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WATER BULLETIN NUMBER 22

Flow of the Rio Grande and Related Data

From Elephant Butte Dam, New Mexico

to the Gulf of Mexico

1952

WITH MAXIMUMS, MINIMUMS, AND NORMALS

STORAGE CAPACITIES AND WATER IN STORAGE

SOURCES OF RIVER FLOW

DIVERSIONS

SILT, CHEMICAL AND SANITARY ASPECTS OF WATER QUALITY

RAINFALL AND EVAPORATION

DRAINAGE BASIN AND IRRIGATED AREAS

CONTENTS

FOREWORD

This bulletin presents the twenty-second 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 Dam, 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 1952.

International stream gaging on the Rio Grande was initiated in 1889, when the station at El Paso, Texas was established. A number of 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 started.

During 1952, 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, Del Rio, Zapata, Rio Grande City, and Lower Brownsville. The Mexican Section operated the stream gaging stations on the main stream at Juárez, Jiménez, Eagle Pass, San Antonio Crossing, Laredo, Roma, Anzaldúas, and Matamoros. 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 171,900 square miles. Approximately 8,600,000 acre-feet of storage have been provided. A present total of 2,500,000 acres is irrigated. The residual flow from the Rio Grande that escaped to the Gulf of Mexico averaged 2,600,000 acre-feet per year for the period 1934-1952.

Acknowledgments

Other agencies which have each contributed to some part of the data published herein include: the Bureau of Plant Industry, the Division of Soils and Agricultural Engineering, and the Soil Conservation Service of the U. S. Department of Agriculture; the Bureau of Reclamation and the Geological Survey of the U. S. Department of the Interior; the Weather Bureau of the U. S. Department of Commerce; the Texas Board of Health; the 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 Laredo City Water Department; the Ministry of Hydraulic Resources of Mexico; the Meteorological Service of Mexico; the Cía. Agrícola de Fuerza Eléctrica del Río Conchos, S.A.; 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.

GENERAL HYDROLOGIC CONDITIONS FOR 1952

Along and Adjacent to the International Portion of the Rio Grande

During the year 1952, on the watershed of the Rio Grande below Elephant Butte Dam, temperatures averaged about normal but the weather was drier than usual. Mean annual temperatures averaged about normal on the effective watershed and about 101% of normal in the Lower Rio Grande Valley. Evaporation along the Rio Grande in both the United States and Mexico averaged about 103% of normal above Falcón Dam and 96% of normal from this point to the Gulf of Mexico. Rainfall was subnormal on all subdivisions of the watershed, being more nearly normal from El Paso to Fort Quitman than in the lower reaches. Average rainfall on the watershed above Falcón Damsite was 48% of normal, from Falcón Damsite to Rio Grande City 44%, and in Lower Rio Grande Valley 72% of normal.

The yearly volume of flow of the Rio Grande was the lowest of record at all gaging stations from Island Station to the Gulf, except at Johnson Ranch and Langtry where the recorded flows were 39% and 41%, respectively, of their normals. The yearly flow of 348 acre-feet at County Line gaging station was less than 1% of its normal volume of 218,038 acre-feet. At the Del Rio gaging station, where the largest annual volume was recorded, the flow was 1,073,200 acre-feet, or 41% of the normal flow of 2,649,395 acre-feet. At Lower Brownsville gaging station, the lowermost station on the Rio Grande, the annual flow was 185,928 acre-feet, or 7% of the 1934-1952 normal flow of 2,591,017 acre-feet. On December 29, 1952, the river channel was closed at the new International Falcón Dam on the Rio Grande and flow was diverted through the Mexican penstock, a few feet above river level.

The total annual flow of the measured tributaries below Fort Quitman, in both the United States and Mexico was below normal. The total flow of these tributaries in the United States was 396,759 acre-feet, or 42% of the normal total flow of 948,635 acre-feet. New minimum yearly flows were recorded at Pecos River, Goodenough Spring, and Devils River gaging stations. In Mexico, the total measured tributary flow, excluding the Río San Juan, was 454,648 acre-feet, or 27% of the normal flow of 1,695,495 acre-feet. The yearly flow of Arroyo las Vacas, Río San Rodrigo, Río Salado, and Río San Juan entering the Rio Grande above Rio Grande City were the lowest of record.

Return flow to the Rio Grande at Maverick Power Plant near Eagle Pass was 418,200 acre-feet, or 66% of the four-year average.

Only one small flood occurred during the year. This flood, which originated on the Río Conchos, had a peak discharge of 39,200 second-feet at the Cuchillo Parado gaging station on that tributary, and was the highest momentary flow for the period of record. A peak discharge of 22,500 second-feet occurred at the Lower Presidio gaging station when this flood entered the Rio Grande. Farm lands were flooded and crops damaged below Pegüis, Chihuahua, in Mexico, and the Presidio and Redford Valleys in the United States.

For all reservoirs in the Rio Grande Basin of greater capacity than 15,000 acre-feet, excepting Bluewater Reservoir, the average amount of water in storage in 1952 was 1,458,800 acre-feet, or 38% of the normal 3,882,100 acre-feet. In the United States, stored water in these reservoirs averaged only 30% of normal, while in Mexico the average was 42% of normal. La Boquilla Reservoir in Mexico held less water in storage at the end of April than at any time since storage began. In May, a new and lower outlet was installed, thereby increasing the usable storage 402,900 acre-feet.

Diversions from the Rio Grande into the Maverick Canal were the lowest of record. Diversions for irrigation on the United States side below Rio Grande City were 69% of the 1943-1952 average. Diversions for irrigation in Mexico through the Retamal and Anzaldúas Canals were 56% of the 1943-1952 average diversion through Retamal Canal. Anzaldúas Canal, located 36 miles upstream from Retamal Canal, began diverting water from the Rio Grande on May 26, 1952. Diversions for municipal uses in the United States and in Mexico were 132% and 160%, respectively, of the average for the most recent ten years.

There was a critical shortage of irrigation water in the Lower Rio Grande Valley. At Lower Brownsville gaging station, there was no flow in the river all day or part of the day for 139 of the first 152 days of the year. On June 1, the 107th District Court of Texas began regulating the diversions and the flow past Brownsville was almost continuous, but the shortage continued throughout the year, except for a few short periods when rises in the river brought temporary relief.

The total reported acreage irrigated from the Rio Grande and its tributaries below El Paso, Texas showed a slight decrease from the 1951 total. There was an increase of 11% on the Mexican side and a decrease of 6% on the United States side. Fairly large increases on the Mexican side were reported for the area above Fort Quitman, along the Río San Juan, below Marte Gómez Dam, and between Roma and Matamoros, while substantial decreases were noted along the Río Conchos below Boquillas Dam and along the Río Salado below Venustiano Carranza Dam. The net decrease on the United States side was principally between Rio Grande City and Lower Brownsville while the largest increase in reported acreage was between Del Rio and Eagle Pass.

The 1952 investigations of the quality of Rio Grande water extended from El Paso to Mercedes, Texas. The annual tonnage of salts, or total dissolved solids carried by the river, was the lowest of record. At all silt-sampling stations on the Rio Grande, the total quantity of suspended silt which passed during the year averaged 88% of normal.

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 48 current meter measurements during the year, a continuous record of gage heights, and a stable rating curve. Records (marked "subject to revision") were furnished by the United States Geological Survey. Records available: January 1915 through December 1952.

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.	3.0	Jan. 1930
Yearly:	Max.	2,510	1942	Min.	592	1951

Mean Daily Discharge in Second-Feet 1952 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	4.0	770	4.6	492	1,120	1,260	2,020	1,930	85.0	8.3	7.8	22.0
2	4.0	768	3.4	344	1,130	1,490	1,850	1,530	1,040	6.9	6.9	55.0
3	3.7	765	362	341	1,140	1,460	1,980	1,500	1,650	17.0	39.0	12.0
4	243	780	639	402	1,140	1,510	1,690	1,510	1,600	6.4	42.0	77.0
5	240	806	635	347	1,160	1,580	1,830	1,520	1,590	6.4	28.0	105
6	248	818	627	353	1,160	1,590	1,500	1,540	1,560	11.0	25.0	7.3
7	262	810	615	353	1,140	1,610	1,880	1,500	1,420	7.3	40.0	6.0
8	271	812	480	371	1,180	1,480	1,990	1,480	1,270	11.0	12.0	52.0
9	380	818	4.9	374	1,200	1,520	1,900	1,020	806	8.3	8.3	165
10	448	840	3.1	492	1,220	1,600	1,910	698	794	7.3	21.0	170
11	418	768	4.0	695	1,210	1,660	1,850	1,360	562	7.3	27.0	174
12	436	810	160	703	1,140	1,690	1,890	1,400	107	6.9	49.0	174
13	465	786	619	711	1,190	1,780	1,850	1,160	10.0	6.9	49.0	171
14	370	802	615	763	1,290	1,820	1,760	1,100	6.0	25.0	41.0	165
15	410	593	607	742	1,460	1,800	1,840	1,080	146	8.8	19.0	196
16	502	870	264	751	1,630	1,730	1,410	1,080	266	17.0	7.8	398
17	598	859	4.6	791	1,690	1,850	1,700	1,080	235	9.3	47.0	452
18	774	856	4.0	754	1,530	1,820	1,850	1,140	224	8.8	36.0	492
19	1,010	854	348	794	1,440	1,780	2,010	1,120	199	8.3	26.0	473
20	1,060	849	563	720	1,560	1,830	1,800	1,180	71.0	21.0	52.0	468
21	600	851	714	726	1,590	1,870	1,910	647	41.0	16.0	94.0	417
22	450	838	940	990	1,610	1,820	2,130	396	86.0	21.0	36.0	202
23	584	831	940	1,000	1,670	1,800	2,080	120	38.0	10.0	8.3	159
24	1,100	824	782	1,010	1,620	1,900	2,090	12.0	130	8.3	19.0	104
25	956	828	534	1,010	1,490	1,990	2,060	316	66.0	8.3	6.9	175
26	766	832	538	1,010	1,580	2,060	2,070	425	96.0	7.8	148	172
27	766	808	541	1,020	1,520	2,080	1,990	444	62.0	31.0	8.3	198
28	760	816	541	1,070	1,580	2,030	2,030	466	17.0	32.0	19.0	194
29	762	533	541	1,100	1,560	1,920	2,090	296	260	29.0	13.0	230
30	764		533	1,120	1,540	2,000	2,130	120	182	38.0	6.4	257
31	768		534		1,480		2,110	354		56.0		250
Sum	16,422.7	23,195	13,700.6	21,349	42,970	52,330	59,200	29,524.0	14,619.0	466.6	942.7	6,192.3

