	1,670	61.8	2,420	1,600	445	678	6,640	456	172
26	2,700	16.6	1,540	1,260	45.9	2,760	1,490	678	879	4,410	456	173
27	1,060	18.0	1,400	788	31.1	3,140	1,290	876	1,150	1,110	604	305
28	1,510	17.3	1,470	978	30.0	3,710	1,010	939	1,150	168	727	696
29	2,240	15.9	1,350	561	23.0	3,710	872	957	526	229	600	1,420
30	2,620		1,250	192	21.5	3,710	1,140	749	318	286	487	1,180
31	2,680		1,170		21.2		883	367		1,050		1,160
Sum	66,170	25,218.2	51,358	31,320.5	109,807.9	29,446	35,662	36,940	20,217	16,138		
Current Year 1960									Period 1954-1960			
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total	Acra-Feet			
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum	
Jan.	5.35	.85	20	3,600	27	805	2,130	131,300	89,607	166,200	1,090	
Feb.	4.07		1	2,770	29	15.9	870	50,000	82,184	241,900	830	
Mar.	2.30	- 2.46	26	1,710	† 1	1.1	733	45,090	82,190	235,500	339	
Apr.	8.27	- 1.41	18	6,180	30	166	1,710	101,800	68,894	155,700	3,160	
May	6.14	- 2.26	21	6,040	† 29	21.2	1,010	62,120	103,706	202,400	35,360	
June	8.92	- 2.36	21	6,780	4	10.6	3,660	217,800	139,200	217,800	7,850	
July	6.04	- .23	5	4,450	22	501	2,040	125,200	42,457	125,200	2,000	
Aug.	4.53	- 1.64	13	3,450	31	93.6	950	58,410	30,515	78,910	943	
Sept.	6.73	- 1.94	5	5,300	† 16	73.1	1,190	70,740	52,273	120,000	3,920	
Oct.	10.30	- 1.84	25	8,620	21	102	1,190	73,260	369,581	2,326,000	1,730	
Nov.	3.87	- 1.80	1	2,970	† 29	111	674	40,090	235,397	1,438,000	1,430	
Dec.	2.66	- 1.80	† 29	2,140	† 16	148	521	32,020	112,893	540,100	1,500	
Yearly	10.30	- 2.46		8,620		1.1	1,390	1,007,830	1,408,897	4,640,968	114,749	

† And other days ‡ Mean daily

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 inlets located approximately 6 miles upstream (Mission Inlet) and 7 miles downstream (Hackney Lake Inlet) respectively from Anzalddas Dam.

Floodwater entering the system through the Mission Inlet is measured at the Mission Branch Station South of McAllen and floodwater entering through the Hackney Lake Inlet is measured at the Hackney Branch Station South of McAllen. ** These waters join at a point 5 miles northeast of Hidalgo and flow eastward in the Main Floodway for about 19 miles to a point 3 miles southwest of Mercedes, Texas. Here the floodway divides, one channel going northeastward through the Arroyo Colorado Floodway to the Gulf of Mexico, and the other going to the Gulf via the North Floodway, traveling first northward and then eastward to the Gulf. The Arroyo Colorado Floodway is measured at U. S. 83 Highway Bridge south of Harlingen, and the North Floodway flow is measured first at U. S. 83 Highway Bridge west of Mercedes and again at U. S. 77 Highway Bridge near Sebastian.

In 1960 no flood flow was diverted through this floodway system.

On the Mexican Side

Part of the excess water from floods entering the Lower Rio Grande Valley is diverted from the river through the Mexican floodway system, with inlets located approximately 38 miles (Retamal Heading), 50 miles (San Rafael), and 107 miles (Floodway No. 2) respectively downstream from Anzalddas Dam. Floodway No. 3, 1.2 miles above the Brownsville-Matamoros Bridge, is greatly obstructed and is considered to be inoperative. #

Floodwater diverted through Retamal Heading is measured at a cableway station .9 mile below the headgate. It flows through Retamal Canal into Culebrón and Villa Cárdenas Lakes from which it discharges through floodgates into Floodway No. 1 and flows southeastward into the Gulf of Mexico. Floodwater diverted at San Rafael is measured near the intake and flows through San Rafael Drain into Culebrón and Villa Cárdenas Lakes from which it discharges into Floodway No. 1. Floodwater entering Floodway No. 2 is measured at the Matamoros-Reynosa highway crossing and flows south and east into the Gulf of Mexico.

In 1960 no flood flows were diverted into this floodway system. There were no diversions for irrigation purposes through Retamal Canal in 1960.

** Prior to 1958 these stations were named "North Floodway South of McAllen" and "South Floodway South of McAllen", respectively.

Floodway No. 2 was previously called Floodway No. 3 (west branch) while Floodway No. 3 was previously East Branch of Floodway No. 3.

RETURN FLOW TO THE RIO GRANDE AT PONIENTE DRAIN

West of Reynosa, Tamaulipas

DESCRIPTION: Water-stage recorder on downstream side of railroad bridge 650 feet below drain heading and cable with cable car 300 feet farther downstream. This drain branches off the left side of the Anzalddas Canal 5.16 miles below the canal intake and enters the Rio Grande 1,088.6 river miles below the American Dam at El Paso, Texas. The zero of the gage is 85.83 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 7 meter measurements during the year and a continuous record of gage heights. Computations by shifting channel methods. Records available: 1953 through 1960.

REMARKS: Flows passing this station represent that portion of water diverted through Anzalddas Canal which is not used by Mexico. In 1960, this drain was largely used to by-pass Rio Grande water during final construction of Anzalddas Dam. Use of this drain was suspended July 1, 1960.

EXTREME FLOWS FROM RECORDS: Max. 3,920 second-feet on May 26, 1960. Min. no flow the greater part of the time.

Average Flow in Second-Feet

Daily:	Max. 3,810	Jan. 18, 1954	Min. 0	Frequently
Monthly:	Max. 2,390	Mar. 1959	Min. 0	Frequently
Yearly:	Max. 1,270	1959	Min. 0	1955

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	7.1	0	706	243	0	2,540	0	0	0	0	0	0
2	3.5	0	703	1,150	0	2,770	0	0	0	0	0	0
3	3.5	0	706	784	0	2,900	0	0	0	0	0	0
4	3.5	0	643	186	0	2,170	0	0	0	0	0	0
5	3.5	0	600	37.8	0	2.5	0	0	0	0	0	0
6	3.5	0	448	1.4	0	1.4	0	0	0	0	0	0
7	3.5	0	308	0	0	1.4	0	0	0	0	0	0
8	3.5	0	301	0	0	1.8	0	0	0	0	0	0
9	0	0	297	0	0	1.8	0	0	0	0	0	0
10	0	0	118	0	0	1.8	0	0	0	0	0	0
11	0	0	0	0	0	1.8	0	0	0	0	0	0
12	0	0	0	0	0	1.8	0	0	0	0	0	0
13	0	94.6	0	0	0	2.8	0	0	0	0	0	0
14	0	0	0	0	0	3.9	0	0	0	0	0	0
15	0	0	0	0	0	6.4	0	0	0	0	0	0
16	0	470	157	0	0	6.4	0	0	0	0	0	0
17	3.5	1,260	0	0	0	8.5	0	0	0	0	0	0
18	7.1	1,450	0	0	0	10.2	0	0	0	0	0	0
19	7.1	1,660	0	0	0	12.0	0	0	0	0	0	0
20	7.1	1,430	0	0	0	14.0	0	0	0	0	0	0
21	7.1	1,150	0	0	0	12.7	0	0	0	0	0	0
22	7.1	812	0	0	0	11.3	0	0	0	0	0	0
23	7.1	720	0	0	0	9.9	0	0	0	0	0	0
24	7.1	706	0	0	915	8.5	0	0	0	0	0	0
25	7.1	706	0	0	2,940	7.1	0	0	0	0	0	0
26	7.1	703	38.5	0	3,600	6.0	0	0	0	0	0	0
27	7.1	706	88.3	0	2,920	4.6	0	0	0	0	0	0
28	7.1	713	91.8	0	2,270	3.2	0	0	0	0	0	0
29	7.1	713	77.7	0	2,080	1.8	0	0	0	0	0	0
30	7.1	63.6	0	0	2,160	.4	0	0	0	0	0	0
31	7.1	45.9	0	0	2,330	0	0	0	0	0	0	0
Sum	134.5	13,293.6	5,392.8	2,402.2	19,215	10,524.1	0	0	0	0	0	0

Month	Current Year 1960						Period 1954-1960					
	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	0	7.1	† 9	0	4.3	266	37,105	135,800	0
Feb.	4.49		18	1,700	† 1	0	458	26,360	27,244	131,700	0	0
Mar.			† 1	0	706	† 11	0	174	10,700	25,489	147,200	0
Apr.	3.81		2	1,340	† 7	0	80.1	4,760	32,270	115,900	0	0
May	7.91		26	3,920	† 1	0	620	38,120	35,371	79,770	0	0
June	6.63	.92	2	2,990	† 6	1.4	351	20,870	24,186	67,480	0	0
July				0		0	0	0	34,864	118,500	0	0
Aug.				0		0	0	0	35,180	83,010	0	0
Sept.				0		0	0	0	26,467	61,200	0	0
Oct.				0		0	0	0	13,550	70,960	0	0
Nov.				0		0	0	0	8,103	34,460	0	0
Dec.				0		0	0	0	14,494	54,930	0	0
Yearly	7.91			3,920		0	139	101,076	314,323	918,570	0	0

† And other days 0 Mean daily

DIVERSIONS FROM THE RIO GRANDE **UNITED STATES SIDE—BELOW ANZALDUAS DAM TO PROGRESO BRIDGE STATION**

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

During 1960, 141,288 irrigable acres, several towns and rural homes in this river reach were served Rio Grande water under the jurisdiction of this Court. The area irrigated from the Rio Grande in this river reach was 18.2% of the total irrigable acres below Falcón Dam.

The total diversion during 1960 in this river reach was 205,800 acre-feet or 19.2% of the total water diverted from the Rio Grande below Falcón Dam. About 97% of the water diverted in this river reach was determined by this Commission through continuous records of discharge at open channel rating stations and at deflection meter stations developed by this Commission. The records for the balance of these diversions were furnished by the Special Water Master and were either measured by flow meters or were determined from periodic current meter measurements of pump discharges and recorded pump operating time. More than one crop per year is often grown on parts of this land.

Mean Daily Discharge in Second-Foot 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.								
1	347	425	124	412	0	755	667	514	126	202	135	71.0								
2	310	514	7.0	386	10.0	784	557	532	1.0	40.0	216	119								
3	171	502	41.0	114	9.0	790	241	512	0	413	234	199								
4	327	466	45.0	490	70.0	817	238	421	0	385	203	49.0								
5	261	474	37.0	478	78.0	735	618	441	0	426	227	199								
6	241	312	27.0	560	0	711	763	258	67.0	587	66.0	271								
7	247	122	106	563	32.0	804	759	107	0	582	322	293								
8	360	506	227	570	4.0	746	784	427	0	423	279	82.0								
9	327	536	158	578	149	747	708	436	0	233	281	31.0								
10	140	567	93.0	200	173	887	642	435	0	524	217	0								
11	439	564	93.0	574	231	836	755	369	0	505	76.0	0								
12	438	200	187	606	208	706	816	36.0	0	488	168	0								
13	455	11.0	72.0	682	225	785	820	29.0	0	486	52.0	0								
14	476	7.0	225	598	244	859	812	1.0	110	487	158	0								
15	478	52.0	157	496	129	927	785	1.0	57.0	487	246	0								
16	491	68.0	133	415	506	868	597	10.0	121	158	276	0								
17	217	50.0	82.0	113	671	916	294	10.0	86.0	347	126	78.0								
18	339	132	82.0	13.0	629	789	651	10.0	67.0	337	130	0								
19	258	55.0	60.0	123	568	776	587	10.0	138	123	39.0	0								
20	363	120	41.0	108	385	922	581	9.0	164	79.0	44.0	119								
21	307	70.0	280	121	237	899	650	0	165	43.0	157	25.0								
22	294	343	370	120	122	893	577	124	203	27.0	155	22.0								
23	228	275	396	109	502	642	449	27.0	216	7.0	87.0	48.0								
24	83.0	102	383	0	486	118	169	154	170	138	0	0								
25	313	46.0	306	236	509	165	578	124	53.0	70.0	157	0								
26	414	35.0	135	160	577	218	602	146	266	66.0	116	0								
27	431	45.0	126	9.0	619	543	593	140	197	149	58.0	76.0								
28	423	3.0	498	11.0	557	446	588	38.0	303	75.0	150	0								
29	426	149	533	15.0	388	552	548	259	293	61.0	66.0	0								
30	311		520	26.0	640	558	453	157	208	58.0	78.0	0								
31	135		367		735		187	166		160		18.0								
Sum	6,751.0		5,911.0		8,886.0		21,194		18,069		5,903.0		3,011.0		8,166.0		4,519.0		1,700.0	
10,050.0																				
Current Year 1960										Period 1957-1960										
Month	Average Rainfall Inches **		Extreme Second-Feet				Average Second- Feet	Total Acre-Feet	Acre-Feet											
	1957-1960	1960	High		Low				Average	Maximum	Minimum									
			Day		Day															
Jan.	2.07	.70	16	491	24	83.0	324	19,900	7,035	19,900	1,900									
Feb.	2.26	1.50	10	567	28	3.0	233	13,400	4,968	13,400	1,140									
Mar.	1.11	.70	29	533	2	7.0	191	11,700	5,958	11,700	1,050									
Apr.	2.13	3.01	13	682	24	0	296	17,600	16,082	23,600	3,630									
May	1.17	1.12	31	735	† 1	0	313	19,200	24,300	35,500	18,000									
June	2.22	1.64	15	927	24	118	706	42,000	30,375	42,000	16,800									
July	.52	.12	13	820	24	169	583	35,800	30,025	41,100	17,500									
Aug.	1.64	4.85	2	532	21	0	190	11,700	19,800	25,800	11,700									
Sept.	2.91	4.06	28	303	† 3	0	100	5,970	14,742	28,000	5,970									
Oct.	3.90	2.95	6	587	23	7.0	263	16,200	14,765	21,300	2,660									
Nov.	1.82	1.63	7	322	24	0	151	8,960	7,790	8,960	6,460									
Dec.	1.38	2.51	7	293	† 10	0	54.8	3,370	10,515	17,500	3,370									
Yearly	23.13	24.79		927		0	283	205,800	186,355	231,320	147,810									

† And other days ‡ Mean daily ** United States side, Average of several stations in the reach.

RIO GRANDE AT PROGRESO BRIDGE, TEXAS

DESCRIPTION: Water-stage recorder on the downstream side of the center pier of the bridge 2 miles south of Progreso, Texas, .8 mile below Progreso pumping plant, 1,124.4 river miles below American Dam at El Paso, Texas, and 123.8 river miles above the Gulf of Mexico. On October 4, 1956, when the low-flow channel shifted to the left bank, an auxiliary recorder was installed 300 feet above the bridge on the American bank to record such flows. The zero of the gage of both recorders is at 52.56 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 78 meter measurements during the year from the bridge, 76 by the Mexican and 2 by the United States Section of this Commission, and a continuous record of gage heights. Computations by shifting channel methods. Records available: December 1, 1952 through August 24, 1953; and December 1, 1953 through December 31, 1960.

REMARKS: Except for diversions, tributary inflows and drainage returns below Falcón Dam, flow at this station after August 25, 1953 was controlled largely by releases from Falcón Reservoir, 150 miles upstream. Excessive upstream flood flows are partly diverted through the Mission and Hackney Lake Inlets of the United States floodway system and through Retamal Heading of the Mexican floodway system before reaching this station.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 19,900 second-feet on October 22, 1958 with a gage height of 23.69 feet. Min. no flow several days in June, July and August, 1953.

Average Flow in Second-Feet

Daily:	Max.	19,740	Oct. 24, 1958	Min.	0	Frequently 1953
Monthly:	Max.	16,730	Oct. 1958	Min.	5.1	June 1953
Yearly:	Max.	3,840	1958	Min.	666	1957

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2,420	2,460	685	840	374	1,430	3,030	763	509	230	777	445
2	2,620	2,220	682	1,110	367	1,680	2,520	763	597	292	1,630	494
3	2,400	2,010	727	1,530	403	1,900	1,950	791	953	653	706	505
4	1,880	1,720	685	1,650	445	1,970	1,430	593	1,390	639	335	597
5	1,420	1,390	632	1,390	434	1,960	1,910	487	2,710	713	424	364
6	1,080	1,240	622	1,330	417	2,510	2,770	904	4,060	809	519	343
7	1,170	1,390	537	915	614	2,980	1,850	1,080	3,960	519	565	622
8	1,470	1,440	406	999	791	3,080	1,680	890	3,260	699	646	572
9	1,630	1,200	491	1,330	805	3,180	1,260	667	1,670	756	858	540
10	1,550	1,310	819	1,670	537	3,430	1,520	911	964	848	823	579
11	1,590	1,020	865	1,740	413	3,310	2,020	526	766	692	816	660
12	1,450	855	1,050	1,770	241	3,240	1,830	968	996	544	943	664
13	1,160	1,670	1,130	1,750	248	3,670	1,760	1,600	1,720	558	823	558
14	1,040	1,980	1,140	1,620	523	3,310	1,780	2,500	1,540	819	675	554
15	1,070	1,100	989	1,450	950	2,870	1,610	1,630	929	819	417	561
16	1,420	530	855	1,630	1,190	2,780	1,510	816	636	901	290	381
17	1,770	1,120	618	2,130	939	2,850	1,740	689	441	901	219	252
18	2,180	1,440	766	2,850	833	3,140	1,530	826	302	456	279	259
19	2,350	1,450	710	4,170	982	3,710	1,260	890	473	1,100	558	345
20	2,670	1,650	540	2,780	1,680	3,780	1,390	713	388	918	717	441
21	2,640	1,380	558	1,120	2,720	4,170	1,910	643	565	710	505	353
22	2,150	1,120	509	505	2,260	4,060	1,310	569	622	434	445	364
23	2,110	696	434	530	1,430	3,340	904	473	351	378	480	296
24	2,380	622	576	1,030	1,320	3,570	907	427	214	371	551	306
25	2,500	671	607	1,370	1,950	3,990	1,030	473	324	2,000	494	333
26	2,630	727	745	1,370	2,420	2,160	1,060	381	487	4,940	344	267
27	2,190	766	1,450	1,250	2,790	2,390	1,060	565	643	4,340	396	247
28	1,100	759	1,370	936	2,230	2,640	840	756	865	2,650	456	234
29	1,260	756	1,170	925	1,620	2,890	576	897	869	466	565	561
30	1,890		1,030	692	1,490	3,090	417	780	505	305	685	1,370
31	2,320		925		1,370		629	727		326		1,300
Sum	57,510	36,692	44,382	34,786	88,880	46,993	33,709	30,786	17,941	15,367		

Month	Current Year 1960						Period 1954-1960				
	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum
Jan.	6.17	2.82	† 20	2,820	28	936	1,860	114,100	107,054	241,800	17,340
Feb.	5.64	1.64	1	2,510	16	459	1,270	72,800	97,574	371,900	12,620
Mar.	3.81	1.51	27	1,520	8	374	785	48,250	93,661	380,300	4,990
Apr.	8.92	1.71	19	4,380	23	417	1,480	87,980	80,773	144,000	32,060
May	6.46	.95	27	3,010	12	170	1,120	68,980	102,771	146,100	68,980
June	8.96	3.48	21	4,310	26	1,260	2,960	176,300	124,430	176,300	63,350
July	6.69	1.35	1	3,070	31	244	1,520	93,200	57,510	116,400	16,970
Aug.	6.04	1.31	14	2,680	26	308	829	50,970	46,559	65,020	10,400
Sept.	8.46	.89	6	4,270	24	186	1,120	66,870	58,286	93,380	21,650
Oct.	9.74	.95	26	5,190	1	203	993	61,070	186,187	1,028,000	14,030
Nov.	4.79	1.02	2	1,910	17	201	598	35,590	135,374	735,000	18,000
Dec.	4.59	.95	30	1,720	17	203	496	30,480	105,243	487,200	7,370
Yearly	9.74	.89		5,190	170	170	1,250	906,590	1,195,422	2,776,990	482,410

† And other days

DIVERSIONS FROM THE RIO GRANDE

UNITED STATES SIDE-PROGRESO BRIDGE TO SAN BENITO STATION

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

During 1960, 331,616 irrigable acres, several towns and rural homes in this river reach were served Rio Grande water under the jurisdiction of this Court. The area irrigated from the Rio Grande in this river reach was 42.8% of the total irrigable acres below Falcón Dam.

The total diversion during 1960 in this river reach was 471,700 acre-feet or 43.9% of the total water diverted from the Rio Grande below Falcón Dam. About 98% of the water diverted in this river reach was determined by this Commission through continuous records of discharge at open channel rating stations and at deflection meter stations developed by this Commission. The records for the balance of these diversions were furnished by the Special Water Master and were either measured by flow meters or were determined from periodic current meter measurements of pump discharges and recorded pump operating time. More than one crop per year is often grown on parts of this land.

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,270	1,190	171	613	35.0	1,390	2,280	659	102	152	141	197
2	1,270	1,290	121	550	98.0	1,450	1,930	703	68.0	242	374	72.0
3	1,250	1,180	275	625	141	1,560	1,040	692	332	370	424	23.0
4	1,540	1,110	404	866	209	1,570	1,080	673	628	440	245	0
5	1,280	1,100	358	1,010	223	1,530	1,300	544	374	499	151	86.0
6	1,110	788	118	988	143	1,890	1,650	569	880	579	148	160
7	902	598	334	981	54.0	2,110	1,530	324	975	388	249	262
8	921	775	419	895	138	2,210	1,260	815	250	305	227	501
9	851	733	425	819	216	2,210	847	792	31.0	154	256	353
10	682	762	368	1,170	274	2,270	940	806	0	397	206	205
11	906	715	344	1,550	348	2,450	1,290	699	23.0	492	120	240
12	943	328	378	1,210	300	2,370	1,350	518	151	502	200	163
13	958	206	229	1,330	198	2,440	1,360	427	290	678	50.0	113
14	935	91.0	153	1,380	212	2,350	1,400	460	174	702	371	44.0
15	878	380	199	1,260	293	2,250	1,340	205	72.0	364	343	55.0
16	730	517	247	1,100	631	2,380	1,000	110	367	279	220	207
17	771	482	203	877	912	2,390	868	150	199	352	249	114
18	1,460	307	207	545	889	2,440	1,020	185	92.0	194	95.0	37.0
19	1,590	146	170	214	903	2,530	909	178	133	393	59.0	76.0
20	1,680	139	95.0	262	1,010	2,470	848	143	322	806	135	165
21	1,690	222	259	491	1,020	2,430	872	85.0	248	82.0	147	244
22	1,530	422	290	399	827	2,460	800	388	193	79.0	31.0	261
23	1,170	434	369	290	1,150	2,230	636	506	153	85.0	28.0	177
24	833	215	487	415	1,160	1,900	507	359	113	378	63.0	31.0
25	1,110	315	536	566	1,110	1,870	752	243	88.0	599	225	34.0
26	1,210	353	353	530	1,200	1,410	639	191	247	1,080	229	236
27	1,180	168	591	241	1,120	1,420	596	106	312	643	40.0	150
28	1,060	133	733	27.0	1,000	2,030	593	119	338	293	160	239
29	1,050	285	725	39.0	826	2,120	558	304	212	242	258	71.0
30	996		622	32.0	1,280	2,120	376	365	198	113	289	44.0
31	804		704		1,350		368	290		138		26.0
Sum	15,384.0		21,275.0		62,250		12,608.0		7,565.0	12,020.0	5,733.0	4,586.0
	34,560	10,887.0		19,270.0		31,939						
Current Year 1960									Period 1957-1960			
Month	Average Rainfall Inches **		Extreme Second-Feet				Average Second- Feet	Total Acre-Feet	Acre-Feet			
	1957-1960	1960	High		Low				Average	Maximum	Minimum	
			Day		Day							
Jan.	1.92	.58	21	1,690	10	682	1,110	68,500	27,010	68,500	9,940	
Feb.	2.91	1.37	2	1,290	14	91.0	530	30,500	14,900	30,500	8,400	
Mar.	1.30	1.17	28	733	20	95.0	351	21,600	12,712	21,600	3,280	
Apr.	1.94	3.58	11	1,550	28	27.0	709	42,200	34,350	49,100	12,900	
May	2.02	1.62	31	1,350	1	35.0	622	38,200	51,925	59,300	38,200	
June	3.10	1.16	19	2,530	1	1,390	2,080	123,000	82,825	123,000	48,000	
July	.81	.50	1	2,280	31	368	1,030	63,400	50,900	76,900	25,500	
Aug.	1.82	5.53	8	815	21	85.0	407	25,000	35,400	45,900	25,000	
Sept.	3.63	6.62	7	975	10	0	252	15,000	32,825	59,400	15,000	
Oct.	4.71	4.37	26	1,080	22	79.0	388	23,800	26,025	33,600	15,300	
Nov.	2.03	1.08	3	424	23	28.0	191	11,400	16,325	23,800	11,400	
Dec.	1.47	2.73	8	501	4	0	148	9,100	24,950	37,500	9,100	
Yearly	27.66	30.31		2,530		0	650	471,700	410,147	471,700	334,120	

† Mean daily ** United States side. Average of several stations in the reach.

RIO GRANDE NEAR SAN BENITO, TEXAS

DESCRIPTION: Water-stage recorder located on the United States side 5.6 miles below San Benito pumping plant, 1,151.7 river miles below the American Dam at El Paso, Texas and 96.5 river miles above the Gulf of Mexico. The zero of the gage is at mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 30 meter measurements during the year, 28 by wading during low flow, 2 by boat during medium flows, and a continuous record of gage heights. Computations by shifting channel methods. Records available: November 26, 1952 through August 25, 1953; and December 1953 through December 1960.

REMARKS: Except for diversions, tributary inflows and drainage returns below Falcón Dam, flow at this station, after August 25, 1953, was controlled largely by releases from Falcón Reservoir, 177.3 river miles upstream. Excessive upstream flood flows are partly diverted through the United States and Mexican floodway systems before reaching this station.

EXTREME FLOWS FROM RECORDS: Momentary: Max, 13,600 second-feet October 22-25, 1958 with a gage height of 60.07 feet. Min. no flow occurs frequently.

Average Flow in Second-Feet †

Daily:	Max.	13,600	October 22-25, 1958	Min.	0	Frequently
Monthly:	Max.	13,100	October 1958	Min.	39.5	Dec. 1956
Yearly:	Max.	2,930	1958	Min.	200	1956

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	874	1,260	492	221	623	140	970	388	* 520	336	250	361
2	1,060	1,030	547	361	356	285	847	182	* 416	192	1,030	425
3	1,230	847	516	573	335	260	946	194	617	100	837	469
4	907	757	416	822	337	399	1,050	166	435	190	307	558
5	447	514	295	529	302	325	416	120	1,490	193	230	532
6	255	320	400	425	285	294	882	134	2,620	320	369	278
7	122	568	442	329	392	676	1,080	604	2,940	285	367	371
8	390	742	192	61.4	576	760	470	550	3,060	289	358	265
9	663	574	74.0	189	635	760	608	153	2,760	519	575	83.4
10	820	540	* 165	606	522	958	552	110	1,660	533	620	297
11	891	532	517	529	250	998	735	131	936	401	664	415
12	708	436	473	656	146	794	783	163	690	240	640	488
13	503	804	692	557	* 90.0	984	570	771	1,230	128	804	543
14	292	1,600	840	530	* 119	1,240	509	1,510	1,720	85.0	564	530
15	214	1,360	840	395	402	961	624	1,970	1,310	224	274	578
16	414	505	695	362	630	726	540	1,100	627	553	166	465
17	742	134	558	956	425	612	802	667	196	628	158	230
18	931	830	480	1,540	89.6	699	873	553	279	421	187	217
19	748	1,050	565	2,860	30.2	1,040	603	718	209	536	285	278
20	809	1,250	595	3,270	156	1,490	331	642	208	391	572	260
21	922	1,290	429	1,840	1,150	1,740	1,060	599	187	449	520	261
22	755	901	349	515	1,810	2,050	832	392	430	531	445	145
23	762	580	255	211	1,000	1,820	565	145	467	367	477	170
24	1,150	422	122	253	218	1,680	381	78.8	254	281	494	228
25	1,310	402	92.0	718	614	2,060	437	* 85.0	155	211	443	313
26	1,310	321	162	856	948	2,040	379	137	210	2,660	260	314
27	1,200	449	406	1,050	1,580	725	512	297	291	3,330	272	117
28	646	639	682	1,030	1,620	883	513	477	495	2,440	382	78.1
29	126	555	504	904	1,210	853	317	620	676	845	349	111
30	362		462	875	612	1,070	223	542	616	304	385	731
31	1,090		329		293		248	408		255		1,440
Sum	22,653	21,212	13,586.0	24,023.4	17,755.8	29,322	19,658	14,606.8	27,704	18,237	13,284	11,551.5

Month	Current Year 1960						Period 1954-1960				
	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet			
	High	Low	Day	High	Low			Average	Maximum	Minimum	
Jan.	37.95	31.57	25	1,380	29	80.0	731	44,900	52,969	227,000	2,920
Feb.	39.24	31.42	14	1,710	17	70.1	731	42,100	66,949	363,000	3,380
Mar.	35.90	31.25	14	886	9	60.0	438	26,900	62,567	360,000	2,560
Apr.	43.87	31.47	20	3,470	8	31.9	801	47,700	40,629	118,000	11,500
May	38.68	31.88	22	1,900	19	25.7	573	35,200	36,329	57,100	20,200
June	40.09	33.52	26	2,320	1	118	977	58,200	42,200	62,100	16,100
July	36.98	33.78	7	1,360	30	203	634	39,000	20,626	39,000	4,690
Aug.	39.36	33.30	15	2,100	25	58.0	471	29,000	16,493	33,300	3,100
Sept.	42.75	33.53	8	3,100	21	95.0	923	55,000	27,019	58,500	7,710
Oct.	43.59	33.39	27	3,380	14	77.8	588	36,200	134,023	803,000	3,840
Nov.	36.72	33.48	2	1,290	17	146	443	26,300	105,834	662,000	5,640
Dec.	37.46	33.37	31	1,520	9	75.8	373	22,900	82,061	479,000	2,430
Yearly	43.87	31.25		3,470		25.7	638	463,400	687,699	2,124,110	145,520

* Partly estimated † Period 1954-1960

DIVERSIONS FROM THE RIO GRANDE

UNITED STATES SIDE—SAN BENITO TO LOWER BROWNSVILLE STATION

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

During 1960, 101,853 irrigable acres, several towns and rural homes in this river reach were served Rio Grande water under the jurisdiction of this Court. The area irrigated from the Rio Grande in this river reach was 13.1% of the total irrigable acres below Falcón Dam.

The total diversion during 1960 in this river reach was 121,610 acre-feet or 11.3% of the total water diverted from the Rio Grande below Falcón Dam. About 89% of the water diverted in this river reach was determined by this Commission through continuous records of discharge at open channel rating stations and at deflection meter stations developed by this Commission. The records for the balance of these diversions were furnished by the Special Water Master and were either measured by flow meters or were determined from periodic current meter measurements of pump discharges and recorded pump operating time. More than one crop per year is often grown on parts of this land.

Mean Daily Discharge in Second-Foot 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	191	309	33.0	246	27.0	208	302	106	90.0	44.0	23.0	223
2	208	316	48.0	199	27.0	215	288	87.0	56.0	26.0	16.0	138
3	218	368	31.0	201	27.0	194	201	88.0	36.0	30.0	43.0	32.0
4	299	403	24.0	235	26.0	167	288	95.0	34.0	30.0	34.0	28.0
5	364	342	25.0	227	35.0	185	380	67.0	33.0	107	41.0	22.0
6	347	323	28.0	220	26.0	221	408	64.0	33.0	158	34.0	22.0
7	291	303	69.0	197	67.0	339	507	62.0	36.0	241	53.0	19.0
8	162	310	45.0	216	29.0	575	496	204	34.0	206	96.0	21.0
9	311	313	63.0	157	68.0	666	323	224	29.0	168	44.0	19.0
10	462	306	71.0	88.0	64.0	674	293	97.0	27.0	241	51.0	6.0
11	507	309	46.0	189	54.0	675	365	92.0	29.0	159	39.0	13.0
12	467	197	38.0	232	63.0	631	422	54.0	31.0	150	39.0	145
13	500	139	22.0	239	85.0	689	384	48.0	67.0	162	56.0	117
14	391	110	21.0	262	79.0	732	359	23.0	34.0	119	67.0	69.0
15	419	125	49.0	272	66.0	730	343	101	31.0	17.0	38.0	97.0
16	197	277	34.0	262	109	718	289	217	22.0	24.0	39.0	33.0
17	350	245	42.0	159	122	715	240	182	53.0	32.0	34.0	32.0
18	530	250	21.0	189	136	584	170	175	42.0	13.0	28.0	19.0
19	558	221	37.0	74.0	156	583	133	163	26.0	23.0	25.0	19.0
20	499	191	25.0	91.0	74.0	708	93.0	184	26.0	48.0	28.0	19.0
21	473	134	51.0	59.0	43.0	751	136	29.0	26.0	34.0	48.0	20.0
22	350	94.0	58.0	57.0	68.0	690	131	55.0	35.0	35.0	47.0	49.0
23	365	77.0	76.0	28.0	289	671	90.0	56.0	31.0	34.0	28.0	37.0
24	345	42.0	38.0	76.0	394	586	53.0	63.0	128	34.0	18.0	15.0
25	437	38.0	40.0	91.0	300	440	140	63.0	124	50.0	15.0	23.0
26	455	70.0	46.0	87.0	389	317	206	68.0	99.0	24.0	20.0	23.0
27	410	29.0	32.0	45.0	349	325	230	49.0	121	317	20.0	41.0
28	340	36.0	191	41.0	362	499	149	35.0	69.0	397	41.0	43.0
29	316	53.0	302	30.0	356	358	97.0	93.0	60.0	338	32.0	28.0
30	220		281	30.0	236	245	83.0	75.0	60.0	20.0	71.0	36.0
31	182		247		206		78.0	76.0		15.0		128
Sum	5,930.0		4,499.0		15,091		2,995.0		3,296.0		1,536.0	
	11,164		2,134.0		4,332.0		7,677.0		1,522.0		1,168.0	
Current Year 1960									Period 1957-1960			
Month	Average Rainfall Inches **		Extreme Second-Foot				Average Second-Foot	Total Acre-Feet	Acre-Feet			
	1957-1960	1960	High		Low				Average	Maximum	Minimum	
			Day		Day							
Jan.	2.08	.45	19	558	8	162	360	22,100	7,230	22,100	1,290	
Feb.	3.86	1.42	4	403	27	29.0	204	11,800	4,815	11,800	1,710	
Mar.	1.18	1.14	29	302	14	21.0	68.8	4,230	2,426	4,230	705	
Apr.	1.87	3.28	15	272	23	28.0	150	8,920	7,010	11,200	2,180	
May	1.54	1.57	24	394	4	26.0	140	8,590	16,122	22,600	8,590	
June	3.53	1.54	21	751	4	167	503	29,900	18,970	29,900	8,280	
July	1.04	1.19	7	507	24	53.0	248	15,200	10,078	15,200	5,580	
Aug.	1.65	4.20	9	224	14	23.0	96.6	5,940	8,218	10,700	5,940	
Sept.	3.41	6.80	24	128	16	22.0	50.7	3,020	6,820	12,600	3,020	
Oct.	4.72	3.98	28	397	18	13.0	106	6,540	7,560	11,300	5,620	
Nov.	2.24	1.29	8	96.0	25	15.0	38.9	2,320	4,880	5,840	2,320	
Dec.	1.52	2.66	1	223	10	6.0	49.5	3,050	7,142	11,200	3,050	
Yearly	28.64	29.52		751		6.0	168	121,610	101,271	121,610	88,690	

† And other days ‡ Mean daily ** United States side. Average of several stations in the reach.

RIO GRANDE AT LOWER BROWNSVILLE, TEXAS

DESCRIPTION: Bubbler-type water-stage recorder, operated with bottled nitrogen gas, and cable with stand-up cable car equipped for winch and heavy weights, located 1,000 feet below the El Jardín pumping plant, 6.8 river miles below Brownsville, Texas, and Matamoros, Tamaulipas, 48.8 river miles upstream from the Gulf of Mexico, and 1,199.4 river miles below the American Dam at El Paso, Texas. The zero of the gage is at mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 48 meter measurements during the year and a continuous record of gage heights. Computations by shifting channel methods. Records available: January 1934 through December 1960.

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

EXTREME FLOWS FROM RECORDS: The greatest recorded flow was 31,700 second-feet, which occurred October 8, 1945, with a gage height of 31.48 feet. Zero flow occurs frequently.

Average Flow in Second-Feet

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

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	292	831	593	216	877	220	784	172	436	549	374	231
2	770	1,010	501	135	680	* 81.0	680	229	492	365	352	205
3	976	805	539	166	464	* 89.1	664	168	489	246	908	316
4	1,010	538	532	335	376	105	748	133	704	168	797	425
5	679	448	453	548	356	180	667	131	674	127	433	527
6	296	297	359	358	324	168	282	109	1,400	133	285	526
7	106	141	360	244	269	88.1	436	91.6	2,090	129	334	375
8	54.9	243	434	185	349	157	537	359	2,520	165	329	330
9	97.3	427	286	51.0	479	123	253	362	2,770	135	340	348
10	260	365	175	37.1	574	102	380	148	2,550	197	524	195
11	348	289	117	302	502	228	330	85.2	1,710	296	582	222
12	429	367	313	301	293	290	359	127	1,070	326	618	228
13	285	347	450	374	165	178	412	173	837	171	614	286
14	158	757	674	338	109	262	306	671	1,200	118	716	463
15	90.8	1,420	812	306	99.3	383	260	1,270	1,450	78.2	600	452
16	38.7	1,230	830	201	158	219	351	1,440	1,200	136	375	477
17	106	469	684	239	378	* 68.4	338	952	730	412	234	332
18	217	162	577	711	300	* 30.6	591	601	426	552	188	297
19	367	512	492	1,300	* 107	* 38.4	686	471	393	437	166	211
20	281	896	564	2,270	* 50.4	258	556	519	338	439	213	246
21	368	1,120	565	2,780	* 83.7	624	378	582	321	427	447	243
22	582	1,170	426	1,860	814	886	824	573	252	379	479	214
23	530	892	315	781	1,200	1,180	753	461	368	487	441	179
24	492	633	283	352	628	1,110	556	270	427	383	467	173
25	847	484	202	268	220	1,180	403	170	226	313	482	194
26	910	402	159	611	292	1,520	334	117	143	345	451	254
27	918	376	169	886	582	1,490	211	123	178	1,930	318	266
28	850	449	289	1,030	952	560	314	251	191	2,540	257	185
29	453	620	382	1,020	974	502	402	413	366	2,090	325	147
30	132	281	946	768	626	301	551	579	977	314	* 111	495
31	181	269		489		206	502		489			
Sum	13,124.7	17,700	13,085	19,151.1	13,912.4	12,946.6	14,302	12,224.8	26,530	15,539.2	12,963	9,153
Current Year 1960									Period 1954-1960			
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.	12.00	5.27	4	1,040	16	36.8	423	26,000	38,703	224,000	283	
Feb.	13.71	6.12	15	1,530	18	101	610	35,100	59,923	362,000	1,060	
Mar.	11.13	5.93	15	884	11	89.0	422	26,000	57,404	361,000	2,050	
Apr.	17.61	5.26	21	2,870	10	34.0	638	38,000	30,639	127,000	875	
May	13.26	5.22	23	1,260	20	47.4	449	27,600	17,059	33,900	4,140	
June	14.11	4.69	† 26	1,680	18	15.8	432	25,700	22,149	49,600	2,430	
July	11.06	6.45	22	960	31	168	461	28,400	14,761	28,800	1,120	
Aug.	13.61	5.53	16	1,530	11	77.6	394	24,200	10,111	32,400	218	
Sept.	17.75	6.22	9	2,830	26	131	884	52,600	18,794	52,600	950	
Oct.	16.44	5.38	28	2,570	15	74.8	501	30,800	96,554	567,000	756	
Nov.	11.05	6.26	3	1,050	19	164	432	25,700	84,006	528,000	1,290	
Dec.	10.37	5.31	31	891	30	90.9	295	18,200	75,361	480,000	524	
Yearly	17.75	4.69		2,870		15.8	494	358,300	525,464	1,658,480	30,596	

* Partly estimated † And other days

DIVERSIONS FROM THE RIO GRANDE

UNITED STATES SIDE-LOWER BROWNSVILLE STATION TO THE GULF

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

During 1960, 6,534 acres, or .8% of the total irrigable acreage below Falcón Dam, were served by diversions within this river reach under the jurisdiction of this Court.

The total diversions during 1960 in this river reach was 3,023 acre-feet, or .3% of the total water diverted from the Rio Grande below Falcón Dam. All the records of diversions in this river reach were furnished by the Special Water Master and were determined by periodic current meter measurements of pump discharges and recorded pump operating time. More than one crop per year is often grown on parts of this land.

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	10.0	15.0	0	2.0	0	1.0	5.0	2.0	0	0	0	0
2	10.0	15.0	0	2.0	0	3.0	5.0	2.0	0	0	0	0
3	17.0	15.0	0	0	0	3.0	0	7.0	0	0	0	0
4	20.0	15.0	0	2.0	0	3.0	0	7.0	0	0	0	0
5	20.0	12.0	0	5.0	0	5.0	0	7.0	0	0	0	0
6	17.0	12.0	0	5.0	0	5.0	0	7.0	0	0	0	0
7	17.0	6.0	0	6.0	0	3.0	0	7.0	0	0	0	0
8	17.0	6.0	2.0	6.0	1.0	3.0	0	8.0	0	0	0	0
9	20.0	8.0	2.0	6.0	2.0	5.0	0	9.0	0	0	0	0
10	11.0	8.0	2.0	5.0	3.0	6.0	0	8.0	0	0	0	0
11	25.0	9.0	1.0	4.0	2.0	11.0	2.0	7.0	0	0	0	0
12	25.0	7.0	2.0	4.0	2.0	23.0	2.0	3.0	0	0	0	0
13	27.0	5.0	0	3.0	4.0	23.0	3.0	0	0	0	0	0
14	32.0	5.0	1.0	3.0	2.0	23.0	3.0	0	0	0	0	0
15	26.0	5.0	3.0	4.0	3.0	27.0	3.0	0	0	0	0	0
16	26.0	6.0	4.0	3.0	5.0	28.0	1.0	1.0	0	0	0	0
17	19.0	6.0	3.0	0	6.0	26.0	1.0	0	0	0	0	0
18	21.0	6.0	3.0	0	5.0	24.0	4.0	0	0	0	0	0
19	19.0	6.0	2.0	0	8.0	26.0	5.0	0	0	0	0	0
20	18.0	6.0	3.0	0	9.0	27.0	5.0	0	0	0	0	0
21	20.0	3.0	4.0	0	2.0	35.0	6.0	0	0	0	0	0
22	20.0	1.0	4.0	0	3.0	36.0	6.0	1.0	0	0	0	0
23	6.0	0	4.0	0	1.0	33.0	4.0	2.0	0	0	0	0
24	4.0	0	4.0	5.0	1.0	23.0	0	2.0	0	0	0	0
25	2.0	0	3.0	3.0	1.0	20.0	3.0	2.0	0	0	0	0
26	16.0	0	3.0	3.0	1.0	5.0	3.0	1.0	0	0	0	0
27	15.0	0	1.0	3.0	1.0	4.0	2.0	1.0	0	0	0	0
28	16.0	0	3.0	0	1.0	5.0	2.0	0	0	0	0	0
29	18.0	0	3.0	0	1.0	5.0	2.0	0	0	0	0	0
30	17.0	0	2.0	0	1.0	5.0	3.0	0	0	0	0	0
31	14.0	0	2.0	0	1.0	0	1.0	0	0	0	0	0
Sum	545.0	177.0	61.0	74.0	66.0	446.0	71.0	84.0	0	0	0	0

Current Year 1960							Period 1957-1960				
Month	Average Rainfall Inches **		Ø Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet			
	1957-1960	1960	High		Low			Average	Maximum	Minimum	
			Day	Day							
Jan.	2.33	.70	14	32.0	25	2.0	17.6	1,080	422	1,080	0
Feb.	4.02	1.26	† 1	15.0	† 23	0	6.1	351	155	351	0
Mar.	1.25	1.13	† 16	4.0	† 1	0	2.0	121	68.0	147	0
Apr.	2.06	3.56	† 7	6.0	† 3	0	2.5	147	159	260	0
May	1.30	2.33	20	9.0	† 1	0	2.1	131	282	417	131
June	3.37	2.11	22	36.0	1	1.0	14.9	885	482	885	214
July	1.08	1.04	† 21	6.0	† 3	0	2.3	141	114	159	69.4
Aug.	1.72	3.28	9	9.0	† 13	0	2.7	167	144	196	89.3
Sept.	3.22	5.51		0	0	0	0	0	113	190	0
Oct.	4.36	3.75		0	0	0	0	0	81.3	218	0
Nov.	2.28	1.79		0	0	0	0	0	43.4	122	0
Dec.	1.72	2.71		0	0	0	0	0	106	298	0
Yearly	28.71	29.17		36.0		0	4.2	3,023	2,169.7	3,023	1,332.5

† And other days ‡ Mean daily ** United States side. Average of several stations in the reach.