Month	Extreme Gage Feet		ϕ Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Period 1924-1952 Acre-Feet			Acre-Feet
			High		Low							
	High	Low	Day		Day				Average	Maximum	Minimum	Average 1943-1952
				Current Year 1952								
Jan.			24	1,100	3	3.7	530	32,600	26,671	86,500	184	55,230
Feb.			16	870	29	533	800	46,000	38,731	76,300	969	55,700
Mar.			‡22	940	10	3.1	442	27,200	62,904	95,300	1,520	68,320
Apr.			30	1,120	3	341	712	42,300	98,893	162,000	42,300	70,340
May			17	1,690	1	1,120	1,390	85,200	105,680	467,000	29,700	73,270
June			27	2,080	1	1,260	1,740	104,000	113,470	363,000	62,800	78,260
July			‡22	2,130	16	1,410	1,910	117,000	112,338	211,000	54,800	80,580
Aug.			1	1,930	24	12.0	952	58,600	103,073	161,000	31,000	69,300
Sept.			3	1,650	14	6.0	487	29,000	63,648	129,000	14,700	46,250
Oct.			31	56.0	‡ 4	6.4	15.1	926	28,630	72,100	241	38,583
Nov.			26	148	30	6.4	31.4	1,870	27,427	158,000	379	35,653
Dec.			18	492	7	6.0	200	12,300	27,385	87,300	275	39,736
Yearly				2,130		3.1	767	556,996	808,850	1,818,800	428,695	711,222

‡ And other days ϕ 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 120 meter measurements during the year and a continuous record of gage heights. Records, subject to revision, were furnished by the El Paso Office of the United States Bureau of Reclamation. Records available: February 26, 1938 through December 1952.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station. In addition to the outflow from Caballo Dam listed below, 2,288 acre-feet of water were diverted in 1952 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.	.4	several days Nov. 1952
Monthly:	Max.	6,710	May 1942	Min.	.6	Dec. 1951, & Nov. 1952
Yearly:	Max.	2,480	1942	Min.	648	1951

Mean Daily Discharge in Second-Feet 1952 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	.7	.8	1.1	1,530	562	666	2,240	2,470	2,100	1.4	.5	.7
2	.7	.8	1.2	1,550	609	434	1,960	2,540	2,010	1.4	.4	.7
3	.6	.9	1.3	1,570	822	117	1,720	2,550	1,980	1.4	.4	.7
4	.6	.9	1.4	1,540	999	304	1,680	2,410	1,990	1.3	.4	.7
5	.6	1.0	1.4	1,510	982	397	1,650	2,240	2,050	1.2	.4	.7
6	.6	1.0	1.3	1,480	1,040	564	1,630	2,070	2,190	1.1	.4	.7
7	.6	.9	1.3	1,460	1,140	728	1,620	2,000	2,200	1.0	.4	.7
8	.6	.9	1.3	1,510	1,190	820	1,390	2,020	2,060	1.0	.4	.6
9	.6	1.0	1.4	1,570	1,300	1,020	1,160	2,170	2,000	1.0	.5	.6
10	.6	1.0	1.4	1,560	1,400	1,190	1,070	2,250	2,040	1.0	.5	.6
11	.6	1.1	1.4	1,530	1,440	1,340	854	2,160	2,030	1.0	.6	.6
12	.6	1.1	1.4	1,420	1,440	1,470	908	1,890	1,380	1.0	.6	.7
13	.6	1.1	1.5	1,290	1,130	1,700	1,100	1,600	67.0	1.1	.6	.7
14	.7	1.0	1.5	1,200	925	1,960	1,120	1,280	6.0	1.1	.6	.7
15	.7	1.0	1.5	1,160	871	2,000	1,430	1,020	5.3	1.1	.6	.6
16	.7	1.0	1.6	980	807	1,780	1,780	1,230	4.6	1.0	.7	.6
17	.7	1.0	1.6	789	886	1,730	1,960	1,450	3.9	.9	.7	.6
18	.7	1.0	1.6	797	923	2,080	2,100	1,420	3.2	.9	.8	.7
19	.7	1.0	1.6	844	852	2,240	2,320	1,480	2.6	.8	.8	.7
20	.7	1.0	488	837	961	2,240	2,480	1,760	2.6	.8	.7	.7
21	.7	1.0	1,450	698	974	2,480	2,370	1,970	2.5	.8	.7	.7
22	.7	1.0	1,470	611	1,070	2,690	2,260	2,230	2.4	.8	.7	.6
23	.7	1.1	1,460	572	926	2,610	2,420	2,430	2.4	.7	.8	.6
24	.6	1.1	1,460	536	945	2,590	2,550	2,580	2.1	.7	.8	.6
25	.6	1.2	1,450	460	959	2,820	2,590	2,440	1.9	.7	.9	.7
26	.6	1.2	1,580	505	1,000	2,840	2,360	2,380	1.7	.6	.9	.7
27	.7	1.2	1,630	579	766	2,580	2,430	2,110	1.7	.5	.8	.7
28	.7	1.1	1,550	507	851	2,480	2,360	2,010	1.7	.5	.8	.7
29	.7	1.1	1,500	478	818	2,500	2,250	2,030	1.8	.5	.8	.8
30	.7		1,550	516	546	2,420	2,250	2,010	1.8	.5	.8	.8
31	.8		1,540		536		2,410	2,130		.5		.8
Sum	20.4	29.5	17,154.8	31,589	29,670	50,790	58,422	62,330	24,145.2	28.3	19.0	21.0

Month	Current Year 1952 — Extreme Gage Feet		ϕ Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Period 1938-1952 — Acre-Feet			Average Acre-Feet 1943-1952
	High	Low	High Day	High	Low Day	Low			Average	Maximum	Minimum	
Jan.			31	.8	‡ 3	.6	.7	40.5	1,067	4,850	40.5	765
Feb.			‡25	1.2	‡ 1	.8	1.0	58.5	16,465	64,300	58.5	12,051
Mar.			27	1,630	1	1.1	553	34,000	78,873	120,000	34,000	81,100
Apr.			‡ 3	1,570	25	460	1,050	62,700	116,740	212,000	62,700	109,170
May			‡11	1,440	31	536	957	58,900	112,947	412,000	23,500	87,970
June			26	2,840	3	117	1,690	101,000	129,814	354,000	75,600	111,990
July			25	2,590	11	854	1,880	116,000	134,613	234,000	97,800	129,010
Aug.			24	2,580	15	1,020	2,010	124,000	130,654	179,000	103,000	130,750
Sept.			7	2,200	‡26	1.7	805	47,900	64,920	181,000	26,200	54,100
Oct.			‡ 1	1.4	‡27	.5	.9	56.1	11,050	35,400	52.0	7,787
Nov.			‡25	.9	‡ 2	.4	.6	37.7	5,888	14,400	37.7	4,266
Dec.			‡29	.8	‡ 8	.6	.7	41.7	6,106	19,100	37.7	4,694
Yearly				2,840		.4	750	544,734.5	809,137	1,795,670	469,313.1	733,653

‡ And other days ϕ Mean daily

RIO GRANDE AT EL PASO, TEXAS

DESCRIPTION: Water-stage recorder and cable with sit-down cable car equipped for winch and heavy weights. The recorder is located 5 miles northwest of El Paso, Texas, 6 miles northwest of Juárez, Chihuahua, and 1.9 river miles above the American Dam. The cable and staff gage are located 1 mile downstream from the recorder in the pass opposite Courchesne Quarry. The zeros of the gages at the recorder and at the cable are 3,722.30 feet and 3,720.51 feet, respectively, above mean sea level, U.S.C. & G.S. datum.

RECORDS: Discharges in 1952 were computed by taking the sum of the flows in the American Canal and the flows at the station below American Dam, except the momentary extreme high flow in August which was based on 1 current meter measurement and the gage height hydrograph. Records available: 1889 through December 1952.