DIVERSIONS FROM THE RIO GRANDE UNITED STATES SIDE BELOW FALCON DAM

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

The official records for 1960 show that, in this area, 775,790 irrigable acres, several towns and many rural homes were served Rio Grande water under the jurisdiction of this Court.

The total diversion in 1960 was 1,074,000 acre-feet, most of which was made by pumping from the river. About 94% of the water diverted was determined by this Commission through continuous records of discharge at open channel rating stations and at deflection meter stations developed by this Commission. The records for the balance of the diversions were furnished by the Special Water Master and were either measured by flow meters or were determined from periodic current meter measurements of pump discharges and recorded pump operating time. Drainage from more than 90% of this area does not return to the Rio Grande, but some of it is re-used in the area. More than one crop per year is often grown on parts of this land.

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

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

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2,080	2,400	471	1,700	157	3,360	4,150	1,940	558	640	362	649
2	2,070	2,670	368	1,490	195	3,470	3,470	1,830	292	487	686	522
3	1,870	2,580	545	1,210	306	3,580	1,860	1,700	484	1,090	898	346
4	2,560	2,510	604	2,220	351	3,540	2,090	1,980	724	1,290	569	98.0
5	2,250	2,380	497	2,450	393	3,250	3,030	1,740	458	1,480	498	404
6	1,990	1,760	215	2,540	239	3,940	3,580	1,400	1,200	1,800	323	664
7	1,720	1,320	703	2,590	206	4,450	3,530	922	1,170	1,600	875	754
8	1,700	2,130	938	2,550	228	4,740	3,270	2,130	351	1,240	1,000	659
9	1,720	2,180	858	2,240	551	4,850	2,530	2,180	72.0	768	940	532
10	1,460	2,250	686	2,130	751	5,060	2,450	2,060	35.0	1,700	686	295
11	2,170	2,180	652	3,280	998	5,030	3,350	1,880	66.0	1,760	381	264
12	2,280	919	792	3,070	871	4,680	3,570	987	223	1,780	504	314
13	2,400	443	452	3,250	835	5,150	3,520	598	496	1,910	190	234
14	2,260	372	545	3,230	856	5,210	3,440	505	401	1,820	665	117
15	2,220	626	597	2,960	783	5,170	3,280	358	243	1,230	723	215
16	1,780	960	530	2,490	2,010	5,270	2,520	416	580	821	626	245
17	1,630	984	483	1,530	2,530	5,300	1,910	482	502	1,220	532	225
18	2,910	916	422	962	2,450	5,010	2,630	456	353	1,030	366	60.0
19	3,060	662	414	595	2,530	4,950	2,390	439	496	867	244	116
20	3,160	679	272	625	2,250	5,380	2,280	422	739	1,080	230	325
21	3,040	660	815	799	2,010	5,380	2,380	165	700	306	425	302
22	2,600	1,180	972	709	1,660	5,290	2,140	716	727	254	427	475
23	2,060	1,170	1,080	544	2,820	4,580	1,600	870	684	158	302	270
24	1,460	679	1,080	629	3,000	3,400	1,080	854	629	606	91.0	50.0
25	2,120	684	1,030	1,140	2,820	3,090	2,170	665	467	784	500	61.0
26	2,330	650	685	983	3,040	2,400	2,040	640	942	1,230	425	281
27	2,340	310	977	445	2,920	3,130	1,860	490	1,030	1,140	139	312
28	2,160	234	1,900	161	2,570	3,920	1,810	272	1,020	795	432	310
29	2,100	662	2,050	173	2,090	3,980	1,780	921	860	750	504	160
30	1,820		1,920	177	3,020	3,900	1,410	957	765	211	541	176
31	1,370		1,820		3,230		1,240	866		362		332
Sum	66,690	37,150	25,373	48,872	48,670	130,460	78,360	31,841	17,267	32,209	15,084.0	9,767.0
Current Year 1960												
Period 1957-1960												
Month	Average Rainfall Inches **		Extreme Second-Feet				Average Second- Feet	Total Acre-Feet	Acre-Feet			
	1957-1960	1960	High		Low				Average	Maximum	Minimum	
			Day		Day							
Jan.	2.01	.77	20	3,160	31	1,370	2,150	132,000	50,475	132,000	21,500	
Feb.	2.59	1.37	2	2,670	28	234	1,280	73,700	31,625	73,700	15,400	
Mar.	1.08	.83	29	2,050	6	215	818	50,300	28,420	50,300	6,280	
Apr.	2.01	3.09	11	3,280	28	161	1,630	96,900	80,200	114,000	25,100	
May	1.50	1.26	31	3,230	1	157	1,570	96,500	126,125	163,000	96,500	
June	2.58	1.28	† 20	5,380	26	2,400	4,350	259,000	174,425	259,000	92,700	
July	.72	.46	1	4,150	24	1,080	2,530	155,000	125,250	178,000	73,800	
Aug.	1.63	4.09	9	2,180	21	165	1,030	63,200	87,825	113,000	63,200	
Sept.	2.96	4.79	6	1,200	10	35.0	576	34,200	73,550	136,000	34,200	
Oct.	4.10	3.42	13	1,910	23	158	1,040	63,900	63,650	88,100	27,800	
Nov.	1.82	1.53	8	1,000	24	91.0	503	29,900	39,350	48,800	29,900	
Dec.	1.24	2.35	7	754	24	50.0	315	19,400	54,375	84,500	19,400	
Yearly	24.24	25.24		5,380		35.0	1,480	1,074,000	935,270	1,074,000	739,780	

† And other days ‡ Mean daily ** United States side below Falcón Dam

OUTFALLS FROM WELLS AND SEWERS INTO THE RIO GRANDE

In Acre-Feet

EL PASO ELECTRIC COMPANY SANTA FE STREET PLANT COOLING WATER WASTE

This outfall enters the Rio Grande 3.3 miles below the American Dam. The 1960 record of outfall was obtained from records of water pumped from the company's wells and use of such water by the city of El Paso.

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Yearly
1960	1.5	0	2.2	1.6	1.8	1.2	1.0	1.0	1.2	1.0	1.0	1.2	14.7
* Average	1.7	2.5	6.5	20.2	15.8	17.5	38.7	18.1	11.7	5.2	3.1	1.5	142.5

EL PASO SEWAGE OUTFALL

This water enters the Rio Grande through the El Paso Sewer Outlet 6.6 river miles below the American Dam, and the sewer system of the El Paso County Water Control and Improvement District No. 1 through the Ascarate Wasteway of Disposal Plant No. 1 at Ascarate, Texas and through the wasteway of Disposal Plant No. 2 at Ysleta, Texas, 9 and 15 river miles, respectively, below the American Dam. The outfall from the El Paso Plant consists of flows measured by a Parshall meter and estimates by the Department of Water and Sewerage of the city of El Paso of amounts which by-pass the meter, minus diversions for irrigation use between the Sewage Plant and the Rio Grande. There were no diversions for irrigation from this outfall in 1960. Records of outfalls from the Ascarate and Ysleta Plants were furnished by the El Paso County Water Control and Improvement District No. 1.

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Yearly
1960	1,513	1,418	1,609	1,629	1,669	1,636	1,673	1,805	1,640	1,578	1,504	1,468	19,142
* Average	1,242	1,184	1,294	1,237	1,333	1,385	1,456	1,474	1,418	1,406	1,301	1,330	16,060

LAREDO SEWAGE OUTFALL

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

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Yearly
1960	294	345	349	404	428	430	373	330	302	317	288	265	4,125
* Average	223	231	270	267	293	279	274	265	238	221	234	234	3,029

BROWNSVILLE SEWAGE OUTFALL

This sewage outfall enters the Rio Grande 3.4 river miles below the Gateway Bridge between Brownsville, Texas and Matamoros, Tamaulipas, 3.4 river miles above Lower Brownsville gaging station and 52.2 river miles above the Gulf of Mexico. Records which are furnished by the city of Brownsville were not available for years prior to 1957. In addition to the water reported below for 1960, 97 acre-feet of cooling water waste was returned to the Rio Grande by the city of Brownsville Water Plant 4.3 river miles above the Gateway Bridge and 59.9 river miles above the Gulf of Mexico.

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Yearly
1960	174	180	204	167	190	203	205	194	219	249	231	260	2,476
Ø Average	169	187	227	197	180	226	212	198	180	227	220	220	2,443

* Period averages are for past 10 years. Ø Period 1957-1960

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 and Lake Casa Blanca (Webb County) which according to the Texas Board of Water Engineers have capacities of 18,800 and 25,200 acre-feet, respectively. There are no monthly storage data available for these reservoirs. Also presented below are data for International Falcón Reservoir on the Rio Grande. The monthly figures represent the water in storage on the last day of each month, in thousands of acre-feet. The capacities indicated are at spillway level. Storage figures greater than the capacity indicate that the water surface was above spillway level.

The reservoirs and the source of the data are: Rio Grande, Continental, Santa Maria, Terrace and Mountain Home from the State of Colorado, Division of Water Resources; Sanchez from the Sanchez Ditch and Reservoir Company; Platoro from the annual report of the Rio Grande Compact Commission; Costilla from the United States Geological Survey; El Vado from the Middle Rio Grande Conservatory District; Bluewater from the United States Geological Survey; Elephant Butte and Caballo from the United States Bureau of Reclamation; Storrie from New Mexico Inter-State Stream Commission; Alamo-gordo, McMillan and Avalon from the United States Bureau of Reclamation; Red Bluff from the Red Bluff Water Power Control District; Willacy from the Willacy County Water Control and Improvement District No. 1; Boquilla, La Colina and Rosetilla from the National Finance, S. A. of Mexico; Francisco I. Madero, Centenario and San Miguel, Venustiano Carranza, Marte R. Gómez, Culebrón and Villa Cárdenas, and Palito Blanco from the Ministry of Hydraulic Resources of Mexico; International Falcón Reservoir from International Boundary and Water Commission.

In the United States

Month	RIO GRANDE (Capacity 51.1)		CONTINENTAL (Capacity 26.7)		SANTA MARIA (Capacity 43.6)		TERRACE (Capacity 17.7)		MOUNTAIN HOME (Capacity 20.1)	
	1960	#Average 1927-1960	1960	#Average 1928-1960	1960	#Average 1928-1960	1960	#Average 1925-1960	1960	#Average 1924-1960
Jan.	10.3	13.2	3.8	5.0	3.6	7.3	6.0	2.6	3.5	4.0
Feb.	12.0	14.4	4.1	5.3	3.9	7.7	6.1	2.9	4.1	4.4
Mar.	14.0	15.7	4.5	5.7	4.4	8.7	6.9	3.3	4.2	4.7
Apr.	13.6	15.3	7.9	6.4	6.3	10.1	11.5	4.0	6.0	5.4
May	0	21.3	7.9	8.4	6.3	14.7	9.1	6.7	7.1	7.5
June	3.1	23.1	6.8	8.8	10.2	17.0	8.3	8.3	6.8	7.7
July	0	13.8	0	6.2	2.3	11.3	4.9	5.2	5.6	5.5
Aug.	0	6.3	0	4.2	1.3	5.5	2.3	2.7	3.5	3.4
Sept.	0	6.1	0	4.2	1.3	5.2	1.5	2.2	2.8	3.0
Oct.	0	7.2	0	4.0	1.3	5.4	1.8	2.4	2.5	3.0
Nov.	2.6	10.1	2.8	4.3	1.6	6.1	2.0	2.1	2.5	3.4
Dec.	3.9	11.6	3.6	4.8	1.9	6.6	2.4	2.4	2.9	3.7
Avg.	5.0	13.2	3.4	5.6	3.7	8.8	5.2	3.7	4.3	4.6
Max.	14.0	52.1	7.9	26.7	10.2	42.1	11.5	17.7	7.1	16.4
Min.	0	0	0	0	1.3	0	1.5	0	2.5	0

Month	SANCHEZ (Capacity 103.2)		PLATORO (Capacity 60.0)							
	1960	#Average 1927-1960	1952	1953	1954	1955	1956	1957	1958	1959
Jan.	10.6	11.3	1.0	0	0	0	0	1.0	30.4	34.0
Feb.	10.7	11.5	1.4	0	0	0	0	1.0	30.4	34.0
Mar.	12.8	12.2	2.0	0	0	0	0	1.0	30.4	34.0
Apr.	15.8	13.9	3.8	0	0	0	0	1.0	30.4	34.0
May	15.6	18.9	2.6	1.0	.1	0	1.5	3.6	53.1	34.0
June	10.2	18.2	36.8	0	0	1.2	3.5	42.0	54.0	34.0
July	5.3	12.9	20.0	0	0	1.2	3.5	49.5	38.1	4.0
Aug.	1.8	9.9	0	0	0	1.2	3.5	49.5	34.0	4.0
Sept.	3.6	10.0	0	0	0	1.2	3.5	49.5	34.0	4.0
Oct.	3.8	10.6	0	0	0	1.2	3.5	43.4	34.0	4.0
Nov.	4.2	10.6	0	0	0	0	3.5	30.4	34.0	4.0
Dec.	4.7	11.0	0	0	0	0	3.5	30.4	34.0	4.0
Avg.	8.3	12.6	5.6	.1	0	.5	2.2	25.2	36.4	19.0
Max.	15.8	62.4	36.8	1.0	.1	1.2	3.5	49.5	54.0	34.0
Min.	1.8	0	0	0	0	0	0	1.0	30.4	4.0

Some months missing

STORED WATER IN LARGE RESERVOIRS OF THE RIO GRANDE BASIN

In Thousands of Acre-Feet

In the United States

Month	PLATORO (Capacity 60.0)		COSTILLA † (Capacity 15.7)		EL VADO (Capacity 200.3)		BLUEWATER (Capacity 43.5)			
	1960	Average 1952-1960	1960	#Average 1922-1960	1960	Average 1935-1960	1958	1959	1960	#Average 1927-1960
Jan.	4.0	7.8	4.2	4.1	2.2	42.3		7.2	4.8	5.9
Feb.	4.0	7.9	4.6	4.5	2.2	38.2		7.0	4.8	6.9
Mar.	4.0	7.9	5.4	5.1	14.2	36.8		6.8	12.0	11.1
Apr.	5.2	8.3	7.2	6.2	68.2	83.4		6.4	11.7	14.2
May	5.2	11.2	8.2	8.4	78.0	139.2		6.0	11.2	12.2
June	11.5	20.3	7.4	7.9	45.6	124.4	9.4	5.7	10.6	9.7
July	11.5	14.2	4.6	5.0	37.7	99.0	8.9	5.3	9.8	8.3
Aug.	11.5	11.5	1.9	3.3	21.2	71.6	8.6	5.8	9.1	7.2
Sept.	11.5	11.5	1.4	2.8	7.4	56.2	8.3	5.5	8.6	6.9
Oct.	11.5	10.8	2.1	3.1	7.4	51.3	7.9	5.2	8.4	6.5
Nov.	4.0	8.4	2.6	3.4	1.6	42.9	7.6	5.0	8.2	6.4
Dec.	4.0	8.4	3.0	3.7	1.9	40.0	7.4	4.9	8.1	6.1
Avg.	7.3	10.7	4.4	4.8	24.0	68.8		5.9	8.9	8.4
Max.	11.5	54.0	8.2	15.1	78.0	203.5		7.2	12.0	47.1
Min.	4.0	0	1.4	0	1.6	0		4.9	4.8	0

Month	ELEPHANT BUTTE (Capacity 2,206.8)		CABALLO (Capacity 344.0)		STORRIE ** (Capacity 21.7)					
	1960	Average 1915-1960	1960	#Average 1938-1960	1946	1947	1948	1949	1950	1951
Jan.	587.8	859.9	92.3	137.4	3.4	10.0	.8	1.8	7.0	8.0
Feb.	587.8	861.0	125.8	157.4	2.4	10.4	1.3	1.9	6.7	7.4
Mar.	554.3	846.0	92.3	140.5	3.5	9.9	3.4	2.4	5.9	7.4
Apr.	594.5	847.5	118.4	120.5		9.0	4.8	5.2	5.8	6.2
May	565.7	963.7	135.7	111.2		8.2	4.6	9.1	8.2	
June	547.1	1,007.9	124.3	90.5		5.9	8.2	9.2	1.0	1.1
July	476.4	952.1	92.7	66.8	4.0	3.4	5.9	9.9	11.8	3.7
Aug.	410.1	890.6	29.3	36.5		1.5	4.6	8.2	13.8	6.0
Sept.	385.1	854.7	4.9	28.5	6.5	1.4	2.9	7.4	12.8	
Oct.	396.2	848.7	9.6	50.7		1.1	1.9	7.1	9.0	
Nov.	419.2	852.4	13.2	73.6		1.1	1.8	7.0	8.2	
Dec.	439.6	860.4	16.4	97.6	10.0	1.1	1.8	7.0	8.2	3.9
Avg.	497.0	887.1	71.2	92.6		5.2	3.5	6.4	8.2	
Max.	595.4	2,302.8	145.9	346.6		10.4	8.2	9.9	13.8	
Min.	384.7	3.3	1.5	.1		1.1	.8	1.8	1.0	

Month	STORRIE (Capacity 21.7)									
	1952	1953	1954	1955	1956	1957	1958	1959	1960	#Average 1939-1960
Jan.	2.9	0	1.0	1.5		0	21.2	19.9	18.3	7.5
Feb.	3.1	0	0	1.1		0	21.0	21.7	18.7	7.4
Mar.	4.0	0	0	1.5	2.4	0	21.0	22.3	21.6	8.4
Apr.	3.4	0	0	1.2		0	23.8	21.2	22.1	8.8
May	4.6	0	0	4.0		0	23.0	22.9	21.7	10.3
June		0	0			.5	23.6	20.7	20.2	9.2
July		0	0	1.1		1.1	22.0	20.0	19.9	9.5
Aug.		0	1.5	4.0		10.5	21.0	19.2	18.3	10.6
Sept.		.8	1.7	4.0		9.5	21.3	17.6	18.1	9.6
Oct.		1.0	2.0	3.3		16.1	21.9	17.2	17.9	9.0
Nov.		1.0	1.9			19.4	20.0	17.2	18.5	9.6
Dec.	0	1.0	1.9		0	21.2	20.0	17.8	18.3	7.7
Avg.		.3	.8			6.5	21.6	19.8	19.5	9.0
Max.		1.0	2.0			21.2	23.8	22.9	22.1	24.0
Min.		0	0			0	20.0	17.2	17.9	0

u Estimated # Some months missing Ø Daily extreme ** Fragmentary data for the period 1939-1945 in I. B. & W. C. files. † Storage on last day of some months was obtained by interpolation. During the winter months, storage was estimated on the basis of records of flow of Costilla Creek near Costilla.

STORED WATER IN LARGE RESERVOIRS OF THE RIO GRANDE BASIN **In Thousands of Acre-Feet**

In the United States

Month	ALAMOGORDO (Capacity 122, 0)		McMILLAN and AVALON (Capacity 38, 0)		RED BLUFF (Capacity 310, 0)		WILLACY (Capacity 25, 0)		TOTAL IN U. S. RESERVOIRS (Capacity 3, 649, 4)	
	1960	#Average 1937-1960	1960	#Average 1908-1960	1960	#Average 1936-1960	1960	#Average 1939-1960	1960	Estimated Average
Jan.	114.1	66.0	13.2	28.1	73.8	106.8	15.8	14.2	968.3	1,323.4
Feb.	118.2	69.9	13.1	28.3	74.8	108.9	14.4	13.3	1,009.3	1,349.9
Mar.	97.7	61.3	22.0	26.8	75.3	106.1	14.2	12.8	959.8	1,313.1
Apr.	105.4	53.2	6.9	18.2	61.6	88.6	19.7	12.6	1,082.0	1,316.6
May	79.5	60.3	13.1	21.6	54.8	95.9	17.6	13.2	1,036.7	1,524.7
June	92.3	54.6	17.2	20.2	50.9	99.7	18.4	13.9	990.9	1,541.4
July	121.6	56.3	42.5	18.6	96.0	88.3	15.1	13.6	945.9	1,386.6
Aug.	120.5	57.4	30.9	17.1	92.9	76.6	15.5	12.0	770.1	1,226.4
Sept.	117.4	55.5	18.1	18.7	85.3	78.3	17.3	14.3	684.3	1,167.7
Oct.	121.8	61.2	37.9	21.9	93.1	92.1	18.1	14.6	733.4	1,202.5
Nov.	121.2	60.9	38.4	23.4	99.4	96.4	16.8	14.4	758.8	1,228.4
Dec.	122.3	65.1	38.3	26.8	113.1	102.0	15.7	14.3	800.1	1,272.2
Avg.	111.0	60.1	24.3	22.5	80.9	95.0	16.6	13.6	895.0	1,321.1
Max.	122.3	156.3	42.5	85.5	113.1	327.5	19.7	22.0	1,082.0	
Min.	79.5	.4	6.9	0	50.9	10.0	14.2	0	684.3	

In Mexico

Month	BOQUILLA (Capacity 2, 417, 5)		LA COLINA (Capacity 19, 5)		ROSETILLA (Capacity 15, 4)		FRANCISCO I. MADERO (Capacity 344, 6)		CENTENARIO and SAN MIGUEL (Capacity 19, 9)	
	1960	#Average 1914-1960	1960	Average 1940-1960	1960	Average 1940-1960	1960	#Average 1948-1960	1960	Average 1934-1960
Jan.	2,245.4	1,390.1	18.6	17.9	12.6	13.3	310.7	191.3	20.1	12.4
Feb.	2,176.4	1,360.9	17.6	18.1	10.4	13.7	306.7	190.7	19.8	12.0
Mar.	2,086.3	1,312.7	18.9	17.9	12.5	13.1	292.8	185.2	19.1	9.1
Apr.	1,988.5	1,246.3	18.7	18.5	10.1	12.5	258.3	163.4	15.7	7.7
May	1,885.6	1,195.7	17.9	18.4	9.6	11.6	233.6	146.5	13.8	8.9
June	1,787.4	1,113.4	17.7	18.2	7.0	11.9	197.1	123.8	7.9	8.1
July	1,819.0	1,147.0	18.9	18.5	9.1	12.1	286.1	135.0	8.3	8.0
Aug.	2,136.9	1,311.9	16.3	17.9	9.7	12.6	353.7	162.1	10.5	8.5
Sept.	2,181.6	1,470.2	17.7	17.9	12.6	13.3	319.0	197.7	11.6	10.6
Oct.	2,149.2	1,477.0	18.7	18.1	12.4	13.1	307.1	202.0	13.9	12.5
Nov.	2,110.9	1,442.8	19.0	17.9	15.6	12.6	300.7	200.6	16.4	12.4
Dec.	2,066.6	1,416.7	18.6	17.8	13.6	13.5	299.0	199.7	18.7	12.3
Avg.	2,052.8	1,323.7	18.2	18.1	11.3	12.8	288.7	174.8	14.6	10.2
Max.	2,245.4	2,544.7	19.0	20.4	15.6	19.4	353.7	366.6	20.1	20.7
Min.	1,787.4	16.9	16.3	13.5	7.0	.4	197.1	1.4	7.9	0

Month	VENUSTIANO CARRANZA (Capacity 1, 123, 0)		MARTE R. GOMEZ (Capacity 1, 019, 1)		CULEBRON and VILLA CARDENAS (Capacity 90, 0)		PALITO BLANCO (Capacity 124, 0)		TOTAL IN MEXICAN RESERVOIRS (Capacity 5, 173, 0)	
	1960	Average 1930-1960	1960	#Average 1943-1960	1960	#Average 1939-1960	1960	Average 1942-1960	1960	Estimated Average
Jan.	843.0	373.0	591.0	532.1	27.1	40.4	32.3	43.8	4,100.8	2,614.3
Feb.	793.8	357.2	503.5	479.3	40.0	37.7	27.5	36.9	3,895.7	2,506.5
Mar.	766.4	336.7	497.0	436.5	19.5	32.1	45.4	38.5	3,757.9	2,381.8
Apr.	752.3	326.4	488.0	428.4	30.6	33.4	44.8	34.8	3,607.0	2,271.4
May	688.6	318.0	364.0	400.8	35.3	37.4	40.2	30.2	3,288.6	2,167.5
June	623.5	305.5	233.0	360.1	27.8	44.3	47.3	31.2	2,948.7	2,016.5
July	579.3	293.9	222.0	341.6	26.4	39.6	41.9	34.7	3,011.0	2,030.4
Aug.	608.5	297.5	338.9	422.4	25.6	39.5	63.2	34.5	3,563.3	2,306.9
Sept.	627.0	357.4	508.3	521.2	30.7	49.9	65.9	47.6	3,774.4	2,685.8
Oct.	653.6	389.3	719.1	579.4	32.9	55.8	41.1	56.4	3,948.0	2,803.6
Nov.	638.5	396.4	736.1	576.6	28.4	47.0	35.6	54.7	3,901.2	2,761.0
Dec.	620.0	395.6	741.0	576.0	27.6	51.4	40.4	52.5	3,845.5	2,735.5
Avg.	682.9	345.6	495.2	471.2	29.3	42.4	43.8	41.3	3,636.8	2,440.1
Max.	843.0	1,163.4	741.0	1,207.1	40.0	116.8	65.9	140.1	4,100.8	
Min.	579.3	* 1.0	222.0	† 17.8	19.5	0	27.5	0	2,948.7	

* Some months missing * Minimum since full reservoir in 1932 † Daily extreme ‡ Minimum since full reservoir in 1947

STORED WATER IN LARGE RESERVOIRS OF THE RIO GRANDE BASIN

International Falcón Reservoir

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

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

Storage Capacities
(1956 SURVEY)

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

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

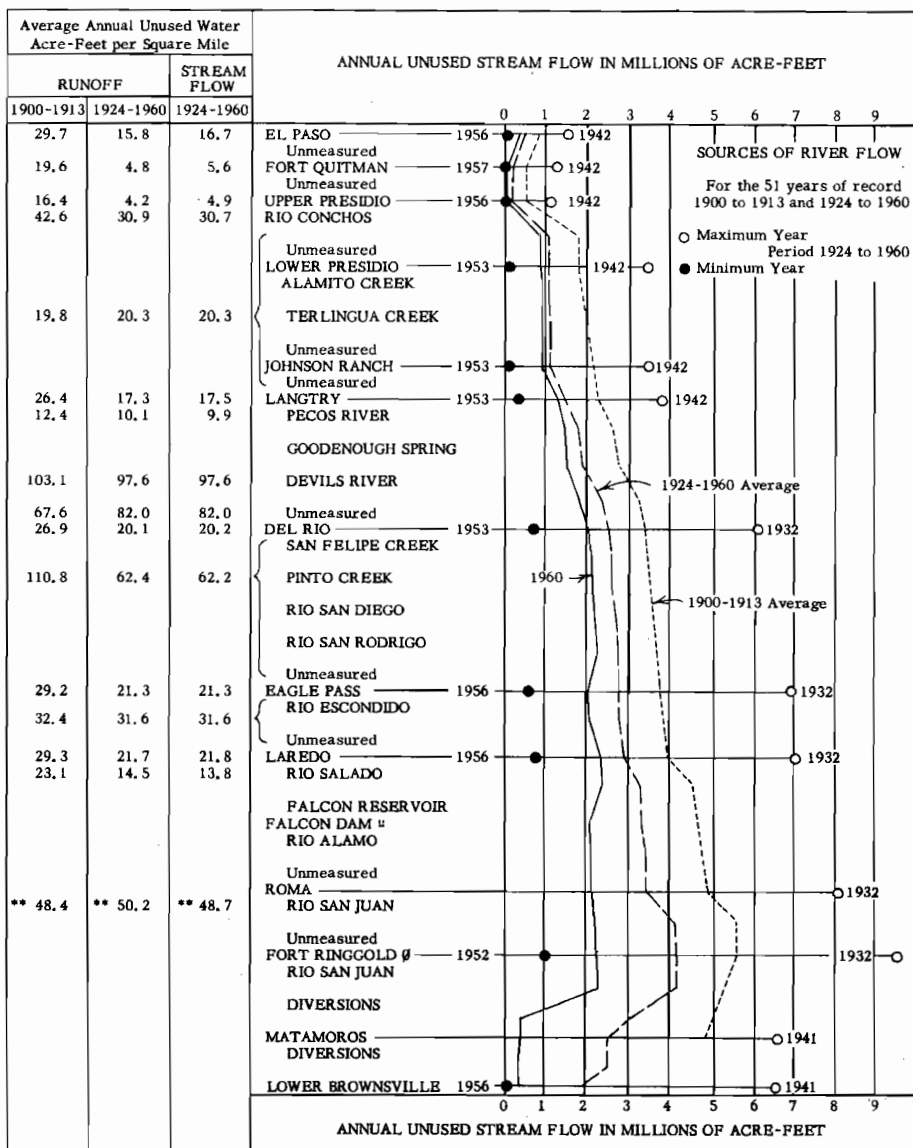
Storage in Thousands of Acre-Feet at 24:00 Hours - Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2,601.4	2,366.5	2,286.8	2,347.8	2,293.7	2,081.8	1,553.8	1,611.2	1,798.2	2,037.9	2,321.4	2,433.6
2	2,599.8	2,353.2	2,288.4	2,345.5	2,296.8	2,069.7	1,545.6	1,611.2	1,815.1	2,037.9	2,329.2	2,437.6
3	2,598.9	2,342.4	2,292.2	2,340.0	2,297.6	2,054.1	1,537.4	1,608.8	1,837.3	2,037.9	2,331.5	2,438.4
4	2,598.9	2,329.9	2,296.8	2,339.2	2,296.8	2,039.3	1,529.8	1,607.0	1,858.3	2,035.8	2,338.5	2,440.8
5	2,598.9	2,318.3	2,303.7	2,336.1	2,297.6	2,023.8	1,520.5	1,605.2	1,878.1	2,033.7	2,344.7	2,444.8
6	2,592.3	2,303.7	2,306.8	2,331.5	2,299.1	2,003.6	1,512.4	1,604.0	1,893.4	2,031.5	2,345.5	2,450.4
7	2,590.6	2,293.7	2,309.1	2,326.8	2,296.8	1,987.7	1,503.1	1,602.1	1,907.4	2,026.6	2,345.5	2,458.4
8	2,589.8	2,283.0	2,312.9	2,325.3	2,292.2	1,972.5	1,493.4	1,601.5	1,923.6	2,020.3	2,347.8	2,464.0
9	2,589.8	2,278.4	2,316.8	2,319.9	2,292.2	1,953.4	1,481.4	1,600.3	1,939.8	2,016.8	2,355.6	2,464.0
10	2,589.0	2,272.3	2,319.9	2,315.3	2,289.9	1,933.7	1,473.5	1,599.7	1,953.4	2,015.5	2,355.6	2,467.3
11	2,589.0	2,270.8	2,322.2	2,309.9	2,286.1	1,912.1	1,480.8	1,614.2	1,960.2	2,014.1	2,357.9	2,473.7
12	2,590.6	2,269.3	2,326.1	2,305.2	2,276.9	1,889.4	1,482.5	1,626.4	1,966.4	2,009.9	2,361.8	2,477.7
13	2,589.0	2,267.8	2,330.7	2,303.7	2,270.0	1,868.8	1,484.8	1,634.9	1,975.3	2,009.2	2,364.2	2,486.6
14	2,586.5	2,265.5	2,333.8	2,299.1	2,264.0	1,846.4	1,484.8	1,645.3	1,980.8	2,008.5	2,371.2	2,490.6
15	2,581.5	2,268.5	2,337.7	2,295.3	2,257.9	1,820.9	1,484.2	1,652.7	1,985.6	2,005.7	2,373.6	2,495.5
16	2,573.2	2,266.2	2,341.6	2,287.6	2,245.8	1,798.9	1,483.7	1,658.8	1,989.8	2,005.0	2,375.9	2,497.1
17	2,564.2	2,265.5	2,343.1	2,286.8	2,234.5	1,771.9	1,488.2	1,665.0	1,993.2	2,069.7	2,377.5	2,502.0
18	2,549.3	2,260.9	2,344.7	2,284.5	2,219.4	1,743.8	1,492.8	1,673.6	1,996.0	2,139.6	2,379.8	2,507.7
19	2,537.9	2,262.4	2,346.2	2,283.0	2,209.0	1,712.3	1,518.7	1,681.1	1,998.1	2,158.6	2,383.0	2,512.6
20	2,527.2	2,263.2	2,347.0	2,284.5	2,195.6	1,687.9	1,539.7	1,686.7	2,000.8	2,174.8	2,390.9	2,516.6
21	2,511.7	2,264.0	2,348.6	2,281.5	2,185.9	1,665.0	1,548.5	1,691.0	2,004.3	2,188.1	2,398.7	2,519.9
22	2,501.2	2,264.7	2,350.1	2,280.0	2,180.0	1,644.7	1,557.3	1,694.8	2,005.7	2,198.5	2,404.3	2,524.8
23	2,489.0	2,272.3	2,350.1	2,277.7	2,165.2	1,634.9	1,563.9	1,699.1	2,006.4	2,194.9	2,408.2	2,528.0
24	2,473.7	2,272.3	2,350.1	2,276.9	2,150.6	1,625.8	1,570.4	1,703.5	2,015.5	2,232.9	2,412.2	2,532.1
25	2,463.2	2,270.8	2,351.7	2,276.9	2,146.9	1,617.9	1,575.1	1,708.5	2,027.3	2,240.5	2,415.4	2,537.0
26	2,453.6	2,273.1	2,349.4	2,278.4	2,138.9	1,611.2	1,581.1	1,716.7	2,035.1	2,247.3	2,418.5	2,542.8
27	2,440.0	2,276.1	2,347.8	2,277.7	2,129.4	1,597.3	1,585.9	1,723.0	2,037.2	2,252.6	2,421.7	2,546.9
28	2,430.5	2,280.0	2,347.8	2,278.4	2,120.0	1,584.1	1,590.7	1,729.3	2,037.2	2,255.6	2,429.7	2,552.6
29	2,411.4	2,286.8	2,349.4	2,280.7	2,110.6	1,572.8	1,593.1	1,743.8	2,037.2	2,268.5	2,429.7	2,554.3
30	2,394.8		2,348.6	2,287.6	2,104.1	1,562.1	1,597.3	1,768.7	2,037.2	2,279.2	2,430.5	2,555.1
31	2,379.8		2,347.8		2,091.9		1,602.7	1,784.7		2,306.8		2,555.9
Month	1960						Period 1954-1960					
	MOMENTARY MAXIMUM			MOMENTARY MINIMUM			Average Storage	Storage			Average	Minimum
	Elevation	Storage	Day	Elevation	Storage	Day		Average	Maximum	Minimum		
Jan.	299.27	2,603.1	1	296.51	2,379.8	31	2,535.1	1,714.6	2,916.5	218.7		
Feb.	296.51	2,379.8	1	294.96	2,260.2	19	2,284.9	1,563.7	2,861.2	156.2		
Mar.	296.16	2,352.5	26	295.31	2,286.8	1	2,330.6	1,494.0	2,702.4	226.7		
Apr.	296.10	2,347.8	1	295.18	2,276.9	†24	2,302.1	1,408.3	2,556.4	325.6		
May	295.48	2,299.9	†6	292.68	2,091.9	31	2,223.7	1,429.1	2,427.1	490.1		
June	292.68	2,091.9	1	284.55	1,562.1	30	1,809.6	1,356.6	2,253.7	273.7		
July	285.23	1,602.7	31	283.00	1,472.3	10	1,530.9	1,521.5	2,261.9	209.9		
Aug.	288.15	1,784.7	31	285.16	1,598.5	11	1,663.0	1,541.6	2,310.9	208.0		
Sept.	291.91	2,037.2	†27	288.15	1,784.7	1	1,963.1	1,688.5	2,327.9	256.2		
Oct.	295.57	2,306.8	31	291.43	2,003.6	16	2,115.3	1,968.4	3,250.2	308.3		
Nov.	297.15	2,430.5	30	295.57	2,306.8	1	2,377.3	2,012.0	2,964.4	390.9		
Dec.	298.70	2,555.9	31	297.15	2,430.5	1	2,497.1	2,012.4	2,904.7	343.4		
Yearly	299.27	2,603.1		283.00	1,472.3		2,136.1	1,642.6	2,523.4	544.3		

† And other days

SOURCES OF RIVER FLOW

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



^u Values prior to 1953 considered the same as for Zapata gaging station. ^g Values prior to 1955 considered the same as for Rio Grande City gaging station. ** Includes contributions of the Rio San Juan entering the Rio Grande above and below Rio Grande City.

MUNICIPAL WATER USES

In Acre-Feet

Tabulated below are yearly and monthly amounts of water pumped directly from the Rio Grande into the municipal distribution systems of several cities along the border, except the city of Del Rio which pumps its water from San Felipe Springs. The basic data are furnished by the municipalities. Because of changing conditions, the period records are limited here to the past 10 years.

During May through August 1960 the city of El Paso pumped water from wells near Cantutillo, Texas into the Rio Grande about 17 miles upstream from the point of diversion at the water plant. This water amounted to 1,866 acre-feet and is included in the figures below. All Rio Grande water used by United States municipalities below Falcón Dam is included in the figures shown under "Diversions from the Rio Grande - United States Side..." (by river reaches and total below Falcón Dam) on pages 47, 50, 53, 57, 59, 61, and 62 herein. The city of Reynosa, Tamaulipas, Mexico did not pump any water from the Rio Grande during 1960. All its water supply was from the Rhode Canal of the Marte R. Gómez Reservoir.

Population data for cities in the United States are from the 1960 official census, except Falcón Village where the population was estimated by the International Boundary and Water Commission. Population figures for cities in Mexico are estimates furnished by the Mexican Section of the International Boundary and Water Commission.

In the United States

Month	EL PASO (Pop. 276,687)				DEL RIO (Pop. 21,012) Ø			
	1960	Period 1951-1960			1960	Period 1951-1960		
		Average	Maximum	Minimum		Average	Maximum	Minimum
Jan.	0	328.6	963.2	0	227.6	211.2	240.5	185.3
Feb.	0	237.0	843.2	0	281.6	231.8	283.9	175.8
Mar.	386	265.6	1,016.2	0	338.4	310.9	467.4	195.6
Apr.	948	542.2	1,016.5	0	424.0	331.1	441.6	218.1
May	1,250	649.6	1,269.0	0	580.6	381.0	580.6	253.9
June	1,514	905.0	1,514.0	57.0	810.9	482.9	810.9	294.9
July	1,187	936.3	1,312.0	4.4	631.6	527.1	682.7	300.6
Aug.	1,782	1,066.9	1,782.0	0	532.5	532.9	691.7	271.9
Sept.	1,326	933.7	1,709.0	0	467.5	401.2	533.9	218.7
Oct.	0	499.9	983.0	0	336.4	284.5	387.5	189.0
Nov.	0	205.8	842.7	0	217.1	227.2	289.7	156.0
Dec.	0	196.0	733.3	0	220.1	222.1	266.1	160.7
Yearly	8,393	6,766.6	11,384.6	1,058.4	5,068.3	4,143.9	5,368.4	2,680.8

Month	EAGLE PASS (Pop. 12,094)				LAREDO (Pop. 60,678)			
	1960	Period 1951-1960			1960	Period 1951-1960		
		Average	Maximum	Minimum		Average	Maximum	Minimum
Jan.	118.4	88.4	118.4	68.5	535.0	457.3	535.0	399.1
Feb.	109.6	85.9	109.6	66.5	605.1	455.6	605.1	383.4
Mar.	144.2	107.4	144.2	67.5	671.0	578.2	671.0	478.4
Apr.	149.0	110.2	149.0	86.6	877.8	647.3	877.8	546.1
May	178.7	126.6	178.7	81.1	929.6	710.3	929.6	514.7
June	223.0	147.2	223.0	105.8	1,075.4	768.8	1,075.4	541.9
July	185.0	165.3	217.4	113.2	1,066.8	864.3	1,098.1	591.7
Aug.	184.0	159.6	225.0	95.1	970.0	866.8	1,063.0	710.1
Sept.	192.8	133.1	192.8	95.3	775.4	679.7	940.3	533.1
Oct.	134.3	106.7	134.3	82.4	773.6	601.4	773.6	472.4
Nov.	101.4	87.1	101.4	74.6	533.4	486.9	578.8	398.1
Dec.	92.3	89.7	112.8	76.3	482.1	474.8	616.2	371.1
Yearly	1,812.7	1,407.2	1,812.7	1,082.9	9,295.2	7,591.4	9,295.2	6,249.1

Month	NEW ZAPATA (Pop. 2,031)				FALCON VILLAGE (Pop. 120)			
	1960	Period 1954-1960			1960	Period 1952-1960		
		Average	Maximum	Minimum		Average	Maximum	Minimum
Jan.	17.0	13.7	18.7	5.0	6.2	4.3	7.2	2.1
Feb.	21.5	13.4	21.5	7.6	6.3	4.1	7.1	2.6
Mar.	23.0	18.4	25.1	10.2	7.0	6.1	10.4	3.5
Apr.	29.1	22.9	41.8	10.5	7.6	6.3	7.8	4.3
May	32.2	23.9	33.6	11.4	9.2	6.7	10.0	3.4
June	35.1	23.7	35.1	13.5	10.1	7.2	10.1	4.5
July	37.9	28.8	37.9	14.7	10.6	9.0	11.7	6.5
Aug.	32.4	27.8	37.9	15.8	8.3	8.6	10.7	6.5
Sept.	24.0	19.6	31.0	8.9	5.9	6.1	9.7	2.1
Oct.	24.5	19.2	26.4	13.0	6.6	5.8	8.7	3.1
Nov.	17.4	17.1	26.1	9.4	4.9	4.0	6.3	2.5
Dec.	16.4	16.3	23.0	9.1	4.8	4.3	7.8	2.6
Yearly	310.5	244.8	328.7	140.4	87.5	72.5	91.1	51.9

Ø Includes Laughlin Air Force Base

MUNICIPAL WATER USES

In Acre-Feet

In the United States

Month	ROMA (Pop. 8, 369) *				RIO GRANDE CITY (Pop. 5, 835)			
	1960	Period 1951-1960			1960	Period 1951-1960		
		Average	Maximum	Minimum		Average	Maximum	Minimum
Jan.	30.1	18.2	30.1	12.3	50.3	43.9	54.2	35.1
Feb.	31.8	18.0	31.8	12.5	51.5	44.3	56.5	33.1
Mar.	34.0	21.6	34.0	14.0	56.2	50.6	63.3	39.8
Apr.	33.8	22.7	33.8	15.8	65.2	55.1	65.2	44.3
May	39.8	25.0	39.8	16.4	82.3	64.1	82.3	42.8
June	45.5	26.0	45.5	17.2	91.6	65.1	91.6	48.1
July	47.4	28.2	47.4	16.8	91.3	72.3	91.3	51.9
Aug.	40.2	27.2	41.9	17.8	79.2	69.5	82.0	50.1
Sept.	35.5	23.6	37.3	14.5	56.4	52.4	65.9	28.4
Oct.	35.5	22.9	37.5	13.9	62.6	50.4	62.6	30.3
Nov.	28.4	19.9	31.8	11.9	50.7	45.4	54.1	30.6
Dec.	26.7	20.0	33.8	12.0	46.7	44.9	62.3	36.5
Yearly	** 428.7	273.3	428.8	178.0	784.0	658.0	784.0	488.4

Month	BROWNSVILLE (Pop. 48,040)								
	1955	1956	1957	1958	1959	1960	Period 1951-1960		
							Average	Maximum	Minimum
Jan.	387.3	562.2	575.9	446.4	449.3	559.6	508.0	590.8	387.3
Feb.	393.2	460.8	525.3	427.8	420.2	580.4	476.6	580.4	393.2
Mar.	541.5	526.6	516.4	494.6	524.4	612.8	541.8	619.0	479.3
Apr.	582.9	498.6	529.8	644.3	512.9	661.3	555.2	661.3	375.2
May	668.3	624.1	640.4	659.7	735.8	648.8	612.4	735.8	302.8
June	755.1	609.7	552.4	846.7	641.7	876.6	627.9	876.6	108.7
July	638.6	772.7	841.4	795.1	808.2	1,027.6	704.7	1,027.6	0
Aug.	666.7	793.3	950.6	913.8	877.2	947.4	734.3	950.6	65.4
Sept.	416.0	607.2	713.3	580.5	875.1	683.4	606.3	875.1	416.0
Oct.	481.1	613.4	701.7	517.5	655.5	659.4	559.7	701.7	394.7
Nov.	464.8	579.3	527.9	480.3	549.0	587.0	494.3	587.0	396.8
Dec.	498.5	527.3	480.6	494.9	583.2	538.4	502.1	583.2	434.0
Yearly	6,494.0	7,175.2	7,555.7	7,301.6	7,632.5	8,382.7	6,923.3	8,382.7	4,861.3

In Mexico

Month	NUEVO LAREDO (Pop. 92,994)				NUEVA CD. GUERRERO (Pop. 2,833)			
	1960	Period 1951-1960			1960	Period 1954-1960		
		Average	Maximum	Minimum		Average	Maximum	Minimum
Jan.	660.7	471.8	660.7	329.4	32.9	29.5	32.9	20.2
Feb.	710.4	447.1	710.4	317.6	31.1	27.0	31.1	18.4
Mar.	785.1	540.6	785.1	370.5	33.9	30.6	33.9	21.2
Apr.	905.3	589.9	905.3	397.3	33.6	31.6	34.6	22.3
May	1,026.5	643.9	1,026.5	398.9	37.5	34.7	39.4	26.8
June	1,090.7	688.0	1,090.7	397.7	46.8	36.1	46.8	28.1
July	1,119.3	701.1	1,119.3	450.6	54.6	39.2	54.6	31.1
Aug.	1,012.6	705.3	1,031.8	451.5	52.0	38.5	52.0	31.5
Sept.	963.4	630.4	999.6	426.9	44.3	34.5	44.3	28.7
Oct.	928.7	611.7	928.7	426.2	46.3	35.0	46.3	29.3
Nov.	717.0	521.2	717.0	370.0	46.5	33.9	46.5	28.8
Dec.	664.9	492.6	694.8	361.3	48.6	34.2	48.6	28.9
Yearly	10,584.6	7,043.6	10,584.6	4,814.7	508.1	397.2	508.1	315.3

Month	MATAMOROS (Pop. 92,702)			
	1960	Period 1951-1960		
		Average	Maximum	Minimum
Jan.	278.5	268.3	364.3	123.1
Feb.	286.7	250.2	329.2	112.8
Mar.	302.9	295.0	389.1	123.2
Apr.	288.8	284.2	434.0	119.7
May	335.7	304.0	459.3	127.4
June	382.6	315.0	451.2	123.8
July	485.9	330.4	485.9	124.3
Aug.	444.0	250.0	472.6	38.7
Sept.	406.8	301.9	456.0	130.8
Oct.	416.8	328.3	454.1	131.7
Nov.	357.0	298.6	368.3	124.4
Dec.	315.7	290.7	406.1	127.5
Yearly	4,301.4	3,516.6	4,904.9	1,494.5

* Includes Los Saenz and Escobares, Texas and Cd. Miguel Alemán, Tamaulipas. ** Includes 219.4 acre-feet supplied to Cd. Miguel Alemán, Tamaulipas.