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 1952 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	85.6	60.5	52.4	500	279	383	919	746	1,000	178	101	83.4
2	80.4	56.7	61.7	528	279	417	854	932	1,040	167	97.2	84.5
3	81.6	56.6	54.6	500	277	408	686	1,070	934	162	94.1	82.5
4	79.3	52.7	51.1	483	306	548	637	1,090	872	157	98.7	82.5
5	78.8	56.3	47.6	456	344	434	725	1,320	814	151	97.9	84.5
6	81.7	59.2	46.1	454	349	322	718	1,070	827	138	92.1	84.6
7	81.1	58.5	46.3	492	456	233	818	900	948	139	89.0	82.6
8	78.8	57.8	45.0	502	478	273	761	767	1,020	140	86.4	82.6
9	71.4	57.1	46.7	482	586	304	808	898	967	138	86.1	80.6
10	70.8	65.5	42.6	468	595	380	820	889	827	137	85.7	83.1
11	75.5	63.0	39.8	634	658	429	701	1,080	794	134	83.2	79.1
12	71.4	58.7	35.7	700	858	625	657	1,180	780	134	84.9	81.8
13	70.9	57.0	34.4	674	971	690	635	1,060	859	132	86.4	80.0
14	68.6	55.1	33.2	603	891	735	465	1,180	818	119	83.9	80.0
15	71.0	62.5	27.6	545	762	1,010	405	1,080	440	100	81.4	80.2
16	69.3	64.5	24.5	476	550	1,450	447	877	344	86.4	82.9	75.0
17	67.0	60.9	24.7	445	490	940	690	688	313	83.7	82.2	79.0
18	70.0	59.1	20.9	407	479	841	853	665	304	83.1	80.1	85.4
19	64.3	53.7	* 23.5	339	543	963	959	688	272	84.8	80.1	84.6
20	65.6	55.0	¤ 20.6	334	577	1,090	1,120	671	261	92.1	80.9	82.9
21	65.1	52.6	¤ 19.0	352	572	1,170	1,230	588	251	103	81.6	83.6
22	62.8	52.1	¤ 20.4	347	677	1,220	1,150	602	248	108	82.3	79.9
23	63.8	51.5	111	322	651	1,280	1,020	665	245	116	82.7	78.1
24	64.8	52.8	565	332	614	1,180	966	905	194	120	86.1	79.8
25	62.2	52.2	378	329	646	1,100	1,030	1,750	181	113	87.5	80.0
26	57.8	48.1	369	234	589	1,040	1,100	987	195	110	79.2	80.2
27	58.9	43.1	412	297	628	1,120	1,080	1,020	192	105	81.2	80.2
28	59.9	44.7	420	314	597	1,060	999	969	172	103	84.3	78.4
29	59.1	41.9	489	310	591	1,080	970	927	165	101	79.3	80.6
30	60.8		506	292	560	1,020	894	887	209	102	82.4	78.8
31	62.4		453		481		804	1,080		101		80.6
Sum	2,160.7	1,609.4	4,521.4	13,151	17,334	23,745	25,921	29,231	16,486	3,738.1	2,580.8	2,519.1

Month	Current Year 1952 Extreme Gage Feet High	Low	Extreme Second-Feet High Day	High	Low Day	Low	Average Second-Feet	Total Acre-Feet	Period 1924-1952 Acre-Feet Average	Maximum	Minimum	Acre-Feet Average 1943-1952
Jan.	2.76	2.56	1	89.4	30	53.5	69.7	4,290	10,725	17,500	4,290	10,141
Feb.	2.73	2.43	10	117	29	39.0	55.5	3,190	17,746	52,200	3,190	11,295
Mar.	3.98	2.09	23	652	21	ϕ¤ 19.0	146	8,970	38,568	62,500	8,970	36,157
Apr.	4.42	2.81	12	732	26	154	438	26,100	63,521	139,000	26,100	57,270
May	5.02	3.00	13	996	3	214	559	34,400	72,550	357,000	17,900	55,110
June	6.20	3.00	16	1,640	7	219	792	47,100	74,429	304,000	33,900	59,880
July	5.53	3.52	21	1,260	15	356	836	51,400	81,204	198,000	45,500	71,010
Aug.	7.00	3.95	25	4,390	21	542	943	58,000	83,812	158,000	47,800	72,790
Sept.	5.17	2.99	8	1,070	30	162	550	32,700	61,490	171,000	17,100	47,650
Oct.	3.12	2.78	1	188	18	69.4	121	7,410	24,978	57,900	6,930	20,344
Nov.	2.88	2.73	5	112	29	75.2	86.0	5,120	16,418	29,500	5,120	13,196
Dec.	2.79	2.63	¥ 5	86.9	30	74.8	81.3	5,000	15,443	27,700	5,000	12,446
Yearly	7.00	2.09		4,390		ϕ¤ 19.0	391	283,680	560,884	1,559,200	252,000	467,289

¤ Estimated * Partly estimated ¥ And other days ϕ Mean daily

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 1,241.4 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 56 meter measurements during the year and a continuous record of gage heights. Computations by shifting channel methods. Records available: June 1, 1938 through December 1952.

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 was diverted into the American Canal (see records of "Diversions from the Rio Grande") and the remainder, including excess flood flows, passed this station.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 6,770 second-feet on May 18, 1942, with a gage height of 9.77 feet. Min. .2 second-foot on September 12, 1951.

Average Flow in Second-Feet

Daily:	Max.	6,040	May 20, 1942	Min.	.7	Sept. 9, 1951
Monthly:	Max.	4,880	May 1942	Min.	2.0	Dec. 1942
Yearly:	Max.	1,510	1942	Min.	70.4	1951

Mean Daily Discharge in Second-Feet 1952 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	85.6	60.5	52.4	1.0	89.9	117	197	150	91.5	6.9	18.6	83.4
2	80.4	56.7	61.7	.8	97.9	110	185	154	77.5	8.9	18.8	84.5
3	81.6	56.6	54.6	45.9	94.6	110	174	148	76.3	11.1	18.8	82.5
4	79.3	52.7	51.1	75.6	93.8	108	176	156	78.1	9.6	70.8	82.5
5	78.8	56.3	47.6	75.0	95.0	106	187	163	84.9	9.6	97.9	84.5
6	81.7	59.2	46.1	72.3	91.8	104	184	158	83.7	10.4	92.1	84.6
7	81.1	58.5	46.3	74.0	91.8	102	190	154	79.1	8.9	89.0	82.6
8	78.8	57.8	45.0	73.4	135	104	190	154	74.9	7.7	86.4	82.6
9	71.4	57.1	46.7	74.8	194	106	183	167	57.4	7.5	86.1	80.6
10	70.8	65.5	42.6	76.2	193	108	184	169	55.3	7.3	85.7	35.6
11	75.5	63.0	39.8	75.4	201	107	162	188	93.1	7.5	83.2	9.0
12	71.4	58.7	35.7	76.8	213	105	154	193	92.0	7.8	84.9	7.3
13	70.9	57.0	34.4	75.9	228	102	152	188	58.8	8.6	86.4	5.5
14	68.6	55.1	33.2	77.4	226	96.9	149	199	21.5	9.4	83.9	5.5
15	71.0	62.5	27.6	78.7	211	140	147	190	15.7	66.8	81.4	4.9
16	69.3	64.5	24.5	76.8	76.3	289	138	180	14.2	86.4	82.9	4.9
17	67.0	60.9	24.7	77.2	69.0	253	141	178	11.1	83.7	52.0	5.2
18	70.0	59.1	20.9	75.4	68.2	258	146	181	10.4	83.1	17.0	5.4
19	64.3	53.7	9.5	75.8	67.6	259	145	191	9.8	84.8	17.0	5.4
20	65.6	55.0	3.6	74.0	73.6	256	148	183	9.2	92.1	17.1	5.3
21	65.1	52.6	2.0	74.4	78.6	253	144	182	9.1	103	17.1	5.2
22	62.8	52.1	3.4	74.8	171	258	150	183	8.6	108	17.1	5.4
23	63.8	51.5	1.9	72.4	269	266	162	184	7.0	116	18.2	52.2
24	64.8	52.8	4.0	72.2	274	263	166	188	84.7	71.1	18.2	79.8
25	62.2	52.2	2.1	74.3	276	262	165	713	181	25.3	18.1	80.0
26	57.8	48.1	1.9	71.4	270	284	167	200	195	22.3	46.3	80.2
27	58.9	43.1	1.5	72.3	279	287	167	175	192	21.6	81.2	80.2
28	59.9	44.7	1.4	72.5	287	279	164	165	172	22.0	84.3	78.4
29	59.1	41.9	1.2	72.8	302	282	176	155	165	21.4	79.3	80.6
30	60.8		1.2	73.6	302	277	188	158	86.4	19.8	82.4	78.8
31	62.4		1.0		295		181	165		19.2		80.6
Sum	2,160.7	1,609.4	769.6	2,063.1	5,414.1	5,651.9	5,162	5,912	2,195.3	1,167.8	1,732.2	1,543.2

Month	Current Year 1952 Extreme Gage Feet High	Extreme Gage Feet Low	Extreme Second-Feet High Day	Extreme Second-Feet High	Extreme Second-Feet Low Day	Extreme Second-Feet Low	Average Second-Feet	Total Acre-Feet	Period June 1938-1952 Acre-Feet Average	Maximum	Minimum	Average Acre-Feet 1943-1952
Jan.	5.21	5.01	1	89.4	30	53.5	69.7	4,290	8,394	12,000	4,170	8,177
Feb.	5.40	5.06	10	117	‡25	39.0	55.5	3,190	5,027	32,800	521	2,980
Mar.	5.20	4.24	2	63.5	29	.7	24.8	1,530	3,437	17,500	* 1,390	2,083
Apr.	5.28	4.28	4	80.2	‡ 1	.8	68.8	4,090	12,018	74,500	2,230	6,876
May	5.95	5.08	31	323	18	65.0	175	10,700	32,947	300,000	5,660	12,246
June	6.08	5.07	15	364	2	79.8	188	11,200	28,099	250,000	7,700	11,082
July	5.82	5.21	1	292	22	131	167	10,200	22,455	155,000	8,780	12,502
Aug.	8.31	5.21	25	3,100	19	116	191	11,700	19,667	114,000	6,040	13,029
Sept.	5.61	4.33	26	225	‡23	6.5	73.2	4,350	18,906	124,000	925	9,326
Oct.	5.23	4.34	15	121	‡ 2	5.9	37.7	2,320	3,698	19,000	* 197	2,057
Nov.	5.18	4.64	5	112	19	16.0	57.7	3,440	2,659	8,700	* 119	1,518
Dec.	5.13	4.47	2	91.7	‡15	4.9	49.8	3,060	1,751	7,760	120	898
Yearly	8.31	4.24		3,100		.7	96.5	70,070	159,058	1,093,553	50,974	82,774

* Estimated * Partly estimated ‡ And other days

RIO GRANDE AT JUAREZ, CHIHUAHUA

DESCRIPTION: Water-stage recorder and cable with sit-down cable car equipped for winch and heavy weights, located 2.9 river miles downstream from El Paso, Texas and Juárez, Chihuahua. This station is 7.0 river miles below the American Dam at El Paso, Texas and 4.9 river miles below the International Dam. The zero of the gage is 3,683.98 feet above mean sea level, U.S.C. & G.S. datum.

RECORDS: Based on 166 meter measurements during the year, 133 by the Mexican and 33 by the United States Section of this Commission, and a continuous record of gage heights. Computations by shifting channel methods. Records available: April 1, 1938 through December 1952.

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

EXTREME FLOWS FROM RECORDS: Momentary: Max. 6,600 second-feet on May 18, 1942, with a gage height of 11.15 feet. Min. 8.1 second-feet on March 23, 1952, with a gage height of 2.17 feet.

Average Flow in Second-Feet

Daily:	Max.	6,460	May 20, 1942	Min.	17.0	Dec. 21, 1944
Monthly:	Max.	5,290	May 1942	Min.	45.8	Feb. 1952
Yearly:	Max.	1,820	1942	Min.	170	1951

Mean Daily Discharge in Second-Feet 1952 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	64.3	45.6	86.5	353	48.0	108	410	296	600	150	39.9	87.6
2	84.4	41.0	58.6	367	47.3	108	371	410	675	134	40.3	84.0
3	70.3	45.6	53.7	297	46.6	59.3	241	572	576	126	38.1	63.2
4	75.9	45.9	45.6	241	54.0	148	163	569	498	98.9	49.8	69.2
5	77.0	49.8	41.3	226	65.7	259	199	745	406	53.0	92.5	65.7
6	72.7	47.7	37.1	228	60.4	48.0	290	639	410	56.9	80.9	64.6
7	78.8	50.1	40.3	248	138	45.2	315	466	537	57.2	75.9	63.9
8	79.5	43.1	41.7	286	177	42.4	278	341	597	46.3	67.1	62.9
9	63.2	46.6	33.9	261	168	47.0	331	378	565	35.0	62.2	80.2
10	57.6	62.2	35.3	233	196	90.8	350	403	445	35.0	65.3	69.6
11	65.0	77.0	32.1	360	238	128	371	547	427	39.2	71.7	36.4
12	61.8	58.3	27.2	388	406	316	264	713	420	35.3	84.0	33.2
13	62.5	44.8	26.1	388	526	399	251	576	463	39.6	78.4	31.1
14	67.8	38.1	29.0	344	445	410	97.8	614	420	35.7	67.8	31.1
15	62.9	54.0	27.5	291	364	611	72.4	604	314	63.2	71.3	31.4
16	66.4	51.9	24.4	253	279	848	76.6	396	176	98.5	74.9	32.8
17	59.3	45.6	29.3	241	195	509	248	304	43.4	105	89.3	33.9
18	61.8	46.6	26.8	246	201	323	331	257	42.0	99.2	61.1	33.2
19	61.8	46.6	26.1	163	283	371	487	272	41.0	99.9	39.9	38.5
20	57.2	33.9	37.1	142	301	463	600	163	38.1	112	44.1	37.8
21	57.2	36.0	39.9	123	283	625	759	145	35.3	113	42.0	33.9
22	57.6	38.1	30.4	116	286	667	699	130	30.0	112	42.7	33.2
23	48.0	39.2	18.7	90.8	203	727	544	178	29.7	116	39.9	58.6
24	50.1	40.6	431	117	109	600	498	417	59.7	97.5	48.0	53.3
25	52.3	41.7	303	95.7	138	547	533	939	212	47.0	45.2	57.2
26	48.4	50.5	202	68.5	113	438	618	452	197	42.4	57.6	64.3
27	49.1	33.9	229	59.7	121	484	646	590	208	42.0	70.6	70.3
28	49.4	39.6	267	61.1	93.2	519	558	533	188	41.7	73.8	68.9
29	58.6	35.3	353	54.7	80.5	498	491	512	183	37.4	67.5	75.2
30	50.9		399	48.4	77.0	459	396	410	173	37.1	71.3	83.3
31	50.5		314		72.4		330	618		32.8		70.3
Sum	1,922.3	1,329.3	3,346.6	6,390.9	5,815.1	10,897.7	11,818.8	14,189	9,009.2	2,238.8	1,853.1	1,718.8

Month	Current Year 1952 Extreme Gage Feet High	Extreme Gage Feet Low	Extreme Second-Feet High Day	Extreme Second-Feet High	Extreme Second-Feet Low Day	Extreme Second-Feet Low	Average Second-Feet	Total Acre-Feet	Period Apr. 1938-1952 Acre-Feet Average	Acre-Feet Maximum	Acre-Feet Minimum	Acre-Feet Average 1943-1952
Jan.	3.05	2.76	2	105	26	39.6	62.0	3,810	10,299	13,270	3,810	9,912
Feb.	3.58	2.59	10	281	28	22.6	45.8	2,640	10,041	42,690	2,640	7,593
Mar.	4.17	2.17	24	551	23	8.1	108	6,640	25,088	45,790	6,640	24,763
Apr.	4.49	2.69	11	431	27	42.0	213	12,680	40,028	111,500	12,680	34,915
May	4.82	2.56	13	554	4	36.4	188	11,530	46,463	325,100	4,620	25,947
June	5.81	2.79	16	897	7	41.7	363	21,620	50,019	272,400	14,710	32,524
July	5.68	2.89	22	788	15	52.6	381	23,440	50,929	162,500	20,100	42,206
Aug.	‖ 7.25	3.02	25	* 2,680	22	115	458	28,140	48,890	127,300	20,120	42,484
Sept.	5.25	2.30	2	696	24	15.5	300	17,870	36,379	143,800	6,880	25,283
Oct.	3.41	2.53	1	158	31	26.1	72.2	4,440	16,291	45,390	3,920	13,780
Nov.	3.31	2.53	26	137	1	32.1	61.8	3,680	8,741	13,670	3,570	7,445
Dec.	3.25	2.49	23	156	22	30.4	55.4	3,410	9,104	18,060	2,820	7,860
Yearly	‖ 7.25	2.17		* 2,680		8.1	193	139,900	352,272	1,315,890	122,740	274,712

‖ Estimated * Partly estimated

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 48 meter measurements during the year, 41 by the United States and 7 by the Mexican Section of this Commission, and a continuous record of gage heights. Computations by shifting channel methods. Records available: August 17, 1938 through December 1952.

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

EXTREME FLOWS FROM RECORDS: Momentary: Max. 6,490 second-feet on May 19, 1942, with a gage height of 16.06 feet. Min. occasionally no flow.