SUSPENDED SILT IN THE RIO GRANDE AND TRIBUTARIES

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

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

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

C. By sampling, at 8 hour intervals, the water pumped directly from the river to the Laredo, Texas Water Treatment Plant. From daily composites of these samples, a monthly composite, representative of the river flow, is made as stated in Method A and its gravimetric percentage of silt determined.

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

Month	1960						Period of Record		
	Tons		No. of Samples	Gravimetric Percentages			Acre-Feet at 1,452 Tons Per Acre-Foot		
	Water	Silt		Average	Maximum Sample	Minimum Sample	Average	Maximum	Minimum

Rio Grande at El Paso, Texas

Period September 1947-1960

Jan.	7,769,000	365	27	.004699			.25	.25	1.4	0
Feb.	5,196,000	377	28	.007265			.26	.34	2.2	.01
Mar.	68,917,000	31,900	31	.04626			22.0	18.7	50.3	.89
Apr.	52,544,000	8,400	29	.01598			5.8	15.7	45.2	3.4
May	56,507,000	10,500	31	.01850			7.2	12.1	63.3	.08
June	71,724,000	40,400	30	.05633			27.8	28.2	152	3.7
July	82,706,000	87,600	28	.1059			60.3	42.3	124	1.1
Aug.	84,003,000	27,600	31	.03286			19.0	44.6	112	3.7
Sept.	49,754,000	9,330	30	.01875			6.4	28.2	123	1.7
Oct.	14,942,000	1,140	31	.007628			.79	7.8	51.0	.01
Nov.	10,060,000	730	30	.007257			.50	.41	1.5	.01
Dec.	9,808,000	180	31	.001838			.12	.35	2.1	.01
Yearly	513,930,000	218,522	357	.04252			150.42	198.95	436.87	47.67

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

Río Conchos near Ojinaga, Chihuahua

Period 1956-1960

Jan.	70,331,000	0	28	0	0	0	0	0	0	0
Feb.	98,214,000	0	24	0	0	0	0	.90	4.5	0
Mar.	70,027,000	0	23	0	0	0	0	0	0	0
Apr.	30,786,000	0	24	0	0	0	0	0	0	0
May	21,845,000	0	26	0	0	0	0	42.1	145	0
June	27,738,000	51,900	27	.1871	1.1846	0	35.7	35.1	140	0
July	176,626,000	1,267,000	23	.7172	2.7108	0	873	232	873	0
Aug.	273,928,000	1,585,000	18	.5787	.8805	0	1,090	611	1,430	95.7
Sept.	152,371,000	212,000	17	.1389	.2169	0	146	2,187	9,330	14.4
Oct.	49,064,000	5,200	24	.0106	.0879	0	3.6	2,689	12,400	0
Nov.	69,589,000	9,600	22	.0138	.0669	0	6.6	15.4	70.2	0
Dec.	84,772,000	9,410	21	.0111	.0366	0	6.5	1.3	6.5	0
Yearly	1,125,291,000	3,140,110	277	.2790	2.7108	0	2,161.4	5,813.8	21,903.3	284.7

Samples and Analyses by Mexican Section, Method B

Rio Grande at Lower Presidio Station

Period 1955-1960

Jan.	73,247,000	10,400	8	.01417			7.2	3.9	7.2	1.5
Feb.	102,921,000	32,200	6	.03127			22.2	6.7	22.2	1.4
Mar.	68,899,000	9,790	9	.01421			6.7	2.3	6.7	.61
Apr.	30,405,000	1,690	9	.005564			1.2	16.3	95.7	.13
May	22,110,000	524	9	.002372			.36	27.5	161	.21
June	27,286,000	5,370	8	.01967			3.7	26.0	55.3	2.1
July	200,666,000	1,546,000	10	.7702			1,060	499	1,420	2.0
Aug.	288,451,000	1,458,000	11	.5055			1,000	589	1,360	66.8
Sept.	163,199,000	479,000	9	.2937			330	799	3,610	14.9
Oct.	59,205,000	23,800	9	.04012			16.4	931	4,770	4.8
Nov.	77,037,000	50,700	9	.06580			34.9	15.6	45.2	2.0
Dec.	96,147,000	19,900	9	.02069			13.7	4.0	13.7	1.4
Yearly	1,209,573,000	3,637,374	106	.3007			2,496.36	2,920.3	8,793.44	172.78

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

SUSPENDED SILT IN THE RIO GRANDE AND TRIBUTARIES

Month	1960						Period of Record		
	Tons		No. of Samples	Gravimetric Percentages			Acre-Feet at 1,452 Tons Per Acre-Foot		
	Water	Silt		Average	Maximum Sample	Minimum Sample	Average	Maximum	Minimum

Rio Grande at Johnson Ranch, Texas

Period October 1951-1960

Jan.	66,678,000	14,400	8	.02162			9.9	2.9	9.9	.84
Feb.	97,071,000	34,300	6	.03530			23.6	31.8	253	.67
Mar.	67,972,000	7,480	8	.01100			5.2	2.6	9.2	.20
Apr.	28,000,000	1,240	9	.004435			.85	102	692	.01
May	19,368,000	1,310	9	.006773			.90	109	304	0
June	31,238,000	50,100	7	.1604			34.5	383	1,570	31.6
July	237,743,000	3,646,000	9	1.5335			2,510	1,177	4,030	93.0
Aug.	301,870,000	3,541,000	9	1.1730			2,440	1,252	3,840	2.8
Sept.	180,128,000	398,000	8	.2210			274	1,330	*8,990	98.5
Oct.	73,775,000	221,000	9	.2996			152	1,559	13,500	2.4
Nov.	78,708,000	219,000	8	.2780			151	25.4	151	.28
Dec.	96,203,000	57,600	8	.05984			39.7	10.2	48.3	.41
Yearly	1,278,754,000	8,191,430	98	.6406			5,641.65	5,984.9	23,869.62	803.27

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

Rio Grande at Langtry, Texas

Period April 1944-1960

Jan.	91,747,000	121,000	3	.1317			83.3	9.5	83.3	.94
Feb.	129,554,000	48,100	4	.03709			33.1	22.0	238	.31
Mar.	105,412,000	20,800	3	.01977			14.3	6.7	27.0	.29
Apr.	54,089,000	1,940	3	.003580			1.3	61.2	614	.14
May	40,592,000	1,590	3	.003916			1.1	241	873	.95
June	60,634,000	53,200	2	.08771			36.6	429	2,450	.91
July	306,833,000	3,262,000	4	1.0630			2,247	1,334	5,780	4.6
Aug.	336,777,000	3,196,000	6	.9491			2,201	1,118	3,900	4.7
Sept.	254,984,000	1,014,000	7	.3978			698	1,572	8,300	1.0
Oct.	166,062,000	1,190,000	6	.7164			820	1,183	8,760	5.1
Nov.	108,984,000	129,000	5	.1186			88.8	42.2	273	1.3
Dec.	126,589,000	60,000	3	.04738			41.3	9.1	46.8	.18
Yearly	1,782,257,000	9,097,630	49	.5105			6,265.8	6,027.7	17,860.74	645.10

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

Pecos River near Shumla, Texas

Period November 1954-1960

Jan.	22,253,000	.456	4	.002048			.31	.36	.60	.20
Feb.	19,875,000	.363	4	.001826			.25	.30	.70	.11
Mar.	19,420,000	.364	5	.001873			.25	.35	.61	.18
Apr.	16,058,000	.437	4	.002720			.30	28.2	167	.06
May	12,840,000	.280	5	.002180			.19	68.1	407	.19
June	10,613,000	.174	4	.001636			.12	.46	.85	.12
July	25,916,000	.522	4	.002014			.36	5.5	22.2	.08
Aug.	16,627,000	.252	5	.001514			.17	4.2	23.8	.16
Sept.	11,268,000	.221	5	.001960			.15	23.2	75.1	.14
Oct.	16,681,000	.658	4	.003945			.45	18.5	59.8	.26
Nov.	14,656,000	.462	3	.003150			.32	.55	1.1	.03
Dec.	15,163,000	.358	4	.002358			.25	.26	.55	.14
Yearly	201,370,000	4,547	51	.002258			3.12	149.98	577.44	3.12

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

o Rio Grande near Del Rio, Texas

Period August 1955-1960

Jan.	185,277,000	22,300	12	.01201			15.4	7.4	15.4	.61
Feb.	211,534,000	36,500	11	.01726			25.1	43.1	178	.50
Mar.	191,381,000	24,600	13	.01283			16.9	13.8	34.6	.73
Apr.	135,253,000	8,170	13	.006041			5.6	125	612	.83
May	107,452,000	1,750	13	.001633			1.2	372	1,600	1.2
June	124,492,000	75,900	12	.06096			52.3	283	785	48.9
July	394,128,000	3,255,000	12	.8260			2,240	727	2,240	8.7
Aug.	394,825,000	2,583,000	14	.6543			1,780	961	1,970	125
Sept.	342,413,000	1,085,000	13	.3169			747	1,597	4,800	154
Oct.	288,474,000	1,287,000	12	.4460			886	2,187	9,350	581
Nov.	187,930,000	440,000	10	.2339			303	142	410	10.7
Dec.	208,454,000	66,100	11	.03171			45.5	12.7	45.5	4.0
Yearly	2,771,613,000	8,885,320	146	.3206			6,118.0	6,471.0	15,563.3	1,008.37

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

" Estimated * Partly estimated o Discharge based on records of flow at gaging stations "Below Amistad Dam site" and "Arroyo las Vacas".

SUSPENDED SILT IN THE RIO GRANDE AND TRIBUTARIES

Month	1960						Period of Record		
	Tons		No. of Samples	Gravimetric Percentages			Acres-Foot at 1,452 Tons Per Acre-Foot		
	Water	Silt		Average	Maximum Sample	Minimum Sample	Average	Maximum	Minimum

Rio Grande at Laredo, Texas

Period 1953-1960

Jan.	217,638,000	21,200	31	.009730			14.6	11.8	28.0	4.5
Feb.	235,192,000	59,300	29	.02521			40.8	15.5	40.8	1.7
Mar.	208,414,000	37,200	31	.01783			25.6	13.5	26.8	.78
Apr.	134,970,000	14,600	30	.01082			10.1	290	1,920	.47
May	124,393,000	51,900	31	.04171			35.7	624	3,540	2.3
June	84,287,000	3,160	30	.003750			2.2	2,008	12,400	.62
July	389,296,000	2,716,000	31	.6976			1,870	1,109	3,440	5.0
Aug.	373,532,000	2,217,000	31	.5936			1,530	659	1,960	4.2
Sept.	397,521,000	1,870,000	30	.4705			1,290	1,193	3,670	41.3
Oct.	512,661,000	1,319,000	31	.2573			908	1,542	7,520	29.7
Nov.	267,255,000	309,000	30	.1155			213	193	1,190	6.1
Dec.	257,040,000	98,200	31	.03822			67.6	16.2	67.6	2.8
Yearly	3,202,199,000	8,716,560	366	.2722			6,007.6	7,675.0	19,257.72	734.10

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

Rio Grande at Falcón Dam—U.S. Tailrace

Period July 1955-1960

Jan.	482,608,000	7,820	11	.001621			5.4	3.1	5.4	.96
Feb.	331,245,000	8,350	7	.002520			5.8	3.8	9.1	.29
Mar.	90,418,000	1,410	6	.001560			1.0	1.5	4.3	.16
Apr.	187,261,000	1,950	10	.001040			1.3	3.5	12.2	.63
May	331,747,000	4,940	14	.001490			3.4	3.9	5.2	2.1
June	748,887,000	4,180	12	.0005578			2.9	8.1	18.7	2.2
July	261,481,000	2,750	10	.001053			1.9	1.2	1.9	.54
Aug.	109,547,000	4,090	9	.003735			2.8	1.6	2.8	.29
Sept.	51,097,000	2,150	4	.004217			1.5	1.6	2.6	.77
Oct.	123,583,000	3,640	7	.002946			2.5	7.6	37.5	.24
Nov.	56,698,000	433	10	.0007630			.30	2.0	5.5	.30
Dec.	50,363,000	262	11	.0005200			.18	3.9	14.7	.18
Yearly	2,824,935,000	41,975	111	.001486			28.98	41.8	92.15	23.69

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

Rio Alamo at Cd. Mier, Tamaulipas

Period 1934-1960

Jan.	571,000	0	10	0	0	0	0	2.4	21.8	0
Feb.	531,000	0	11	0	0	0	0	2.7	48.6	0
Mar.	704,000	0	9	0	0	0	0	8.1	91.6	0
Apr.	6,382,000	39,200	13	.615	.7289	0	27.0	34.7	229	0
May	736,000	596	6	.081	.1123	0	.41	49.9	281	0
June	2,242,000	8,230	7	.367	.4613	0	5.7	56.5	471	0
July	22,453,000	208,000	6	.927	.9909	0	143	22.2	143	0
Aug.	18,944,000	129,000	9	.683	.8037	0	88.8	162	1,610	0
Sept.	27,580,000	180,000	0	.654			124	227	2,920	0
Oct.	10,494,000	68,300	0	.651			47.0	95.5	753	0
Nov.	518,000	5.2	0	.001			T	2.8	40.7	0
Dec.	536,000	0	0	0			0	.84	16.1	0
Yearly	91,691,000	633,331.2	71	.691			435.91	664.64	3,156.57	97.18

Samples and Analyses by Mexican Section, Method B

Rio Grande at Fort Ringgold, Rio Grande City, Texas

Period May 1959-1960

Jan.	476,327,000	47,300	31	.009920			32.6			
Feb.	348,524,000	19,700	29	.005647			13.6			
Mar.	92,801,000	895	31	.0009639			.62			
Apr.	211,231,000	74,000	30	.03502			51.0			
May	322,641,000	35,500	31	.01100			24.4	14.2	24.4	4.0
June	760,775,000	39,000	30	.005120			26.9	15.8	26.9	4.7
July	291,948,000	99,500	31	.03409			68.5	35.8	68.5	3.0
Aug.	148,281,000	184,000	31	.1244			127	82.0	127	36.9
Sept.	98,716,000	56,700	30	.05742			39.0	29.6	39.0	20.2
Oct.	140,243,000	3,810	31	.002715			2.6	3.6	4.7	2.6
Nov.	58,008,000	1,820	30	.003137			1.3	2.8	4.2	1.3
Dec.	49,126,000	1,480	31	.003012			1.0	6.6	12.1	1.0
Yearly	2,998,621,000	563,705	366	.01883			388.52			

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

T Estimated T Trace # Some months missing g Discharges based on record of total releases from Falcón Reservoir

SUSPENDED SILT IN THE RIO GRANDE AND TRIBUTARIES

Month	1960						Period of Record		
	Tons		No. of Samples	Gravimetric Percentages			Acre-Feet at 1,452 Tons Per Acre-Foot		
	Water	Silt		Average	Maximum Sample	Minimum Sample	Average	Maximum	Minimum

‡ Rio Grande near Los Ebanos, Texas

Period May 1956-1960

Jan.	476,327,000	55,800	9	.01171			38.4	41.3	107	9.0
Feb.	348,524,000	13,200	8	.003790			9.1	10.8	14.0	7.7
Mar.	92,801,000	3,330	9	.003590			2.3	10.5	19.6	.65
Apr.	211,231,000	92,000	9	.04355		.2189	63.4	182	635	3.0
May	322,641,000	35,000	9	.01085			24.1	157	289	7.3
June	760,775,000	59,700	8	.007849			41.1	73.3	170	3.2
July	291,948,000	18,500	9	.006339			12.7	20.5	79.9	.74
Aug.	148,281,000	47,700	9	.03220			32.9	25.1	41.5	2.0
Sept.	98,716,000	80,400	9	.08143			55.4	102	366	14.1
Oct.	# 174,640,000	46,400	8	.02659		.0740	32.0	77.1	314	3.9
Nov.	58,008,000	4,920	9	.008486			3.4	17.9	75.1	.72
Dec.	49,126,000	2,590	9	.005282			1.8	8.1	16.3	1.8
Yearly	3,033,018,000	459,540	105	.01515			316.6	725.6	1,454.85	92.9

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

§ Rio Grande at Hidalgo, Texas

Period May 1956-1960

Jan.	178,736,000	20,000	4	.01120			13.8	18.2	49.0	1.5
Feb.	103,815,000	6,700	5	.006452			4.6	5.1	11.9	1.4
Mar.	75,825,000	4,750	4	.006269			3.3	2.7	6.9	.25
Apr.	144,921,000	35,900	7	.02480			24.7	54.4	171	3.8
May	136,228,000	13,100	9	.009641			9.0	42.0	79.9	1.4
June	324,377,000	19,200	8	.005904			13.2	29.3	67.4	13.2
July	170,138,300	14,600	8	.008594			10.1	19.8	41.7	.92
Aug.	79,377,000	9,700	8	.01222			6.7	7.3	23.1	.73
Sept.	96,133,000	64,200	9	.06675			44.2	31.2	75.1	6.5
Oct.	99,578,000	156,000	15	.1571			107	160	676	1.5
Nov.	54,499,000	6,260	13	.01148			4.3	57.4	274	.80
Dec.	43,503,000	3,070	11	.007047			2.1	28.8	135	.62
Yearly	1,507,130,000	353,480	101	.02345			243.0	456.2	1,417.77	117.9

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

Rio Grande near San Benito, Texas

Period April 1955-1960

Jan.	61,065,000	16,900	4	.02775			11.6	28.1	121	.30
Feb.	57,181,000	14,000	5	.02454			9.6	22.1	97.8	.15
Mar.	36,624,000	2,490	4	.006800			1.7	11.2	50.6	.11
Apr.	64,759,000	15,200	4	.02347			10.5	8.5	17.9	.11
May	47,864,000	24,100	5	.05028			16.6	53.1	265	5.4
June	79,043,000	19,900	4	.02522			13.7	11.3	27.2	2.1
July	52,992,000	5,090	4	.009598			3.5	7.5	31.7	.11
Aug.	39,375,000	19,300	5	.04900			13.3	3.9	13.3	.07
Sept.	74,681,000	42,300	4	.05663			29.1	33.4	132	1.9
Oct.	49,161,000	6,690	5	.01361			4.6	47.6	250	.34
Nov.	35,809,000	2,960	4	.008259			2.0	41.8	247	.35
Dec.	31,139,000	1,080	5	.003467			.74	29.0	163	.06
Yearly	629,693,000	170,010	53	.02700			116.94	297.5	851.95	23.27

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

Rio Grande at Lower Brownsville, Texas

Period April 1955-1960

Jan.	35,380,000	6,450	4	.01824			4.4	14.4	67.4	.02
Feb.	47,714,000	7,160	5	.01500			4.9	29.0	80.6	.04
Mar.	35,273,000	2,730	4	.007729			1.9	14.6	70.2	.08
Apr.	51,625,000	4,890	4	.009478			3.4	5.4	27.7	.04
May	37,503,000	4,940	5	.01317			3.4	12.9	58.5	.38
June	34,900,000	18,500	4	.05295			12.7	15.9	58.4	.29
July	38,554,000	1,700	4	.004418			1.2	50.8	292	.08
Aug.	32,954,000	7,190	5	.02183			5.0	2.7	8.1	.01
Sept.	71,516,000	39,600	4	.05544			27.3	13.0	46.3	0
Oct.	41,889,000	15,100	5	.03612			10.4	39.8	222	.03
Nov.	34,944,000	5,770	4	.01651			4.0	48.4	283	.12
Dec.	24,674,000	1,780	4	.007229			1.2	24.4	142	.02
Yearly	486,926,000	115,810	52	.02378			79.8	271.3	1,072.26	1.97

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

‡ Discharge based on record of flow at Fort Ringgold. § Discharge based on record of flow at "Below Anzaldués Dam" plus return flow at "Poniente Drain". * Includes Arroyo Los Olmos flood flow.

CHEMICAL ANALYSIS OF WATER SAMPLES FROM THE RIO GRANDE AND TRIBUTARIES — 1960

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

To convert milligram equivalents to parts per million by weight, multiply each ion by its appropriate conversion factor. These factors are: Ca, 20; Mg, 12.16; Na, 23; (CO₃ plus HCO₃) expressed as CO₃, 30; SO₄, 48; Cl, 35.5; NO₃, 62. To convert tons per acre-foot to parts per million, multiply tons per acre-foot by 735.5. Electrical conductivity, reported in the tables as ECx10⁶ at 25°C, is a relative measure of the total salt concentration.

Month	No. of Samples	Dissolved Solids		Mean ECx10 ⁶ @25°C	Boron p.p.m.	pH	% Na **	% Cl ***	Mean Milligram Equivalents per Liter						
		Tons Per Acre-Foot	Total Tons						Ca	Mg	Na	CO ₃ + HCO ₃	SO ₄	Cl	NO ₃

Sampling by U. S. Section

Rio Grande at El Paso, Texas

Jan.	27	2.23	12,800	2,380	.28	8.1	61	34	6.85	2.61	15.10	5.07	11.40	8.60	.01
Feb.	28	2.32	8,860	2,470	.37	8.2	63	34	6.89	2.68	16.04	5.13	11.92	8.85	.01
Mar.	31	.91	46,100	1,080	.16	8.2	48	26	3.89	1.54	5.05	2.97	4.93	2.80	.01
Apr.	29	1.15	44,500	1,280	.21	7.9	49	26	4.97	1.68	6.46	3.75	6.09	3.40	.01
May	31	1.16	48,300	1,270	.11	7.9	49	25	4.93	1.74	6.42	3.80	6.13	3.35	.01
June	30	1.05	55,400	1,170	.22	7.9	48	24	4.58	1.56	5.66	3.50	5.72	2.92	.01
July	28	1.05	63,900	1,150	.19	8.0	48	25	4.46	1.60	5.61	3.30	5.49	2.95	.01
Aug.	31	1.02	63,000	1,140	.11	8.0	49	24	4.42	1.56	5.68	3.50	5.48	2.90	.01
Sept.	30	1.29	47,200	1,420	.15	7.9	52	28	5.17	1.76	7.49	4.05	6.65	4.10	.01
Oct.	31	2.05	22,600	2,210	.40	7.9	59	32	6.87	2.51	13.50	5.00	10.77	7.52	.01
Nov.	30	2.13	15,800	2,280	.36	8.4	60	32	6.93	2.55	14.03	4.75	11.26	7.70	.01
Dec.	31	2.11	15,200	2,280	.37	7.8	61	33	6.63	2.51	14.38	4.65	11.22	7.90	.01
Mean @	2357	1.17	443,660	1,300	.18	8.0	51	27	4.79	1.71	6.72	3.64	6.22	3.58	.01
Period Avg.		1.10	507,000	1,220			52	29	4.37	1.60	6.58	3.51	5.46	3.72	
Tons of Constituents, 1960									49,400	10,700	79,500	56,200	154,000	65,300	
Average Tons, Period 1930-1960									54,800	12,200	94,700	65,800	164,000	82,500	

Sampling by U. S. Section

Rio Grande at Fort Quitman, Texas

Jan.	4	5.73	1,980	6,140	.52	8.2	63	61	16.84	7.42	40.80	4.63	20.67	40.12	.01
Feb.	4	10.2	846	10,600	.77	7.9	61	70	30.97	14.76	71.81	4.83	30.14	82.30	.01
Mar.	5	13.1	888	13,300	1.04	7.9	63	72	35.68	18.41	92.85	4.10	36.35	106.5	.02
Apr.	4	8.37	1,980	8,980	.85	7.8	65	65	22.70	11.43	63.68	4.20	29.84	64.00	.01
May	5	6.00	1,230	6,290	.49	7.8	58	68	18.89	8.76	38.70	4.15	17.40	45.00	.01
June	7	2.57	1,220	2,970	.38	8.0	61	53	8.39	3.41	18.20	4.70	9.40	16.20	.04
July	9	1.97	37,200	2,200	.33	8.0	57	46	7.14	2.51	12.70	4.10	8.14	10.25	.01
Aug.	7	4.83	14,200	5,410	.55	8.1	62	60	14.88	6.65	34.68	4.50	18.28	33.62	.01
Sept.	4	3.94	17,400	4,300	.45	7.9	62	52	12.12	4.91	27.68	4.85	16.45	23.50	.02
Oct.	5	1.70	21,100	1,900	.25	8.0	54	43	6.87	1.97	10.32	2.97	7.93	8.40	.05
Nov.	5	4.74	22,800	5,110	.55	8.2	63	55	14.34	5.86	33.83	5.45	19.00	30.00	.01
Dec.	4	3.92	24,300	4,280	.54	8.2	62	51	12.33	4.62	27.60	5.58	16.27	22.90	.04
Mean @	63	2.84	145,144	3,130	.39	8.0	60	51	9.53	3.55	19.27	4.23	11.71	16.58	.02
Period Avg.		2.35	380,000	2,670			61	55	7.54	3.08	16.58	3.59	8.68	15.11	
Tons of Constituents, 1960									13,300	3,000	30,800	8,820	39,100	40,800	
Average Tons, Period 1930-1960									33,300	8,240	84,000	23,700	91,800	118,000	

Sampling by U. S. Section

Rio Grande at Upper Presidio Station

Jan.	No Flow														
Feb.	No Flow														
Mar.	No Flow														
Apr.	No Flow														
May	No Flow														
June	No Flow														
July	9	1.34	11,400	1,500	.18	7.9	53	38	5.59	1.42	7.90	2.95	6.34	5.75	.03
Aug.	10	1.38	12,500	1,570			54	#	7.01		8.30	2.77		6.75	
Sept.	3	.84	1,640	956			45	#	5.15		4.23	2.55		2.60	
Oct.	4	.85	5,090	968			45	#	5.14		4.28	2.70		2.98	
Nov.	8	4.34	14,700	4,760			62	#	18.69		30.40	3.80		28.10	
Dec.	9	4.21	17,600	4,590			64	#	17.27		30.38	4.13		26.00	
Mean @	43	1.90	62,930	2,110			58	#	9.05		12.29	3.07		10.18	
Period Avg.		1.90	280,000	2,150			59	#	8.86		12.79	3.12		11.00	
Tons of Constituents, 1960											12,700	4,150		16,300	
Average Tons, Period 1935-1960											58,800	18,700		77,900	

† Estimated ‡ Trace @ Total * Weighted Mean ** Percent of total cations *** Percent of total anions

Sum of calcium and magnesium

CHEMICAL ANALYSIS OF WATER SAMPLES FROM THE RIO GRANDE AND TRIBUTARIES — 1960

Month	No. of Samples	Dissolved Solids		Mean ECx10 ⁶ @25°C	Boron p. p. m.	pH	% Na **	% Cl ***	Mean Milligram Equivalents per Liter						
		Tons Per Acre-Foot	Total Tons						Ca	Mg	Na	CO ₃ + HCO ₃	SO ₄	Cl	NO ₃

Sampling by Mexican Section

Río Conchos near Ojinaga, Chihuahua

Jan.	12	1.12	58,000	1,150	.22	8.2	46	15	5.15	1.26	5.54	3.10	7.02	1.85	.04
Feb.	11	.76	54,900	787			41		# 4.70		3.25	2.92		1.25	
Mar.	13	.86	44,300	962			44		# 5.39		4.32	3.00		1.72	
Apr.	13	1.28	29,000	1,390			51		# 7.05		7.26	3.17		2.82	
May	13	1.48	23,800	1,540			54		# 7.26		8.65	2.95		3.60	
June	15	1.25	25,500	1,330			51		# 6.61		6.97	2.87		2.75	
July	15	.82	107,000	854	.23	8.0	42	14	4.24	.85	3.65	2.71	4.81	1.20	.05
Aug.	17	.66	133,000	686			36		# 4.54		2.52	2.77		.88	
Sept.	13	.73	81,800	797			42		# 4.66		3.31	3.00		1.20	
Oct.	13	1.29	46,600	1,340			53		# 6.53		7.32	3.10		2.52	
Nov.	13	1.06	54,300	1,110			47		# 5.94		5.27	2.78		1.72	
Dec.	13	.88	54,900	930			43		# 5.42		4.09	3.30		1.40	
Mean @ 161		.86	9713,100	907			43		# 5.24		4.02	2.91		1.43	
Period Avg.		.66	529,000	706			39		# 4.43		2.81	2.62		1.03	
Tons of Constituents, 1960											104,000	98,300		57,100	
Average Tons, Period 1935-1960											70,200	85,200		39,500	

Sampling by U. S. Section

Rio Grande at Johnson Ranch, Texas

Jan.	8	1.14	56,000	1,170	.30	8.2	51	18	4.32	1.48	5.93	2.10	7.69	2.12	T
Feb.	5	.80	57,100	843			46		# 4.58		3.83	2.55		1.45	
Mar.	8	.92	46,000	1,020			45		# 5.72		4.62	3.07		1.90	
Apr.	9	1.34	27,600	1,430			51		# 7.11		7.48	2.67		3.20	
May	9	1.58	22,600	1,670			55		# 7.62		9.32	2.20		4.10	
June	7	1.42	32,700	1,490			53		# 7.16		8.08	2.80		3.30	
July	9	.82	144,000	851	.19	7.9	38	11	4.70	.81	3.32	2.83	5.00	1.02	.04
Aug.	9	.65	144,000	690			37		# 4.50		2.60	2.95		.80	
Sept.	8	.68	90,400	745			40		# 4.50		3.00	2.83		1.05	
Oct.	10	1.24	67,300	1,280			50		# 6.63		6.52	2.71		2.25	
Nov.	8	1.29	74,700	1,350			49		# 6.99		6.76	2.81		3.18	
Dec.	8	1.10	77,900	1,200			48		# 6.26		5.89	3.21		3.95	
Mean @ 98		.89	9840,300	945			44		# 5.40		4.24	2.82		1.68	
Period Avg.		.86	569,000	912			43		# 5.36		4.00	2.73		1.63	
Tons of Constituents, 1960											125,000	108,000		76,300	
Average Tons, Period 1948-1960											82,400	73,300		51,800	

Sampling by U. S. Section

Rio Grande at Langtry, Texas

Jan.	3	.99	66,800	1,040	.25	8.2	47	17	4.05	1.50	4.92	2.85	6.03	1.80	.03
Feb.	4	.80	76,200	838	.09	8.2	45	17	3.43	1.20	3.75	2.40	4.71	1.45	.01
Mar.	3	.79	61,300	881	.19	8.1	41	17	3.89	1.42	3.64	3.05	4.43	1.50	.04
Apr.	3	.93	37,000	1,030	.19	7.8	44	19	4.16	1.61	4.60	2.90	5.49	2.00	.02
May	3	.94	28,100	1,040	.25	7.7	46	20	3.91	1.74	4.82	2.70	5.83	2.15	.01
June	2	1.04	46,400	1,140	.28	8.1	45	19	4.62	1.70	5.23	2.80	6.75	2.30	.02
July	4	.69	156,000	729	.18	7.9	32	11	4.24	.83	2.43	2.90	3.82	.80	.05
Aug.	6	.72	179,000	759	.21	7.8	38	15	4.08	.68	2.97	2.95	3.75	1.15	.02
Sept.	7	.61	115,000	676	.08	8.0	36	12	3.73	.69	2.46	3.17	2.96	.85	.06
Oct.	6	.71	86,600	779	.23	7.7	40	15	3.75	.94	3.15	2.90	3.81	1.20	.04
Nov.	5	1.13	90,600	1,190	.26	8.1	47	23	4.92	1.51	5.68	3.00	6.46	2.78	.05
Dec.	3	1.02	95,000	1,110	.23	7.9	45	21	4.87	1.36	5.03	3.25	5.71	2.45	.05
Mean @ 49		.79	91038,000	850	.19	7.9	41	16	4.09	1.04	3.50	2.94	4.39	1.41	.04
Period Avg.		.75	772,000	822			40	19	3.87	1.06	3.34	2.73	3.93	1.57	
Tons of Constituents, 1960										146,000	22,600	144,000	157,000	376,000	89,200
Average Tons, Period 1945-1960										108,000	18,000	107,000	114,000	263,000	77,300

T Trace @ Total @ Weighted Mean ** Percent of total cations *** Percent of total anions # Sum of calcium and magnesium

CHEMICAL ANALYSIS OF WATER SAMPLES FROM THE RIO GRANDE AND TRIBUTARIES — 1960

Month	No. of Samples	Dissolved Solids		Mean ECx10 ⁶ @25°C	Boron p. p. m.	pH	% Na **	% Cl ***	Mean Milligram Equivalents per Liter						
		Tons Per Acre-Foot	Total Tons						Ca	Mg	Na	CO ₃ + HCO ₃	SO ₄	Cl	NO ₃

Sampling by U. S. Section

Pecos River near Shumla, Texas

Jan.	4	2.86	46,900	3,280	.21	8.1	58	63	7.86	5.72	18.83	3.00	8.85	20.75	.15
Feb.	4	3.12	45,600	3,480	.22	8.0	59	65	8.07	6.00	20.46	2.80	9.51	22.55	.06
Mar.	5	3.13	44,800	3,630	.21	7.9	59	65	8.41	6.34	21.64	2.81	9.81	23.80	.06
Apr.	4	3.15	37,200	3,640	.24	7.7	60	66	8.25	6.38	21.70	2.71	9.84	24.00	.04
May	5	2.70	25,500	3,140	.25	7.7	58	65	7.38	5.47	18.03	2.55	8.33	20.20	.02
June	4	2.25	17,600	2,690	.24	7.7	59	65	5.89	4.80	15.53	2.07	7.15	17.20	.02
July	4	2.76	52,700	3,260	.29	7.9	60	65	7.03	5.70	19.36	2.35	8.85	21.00	.04
Aug.	5	2.07	25,300	2,500	.26	8.1	59	64	5.84	4.24	14.38	2.33	6.47	15.70	.03
Sept.	5	2.08	17,200	2,520	.19	7.8	58	64	5.96	4.26	14.15	2.27	6.47	15.78	.04
Oct.	4	1.96	24,100	2,350	.24	7.7	58	63	5.58	4.08	13.09	2.35	6.03	14.45	.04
Nov.	3	2.45	26,500	2,900	.23	8.2	58	64	6.87	5.25	16.60	2.55	7.64	18.50	.05
Dec.	4	2.68	30,000	3,150	.19	8.1	58	64	7.55	5.36	18.17	2.71	8.42	20.00	.05
Mean @ 951		2.65	939,340	3,100	.23	7.9	59	65	7.17	5.39	18.02	2.57	8.28	19.85	.05
Period Avg.		1.91	452,000	2,230			56	60	5.88	3.90	12.29	2.56	6.22	13.39	
Tons of Constituents, 1960									29,000	13,200	83,600	15,500	80,200	142,000	
Average Tons, Period 1955-1960									38,000	15,300	91,100	24,800	96,300	153,000	

Sampling by U. S. Section

Rio Grande at Laredo, Texas

Jan.	31	.94	150,000	1,060	.18	8.1	44	33	4.09	1.76	4.52	2.90	4.07	3.45	.08
Feb.	29	.88	152,000	992			44		5.57		4.33	2.80		3.12	
Mar.	31	.78	120,000	962			43		5.35		4.10	2.80		3.15	
Apr.	30	.90	89,400	1,070			46		5.64		4.82	2.65		4.00	
May	31	.78	71,400	939			44		5.11		3.97	2.55		3.30	
June	30	.83	51,500	987			46		5.19		4.43	2.47		3.40	
July	31	.69	198,000	780	.13	7.8	39	24	3.73	.99	3.01	2.61	3.24	1.85	.07
Aug.	31	.71	195,000	790			38		4.91		2.95	2.70		1.65	
Sept.	30	.56	164,000	641			34		4.20		2.18	2.60		1.15	
Oct.	31	.51	192,000	586			34		3.78		1.94	2.37		1.35	
Nov.	30	.73	144,000	826			40		4.96		3.26	2.81		2.28	
Dec.	31	.87	165,000	999			44		5.64		4.39	2.95		2.90	
Mean @ 9366		.72	91,692,300	825			40		4.87		3.28	2.67		2.25	
Period Avg.		.63	1,703,000	726			38		4.50		2.73	2.56		1.96	
Tons of Constituents, 1960											242,000	257,000		256,000	
Average Tons, Period 1956-1960											230,000	281,000		254,000	

Sampling by Mexican Section

Rio Salado at Las Tortillas, Tamaulipas

Jan.	1	4.50	11,790	4,060	1.25	8.0	43	30	15.97	11.11	20.82	2.07	31.51	14.22	.36
Feb.	2	4.30	9,460	3,990			49		21.08		20.34	1.80		13.88	
Mar.	1	4.19	5,240	3,950			44		25.37		19.77	2.73		13.55	
Apr. u	0	5.06	8,250	4,610			40		29.80		19.98	1.90		16.50	
May	1	5.06	6,430	4,610			40		29.80		19.98	1.90		16.50	
June	9	1.45	11,300	1,550			42		9.28		6.76	2.51		4.68	
July u	1	1.66	5,460	1,770			41		10.78		7.61	2.50		5.13	
Aug.	8	1.38	22,500	1,460			41		9.04		6.21	3.20		4.05	
Sept.	8	1.07	19,600	1,160			37		7.44		4.46	2.30		2.92	
Oct.	7	2.80	17,800	2,700			43		16.83		12.88	2.25		8.40	
Nov.	5	3.82	14,200	3,550			44		22.94		17.76	2.38		11.50	
Dec.	1	3.88	16,000	3,730			47		22.47		19.93	2.58		13.75	
Mean @ 943		2.15	9148,030	2,130			42		13.24		9.77	2.53		6.66	
Period Avg.		.62	213,000	684			28		5.13		1.96	2.68		1.42	
Tons of Constituents, 1960											21,000	7,110		22,100	
Average Tons, Period 1955-1960											21,100	37,600		23,600	

u Estimated g Total @ Weighted Mean ** Percent of total cations *** Percent of total anions

Sum of calcium and magnesium

CHEMICAL ANALYSIS OF WATER SAMPLES FROM THE RIO GRANDE AND TRIBUTARIES — 1960

Month	No. of Samples	Dissolved Solids		Mean ECx10 ⁶ @25°C	Boron p.p.m.	pH	% Na	% Cl	Mean Milligram Equivalents per Liter						
		Tons Per Acre-Foot	Total Tons						Ca	Mg	Na	CO ₃ + HCO ₃	SO ₄	Cl	NO ₃

Sampling by U. S. Section † Rio Grande at Falcón Dam—U. S. Tailrace

Jan.	11	.71	252,000	817	.16	8.0	43	30	3.22	1.24	3.30	2.15	3.43	2.40	.01
Feb.	7	.72	176,000	805	.15	8.0	41	29	3.41	1.28	3.23	2.15	3.55	2.30	.01
Mar.	6	.70	46,600	838	.17	8.0	40	29	3.59	1.36	3.28	2.37	3.55	2.42	.01
Apr.	10	.73	101,000	861	.15	7.9	41	29	3.56	1.41	3.44	2.40	3.62	2.50	.01
May	14	.75	183,000	887	.19	7.8	41	29	3.61	1.54	3.63	2.47	3.75	2.60	.01
June	12	.76	419,000	899	.15	7.8	43	30	3.45	1.54	3.76	2.27	3.92	2.70	.01
July	10	.81	156,000	918	.22	7.8	44	32	3.36	1.70	3.98	2.17	4.01	2.90	T
Aug.	9	.79	63,700	928	.19	7.8	46	32	3.35	1.55	4.15	2.15	4.10	2.95	.01
Sept.	4	.78	29,300	905	.19	7.9	46	32	3.26	1.54	4.02	2.05	4.07	2.85	.03
Oct.	7	.78	70,900	902	.23	7.9	45	31	3.23	1.57	3.98	2.07	4.04	2.75	.01
Nov.	10	.78	32,500	870	.22	8.0	45	30	3.35	1.33	3.77	2.15	3.92	2.55	.01
Dec.	11	.75	27,800	876	.20	8.0	45	31	3.43	1.37	3.86	2.21	3.80	2.65	.01
Mean @ †111		.75	†1,557,800	870	.17	7.9	43	30	3.41	1.45	3.62	2.24	3.76	2.60	.01
Period Avg.		.61	1,597,000	714				39	28	3.23	1.10	2.72	2.33	1.99	
Tons of Constituents, 1960									193,000	49,800	235,000	190,000	510,000	261,000	
Average Tons, Period 1956-1960									229,000	47,200	222,000	248,000	471,000	250,000	

Sampling by U. S. Section † Rio Grande at Fort Ringgold, Rio Grande City, Texas

Jan.	31	.72	252,000	812	.14	8.0	41	29	3.49	1.16	3.28	2.20	3.49	2.32	.01
Feb.	29	.73	187,000	806	.18	8.0	44	32	3.12	1.30	3.46	1.90	3.50	2.50	.01
Mar.	31	.79	54,000	971	.23	8.1	47	36	3.34	1.58	4.39	2.05	3.99	3.42	T
Apr.	30	.76	118,000	894	.18	7.8	42	31	3.67	1.36	3.69	2.40	3.70	2.75	.01
May	31	.77	182,000	895	.18	7.7	42	30	3.67	1.50	3.72	2.50	3.75	2.70	T
June	30	.75	420,000	898	.17	7.8	42	30	3.53	1.58	3.76	2.38	3.86	2.72	.02
July	31	.82	176,000	930	.25	7.8	44	32	3.41	1.78	4.00	2.40	3.98	2.95	.01
Aug.	31	.78	85,000	901	.15	7.8	46	32	3.43	1.33	4.13	2.43	3.67	2.88	.01
Sept.	30	.68	49,400	818	.23	7.8	46	32	3.26	1.05	3.63	2.23	3.22	2.58	.06
Oct.	31	.81	83,400	947	.27	7.8	48	33	3.47	1.31	4.41	2.25	3.99	3.05	.01
Nov.	30	.98	41,800	1,110	.30	8.0	51	35	3.85	1.47	5.58	2.50	4.67	3.90	.01
Dec.	31	.99	35,700	1,150	.26	7.9	53	35	3.55	1.79	5.98	2.67	4.69	4.00	.01
Mean @ †366		.76	†1,684,300	886	.19	7.9	44	31	3.47	1.44	3.80	2.30	3.76	2.74	.01
Period Avg.		.70	1,722,000	812			40	29	3.51	1.29	3.24	2.44	3.33	2.32	
Tons of Constituents, 1960									209,000	52,500	262,000	207,000	541,000	291,000	
Average Tons, Period 1959-1960									234,000	52,300	248,000	244,000	532,000	274,000	

Sampling by U. S. & Mexican Sections † Rio Grande Below Anzaldúas Dam

Jan.	4	.83	109,000	960	.17	8.0	46	35	3.16	1.84	4.26	2.25	3.86	3.30	.01
Feb.	5	1.01	77,100	1,170	.20	8.1	50	41	4.09	1.70	5.78	2.45	4.40	4.70	.01
Mar.	4	1.75	97,600	2,090	.62	7.9	57	53	5.92	2.92	11.91	2.97	6.75	11.10	.01
Apr.	15	1.08	115,000	1,270	.31	8.0	51	42	4.29	1.83	6.28	2.57	4.68	5.30	.01
May	29	1.04	104,000	1,240	.30	7.8	50	41	4.18	1.86	6.06	2.60	4.59	5.00	T
June	30	.91	217,000	1,070	.22	7.8	48	38	3.77	1.72	5.04	2.37	4.29	4.02	.01
July	31	1.12	140,000	1,290	.40	7.8	53	43	3.95	2.01	6.65	2.35	4.80	5.46	.01
Aug.	31	1.29	75,300	1,520	.38	7.8	56	47	4.48	2.11	8.32	2.51	5.35	7.12	.01
Sept.	21	1.13	79,900	1,370	.41	7.9	55	51	4.23	1.71	7.25	2.21	4.32	6.75	.02
Oct.	13	.94	68,900	1,120	.36	7.9	53	42	3.45	1.53	5.70	2.03	4.22	4.55	.01
Nov.	13	1.78	71,400	2,080	.67	8.0	58	54	5.80	2.79	11.85	3.00	6.59	11.10	T
Dec.	13	1.77	56,700	2,080	.67	8.0	57	53	5.96	2.80	11.81	2.97	6.81	10.95	.01
Mean @ †209		1.09	†1,211,900	1,290	.33	7.9	52	44	4.12	1.93	6.54	2.44	4.70	5.54	.01
Period Avg.		.96	1,490,000	1,120			49	40	3.98	1.59	5.33	2.52	4.07	4.36	
Tons of Constituents, 1960									125,000	35,400	227,000	110,000	340,000	296,000	
Average Tons, Period 1959-1960									169,000	40,900	260,000	160,000	414,000	328,000	

T Trace † Total † Weighted Mean ** Percent of total cations *** Percent of total anions

b Tonnage figures based on discharges at Below Anzaldúas Dam plus Poniente Drain

† Tonnage figures based on total releases from Falcón Reservoir

ELECTRICAL CONDUCTIVITY OF WATER SAMPLES

1960

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

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

Tons per acre-foot = .0008878 ($EC \times 10^6$ at 25°C) when conductivity ($EC \times 10^6$ at 25°C) is below 7,520 micromhos.