Average Flow in Second-Feet

Daily:	Max.	6,140	May 19, 1942	Min.	0	occasionally
Monthly:	Max.	4,880	May 1942	Min.	0	Oct., Nov., & Dec. 1951
Yearly:	Max.	1,490	1942	Min.	7.9	1952

Mean Daily Discharge in Second-Feet 1952 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2.3	29.4	1.1	0	.5	0	2.3	.9	6.5	3.7	0	5.7
2	36.5	12.7	2.2	.2	0	0	1.4	.8	5.6	3.4	0	5.9
3	37.6	6.3	5.2	.2	0	.3	.9	1.2	5.4	3.3	0	5.9
4	36.6	4.5	1.1	1.0	0	* .3	.1	1.8	5.6	2.8	0	5.7
5	39.4	3.3	.2	.3	0	▪ 1.5	0	2.1	5.0	13.2	0	5.5
6	38.0	.7	▪ .1	0	0	▪ 36.1	.1	2.2	4.3	15.8	.1	5.3
7	38.1	.1	0	0	0	▪ .1	* .4	11.7	4.0	11.1	.4	4.8
8	41.3	0	0	0	0	0	▪ .6	7.2	4.3	12.3	.4	4.6
9	38.4	0	0	0	0	0	▪ .7	2.2	5.0	12.2	.9	4.4
10	35.2	0	0	0	0	0	* .9	1.7	5.0	9.1	.9	4.2
11	27.4	▪ .4	0	.1	0	0	.8	1.8	3.7	4.8	.7	4.2
12	33.3	5.7	0	.2	0	0	.6	46.8	3.7	3.1	.2	4.1
13	36.9	5.4	0	▪ .1	0	0	.2	41.9	31.0	2.3	.4	3.9
14	38.3	1.5	0	0	.1	0	.9	16.8	44.8	1.7	.9	4.6
15	39.6	1.3	0	0	.2	0	2.6	84.0	9.1	1.0	.9	4.4
16	36.6	.9	0	0	.3	0	.7	144	4.0	1.6	1.1	3.9
17	36.5	.9	0	0	.7	2.6	1.0	34.2	1.7	8.0	1.3	5.5
18	35.2	.8	0	0	1.3	13.6	1.3	11.8	1.2	5.2	1.6	7.6
19	38.5	.6	0	0	2.4	2.2	1.6	7.2	.8	4.6	1.7	8.5
20	36.1	.6	0	0	2.3	.8	1.7	4.3	.6	4.2	.3	9.2
21	32.5	.8	0	0	1.1	.7	2.0	2.8	.5	4.0	5.6	9.8
22	32.4	.8	0	0	.2	.9	2.1	1.9	.3	3.9	2.6	9.2
23	30.0	.8	0	0	.1	1.2	2.3	1.9	.5	3.7	1.8	9.5
24	28.5	.6	0	0	0	1.4	2.5	2.0	.1	3.5	1.8	10.2
25	29.2	.7	0	0	0	3.1	2.5	44.4	7.3	3.1	1.7	26.2
26	28.8	.6	0	0	0	4.7	2.2	299	16.6	2.1	1.7	29.9
27	25.7	.6	0	0	.3	2.6	2.1	35.3	28.6	1.1	2.0	33.0
28	22.8	.6	0	0	.6	2.5	2.1	11.0	4.2	.5	2.0	36.0
29	26.6	.4	0	0	.4	2.4	1.8	9.0	4.2	▪ .2	1.8	36.0
30	30.0		0	.4	.1	2.5	1.4	8.1	3.5	▪ .1	4.1	38.1
31	29.7		▪ .3		0		1.1	6.8		0		42.1
Sum	1,018.0	81.0	10.2	2.5	10.6	* 79.5	40.9	846.8	217.1	145.6	36.9	387.9

Month	Current Year 1952 Extreme Gage Feet High	Extreme Gage Feet Low	Extreme Second-Feet High Day	Extreme Second-Feet High	Extreme Second-Feet Low Day	Extreme Second-Feet Low	Average Second-Feet	Total Acre-Feet	Period Sept. 1938-1952 Acre-Feet Average	Acre-Feet Maximum	Acre-Feet Minimum	Acre-Feet Average 1943-1952
Jan.	9.85		8	45.8	1	0	32.8	2,020	8,298	11,900	2,020	7,918
Feb.	9.72		1	31.7	‡ 7	0	2.8	161	6,502	37,000	161	4,278
Mar.	9.34		3	6.8	‡ 6	0	.3	20.2	4,290	21,000	20.2	3,352
Apr.	9.11		5	1.7	‡ 1	0	.1	5.0	8,165	70,500	5.0	3,500
May	9.18		19	2.7	‡ 1	0	.3	21.0	24,265	299,800	21.0	3,004
June	▪10.10		6	▪ 46.2	‡ 1	0	* 2.6	* 158	20,510	241,000	114	3,159
July	9.46		15	3.5	‡ 4	0	1.3	81.1	15,575	* 118,500	81.1	8,162
Aug.	14.25	9.28	26	670	‡ 1	.8	27.3	1,680	14,316	99,400	563	5,882
Sept.	11.02		13	102	24	0	7.2	431	16,708	* 119,200	97.0	5,985
Oct.	10.00		5	19.9	‡30	0	4.7	289	7,556	42,800	0	5,338
Nov.	9.68		21	9.2	‡ 1	0	1.2	73.2	1,773	7,270	0	1,627
Dec.	10.17	9.46	31	47.3	13	3.8	12.5	769	3,467	12,900	0	2,535
Yearly	14.25			670		0	7.9	5,708.5	131,425	1,079,340	5,708.5	54,740

▪ 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 gaging 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 2 meter measurements during the year and a continuous record of gage heights. Computations by shifting channel methods. Records available: January 1, 1938 through December 1952.

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	8 months 1951, 1952
Yearly:	Max.	1,720	1942	Min.	.5	1952

Mean Daily Discharge in Second-Feet 1952 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	0	0	0	0	0	0	0	0	0	16.4
2	0	0	0	0	0	0	0	0	0	0	0	5.4
3	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	# 3.7	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	# 1.0	0	2.1	0
18	0	0	0	0	0	0	0	0	# 1.0	0	18.5	0
19	0	0	0	0	0	0	0	0	# .5	0	26.0	0
20	0	0	0	0	0	0	0	0	0	0	22.6	0
21	0	0	0	0	0	0	0	0	0	0	15.4	0
22	0	0	0	0	0	0	0	0	0	0	0	1.0
23	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	17.4	0
29	0	0	0	0	0	0	0	0	0	0	25.6	0
30	0		0	0	0	0	0	0	0	0	18.4	0
31	0		0		0		0	0		0		0
Sum	0	0	0	0	0	# 3.7	0	0	# 2.5	0	146.0	22.8

Month	Current Year 1952 Extreme Gage Feet High	Low	Extreme Second-Feet High Day	High	Low Day	Low	Average Second-Feet	Total Acre-Feet	Period 1938-1952 Acre-Feet Average	Maximum	Minimum	Acre-Feet Average 1943-1952
Jan.						0	0	0	13,187	20,000	0	12,040
Feb.						0	0	0	11,399	47,900	0	8,046
Mar.						0	0	0	9,984	38,900	0	7,158
Apr.						0	0	0	15,122	84,200	0	9,169
May						0	0	0	29,148	305,000	0	8,328
June	2.63		4	11.0	‡ 1	0	# .1	# 7.3	25,747	239,000	# 7.3	7,810
July						0	0	0	23,510	140,000	0	12,046
Aug.						0	0	0	22,540	123,000	0	11,800
Sept.			18	# 1.5	‡ 1	0	# .1	# 5.0	25,788	140,000	0	12,262
Oct.						0	0	0	17,196	61,400	0	12,513
Nov.	3.08		29	30.2	‡ 1	0	4.9	290	11,619	20,400	0	10,196
Dec.	2.78		1	17.7	‡ 2	0	.7	45.2	12,798	29,700	0	10,591
Yearly	3.08			30.2		0	.5	347.5	218,038	1,247,500	347.5	121,959

Estimated ‡ And other days

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 34 meter measurements during the year, 32 by the United States and 2 by the Mexican Section of this Commission, and a continuous record of gage heights. Computations by shifting channel methods. Records available: January 1923 through December 1952.

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

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

Average Flow in Second-Feet

Daily:	Max.	5,890	May 19, 1942	Min.	0	frequently
Monthly:	Max.	5,030	May 1942	Min.	0	April & May 1952
Yearly:	Max.	1,750	1942	Min.	15.3	1952

Mean Daily Discharge in Second-Feet 1952 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	39.5	15.0	13.0	0	0	0	0	1.2	0	23.2	15.9	50.5
2	35.0	19.6	12.2	0	0	0	5.8	1.2	0	47.2	18.5	40.9
3	29.0	21.9	12.7	0	0	0	2.8	1.2	0	19.9	22.9	40.5
4	29.3	23.1	11.9	0	0	0	.1	1.2	0	9.3	24.7	34.5
5	28.8	20.7	8.9	0	0	0	.1	1.0	0	8.9	20.8	29.5
6	27.5	21.8	5.7	0	0	0	.1	0	0	7.9	20.8	52.2
7	28.7	18.3	5.9	0	0	0	1.0	0	0	8.7	22.7	51.2
8	29.0	18.2	6.2	0	0	0	60.3	0	0	8.9	19.1	41.0
9	30.2	12.9	7.8	0	0	0	6.4	0	0	9.5	26.5	51.7
10	33.7	11.5	8.1	0	0	0	28.5	0	0	9.6	19.1	60.8
11	34.4	15.9	7.6	0	0	0	17.3	0	0	9.6	17.4	48.5
12	35.4	18.1	12.1	0	0	0	3.9	42.3	0	10.3	16.2	68.9
13	35.2	17.0	10.7	0	0	0	3.9	2.8	0	10.3	15.6	61.6
14	36.1	20.6	7.1	0	0	0	3.9	0	0	10.4	14.7	40.1
15	32.0	21.8	6.7	0	0	0	246	0	0	10.4	15.0	32.9
16	29.2	20.8	6.6	0	0	0	* 157	0	0	16.8	14.7	44.3
17	27.4	22.1	6.6	0	0	0	* .2	41.8	0	13.3	13.7	56.2
18	28.2	21.1	4.5	0	0	0	234	.5	1.6	11.1	14.0	39.5
19	28.1	21.2	3.7	0	0	0	* 258	0	1.1	15.3	14.3	29.3
20	28.8	21.3	2.8	0	0	0	51.8	0	1.1	14.1	14.5	16.4
21	28.8	22.3	2.2	0	0	0	17.5	0	1.0	12.8	15.4	16.0
22	29.5	21.1	2.0	0	0	0	24.0	0	1.5	11.7	20.8	32.4
23	25.9	16.3	1.5	0	0	.4	7.9	0	2.4	11.0	29.7	29.8
24	19.7	17.3	1.0	0	0	0	4.9	0	1.7	9.6	62.5	25.9
25	17.5	13.7	0	0	0	0	3.9	0	3.2	9.2	65.3	33.5
26	17.7	14.8	0	0	0	45.3	1.9	0	12.0	13.1	43.2	59.5
27	14.5	13.5	0	0	0	8.0	1.4	0	31.4	10.7	46.5	56.7
28	15.8	14.5	0	0	0	34.1	1.9	0	29.3	17.9	44.2	47.2
29	13.0	10.4	0	0	0	87.8	1.5	0	27.2	22.9	33.0	41.5
30	12.5		0	0	0	* 17.9	1.2	0	17.5	19.0	39.8	43.0
31	12.5		0		0		1.3	0		14.8		53.9
Sum	832.9	526.8	167.5	0	0	193.5	*1,148.5	93.2	131.0	427.4	761.5	1,329.9

Month	Current Year 1952 Extreme Gage Feet High	Extreme Gage Feet Low	Extreme Second-Feet High Day	Extreme Second-Feet High	Extreme Second-Feet Low Day	Extreme Second-Feet Low	Average Second-Feet	Total Acre-Feet	Period 1924-1952 Acre-Feet Average	Maximum	Minimum	Average 1943-1952
Jan.	2.11	1.77	1	45.0	31	11.8	26.9	1,650	12,534	20,900	1,650	12,758
Feb.	1.90	1.72	2	25.4	29	7.6	18.2	1,040	12,454	50,100	1,040	9,085
Mar.	1.85		12	20.0	‡25	0	5.4	332	10,323	38,900	332	6,732
Apr.						0	0	0	12,836	* 77,000	0	6,730
May						0	0	0	23,258	309,000	0	7,911
June	3.98		29	886	‡ 1	0	6.4	384	21,204	240,000	▪ 20.2	7,729
July	6.16		15	2,780	‡ 1	0	* 37.0	* 2,280	21,559	140,000	973	12,358
Aug.	3.41		12	385	‡ 6	0	3.0	185	26,824	* 127,000	185	10,632
Sept.	2.55		18	60.7	‡ 1	0	4.4	260	30,644	147,000	260	13,980
Oct.	2.50	2.11	2	51.2	6	4.3	13.8	848	22,615	66,500	848	18,501
Nov.	2.65	2.24	25	70.3	17	13.7	25.4	1,510	14,585	24,500	1,510	12,044
Dec.	2.72	2.34	12	80.7	21	12.3	42.9	2,640	15,100	31,000	* 2,080	12,118
Yearly	6.16			2,780		0	15.3	11,129	223,936	1,270,400	11,129	130,578

▪ Estimated * Partly estimated ‡ And other days

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 10 meter measurements during the year and a continuous record of gage heights. Computations by shifting channel methods. Records available: May 1900 to March 1914 and August 1923 through December 1952.

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

EXTREME FLOWS FROM RECORDS: Momentary: Max. 15,200 second-feet on June 12, 1912. A gage height of 10.57 feet was recorded on May 26, 1942, with a flow of 5,160 second-feet. This level was the highest reached during the years 1923-1952, inclusive. Min. frequently no flow.

Average Flow in Second-Feet

Daily:	Max.	15,200	June 12, 1912	Min.	0	frequently
Monthly:	Max.	10,150	June 1912	Min.	0	7 months, 1952
Yearly:	Max.	1,970	1907	Min.	17.6	1952

Mean Daily Discharge in Second-Feet 1952 —— Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	0	0	0	0	211	0	0	0	0	0
2	0	0	0	0	0	0	46.3	0	0	0	0	0
3	0	0	0	0	0	0	3.9	0	0	0	0	0
4	0	0	0	0	0	0	.9	0	0	0	0	0
5	0	0	0	0	0	0	.2	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	1.1	0	0	0	0	0
9	0	0	0	0	0	0	274	0	0	0	0	0
10	0	0	0	0	0	0	520	0	0	0	0	0
11	0	0	0	0	0	0	259	0	0	0	0	0
12	0	0	0	0	0	36.5	400	0	0	0	0	0
13	0	0	0	0	0	55.4	639	.1	0	0	0	0
14	0	0	0	0	0	.2	324	0	0	0	0	0
15	0	0	0	0	0	0	236	60.0	0	0	0	0
16	0	0	0	0	0	0	419	.5	0	0	0	0
17	0	0	0	0	0	0	274	0	0	0	0	0
18	0	0	0	0	0	0	* 143	0	0	0	0	0
19	0	0	0	29.0	0	0	492	0	0	0	0	0
20	0	0	0	81.7	0	0	* 155	0	0	0	0	0
21	0	0	0	18.4	0	0	* 40.4	0	0	0	0	0
22	0	0	0	* .1	0	0	248	0	0	0	0	0
23	0	0	0	0	0	0	195	0	0	0	0	0
24	0	0	0	.4	0	0	107	0	0	0	0	0
25	0	0	0	0	0	0	20.5	0	0	0	0	0
26	0	0	0	0	0	0	21.4	0	0	0	0	0
27	0	0	0	0	¤ .2	0	6.1	0	0	0	0	0
28	0	0	0	0	¤ .1	491	0	0	0	0	0	0
29	0	0	0	0	0	304	0	0	0	0	0	0
30	0		0	0	0	338	0	0	0	0	0	0
31	0		0		0		0	0		0		0
Sum	0	0	0	129.6	¤ .3	1,225.1	5,036.8	60.6	0	0	0	0

Month	Current Year 1952 Extreme Gage Feet High	Extreme Gage Feet Low	Extreme Second-Feet High Day	Extreme Second-Feet High	Extreme Second-Feet Low Day	Extreme Second-Feet Low	Average Second-Feet	Total Acre-Feet	Period 1924-1952 Acre-Feet Average	Maximum	Minimum	Acre-Feet Average 1943-1952
Jan.						0	0	0	11,737	24,400	0	12,453
Feb.						0	0	0	10,869	40,800	0	8,500
Mar.						0	0	0	8,614	39,100	0	5,966
Apr.	4.55		20	280	ǂ 1	0	4.3	257	7,078	41,600	0	3,132
May	2.10		27	1.1	ǂ 1	0	0	¤ .6	16,931	240,000	0	3,265
June	9.00		28	1,020	ǂ 1	0	40.8	2,430	16,474	216,000	* 218	5,019
July	8.06		13	799	ǂ 5	0	162	9,990	22,783	158,000	* 13.1	14,637
Aug.	4.08		15	187	ǂ 1	0	2.0	120	28,672	133,000	120	8,044
Sept.						0	0	0	33,049	* 151,000	0	13,482
Oct.						0	0	0	28,228	105,000	0	18,396
Nov.						0	0	0	13,668	34,500	0	8,907
Dec.						0	0	0	13,279	30,900	0	10,007
Yearly	9.00			1,020		0	17.6	12,797.6	211,382	1,176,700	12,797.6	111,808

¤ Estimated * Partly estimated ǂ And other days

RIO CONCHOS AT CUCHILLO PARADO, CHIHUAHUA

DESCRIPTION: Water-stage recorder and cable with cable car, located in Salineta Canyon, 3.1 miles north of the town of Cuchillo Parado, Chihuahua, 28.6 air-line miles westward from Ojinaga, Chihuahua and 49.1 river miles above the confluence of the Río Conchos with the Rio Grande, which is 293.5 river miles below the American Dam at El Paso, Texas. The zero of the gage is 2,914.23 feet above mean sea level, U.S.C. & G.S. datum.

RECORDS: Based on 164 meter measurements during the year and a continuous record of gage heights. Computations by shifting channel methods. Records available: January 1, 1945 through December 1952.

REMARKS: The flow of this stream is modified by irrigation diversions and drainage returns and by operation of La Rosetilla, La Colina, and La Boquilla reservoirs situated 139, 199, and 206 river miles, respectively, above this station and also by Madero Reservoir on the Río San Pedro, which enters the Río Conchos 122 river miles above this station.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 39,200 second-feet on July 12, 1952, with a gage height of 17.19 feet. Min. 9.9 second-feet on April 19, 1952, with a gage height of .66 foot.