Tons per acre-foot = .001052 ($EC \times 10^6$ at 25°C) - 1,235 when conductivity ($EC \times 10^6$ at 25°C) ranges between 7,520 and 22,000 micromhos.

Date	$EC \times 10^6$ @25°C	Date	$EC \times 10^6$ @25°C	Date	$EC \times 10^6$ @25°C	Date	$EC \times 10^6$ @25°C	Date	$EC \times 10^6$ @25°C	Date	$EC \times 10^6$ @25°C	Date	$EC \times 10^6$ @25°C	Date	$EC \times 10^6$ @25°C	Date	$EC \times 10^6$ @25°C
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Rio Grande at El Paso, Texas

January	February	April	May	July	August	October	November
1 2,310	20 2,520	4 1,150	20 1,200	3 1,050	20 1,320	3 2,160	17 2,190
2 2,340	21 2,530	5 1,160	21 1,220	4 1,060	21 1,150	4 2,160	18 2,290
3 2,350	22 2,540	6 1,210	22 1,230	5 1,040	22 1,130	5 2,130	19 2,310
4 2,380	23 2,560	7 1,180	23 1,310	6 1,030	23 1,120	6 2,230	20 2,300
5 2,430	24 2,480	8 1,270	24 1,290	7 1,030	24 1,170	7 2,230	21 2,330
6 2,340	25 2,480	9 1,260	25 1,310	8 1,080	25 1,150	8 2,190	22 2,320
7 2,400	26 2,440	10 1,290	26 1,300	12 1,220	26 1,160	9 2,160	23 2,320
8 2,420	27 2,500	11 1,290	27 1,330	13 1,490	27 1,120	10 2,220	24 2,290
9 2,370	28 2,510	12 1,340	28 1,320	14 1,700	28 1,110	11 2,200	25 2,290
10 2,380	29 2,570	13 1,280	29 1,270	15 1,090	29 1,120	12 2,230	26 2,330
11 2,230	March	14 1,260	30 1,210	16 1,110	30 1,100	13 2,290	27 2,290
12 2,210	1 2,650	15 1,380	31 1,220	17 1,310	31 1,160	14 2,250	28 2,320
13 2,360	2 2,570	16 1,370	June	18 1,310	September	15 2,270	29 2,350
14 2,390	3 2,680	17 1,300	1 1,200	19 1,460	1 1,240	16 2,280	30 2,380
15 2,320	4 2,830	18 1,410	2 1,250	20 1,510	2 1,280	17 2,160	December
16 2,330	5 2,520	19 1,340	3 1,210	21 1,480	3 1,260	18 2,200	1 2,370
17 2,320	6 1,340	20 1,390	4 1,230	22 1,270	4 1,220	19 2,260	2 2,330
18 2,390	7 1,120	21 1,360	5 1,260	23 1,230	5 1,230	20 2,160	3 2,290
19 2,340	8 1,150	22 1,420	6 1,260	24 1,220	6 1,230	21 2,250	4 2,230
20 2,350	9 1,070	23 1,380	7 1,280	25 1,090	7 1,180	22 2,210	5 2,200
21 2,360	10 1,050	24 1,260	8 1,230	26 1,090	8 1,200	23 2,220	6 2,420
22 2,360	11 1,010	25 1,250	9 1,210	27 1,000	9 1,100	24 2,220	7 2,400
23 2,350	12 1,020	26 1,250	10 1,230	28 1,050	10 1,110	25 2,190	8 2,330
24 2,350	13 994	28 1,240	11 1,230	29 1,030	11 1,060	26 2,210	9 2,220
25 2,330	14 983	29 1,310	12 1,140	30 1,030	12 1,120	27 2,210	10 2,220
26 2,470	15 1,000	30 1,350	13 1,100	31 979	13 1,220	28 2,240	11 2,230
27 2,430	16 1,030	May	14 1,230	August	14 1,470	29 2,250	12 2,260
February	17 1,020	1 1,360	15 1,290	1 980	15 1,600	30 2,230	13 2,250
2 2,380	18 1,040	2 1,410	16 1,310	2 1,080	16 1,600	31 2,250	14 2,300
3 2,450	19 1,030	3 1,330	17 1,310	3 995	17 1,610	November	15 2,310
4 2,420	20 1,010	4 1,400	18 1,210	4 1,030	18 1,470	1 2,240	16 2,260
5 2,400	21 1,040	5 1,470	19 1,190	5 1,180	19 1,770	2 2,250	17 2,310
6 2,390	22 1,020	6 1,470	20 1,110	6 1,120	20 1,880	3 2,270	18 2,320
7 2,370	23 1,020	7 1,390	21 1,120	7 1,140	21 1,950	4 2,280	19 2,310
8 2,380	24 986	8 1,350	22 1,040	8 1,060	22 2,050	5 2,280	20 2,280
9 2,380	25 1,020	9 1,300	23 1,040	9 1,100	23 2,080	6 2,310	21 2,290
10 2,430	26 1,050	10 1,320	24 1,050	10 1,130	24 1,980	7 2,270	22 2,260
11 2,480	27 1,120	11 1,280	25 1,070	11 1,050	25 2,110	8 2,290	23 2,270
12 2,490	28 1,150	12 1,300	26 1,090	12 1,100	26 2,110	9 2,290	24 2,280
13 2,490	29 1,110	13 1,270	27 1,100	13 1,090	27 2,140	10 2,280	25 2,290
14 2,460	30 1,110	14 1,200	28 1,120	14 1,100	28 2,120	11 2,290	26 2,290
15 2,480	31 1,200	15 1,220	29 1,060	15 1,190	29 2,140	12 2,280	27 2,280
16 2,480	April	16 1,330	30 1,080	16 1,250	30 2,170	13 2,320	28 2,280
17 2,470	1 1,160	17 1,110	July	17 1,340	October	14 2,250	29 2,280
18 2,460	2 1,180	18 1,110	1 1,160	18 1,350	1 2,150	15 2,260	30 2,220
19 2,510	3 1,150	19 1,140	2 1,150	19 1,330	2 2,180	16 2,300	31 2,230

Rio Grande at Fort Quitman, Texas

January	March	April	June	July	August	October	November
6 9,230	2 12,490	27 8,880	10 596	7 747	17 4,620	5 4,510	23 5,080
13 6,060	9 13,130	May	10 1,100	8 1,180	24 6,030	12 5,430	30 4,790
20 5,310	15 13,130	4 6,170	15 3,500	9 1,040	30 819	17 679	December
27 7,880	23 12,960	11 12,190	24 469	13 2,640	31 3,490	19 1,760	7 4,210
February	30 13,650	18 12,980	29 9,620	19 3,250	September	26 5,520	14 4,190
3 9,000	April	25 13,680	July	27 7,440	7 5,880	November	21 4,260
10 10,500	6 8,500	30 571	4 1,500	August	14 3,620	2 5,320	28 4,520
12 9,880	13 10,930	June	6 4,700	3 8,270	21 3,760	9 5,110	
25 12,440	20 8,020	1 7,540	6 760	10 7,020	28 5,810	16 5,320	
		8 6,330		12 3,990			

ELECTRICAL CONDUCTIVITY OF WATER SAMPLES

1960

Date	ECx10 ⁶ @25°C	Date	ECx10 ⁶ @25°C	Date	ECx10 ⁶ @25°C	Date	ECx10 ⁶ @25°C	Date	ECx10 ⁶ @25°C	Date	ECx10 ⁶ @25°C	Date	ECx10 ⁶ @25°C	Date	ECx10 ⁶ @25°C
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Rio Grande at Upper Presidio Station

July	July	August	August	September	November	November	December
7 797	15 571	1 2,030	18 3,120	5 1,110	1 2,080	23 5,490	12 4,760
7 804	18 1,010	2 2,080	22 1,240	8 1,550	4 4,530	28 5,520	15 4,680
8 711	22 2,160	4 2,150	26 1,060	October	8 5,230	December	19 4,420
11 546	22 2,090	8 2,060	29 1,960	24 610	14 5,610	1 5,790	23 4,210
11 539	25 2,020	11 847	September	25 630	17 5,800	6 5,490	27 4,330
12 548	29 1,790	15 1,060	1 914	26 710	21 4,230	9 4,170	30 4,060
				28 1,320			

Rio Conchos near Ojinaga, Chihuahua

January	February	April	June	July	August	October	November
5 1,290	26 680	13 1,320	1 1,510	9 794	19 676	3 1,340	18 1,290
6 1,300	29 682	16 1,420	3 1,370	9 967	22 709	5 1,350	21 841
8 1,410	March	18 1,360	4 1,500	11 688	23 453	7 1,350	23 919
11 1,270	2 792	20 1,370	6 1,480	12 722	25 444	10 1,370	25 840
13 1,350	4 818	22 1,530	7 1,330	13 802	26 484	12 1,350	28 1,100
15 1,280	7 864	25 1,440	10 1,430	14 746	29 541	14 1,390	30 980
18 1,280	9 903	27 1,450	12 1,060	15 995	31 609	17 1,400	December
20 1,380	11 920	29 1,470	13 808	18 548	September	19 1,390	2 878
22 1,080	14 986	May	15 1,340	20 729	2 582	21 1,410	5 941
25 929	16 983	2 1,460	17 1,430	25 607	5 599	24 1,370	7 905
27 956	18 1,200	4 1,460	20 1,480	29 1,080	7 688	26 1,200	9 1,000
29 929	21 1,030	6 1,490	22 1,470	August	9 773	28 1,270	12 899
February	23 1,120	9 1,480	24 1,500	1 898	12 901	31 1,340	14 929
1 846	25 1,060	11 1,510	27 1,570	3 1,090	14 989	November	16 899
5 761	28 1,070	13 1,510	29 1,520	5 1,230	16 988	2 1,300	19 925
8 804	30 1,180	16 1,550	July	8 1,050	19 1,090	4 1,370	21 918
10 795	April	18 1,540	1 1,300	10 955	21 1,120	7 1,330	23 1,030
12 722	1 1,290	20 1,520	4 1,580	11 785	23 1,230	9 1,370	26 916
15 841	4 1,280	23 1,550	6 1,530	12 1,020	26 1,280	11 1,380	28 925
17 832	6 1,330	25 1,540	7 784	13 1,030	28 1,330	15 1,290	31 874
22 715	8 1,210	27 1,530	8 947	15 779	30 1,330	17 1,310	
26 714	11 1,350	30 1,500	8 734	17 957			

Rio Grande at Lower Presidio Station

January	March	April	June	July	August	October	November
4 1,430	1 819	19 1,490	7 1,570	11 717	22 878	3 1,410	17 1,500
8 1,390	4 818	22 1,520	10 1,500	15 904	24 481	7 1,420	21 1,220
12 1,260	7 883	26 1,560	13 848	18 579	24 486	10 1,450	23 1,010
15 1,270	10 941	29 1,590	17 1,410	22 723	26 493	14 1,400	28 1,580
19 1,230	14 997	May	21 1,540	22 699	29 554	17 1,460	December
22 1,120	17 1,060	2 1,580	24 1,660	25 974	September	20 1,360	1 1,160
26 939	22 1,110	5 1,540	28 1,700	29 925	1 638	24 1,190	6 1,090
29 909	25 1,200	10 1,660	July	August	5 599	25 1,270	9 1,220
February	30 1,190	12 1,590	1 1,750	1 950	8 727	27 1,140	12 1,150
1 772	April	18 1,670	5 654	4 1,120	12 895	November	15 1,290
5 901	1 1,410	20 1,640	7 866	8 1,310	16 1,010	1 1,510	19 1,210
9 764	4 1,360	23 1,640	7 866	11 901	19 1,140	4 1,660	23 1,190
19 886	8 1,420	27 1,670	8 1,100	15 800	22 1,220	8 1,670	27 1,120
23 795	12 1,430	31 1,640	8 1,090	17 961	26 1,320	10 1,720	30 1,260
26 710	15 1,490	June	11 694	18 755	30 1,380	14 1,680	
		3 1,580					

ELECTRICAL CONDUCTIVITY OF WATER SAMPLES

1960

Date	ECx10 ⁶ @25°C	Date	ECx10 ⁶ @25°C	Date	ECx10 ⁶ @25°C	Date	ECx10 ⁶ @25°C	Date	ECx10 ⁶ @25°C	Date	ECx10 ⁶ @25°C	Date	ECx10 ⁶ @25°C	Date	ECx10 ⁶ @25°C
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Rio Grande at Johnson Ranch, Texas

January	March	April	June	July	September	October	November
5 1,340	1 829	18 1,510	3 1,740	19 660	2 551	18 1,700	29 1,230
8 1,340	7 825	21 1,480	6 1,650	22 826	6 590	21 1,400	December
11 1,360	11 938	25 1,530	9 1,590	25 828	9 726	25 1,290	1 1,280
14 1,340	14 1,010	29 1,540	13 1,400	29 923	13 867	25 1,290	5 1,080
18 1,400	18 1,080	May	16 1,370	August	20 1,110	28 1,070	9 1,120
21 1,370	21 1,150	2 1,590	20 1,330	2 1,060	23 1,170	31 1,160	12 1,340
25 1,100	24 1,110	6 1,640	24 1,530	5 990	27 1,300	November	15 1,010
28 961	28 1,240	9 1,610	July	9 973	30 1,330	3 1,410	20 1,280
February	April	13 1,630	1 1,680	12 748	October	7 1,510	28 1,260
1 919	1 1,250	16 1,680	6 780	16 947	3 1,370	10 1,740	30 1,130
5 824	4 1,290	20 1,690	8 902	19 933	7 1,380	15 1,730	
8 805	7 1,370	23 1,690	8 896	23 805	11 1,220	18 1,620	
15 895	11 1,340	27 1,700	11 918	25 522	14 990	21 1,530	
23 888	15 1,420	31 1,680	15 877	30 534		23 1,030	

Rio Grande at Langtry, Texas

January	March	May	July	August	September	October	November
7 1,150	3 800	6 1,000	7 320	23 836	20 895	18 380	7 1,040
14 1,030	18 862	20 1,020	12 829	26 853	23 938	21 615	15 1,180
February	31 986	27 1,040	15 777	28 468	27 973	25 765	18 1,330
2 990	April	June	29 838	September	29 986	28 869	December
11 840	8 972	3 1,070	August	2 580	October	November	2 1,040
19 831	14 1,020	16 1,190	5 844	8 582	6 1,060	1 870	16 1,130
26 890	22 1,030		12 1,000	13 714	14 1,130	3 1,040	30 1,140
			16 763				

Pecos River near Shumla, Texas

January	February	April	May	July	August	September	November
5 3,090	23 3,560	5 3,780	24 2,930	5 2,540	17 2,290	22 2,540	1 2,410
12 3,240	March	12 3,620	31 2,830	12 3,860	23 2,420	27 2,420	8 3,040
19 3,360	1 3,600	19 3,630	June	19 2,770	30 2,520	October	22 3,030
26 3,380	8 3,600	26 3,470	7 2,760	26 2,430	September	4 2,450	December
February	15 3,630	May	14 2,680	August	6 2,560	11 2,420	6 3,090
2 3,410	22 3,660	3 3,350	21 2,680	2 2,410	13 2,510	18 2,170	13 3,140
9 3,510	29 3,620	13 3,170	28 2,590	9 2,690	20 2,560	26 2,450	20 3,180
16 3,490		17 3,060					27 3,210

Devils River near Mouth

January	March	April	June	July	September	October	November
8 402	4 392	20 377	2 373	28 342	9 361	12 363	17 362
27 396	20 398	29 371	17 339	August	16 369	24 369	23 374
February	30 355	May	29 365	4 351	23 369	27 368	December
1 404	April	2 334	July	19 338	28 363	November	5 393
15 387	14 372	19 363	11 359	24 340	October	4 272	19 393
			22 330		7 369	8 307	

Rio Grande near Del Rio, Texas

January	February	April	May	July	August	September	November
4 1,110	19 1,010	6 1,050	20 987	1 861	15 912	26 894	7 847
6 1,080	23 844	8 1,070	23 940	5 801	17 828	28 737	14 1,010
8 1,070	25 837	11 1,070	25 950	7 815	19 831	30 831	16 982
11 1,130	29 893	13 1,060	27 937	11 610	22 773	October	18 1,020
13 1,100	March	15 1,020	31 1,050	13 974	24 863	3 854	22 1,070
15 1,120	2 988	18 1,050	June	15 891	26 749	5 851	25 1,120
18 1,070	4 907	20 1,050	2 914	18 819	29 539	10 881	28 1,200
20 1,090	7 925	22 1,070	6 992	20 805	31 654	12 871	30 1,040
22 1,100	9 948	25 1,010	8 928	22 776	September	14 881	December
25 1,110	11 915	27 973	10 767	25 700	2 700	17 848	2 966
27 1,150	14 943	29 1,020	13 718	27 847	6 594	19 801	5 976
29 1,130	16 949	May	15 741	29 793	7 613	21 506	7 1,000
February	18 940	2 1,020	17 640	August	9 617	24 817	9 975
1 913	21 990	4 994	20 1,010	1 816	12 644	26 766	12 1,000
3 970	23 1,000	6 982	22 988	3 801	14 703	28 679	14 964
5 977	25 1,010	9 992	24 791	5 775	16 718	31 580	16 1,010
8 937	28 1,040	11 964	27 903	8 800	19 782	November	20 1,030
12 960	April	13 959	29 828	10 778	21 813	2 701	23 974
15 897	1 1,100	16 955		12 1,130	23 807	4 918	27 1,020
17 933	4 1,070	18 947					29 1,060

ELECTRICAL CONDUCTIVITY OF WATER SAMPLES **1960**

Date ECx10 ⁶ @25°C	Date ECx10 ⁶ @25°C	Date ECx10 ⁶ @25°C	Date ECx10 ⁶ @25°C	Date ECx10 ⁶ @25°C	Date ECx10 ⁶ @25°C	Date ECx10 ⁶ @25°C	Date ECx10 ⁶ @25°C
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Rio Grande at Maverick Canal Headgate

January	February	April	May	July	August	October	November
1 1,060	16 984	1 1,070	17 922	1 795	16 775	1 820	16 1,050
2 1,050	17 981	2 1,040	18 915	2 885	17 859	2 873	17 1,060
3 1,110	18 964	3 979	19 904	3 829	18 806	3 885	18 1,060
4 1,090	19 972	4 987	20 894	4 795	19 871	4 890	19 1,110
5 1,120	20 969	5 1,090	21 997	5 809	20 857	5 841	20 1,120
6 1,100	21 953	6 1,070	22 880	6 775	21 879	6 870	21 1,100
7 1,090	22 958	7 1,060	23 869	7 762	22 787	7 932	22 1,150
8 1,140	23 971	8 1,070	24 881	8 888	23 710	8 912	23 1,090
9 1,110	24 958	9 1,010	25 892	9 972	24 773	9 896	24 1,150
10 1,100	25 974	10 1,100	26 887	10 655	25 713	10 914	25 1,170
11 1,130	26 914	11 1,040	27 871	11 726	26 693	11 895	26 1,250
12 1,110	27 953	12 1,050	28 877	12 809	27 725	12 898	27 1,250
13 1,120	28 1,000	13 1,030	29 930	13 835	28 613	13 891	28 1,160
14 1,070	29 974	14 1,050	30 854	14 896	29 526	14 895	29 1,180
15 1,100	March	15 1,030	31 863	15 708	30 508	15 952	30 1,260
16 1,110	1 988	16 1,030	June	16 800	31 554	16 1,040	December
17 1,130	2 1,010	17 1,050	1 850	17 845	September	17 1,240	1 1,020
18 1,080	3 984	18 1,070	2 852	18 825	1 624	18 521	2 1,040
19 1,090	4 954	19 1,080	3 869	19 916	2 778	19 680	3 996
20 1,090	5 883	20 1,050	4 858	20 668	3 701	20 519	4 986
21 1,120	6 920	21 1,050	5 855	21 713	4 605	21 818	5 961
22 1,150	7 913	22 1,030	6 923	22 846	5 622	22 552	6 941
23 1,060	8 948	23 1,010	7 897	23 754	6 600	23 903	7 901
24 1,150	9 947	24 1,030	8 838	24 746	7 596	24 737	8 960
25 1,190	10 922	25 998	9 881	25 717	8 611	25 863	9 957
26 1,100	11 928	26 996	10 1,210	26 695	9 588	26 778	10 974
27 1,130	12 958	27 1,050	11 1,020	27 825	10 591	27 809	11 997
28 1,200	13 942	28 969	12 1,070	28 741	11 621	28 768	12 1,070
29 1,180	14 967	29 1,050	13 796	29 853	12 651	29 566	13 1,030
30 1,170	15 960	30 1,040	14 768	30 746	13 688	30 468	14 943
31 1,130	16 967	May	15 814	31 876	14 707	31 603	15 1,030
February	17 981	1 1,070	16 764	August	15 745	November	16 1,070
1 1,160	18 967	2 1,040	17 860	1 874	16 753	1 619	17 1,030
2 1,160	19 934	3 1,010	18 685	2 791	17 733	2 649	18 1,070
3 1,080	20 938	4 1,010	19 998	3 870	18 798	2 820	19 1,110
4 1,030	21 1,010	5 1,020	20 953	4 835	19 804	4 857	20 1,060
5 1,060	22 1,020	6 920	21 992	5 805	20 843	5 888	21 1,060
6 1,020	23 1,000	7 994	22 831	6 774	21 835	6 956	22 1,080
7 967	24 1,010	8 1,010	23 906	7 825	22 857	7 856	23 1,070
8 1,040	25 1,030	9 994	24 780	8 857	23 857	8 828	24 1,030
9 1,030	26 1,020	10 983	25 754	9 799	24 719	9 872	25 922
10 998	27 972	11 937	26 783	10 828	25 463	10 967	26 1,020
11 1,010	28 1,040	12 947	27 843	11 810	26 935	11 1,010	27 1,010
12 958	29 1,070	13 950	28 839	12 775	27 922	12 1,000	28 1,100
13 929	30 1,040	14 909	29 842	13 942	28 807	13 1,100	29 1,090
14 976	31 1,060	15 917	30 796	14 700	29 836	14 1,070	30 1,100
15 997		16 908		15 816	30 872	15 1,110	31 1,000

Rio Grande at San Antonio Crossing near Villa Guerrero, Coahuila

January	February	April	June	July	August	October	November
2 1,090	18 943	1 1,090	2 975	14 838	18 872	6 872	25 1,060
8 1,080	26 937	14 1,120	9 972	19 657	25 795	13 916	December
15 1,230	March	21 1,050	16 1,040	21 739	September	17 638	1 1,220
22 1,060	5 940	28 905	23 953	28 767	1 526	25 844	8 986
29 1,090	11 918	May	30 874	August	8 628	28 783	15 1,050
February	18 947	5 1,050	July	4 830	15 675	November	21 1,040
5 1,070	25 1,060	12 1,010	7 905	11 867	22 816	3 684	29 1,030
12 1,000	31 1,080	20 1,020	11 659		29 871	10 895	
		26 874				17 1,010	

ELECTRICAL CONDUCTIVITY OF WATER SAMPLES

1960

Date	ECx10 ⁶ @25°C	Date	ECx10 ⁶ @25°C	Date	ECx10 ⁶ @25°C	Date	ECx10 ⁶ @25°C	Date	ECx10 ⁶ @25°C	Date	ECx10 ⁶ @25°C	Date	ECx10 ⁶ @25°C	Date	ECx10 ⁶ @25°C	Date	ECx10 ⁶ @25°C
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Rio Grande at Laredo, Texas

January	February	April	May	July	August	October	November
1 996	16 969	1 996	17 1,030	1 1,000	16 710	1 711	16 896
2 1,000	17 943	2 998	18 942	2 1,030	17 865	2 688	17 923
3 1,000	18 908	3 1,000	19 973	3 1,030	18 807	3 834	18 936
4 997	19 906	4 1,010	20 958	4 1,020	19 723	4 857	19 956
5 1,040	20 933	5 1,030	21 817	5 1,030	20 838	5 810	20 969
6 1,030	21 939	6 1,040	22 861	6 971	21 902	6 787	21 946
7 1,020	22 938	7 1,040	23 1,000	7 934	22 839	7 813	22 909
8 1,020	23 934	8 1,050	24 1,020	8 927	23 817	8 831	23 747
9 1,020	24 918	9 1,070	25 1,010	9 951	24 850	9 825	24 863
10 1,030	25 919	10 1,080	26 938	10 958	25 869	10 835	25 975
11 1,030	26 1,000	11 1,070	27 997	11 793	26 815	11 837	26 1,010
12 1,040	27 925	12 1,060	28 1,040	12 863	27 723	12 840	27 1,020
13 1,040	28 921	13 1,070	29 1,010	13 821	28 813	13 810	28 1,030
14 1,030	29 918	14 1,060	30 956	14 656	29 715	14 524	29 1,010
15 1,040	March 15 1,060	31 850	15 731	30 739	15 515	30 1,030	
16 1,030	1 950	16 1,060	June 16 783	31 483	16 639	December	
17 1,050	2 905	17 1,070	1 884	17 882	September 17 430	1 1,100	
18 1,040	3 901	18 1,080	2 936	18 744	1 482	18 370	2 1,150
19 1,030	4 931	19 1,070	3 961	19 689	2 521	19 427	3 1,150
20 1,040	5 940	20 1,070	4 982	20 491	3 553	20 681	4 1,180
21 1,050	6 907	21 1,050	5 974	21 616	4 544	21 698	5 1,150
22 1,050	7 929	22 1,060	6 975	22 773	5 659	22 484	6 1,090
23 1,060	8 942	23 1,070	7 984	23 751	6 642	23 708	7 928
24 1,060	9 927	24 1,070	8 981	24 708	7 606	24 603	8 790
25 1,040	10 897	25 1,060	9 965	25 708	8 626	25 590	9 907
26 1,040	11 899	26 1,030	10 962	26 817	9 669	26 709	10 924
27 1,050	12 908	27 1,050	11 966	27 765	10 597	27 565	11 957
28 1,050	13 909	28 1,070	12 968	28 711	11 606	28 761	12 954
29 1,050	14 893	29 1,070	13 967	29 719	12 624	29 759	13 959
30 1,060	15 904	30 1,040	14 990	30 698	13 624	30 761	14 950
31 1,090	16 921	May 15 989	15 989	31 771	14 602	31 535	15 890
February 17 917	1 884	16 973	August 15 610	November 16 992			
1 1,060	18 922	2 682	17 1,000	1 809	16 636	1 532	17 988
2 1,060	19 940	3 822	18 1,070	2 829	17 658	2 560	18 988
3 1,110	20 958	4 635	19 1,070	3 798	18 685	3 538	19 957
4 1,110	21 942	5 634	20 1,060	4 749	19 702	4 563	20 946
5 1,110	22 941	6 832	21 1,060	5 827	20 721	5 581	21 973
6 1,100	23 943	7 846	22 957	6 840	21 740	6 637	22 981
7 1,090	24 949	8 911	23 937	7 853	22 743	7 664	23 975
8 1,060	25 958	9 968	24 880	8 842	23 766	8 760	24 997
9 1,020	26 964	10 999	25 851	9 845	24 779	9 815	25 995
10 1,010	27 977	11 1,010	26 849	10 867	25 650	10 854	26 980
11 995	28 994	12 1,010	27 830	11 785	26 643	11 899	27 970
12 952	29 1,010	13 1,010	28 861	12 634	27 675	12 875	28 988
13 959	30 1,010	14 1,010	29 949	13 606	28 631	13 859	29 975
14 949	31 997	15 1,020	30 968	14 842	29 776	14 847	30 971
15 958		16 1,020		15 630	30 689	15 867	31 979

Rio Salado at Las Tortillas, Tamaulipas

January	May	June	July	August	September	October	November
15 4,080	5 4,580	11 926	9 1,770	22 814	3 903	11 1,400	1 2,260
February	June	15 971	August	24 942	5 429	15 1,940	7 1,530
3 4,020	3 4,300	18 1,020	3 3,110	27 2,450	12 1,180	17 1,930	14 2,290
18 4,060	7 1,990	22 1,030	14 1,340	31 3,070	13 1,840	18 5,130	17 3,930
March	8 1,120	27 665	15 1,800	September	15 546	19 4,080	19 4,440
2 3,890	9 978		17 725	2 2,900	23 713	21 921	December
					30 955	27 1,880	5 3,720

ELECTRICAL CONDUCTIVITY OF WATER SAMPLES **1960**

Date	ECx10 ⁶ @25°C	Date	ECx10 ⁶ @25°C	Date	ECx10 ⁶ @25°C	Date	ECx10 ⁶ @25°C	Date	ECx10 ⁶ @25°C	Date	ECx10 ⁶ @25°C	Date	ECx10 ⁶ @25°C	Date	ECx10 ⁶ @25°C	Date	ECx10 ⁶ @25°C
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Río Grande at Falcón Dam—U. S. Tailrace

January	February	April	May	June	August	October	November
1 798	12 798	8 841	20 861	21 895	3 913	3 904	25 862
4 791	16 802	11 844	22 863	23 897	5 906	5 901	28 867
8 791	17 800	13 856	24 864	24 899	9 906	7 897	30 861
11 796	24 811	18 843	26 863	27 892	11 913	11 902	December
14 832	March	21 853	28 862	30 899	16 906	21 893	2 870
15 791	9 813	26 851	30 867	July	19 911	24 886	5 867
18 791	17 819	28 851	31 864	1 898	22 909	28 894	7 869
20 790	21 823	May	June	5 901	24 906	November	14 873
25 790	24 822	5 849	3 866	8 904	29 908	1 881	15 866
28 794	27 828	6 851	6 869	11 907	September	3 874	19 869
29 801	30 832	9 853	9 872	14 906	1 912	7 859	21 866
February	April	11 854	10 877	15 914	19 915	10 866	23 870
1 794	1 829	13 851	13 885	18 909	22 897	17 869	27 869
5 796	4 838	16 859	14 878	22 912	26 898	21 872	29 871
8 799	6 833	18 857	20 892	27 923		23 869	31 866
				29 918			

Rancherías Drain in Mexico, 69.3 River Miles above Anzaldúas Dam

January	April	June	July	September	October	October	November
7 8,320	8 7,310	22 4,340	30 5,650	1 1,570	1 8,540	29 8,100	19 8,320
February	12 7,160	July	August	17 7,650	8 8,790	November	December
27 6,750	June	10 5,210	5 6,020	23 8,150	15 9,030	5 8,690	18 8,430
April	2 2,810	15 5,360	19 7,000		22 7,050	11 7,690	28 8,370
1 7,160		26 4,730	25 7,140				

Río San Juan at Camargo, Tamaulipas

January	April	July	August	September	October	October	December
7 1,880	12 *2,400	10 2,140	5 *2,310	1 1,030	1 2,820	29 2,950	18 3,040
March	June	15 3,560	19 1,000	10 1,100	8 2,740	November	28 3,130
17 3,280	2 *2,390	22 *1,360	25 1,150	17 939	15 1,930	5 2,990	
	22 *1,960	30 2,130		23 1,520	22 3,840	26 2,110	

* Samples collected below Marte R. Gómez Dam.

ELECTRICAL CONDUCTIVITY OF WATER SAMPLES

1960

Date	ECx10 ⁶ @25°C	Date	ECx10 ⁶ @25°C	Date	ECx10 ⁶ @25°C	Date	ECx10 ⁶ @25°C	Date	ECx10 ⁶ @25°C	Date	ECx10 ⁶ @25°C	Date	ECx10 ⁶ @25°C	Date	ECx10 ⁶ @25°C
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Rio Grande at Fort Ringgold, Rio Grande City, Texas

January	February	April	May	July	August	October	November
1 800	16 835	1 858	17 879	1 916	16 760	1 1,070	16 1,250
2 805	17 862	2 944	18 869	2 949	17 898	2 1,080	17 1,050
3 816	18 837	3 900	19 869	3 934	18 1,010	3 982	18 1,040
4 886	19 833	4 867	20 900	4 946	19 1,010	4 1,040	19 1,060
5 814	20 841	5 933	21 878	5 933	20 1,030	5 945	20 1,090
6 822	21 928	6 873	22 877	6 936	21 1,080	6 933	21 1,070
7 816	22 1,020	7 858	23 872	7 948	22 1,090	7 939	22 1,250
8 812	23 935	8 880	24 869	8 944	23 1,110	8 947	23 1,320
9 818	24 969	9 862	25 872	9 932	24 1,120	9 945	24 1,460
10 818	25 941	10 871	26 869	10 928	25 1,190	10 962	25 1,440
11 811	26 1,140	11 869	27 886	11 925	26 1,080	11 1,000	26 1,480
12 827	27 935	12 864	28 872	12 936	27 1,060	12 1,000	27 1,210
13 849	28 945	13 863	29 878	13 930	28 858	13 939	28 1,220
14 908	29 939	14 880	30 875	14 936	29 979	14 933	29 957
15 798	March	15 899	31 870	15 932	30 1,040	15 948	30 1,030
16 806	1 953	16 878	June	16 941	31 1,090	16 924	December
17 803	2 959	17 861	1 872	17 928	September	17 929	1 1,020
18 797	3 956	18 791	2 878	18 942	1 1,010	18 822	2 1,010
19 809	4 958	19 715	3 874	19 954	2 954	19 800	3 1,030
20 797	5 1,230	20 857	4 880	20 448	3 694	20 711	4 1,030
21 807	6 1,190	21 917	5 875	21 798	4 665	21 1,070	5 1,060
22 797	7 1,220	22 978	6 877	22 949	5 492	22 984	6 1,090
23 798	8 1,030	23 936	7 884	23 968	6 504	23 1,050	7 1,100
24 802	9 1,150	24 872	8 888	24 964	7 511	24 1,070	8 1,100
25 798	10 971	25 883	9 879	25 1,150	8 587	25 541	9 1,090
26 800	11 923	26 948	10 888	26 1,110	9 848	26 489	10 1,050
27 795	12 922	27 1,050	11 890	27 1,120	10 1,000	27 874	11 1,070
28 796	13 919	28 980	12 879	28 1,030	11 848	28 972	12 1,040
29 799	14 939	29 813	13 880	29 1,050	12 501	29 1,200	13 1,180
30 800	15 1,120	30 953	14 885	30 1,040	13 480	30 1,460	14 1,420
31 799	16 1,160	May	15 884	31 1,050	14 690	31 1,790	15 1,410
February	17 973	1 947	16 882	August	15 925	November	16 1,190
1 798	18 968	2 961	17 884	1 1,080	16 641	1 1,190	17 1,190
2 799	19 994	3 970	18 887	2 1,090	17 805	2 1,260	18 1,180
3 801	20 994	4 970	19 888	3 1,040	18 1,010	3 1,110	19 1,340
4 803	21 977	5 960	20 895	4 969	19 1,080	4 1,040	20 1,400
5 802	22 957	6 947	21 896	5 962	20 1,050	5 1,030	21 1,490
6 800	23 924	7 935	22 899	6 965	21 1,040	6 1,050	22 1,280
7 804	24 992	8 940	23 903	7 983	22 1,190	7 949	23 1,480
8 798	25 914	9 944	24 939	8 961	23 1,080	8 1,000	24 1,390
9 802	26 946	10 948	25 910	9 1,060	24 1,090	9 1,010	25 1,200
10 809	27 919	11 888	26 913	10 1,140	25 1,040	10 1,020	26 1,340
11 807	28 963	12 875	27 901	11 920	26 1,000	11 1,120	27 1,440
12 797	29 989	13 885	28 855	12 454	27 1,020	12 1,240	28 1,480
13 854	30 965	14 872	29 900	13 460	28 999	13 1,380	29 1,320
14 995	31 1,000	15 870	30 923	14 727	29 1,060	14 1,380	30 1,080
15 838		16 873		15 689	30 1,050	15 1,430	31 1,030

Puertecitos Drain in Mexico, 46.8 River Miles above Anzaldúas Dam

January	April	July	August	September	October	November	December
7 6,270	1 7,110	10 5,780	5 6,700	10 6,390	8 3,220	5 6,630	3 6,770
27 6,180	7 7,050	15 6,410	19 6,730	17 6,730	15 6,470	11 6,630	18 6,770
March	June	22 6,800	25 6,820	23 6,780	22 6,510	19 6,630	28 6,630
17 7,110	2 6,130	30 6,700	September	October	29 6,600	26 6,680	
	22 5,840		1 4,820	1 6,860			

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

January	April	July	August	September	October	November	December
7 6,270	1 6,190	10 5,880	5 5,840	10 5,910	8 5,840	5 5,710	3 5,810
February	12 6,240	15 5,890	19 5,890	17 5,800	15 5,840	11 5,830	18 6,020
27 6,180	June	22 5,920	25 5,820	23 5,800	22 5,740	19 5,730	28 5,850
March	2 5,920	30 5,840	September	October	29 5,800	26 5,970	
17 6,230	22 5,810		1 5,920	1 5,800			

ELECTRICAL CONDUCTIVITY OF WATER SAMPLES

1960

Date	ECx10 ⁶ @25°C	Date	ECx10 ⁶ @25°C	Date	ECx10 ⁶ @25°C	Date	ECx10 ⁶ @25°C	Date	ECx10 ⁶ @25°C	Date	ECx10 ⁶ @25°C	Date	ECx10 ⁶ @25°C	Date	ECx10 ⁶ @25°C
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Huizache Drain in Mexico, 41.8 River Miles above Anzaldúas Dam

January	April	June	July	September	October	November	December
7 5,460	1 6,390	22 5,840	30 6,020	1 5,690	1 5,760	5 5,680	3 5,650
February	7 6,460	July	August	10 5,980	8 5,720	11 5,580	18 5,650
27 6,370	12 6,400	10 6,240	5 5,980	17 5,910	15 5,780	19 5,580	20 5,720
March	June	15 6,140	19 5,890	23 5,840	22 5,690	26 5,670	28 5,690
19 6,390	2 6,570	22 6,100	25 5,850		29 5,720		

Rio Grande near Los Ebanos, Texas

January	February	April	May	July	August	October	November
1 823	16 943	1 924	16 920	1 1,030	19 1,150	4 1,060	18 1,080
5 890	19 898	5 924	20 892	5 990	23 1,360	7 974	22 1,420
8 860	23 1,110	8 917	24 920	8 975	26 1,360	11 970	25 1,900
12 902	26 1,120	12 913	27 907	12 952	30 1,260	14 953	29 1,630
15 871	March	15 932	31 952	15 954	September	18 946	December
19 833	1 1,180	19 841	June	19 959	2 1,190	21 849	2 1,070
22 816	4 1,380	22 952	3 915	22 835	6 581	25 410	6 1,280
26 835	8 1,680	26 1,070	7 896	26 1,190	9 848	28 712	9 1,290
29 809	11 1,190	29 1,100	10 896	29 1,110	13 743	November	13 1,140
February	15 1,410	May	14 906	August	16 1,490	1 1,910	16 1,580
2 854	18 1,500	3 1,400	17 897	2 1,190	20 1,340	4 1,600	20 1,890
5 832	22 1,380	6 1,180	21 910	5 982	23 1,500	8 1,060	23 1,760
9 872	25 1,290	10 1,080	23 918	9 1,020	27 963	11 1,110	27 1,770
12 848	29 1,020	13 917	28 884	12 912	30 1,130	15 2,010	30 1,530
				16 865			

Morillo Drain in Mexico, 8.4 River Miles above Anzaldúas Dam

January	February	June	July	September	October	November	December
7 16,290	27 15,680	4 11,890	22 17,670	1 13,630	1 17,680	5 16,950	3 17,150
15 15,380	March	10 11,490	30 18,610	10 6,080	8 18,370	11 14,100	18 17,440
25 9,950	17 17,290	July	August	17 13,840	15 16,870	19 17,200	28 17,440
February	29 17,910	9 12,960	5 18,610	23 16,560	22 16,330	26 16,370	
14 12,080		15 15,030	19 7,850		29 14,290		
			25 16,440				

ELECTRICAL CONDUCTIVITY OF WATER SAMPLES

[illegible]

Rio Grande Below Anzaldúas Dam

April		May		June		July		July		August		September		November	
4	1,400	10	1,670	5	1,120	1	1,150	27	2,130	20	1,410	13	1,300	7	2,330
6	1,440	11	1,650	6	1,100	2	1,170	28	1,860	21	1,450	14	1,260	9	1,530
8	1,360	12	1,580	7	1,070	3	1,290	29	1,880	22	1,640	16	1,310	11	1,710
11	1,180	13	1,350	8	1,070	4	1,280	30	1,800	23	1,840	19	2,350	14	2,140
13	1,110	14	1,170	9	1,030	5	1,350	31	1,680	24	1,740	21	2,440	16	2,670
15	1,250	15	1,180	10	1,070	6	1,210	August		25	1,810	23	2,020	18	2,980
18	1,100	16	1,150	11	1,040	7	1,280	1	1,540	26	2,050	26	2,430	21	1,590
19	1,150	17	1,130	12	1,020	8	1,230	2	1,630	27	2,070	28	1,520	23	1,490
21	1,140	18	1,120	13	1,050	9	1,260	3	1,850	28	1,900	30	1,360	25	1,920
22	1,450	19	1,130	14	1,030	10	1,200	4	1,960	29	3,470	October		28	3,060
23	1,430	20	1,020	15	1,010	11	1,170	5	1,960	30	1,390	3	1,320	30	3,000
24	1,440	22	1,040	16	1,030	12	1,170	6	1,330	31	1,380	5	2,090	December	
25	1,250	23	1,130	17	1,000	13	1,200	7	1,320	September		7	1,310	2	2,650
27	1,540	24	1,160	18	1,010	14	1,230	8	1,300	1	1,640	10	1,080	5	1,740
30	1,550	25	1,160	19	1,010	15	1,220	9	1,280	2	1,820	12	1,190	7	1,850
May		26	1,100	20	984	16	1,220	10	1,380	3	1,480	14	1,300	9	1,870
1	1,700	27	1,090	21	975	17	1,210	11	1,490	4	1,190	17	1,140	12	1,980
2	1,880	29	1,190	22	1,040	18	1,250	12	1,360	5	1,410	19	1,100	14	1,880
3	1,940	30	1,230	23	1,080	19	1,320	13	1,090	6	861	21	1,410	16	1,740
4	2,060	31	1,230	24	997	20	1,300	14	808	7	728	24	1,080	19	1,470
5	2,120	June		25	1,260	21	1,200	15	882	8	875	26	481	21	1,620
6	2,160	1	1,200	26	1,170	22	769	16	944	9	988	28	462	23	2,020
7	1,780	2	1,190	27	1,230	23	962	17	1,300	10	1,240	31	693	26	2,270
8	1,660	3	1,170	28	1,210	24	1,250	18	1,240	11	1,470	November		28	2,340
9	1,800	4	1,150	29	1,090	25	1,250	19	1,390	12	1,430	2	1,260	30	2,690
				30	1,070	26	1,650					4	2,590		

Rio Grande at Hidalgo, Texas

January	April	May	July	September	October	November	December
4 992	4 1,390	23 1,090	8 1,300	5 944	12 1,160	1 1,790	2 2,700
11 1,030	8 1,450	27 1,250	11 1,300	12 1,740	14 1,240	2 1,500	5 1,700
18 907	11 1,230	30 1,250	18 1,310	15 2,420	17 1,130	4 2,500	7 1,730
25 904	18 1,190	June	22 784	19 2,430	19 1,560	7 2,290	9 1,860
February	22 1,170	3 1,100	25 1,180	22 2,080	21 1,550	9 1,680	12 1,980
1 940	25 1,350	6 1,100	29 1,900	23 2,070	24 1,070	14 2,180	14 2,040
8 997	29 1,670	10 1,060	August	26 2,090	24 1,370	16 2,860	19 1,480
15 1,400	May	13 1,060	1 1,740	28 1,470	25 1,380	18 2,780	21 1,630
22 1,410	2 1,630	18 952	5 1,680	30 1,310	25 775	21 1,540	26 2,220
29 1,820	6 1,660	20 952	10 1,420	October	26 675	23 1,720	29 3,070
March	9 1,680	24 1,350	12 1,420	3 1,390	26 711	25 1,910	31 2,390
7 1,920	13 1,200	28 1,270	15 852	5 2,240	27 544	28 3,310	
14 2,490	16 1,200	July	19 1,300	7 1,360	28 526	30 2,780	
21 2,460	20 1,090	1 1,120	22 1,540	10 1,070	31 601		
28 1,610		4 1,260	29 1,930				