Average Flow in Second-Feet

Daily:	Max.	19,950	July 13, 1952	Min.	9.9	April 19,	1952
Monthly:	Max.	3,580	Sept. 1946	Min.	68.0	April	1952
Yearly:	Max.	972	1946	Min.	494		1948

Mean Daily Discharge in Second-Feet 1952 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	328	258	322	66.0	127	157	1,260	742	97.8	262	167	191
2	324	239	285	69.6	93.9	151	897	353	94.6	243	181	182
3	371	256	246	63.2	109	141	773	285	92.2	212	200	173
4	353	255	268	57.2	102	129	657	277	99.2	210	192	168
5	282	241	237	58.6	75.2	116	590	278	88.6	210	183	164
6	311	255	238	53.3	60.4	108	766	243	73.4	209	194	159
7	318	235	239	54.7	104	179	625	200	61.4	210	193	160
8	328	216	215	47.3	92.9	131	1,800	154	71.0	186	182	162
9	327	228	198	33.5	92.2	114	703	132	72.7	202	183	180
10	277	241	176	34.6	115	99.2	1,130	253	74.5	217	175	193
11	277	255	183	35.7	99.9	431	3,990	253	67.4	191	187	182
12	288	255	169	32.1	107	222	19,780	247	66.0	190	260	171
13	288	275	169	48.0	93.6	1,240	19,950	487	67.4	179	211	170
14	287	255	162	36.4	67.1	1,340	14,760	339	74.5	166	187	163
15	299	236	149	20.5	56.5	720	7,130	353	80.5	165	184	162
16	289	261	171	13.4	108	600	3,270	554	94.3	149	173	178
17	274	241	180	11.3	119	643	2,390	823	95.3	275	163	173
18	291	248	179	11.3	87.6	330	2,320	713	99.9	270	165	203
19	289	247	183	9.9	351	544	2,270	622	103	225	166	193
20	288	246	176	19.8	487	858	2,420	399	91.8	206	161	194
21	297	226	154	66.0	203	657	1,430	512	92.5	194	167	195
22	280	215	130	73.5	112	319	1,760	301	93.2	185	170	231
23	285	232	139	78.8	120	234	848	261	92.9	188	181	203
24	271	285	141	68.2	125	199	1,010	194	780	179	192	179
25	275	316	114	122	124	218	1,020	217	2,150	179	183	180
26	265	323	102	178	164	266	858	171	897	180	182	182
27	255	319	104	218	225	2,820	759	136	763	180	181	171
28	270	260	94.3	184	160	5,820	632	123	470	180	180	177
29	279	360	82.3	146	115	5,650	675	112	322	180	181	182
30	266		80.9	128	117	3,250	459	103	294	186	182	218
31	254		74.5		136		364	100		184		209
Sum	9,086	7,479	5,361.0	2,038.9	4,149.3	27,686.2	97,296	9,937	7,620.1	6,192	5,506	5,648

Month	Current Year 1952 Extreme Gage Feet High	Extreme Gage Feet Low	Extreme Second-Feet High Day	Extreme Second-Feet High	Extreme Second-Feet Low Day	Extreme Second-Feet Low	Average Second-Feet	Total Acre-Feet	Period 1945-1952 Acre-Feet Average	Maximum	Minimum
Jan.	2.72	2.17	3	434	31	254	293	18,020	40,337	55,810	18,020
Feb.	2.69	2.00	29	431	22	197	258	14,830	43,130	62,420	14,830
Mar.	2.56	1.25	1	378	31	62.2	173	10,630	37,475	49,780	10,630
Apr.	2.17	.66	27	245	19	9.9	68.0	4,040	15,404	29,110	4,040
May	3.97	1.12	19	1,030	6	49.1	134	8,230	17,256	36,080	8,230
June	12.14	1.38	28	17,200	10	83.7	923	54,920	27,994	54,920	13,990
July	17.19	2.92	12	39,200	5	523	3,140	193,000	85,434	193,000	11,570
Aug.	5.84	3.44	13	1,430	31	100	321	19,710	54,646	142,100	19,710
Sept.	8.50	3.15	24	6,360	7	56.9	254	15,110	82,206	213,300	7,150
Oct.	4.23	3.54	17	448	17	133	200	12,280	70,953	180,200	12,280
Nov.	3.87	3.51	12	291	17	157	184	10,920	43,260	62,870	10,920
Dec.	3.74	3.51	22	239	6	159	182	11,200	31,109	45,570	11,200
Yearly	17.19	.66		39,200		9.9	514	372,890	549,204	703,660	358,630

RIO CONCHOS NEAR OJINAGA, CHIHUAHUA

DESCRIPTION: The Río Conchos enters the Rio Grande 3.7 miles above the international highway bridge between Presidio, Texas and Ojinaga, Chihuahua, 2.0 miles above the Lower Presidio gaging station on the Rio Grande, 7.8 miles below the Upper Presidio gaging station on the Rio Grande, and 293.5 river miles below the American Dam at El Paso, Texas.

RECORDS: Based on discharge records of the Rio Grande at Upper Presidio and Lower Presidio stations and estimated irrigation diversions and arroyo inflow between these two stations. Records available: May 1900 to March 1914 and August 1923 through December 1952.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station. La Colina Reservoir, with 19,500 acre-feet capacity and maximum surface area of 1,160 acres, located about 10.5 miles downstream from La Boquilla Dam, and La Rosetilla Reservoir, located about 52.7 miles farther downstream, with a capacity of 15,400 acre-feet and a maximum surface area of 840 acres, are used for power development. Francisco I. Madero Reservoir, located on the Río San Pedro, a tributary to the Río Conchos, has a capacity of about 344,550 acre-feet. 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. 3.0 second-feet on May 14, 1904.

Average Flow in Second-Feet

Daily:	Max.	148,900	Sept. 11, 1904	Min.	5.0	May 14, 1904
Monthly:	Max.	24,540	Sept. 1904	Min.	11.0	May 1902
Yearly:	Max.	3,710	1906	Min.	501	1952

Month	Current Year 1952						Period 1924-1952			Acre-Feet	
	Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			Average	# Average
	Day	High	Day	Low			Average	Maximum	Minimum	1943-1952	1945-1952
Jan.	4	381	12	239	287	17,700	56,704	147,000	17,700	45,080	41,050
Feb.	26	281	23	192	237	13,600	49,762	87,700	13,600	43,970	43,062
Mar.	2	292	31	68.3	162	9,970	44,558	80,800	9,970	40,527	37,696
Apr.	25	1,380	17	4.2	54.1	3,220	30,114	79,700	3,220	16,282	14,427
May	20	522	13	15.1	82.2	5,050	36,204	148,000	3,950	17,327	16,046
June	29	8,960	7	48.2	800	47,600	42,539	91,900	8,720	26,850	25,799
July	14	22,200	5	433	3,270	201,000	93,307	502,000	8,890	93,569	88,562
Aug.	14	991	31	84.3	309	19,000	121,893	601,000	11,300	48,680	54,512
Sept.	25	3,070	19	33.5	209	12,400	247,521	1,173,000	6,770	111,377	83,134
Oct.	1	306	17	138	198	12,200	153,010	798,000	12,200	86,410	76,887
Nov.	13	259	20	141	179	10,600	59,479	110,000	10,600	43,000	44,413
Dec.	30	274	16	145	188	11,600	51,569	97,700	11,600	35,210	32,775
Yearly		22,200		4.2	501	363,940	986,660	2,431,850	363,400	608,282	558,363

Cuchillo Parado Station began operating January 1, 1945.

RIO GRANDE AT LOWER PRESIDIO STATION

DESCRIPTION: Water-stage recorder and cable with sit-down cable car equipped for winch and heavy weights, located about 1.7 miles above the international highway bridge between Presidio, Texas and Ojinaga, Chihuahua, 2.0 miles below the confluence of the Río Conchos with the Rio Grande, and 295.5 river miles below the American Dam at El Paso, Texas. The zero of the gage is 2,556.42 feet above mean sea level, U. S. C. & G. S. datum.

RECORDS: Based on 142 meter measurements during the year and a continuous record of gage heights. Computations by shifting channel methods. Records available: May 1900 to July 1915 and August 1923 through December 1952.

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

EXTREME FLOWS FROM RECORDS: Momentary: Max. 162,000 second-feet on September 11, 1904. Min. 3.0 second-feet on May 14, 1904.

Average Flow in Second-Feet

Daily:	Max.	149,200	Sept. 11, 1904	Min.	5.0	May 14,	1904
Monthly:	Max.	24,870	Sept. 1904	Min.	11.0	May	1902
Yearly:	Max.	4,870	1906	Min.	515		1952

Mean Daily Discharge in Second-Feet 1952 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	306	274	229	71.6	56.1	86.0	2,290	417	85.3	280	168	182
2	327	260	264	68.0	60.7	91.8	1,160	418	73.4	258	172	185
3	318	255	242	50.4	44.2	103	806	404	63.3	234	190	191
4	334	263	208	46.5	31.8	88.1	619	354	61.1	212	192	184
5	334	264	214	35.3	46.5	73.5	523	320	63.3	207	194	176
6	290	248	212	31.7	36.2	62.5	540	283	60.6	209	180	175
7	301	250	212	35.4	25.0	60.2	641	243	58.0	201	181	176
8	308	251	222	27.3	26.9	69.5	1,680	211	55.3	199	179	172
9	311	228	204	25.0	34.4	81.7	1,190	175	55.7	192	175	170
10	328	234	194	32.8	22.2	85.1	1,350	155	47.1	185	163	168
11	279	243	180	35.8	24.3	327	4,220	211	45.9	192	174	195
12	244	253	176	24.7	26.4	558	10,100	214	44.7	185	179	199
13	255	226	168	18.9	22.5	791	18,800	197	39.2	174	242	191
14	262	231	164	14.7	21.5	1,620	20,400	541	39.8	160	210	175
15	263	227	152	13.9	21.3	872	12,000	316	39.4	156	182	170
16	273	215	143	11.4	22.6	554	5,370	347	35.1	148	169	154
17	282	224	131	7.9	21.9	583	3,410	434	38.0	146	165	164
18	281	225	140	9.3	36.3	473	2,690	782	36.8	222	166	189
19	269	222	144	6.6	43.0	230	2,530	597	35.6	255	164	207
20	281	223	135	129	190	529	2,830	485	38.0	219	156	202
21	293	225	131	79.3	307	762	2,070	368	48.2	210	153	200
22	291	223	135	12.3	174	475	2,220	411	42.0	192	162	198
23	279	199	131	8.3	104	247	1,550	266	43.8	180	171	225
24	266	213	130	7.4	75.1	172	1,240	228	52.0	184	188	218
25	262	236	117	115	76.2	141	1,280	196	1,560	183	186	194
26	263	258	107	201	83.8	163	1,140	170	1,330	184	179	190
27	274	257	94.6	57.4	194	1,530	974	144	800	186	173	184
28	271	239	92.2	106	158	3,100	801	117	552	178	174	180
29	285	201	93.4	112	140	5,380	727	103	368	190	178	180
30	295		88.8	83.4	89.2	5,700	673	96.4	312	170	179	220
31	285		84.1		68.0		514	89.8		166		211
Sum	8,910	6,867	4,938.1	1,478.3	2,283.1	25,008.4	106,338	9,293.2	6,123.6	6,057	5,342	5,825