Arroyo Colorado, South of Mercedes, Texas

April	May	July	August	September	October	November	December
1 5,420	2 2,620	5 4,110	4 4,610	6 3,400	10 5,200	7 5,470	5 5,650
7 5,610	June 2 4,770						

ELECTRICAL CONDUCTIVITY OF WATER SAMPLES **1960**

Date	ECx10 ⁶ @25°C	Date	ECx10 ⁶ @25°C	Date	ECx10 ⁶ @25°C	Date	ECx10 ⁶ @25°C	Date	ECx10 ⁶ @25°C	Date	ECx10 ⁶ @25°C	Date	ECx10 ⁶ @25°C	Date	ECx10 ⁶ @25°C
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Rio Grande at Mercedes, Texas, Pumps

January	February	April	May	July	August	October	November
1 990	16 1,120	1 1,580	18 1,200	2 1,120	17 876	1 1,830	16 1,760
2 976	17 1,150	2 1,640	19 1,180	3 1,180	18 939	2 1,580	17 1,780
3 984	18 1,240	3 1,660	20 1,160	4 1,180	19 1,010	3 1,550	18 1,930
4 966	19 1,480	4 1,570	21 1,050	5 1,310	20 1,290	4 1,330	19 2,020
5 1,000	20 1,280	5 1,410	22 1,030	6 1,310	21 1,270	5 1,190	20 2,970
6 974	21 1,340	6 1,390	23 1,040	7 1,350	22 1,360	6 1,390	21 2,970
7 1,020	22 1,270	7 1,400	24 1,040	8 1,210	23 1,340	7 1,740	22 2,470
8 1,060	23 1,330	8 1,360	25 1,110	9 1,280	24 1,440	8 2,010	23 2,200
9 1,090	24 1,350	9 1,480	26 1,190	10 1,300	25 1,460	9 1,640	24 1,710
10 1,060	25 1,520	10 1,440	27 1,110	11 1,290	26 1,700	10 1,390	25 1,540
11 1,010	26 1,530	11 1,230	28 1,070	12 1,240	27 1,760	11 1,210	26 1,420
12 1,020	27 1,650	12 1,240	29 1,140	13 1,180	28 2,040	12 1,160	27 1,520
13 1,050	28 1,640	13 1,210	30 1,160	14 1,180	29 2,030	13 1,160	28 1,730
14 1,060	29 1,720	14 1,140	31 1,210	15 1,210	30 2,010	14 1,150	29 1,870
15 1,070	March	15 1,140	June	16 1,230	31 1,940	15 1,190	30 1,770
16 1,110	1 1,730	16 1,250	1 1,190	17 1,240	September	16 1,520	31 1,410
17 1,090	2 1,890	17 1,260	2 1,200	18 1,240	1 1,480	17 1,240	December
18 1,030	3 1,930	18 1,130	3 1,210	19 1,270	2 1,470	18 1,170	1 2,960
19 952	4 1,950	19 1,250	4 1,180	20 1,280	3 1,440	19 1,190	2 3,100
20 913	5 2,000	20 1,250	5 1,190	21 1,300	4 1,600	20 1,030	3 2,790
21 907	6 1,990	22 1,350	6 1,160	22 1,320	5 1,590	21 1,140	4 2,780
22 864	7 1,990	23 1,160	7 1,130	23 1,160	6 1,030	22 1,090	5 2,890
23 888	8 2,000	24 1,160	8 1,090	24 863	7 804	23 1,270	6 2,210
24 897	9 2,000	25 1,470	9 1,070	25 851	8 766	24 1,260	7 2,010
25 893	10 2,040	26 1,540	10 1,040	26 1,120	9 725	25 1,350	8 1,710
26 899	11 2,560	27 1,250	11 1,040	27 1,230	10 749	26 2,170	9 1,550
27 904	12 3,000	28 1,230	12 1,050	28 1,500	11 886	27 766	10 2,040
28 891	13 2,870	29 1,310	13 1,030	29 1,300	12 983	28 490	11 2,040
29 920	14 2,310	30 1,560	14 1,020	30 1,790	13 1,350	29 512	12 2,040
30 981	15 2,320	May	15 1,040	31 1,770	14 1,490	30 602	13 2,000
31 1,020	16 1,990	1 1,820	16 1,030	August	15 1,390	31 700	14 2,220
February	17 2,120	2 1,820	17 1,020	1 1,840	16 1,300	November	15 1,970
1 908	18 2,180	3 1,480	18 1,030	2 1,680	17 1,330	1 815	16 1,970
2 937	19 1,810	4 1,560	19 1,000	3 1,700	18 1,330	2 888	17 2,030
3 929	20 2,630	5 1,620	20 1,010	4 1,530	19 1,400	3 767	18 2,020
4 929	21 2,720	6 1,720	21 1,020	5 1,730	20 1,450	4 1,820	19 1,940
5 943	22 2,620	7 2,080	22 986	6 1,660	21 1,390	5 1,510	20 1,890
6 974	23 2,490	8 2,070	23 1,010	7 1,720	22 1,950	6 1,310	21 1,860
7 979	24 2,490	9 2,050	24 1,040	8 1,320	23 2,320	7 2,120	22 1,690
8 965	25 2,430	10 1,950	25 1,080	9 1,310	24 2,350	8 2,460	23 1,540
9 962	26 2,400	11 1,870	26 1,050	10 1,340	25 2,290	9 2,490	24 1,560
10 1,000	27 2,220	12 1,720	27 1,200	11 1,360	26 2,110	10 2,220	25 1,650
11 1,010	28 2,340	13 1,840	28 1,270	12 1,250	27 1,870	11 1,740	26 1,640
12 1,010	29 1,880	14 1,860	29 1,260	13 1,200	28 1,700	12 1,580	27 1,890
13 1,070	30 1,640	15 1,740	30 1,230	14 1,320	29 2,810	13 1,570	28 1,920
14 1,280	31 1,550	16 1,280	July	15 1,040	30 1,990	14 1,710	29 2,200
15 1,110		17 1,260	1 1,030	16 1,070		15 1,750	30 2,190
							31 3,190

Rio Grande near San Benito, Texas

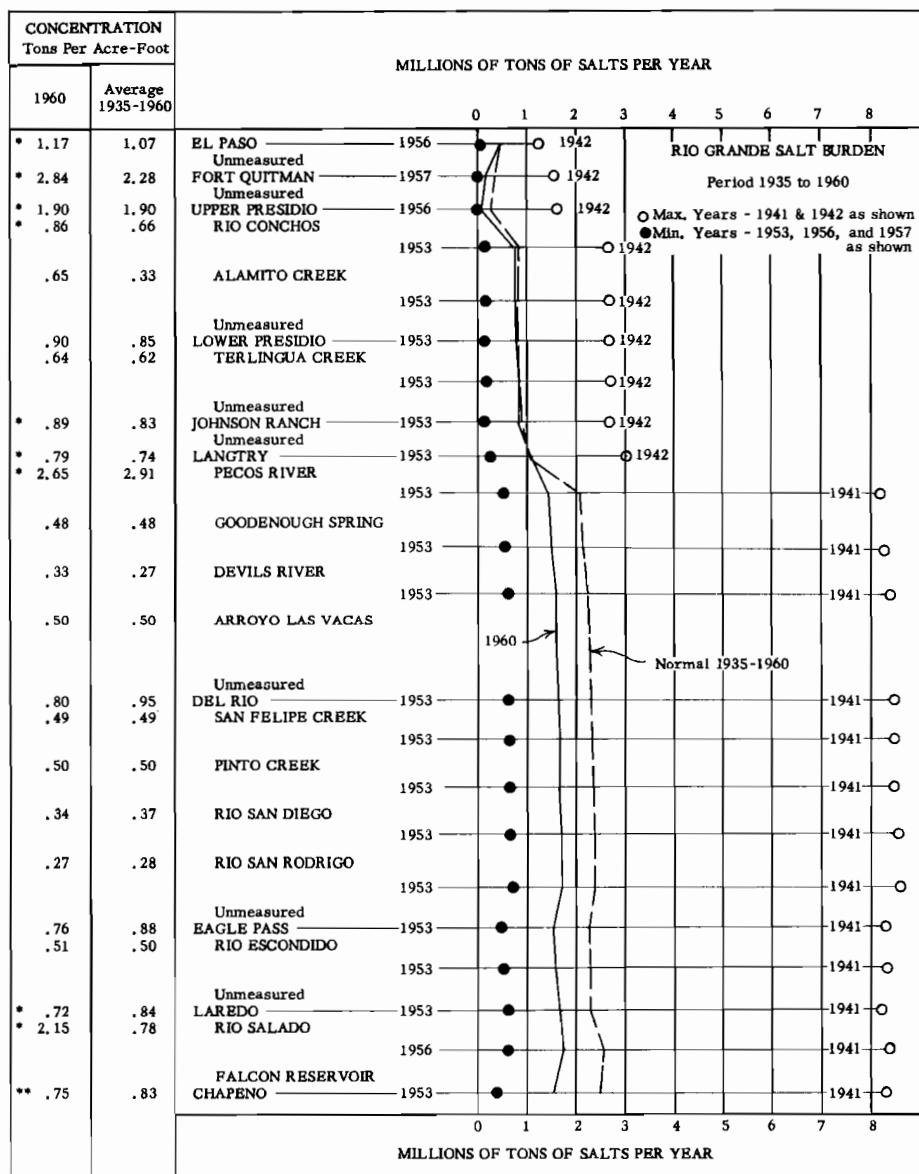
January	February	April	May	July	August	October	November
4 998	23 1,270	4 1,690	27 1,220	5 1,180	23 1,400	3 2,050	21 2,520
11 1,040	29 1,640	11 1,220	31 1,220	11 1,290	30 1,970	10 1,650	28 1,490
19 1,020	March	18 1,190	June	18 1,260	September	17 1,500	December
25 900	7 2,010	25 1,230	6 1,130	25 971	6 1,000	24 1,180	5 2,720
February	14 3,000	May	13 1,050	August	12 905	31 672	12 1,840
1 912	21 2,340	2 1,490	20 1,020	1 1,800	19 1,330	November	19 1,940
8 971	28 2,170	9 2,040	27 1,130	8 1,570	26 2,350	7 1,330	27 1,600
15 1,240		16 1,600		15 1,560		14 1,590	

Rio Grande at Lower Brownsville, Texas

January	February	April	May	July	August	October	November
4 973	23 1,320	4 1,730	16 2,170	5 1,140	15 1,270	3 2,730	21 1,740
11 1,130	29 1,460	11 1,570	27 1,080	11 1,380	22 1,160	10 1,690	28 2,180
19 1,120	March	18 1,180	31 1,110	18 1,240	30 1,750	17 1,450	December
25 901	7 1,870	25 1,120	June	25 1,260	September	24 1,210	5 2,030
February	14 2,010	May	6 1,320	August	6 1,020	31 627	12 2,490
1 1,000	21 2,150	2 1,290	13 1,090	1 1,280	12 781	November	19 2,290
8 1,070	28 2,530	9 1,500	20 1,140	8 1,870	19 1,400	7 893	27 1,880
15 1,030			27 1,090		26 1,500	14 1,830	

RIO GRANDE SALT BURDEN

The term "salt", as used herein, means total dissolved solids. The 1960 concentrations which are marked by an asterisk (*) are based on the chemical analyses shown on preceding pages of this bulletin. Those without asterisks are based on chemical analyses reported in previous water bulletins or have been developed by deduction. Average concentrations shown for the period 1935 to 1960 are the weighted means of the values determined for the 26-year period indicated.



* Based on 1960 chemical analyses of samples collected at stations indicated. ** Based on 1960 chemical analyses of samples collected at Falcón Dam - U. S. Tailrace.

SANITARY ASPECTS OF WATER QUALITY

The United States and Mexican Sections of this Commission and the Texas State Department of Health cooperate in the joint sanitary water-sampling program along the Rio Grande. All analyses below have been made under the "Rules of Laboratory Procedure," as approved by the participating agencies, and which conform with the procedures set out in the manual "Standard Methods for the Examination of Water and Sewage," Tenth Edition (1955), prepared by the American Public Health Association and the American Water Works Association. These analyses were made in the laboratories of the El Paso Water Plant, the Cameron County Health Unit, and the International Boundary and Water Commission. The percentages of dissolved oxygen (D. O.) shown below are the percent saturation at the elevation of the sampling station.

Date 1960	D. O. Percent Saturation	B. O. D. Parts Per Million	Coliform Organisms per 100 c. c.	Total Bacteria per c. c. (plate count)	Date 1960	D. O. Percent Saturation	B. O. D. Parts Per Million	Coliform Organisms per 100 c. c.	Total Bacteria per c. c. (plate count)
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Franklin Canal at El Paso, Texas, Water Plant

Jan. 5	94.5	2.3	6,200	14,500	July 12	112	4.0	240,000 +	3,740
*12	107	5.3	9,400	1,220	20	100	1.6	110,000	80,000
*19			16,000	1,650	26	83.3	1.0	62,000	65,500
Feb. 2	98.7	3.4	22,000	1,850	Aug. 2	102	1.7	130,000	14,750
9	83.3	3.1	9,400	8,150	10	109	1.0	280,000	10,100
16	105	4.8	3,300	1,750	16	116	2.0	220,000	6,400
23	123	5.3	3,400	9,450	23	114	1.4	220,000	10,100
Mar. 1	102	5.1	70,000	8,700	30	121	1.7	1,400,000	5,950
8	93.4	6.1	6,200	5,200	Sept. 6	136	3.2	62,000	10,500
14	99.3	2.6	70,000	1,750	13	125	3.0	220,000	10,650
22	97.4	1.8	16,000	6,700	20	106	1.0	2,200,000	102,000
29	93.9	2.7	9,400	4,450	27	109	1.2	2,800,000	80,000
Apr. 5	99.6	2.2	3,600	4,280	Oct. 4	97.7	1.2	2,200,000	910,000
12	103	2.8	9,400	8,260	11	105	1.3	1,600,000	1,155,000
19	102	3.1	16,000	1,350	18	106	1.4	2,800,000	1,075,000
26	125	4.9	28,000	2,050	25	116	2.1	2,200,000	1,650,000
May 3	114	4.4	280,000	3,280	Nov. 1	92.6	2.0	38,000,000	1,160,000
10	114	3.3	22,000	4,150	15	103	2.4	70,000,000	2,550,000
17	128	2.4	22,000	7,300	22	113	2.0	2,200,000	392,000
24	114	4.8	22,000	9,650	29	93.9	2.9	2,800,000	2,185,000
31	129	4.2	22,000	15,750	Dec. 20	90.7	2.8	2,800,000	169,500
June 7	126	4.2	22,000	25,000	*27	79.8	2.0	7,000,000	1,480,000
21	112	18.5	22,000	2,810					
28	85.5	1.2	9,400	5,700	Total	4,923.6	145.3	140,285,700	13,282,590
July 5	143	3.9	22,000	1,450	Avg.	107	3.2	2,985,000	283,000

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

Jan. 5	63.8	7.3	94,000,000	2,950,000	July 20	85.3	13.5	2,800,000	1,025,000
12	55.7	15.4	16,000,000	490,000	26	62.5	14.1	2,200,000	3,540,000
19			22,000,000	400,000	Aug. 2	73.8	23.2	2,200,000	298,000
Feb. 2	46.7	18.6	13,000,000	175,000	9	86.8	17.0	1,600,000	226,500
9	52.3	18.8	36,000,000	2,840,000	16	85.5	11.3	2,200,000	178,500
16	55.0	17.1	620,000,000	2,700,000	23	96.4	22.4	940,000	121,500
23	50.1	7.8	1,600,000,000	2,200,000	30	97.8	22.7	2,200,000	185,500
Mar. 1	58.8	3.8	2,200,000,000	1,750,000	Sept. 6	102	15.4	1,600,000	50,500
8	56.4	16.7	94,000,000	1,635,000	13	91.0	22.7	24,000,000 +	19,230,000
14	70.4	24.2	27,000,000	1,370,000	20	76.6	36.9	110,000,000	5,100,000
22	87.6	7.2	130,000,000	1,770,000	27	87.5	18.6	220,000,000	4,600,000
29	86.4	7.8	220,000,000	1,750,000	Oct. 4	94.4	18.1	1,400,000,000	9,700,000
Apr. 5	77.8	9.8	2,200,000	80,250	11	84.2	28.1	700,000,000	5,800,000
12	100	10.6	2,200,000	141,100	18	83.3	15.4	160,000,000	9,200,000
26	88.5	15.7	7,000,000	32,000	25	86.2	16.0	2,400,000,000 +	14,600,000
May 3	85.5	14.1	9,400,000	321,000	Nov. 1	30.1	41.0	1,600,000,000	10,950,000
10	115	11.4	28,000,000		8			62,000,000	
17	115	15.0	140,000,000	7,540,000	15	86.4	91.0	2,200,000,000	10,900,000
24	113	34.7	70,000,000	5,920,000	22	110	46.5	28,000,000	30,910,000
31	97.8	10.0	28,000,000	19,600,000	29	102	16.0	140,000,000	2,185,000
June 7	96.4	6.3	22,000,000	13,560,000	Dec. 20	44.8	37.0	240,000,000 +	2,125,000
21	103	18.5	16,000,000	1,645,000	27	56.8	4.7	240,000,000 +	2,085,000
28	62.5	12.5	22,000,000						
July 5	84.7	9.9	22,000,000	6,250,000	Total	3,618.0	865.1	14,982,940,000	208,869,850
12	72.2	20.3	2,400,000	740,000	Avg.	80.4	19.2	318,800,000	4,747,000

* Samples taken from the Rio Grande at the Water Plant.

SANITARY ASPECTS OF WATER QUALITY

Date 1960	Coliform Organisms per 100 c. c.	Total Bacteria per c. c. (plate count)	Date 1960	Coliform Organisms per 100 c. c.	Total Bacteria per c. c. (plate count)	Date 1960	Coliform Organisms per 100 c. c.	Total Bacteria per c. c. (plate count)
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Rio Grande at Laredo, Texas, Water Plant

Jan. 4	1,100	1,200	May 9	360	1,750	Sept. 12	11,000	30,800
11	160	600	16	540	1,700	19	930	6,900
18	280	1,050	23	230	4,350	26	38,000	31,750
25	620	1,800	31	210	3,250	3	230	3,650
Feb. 1	340	950	June 6	360	9,500	10	52	#650
8	1,100	1,000	13	540	3,100	17	110,000	488,000
15	3,600	2,400	20	620	1,150	24	11,000	125,200
23	2,300	1,300	27	360	750	31	23,000	193,500
29	360	1,000	July 5	360	1,000	Nov. 7	24,000	81,100
Mar. 7	360	1,350	11	3,600	94,200	14	6,200	18,500
14	360	1,000	18	24,000	130,800	21	38,000	19,500
21	110	1,100	25	11,000	15,000	27	620	1,000
28	160	1,050	Aug. 1	6,200	15,000	Dec. 5	3,600	10,000
Apr. 4	210	950	8	2,300	7,000	12	9,400	13,500
11	60	450	15	22,000	70,500	19	2,300	5,250
18	230	650	22	5,500	48,100	27	620	3,700
25	160	850	29	6,200	108,500	Total	384,642	1,827,850
May 2	3,600	75,000	Sept. 6	6,200	185,500	Avg.	7,400	35,200

Rio Grande at 8.6 Miles Below Laredo, Texas, R. R. Bridge

Jan. 4	28,000	9,000	May 9	23,000	64,000	Sept. 19	36,000	105,000
11	62,000	24,000	16	110,000	192,500	26	110,000	379,000
18	36,000	33,000	23	240,000	309,000	Oct. 3	62,000	118,000
25	36,000	22,500	31	240,000	252,000	10	6,200	67,500
Feb. 1	23,000	10,500	June 6	110,000	257,000	17	110,000	668,000
8	11,000	12,500	13	16,000	320,000	24	220,000	393,000
15	9,300	16,500	20	23,000	89,000	31	110,000	661,000
23	16,000	11,500	27	110,000	370,000	Nov. 7	62,000	144,500
29	23,000	12,000	July 11	110,000	343,500	14	110,000	221,000
Mar. 7	62,000	11,500	18	62,000	584,000	21	380,000	1,157,000
14	62,000	15,500	25	110,000	75,000	27	16,000	29,000
22	36,000	23,500	Aug. 1	36,000	70,500	Dec. 5	36,000	32,500
28	62,000	29,000	8	240,000	292,000	12	110,000	77,000
Apr. 4	110,000	47,000	15	110,000	160,500	19	21,000	50,500
11	62,000	32,500	22	36,000	105,000	27	36,000	23,500
18	110,000	83,500	29	23,000	157,000	Total	4,350,500	9,059,000
25	240,000	200,000	Sept. 6	62,000	293,000	Avg.	85,300	178,000
May 2	240,000	283,000	12	36,000	121,500			

Rio Grande at Falcón Dam—U.S. Tailrace

Jan. 4	110	5,000	May 16	6	350	Sept. 26	230	1,260
11	3	250	23	6	2,300	Oct. 3	16	420
18	21	250	31	6	455	10	6	570
25	6	100	June 6	3	360	17	110	725
Feb. 1	6	250	13	3	210	24	120	920
8	3	50	20	3	10	31	160	865
15	23	100	27	28	1,080	Nov. 7	62	590
29	11	300	July 5	9	535	14	23	3,110
Mar. 7	3	50	11	6	1,670	21	23	5,060
14	3	300	18	3	105	27	36	690
21	6	400	25	0	30	Dec. 5	23	455
28	0	200	Aug. 1	0	325	12	62	380
Apr. 4	21	300	8	23	495	19	36	670
11	6	350	15	11	705	27	9	1,320
19	36	350	22	11	340	Total	1,307	36,210
25	3	400	29	0	290	Avg.	26.1	724
May 2	0	600	Sept. 6	3	480			
9	3	50	19	6	135			

Rio Grande at Mercedes, Texas, Pumps

Jan. 4	2,300	May 10	1,300	Sept. 26	360
11	1,600	17	13,000	Oct. 3	3,600
18	2,300	31	3,600	10	2,300
25	2,300	June 7	11,000	17	3,600
Feb. 1	620	13	2,300	24	11,000
8	6,200	21	2,300	31	11,000
15	3,600	28	1,600	Nov. 7	620
23	1,100	July 5	1,600	14	540
29	1,600	12	1,100	21	3,400
Mar. 7	930	19	11,000	28	2,300
14	1,700	26	1,600	Dec. 5	3,600
22	230	Aug. 2	1,600	12	1,100
28	2,300	8	6,200	19	620
Apr. 4	6,200	16	9,400	27	3,600
11	6,200	22	1,100	Total	171,620
18	1,600	29	2,300	Avg.	3,430
26	2,100	Sept. 12	2,300		
May 3	6,200	19	1,600		

RAINFALL ON THE RIO GRANDE WATERSHED

IN INCHES

In the United States

Tabulated below, in downstream order, are monthly records of United States rainfall stations with averages for their periods of record. For location, elevation, period of record, type of gage in use, watershed subdivision in which the station is located, and the observer, see alphabetical listing of these stations shown on pages 108 through 110 of this bulletin. These rainfall records have not been published elsewhere. Records of daily rainfall amounts, where available, are on file in the office of the United States Section of this Commission. Daily records for years prior to 1953 may also be found in corresponding water bulletins.

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

Month	American Dam		Island Station		Fabens-Guadalupe Bridge		County Line		Fort Hancock Bridge	
	1960	Average	1960	Average	1960	Average	1960	Average	1960	Average
Jan.	.68	.43	.86	.37	.87	.40	.81	.41	.72	.42
Feb.	.27	.37	.01	.28	.36	.30	.14	.21	.18	.27
Mar.	.08	.37	.05	.26	.17	.30	.13	.30	.06	.24
Apr.	T	.23	0	.20	0	.28	0	.26	0	.33
May	T	.28	0	.40	.03	.40	.04	.41	T	.64
June	.32	.64	.65	.55	.66	.50	.49	.56	.36	.80
July	2.26	1.50	2.51	1.05	2.00	1.20	3.23	1.10	4.21	1.31
Aug.	.55	1.43	.37	1.19	.16	1.27	.07	1.30	1.86	1.63
Sept.	.02	.89	.11	.81	.42	.96	0	.93	.02	.87
Oct.	.61	.69	.88	.90	1.07	1.02	1.55	1.02	2.01	1.16
Nov.	T	.17	0	.20	.01	.20	.02	.20	T	.21
Dec.	1.31	.42	1.23	.38	1.81	.44	1.13	.36	1.29	.43
Yearly	6.10	7.42	6.67	6.59	7.56	7.27	7.61	7.06	10.71	8.31

Month	Madden Arroyo		Guayuco Arroyo		Fort Quitman		Neely Ranch		Moody Bennett	
	1960	Average	1960	Average	1960	Average	1960	Average	1960	Average
Jan.	.30	.30	.72	.38	.68	.46	.55	.38	.12	.25
Feb.	.02	.17	.20	.19	.10	.24	0	.16	0	.55
Mar.	.02	.14	.08	.18	.02	.23	0	.18	.11	.11
Apr.	0	.33	0	.23	0	.29	0	.13	.41	.25
May	0	.51	.42	.40	.88	.47	T	.40	0	.68
June	.42	.49	1.10	.55	1.52	.77	1.59	.67	.47	.20
July	1.51	1.19	3.10	1.55	5.98	1.63	4.83	1.67	3.53	1.58
Aug.	.30	1.57	.21	1.53	2.70	1.52	.93	1.55	1.98	1.26
Sept.	.05	.84	0	1.10	0	.92	0	1.28	0	.70
Oct.	2.05	1.24	2.50	1.33	1.94	.95	2.54	1.18	.90	.98
Nov.	0	.13	.05	.17	.07	.26	.23	.19	.21	.24
Dec.	.94	.37	1.43	.40	1.52	.37	1.35	.38	1.17	.38
Yearly	5.61	7.28	9.81	8.01	15.41	8.11	12.02	8.17	8.90	7.18

Month	Bill Shannon		Adobes Ranch		Livingston Ranch		Presidio (IB&WC Gage)		Quebec Ranch	
	1960	Average	1960	Average	1960	Average	1960	Average	1960	Average
Jan.	1.20	.81	1.89	.49	1.55	.76	1.45	.38	.90	.52
Feb.	0	.66	0	.26	0	.42	.10	.23	0	.27
Mar.	1.30	.50	.40	.20	.40	.12	.15	.17	1.05	.35
Apr.	0	.09	.10	.19	0	.13	.05	.18	0	.37
May	0	.36	0	.36	0	.31	T	.36	0	1.19
June	.65	.74	.72	.98	.85	1.05	1.00	.82	1.45	1.64
July	6.30	2.07	4.89	2.11	2.90	1.22	2.15	1.20	6.10	2.45
Aug.	1.50	1.59	2.67	1.18	3.50	1.57	1.50	.86	2.10	1.75
Sept.	0	1.25	T	1.44	.60	.88	0	.86	0	1.40
Oct.	1.00	1.19	.25	.70	0	1.06	T	.51	.50	.92
Nov.	.50	.10	.83	.22	.55	.28	1.00	.23	0	.22
Dec.	2.25	.51	2.16	.33	1.70	.38	.90	.21	1.35	.31
Yearly	14.70	9.87	13.91	8.46	12.05	8.18	8.30	6.01	13.45	11.39

RAINFALL ON THE RIO GRANDE WATERSHED

IN INCHES

In the United States

Month	Kelly Ranch		Bloys Camp		Marfa Experiment Station		Kerr Mitchell Ranch		Loma Vista Ranch	
	1960	Average	1960	Average	1960	Average	1960	Average	1960	Average
Jan.	1.50	.56	1.91	.70	1.47	.65	1.59	.64	1.70	.89
Feb.	0	.21	.39	.65	.06	.44	0	.36	0	.39
Mar.	1.20	.32	1.57	.52	.74	.34	.54	.22	.60	.21
Apr.	0	.54	.15	.54	.08	.41	.08	.53	0	.65
May			0	1.64	.01	.80	.40	1.03	1.00	.97
June			2.78	2.60	.54	1.53	.19	1.72	1.50	1.73
July			5.79	3.18	3.09	2.16	2.91	1.93	2.45	2.29
Aug.			8.43	3.92	1.70	1.64	1.74	1.75	1.70	1.60
Sept.			.38	2.51	.19	1.18	.17	1.46	.60	1.39
Oct.			3.81	1.75	1.62	.88	1.80	1.34	0	1.09
Nov.			.35	.41	.41	.16	.47	.22	0	.28
Dec.			2.24	.63	1.34	.33	.96	.43	1.60	.54
Yearly			27.80	19.05	11.25	10.52	10.85	11.63	11.15	12.03

Month	H. T. Fletcher Ranch		Sautz Ranch		McFarland Ranch-Shannon		McFarland Ranch-Cement		McFarland Ranch-Headquarters	
	1960	Average	1960	Average	1960	Average	1960	Average	1960	Average
Jan.	2.20	.98	2.75	.87	2.05	1.59	2.10	1.58	1.60	1.11
Feb.	0	.33	0	.30	0	1.34	0	1.42	0	.64
Mar.	.80	.38	.90	.52	.80	.40	.80	.39	1.30	.42
Apr.	0	.53	0	.31	0	.20	0	.24	0	.55
May	0	1.14	.50	1.15	0	.58	0	.63	0	1.18
June	.65	1.35	.70	1.29	1.35	1.82	1.35	1.73	1.35	1.27
July	6.50	3.25	3.95	2.77	6.45	3.98	4.40	3.40	5.05	3.44
Aug.	2.76	2.83	2.60	2.32	2.70	2.99	2.05	2.93	2.30	2.56
Sept.	.18	1.67	.12	1.90	0	2.25	0	2.00	0	2.17
Oct.	.35	1.46	.90	1.49	0	2.12	0	2.00	0	1.60
Nov.	.90	.33	.75	.32	0	.51	0	.52	0	.42
Dec.	2.05	.42	1.80	.52	2.10	.63	2.10	.62	2.10	.63
Yearly	16.39	14.67	14.97	13.76	15.45	18.41	12.80	17.46	13.70	15.99

Month	McFarland Ranch-Casa Colorada		McFarland Ranch-Deep Well		McFarland Ranch-Cane Pasture		McFarland Ranch-Punta el Agua		McFarland Ranch-Cocameca	
	1960	Average	1960	Average	1960	Average	1960	Average	1960	Average
Jan.	2.10	1.55	1.90	1.56	2.15	1.51	2.30	1.58	2.15	1.57
Feb.	0	1.40	0	1.73	0	1.42	0	1.34	0	2.02
Mar.	.70	.38	.80	.40	.60	.33	.60	.32	.80	.58
Apr.	0	.28	0	.25	0	.27	0	.28	0	.35
May	0	.62	0	.58	0	.84	0	.81	0	.75
June	1.10	1.48	1.35	1.86	.85	1.64	.75	1.52	1.35	2.36
July	6.05	3.20	4.70	3.36	5.20	2.86	3.90	2.50	4.30	3.59
Aug.	1.35	2.95	1.85	3.06	2.20	2.48	2.20	2.36	1.35	2.83
Sept.	0	1.65	0	2.07	0	1.76	0	1.52	0	2.54
Oct.	0	1.86	0	2.79	0	1.88	0	1.78	0	1.86
Nov.	0	.47	0	.52	0	.44	0	.43	0	.48
Dec.	2.10	.60	2.10	.62	2.10	.62	2.10	.63	2.10	.74
Yearly	13.40	16.44	12.70	18.80	13.10	16.05	11.85	15.07	12.05	19.67

Month	A. L. Baugh Ranch		Casa Piedra		H. M. Greenwood (Clenega Ranch)		Redford		O2 Ranch	
	1960	Average	1960	Average	1960	Average	1960	Average	1960	Average
Jan.	2.50	.76	2.65		2.31	.71	1.45	.61	2.35	.64
Feb.	0	.26	0		T	.24	.05	.23	.01	.41
Mar.	0	.30	0		1.10	.24	0	.08	0	.36
Apr.	0	.30	0		.10	.60	.15	.23	0	.37
May	0	.61	0		.10	.83	.15	.37	0	1.13
June	1.32	1.15	1.80		1.38	1.59	1.55	.58	1.05	1.26
July	2.61	1.78	4.10		4.95	1.91	1.80	.42	6.01	1.83
Aug.	4.92	1.80	2.95		3.37	1.80	2.40	.98	2.72	2.55
Sept.	0	1.20	0		.40	2.15	.20	1.44	0	1.61
Oct.	.20	.97	0		0	1.29	.75	.77	.89	1.69
Nov.	.85	.29	1.00		1.53	.35	1.10	.35	.83	.62
Dec.	2.09	.56	.90		2.53	.62	.70	.16	1.54	.40
Yearly	14.49	9.98	13.40		17.77	12.33	10.30	6.22	15.40	12.87

RAINFALL ON THE RIO GRANDE WATERSHED **IN INCHES** **In the United States**

Month	Terlingua Creek Station		Maverick Ranger Station		Johnson Ranch		Buttrill Ranch		Maravillas Gap Ranch	
	1960	Average	1960	Average	1960	Average	1960	Average	1960	Average
Jan.	1.18	.37	1.50	.76	.50	.42	1.85	.79	2.19	1.21
Feb.	0	.12	.14	.33	.30	.17	0	.35	.20	.69
Mar.	.10	.15	.03	.06	0	.17	.42	.17	.12	.15
Apr.	T	.47	.12	.10	T	.51	.70	.66	.32	.40
May	T	.45	.05	.62	T	.89	0	1.00	.15	.83
June	.65	.63	.59	.99	1.70	1.07	2.28	1.01	1.96	1.29
July	2.30	.86	2.22	1.54	1.70	1.17	5.70	1.66	2.25	1.03
Aug.	1.30	.53	1.43	.83	2.30	.83	2.13	.61	1.92	1.27
Sept.	0	.49	0	.88	0	1.13	0	.78	0	.57
Oct.	.40	.58	.99	.95	.30	.59	1.75	.98	1.46	1.58
Nov.	.40	.18	.56	.32	.10	.20	.60	.34	.74	.28
Dec.	.85	.26	1.29	.35	.38	.29	.50	.11	1.56	.42
Yearly	7.18	5.09	8.92	7.73	7.28	7.44	15.93	8.46	12.87	9.72

Month	Ray Willoughby Ranch		Stillwell Crossing		J. F. Woodward Ranch		Sand Valley Ranch		Perstimon Gap Ranger Station	
	1960	Average	1960	Average	1960	Average	1960	Average	1960	Average
Jan.	2.10	.70			2.02	.83	2.00	.79	1.55	.54
Feb.	.90	.63			0	.54	.25	.35	.30	.39
Mar.	.70	.36			.49	.21	0	.18	.01	.12
Apr.	.40	.45	.40		.07	.60	.35	.30	.48	.47
May	1.20	1.17	1.50		1.00	1.14	0	.89	.04	.91
June	1.25	1.66	.60		.78	1.46	1.40	1.09	1.94	1.95
July	5.70	3.27	3.71		2.04	1.78	4.00	1.90	3.86	1.33
Aug.	3.50	2.38	1.10		3.29	2.62	1.25	.57	1.46	.58
Sept.	.50	2.24	.80		.93	1.68	0	.99	.03	.90
Oct.	1.50	.97	.70		.64	1.03	.70	.72	.95	.78
Nov.	.60	.30	.30		.63	.25	.50	.34	.54	.25
Dec.	2.45	.42	.85		1.54	.36	1.20	.36	1.38	.27
Yearly	20.80	14.55			13.43	12.50	11.65	8.48	12.54	8.49

Month	Black Gap Game Refuge		Dove Mountain Ranch		Steve Stumberg Ranch		McGonagill Ranch Headquarters		McGonagill Ranch East Mill	
	1960	Average	1960	Average	1960	Average	1960	Average	1960	Average
Jan.	1.43	.53	1.10	.82	1.90	.72	1.75	.60	1.75	.59
Feb.	.82	.56	0	.24	.15	.41	0	.96	0	.17
Mar.	.42	.27	0	2.17	1.30	.30	1.95	.58	1.10	.59
Apr.	.52	.47	.60	.39	.20	.70	.30	.41	.30	.63
May	1.23	1.32	0	1.27	.80	1.54	0	.75	0	.76
June		.74	2.15	1.06	1.80	1.24	1.90	1.50	2.30	1.34
July	4.35	1.40	2.95	1.47	2.15	1.97	1.49	1.53	1.40	1.24
Aug.	1.65	.83	1.66	.52	2.10	1.30	1.00	1.24	1.20	.96
Sept.	1.50	1.27	0	1.05	0	1.91	0	1.44	0	1.88
Oct.	.35	.78	4.10	1.06	4.25	1.60	3.99	1.08	4.20	1.30
Nov.	0	.23	.45	2.51	.50	.42	0	.19	0	.21
Dec.	.08	.26	1.37	.41	1.25	.67	.80	.20	.70	.33
Yearly		8.66	14.38	12.97	16.40	12.78	13.18	10.48	12.95	10.00

Month	Arvin and Harkins Header		Arvin and Harkins Bean		Arvin and Harkins Camel		Arvin and Harkins Headquarters		Arvin and Harkins Monty Corder	
	1960	Average	1960	Average	1960	Average	1960	Average	1960	Average
Jan.	1.90	.63	1.90	.66	1.60	.52	1.60	.64	1.60	.68
Feb.	.85	.55	.85	.50	.85	.50	.85	.54	.85	.57
Mar.	0	.32	0	.33	0	.34	0	.31	0	.35
Apr.	.50	1.32	.60	1.29	.40	1.25	.40	1.12	.50	1.27
May	3.50	1.93	2.20	1.52	2.90	1.42	2.00	1.63	2.80	1.46
June	.40	1.26	.60	1.23	.40	1.08	.20	1.06	.40	1.29
July	4.30	1.35	6.20	1.55	6.30	1.28	7.30	1.40	5.70	1.42
Aug.	1.70	1.26	1.90	1.57	.50	.78	1.90	1.17	1.90	.80
Sept.	0	1.87	0	1.49	0	1.25	0	1.10	0	1.21
Oct.	5.50	2.06	5.30	1.93	3.40	1.65	7.60	2.10	4.20	1.72
Nov.	0	.30	0	.31	0	.25	0	.29	0	.28
Dec.	1.20	.34	1.20	.36	1.00	.33	1.40	.37	.80	.31
Yearly	19.85	13.19	20.75	12.74	17.35	10.65	23.25	11.73	18.75	11.36

u Estimated

RAINFALL ON THE RIO GRANDE WATERSHED
IN INCHES
In the United States

Month	E. W. Hardgrave Ranch		Adams Bros. Ranch		Bricker Ranch		Dryden		Cedar Service Station	
	1960	Average	1960	Average	1960	Average	1960	Average	1960	Average
Jan.	1.32	.74	1.23	.64	1.47	.57	1.17	.62	1.66	.86
Feb.	1.27	.78	.87	.63	.93	.61	.81	.48	.94	1.06
Mar.	1.01	.42	.57	.34	.41	.36	.60	.38	.63	.34
Apr.	.49	.97	.48	.87	.54	1.20	.58	.86		.65
May	.42	1.58	1.02	1.51	0	1.47	.10	1.95	0	2.43
June	.84	1.31	1.05	1.14	.60	1.53	.64	1.03	.25	1.47
July	5.81	1.42	2.10	1.07	1.12	.44	1.94	1.04	1.44	.80
Aug.	.82	.76	.43	.61	1.11	.46	.93	1.16	1.00	.99
Sept.	0	1.52	.30	2.29	.65	1.54	0	1.67	1.34	1.67
Oct.	2.75	1.82	3.17	1.66	1.45	1.24	2.39	1.26	1.82	1.43
Nov.	.09	.39	.07	.33	.19	.30	.12	.36	.23	.55
Dec.	1.13	.33	1.15	.31	1.25	.33	1.15	.50	1.44	.44
Yearly	15.95	12.04	12.44	11.40	9.72	10.05	10.43	11.31		12.69

Month	Pumpville		C. L. Arthur Ranch		Hoffman Ranch		Ingram Ranch		Shumla Bend	
	1960	Average	1960	Average	1960	Average	1960	Average	1960	Average
Jan.	1.20	.52	1.56	.97	.90	.73	2.06	1.04	.20	.55
Feb.	1.44	.54	.25	.46	.08	.83	1.46	.83	1.35	.82
Mar.		.41	.58	.33	1.00	.42	1.51	.67	.71	.37
Apr.		1.15	.16	.39	.53	.46	0	.84	.28	.86
May		1.86	0	1.24	.12	.89	.24	2.79	.10	2.56
June		1.62	1.53	1.60	1.50	1.16	0	2.00	.62	1.75
July		.39	5.65	2.72	5.23	2.50	1.90	1.13	1.50	.56
Aug.		.40	2.60	2.08	3.49	2.15	.66	.43	.66	1.46
Sept.		1.62	0	1.38	.70	1.30	.42	1.86	.54	1.36
Oct.		1.31	2.13	1.05	3.26	1.44	2.20	1.87	2.27	1.72
Nov.		.21	.35	.32	.27	.35	0	.28	.09	.43
Dec.		.52	1.84	.32	1.55	.46	2.06	.71	2.14	.56
Yearly		10.55	16.65	12.86	18.63	12.69	12.51	14.45	10.46	13.00

Month	Martin King Ranch		Comstock		Goodenough Spring		Lucius Hinds Ranch		Pafford Crossing	
	1960	Average	1960	Average	1960	Average	1960	Average	1960	Average
Jan.	.61	.68	.58	.71	.18	.09	.35	.75		
Feb.	1.19	.72	1.10	.85	.82	.52	1.34	1.03		
Mar.	.65	.21	.69	.68	T	0	1.00	.62	.73	
Apr.	.24	.80	.28	1.49	.11	.51	.50	1.21	.49	
May	T	2.01	.40	2.16	.21	1.12	.56	2.35	.73	
June	.85	1.16	.09	2.20	0	1.24	0	1.40	.16	
July	4.58	1.20	3.62	1.05	.60	.90	3.79	1.01	1.80	
Aug.	.55	.59	.47	1.78	.57	.41	.50	1.11	2.23	
Sept.	.93	2.11	1.07	1.79	1.00	2.72	1.80	1.87	.15	
Oct.	4.68	2.56	5.11	1.83	1.63	4.59	6.45	3.04	5.57	
Nov.	.25	.53	.15	.55	.20	.25	0	.65	.41	
Dec.	2.40	.59	2.31	.85	1.30	.63	2.40	.78	1.73	
Yearly	16.93	13.16	15.87	15.94	6.62	12.98	18.69	15.82		

Month	Devils Lake		Sellars Ranch		Wardlaw Ranch		Amistad Damsite		H. T. Miers Ranch	
	1960	Average	1960	Average	1960	Average	1960	Average	1960	Average
Jan.	.60	.72			.31	.76	.23	.50	2.00	1.33
Feb.	1.44	.84			1.30	1.06	1.08	.69	1.50	1.95
Mar.	.60	.69	.42		.42	.35	.20	.33	1.00	1.18
Apr.	.44	1.67	.31		.21	1.15	.50	.90	0	2.63
May	.63	1.97	.63		.33	2.75	.12	2.25	.70	4.05
June	.50	2.40			.12	2.47	.05	1.42	.40	4.35
July	1.51	.86	.63		1.62	.96	.99	.62	3.00	2.20
Aug.	2.88	1.34	1.44		2.61	1.62	2.51	1.05	3.00	1.30
Sept.	1.12	1.66	T		2.85	2.21	1.28	2.00	.20	3.60
Oct.	3.74	1.90	4.03		3.27	2.55	3.01	2.75	3.65	4.31
Nov.	.67	.64	.34		.50	.65	.32	.51	.40	1.10
Dec.	1.82	.76	1.80		1.68	.57	1.40	.40	2.10	1.07
Yearly	15.95	15.45			15.22	17.10	11.69	13.42	17.95	29.07

RAINFALL ON THE RIO GRANDE WATERSHED
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Month	Stewart Ranch		Armistead Ranch		Maverick County Canal Headgate		Pinto Creek		Las Moras Creek	
	1960	Average	1960	Average	1960	Average	1960	Average	1960	Average
Jan.			.75	.75	.20	.47	.50	.30	.30	.91
Feb.			2.58	1.29	1.70	1.20	1.43	.84	1.90	1.76
Mar.			1.16	.97	.58	.64	1.20	.60	.20	.50
Apr.	.55		.78	1.94	1.42	1.71	.90	1.25	1.35	.90
May			.80	2.59	.50	2.29	.20	1.20	1.05	2.41
June	1.48		1.45	3.94	.24	2.31	.40	6.40	.20	6.55
July	1.95		1.95	1.12	1.47	1.78	1.20	2.00	1.80	1.82
Aug.	1.00		6.29	2.39	2.50	1.49	2.40	1.25	4.97	2.18
Sept.	.05		.75	3.47	1.67	2.39	.70	.75	1.46	3.40
Oct.	3.98		7.57	3.67	4.28	2.00	5.20	4.05	5.12	4.36
Nov.	.43		.61	.82	.30	.46	.30	.70	.61	.86
Dec.	2.10		1.78	.64	1.88	.60	1.90	.73	1.95	.97
Yearly			26.47	23.59	16.74	17.34	16.33	20.07	20.91	26.62

Month	Wipff Ranch		Lateral No. 2 Spill		Normandy		Lateral 12 Headgate		Lateral No. 15 Spill	
	1960	Average	1960	Average	1960	Average	1960	Average	1960	Average
Jan.	.45		.59		.47	.30	.39	.24	.37	.22
Feb.	1.45		1.67		1.16	.80	1.03	.64	1.42	.88
Mar.	.28	.14	.28	.14	.92	.46	.18	.09	.17	.08
Apr.	1.00	.60	2.70	1.50	2.05	1.35	1.90	1.08	2.10	1.15
May	.60	1.95	.70	1.34	.86	1.46	1.23	2.59	1.42	1.84
June	.23	3.46	.15	3.18	.05	2.92	.05	2.42	.10	2.38
July	4.93	3.42	4.85	3.30	5.02	3.64	4.20	2.72	4.80	3.70
Aug.	3.88	2.32	3.08	1.72	2.31	1.31	1.31	.96	2.67	1.54
Sept.	.62	.71	.23	.49	.84	.86	.96	.80	.90	.72
Oct.	4.30	3.41	5.40	4.10	4.22	3.54	4.05	4.21	5.83	4.89
Nov.	.50	.70	.25	.50	.67	1.18	.75	.74	.66	.67
Dec.	1.75	1.00	1.14	.76	1.88	.91	1.60	.95	1.80	1.08
Yearly	19.99		21.04		20.45	18.73	17.65	17.44	22.24	19.15

Month	Maverick Power Plant		Cooper Ranch		Chittim Ranch		Coal Mine		Elm Creek	
	1960	Average	1960	Average	1960	Average	1960	Average	1960	Average
Jan.	.28	.67	.35		.25		.39		.25	.18
Feb.	1.19	.74	1.15		1.12		1.30		1.15	.64
Mar.	.24	.90	.10	.05	.09	.05	.08	.04	.10	.05
Apr.	1.52	1.50	3.18	1.79	1.15	1.40	1.11	.79	1.00	.75
May	1.50	2.52	1.38	2.30	.95	2.38	.76	1.83	.90	1.84
June	.29	2.65	.42	2.16	.12	1.06	.35	2.28	.68	1.34
July	5.74	1.63	5.80	5.30	5.18	5.69	5.42	6.08	6.65	6.68
Aug.	3.73	1.78	1.05	.92	1.45	1.10	.86	.84	1.40	1.08
Sept.	.82	2.46	2.55	1.52	.80	.70	2.03	1.36	.98	.70
Oct.	6.78	2.83	3.65	4.40	6.20	6.35	4.25	4.62	5.30	5.14
Nov.	.76	.68	.60	.68	.40	.53	.58	.62	.58	.56
Dec.	1.95	.61	1.30	.86	1.15	.78	.83	.58	1.29	.82
Yearly	24.80	18.97	21.53		18.86		17.96		20.28	19.78

Month	Tortuga Ranch		Rosita Creek Siphon		Trees Farm		Rosita Creek		Farias Ranch	
	1960	Average	1960	Average	1960	Average	1960	Average	1960	Average
Jan.	.30	.47	.30	.30	.09		.25	.22	.30	
Feb.	1.00	.51	1.22	.87	1.14		1.15	.68	1.17	
Mar.	0	.37	.04	.06	0		.05	.04	.15	.08
Apr.	.60	1.59			.77	.82	.30	.65	.79	.88
May	1.00	3.32	.70	2.08	.72	2.09	.76	1.56	.91	1.80
June	0	1.08	0	1.36	.64	1.62	T	1.20	.18	2.42
July	5.95	1.98	9.20	6.64	5.84	5.51			11.39	6.17
Aug.	.80	2.23	0	.44	.42	.96	.78	1.34	.62	.85
Sept.	1.00	2.88	.58	.46	.97	.56	2.33	1.34	3.72	2.29
Oct.	7.10	2.49	6.40	6.70	7.34	6.80	5.29	6.27	7.26	7.03
Nov.	.60	.40	.80	.72	.65	.60	.92	.82	1.15	1.18
Dec.	.90	.43	.95	.65	.80	.58	1.10	.78	1.11	.73
Yearly	19.25	17.75			19.38				28.75	

RAINFALL ON THE RIO GRANDE WATERSHED **IN INCHES** **In the United States**

Month	Indio Ranch		El Indio		Van Dalsem Farm		Wuensche Farm		Ketsling Farm	
	1960	Average	1960	Average	1960	Average	1960	Average	1960	Average
Jan.	.42	.42	0	.82	.20	.50	.24	.70	T	.32
Feb.	1.33	1.02	1.45	.87	1.40	.78	1.48	1.18	1.89	1.14
Mar.	.07	.04	0	.53	.09	.05	.10	.51	0	0
Apr.	1.04	1.13	.67	1.28	1.13	1.13	1.11	1.49	1.45	1.35
May	.82	1.64	1.00	3.31	.90	2.06	.85	2.56	1.40	2.22
June	.27	1.99	.05	1.72	.15	2.32	.21	1.36	T	.82
July	9.92	6.22	6.80	.96	4.30	2.95	3.20	1.25	3.90	2.74
Aug.	.94	2.42	.60	2.07	.75	1.08	.05	1.28	1.10	.96
Sept.	1.63	1.28	3.55	3.02	3.95	2.38	3.85	3.10	1.90	1.56
Oct.	5.94	5.09	7.92	1.88	9.50	5.92	9.82	2.64	11.10	6.02
Nov.	1.04	1.38	.82	.60	.80	.89	1.46	.74	1.30	.80
Dec.	.77	.67	1.15	.70	.75	.62	.69	.51	2.00	1.21
Yearly	24.19	23.30	24.01	17.76	23.92	20.68	23.06	17.32	26.04	19.14

Month	Cuervo Creek		Apache Ranch		Justapor Ranch		Laredo Water Plant		Fort McIntosh	
	1960	Average	1960	Average	1960	Average	1960	Average	1960	Average
Jan.	.25	.87	0	1.23	.50	.70	.38	.87	.50	.74
Feb.	1.20	.86	.90	1.36	.50	1.55	.70	.79	.68	.86
Mar.	T	.16	0	.06	.30	.21	.46	.58	.47	.73
Apr.	.98	1.32	1.00	1.08	.60	.25	1.40	1.07	.84	1.30
May	.80	2.20	0	2.38	.50	1.73	.51	2.45	.66	2.64
June	.17	1.62	0	1.21	1.10	1.04	.80	2.00	.67	2.05
July	3.15	1.24	0	1.82	1.60	.74	1.68	1.32	2.10	1.48
Aug.	.30	1.65	3.80	2.40	4.70	1.64	2.48	1.56	2.64	1.76
Sept.	1.18	2.98	3.30	3.67	1.10	1.92	1.78	2.80	1.72	2.72
Oct.	10.16	3.04	5.10	3.91	4.30	2.15	1.43	1.67	1.43	1.67
Nov.	1.45	.88	3.90	1.20	3.10	1.56	3.39	.90	3.56	1.18
Dec.	1.20	.56	3.10	1.02		.83	3.60	1.01	3.67	.89
Yearly	20.84	17.38	21.10	21.34		14.32	18.61	17.02	18.94	18.02

Month	Corralitos Ranch		Hulsache Ranch		Zapata Water Plant		Arroyo Tigre Chiquito		Falcón Dam	
	1960	Average	1960	Average	1960	Average	1960	Average	1960	Average
Jan.	.40	.85	.53	1.25	.45	1.19	.60	1.20	.83	.87
Feb.	.80	.63	1.15	.94	.91	.83	1.20	1.27	1.41	.85
Mar.	.30	.21	.40	.44	.40	.46	.60	.32	.61	.88
Apr.	.95	.81	1.60	.87	1.30	1.00	.80	1.15	1.84	1.20
May	.30	1.19	.70	1.32	.44	2.26	.60	1.49	.44	2.00
June	.40	2.57	.65	1.89	.62	1.37	.50	1.68	.33	2.28
July	.38	.79	.85	1.38	1.51	.92	.92	.91	1.53	.73
Aug.	3.80	2.08	3.10	1.61	1.51	1.70	2.50	1.34	2.28	2.29
Sept.	4.46	2.18	3.70	2.37	3.07	2.87	4.70	3.11	5.20	2.63
Oct.	1.00	1.96	1.01	2.54	1.37	1.96	5.10	2.71	3.96	2.52
Nov.	2.30	.79	1.30	.91	1.61	.96	1.90	1.60	1.69	1.22
Dec.	1.28	.34	1.28	.47	1.64	.50	1.58	.48	1.75	.46
Yearly	16.37	14.40	16.27	15.99	14.83	16.02	21.00	17.26	21.87	17.93

Month	Roma		Garciasville		Los Ebanos		La Joya		HCWCID #6	
	1960	Average	1960	Average	1960	Average	1960	Average	1960	Average
Jan.	1.07	1.00	1.08	1.83	1.50	2.10	1.10	2.26	.80	1.11
Feb.	1.18	1.05	1.14	1.65	1.12	1.41	1.25	1.62	1.28	1.18
Mar.	.58	.89	.56	.23	.80	.46	.63	.30	.75	.59
Apr.	3.10	1.37	1.10	1.38	1.70	2.28	1.80	1.62	3.47	1.60
May	0	1.70	.40	1.17	1.87	1.13	1.39	1.25	.81	1.40
June	.78	2.10	.49	1.83	.40	1.45	.35	1.24	1.40	1.35
July	0	.84	.30	.89	0	.30	.40	.29	.02	.45
Aug.	2.86	2.12	2.25	1.14	2.80	1.45	3.85	1.81	3.23	1.70
Sept.	3.48	3.50	3.36	1.84	4.05	1.97	3.10	1.76	3.63	2.30
Oct.	3.30	2.62	.96	2.94	1.32	2.56	1.45	2.74	3.73	3.60
Nov.	1.27	.64	3.27	1.73	1.59	1.37	1.33	1.58	1.57	1.07
Dec.	1.26	.39	1.85	.68	1.60	.55	1.85	.74	2.45	.69
Yearly	18.88	18.22	16.76	17.31	18.75	17.03	18.50	17.21	23.14	17.04

RAINFALL ON THE RIO GRANDE WATERSHED
IN INCHES
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Month	Peñitas		Mission Pump		O. C. Dale Farm		HCWCID #15		Edinburg Filtration Plant	
	1960	Average	1960	Average	1960	Average	1960	Average	1960	Average
Jan.	1.17	2.14	.70	1.00	.77	1.55	.77	1.39	.78	1.47
Feb.	1.17	1.75	1.29	1.24	1.13	1.33	1.19	1.13	1.39	1.21
Mar.	.89	.52	1.11	.77	.80	.61	.21	.73	.87	.71
Apr.	2.60	1.06	5.11	1.75	5.26	2.16	3.35	1.90	3.83	2.03
May	1.65	1.24	1.03	1.19	.68	1.25	.27	1.13	3.01	1.45
June	.90	.89	.40	1.73	2.49	2.22	3.06	1.98	2.27	1.96
July	0	.31	0	.79	.23	.87	0	.67	.10	.72
Aug.	2.90	1.10	3.97	1.77	3.26	1.55	3.40	1.67	3.57	1.26
Sept.	2.79	1.89	4.00	1.73	5.42	2.58	4.87	2.60	2.81	2.15
Oct.	1.78	3.58	5.00	3.78	3.40	3.51	2.45	2.73	2.38	2.80
Nov.	2.43	1.48	1.05	1.03	1.87	1.40	4.00	1.29	1.08	1.20
Dec.	1.80	.92	1.72	.81	2.53	.89	2.81	.90	2.81	.87
Yearly	20.08	16.88	25.38	17.59	27.84	19.92	26.38	18.12	24.90	17.83

Month	HCWID #6		CCWCID #3 (Avg. of 6 gages)		La Feria Pumping Plant		CCWCID #19		San Benito Pump	
	1960	Average	1960	Average	1960	Average	1960	Average	1960	Average
Jan.	.89	1.06	.75	1.05	.54	.86	1.20	.89	.38	1.25
Feb.	1.66	1.38	2.03	1.76	2.28	1.69	1.00	1.37	1.15	1.98
Mar.	.84	.64	1.50	.85	1.60	.84	.83	.58	1.45	1.00
Apr.	1.97	.20	5.25	2.49	4.65	1.97	2.79	1.65	3.53	1.25
May	.69	1.16	1.89	1.83	1.40	1.88	.83	1.66	.38	2.26
June	.56	1.79	1.02	2.90	1.85	2.73	.79	2.37	.60	2.20
July	.10	1.15	.13	1.06	.15	1.51	0	.72	0	1.48
Aug.	5.62	1.62	6.94	3.03	5.95	2.67	4.43	2.10	3.94	2.04
Sept.	2.10	2.77	5.06	5.07	11.50	6.10	2.67	3.31	8.91	3.84
Oct.	3.34	3.06	5.35	4.01	5.55	4.62	4.40	3.00	2.80	2.38
Nov.	2.06	1.44	1.06	1.74	.65	1.74	.82	1.27	1.09	.96
Dec.	2.66	.85	4.13	1.19	2.00	1.02	2.35	.98	2.37	1.31
Yearly	22.49	17.12	35.11	26.98	38.12	27.63	22.11	19.90	26.60	20.95

Month	Whipple Farm		CCWID #11 (Avg. of 18 gages)		Los Fresnos Pump				
	1960	Average	1960	Average	1960	Average			
Jan.	.20	1.25	.54	1.26	.45	1.30			
Feb.	1.89	2.14	1.48	1.99	1.85	2.25			
Mar.	.88	.80	3.50	1.28	.95	.60			
Apr.	4.06	1.92	3.50	1.71	3.30	2.00			
May	1.81	2.14	3.15	1.39	1.40	1.31			
June	1.28	2.86	0	1.54	1.90	3.86			
July		2.16	2.74	1.47	.70	1.85			
Aug.	3.30	1.78	3.76	2.48	4.80	2.06			
Sept.	6.87	4.54	8.20	4.19	5.75	4.78			
Oct.	4.74	3.82	4.33	2.45	3.20	5.07			
Nov.	1.30	1.99	1.19	1.63	1.06	1.97			
Dec.	2.72	1.00	2.54	1.02	3.00	.95			
Yearly		26.40	34.93	22.41	28.36	28.00			

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RAINFALL ON THE RIO GRANDE WATERSHED

IN INCHES

In Mexico

Tabulated below, in downstream order, are monthly records of Mexican rainfall stations with averages for their periods of record. For location, elevation, period of record, type of gage in use, watershed subdivision in which the station is located, and the observer, see alphabetical listing of these stations shown on pages 111 through 113 of this bulletin. These rainfall records have not been published elsewhere. Records of daily rainfall amounts, where available are on file in the office of the Mexican Section.

Detailed listings of the months and years for which records are available through 1960 may be found under "Index to Precipitation Records" in Water Bulletins 10, 14, 22 and 26.

Month	Jufrez, Chihuahua		"Garita" Km. 28 Chihuahua		Zaragoza, Chihuahua		San Agustín, Chihuahua		Guadalupe, Chihuahua	
	1960	Average	1960	Average	1960	Average	1960	Average	1960	Average
Jan.	.74	.39	.78	.42	.62	.34	.93	.68	1.06	.65
Feb.	.45	.43	.37	.18	.26	.51	.43	.51	.53	.51
Mar.	.22	.41	.79	.10	.13	1.11	.05	.65	.14	.92
Apr.	0	.36	0	.03	0	.07	0	.17	0	.12
May	0	.42	0	.31	0	.38	.05	.53	.05	.25
June	.83	.65	.55	.44	.59	.49	.62	.91	1.12	.49
July	3.89	1.34	3.65	1.29	2.65	1.42	2.34	1.13	1.39	.80
Aug.	.41	1.56	.32	1.40	.37	.64	.28	.76	0	.92
Sept.	T	1.30	.06	1.80	.45	2.69	.12	1.08	T	1.05
Oct.	1.22	1.12	.83	1.59	.95	.67	.55	1.28	1.58	1.63
Nov.	.12	.52	0	.15	.05	.15	.02	.10	.07	.14
Dec.	2.35	.57	1.49	.57	1.20	.48	1.61	.63	.48	.21
Yearly	10.23	9.07	8.24	8.28	7.27	8.95	7.00	8.43	6.42	7.69

Month	Samalayuca, Chihuahua		Tinajas, Chihuahua		San Antonio, Chihuahua		Los Barrios, Chihuahua		Praxedis G. Guerrero Chihuahua	
	1960	Average	1960	Average	1960	Average	1960	Average	1960	Average
Jan.	.87	.62	.76	.37	.68	.42	1.21	.72	.98	.61
Feb.	.47	.60	.29	.45	.38	.19	.85	.43	.17	.32
Mar.	.08	.62	0	.43	.38	.19	0	0	.09	.54
Apr.	0	.18	0	.07	0	.02	.19	.20	0	.09
May	0	.37	0	.43	0	.17	.28	.14	.02	.17
June	.59	1.14	1.00	.57	.31	1.02	.90	.80	.56	.75
July	3.17	1.72	3.29	1.76	3.37	2.49	2.88	1.63	2.00	1.07
Aug.	1.87	1.77	1.61	1.73	2.70	2.35	3.69	2.74	.09	.76
Sept.	.16	1.85	.17	.57	1.09	1.38	.66	1.66	.07	1.04
Oct.	.63	1.12	1.53	1.23	2.26	1.87	3.09	2.52	1.73	1.97
Nov.	.12	.31	0	.24	.72	.83	1.00	1.11	.21	.32
Dec.	1.20	.51	.83	.31	.85	.31	1.34	.50	1.33	.47
Yearly	9.16	10.81	9.48	8.16	12.74	11.24	16.09	12.45	7.25	8.11

Month	Porvenir, Chihuahua		Vado de Cedillos, Chihuahua		Luis L. León, Chihuahua		Felix U. Gómez (Los Lamentos), Chihuahua		Bachiniva, Chihuahua	
	1960	Average	1960	Average	1960	Average	1960	Average	1960	Average
Jan.	.71	.50	.41	.26	.71	.50	.47	.36	1.65	.60
Feb.	.22	.28	.19	.09	.22	.11	.24	.32	.12	.11
Mar.	.04	.47	.04	.02	.06	.03	0	.28	T	.34
Apr.	0	.04	.02	.19	0	.28	.08	.25	0	.15
May	0	.53	0	.45	.28	.56	.16	.10	0	.12
June	.19	.22	.84	.55	2.03	1.16	2.32	.91	0	1.06
July	4.83	2.23	3.98	1.96	6.05	2.52	6.34	2.94	4.53	5.51
Aug.	2.31	1.81	1.65	1.51	3.00	1.71	2.40	2.58	4.57	5.13
Sept.	.24	.54	.27	.89	.05	.96	.43	1.03	1.10	1.39
Oct.	2.17	1.62	2.74	1.87	2.80	2.20	3.15	1.89	.39	1.29
Nov.	.02	.34	.13	.20	.07	.70	.20	.26	.55	.35
Dec.	1.55	.55	1.98	.66	1.27	.46	1.42	.35	.71	.31
Yearly	12.28	9.13	12.25	8.65	16.54	11.19	17.21	11.27	13.62	16.36

RAINFALL ON THE RIO GRANDE WATERSHED
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Month	Cd. Guerrero, Chihuahua		La Junta, Chihuahua		Siquirichic, Chihuahua		Cuahtémoc, Chihuahua		El Vergel, Chihuahua	
	1960	Average	1960	Average	1960	Average	1960	Average	1960	Average
Jan.	2.76	.64	3.50	1.16	7.24	1.83	.91	.29	5.94	2.50
Feb.	.16	.39	.24	.52	0	.44	.08	.12	.24	.73
Mar.	T	.21	0	.32	0	.28	0	.10	0	.88
Apr.	0	.20	0	.24	0	.23	0	.21	.08	.40
May	0	.25	0	.23	.55	.14	0	.20	0	.68
June	.04	1.56	.08	1.52	.31	1.15	T	1.43	.67	1.94
July	6.14	4.45	3.19	5.11	11.57	4.65	8.11	4.81	9.61	6.28
Aug.	5.47	5.26	3.94	4.96	7.20	6.19	6.30	4.19	6.61	7.23
Sept.	.16	3.03	.47	2.16	.59	2.73	.47	2.46	1.02	4.24
Oct.	.43	1.25	1.02	1.32	0	1.20	.24	1.16	.79	1.68
Nov.	1.14	.52	.87	.39	.47	.44	1.14	.24	.39	.43
Dec.	.71	.71	1.85	.87	.87	.91	.83	.46	1.73	1.62
Yearly	17.01	18.47	15.16	18.80	28.80	20.19	18.08	15.67	27.08	28.61

Month	Balleza, Chihuahua		San Juanito, Chihuahua		San Isidro, Chihuahua		El Sitio, Chihuahua		El Maguey, Chihuahua	
	1960	Average	1960	Average	1960	Average	1960	Average	1960	Average
Jan.	2.00	.36	5.00	2.70	0	.26	.98	.50	1.02	.37
Feb.	0	.32	3.15	1.77	0	.15	.28	.15	.16	.09
Mar.	0	.08	0	T	0	.04	0	.06	0	.10
Apr.	T	.18	0	4.04	T	.73	0	.24	0	.20
May	0	.15	0	.13	T	.28	0	.47	0	.26
June	.24	1.24	1.18	.59	T	1.56	.24	1.02	.24	1.05
July	3.82	4.35	19.88	29.68	7.80	5.64	6.77	3.62	4.57	3.98
Aug.	7.17	4.65	16.30	15.06	6.38	7.19	5.43	5.64	5.51	4.58
Sept.	.67	3.35	.59	2.97	.71	4.16	.39	3.23	.43	3.32
Oct.	.67	.81	9.25	5.26	.24	1.08	.16	.80	.24	1.06
Nov.	.43	.50	4.33	2.78	1.38	.61	1.65	.38	0	.17
Dec.	.55	.48	2.76	3.84	.20	.70	.47	.43	.20	.29
Yearly	15.55	16.47	62.44	68.82	16.71	22.40	16.37	16.54	12.37	15.47

Month	Santa Rita, Chihuahua		La Boquilla, Chihuahua		Ojo Caliente, Chihuahua		San Antonio, Durango		Jiménez, Chihuahua	
	1960	Average	1960	Average	1960	Average	1960	Average	1960	Average
Jan.	.79	.56	.35	.31	.43	.18	.31	.36		.24
Feb.	T	.28	.20	.14	.63	.14	.20	.09	.24	.06
Mar.	0	.04	0	.16	0	.16	0	.05	0	.09
Apr.	.24	.38	T	.18	T	.14	0	.22	T	.10
May	0	.31	0	.57	0	.49	.20	.46	0	.59
June	0	1.05	.63	1.40	.55	1.53	1.18	1.82	.31	.42
July	4.09	2.18	4.84	2.92	3.90	3.18	6.93	3.94	6.46	2.88
Aug.	.39	2.44	4.96	2.98	7.24	2.64	5.59	3.74	2.68	1.84
Sept.	.12	1.52	.08	2.87	.24	2.39	.91	3.83	.16	1.92
Oct.	.91	1.50	.28	.92	4.96	1.35	.79	1.14	.16	1.07
Nov.	.47	.26	.59	.36	.39	.12	.31	.22	.24	.16
Dec.	.63	.66	.47	.39	.71	.26	.24	.28	.71	.29
Yearly	7.64	11.18	12.40	13.20	19.05	12.58	16.66	16.15		9.66

Month	Escalón, Chihuahua		Parral, Chihuahua		Camargo, Chihuahua		Rosetilla, Chihuahua		Villaiba, Chihuahua	
	1960	Average	1960	Average	1960	Average	1960	Average	1960	Average
Jan.	.39	.53	.39	.18	.55	.82	.71	.51	.63	.41
Feb.	.35	.37	T	.18	.12	.21	.71	.10	.24	.09
Mar.	0	T	0	.11	0	.01	0	.13	T	.03
Apr.	0	T	T	.19	0	.16	0	.22	0	.16
May	T	.58	T	.36	0	1.02	0	.25	0	.24
June	.67	.27	.35	1.51	.35	.52	T	1.03	.08	.77
July	2.83	1.80	6.46	4.11	4.13	2.52	4.92	2.50	5.91	3.59
Aug.	4.69	3.14	8.66	4.08	4.61	2.95	4.33	2.51	4.53	2.82
Sept.	T	1.59	.24	4.07	.90	2.10	.08	2.00	.75	2.64
Oct.	1.46	1.68	T	1.18	1.06	1.65	.08	.78	.16	1.08
Nov.	T	.08	.39	.54	.79	.73	1.02	.23	1.57	.30
Dec.	.43	.26	.20	.43	.63	.61	.91	.34	.51	.38
Yearly	10.82	10.30	16.69	16.94	13.14	13.30	12.76	10.60	14.38	12.51

RAINFALL ON THE RIO GRANDE WATERSHED **IN INCHES** **In Mexico**

Month	Las Virgenes, Chihuahua		Delicias, Chihuahua		Las Burras, Chihuahua		Planta Zootécnica, Chihuahua		Chihuahua, Chihuahua	
	1960	Average	1960	Average	1960	Average	1960	Average	1960	Average
Jan.	.59	.34	.55	.39	.71	.30	.31	.51	.40	.30
Feb.	.04	.06	.24	.11	.04	.13	T	.22	.28	.20
Mar.	T	.04	0	.10	.16	.12	.04	.05	0	.20
Apr.	T	.16	T	.22	0	.23	0	.22	T	.17
May	0	.25	T	.24	.04	.34	0	.57	T	.37
June	.28	.92	.24	1.09	.55	.84	.12	.50	.63	1.37
July	2.68	2.23	4.13	2.45	3.70	2.52	5.83	3.33	5.91	3.40
Aug.	5.00	2.24	2.36	2.61	2.60	2.33	5.00	3.97	5.59	3.37
Sept.	.12	1.69	.20	2.07	.28	1.97	.16	2.20	.04	2.88
Oct.	.55	.73	.24	.84	T	.54	.47	1.28	.43	.86
Nov.	1.50	.25	1.26	.29	.16	.13	.67	.39	.94	.46
Dec.	.47	.36	.67	.39	1.06	.32	1.18	.48	.71	.38
Yearly	11.23	9.27	9.89	10.80	9.30	9.77	13.78	13.72	14.93	13.96

Month	Los Ojos, Chihuahua		Las Choyas, Chihuahua		Los Pozos, Chihuahua		Maclovio Herrera, Chihuahua		Matijoma, Chihuahua	
	1960	Average	1960	Average	1960	Average	1960	Average	1960	Average
Jan.	.04	.61	.24	.47	.16	.55		.39	1.73	.90
Feb.	.16	.32	.12	.46	.28	.37		.17	.12	.47
Mar.	.04	.16	0	.04	.04	.09		.20	.20	.06
Apr.	0	.44	0	.38	T	.08		.24	.16	.13
May	0	1.00	0	.21	0	.63		.56	.16	.62
June	.43	.23	.71	.88	.39	.81		1.24	1.42	1.17
July	5.36	4.39	5.00	2.11	2.36	1.99		2.57	4.25	3.10
Aug.	3.35	3.04	3.03	3.23	.87	2.51		2.75	6.77	3.61
Sept.	.24	3.32	.75	1.73	.24	1.64	0	3.00	.08	2.98
Oct.	.32	1.16	.67	1.40	1.18	1.08	.04	.75	.35	1.15
Nov.	.35	.18	.94	.44	.94	.87	.20	.17	1.26	.49
Dec.	.83	.38	1.50	.45	.87	.28	T	.74	1.06	.40
Yearly	11.12	15.23	12.96	11.80	7.33	10.90		12.78	17.56	15.08

Month	Chilicote, Chihuahua		Ojinaga (IB&WC), Chihuahua		Ojinaga (M. S. of Mexico), Chihuahua		Las Norias, Coahuila		Sierra Mojada, Coahuila	
	1960	Average	1960	Average	1960	Average	1960	Average	1960	Average
Jan.	1.18	.91	1.47	.69	1.54	.33	.04			
Feb.	T	.40	T	.38	T	.20	.79			
Mar.	.31	.12	.41	.10	.04	.17	0			
Apr.	T	T	.10	.32	T	.25	.59			
May	T	.09	T	.45	T	.54				
June	.16	.24	2.66	.89	.35	.76				
July	4.13	1.64	2.78	.95	3.23	1.16			.24	
Aug.	2.44	2.20	2.43	1.44	3.11	1.30			3.98	
Sept.	T	1.89	T	.35	0	1.20			.28	
Oct.	.28	1.00	.33	.84	.28	.93			1.38	
Nov.	1.38	.54	1.18	.35	1.53	.39			1.26	
Dec.	1.42	.38	1.14	.29	1.34	.41	1.34	.67	1.30	
Yearly	11.30	9.41	12.50	7.05	11.42	7.64				

Month	Santa Rosa, Coahuila		Cd. Acuña, Coahuila		Palestina, Coahuila		Jíménez, Coahuila		El Remolino, Coahuila	
	1960	Average	1960	Average	1960	Average	1960	Average	1960	Average
Jan.	.98	1.90	.35	.59	.39	1.05	.41	.74	.28	.14
Feb.	2.20	1.00	2.64	.72	2.64	1.02	1.68	.90	1.30	.92
Mar.	.51	1.00	.67	1.02	.51	.70	.94	.84	.12	.06
Apr.	.51	.66	.51	1.45	2.60	1.59	1.86	1.70	.91	.96
May	0	1.20	.35	2.82	.31	2.78	.83	3.21	.98	2.64
June	.79	1.73	.55	2.42	.35	2.06	.33	3.33	.67	2.78
July	8.11	4.70	3.66	.88	4.41	1.90	3.14	1.19	3.17	1.72
Aug.	.79	.70	2.83	1.26	1.38	2.06	2.13	1.80	3.98	1.72
Sept.	.59	2.03	1.57	2.68	1.50	2.93	1.02	1.98	.98	4.18
Oct.	6.81	4.47	4.39	2.29	4.65	1.56	6.12	2.56	9.04	5.59
Nov.	2.80	1.70	.39	.50	.35	.72	.63	.77	.41	.32
Dec.	3.19	1.33	1.85	.56	1.73	.94	2.00	.64	1.67	.90
Yearly	27.28	22.42	19.76	17.19	20.82	19.31	21.09	19.66	23.51	21.93

RAINFALL ON THE RIO GRANDE WATERSHED

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Month	Piedras Negras, Coahuila		Allende, Coahuila		Villa Guerrero, Coahuila		Rancho San Diego, Coahuila		Rancho Mercedes, Coahuila	
	1960	Average	1960	Average	1960	Average	1960	Average	1960	Average
Jan.	.34	.73	.20	.60	.39	.20	0		.06	
Feb.	1.46	.81	.79	1.24	.98	.76	0		.71	
Mar.	.09	.69	T	.35	.26	.13	0		0	
Apr.	1.55	2.14	.71	1.18	1.26	1.25	.39		0	
May	1.16	3.13	.87	2.37	.59	1.20	.83	1.62	1.11	1.90
June	.33	1.73	.63	1.91	0	2.66	0	0	.26	2.10
July	8.31	2.82	4.61	1.69	1.77	2.21	.59	1.10	2.20	3.24
Aug.	1.24	2.12	3.31	2.21	1.91	1.62	2.00	1.57	.39	.20
Sept.	.37	2.64	.04	2.52	2.48	5.11	0	1.02	0	.70
Oct.	7.95	3.32	6.26	2.02	11.69	6.36	1.57	1.00	1.54	2.03
Nov.	.78	.72	.63	.47	1.50	.71	2.87	1.63	1.39	.98
Dec.	1.35	.63	1.34	.58	1.26	.88	.31	.16	1.41	1.10
Yearly	24.93	21.48	19.39	17.14	24.09	23.09	8.56		9.07	

Month	Villa Hidalgo, Coahuila		Rancho los Vidrios, Tamaulipas		Nuevo Laredo (M. S. of Mexico), Tamps.		Nuevo Laredo (IB&WC), Tamps.		Rancho San Juan de la Palma, Tamps.	
	1960	Average	1960	Average	1960	Average	1960	Average	1960	Average
Jan.	.59	.87	.44	1.27	.47	.80	.18	.54	.43	.96
Feb.	1.46	.97	.64	1.64	.71	.87	.33	.83	.53	1.20
Mar.	.12	.48	.11	.10	.35	.68	.33	.32	.41	.69
Apr.	1.65	1.39	.85	.69	1.57	1.13	1.41	.70	.77	.69
May	.94	2.85	1.16	3.35	.63	2.34	.63	2.25	.55	1.28
June	.39	1.12	.88	1.42	.87	1.84	.63	1.50	1.14	1.44
July	1.52	.97	.86	2.12	1.81	1.41	2.20	1.18	.63	.86
Aug.	2.14	1.50	5.19	1.62	2.05	1.35	2.34	1.52	3.60	1.63
Sept.	.87	2.44	1.93	2.27	1.97	2.53	1.57	1.77	4.94	2.94
Oct.	1.77	2.36	3.94	3.42	1.85	1.43	1.43	1.36	1.10	2.05
Nov.	2.95	1.01	2.17	1.19	3.86	.96	2.98	.99	1.57	1.36
Dec.	1.81	.69	3.35	1.05		.92	3.85	.60	2.17	.71
Yearly	16.21	16.65	21.52	20.14		16.26	17.88	13.56	17.84	15.81

Month	Nueva Cd. Guerrero, Tamaulipas		Santo Domingo, Coahuila		San Geronimo, Coahuila					
	1960	Average	1960	Average	1951	1952	1953	1954	1955	1956
Jan.	.43	1.46			0	0	0	.20	.59	.59
Feb.	1.22	1.12			0	0	.98	0	1.69	0
Mar.	.45	.48			0	0	2.72	0	0	0
Apr.	1.22	1.44			0	1.18	0	5.20	.39	2.40
May	.81	1.30			6.30	1.10	0	4.29	1.89	.59
June	.87	2.05			3.39	.91	0	2.91	5.20	0
July	.12	.92	2.99		0	2.52	0	.39	.91	0
Aug.	3.52	1.30	4.75		.20	0	6.30	2.72	2.52	0
Sept.	2.64	2.41	2.50		1.81	1.89	.51	5.00	1.69	4.49
Oct.	4.70	2.55	1.50		2.20	0	3.82	8.70	.59	1.42
Nov.	1.50	.90	1.00		0	.20	0	0	1.50	0
Dec.	1.38	.33	1.69		.59	.71	0	0	.20	0
Yearly	18.86	16.26			14.49	8.51	14.33	29.41	17.17	9.49

Month	San Geronimo, Coahuila					Muzquiz, Coahuila		Conchos, Coahuila		
	1957	1958	1959	1960	Average	1960	Average	1960	Average	
Jan.	0	.98	0	0	.24	1.61	.86	.16	.32	
Feb.	2.40	1.18	0	.91	.72	0	.56	1.77	.64	
Mar.	0	.51	0	.51	.37		.93	.04	.27	
Apr.	2.01	0	.98	0	1.22		1.15	.63	1.07	
May	2.80	5.00	3.11	.39	2.55		3.83	1.02	2.64	
June	5.79	1.61	2.80	1.10	2.37		2.99	1.73	1.12	
July	.91	.98	7.40	3.11	1.62	3.19	2.22	4.02	2.09	
Aug.	3.19	.39	4.29	16.10	3.57	.71	2.56	6.93	2.66	
Sept.	2.48	24.09	2.20	0	4.42	5.39	5.11	.47	2.50	
Oct.	2.20	5.91	1.69	5.31	3.18		2.32	8.82	2.47	
Nov.	0	.71	0	.51	.29	2.28	1.19	2.17	.79	
Dec.	0	1.30	0	2.20	.50	1.61	1.06	1.89	.49	
Yearly	21.78	42.66	22.47	30.14	21.05		24.78	29.65	17.06	

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Month	Nueva Rosita, Coahuila		Sabinas, Coahuila		Ocampo, Coahuila		Cuatro Ciénegas, Coahuila		San Buenaventura, Coahuila	
	1960	Average	1960	Average	1960	Average	1960	Average	1960	Average
Jan.	.24	.69	.24	.66			.39	.35	1.02	.64
Feb.		.53	1.54	.91			.94	.38	1.85	.53
Mar.	T	.31	T	.45			0	.07	T	.20
Apr.	.47	1.15	.39	1.18			.20	.27	1.46	.56
May	.51	2.78	.59	2.77	0		T	.85	T	1.35
June	3.94	1.86	1.34	1.97	3.35		.39	.61	.47	1.50
July	6.10	1.55	1.85	1.26	11.22		3.07	.76	2.80	1.58
Aug.	1.30	1.81	1.77	2.24	6.34		3.19	1.00	2.00	1.86
Sept.	1.46	2.54	.79	3.43	6.06		1.10	1.38	4.21	2.24
Oct.	5.47	1.74	4.09	1.86	1.65		.91	.83	2.64	1.40
Nov.	1.02	.52	1.10	.50	.39		1.02	.32	1.97	.51
Dec.	1.14	.68	1.02	.58	1.69		.87	.45	1.46	.65
Yearly		16.16	14.72	17.81			12.08	7.27	19.88	13.02

Month	Monclova, Coahuila		Castañón, Coahuila		Progreso, Coahuila		Villa Juárez, Coahuila		Don Martín, Coahuila	
	1960	Average	1960	Average	1960	Average	1960	Average	1960	Average
Jan.	1.57	.50	1.06	.57	.71	.54	.55	.61	.59	.79
Feb.	1.57	.51	1.65	.57	1.73	.52	1.18	.49	1.18	.70
Mar.	T	.27	0	.26	T	.20	T	.23	0	.50
Apr.	.31	.53	.79	.62	.31	1.16	.31	.93	.55	1.16
May	T	1.49	T	1.68	.08	2.27	.16	1.98	.71	2.28
June	.24	1.10	.08	1.86	1.34	1.37	.04	.97	1.69	1.60
July	2.28	1.52	1.14	1.40	1.02	.89	.63	.95	.94	1.04
Aug.	2.36	1.60	3.94	2.30	2.68	2.24	3.15	1.94	3.70	2.12
Sept.	.79	2.90	2.20	2.86	1.34	2.79	1.06	3.05	.51	2.90
Oct.	1.26	1.23	1.89	1.67	3.19	2.12	1.65	2.10	.94	1.79
Nov.	1.69	.60	1.57	.37	2.13	.54	2.36	.62	2.72	.64
Dec.	1.18	.55	.28	.30	1.30	.55	1.02	.39	1.14	.71
Yearly	13.25	12.80	14.60	14.46	15.83	15.19	12.11	14.26	14.67	16.23

Month	Laguna de Salinillas, Nuevo León		Lampazos, Nuevo León		Anahuac, Nuevo León		Bustamante, Nuevo León		Sabinas Hidalgo, Nuevo León	
	1960	Average	1960	Average	1960	Average	1960	Average	1960	Average
Jan.	.63	.73	.47	.91	.43	.76	.39	.20	.35	.43
Feb.	.20	.67	2.91	1.83	1.57	.65	2.32	.77	2.54	2.96
Mar.	.12	.51	.35	.23	.08	.56	.31	.12	.57	.34
Apr.	.47	.95	1.06	.67	.75	1.02	1.10	.62	2.38	1.39
May	.08	2.28	.43	1.53	.08	2.64	.08	.56	.02	.65
June	2.48	1.32	T	1.75	1.69	1.39	.43	1.91	.81	3.47
July	2.20	.78	3.07	2.36	.28	1.31	1.89	.94	2.12	3.56
Aug.	2.09	2.89	1.57	1.82	2.20	2.05	3.90	2.83	2.97	2.07
Sept.	1.10	2.82	2.28	5.11	1.34	2.73	2.32	4.96	3.15	11.12
Oct.	1.18	1.88	1.10	1.58	1.57	1.55	2.52	1.88	2.03	5.06
Nov.	2.32	.58			1.30	.55	1.38	.72	3.07	1.58
Dec.	1.42	.57			1.89	.78	1.73	.88	1.61	.71
Yearly	14.29	15.98			13.18	15.99	18.37	16.39	21.62	33.34

Month	Vallecillo, Nuevo León		La Gloria, Nuevo León		Parás, Nuevo León		Cd. Mier, Tamaulipas		Parras, Coahuila	
	1960	Average	1960	Average	1960	Average	1960	Average	1960	Average
Jan.	.04	.22	.33	.28	0	.07	1.08	1.53	.28	.25
Feb.	1.65	1.60	.70	1.15	1.57	.82	1.73	1.75	.43	.52
Mar.	.08	.09	.20	.10	0	.03	.39	1.17	0	.48
Apr.	1.54	1.06	.98	.76	1.57	.52	3.23	2.38	.67	.51
May	0	.07	0	1.55	2.36	.91	.87	3.22	.59	.87
June	1.34	2.69	.45	1.39	1.97	1.74	1.65	1.82	.51	2.03
July	3.58	2.27	.80	3.19	.31	.63	.16	.44	1.77	3.34
Aug.	2.60	1.25	2.01	2.30	5.71	3.67	4.06	2.36	2.40	1.85
Sept.	3.27	7.00	6.04	5.61	5.91	4.24	3.70	2.75	.20	2.45
Oct.	.39	3.77	1.33	.88	2.36	6.94	2.80	2.84	2.13	3.46
Nov.	.67	.58	1.13	.53	0	1.48	1.48	1.20	.04	.46
Dec.	1.22	.59	1.21	.46	.12	.04	1.81	.47	1.57	.79
Yearly	16.38	21.19	15.18	18.20	21.88	21.09	22.96	21.93	10.59	17.01

RAINFALL ON THE RIO GRANDE WATERSHED **IN INCHES** **In Mexico**

Month	Granja Guadalupe, Coahuila		Gral. Cepeda, Coahuila		Reata, Coahuila		La Pops, Nuevo León		Ramos Arizpe, Coahuila	
	1960	Average	1960	Average	1960	Average	1960	Average	1960	Average
Jan.	.08	.23	.28	.43	0	.23	.39	.44	.55	.44
Feb.	.24	.50	.59	.50	0	.28	.20	.56	.08	.38
Mar.	0	.07	0	.23	0	.18	0	.05	0	.29
Apr.	T	.22	.20	.32	.47	.38	.59	.47	.24	.49
May	0	.42	0	.84	.04	.43	.08	.85	.20	.80
June	0	.42	.20	2.08	1.97	1.20	.12	2.05	.20	1.09
July	.47	1.30	2.95	3.48	0	.52	1.18	1.01	1.10	1.39
Aug.		1.25	4.53	2.94	.79	2.07	1.73	2.32	3.07	1.44
Sept.		1.20	.59	2.71	2.20	1.22	.98	5.17	1.42	1.77
Oct.		2.60	1.18	1.41	1.22	.93	.71	2.12	1.42	.80
Nov.		.34	0	.49	.12	.35	.59	.50	.08	.46
Dec.		.13	.98	.54	1.18	.30	1.50	.64	1.57	.54
Yearly		8.68	11.50	15.97	7.99	8.09	8.07	16.18	9.93	9.89

Month	Saltillo, Coahuila		Arteaga, Coahuila		San Antonio de las Alazanas, Coahuila		Rinconada, Nuevo León		Icamole, Nuevo León	
	1960	Average	1960	Average	1960	Average	1960	Average	1960	Average
Jan.	.43	.56	.28	.50	.75	2.00	0	.19	.31	.18
Feb.	.63	.53	.39	1.15	.67	2.15	.20	.42	1.14	.58
Mar.	.04	.36	.04	.12	0	.75	0	.21	T	.02
Apr.	.71	.73	.67	.64	T	.51	.43	.64	.16	.17
May	.31	1.04	.20	.92	.91	1.30	.28	.39	.08	.26
June	.47	2.05	.87	1.56	1.54	2.42	T	1.01	.08	1.55
July	2.05	2.65	2.44	2.16	1.46	2.36	T	.33	.47	.82
Aug.	5.75	2.42	5.91	3.31	3.94	4.13	.79	1.27	1.57	1.64
Sept.	1.22	2.48	.71	3.70	.87	3.44	1.50	1.59	1.57	2.89
Oct.	1.85	1.30	2.56	3.65	2.09	4.61	1.38	.99	1.34	1.96
Nov.	.71	.89	.87	.74	1.81	1.81	1.22	.30	.63	.42
Dec.	1.34	.63	1.38	.66	3.27	2.19	.39	.30	1.26	.66
Yearly	15.51	15.64	16.32	19.11	17.31	27.67	6.19	7.64	8.61	11.15

Month	Mina, Nuevo León		Santa Catarina, Nuevo León		Pajonal, Nuevo León		La Cruz, Nuevo León			
	1960	Average	1960	Average	1960	Average	1960	Average		
Jan.	T	.28	.04	.77	.20	.24	.31	.76		
Feb.	.87	1.01	.87	.50	1.42	1.34	1.26	1.41		
Mar.	T	.03	.04	.28	0	T	0	.16		
Apr.	.31	.29	.55	.66	.63	.75	.04	.45		
May	.08	.36	.28	.65	.39	1.08	.16	1.45		
June	.71	2.00	.71	1.86	.39	2.60	2.04	3.34		
July	.31	.88	.28	1.28	1.02	3.46	2.00	3.24		
Aug.	2.76	1.62	2.44	2.90	5.67	4.83	7.60	5.97		
Sept.	2.52	4.85	3.31	3.33	6.73	5.65	4.41	4.47		
Oct.	1.69	3.40	.39	1.92	2.80	4.06	1.69	4.40		
Nov.	.47	1.13	.39	.47	2.20	1.18	1.89	1.40		
Dec.	.87	.39	.16	.58	1.10	.55	1.10	.37		
Yearly	10.59	16.24	9.46	15.20	22.55	25.74	22.50	27.42		

Month	Rusio, Nuevo León			Potosí, Nuevo León		Laguna de Sánchez Nuevo León		Monterrey, Nuevo León	
	1958	1960	Average	1960	Average	1960	Average	1960	Average
Jan.	1.54	.08	1.01	.39	1.11	.16	.42	.24	.64
Feb.	.98	.12	1.39	1.97	1.92	1.18	.59	1.50	.67
Mar.	.79	0	.39	0	.36	0	.48	.51	.72
Apr.	.69	.78	1.14	.35	.77	.31	1.12	.59	1.14
May	3.43	0	1.81	.16	.84	.75	2.06	.16	1.50
June	1.61	1.10	1.32	.71	1.12	1.34	3.27	.08	2.72
July	.51	.47	1.25		.96	2.44	2.71	.83	2.42
Aug.	.51		1.06		1.72	5.20	4.54	2.95	3.05
Sept.	1.61		1.77		1.46	2.64	4.85	4.45	5.63
Oct.	5.12		4.32		2.84	2.32	3.48	1.14	3.29
Nov.	2.99		1.54		1.86	1.73	.52	2.76	1.28
Dec.	2.09		1.22		2.00	.91	.54	.79	.77
Yearly	21.87		18.22		16.96	18.98	24.58	16.00	23.83

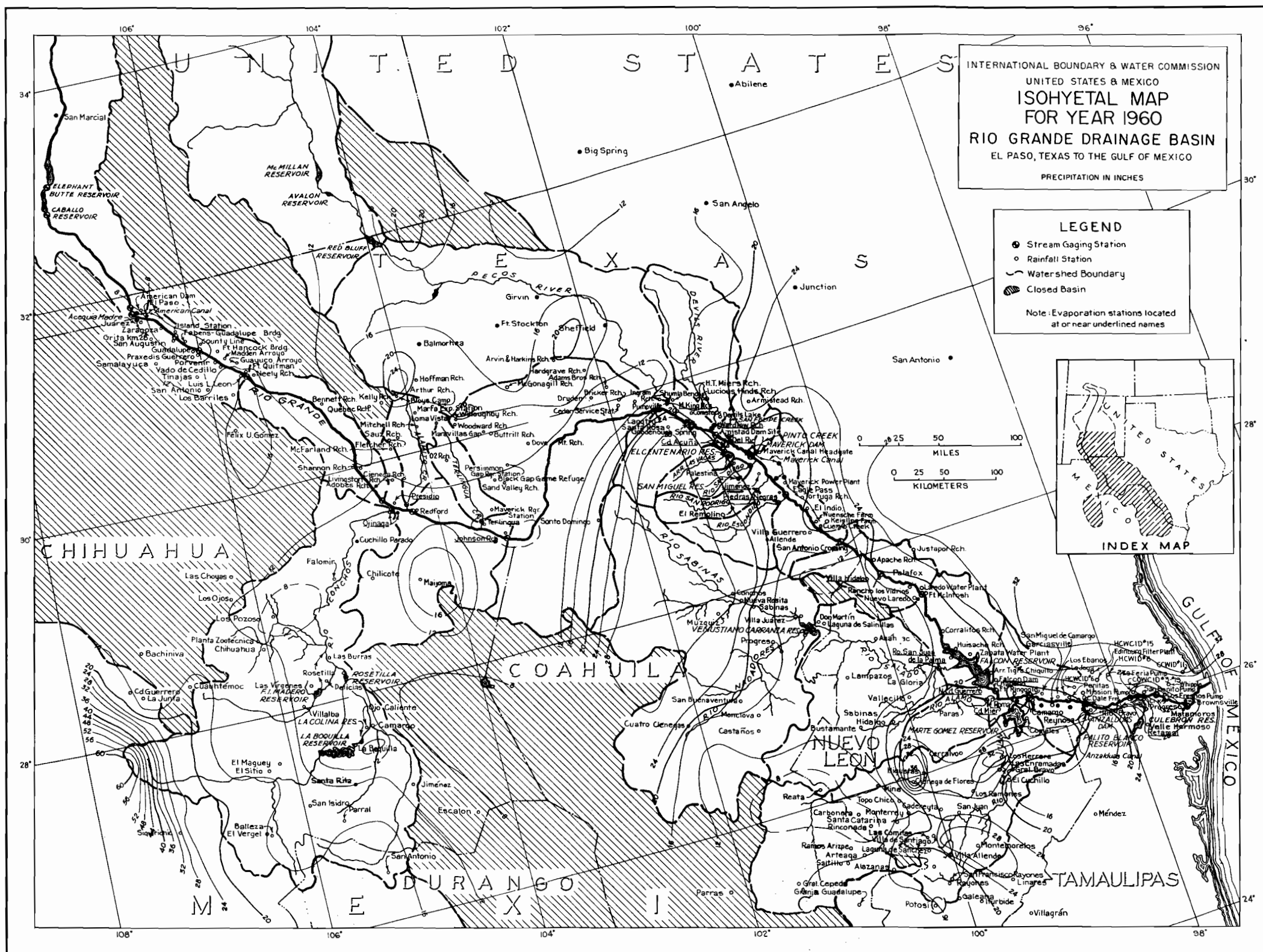
RAINFALL ON THE RIO GRANDE WATERSHED IN INCHES In Mexico

Month	Topo Chico, Nuevo León		Ciénega de Flores, Nuevo León		Las Comitas, Nuevo León		Casillas, Nuevo León		Galeana, Nuevo León	
	1960	Average	1960	Average	1960	Average	1960	Average	1960	Average
Jan.	0	.44	1.06	1.17	.16	.28	.12	.49	0	.33
Feb.	.16	.70	2.52	.93	1.10	.42	1.89	1.61	0	.60
Mar.	.20	.56	1.73	.76	0	.30	T	.30		.25
Apr.	.79	.93	.28	1.20	.71	.89	.04	.74	0	.94
May	0	.92	1.73	2.16	.12	1.00	.43	2.14		1.52
June	.43	1.82	.59	2.47	.47	2.52		4.41	.98	1.49
July	.98	1.30	2.28	2.03	1.46	1.71	1.34	1.45		1.62
Aug.	3.31	2.82	8.82	4.29	3.54	3.52	4.45	2.91	4.84	3.42
Sept.	3.74	4.06	8.07	5.08	6.85	4.45	1.65	2.07	3.46	2.82
Oct.	1.50	2.69	6.30	2.58	1.50	2.22		6.43	3.70	3.30
Nov.	.71	.75	2.60	.85	.83	.46			.20	.10
Dec.	.98	.54	1.93	.81	.79	.44			.91	.65
Yearly	12.80	17.53	37.91	24.33	17.53	18.21				17.04

Month	Rayones, Nuevo León		Potrero Redondo, Nuevo León		Villa de Santiago, Nuevo León		Villa Allende, Nuevo León		Iruvibe, Nuevo León	
	1960	Average	1960	Average	1960	Average	1960	Average	1960	Average
Jan.	0	.38	.24	.56	.08	.80	.85	.85	.08	.36
Feb.	0	.35	3.94	2.87	1.77	1.07	1.42	1.10	.20	.62
Mar.	0	.33	.87	.79	.98	.99	1.10	1.10	T	.47
Apr.	0	1.03	1.30	1.83	1.22	1.63	1.18	2.34	.55	1.11
May	.43	1.44	1.50	3.33	.12	2.65	2.28	3.31	.75	1.93
June	1.57	2.10	1.97	5.98	2.44	4.92	1.77	4.31	2.44	3.09
July	1.46	1.02	4.02	5.72	3.23	3.21	2.91	3.00	3.31	2.59
Aug.	2.60	2.99	5.75	5.08	4.45	5.30	5.00	4.84	4.33	4.05
Sept.	8.78	3.00		4.04	7.87	8.58	7.91	6.95	7.20	5.07
Oct.	1.38	1.82		13.54	2.44	5.57	2.60	6.14	1.22	2.89
Nov.	.12	.42			2.60	1.37	5.04	1.44	.79	.50
Dec.	.31	.28			1.14	.96	.91	1.02	.98	.41
Yearly	16.65	15.16			28.34	37.05		36.40	21.85	23.09

Month	Montemorelos, Nuevo León		Cadereyta, Nuevo León		Higueras, Nuevo León		San Juan, Nuevo León		Linares, Nuevo León	
	1960	Average	1960	Average	1960	Average	1960	Average	1960	Average
Jan.	.20	.79	.24	.75	.12	.72	T	.58	.20	.94
Feb.	1.61	1.00	1.77	1.00	.75	.60	T	.99	.59	.92
Mar.	.79	1.03	.75	1.18	.59	.53	.16	.93	.51	1.10
Apr.	2.36	2.28	1.93	2.13	.43	1.12		2.26	1.22	2.38
May	1.97	2.86	.16	2.11	3.98	1.78		1.60	.55	3.54
June	1.73	3.45	.71	3.24	1.06	2.38		2.28	2.32	3.42
July	5.55	2.13	6.54	2.50	2.24	2.11		1.27	.67	2.68
Aug.	4.09	3.97	4.57	3.56	4.06	2.93		3.97	4.25	3.31
Sept.	4.17	5.27	2.20	4.58	7.04	4.53		4.47	7.44	6.28
Oct.	4.17	3.77	4.65	3.41	2.72	1.72		3.24	8.46	3.47
Nov.	2.95	1.61	1.34	1.14	1.18	.77		.61	1.26	1.21
Dec.	.94	.92	.83	.72	.79	.65		.52	.87	.91
Yearly	30.73	29.08	25.69	26.32	24.96	19.84		22.72	28.34	30.16

Month	Los Ramones, Nuevo León		Cerralvo, Nuevo León		Los Herrera (La Tableta), Nuevo León		Las Enramadas, Nuevo León		El Cuchillo, Nuevo León	
	1960	Average	1960	Average	1960	Average	1960	Average	1960	Average
Jan.	.59	.63	.04	.68	.55	.62	.47	.97	.04	.72
Feb.	1.69	.84	1.89	.71	1.89	.78	.47	.74	.59	.62
Mar.	.31	.62	.08	.60	.31	.66	.43	.66	.08	.46
Apr.	2.36	1.77	.39	1.87	2.20	1.43	.67	1.64	.31	1.51
May	.63	1.92	.04	2.80	2.00	2.68	2.13	2.68	.20	2.02
June	1.26	2.96	0	2.16	.71	2.59	.71	3.38	3.27	2.54
July	1.73	1.73	4.25	1.54	0	1.21	.67	2.12	.75	1.37
Aug.	6.30	3.45	6.38	3.41	6.06	2.70	6.38	3.32	4.72	3.12
Sept.	3.70	4.24	5.87	4.85	4.92	4.07	4.57	5.06	2.99	3.57
Oct.	7.32	2.86	2.68	2.85	11.57	2.67	7.87	2.59	2.13	2.21
Nov.	.59	.49	.08	.65	1.57	.57		.64	.55	.44
Dec.	.87	.30	.47	.39	.59	.38	.31	.66	.35	.39
Yearly	27.35	21.81	22.17	22.51	32.37	20.36		24.46	15.98	18.97



AVERAGE RAINFALL ON SUBDIVISIONS OF THE RIO GRANDE WATERSHED IN INCHES

With Averages for the 90 Years 1871-1960, Inclusive

The precipitation records of all stations on or adjacent to the watershed subdivisions listed below have been used, with proper weighting for area, in calculating the average rainfalls shown here. The drainage area for each subdivision is shown in parentheses. The hundreds of individual records are delineated in the various "Indexes to Precipitation Records" shown in Water Bulletins Nos. 10, 14, 22, and 26.

Month	El Paso to Fort Quitman (2,768 Square Miles)		Fort Quitman to Upper Presidio (2,953 Square Miles)		* Upper Presidio to Johnson Ranch (3,886 Square Miles)		Johnson Ranch to Langtry (14,080 Square Miles)	
	1960	Period Average	1960	Period Average	1960	Period Average	1960	Period Average
Jan.	.84	.46	1.09	.40	1.40	.37	1.21	.52
Feb.	.35	.38	.20	.26	.08	.29	.59	.36
Mar.	.28	.34	.30	.26	.18	.19	.38	.43
Apr.	.09	.29	.08	.38	.09	.41	.54	.80
May	.12	.42	.16	.60	.08	.77	.40	1.50
June	.94	.80	1.33	1.19	1.20	1.05	1.32	1.75
July	4.58	2.38	5.10	3.17	2.97	1.82	3.90	1.94
Aug.	1.28	1.97	2.23	2.43	3.41	1.83	1.96	2.19
Sept.	.21	1.36	.12	1.89	.09	1.42	.37	2.18
Oct.	1.66	.95	1.69	1.04	.40	.84	2.46	1.22
Nov.	.14	.44	.62	.40	.88	.34	.53	.61
Dec.	1.81	.61	1.66	.56	.99	.42	1.22	.57
Total	12.30	10.40	14.58	12.58	11.77	9.75	14.88	14.07

Month	Pecos River Below Sheffield (3,519 Square Miles)		# Langtry to Amistad Dam Site (2,014 Square Miles)		Devi's River (4,305 Square Miles)		† Amistad Dam Site to Eagle Pass (1,695 Square Miles)	
	1960	Period Average	1960	Period Average	1960	Period Average	1960	Period Average
Jan.	1.74	.74	.50	.54	1.02	.68	.42	.77
Feb.	1.67	.91	1.45	.64	1.41	.68	1.63	.91
Mar.	.83	.81	.55	.83	.97	1.13	.49	1.06
Apr.	.72	1.96	.46	1.35	.38	1.78	1.28	1.66
May	1.24	1.81	.26	2.02	.53	2.61	.83	2.99
June	1.52	2.55	.35	2.26	.18	2.74	.30	2.49
July	4.06	1.92	2.73	1.20	2.88	1.77	4.00	1.91
Aug.	1.16	2.00	1.38	1.62	2.18	2.07	2.78	1.91
Sept.	.21	2.33	1.14	2.24	.76	2.88	1.22	3.04
Oct.	3.51	1.85	3.66	1.41	3.87	2.21	5.35	2.01
Nov.	.13	.95	.38	.79	.43	1.62	.51	1.05
Dec.	1.68	.79	1.81	.68	2.16	1.07	1.73	.92
Total	18.47	18.62	14.67	15.58	16.77	21.24	20.54	20.72

Month	⊗ Eagle Pass to Laredo (4,117 Square Miles)		δ Laredo to Falcón Dam (3,394 Square Miles)		† Falcón Dam to Rio Grande City (1,166 Square Miles)		United States Side Below Rio Grande City (443 Square Miles)	
	1960	Period Average	1960	Period Average	1960	Period Average	1960	Period Average
Jan.	.30	.77	.55	.77	1.22	.92	.72	1.40
Feb.	1.07	.81	1.36	.77	1.18	.81	1.36	1.17
Mar.	.16	.98	.46	.85	.56	1.03	1.07	1.09
Apr.	1.01	1.58	1.44	1.41	2.03	1.19	3.30	1.43
May	.87	3.19	.60	3.28	.60	2.40	1.64	2.99
June	.46	2.45	1.17	1.83	1.59	2.01	1.60	2.60
July	4.78	1.47	1.15	2.23	1.75	1.99	.69	1.69
Aug.	2.11	2.32	3.07	1.81	4.14	2.11	4.70	2.15
Sept.	1.79	2.95	3.28	2.84	3.45	3.18	5.33	4.31
Oct.	6.00	1.86	2.37	1.57	3.40	1.98	3.78	2.56
Nov.	1.72	.99	2.13	1.64	1.81	.75	1.42	1.28
Dec.	1.93	1.04	2.10	.84	2.04	.66	2.57	1.44
Total	22.20	20.41	19.68	19.84	23.77	19.03	28.18	24.11

* Excluding Rfo Conchos, Alamito and Terlingua Creeks. # Excluding Pecos and Devils Rivers. † Excluding Arroyo las Vacas, San Felipe Creek, Pinto Creek, Rfo San Diego, and Rfo San Rodrigo. ⊗ Excluding Rfo Escondido.

δ Excluding Rfo Salado above Old Cd. Guerrero. † Excluding Rfo Alamo and Rfo San Juan.

LOCATION OF RAINFALL STATIONS ON THE RIO GRANDE WATERSHED

The precipitation records of stations listed below began on the date shown and extend through 1960. 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 Bulletin Nos. 10, 14, 22 and 26.

In the United States

NAME OF STATION	TYPE GAGE	LATI-TUDE	LONGI-TUDE	ELEV. (FT.)	RECORD BEGAN	WATERSHED SUBDIVISION	OBSERVER
Adams Bros. Ranch	S	30° 10'	101° 58'	2,150	Apr. 1952	Johnson Ranch - Langtry	George Adams
Adobes Ranch	S	29° 46'	104° 34'	2,550	1950	Fort Quitman - Upper Presidio	T. C. Davis
American Dam	S	31° 47'	106° 32'	3,730	1938	El Paso - Fort Quitman	I. B. & W. C.
Amistad Dam Site	C	29° 25'	101° 02'	980	Oct. 1954	Amistad Dam Site - Eagle Pass	I. B. & W. C.
Apache Ranch	C	27° 56'	99° 56'	500	# 1953	Eagle Pass - Laredo	L. Guardiola
Armistead Ranch	S	29° 35'	100° 39'	1,510	Dec. 1951	Amistad Dam Site - Eagle Pass	Floyd Hodges
Arroyo Tigre Chiquito	C	26° 41'	99° 07'	314	Apr. 1954	Laredo - Falcón Dam	I. B. & W. C.
Arthur, C. L. Ranch	S	30° 23'	103° 45'	4,900	# 1946	Pecos River above Sheffield	C. L. Arthur
Arvin & Harkins - Bean	V	30° 26'	102° 23'	3,100	Nov. 1948	Johnson Ranch - Langtry	Sid Harkins
Arvin & Harkins - Camel	V	30° 25'	102° 20'	2,890	Nov. 1948	Johnson Ranch - Langtry	Sid Harkins
Arvin & Harkins - Header	V	30° 27'	102° 26'	3,400	Nov. 1948	Johnson Ranch - Langtry	Sid Harkins
Arvin & Harkins - Hqtrs.	V	30° 27'	102° 20'	2,930	Nov. 1948	Johnson Ranch - Langtry	Sid Harkins
Arvin & Harkins - Monty Corder	V	30° 27'	102° 14'	2,850	Nov. 1948	Johnson Ranch - Langtry	Sid Harkins
Baugh, A. L. Ranch	S	29° 52'	104° 02'	3,820	#July 1942	Alamito Creek	A. L. Baugh
Bennett, Moody Ranch	S	30° 37'	104° 52'	3,240	July 1956	Fort Quitman - Upper Presidio	Moody Bennett
Black Gap Game Refuge	S	29° 35'	103° 21'	2,250	1952	Johnson Ranch - Langtry	Tom Moore
Bloys Camp	V	30° 33'	104° 07'	5,650	# 1941	Alamito Creek	George Knight
Bricker Ranch	S	29° 59'	101° 52'	1,680	May 1952	Johnson Ranch - Langtry	Lena Mae Bricker
Buttrill Ranch	S	30° 00'	103° 16'	3,500	Mar. 1952	Johnson Ranch - Langtry	Tom B. Leary
CCWCID #3 (La Feria Dist. Off.) Avg. 6 gages	S	26° 09'	97° 49'	50	1952	Lower Rio Grande Valley	CCWCID #3
CCWCID #11 (Bayview Dist. Off.) Avg. 18 gages	S	26° 08'	97° 21'	25	1952	Lower Rio Grande Valley	CCWCID #11
CCWCID #19 (Adams Gardens)	S	26° 10'	97° 47'	50	1952	Lower Rio Grande Valley	CCWCID #19
Casa Piedra Ranch	V	29° 44'	104° 04'	3,430	1960	Alamito Creek	C. L. Vasquez
Cedar Service Station	S	29° 55'	101° 55'	1,860	# 1941	Johnson Ranch - Langtry	Harve Eastman
Chittim Ranch*	C	28° 44'	100° 28'	810	Mar. 1959	Del Rio - Eagle Pass	I. B. & W. C.
Coal Mine*	R	28° 48'	100° 28'	770	Mar. 1959	Amistad Dam Site - Eagle Pass	I. B. & W. C.
Comstock	S	29° 41'	101° 11'	1,530	May 1939	Langtry below Amistad Dam Site	George Humphries
Cooper Ranch*	C	28° 50'	100° 27'	800	Mar. 1959	Amistad Dam Site - Eagle Pass	I. B. & W. C.
Corralitos Ranch	C	27° 07'	99° 27'	346	1953	Laredo - Falcón Dam	I. B. & W. C.
County Line	R	31° 23'	105° 59'	3,550	1938	El Paso - Fort Quitman	I. B. & W. C.
Cuervo Creek	C	28° 21'	100° 19'	620	Jan. 1954	Eagle Pass - Laredo	I. B. & W. C.
Dale, O. C. Farm	S	26° 15'	98° 16'	130	1952	Lower Rio Grande Valley	O. C. Dale
Devils Lake	S	29° 34'	100° 59'	1,080	May 1939	Devils River	C. P. & L. Co.
Dove Mountain Ranch	S	29° 49'	102° 53'	2,770	# 1952	Johnson Ranch - Langtry	Sam Cavness
Dryden	S	30° 03'	102° 07'	2,130	# 1931	Johnson Ranch - Langtry	Lewis Cash
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	Eagle Pass - Laredo	I. B. & W. C.
Fabens-Guadalupe Bridge	S	31° 26'	106° 08'	3,610	Apr. 1940	El Paso - Fort Quitman	I. B. & W. C.
Falcón Dam	S	26° 34'	99° 08'	323	Apr. 1950	Laredo - Falcón Dam	I. B. & W. C.
Farias Ranch*	R	28° 36'	100° 20'	720	Mar. 1959	Eagle Pass - Laredo	I. B. & W. C.
Fletcher, H. T. Ranch	S	30° 12'	104° 16'	5,100	# 1939	Alamito Creek	Hayes Mitchell, Jr.
Fort Hancock Bridge	S	31° 16'	105° 51'	3,500	Apr. 1940	El Paso - Fort Quitman	I. B. & W. C.
Fort McIntosh (Laredo)	V	27° 30'	99° 31'	410	# 1810	Eagle Pass - Laredo	I. B. & W. C.
Fort Quitman	R	31° 06'	105° 36'	3,430	# 1937	El Paso - Fort Quitman	I. B. & W. C.
Garciasville	R	26° 20'	98° 41'	200	Apr. 1957	Lower Rio Grande Valley	I. B. & W. C.
Goodenough Spring	C	29° 32'	101° 13'	1,018	Aug. 1958	Langtry - Amistad Dam Site	I. B. & W. C.
Greenwood, H. M. (Cienega Ranch)*	S	29° 48'	104° 13'	4,000	Mar. 1941	Alamito Creek	H. M. Greenwood
Guayuco Arroyo	R	31° 10'	105° 40'	3,600	#May 1940	El Paso - Fort Quitman	I. B. & W. C.
Hardgrave, E. W. Ranch	S	30° 18'	102° 09'	2,650	Apr. 1952	Johnson Ranch - Langtry	Jack Hardgrave
HCWCID #6 (Goodwin Pump #4) Avg. 3 gages	S	26° 18'	98° 22'	185	1953	Lower Rio Grande Valley	HCWCID #6

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LOCATION OF RAINFALL STATIONS ON THE RIO GRANDE WATERSHED

In the United States

NAME OF STATION	TYPE GAGE	LATI-TUDE	LONGI-TUDE	ELEV. (FT.)	RECORD BEGAN	WATERSHED SUBDIVISION	OBSERVER
HCWCID #15 (Edinburg Office)	S	26° 23'	98° 09'	85	1952	Lower Rio Grande Valley	HCWCID #15
HCWID #6 (Elsa Office)	S	26° 19'	98° 01'	70	1952	Lower Rio Grande Valley	HCWID #6
Hinds, Lucius Ranch	S	29° 46'	101° 03'	1,690	Sept. 1954	Devils River	Lucius Hinds
Hoffman Ranch	S	30° 38'	103° 51'	4,650	June 1955	Pecos River above Sheffield	Dr. A. J. Hoffmap
Hulsache Ranch	C	26° 57'	99° 21'	383	Aug. 1953	Laredo - Falcón Dam	L. B. & W. C.
Ingram Ranch	S	29° 52'	101° 29'	1,580	#Sept. 1954	Pecos River below Sheffield	Arnum Humphries
Indio Ranch *	S	28° 31'	100° 22'	700	1959	Eagle Pass - Laredo	Earnest Scales
Island Station	R	31° 32'	106° 14'	3,630	1939	El Paso - Fort Quitman	I. B. & W. C.
Johnson Ranch	C	29° 01'	103° 23'	2,050	#July 1933	Johnson Ranch - Langtry	L. B. & W. C.
Justapor Ranch	C	27° 53'	99° 27'	720	# 1952	Adjacent to Eagle Pass - Laredo	Mrs. O. C. Ray
Keisling Farm	S	28° 23'	100° 17'	740	Dec. 1958	Eagle Pass - Laredo	Robert Smith
Kelly Ranch	V	30° 32'	104° 16'	5,320	# 1941	Adj. to Alamito Creek	George Jones
King, Martin Ranch	R	29° 44'	101° 23'	1,460	Nov. 1954	Langtry - Amistad Dam Site	I. B. & W. C.
La Feria Pumping Plant	S	26° 03'	97° 50'	60	1952	Lower Rio Grande Valley	CCWCID #3
La Joya	R	26° 15'	98° 25'	150	Apr. 1957	Lower Rio Grande Valley	L. B. & W. C.
Laredo Water Plant	S	27° 33'	99° 31'	410	# 1930	Eagle Pass - Laredo	Laredo Water Plant
Las Moras Creek *	S	29° 00'	100° 38'	800	1958	Amistad Dam Site - Eagle Pass	Lou McGee
Lateral No. 2 Spill *	C	28° 56'	100° 38'	760	Mar. 1959	Del Rio - Eagle Pass	L. B. & W. C.
Lateral No. 12 Headgate *	C	28° 54'	100° 34'	800	1959	Amistad Dam Site - Eagle Pass	I. B. & W. C.
Lateral No. 15 Spill *	C	28° 51'	100° 34'	740	1959	Del Rio - Eagle Pass	L. B. & W. C.
Livingston Ranch	S	29° 49'	104° 22'	4,150	# 1951	Upper Presidio - Johnson Ranch	J. S. Livingston
Loma Vista Ranch	S	30° 13'	103° 47'	5,450	# 1941	Alamito Creek	Hayes Mitchell
Los Ebanos	C	26° 16'	98° 33'	150	Apr. 1957	Lower Rio Grande Valley	L. B. & W. C.
Los Fresnos Pumping Plt.	S	25° 57'	97° 34'	30	1952	Lower Rio Grande Valley	CCWCID #6
Madden Arroyo	R	31° 13'	105° 46'	3,500	Sept. 1941	El Paso - Fort Quitman	L. B. & W. C.
Maravillas Gap Ranch	S	30° 01'	103° 20'	3,520	1956	Johnson Ranch - Langtry	Guy Combs, Jr.
Marfa Experiment Station	S	30° 20'	103° 59'	4,800	1950	Alamito Creek	Dr. G. W. Dollahite
Maverick County Canal Headgate	S	29° 10'	100° 46'	870	Mar. 1948	Amistad Dam Site - Eagle Pass	MCWCID #1
Maverick Power Plant	S	28° 50'	100° 33'	800	June 1952	Amistad Dam Site - Eagle Pass	C. P. & L. Co.
Maverick Ranger Station	S	29° 19'	103° 27'	2,780	Feb. 1955	Upper Presidio - Johnson Ranch	Park Ranger
McFarland Ranch - Cane Pasture	V	30° 03'	104° 15'	5,370	1955	Alamito Creek	C. E. McFarland
McFarland Ranch - Casa Colorado	V	30° 06'	104° 17'	5,330	1955	Alamito Creek	C. E. McFarland
McFarland Ranch - Cement	V	30° 05'	104° 19'	5,470	1955	Alamito Creek	C. E. McFarland
McFarland Ranch - Cocameca	V	30° 08'	104° 16'	5,300	Dec. 1956	Alamito Creek	C. E. McFarland
McFarland Ranch - Deep Well	V	30° 07'	104° 17'	5,470	1955	Alamito Creek	C. E. McFarland
McFarland Ranch - Headquarters	S	30° 06'	104° 16'	5,310	# 1941	Alamito Creek	C. E. McFarland
McFarland Ranch - Punta el Agua	V	30° 02'	104° 13'	5,210	1955	Alamito Creek	C. E. McFarland
McFarland Ranch - Shannon	V	30° 06'	104° 20'	5,480	1955	Alamito Creek	C. E. McFarland
McGonagill Ranch - East Mill	V	30° 20'	102° 55'	4,050	#May 1952	Johnson Ranch - Langtry	W. E. McGonagill
McGonagill Rch. -Hqtrs.	S	30° 20'	102° 58'	4,150	Apr. 1952	Johnson Ranch - Langtry	W. E. McGonagill
Miers, H. T. Ranch	V	29° 47'	100° 51'	1,770	1957	Amistad Dam Site - Eagle Pass	H. T. Miers
Mission Pump	S	26° 10'	98° 20'	100	1952	Lower Rio Grande Valley	HCWCID #14
Mitchell, Kerr Ranch	S	30° 13'	104° 00'	4,450	# 1941	Alamito Creek	Mrs. Kerr Mitchell
Neely Ranch	S	30° 59'	105° 32'	3,350	Aug. 1941	Fort Quitman - Upper Presidio	Mrs. Tom Neely
Normandy *	S	28° 55'	100° 36'	780	Dec. 1958	Amistad Dam Site - Eagle Pass	Fannin G. Lowe
O2 Ranch	S	29° 51'	103° 45'	3,780	# 1914	Terlingua Creek	Cavin Woodward
Pafford Crossing	C	29° 41'	101° 00'	1,180	Feb. 1960	Devils River	
Penitas (Edinburg Pumping Plant)	S	26° 14'	98° 27'	100	July 1957	Lower Rio Grande Valley	B. Leadbetter
Persimmon Gap Ranger Sta.	S	29° 40'	103° 10'	2,900	# 1948	Johnson Ranch - Langtry	Park Ranger
Pinto Creek *	C	29° 09'	100° 43'	870	Dec. 1958	Amistad Dam Site - Eagle Pass	L. B. & W. C.
Presidio (L. B. & W. C. Gage)	C	29° 34'	104° 23'	2,550	Oct. 1949	Upper Presidio - Johnson Ranch	L. B. & W. C.
Pumpville	S	29° 57'	101° 44'	1,800	#Oct. 1946	Johnson Ranch - Langtry	Rev. Gentry

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LOCATION OF RAINFALL STATIONS ON THE RIO GRANDE WATERSHED

In the United States

NAME OF STATION	TYPE GAGE	LATI- TUDE	LONGI- TUDE	ELEV. (FT.)	RECORD BEGAN	WATERSHED SUBDIVISION	OBSERVER
Quebec Ranch	V	30° 31'	104° 24'	4,600	1949	Adjacent to	
Redford	C	29° 29'	104° 13'	2,500	July 1954	Alamito Creek	George Jones
Roma (Internat'l. Bridge)	S	26° 24'	99° 01'	230	1941	Upper Presidio - Johnson Ranch	L. B. & W. C.
Rosita Creek Siphon *	C	28° 41'	100° 24'	760	# 1959	Falcón Dam - Rio Grande City	Starr Co. Bridge Co
Rosita Creek Station *	C	28° 36'	100° 24'	700	# 1959	Eagle Pass - Laredo	L. B. & W. C.
San Benito Pump	S	26° 03'	97° 45'	50	Oct. 1933	Eagle Pass - Laredo	L. B. & W. C.
Sand Valley Ranch	S	29° 33'	103° 16'	3,250	# 1952	Lower Rio Grande Valley	L. B. & W. C.
Sauz Ranch	S	30° 10'	104° 12'	4,880	1940	Johnson Ranch - Langtry	Fred Gullihur
Sellers Ranch *	C	29° 34'	101° 02'	1,190	*Feb. 1960	Alamito Creek	Hayes Mitchell, Jr.
Shannon, Bill Ranch	C	29° 58'	104° 41'	2,750	July 1956	Devils River	
Shumla Bend	C	29° 50'	101° 25'	1,350	Nov. 1954	Fort Quitman - Upper Presidio	Bill Shannon
Stewart Ranch *	C	29° 35'	100° 52'	1,770	Feb. 1960	Pecos River below Sheffield	L. B. & W. C.
Stillwell Crossing	S	29° 24'	102° 50'	1,820	Apr. 1960	Amistad Dam Site - Eagle Pass	
Stumberg, Steve Ranch	C	30° 11'	102° 53'	4,300	# 1943	Johnson Ranch - Langtry	Ulice Adams
Terlingua Creek Station	C	29° 12'	103° 36'	2,260	Mar. 1952	Johnson Ranch - Langtry	L. B. & W. C.
Tortuga Ranch	C	28° 39'	100° 26'	780	# 1950	Terlingua Creek	L. B. & W. C.
Trees Farm *	R	28° 38'	100° 25'	720	Mar. 1959	Eagle Pass - Laredo	W. H. Brown
Van Dalsem Farm	C	28° 27'	100° 19'	700	1959	Del Rio - Eagle Pass	L. B. & W. C.
Wardlaw Ranch	R	29° 28'	100° 58'	1,110	Aug. 1955	Eagle Pass - Laredo	L. B. & W. C.
Whipple Farm	S	26° 04'	97° 29'	25	1952	Devils River	L. B. & W. C.
Wipff Ranch *	C	29° 00'	100° 35'	840	Mar. 1959	Lower Rio Grande Valley	Harry Whipple
Willoughby, Ray Ranch	S	30° 12'	103° 33'	5,050	1952	Del Rio - Eagle Pass	L. B. & W. C.
Woodward, J. F. Ranch	S	30° 08'	103° 36'	4,750	1954	Johnson Ranch - Langtry	Cliff St. Clair
Wuensche Farm	S	28° 24'	100° 19'	670	# 1952	Johnson Ranch - Langtry	J. F. Woodward
Zapata Water Plant	S	26° 54'	99° 16'	380	May 1953	Eagle Pass - Laredo	L. B. & W. C.
						Laredo - Falcón Dam	Zapata Water Plant

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LOCATION OF RAINFALL STATIONS ON THE RIO GRANDE WATERSHED

In Mexico

NAME OF STATION	TYPE GAGE	LATI-TUDE	LONGI-TUDE	ELEV. (FT.)	RECORD BEGAN	WATERSHED SUBDIVISION	OBSERVER
Allende, Coahuila	S	28° 21'	100° 51'	1,170	# 1947	Eagle Pass - Laredo	Hydr. Resources
Anahíac, Nuevo León	S	27° 15'	100° 07'	656	#June 1933	Río Salado	Hydr. Resources
Arteaga, Coahuila	S	25° 26'	100° 48'	5,250	# 1938	Río San Juan	Meteor. Service of Mexico
Bachiniva, Chihuahua	S	28° 48'	107° 15'	6,250	# 1952	Adjacent to Río Conchos	Meteor. Service of Chihuahua
Balleza, Chihuahua	S	26° 57'	106° 21'	5,870	# 1903	Río Conchos	Meteor. Service of Mexico
Bustamante, Nuevo León	S	26° 32'	100° 31'	1,450	# 1958	Río Salado	Hydr. Resources
Cadereyta, Nuevo León	S	25° 36'	99° 59'	1,180	#Sept. 1904	Río San Juan	Hydr. Resources
Camargo, Chihuahua	S	27° 42'	105° 10'	3,950	Oct. 1956	Río Conchos	Meteor. Service of Chihuahua
Camargo, Tamaulipas	S	26° 20'	98° 49'	177	# 1953	Río San Juan	Hydr. Resources
Casillas, Nuevo León *	S	25° 11'	100° 12'	4,060	# 1958	Río San Juan	Hydr. Resources
Castanos, Coahuila	S	26° 47'	101° 27'	2,440	#Oct. 1932	Río Salado	Hydr. Resources
Cd. Acuña, Coahuila	S	29° 20'	100° 53'	919	1951	Amistad Dam Site - Eagle Pass	L. B. & W. C.
Cd. Guerrero, Chihuahua	S	28° 33'	107° 30'	6,560	#May 1903	Adjacent to Río Conchos	Meteor. Service of Mexico
Cd. Mier, Tamaulipas	S	26° 26'	99° 09'	260	Oct. 1955	Falcón Dam - Río Grande City	L. B. & W. C.
Cerralvo, Nuevo León	R	26° 06'	99° 37'	1,120	Nov. 1938	Río San Juan	Hydr. Resources
Chihuahua, Chihuahua	S	28° 38'	106° 04'	4,690	# 1900	Río Conchos	Meteor. Service of Mexico
Chilicote, Chihuahua	S	28° 59'	104° 48'	3,940	# 1955	Río Conchos	Meteor. Service of Chihuahua
Ciénega de Flores, Nuevo León	R	25° 58'	100° 10'	1,760	Apr. 1938	Río San Juan	Hydr. Resources
Comales, Tamaulipas	R	26° 11'	98° 55'	270	#Mar. 1938	Río San Juan	Hydr. Resources
Conchos, Coahuila	S	28° 00'	101° 19'	†	#Oct. 1950	Río Salado	Hydr. Resources
Control (CI-K-9), Tamaulipas	S	25° 58'	97° 49'	59	#June 1942	Lower Río Grande Valley	Hydr. Resources
Cuatro Ciénegas, Coahuila	S	26° 58'	102° 04'	2,430	#June 1923	Río Salado	Hydr. Resources
Cuahtémoc, Chihuahua	S	28° 24'	106° 52'	7,250	#June 1923	Adjacent to Río Conchos	Hydr. Resources
Delicias, Chihuahua	S	28° 11'	105° 31'	3,710	#Aug. 1933	Río Conchos	Hydr. Resources
Don Martín, Coahuila	S	27° 33'	100° 37'	790	#June 1927	Río Salado	Hydr. Resources
El Cuchillo, Nuevo León	S	25° 43'	99° 16'	590	June 1938	Río San Juan	Hydr. Resources
El Maguay, Chihuahua	S	27° 35'	106° 07'	4,380	July 1955	Río Conchos	Meteor. Service of Chihuahua
El Remolino, Coahuila *	S	28° 45'	101° 05'	1,310	June 1958	Amistad Dam Site - Eagle Pass	L. B. & W. C.
El Sitio, Chihuahua	S	27° 31'	106° 14'	†	July 1955	Río Conchos	Meteor. Service of Chihuahua
El Vergel, Chihuahua	S	26° 22'	106° 30'	†	1957	Río Conchos	Meteor. Service of Chihuahua
Escalón, Chihuahua	S	26° 45'	104° 21'	†	1957	Adjacent to Río Conchos	Meteor. Service of Chihuahua
Felix U. Gómez (Los Lamentos), Chihuahua	S	30° 35'	105° 50'	4,920	1955	Adjacent to Ft. Quitman - Upper Presidio	Meteor. Service of Mexico
Galeana, Nuevo León	S	24° 50'	100° 04'	5,430	# 1958	Adjacent to Río San Juan	Meteor. Service of Mexico
Garita Km. 28, Chihuahua	S	31° 34'	106° 28'	3,990	May 1958	El Paso - Ft. Quitman	L. B. & W. C.
Gral. Bravo, Nuevo León	S	25° 48'	99° 09'	394	#Sept. 1906	Río San Juan	Meteor. Service of Mexico
Gral. Cepeda, Coahuila	S	25° 24'	101° 29'	4,920	Aug. 1926	Río San Juan	Hydr. Resources
Granja Guadalupe, Coahuila	S	25° 03'	101° 01'	†	# 1958	Adjacent to Río San Juan	Hydr. Resources
Guadalupe, Chihuahua	S	31° 23'	106° 06'	3,580	1958	El Paso - Ft. Quitman	L. B. & W. C.
Higuera, Nuevo León *	S	25° 59'	100° 01'	1,640	#Sept. 1906	Río San Juan	Meteor. Service of Mexico
Icamole, Nuevo León *	S	25° 56'	100° 34'	4,900	# 1958	Río San Juan	Hydr. Resources
Inurbide, Nuevo León	S	24° 44'	99° 53'	†	1941	Adjacent to Río San Juan	Hydr. Resources
Jiménez, Chihuahua	S	27° 08'	104° 55'	4,490	1951	Río Conchos	Meteor. Service of Chihuahua
Jiménez, Coahuila	S	29° 04'	100° 40'	814	# 1951	Amistad Dam Site - Eagle Pass	L. B. & W. C.
Juárez, Chihuahua	S	31° 44'	106° 28'	3,700	# 1903	El Paso - Ft. Quitman	Hydr. Resources
La Boquilla, Chihuahua	S	27° 32'	105° 25'	4,330	# 1910	Río Conchos	National Finance S. A. of Mexico
La Cruz, Nuevo León *	S	25° 29'	100° 21'	†	1958	Río San Juan	Hydr. Resources
La Gloria, Nuevo León	S	26° 54'	99° 48'	394	#May 1958	Río Salado	L. B. & W. C.
La Junta, Chihuahua	S	28° 26'	107° 20'	6,730	# 1925	Adjacent to Río Conchos	Hydr. Resources
La Popa, Nuevo León *	S	26° 10'	100° 50'	3,230	1958	Río San Juan	Hydr. Resources
Laguna de Salinillas, Nuevo León	S	27° 32'	100° 34'	755	# 1940	Río Salado	Hydr. Resources
Laguna de Sánchez, Nuevo León	R	25° 21'	100° 16'	6,500	Apr. 1941	Río San Juan	Hydr. Resources
Lampazos, Nuevo León	S	27° 00'	100° 30'	1,120	# 1958	Río Salado	Meteor. Service of Mexico

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LOCATION OF RAINFALL STATIONS ON THE RIO GRANDE WATERSHED

In Mexico

NAME OF STATION	TYPE GAGE	LATI-TUDE	LONGI-TUDE	ELEV. (FT.)	RECORD BEGAN	WATERSHED SUBDIVISION	OBSERVER
Las Barras, Chihuahua	S	28° 27'	105° 26'	3,590	July 1949	Rfo Conchos	Hydr. Resources
Las Choyas, Chihuahua	S	29° 18'	106° 11'	†	# 1955	Adjacent to Rfo Conchos	Meteor. Service of Chihuahua
Las Comitas, Nuevo León	S	25° 26'	100° 09'	1,670	1940	Rfo San Juan	Hydr. Resources
Las Enramadas, Nuevo León	S	25° 48'	99° 16'	730	#Sept. 1926	Rfo San Juan	Hydr. Resources
Las Norias, Coahuila	S	29° 15'	102° 20'	#May 1959	Johnson Ranch - Langtry	I. B. & W. C.	
Las Virgenes, Chihuahua	S	28° 10'	105° 38'	4,070	# 1943	Rfo Conchos	Hydr. Resources
Linares, Nuevo León	R	24° 52'	99° 34'	1,180	# 1900	Adjacent to Rfo San Juan	Hydr. Resources
Los Barriles, Chihuahua	S	30° 55'	105° 45'	4,860	July 1958	El Paso - Ft. Quitman	I. B. & W. C.
Los Herrera (La Tableta), Nuevo León	R	25° 55'	99° 24'	820	Sept. 1939	Rfo San Juan	Hydr. Resources
Los Ojos, Chihuahua	S	29° 06'	106° 15'	4,990	1957	Adjacent to Rfo Conchos	Meteor. Service of Chihuahua
Los Pozos, Chihuahua	S	28° 53'	106° 02'	3,940	# 1956	Rfo Conchos	Meteor. Service of Chihuahua
Los Ramones, Nuevo León	R	25° 42'	99° 38'	262	#Sept. 1939	Rfo San Juan	Hydr. Resources
Luis L. León, Chihuahua	S	31° 05'	105° 37'	3,460	Apr. 1958	El Paso - Ft. Quitman	I. B. & W. C.
Maclovio Herrera (Falomir), Chihuahua	S	29° 03'	105° 08'	3,380	# 1924	Rfo Conchos	Meteor. Service of Mexico
Maljoma, Chihuahua	S	28° 54'	104° 20'	4,270	Aug. 1955	Rfo Conchos	Meteor. Service of Chihuahua
Matamoros, Tamaulipas	S	25° 52'	97° 30'	33	# 1958	Lower Rio Grande Valley	Hydr. Resources
Méndez, Tamaulipas	S	25° 07'	98° 35'	427	#Sept. 1939	Adjacent to Lower Rio Grande Valley	Hydr. Resources
Mina, Nuevo León	S	26° 00'	100° 31'	†	1958	Rfo San Juan	Meteor. Service of Mexico
Monclova, Coahuila	S	26° 54'	101° 25'	1,940	# 1897	Rfo Salado	Hydr. Resources
Montemorelos, Nuevo León	S	25° 12'	99° 50'	1,420	#Aug. 1904	Rfo San Juan	Hydr. Resources
Monterrey, Nuevo León	S	25° 40'	100° 18'	1,740	# 1896	Rfo San Juan	Hydr. Resources
Muzquiz, Coahuila	S	27° 53'	101° 31'	1,650	# 1923	Rfo Salado	Meteor. Service of Mexico
Nueva Cd. Guerrero, Tamaulipas	S	26° 34'	99° 14'	348	#May 1954	Laredo - Falcón	I. B. & W. C.
Nueva Rosita, Coahuila	S	27° 56'	101° 13'	1,410	#Aug. 1925	Rfo Salado	Meteor. Service of Mexico
Nuevo Laredo, Tamaulipas	S	27° 30'	99° 30'	427	1950	Laredo - Falcón	I. B. & W. C.
Nuevo Laredo, Tamaulipas	S	27° 30'	99° 30'	427	# 1909	Laredo - Falcón	Meteor. Service of Mexico
Ocampo, Coahuila	S	27° 18'	102° 24'	3,770	May 1960	Adjacent to Rfo Salado	I. B. & W. C.
Ojinaga, Chihuahua	S	29° 34'	104° 24'	2,590	#Apr. 1954	Rfo Conchos	I. B. & W. C.
Ojinaga, Chihuahua	S	29° 34'	104° 25'	2,620	#Nov. 1906	Rfo Conchos	Meteor. Service of Mexico
Ojo Caliente, Chihuahua	S	27° 41'	105° 13'	4,010	1942	Rfo Conchos	Hydr. Resources
Pajonal, Nuevo León *	S	25° 29'	100° 25'	†	1958	Rfo San Juan	Hydr. Resources
Palestina, Coahuila *	S	29° 08'	100° 57'	1,080	# 1931	Amistad Dam Site - Eagle Pass	Hydr. Resources
Parás, Nuevo León	S	26° 30'	99° 31'	541	# 1958	Rfo Alamo	Hydr. Resources
Parral, Chihuahua	S	26° 56'	105° 39'	5,740	# 1903	Rfo Conchos	Meteor. Service of Mexico
Parras, Coahuila	S	25° 27'	102° 10'	5,510	1958	Adjacent to Rfo San Juan	Hydr. Resources
Piedras Negras, Coahuila	S	28° 43'	100° 31'	715	# 1951	Amistad Dam Site - Eagle Pass	I. B. & W. C.
Planta Zootécnica, Chihuahua	S	28° 41'	106° 04'	4,740	# 1957	Rfo Conchos	Meteor. Service of Chihuahua
Porvenir, Chihuahua	S	31° 14'	105° 52'	3,530	1958	El Paso - Ft. Quitman	I. B. & W. C.
Potosí, Nuevo León	S	24° 51'	100° 19'	6,260	# 1958	Adjacent to Rfo San Juan	Monterrey Wtr. Wks
Potrero Redondo, Nuevo León *	S	25° 16'	100° 08'	†	# 1958	Rfo San Juan	Hydr. Resources
Praxedis G. Guerrero, Chihuahua	S	31° 22'	106° 00'	3,560	1958	El Paso - Ft. Quitman	I. B. & W. C.
Presa Anzaldúas, Tamaulipas	S	26° 07'	98° 18'	†	Apr. 1960	Lower Rio Grande Valley	I. B. & W. C.
Progreso, Coahuila	S	27° 25'	101° 00'	1,210	Feb. 1943	Rfo Salado	Hydr. Resources
Ramos Arizpe, Coahuila	S	25° 32'	100° 57'	4,590	#Apr. 1907	Rfo San Juan	Meteor. Service of Mexico
Rancho los Vidrios, Tamaulipas	S	27° 36'	99° 37'	446	Sept. 1956	Eagle Pass - Laredo	H. Vidrio
Rancho Mercedes, Coahuila †	S	28° 02'	100° 01'	545	May 1959	Eagle Pass - Laredo	I. B. & W. C.
Rancho San Diego, Coahuila	S	27° 59'	100° 35'	†	#June 1958	Eagle Pass - Laredo	I. B. & W. C.
Rancho San Juan de la Palma, Tamaulipas	S	26° 53'	99° 22'	348	Apr. 1955	Laredo - Falcón	I. B. & W. C.
Rayones, Nuevo León	S	25° 01'	100° 05'	1,970	#Oct. 1926	Rfo San Juan	Hydr. Resources
Reata, Coahuila	S	26° 07'	101° 04'	3,070	#July 1944	Rfo San Juan	Hydr. Resources
Retamal, Tamaulipas	S	26° 02'	98° 02'	82	Oct. 1949	Lower Rio Grande Valley	I. B. & W. C.
Reynosa, Tamaulipas	R	26° 06'	98° 17'	130	# 1941	Lower Rio Grande Valley	Hydr. Resources
Reynosa 40 Km SW, N. L. †	S	25° 56'	98° 43'	492	Feb. 1959	Lower Rio Grande Valley	I. B. & W. C.

Some months or years missing R Recording S Standard † Formerly called Klimto. 140, Nuevo León

† Not available † Formerly called Rancho San Jesus, Coahuila * Not shown on map

LOCATION OF RAINFALL STATIONS ON THE RIO GRANDE WATERSHED

In Mexico

NAME OF STATION	TYPE GAGE	LATI- TUDE	LONGI- TUDE	ELEV. (FT.)	RECORD BEGAN	WATERSHED SUBDIVISION	OBSERVER
Rinconada, Nuevo León	S	25° 41'	100° 41'	4,790	Apr. 1944	Río San Juan	Hydr. Resources
Río Bravo, Tamaulipas	S	26° 00'	98° 06'	85	*Sept. 1950	Lower Río Grande Valley	Hydr. Resources
Rosetilla, Chihuahua	S	28° 14'	105° 19'	3,780	1940	Río Conchos	National Finance S. A. of Mexico
Rusio, Nuevo León	S	24° 42'	100° 25'	6,570	# 1958	Adjacent to Río San Juan	Monterrey Wtr. Wks
Sabinas, Coahuila	S	27° 50'	101° 08'	1,440	*May 1922	Río Salado	Hydr. Resources
Sabinas Hidalgo, Nuevo León	S	26° 30'	100° 11'	1,030	May 1958	Río Salado	L. B. & W. C.
Saltillo, Coahuila	S	25° 26'	101° 00'	5,280	# 1886	Río San Juan	Hydr. Resources
Samalayuca, Chihuahua	S	31° 21'	106° 28'	4,180	1958	El Paso - Ft. Quitman	Meteor. Service of Mexico
San Agustín, Chihuahua	S	31° 31'	106° 15'	3,650	1958	El Paso - Ft. Quitman	L. B. & W. C.
San Antonio de las Alazanas, Coahuila	S	25° 15'	100° 36'	†	1958	Río San Juan	Hydr. Resources
San Antonio, Chihuahua	S	31° 01'	106° 00'	4,490	July 1958	El Paso - Ft. Quitman	L. B. & W. C.
San Antonio, Durango	S	26° 25'	105° 21'	5,430	1943	Río Conchos	Hydr. Resources
San Buenaventura, Coahuila	S	27° 05'	101° 33'	2,300	*Dec. 1926	Río Salado	Meteor. Service of Mexico
San Geronimo, Coahuila *	S	28° 29'	101° 49'	†	1951	Río Salado	L. B. & W. C.
San Isidro, Chihuahua	S	27° 46'	106° 49'	6,060	Aug. 1957	Río Conchos	Meteor. Service of Chihuahua
San Juan, Nuevo León	S	25° 33'	99° 50'	876	*Nov. 1943	Río San Juan	Hydr. Resources
San Juanito, Chihuahua *	S	27° 59'	107° 36'	†	1959	Río Conchos	Meteor. Service of Chihuahua
San Miguel de Camargo, Tamaulipas *	S	26° 14'	98° 36'	130	# 1953	Lower Río Grande Valley	Hydr. Resources
Santa Catarina, Nuevo León	R	25° 41'	100° 26'	1,970	Oct. 1937	Río San Juan	Hydr. Resources
Santa Rita, Chihuahua	S	27° 39'	104° 31'	3,950	# 1956	Río Conchos	Meteor. Service of Chihuahua
Santa Rosa, Coahuila	S	29° 38'	101° 28'	†	# 1958	Langtry - Amistad Dam Site	Valeriano T. Diego
Santo Domingo, Coahuila *	S	28° 58'	102° 24'	†	*May 1959	Río Salado	L. B. & W. C.
Sierra Mojada, Coahuila	S	27° 17'	103° 42'	4,120	July 1960	Adjacent to Johnson Ranch - Langtry	Meteor. Service of Mexico
Siquirichic, Chihuahua	S	27° 09'	107° 12'	7,610	July 1956	Adjacent to Río Conchos	Meteor. Service of Chihuahua
Tinajas, Chihuahua *	S	31° 09'	106° 05'	4,210	1958	El Paso - Ft. Quitman	L. B. & W. C.
Topo Chico, Nuevo León	R	25° 49'	100° 20'	1,640	*Aug. 1939	Río San Juan	Hydr. Resources
Vado de Cedillos, Chihuahua	S	31° 12'	105° 49'	3,500	Apr. 1958	El Paso - Ft. Quitman	L. B. & W. C.
Vallecillo, Nuevo León	S	26° 40'	99° 58'	900	June 1958	Río Salado	Hydr. Resources
Valle Hermoso, Tamaulipas	S	25° 41'	97° 48'	52	*June 1949	Lower Río Grande Valley	Hydr. Resources
Villa Allende, Nuevo León	S	25° 17'	100° 01'	2,210	*Nov. 1938	Río San Juan	Hydr. Resources
Villa de Santiago, Nuevo León	S	25° 25'	100° 07'	1,460	# 1923	Río San Juan	Hydr. Resources
Villa Guerrero, Coahuila	S	28° 20'	100° 24'	689	June 1958	Eagle Pass - Laredo	L. B. & W. C.
Villa Hidalgo, Coahuila	S	27° 47'	99° 52'	499	1951	Eagle Pass - Laredo	L. B. & W. C.
Villa Juárez, Coahuila	S	27° 37'	100° 44'	900	# 1943	Río Salado	Hydr. Resources
Villaalba, Chihuahua	S	28° 01'	105° 46'	3,940	Oct. 1940	Río Conchos	Hydr. Resources
Zaragoza, Chihuahua	S	31° 40'	106° 20'	3,660	Feb. 1958	El Paso - Ft. Quitman	Hydr. Resources

Some months or years missing † Not available R Recording S Standard * Not shown on map

EVAPORATION IN THE RIO GRANDE BASIN IN INCHES In the United States

Tabulated below are records of evaporation observed at six stations operated by the United States Section of this Commission from Presidio to Brownsville, Texas. At all stations, the exposure to wind was uniform and relatively unimpeded. The sites were kept cleared of all high brush and trees within 150 feet, and all brush, tall weeds and other obstructions within 100 feet of the fenced enclosures. Within the enclosures, all vegetation has been eradicated or kept trimmed to within 3 inches of the ground surface. For specific location of these stations refer to data opposite same station name shown in "Location of Rainfall Stations on the Rio Grande Watershed", pages 110 to 112 in this bulletin.

Records were obtained by means of:

1. U. S. Weather Bureau Standard Pan. A circular pan, 4 feet in diameter and 10 inches deep, made of 22-gage galvanized iron, is set on a wooden platform with the rim of the pan 16 inches above the ground. The water level is maintained between 2 and 3 inches below the rim of the pan. This type of pan was in operation at Falcón Dam, Texas.
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 Falcón Dam, Texas. 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 Wardlaw Ranch.
3. A circular pan, 12 feet in diameter and 36 inches deep, made of 20-gage galvanized iron, is set in the ground with the rim of the pan 3 inches above the ground surface. 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 Falcón Dam, Texas and was discontinued after May 1960.
4. An evaporimeter developed by the United States Section of this Commission and calibrated against a 2-foot pan described above, was in operation at Presidio, Johnson Ranch and Brownsville, 7 miles east.

Month	Presidio, Texas		Johnson Ranch, Texas		Martin King Ranch		Wardlaw Ranch	
	1960	Average 1950-1960	1960	Average 1950-1960	1960	Average March 1956-1960	1960	Average Sept. 1955-1960
Jan.	3.30	3.68	3.04	3.94	2.61	3.00	2.58	2.93
Feb.	6.38	5.24	5.47	5.46	4.17	3.46	4.16	3.53
Mar.	8.08	8.54	7.91	8.58	5.22	6.07	4.93	5.90
Apr.	9.07	10.42	9.76	10.70	7.24	7.45	6.67	6.69
May	12.09	12.79	13.17	12.96	9.80	9.16	9.15	8.15
June	13.39	13.88	13.95	13.83	14.97	12.13	16.12	10.78
July	9.45	12.84	11.31	14.31	8.00	11.49	9.70	11.93
Aug.	8.57	12.63	9.78	12.95	9.71	11.86	9.07	11.33
Sept.	9.32	11.02	9.64	10.80	9.22	8.54	8.93	8.07
Oct.	11.38	8.40	7.14	8.32	6.57	6.04	5.76	5.76
Nov.	3.93	5.11	4.00	5.15	3.03	3.70	2.80	4.02
Dec.	1.72	3.40	1.89	3.68	2.62	3.24	2.10	2.85
Total	96.68	107.95	97.06	110.68	83.16	86.14	81.97	81.94

Month	Falcón Dam, Texas						Brownsville, Texas	
	2-Foot Pan		4-Foot Pan		12-Foot Pan			
	1960	Average April 1950-1960	1960	Average April 1956-1960	1960	Average April 1956-1960	1960	Average July 1958-1960
Jan.	2.43	3.68	2.96	3.73	2.15	2.72	2.49	2.08
Feb.	4.54	4.79	6.26	5.04	4.27	3.59	3.19	2.22
Mar.	4.21	6.82	6.50	7.78	4.56	5.50	2.67	1.88
Apr.	5.80	7.93	9.31	9.72	6.32	6.34	4.81	3.83
May	9.11	10.19	12.75	13.34	8.42	8.46	4.67	4.25
June	11.71	11.54	14.77	13.83			6.29	5.38
July	12.81	13.50	17.08	17.06			7.72	6.74
Aug.	10.36	12.04	13.56	15.82			6.03	6.14
Sept.	6.31	8.40	8.44	10.55			3.62	4.47
Oct.	6.52	6.76	7.33	8.08			3.36	3.31
Nov.	3.47	4.99	3.87	5.50			2.23	2.61
Dec.	2.30	4.01	2.75	4.29			1.36	2.18
Total	79.57	94.65	105.58	114.74			48.44	45.09

EVAPORATION IN THE RIO GRANDE BASIN **IN INCHES** **In Mexico**

Tabulated below are records of evaporation observed at nine stations operated and maintained by the Mexican Section of this Commission. Eight stations are along the Rio Grande from Cd. Acuña, Coahuila to Retamal, Tamaulipas and one is located on the 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 had been eradicated or was kept trimmed to within 3 inches of the ground surface. Except for a water barrel and a thermometer shelter in the northeast and northwest corners of the enclosures, the exposure to wind was uniform and relatively unimpeded. For specific location of these stations refer to data opposite same station name shown in "Location of Rainfall Stations on the Rio Grande Watershed", pages 113 to 115 in this bulletin.

The type of pan used at all these stations was a U. S. Weather Bureau Standard Pan, 4-feet in diameter and 10 inches deep, made of 22-gage galvanized iron, set on a wooden platform with the rim of the pan 16 inches above the ground. The water level was maintained between 2 and 3 inches below the rim of the pan and was measured with a micrometer gage.

Data for other evaporation stations in the Rio Grande Basin in Mexico, which were operated by various Mexican agencies, are available in Water Bulletin Number 30 published by the Mexican Section of this Commission.

Month	Ojinaga, Chih.		Cd. Acuña, Coah.		Jiménez, Coah.		Piedras Negras, Coah.		Hidalgo, Coah.	
	1960	#Average April 1954-1960	1960	Average 1951-1960	1960	Average 1951-1960	1960	Average 1951-1960	1960	Average 1951-1960
Jan.	2.75	2.93	2.75	3.54	3.04	3.21	2.52	3.24	2.87	4.28
Feb.	5.04	4.34	5.70	4.92	5.38	4.41	5.28	4.58	6.20	5.61
Mar.	6.89	6.86	6.35	8.01	5.74	6.92	7.02	7.20	5.48	8.38
Apr.	8.28	8.87	7.71	9.06	7.22	7.93	8.41	8.68	9.97	10.59
May	10.67	11.20	10.55	10.41	8.94	9.49	12.69	10.10	11.65	13.08
June	10.80	11.99	13.52	12.20	12.26	11.44	16.32	12.09	14.89	14.70
July	8.50	11.23	12.06	13.40	11.49	12.63	13.30	13.67	16.23	16.79
Aug.	7.13	9.37	9.67	12.36	8.98	11.39	9.49	12.45	12.55	15.38
Sept.	6.92	7.81	9.37	9.13	8.85	8.17	8.42	8.46	9.37	10.84
Oct.	5.07	5.60	5.69	6.10	5.39	5.58	6.12	6.28	6.71	7.74
Nov.	3.10	3.43	2.86	3.86	2.46	3.41	2.52	3.54	3.09	4.81
Dec.	1.69	2.58	2.06	3.37	1.90	3.02	1.77	3.01	1.83	4.09
Total	76.84	86.21	88.29	96.36	81.65	87.60	93.86	93.30	100.84	116.29

Month	Rancho San Juan de la Palma, Tamps.		Nueva Cd. Guerrero, Tamps.		Cd. Mier, Tamps.		Retamal, Tamps.	
	1960	Average April 1955-1960	1960	#Average June 1954-1960	1960	#Average Oct. 1955-1960	1960	#Average 1951-1960
Jan.	3.13	3.87	3.18	3.78	3.52	3.78	3.50	4.41
Feb.	6.29	5.10	5.42	4.22	5.96	4.93	5.23	5.11
Mar.	6.02	6.84	5.73	6.79	5.85	7.22	5.27	6.53
Apr.	10.96	9.70	8.47	8.88	10.08	8.80	7.70	8.25
May	13.28	12.12	11.07	11.73	11.98	11.56	8.55	9.20
June	14.98	13.29	13.06	12.03	14.63	13.44	9.02	9.37
July	17.11	15.71	15.50	14.38	16.20	16.16	10.57	10.12
Aug.	12.50	14.58	11.75	13.22	12.55	14.63	9.28	10.14
Sept.	10.19	10.88	7.96	9.87	8.28	11.14	6.13	7.29
Oct.	7.54	7.73	7.09	7.29	8.07	8.89	5.85	6.03
Nov.	3.91	4.82	3.65	5.11	3.84	4.88	3.65	4.12
Dec.	3.15	4.08	2.19	3.79	2.74	4.12	3.43	3.95
Total	109.06	108.72	95.07	101.09	103.70	109.55	78.18	84.42

Some months missing

TEMPERATURE, HUMIDITY, AND WIND

The mean monthly temperatures shown for the stations in Mexico are averages of daily maximum and minimum thermometer observations.

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.

Monthly mean wind velocities are based on the total miles of wind movement indicated by a standard 3-cup anemometer installed and operated according to specifications for a Class A Weather Bureau evaporation station.

Mean Temperature—Degrees Fahrenheit In the United States

Month	Tortuga Ranch, Texas		Falcón Dam, Texas	
	1960	#Average June 1955-1960	1960	Average July 1950-1960
Jan.	50.9	51.1	55.1	58.5
Feb.	54.3	55.8	56.5	61.5
Mar.	59.4	61.6	60.9	67.4
Apr.	70.3	69.5	73.3	74.6
May	78.5	78.5	78.6	80.3
June	88.0	85.9	85.9	85.0
July	86.1	86.3	88.0	86.8
Aug.	86.0	87.1	84.6	86.6
Sept.	82.6	81.0	78.8	82.1
Oct.	74.6	71.8	77.7	74.7
Nov.	61.0	57.8	64.9	63.5
Dec.		52.9	54.4	58.5
Yearly		69.9	71.6	73.3

In Mexico

Month	Juárez, Chihuahua		Ojinaga, Chihuahua		Cd. Acuña, Coahuila		Jiménez, Coahuila	
	1960	Average	1960	#Avg. Apr. 1954-1960	1960	Avg. Apr. 1951-1960	1960	#Avg. Mar. 1951-1960
Jan.		Record began July 1960	47.8	48.8	50.4	52.2	52.9	53.6
Feb.			50.0	53.4	51.4	56.6	54.7	58.0
Mar.			60.3	59.0	59.0	63.3	59.0	63.2
Apr.			67.5	67.8	73.8	72.2	72.7	71.7
May			74.7	76.3	78.4	79.4	77.9	77.8
June			83.5	84.0	88.5	86.4	86.7	84.7
July	81.0		81.7	84.2	88.5	88.6	86.7	86.6
Aug.	81.7		80.2	82.3	86.4	88.9	84.9	86.5
Sept.	76.8		76.6	78.3	82.0	83.6	80.1	80.8
Oct.	64.0		68.7	68.3	75.2	72.7	74.5	72.2
Nov.	53.8		59.2	55.6	61.2	58.6	62.6	59.8
Dec.	39.4		45.0	48.6	47.8	52.0	50.0	53.8
Yearly			66.3	67.2	70.2	71.2	70.2	70.7

Month	El Remolino, Coahuila		Piedras Negras, Coahuila		Villa Guerrero, Coahuila		Rancho Mercedes, Coahuila		
	1960	Avg. June 1958-1960	1960	#Avg. Apr. 1951-1960	1960	Avg. July 1958-1960	1959	1960	Avg. June 1959-1960
Jan.	48.2	49.6	51.1	51.3	50.0	48.4		55.8	
Feb.	52.9	56.8	51.1	55.3	50.7	52.4		57.6	
Mar.	56.8	59.7	59.0	60.7	59.1	59.4		64.8	
Apr.	71.5	68.8	72.7	69.2	69.8	67.3		65.1	
May	77.7	77.6	77.7	76.5	75.6	76.6		74.8	
June	85.3	83.1	87.4	84.0	84.6	82.6	83.8	86.5	85.2
July	85.6	84.4	86.9	86.2	86.0	84.0	83.7	81.0	82.4
Aug.	82.8	83.4	84.9	86.0	83.7	84.2	86.7	82.8	84.8
Sept.	79.5	80.1	79.2	79.4	76.8	79.1	86.0	81.0	83.5
Oct.	74.5	72.3	74.8	68.8	73.6	69.9	76.6	77.7	77.2
Nov.	61.9	58.8	61.5	56.4	59.4	57.3	64.8	64.8	64.8
Dec.	51.8	53.2	49.6	51.7	48.6	49.2	60.8	64.0	62.4
Yearly	69.0	69.0	69.7	68.8	68.2	67.5		71.3	

Some months missing

TEMPERATURE, HUMIDITY, AND WIND

Mean Temperature - Degrees Fahrenheit
In Mexico

Month	Villa Hidalgo, Coahuila		Rancho San Juan de la Palma, Tamps.		Nueva Cd. Guerrero, Tamaulipas		Cd. Mier, Tamaulipas	
	1960	#Avg. Aug. 1951-1960	1960	Avg. Apr. 1955-1960	1960	Average 1958-1960	1960	#Avg. Oct. 1955-1960
Jan.	53.8	55.7	57.6	58.2	56.5	54.2	56.5	59.0
Feb.	53.6	58.4	58.5	61.5	56.3	56.3	56.1	62.2
Mar.	60.3	65.1	63.3	64.0	61.5	62.0	62.2	66.9
Apr.	77.0	74.5	73.4	72.8	73.8	73.0	73.8	76.5
May	81.0	80.3	75.4	81.3	81.0	81.3	79.5	82.1
June	87.4	86.4	82.0	86.4	86.7	85.3	85.3	86.7
July	89.5	87.6	90.9	89.0	89.5	87.7	87.8	88.1
Aug.	87.4	87.7	87.6	89.3	86.7	87.3	84.6	87.9
Sept.	82.2	82.8	82.4	85.1	80.2	82.6	78.8	83.1
Oct.	78.8	74.6	81.3	77.2	77.7	74.2	76.6	77.1
Nov.	49.3	59.7	68.4	65.4	63.0	62.6	65.5	64.1
Dec.	50.4	56.2	54.5	59.1	52.0	54.9	53.2	59.8
Yearly	70.9	72.4	72.9	74.1	72.1	71.8	71.7	74.5

Month	Retamal, Tamaulipas		K. 140, Nuevo León					
	1960	Average 1951-1960	1960	Avg. Mar. 1959-1960				
Jan.	60.4	62.9	59.9					
Feb.	58.3	64.1	59.7					
Mar.	64.4	70.1	65.1	65.4				
Apr.	75.9	77.1	74.3	72.9				
May	78.8	81.3	80.2	81.1				
June	84.6	85.6	86.2	84.4				
July	86.1	86.8	86.4	86.0				
Aug.	84.9	88.0	84.2	85.1				
Sept.	79.9	83.1	78.8	81.0				
Oct.	79.9	76.9	78.4	79.2				
Nov.	69.4	67.1	64.8	66.0				
Dec.	56.7	62.4	54.3	57.8				
Yearly	73.3	75.4	72.7					

Mean Wind Speed - Miles Per Hour
In the United States

Month	Martin King Ranch		Tortuga Ranch, Texas		Falcón Dam, Texas	
	1960	Average 1957-1960	1960	#Average June 1955-1960	1960	Average July 1950-1960
Jan.	4.4	4.7	1.4	2.4	3.1	4.0
Feb.	6.2	5.4	4.9	3.9	4.6	4.8
Mar.	5.6	7.2	4.4	4.1	4.0	5.3
Apr.	6.7	6.8	5.0	5.0	5.4	6.1
May	7.1	7.0	5.5	5.0	5.0	6.2
June	8.0	7.8	5.6	5.5	4.8	6.5
July	5.2	7.2	5.3	5.4	5.4	6.9
Aug.	6.9	6.9	3.9	4.2	5.0	5.9
Sept.	5.2	5.9	3.4	3.6	2.4	4.4
Oct.	5.4	4.9	3.9	3.6	3.1	3.9
Nov.	3.9	4.1	2.3	2.7	2.7	4.0
Dec.	4.0	4.2	2.8	2.6	3.4	3.8
Yearly	5.7	6.0	4.0	4.0	4.1	5.2

Mean Relative Humidity-Percent
In the United States

Month	Tortuga Ranch, Texas		Falcón Dam, Texas	
	1960	#Average June 1955-1960	1960	Average July 1950-1960
Jan.	70.0	74.6	71.8	65.1
Feb.	53.6	70.5	61.3	63.7
Mar.	59.4	60.2	70.0	60.6
Apr.	56.6	64.2	62.5	60.4
May	51.3	65.5	61.3	62.5
June	48.8	61.7	58.8	62.8
July	57.3	60.9	55.3	58.3
Aug.	63.0	60.6	67.0	59.8
Sept.	52.7	66.0	64.9	64.3
Oct.	70.0	70.0	70.5	65.0
Nov.	76.0	71.9	77.8	65.0
Dec.		65.9	64.8	60.9
Yearly		66.0	65.5	62.4

Some months missing

DRAINAGE BASIN AND IRRIGATED AREAS Along the Rio Grande and Tributaries — 1960

The total area within the outer rim of the Rio Grande Basin is about 335,500 square miles but it contains large areas, especially along its southwestern boundary, that contribute no surface run-off to the Rio Grande. Such non-contributing areas constitute about 46% of the total area, leaving 182,215 square miles of productive watershed which is the only one included in the list below.

The irrigated areas shown below are listed in accordance with the location of their diversion points and are all within the Rio Grande basin, except in the Lower Rio Grande Valley where large portions of irrigated lands in both countries lie outside the basin boundary line.

Only areas irrigated in 1960 are reported in the table below. In the United States below Falcón Dam, the irrigated areas listed are based upon monthly reports by the Special Water Master for the 93rd District Court, Hidalgo County, Texas having jurisdiction during 1960 over the distribution of United States waters in the area.

DESIGNATIONS OF AREAS AND GAGING STATIONS	Drainage Basin Square Miles			Irrigated Areas—Acres		
	United States	Mexico	Total	United States	Mexico	Total
Above Elephant Butte Dam	25,923	0	25,923			
Elephant Butte Dam to Caballo Dam	1,295	0	1,295	0	0	0
Above Caballo Dam	27,218	0	27,218	0	0	0
Caballo Dam to El Paso Station	2,049	0	2,049	93,910	0	93,910
Above El Paso Gaging Station	29,267	0	29,267	93,910	0	93,910
El Paso Station to American Dam	4	0	4	14,430	0	14,430
Above American Dam	29,271	0	29,271	108,340	0	108,340
American Dam to Island Station	187	493	680	35,330	21,369	56,699
Above Island Gaging Station	29,458	493	29,951	143,670	21,369	165,039
Island Station to County Line Station	485	174	659	0	0	0
American Dam to County Line Station - Total	672	667	1,339	35,330	21,369	56,699
Above County Line Gaging Station	29,943	667	30,610	143,670	21,369	165,039
County Line Station to Fort Quitman Station	663	762	1,425	9,007	0	9,007
Above Fort Quitman Gaging Station	30,606	1,429	32,035	152,677	21,369	174,046
Fort Quitman to Upper Presidio Station	1,621	1,332	2,953	831	109	940
Above Upper Presidio Gaging Station	32,227	2,761	34,988	153,508	21,478	174,986
Río Conchos Above Boquilla Dam	0	8,202	8,202	0	5,832	5,832
Río Conchos Below Boquilla Dam	0	21,065	21,065	0	330,314	330,314
Río Conchos - Total	0	29,267	29,267	0	336,146	336,146
Alamito Creek above Gaging Station	1,504	0	1,504	25	0	25
Upper Presidio to Lower Presidio Gaging Station - excluding above tributaries	367	77	444	2,425	494	2,919
Upper Presidio to Lower Presidio - Total	1,871	29,344	31,215	2,450	336,640	339,090
Above Lower Presidio Gaging Station	34,098	32,105	66,203	155,958	358,118	514,076
Terlingua Creek above Gaging Station	1,070	0	1,070	a 875	0	875
Lower Presidio to Johnson Ranch Station - excluding Terlingua Creek	1,093	2,349	3,442	922	3,286	4,208
Lower Presidio to Johnson Ranch - Total	2,163	2,349	4,512	1,797	3,286	5,083
Above Johnson Ranch Gaging Station	36,261	34,454	70,715	157,755	361,404	519,159
Johnson Ranch Station to Langtry Station	6,594	7,486	14,080	b 4,521	0	4,521
Above Langtry Gaging Station	42,855	41,940	84,795	162,276	361,404	523,680
Pecos River above Girvin	29,562	0	29,562			
Pecos River, Girvin to Shumla Station	5,600	0	5,600	0	0	0
Pecos River - Total	35,308	0	35,308	0	0	0
Goodenough Spring above Gaging Station	1	0	1	0	0	0
Devils River above Pafford Crossing Station	3,961	0	3,961	0	0	0
Devils River above Devils River Station	4,185	0	4,185	0	0	0
Devils River - Above Station near Mouth	4,305	0	4,305	0	0	0
Langtry Station to Below Amistad Dam Site Station - excluding above tributaries	221	1,793	2,014	0	0	0
Langtry Station to Below Amistad Dam Site Station - Total	39,835	1,793	41,628	0	0	0
Above the Below Amistad Dam Site Gaging Station	82,690	43,733	126,423	162,276	361,404	523,680

a Irrigated by spreader dams. b Includes 3,900 acres irrigated by spreader dams.
reported figure due to recent survey of previously unreported acreages.

* Acreage increase over 1959

DRAINAGE BASIN AND IRRIGATED AREAS **Along the Rio Grande and Tributaries — 1960**

DESIGNATIONS OF AREAS AND GAGING STATIONS	Drainage Basin Square Miles			Irrigated Areas—Acres		
	United States	Mexico	Total	United States	Mexico	Total
Arroyo las Vacas above Gaging Station	0	358	358	0	1,236	1,236
San Felipe Creek above Gaging Station	46	0	46	2,077	0	2,077
Below Amistad Dam Site Station to Below Maverick Dam Station - excluding the above tributaries	627	210	837	33,075	867	33,942
Below Amistad Dam Site Station to Below Maverick Dam - Total	673	568	1,241	35,152	2,103	37,255
Above the Below Maverick Dam Gaging Station	83,363	44,301	127,664	197,428	363,507	560,935
Pinto Creek above Gaging Station	249	0	249	0	0	0
Rfo San Diego above Gaging Station	0	848	848	0	14,260	14,260
Rfo San Diego - Total	0	856	856	0	15,226	15,226
Rfo San Rodrigo above Gaging Station	0	669	669	0	5,313	5,313
Rfo San Rodrigo - Total	0	958	958	0	5,610	5,610
Maverick Dam Station to Maverick Power Plant - excluding the above tributaries	389	181	570	75	0	75
Maverick Dam Station to Maverick Power Plant - Total	638	1,995	2,633	75	20,836	20,911
Above Maverick Power Plant	84,001	46,296	130,297	197,503	384,343	581,846
Maverick Power Plant to Eagle Pass Station	244	34	278	90	3,346	3,436
Above Eagle Pass Gaging Station	84,245	46,330	130,575	197,593	387,689	585,282
Rfo Escondido above Gaging Station	0	1,279	1,279	0	10,502	10,502
Rfo Escondido - Total	0	1,284	1,284	0	10,502	10,502
Eagle Pass Station to San Antonio Crossing Station - excluding Rfo Escondido	237	251	488	275	600	875
Eagle Pass to San Antonio Crossing Station - Total	237	1,535	1,772	275	11,102	11,377
Above San Antonio Crossing Gaging Station	84,482	47,865	132,347	197,868	398,791	596,659
San Antonio Crossing to Palafox Station	629	1,949	2,578	1,250	7,406	8,656
Above Palafox Gaging Station	85,111	49,814	134,925	199,118	406,197	605,315
Palafox Station to Laredo Station	607	444	1,051	3,194	9,375	12,569
Above Laredo Gaging Station	85,718	50,258	135,976	202,312	415,572	617,884
Rfo Salado above Venustiano Carranza Dam	0	17,296	17,296	0	61,366	61,366
Rfo Salado above Las Tortillas Gaging Station	0	24,877	24,877	0	122,742	122,742
Rfo Salado above Cd. Guerrero Gaging Station	0	25,112	25,112	0	122,742	122,742
Laredo Station to Falcón Dam - excluding Rfo Salado	2,042	1,352	3,394	7,291	9,281	16,572
Laredo Station to Falcón Dam - Total	2,042	26,464	28,506	7,291	132,023	139,314
Above Falcón Dam	87,760	76,722	164,482	209,603	547,595	757,198
Rfo Alamo above Gaging Station	0	1,692	1,692	0	7,660	7,660
Rfo San Juan above Marte Gómez Dam	0	13,429	13,429	0	102,548	102,548
Rfo San Juan - Marte Gómez Dam to Camargo Gaging Station	0	172	172	0	162,775	162,775
Rfo San Juan - Total	0	13,601	13,601	0	265,323	265,323
Falcón Dam Station to Fort Ringgold Station - excluding the above tributaries	222	399	621	9,019	5,224	14,243
Falcón Dam Station to Fort Ringgold - Total	222	15,692	15,914	9,019	278,207	287,226
Above Fort Ringgold Gaging Station	87,982	92,414	180,396	218,622	825,802	1,044,424
Fort Ringgold Station to Anzaldúas Dam	952	790	1,742	185,480	484,850	670,330
Above Anzaldúas Dam	88,934	93,204	182,138	404,102	1,310,652	1,714,754
Anzaldúas Dam to Progreso Station	13	22	35	141,288	2,362	143,650
Above Progreso Gaging Station	88,947	93,226	182,173	545,390	1,313,014	1,858,404
Progreso Station to San Benito Station	7	7	14	331,616	8,118	339,734
Above San Benito Gaging Station	88,954	93,233	182,187	877,006	1,321,132	2,198,138
San Benito Station to Lower Brownsville Station	14	14	28	101,853	2,241	104,094
Fort Ringgold Station to Lower Brownsville Station	986	833	1,819	760,237	497,571	1,257,808
Above Lower Brownsville Gaging Station	88,968	93,247	182,215	978,859	1,323,373	2,302,232
Lower Brownsville Station to Gulf of Mexico				6,534	1,134	7,668
Above Gulf of Mexico				985,393	1,324,507	2,309,900

c Excludes 45 acres irrigated from small reservoirs.

SUPPLEMENTARY DATA—INTERNATIONAL FALCÓN RESERVOIR

Deduced Inflows

Considering that a knowledge of the mean daily inflows reaching the International Falcón Reservoir would serve a useful purpose, such data have been deduced for 1960 showing the flows as close as they can be approximated. These data are based on the daily operation of the International Falcón Reservoir, taking into account: a) record of gage heights at the dam; b) releases as measured at both hydroelectric plants and outlet works; c) elevation-area-capacity tables based on 1956 surveys; and d) rate of evaporation measured at the dam and at Nueva Cd. Guerrero applied to an area one foot higher than the average area of two consecutive days.

Flow contributions from different sources, irrigation diversions between Laredo and Falcón, 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 Río Grande at Laredo and the Río Salado at Las Tortillas.

In spite of the deficiencies noted above and others that may occur, the data shown below represent a reasonable approximation of the flows entering the International Falcón Reservoir.

Mean Daily Discharge in Second-Feet 1960 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2,190	3,140	1,010	2,790	4,060	2,070	231	6,070	8,050	1,860	8,480	2,170
2	2,630	2,670	1,760	1,670	2,390	1,420	420	3,710	10,170	2,260	4,700	2,540
3	2,610	4,060	2,690	569	1,540	174	484	3,020	11,550	2,200	2,060	1,770
4	2,400	3,780	2,880	1,900	1,660	727	1,430	2,580	10,810	2,270	4,800	2,020
5	1,920	3,520	4,130	1,990	2,510	1,500	696	3,030	10,590	2,350	4,980	2,740
6	837	1,110	2,420	1,330	3,210	1,230	756	2,270	8,900	2,670	2,420	3,990
7	2,070	3,310	1,770	2,060	1,170	1,210	427	2,270	8,020	1,320	1,700	5,050
8	2,360	2,420	3,600	2,520	161	2,960	1,340	1,970	8,970	519	3,110	3,470
9	2,640	4,380	3,600	1,100	2,320	2,010	452	1,740	8,480	1,470	2,840	999
10	2,040	3,220	3,070	1,850	1,540	1,360	2,770	3,960	7,170	2,000	2,390	2,560
11	2,730	5,540	2,510	1,470	1,450	876	8,760	9,530	4,130	1,980	1,410	4,520
12	4,170	3,210	2,980	1,050	54.4	865	6,890	7,310	3,920	1,420	2,210	2,490
13	2,950	862	3,050	3,010	989	2,240	6,640	5,300	5,050	3,600	1,680	4,910
14	3,490	1,840	2,270	1,840	1,830	1,530	5,190	6,290	3,990	3,780	4,240	2,280
15	2,520	5,050	3,370	2,220	2,370	908	4,800	5,050	3,570	2,660	2,720	3,440
16	2,340	2,590	3,450	2,910	516	2,950	5,160	4,910	3,130	3,300	3,190	1,370
17	2,660	3,990	1,770	4,170	1,730	858	7,240	4,480	3,250	34,080	1,710	2,800
18	1,820	1,350	2,060	622	1,270	1,260	6,920	5,970	2,890	36,370	1,880	3,140
19	1,280	3,990	2,330	410	4,170	1,060	14,550	5,300	2,670	10,450	2,280	3,010
20	2,640	2,490	2,280	2,810	378	1,130	12,180	4,380	2,370	9,010	4,660	2,860
21	1,330	2,220	2,640	992	607	706	7,880	3,710	2,950	7,450	4,410	2,320
22	3,990	2,570	2,120	2,030	1,980	1,540	7,420	3,710	2,260	5,790	3,080	2,930
23	2,260	5,900	2,310	1,960	184	3,500	5,930	3,880	2,280	8,510	2,450	2,130
24	1,850	1,840	2,810	2,160	590	188	4,940	4,030	6,780	9,460	2,450	2,480
25	2,450	738	2,650	2,020	5,010	145	4,520	4,560	9,180	4,130	2,150	2,700
26	1,880	2,770	1,510	2,520	1,480	2,370	5,690	5,650	5,540	3,780	2,200	3,460
27	1,680	3,060	1,330	791	590	28.3	5,050	4,840	2,450	2,990	2,920	2,560
28	6,110	3,440	2,160	1,930	614	1,110	5,160	4,520	1,770	2,990	5,370	3,960
29	597	4,770	2,990	2,870	869	904	4,100	8,860	1,470	7,060	1,650	2,390
30	1,730		2,450	4,590	3,090	317	4,660	14,020	1,460	6,040	1,750	1,780
31	2,860		3,020		865		4,450	9,640		14,870		3,200
Sum	75,034	89,830	78,990	60,154	51,197.4	39,146.3	147,136	156,560	163,820	198,639	91,890	88,039

Current Year 1960								Period			
Month	Extreme Gage Feet		V Extreme Second-Feet		Average Second-Feet	Total Acre-Feet	Acre-Feet				
	High	Low	Day	Day			High	Low	Average	Maximum	Minimum
Jan.			28	6,110	29	597	2,420	148,900			
Feb.			23	5,900	25	738	3,100	178,100			
Mar.			5	4,130	1	1,010	2,550	156,700			
Apr.			30	4,590	19	410	2,010	119,300			
May			25	5,010	12	54.4	1,650	101,500			
June			23	3,500	27	28.3	1,300	77,660			
July			19	14,550	1	231	4,750	291,800			
Aug.			30	14,020	9	1,740	5,050	310,500			
Sept.			3	11,550	30	1,460	5,460	324,900			
Oct.			18	36,370	8	519	6,410	394,000			
Nov.			1	8,480	11	410	3,060	182,200			
Dec.			7	5,050	9	999	2,840	174,600			
Yearly				36,370		28.3	3,390	2,460,160			

Ø Mean Daily

CORRECTIONS TO PREVIOUS WATER BULLETINS

RIO GRANDE BELOW ELEPHANT BUTTE DAM, NEW MEXICO

In Water Bulletins Nos. 12 and 13 the monthly Acre-Feet for January 1920 should be 15,100 instead of 12,800 and for the Year 1920 the Yearly Acre-Feet should be 881,500 instead of 879,200 as shown.

RIO GRANDE AT COUNTY LINE STATION

In Water Bulletin No. 29 the mean daily discharge for December 28 through 31 should be 0 instead of blank as shown.

RIO GRANDE AT UPPER PRESIDIO STATION

In Water Bulletins Nos. 20 through 29 the July Monthly Maximum Acre-Feet for the Period should be 156,000 instead of 158,000 as shown.

In Water Bulletin No. 28 under the heading "Extreme Flows from Records" the peak flow in Second-Feet on May 26, 1942 should be 5,160 instead of 6,160 as shown.

RIO ALAMO AT CD, MIER, TAMAULIPAS

In Water Bulletins Nos. 12 through 27 the Yearly Minimum Acre-Feet for the Period should be 11,898.7 instead of 11,908.7 as shown.

CONTRIBUTIONS FROM RIO SAN JUAN - Below Fort Ringgold Station

In Water Bulletin No. 29 the January Sum for Morillo Drain should be 885 instead of 88.5 as shown.

STORED WATER IN LARGE RESERVOIRS OF THE RIO GRANDE BASIN

In Water Bulletins Nos. 18 and 19 the end of the month storage figures for Boquilla Reservoir in Mexico for the Years 1948 and 1949, respectively, were in error. The correct end of the month storage figures in thousands of acre-feet for these years are as follows:

<u>Month</u>	<u>1948</u>	<u>1949</u>
Jan.	1,211.4	996.8
Feb.	1,178.0	965.8
Mar.	1,096.1	888.9
Apr.	1,004.6	808.5
May	909.5	712.9
June	824.9	626.5
July	772.8	808.5
Aug.	789.9	1,083.4
Sept.	782.1	1,347.6
Oct.	746.9	1,343.3
Nov.	701.8	1,288.4
Dec.	672.9	1,248.5
AVG.	890.9	1,009.9
MAX.	1,211.4	1,347.6
MIN.	672.9	626.5

In Water Bulletin No. 29 the Yearly Period Maximum Storage in thousands of Acre-Feet for International Falcón Reservoir should be 2,523.4 instead of 2,253.4 as shown.

DIVERSIONS FROM THE RIO GRANDE
UNITED STATES SIDE BELOW FORT RINGGOLD
RIO GRANDE CITY, TEXAS

In Water Bulletin No. 25 the monthly average Second-Feet for June should be 4,110 instead of 4,070 as shown.

SANITARY ASPECTS OF WATER QUALITY

In Water Bulletins Nos. 13 through 21 the location of the sampling point below Laredo, Texas should be 5.6 miles below Laredo, Texas R. R. Bridge instead of the location shown in these Water Bulletins.

RAINFALL ON THE RIO GRANDE WATERSHED - IN MEXICO

In Water Bulletin No. 28 the monthly rainfall for January at San Juan, Nuevo León should be 1.03 inches instead of 10.28 inches and the total for the year should be 34.14 inches instead of 43.39 inches as shown.

In Water Bulletin No. 29 the monthly rainfall for March at Rusio, Nuevo León should be .39 inch instead of .04 inch and the total for the year should be 20.34 inches instead of 19.99 inches as shown; and for November at Icamote, Nuevo León the monthly rainfall should be .33 inch instead of 3.35 inches as shown.