Month	Current Year 1952 Extreme Gage Feet High	Extreme Gage Feet Low	Extreme Second-Feet High Day	Extreme Second-Feet High	Extreme Second-Feet Low Day	Extreme Second-Feet Low	Average Second-Feet	Total Acre-Feet	Period 1924-1952 Acre-Feet Average	Maximum	Minimum	Average 1943-1952
Jan.	1.84	1.52	4	381	12	239	287	17,700	68,532	164,000	17,700	57,800
Feb.	1.60	1.38	26	281	23	192	237	13,600	60,627	99,700	13,600	52,460
Mar.	1.62	1.07	2	292	31	68.3	159	9,790	53,141	89,400	9,790	46,459
Apr.	3.38	.67	25	1,380	17	4.2	49.3	2,930	36,611	84,100	2,930	19,064
May	2.09	.78	20	522	13	15.1	73.6	4,530	52,828	270,000	3,660	20,393
June	10.03	.97	29	9,150	7	48.2	834	49,600	58,722	267,000	9,250	31,700
July	15.57	1.97	14	22,500	5	433	3,430	211,000	115,313	564,000	8,910	107,881
Aug.	3.39	1.29	14	991	31	84.3	300	18,400	150,456	675,000	18,400	56,560
Sept.	5.47	.97	25	3,070	19	33.5	204	12,100	280,699	1,324,000	7,370	124,887
Oct.	2.02	1.52	1	306	17	138	195	12,000	181,242	864,000	12,000	104,730
Nov.	1.88	1.50	13	259	20	141	178	10,600	73,158	141,000	10,600	51,910
Dec.	1.93	1.48	30	274	16	145	188	11,600	64,842	116,000	11,600	45,220
Yearly	15.57	.67		22,500		4.2	515	373,850	1,196,171	3,466,700	373,850	719,064

ALAMITO CREEK NEAR PRESIDIO, TEXAS

DESCRIPTION: Water-stage recorder about 1,800 feet above the confluence with the Rio Grande and 6 miles below Presidio, Texas and Ojinaga, Chihuahua. This creek enters the Rio Grande near the lower end of Presidio Valley 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 59 meter measurements of 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 1952.

REMARKS: A small irrigation reservoir (San Estaban), 10.5 miles south of Marfa, Texas and irrigation diversions below the reservoir modify the flow of this spring-fed creek. On October 2, 1932, backwater from the Rio Grande reached a gage height of 8.33 feet at this station. This is the highest recorded gage height.

EXTREME FLOWS FROM RECORDS: Momentary: Max. *13,900 second-feet on July 8, 1952, with a gage height of 6.99 feet. Min. .4 second-foot in June, July, and September 1951.

Average Flow in Second-Feet

Daily:	Max.	3,290	Oct. 24, 1941	Min.	.4	several days 1951
Monthly:	Max.	329	Sept. 1936	Min.	.9	June 1951
Yearly:	Max.	55.9	1941	Min.	*4.3	1951

Mean Daily Discharge in Second-Feet 1952 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1.3	1.3	1.1	1.1	1.1	.7	* 108	1.2	1.1	5.1	1.1	1.2
2	1.3	1.3	1.0	1.1	1.0	.7	* 277	1.3	1.1	11.4	1.1	1.2
3	1.3	1.3	1.0	1.1	.8	.7	7.2	1.3	1.1	1.0	1.1	1.2
4	1.3	1.3	1.0	1.1	.7	.7	7.2	1.2	1.1	1.0	1.0	1.2
5	1.2	1.3	1.0	1.1	.7	.7	7.2	1.2	1.1	1.0	1.0	1.2
6	1.2	1.3	1.1	1.0	.7	.7	6.2	1.2	1.1	1.0	1.0	1.2
7	1.2	1.3	1.1	1.0	.7	.7	6.2	1.2	1.1	1.0	1.1	1.1
8	1.2	1.3	1.1	1.0	.7	.7	*2,300	1.2	1.1	1.0	1.1	1.1
9	1.2	1.3	1.2	1.0	.6	.7	▫ 53.1	1.1	1.1	1.0	1.2	1.1
10	1.3	1.3	1.2	1.0	.6	.7	* 16.5	1.1	1.1	1.0	1.2	1.1
11	1.3	1.3	1.2	1.0	.6	.7	* 486	1.1	1.0	.9	1.3	1.1
12	1.4	1.3	1.2	1.0	.6	25.8	*1,280	1.1	1.0	.9	1.3	1.2
13	1.4	1.3	1.2	1.1	.6	11.2	*2,160	1.1	1.0	.9	1.3	1.2
14	1.5	1.3	1.3	1.1	.6	1.2	* 160	1.2	1.0	.9	1.3	1.2
15	1.5	1.3	1.3	1.1	.6	1.1	7.0	1.2	.9	.9	1.3	1.3
16	1.5	1.3	1.3	1.1	.6	1.0	▫ 2.0	1.2	.9	.9	1.3	1.3
17	1.4	1.3	1.3	1.1	.6	1.1	▫ 2.0	1.2	.9	.9	1.3	1.3
18	1.4	1.2	1.3	1.1	.6	1.1	*1,270	1.2	.9	.9	1.3	1.3
19	1.3	1.2	1.3	1.1	10.5	1.1	*1,030	1.2	.9	1.0	1.3	1.3
20	1.3	1.2	1.2	2.0	.6	1.1	90.2	1.2	.9	1.0	1.3	1.3
21	1.2	1.2	1.2	1.1	.6	.9	8.0	1.2	.9	1.0	1.3	1.3
22	1.2	1.2	1.2	1.1	.6	.8	30.8	1.2	.9	1.0	1.3	1.3
23	1.2	1.2	1.2	1.1	.6	.8	1.4	1.2	.9	1.0	1.3	1.3
24	1.2	1.2	1.2	1.1	.6	.7	1.0	1.2	.9	1.0	1.3	1.3
25	1.2	1.2	1.2	* 16.1	.6	.8	1.0	1.2	* 58.7	1.0	1.3	1.3
26	1.3	1.2	1.1	* 11.5	.6	.8	1.0	1.2	1.7	1.0	1.3	1.3
27	1.3	1.2	1.1	* 1.2	* 80.7	.9	1.0	1.2	1.0	1.0	1.3	1.3
28	1.3	1.2	1.1	* 1.2	* 52.5	*2,480	1.0	1.2	1.0	1.0	1.3	1.3
29	1.3	1.2	1.1	* 1.2	.7	* 448	1.1	1.2	1.0	1.0	1.2	7.3
30	1.3		1.1	* 1.2	.7	1.3	1.1	1.2	1.0	1.0	1.2	2.0
31	1.3		1.1		.7		1.2	1.1		1.1		1.8
Sum	40.3	36.5	36.0	* 59.0	* 162.4	*2,987.4	* 9,324.4	36.8	* 88.4	44.8	36.7	45.6

Month	Current Year 1952 Extreme Gage Feet High	Extreme Gage Feet Low	Extreme Second-Feet High Day	Extreme Second-Feet High	Extreme Second-Feet Low Day	Extreme Second-Feet Low	Average Second-Feet	Total Acre-Feet	Period 1932-1952 Acre-Feet Average	Maximum	Minimum	Average Acre-Feet 1943-1952
Jan.	2.56	2.53	‡14	1.5	‡ 5	1.2	1.3	79.9	193	* 273	78.5	183
Feb.	2.59	2.53	‡ 1	1.3	‡18	1.2	1.3	72.4	178	234	72.4	166
Mar.	2.68	2.56	‡14	1.3	‡ 2	1.0	1.2	71.4	190	270	71.4	181
Apr.	3.73	2.54	25	* 142	‡ 6	1.0	* 2.0	* 117	234	743	72.4	* 203
May	4.98		27	* 1,730	‡ 9	.6	* 5.2	* 322	1,211	8,520	88.3	598
June	6.62	2.10	28	*11,200	‡ 1	.7	* 99.6	* 5,930	1,877	* 6,360	50.8	* 1,445
July	6.99	2.08	8	*13,900	‡24	1.0	*301	*18,500	* 3,388	* 18,500	122	* 3,664
Aug.	2.93	2.89	‡ 2	1.3	‡ 9	1.1	1.2	73.0	3,015	* 16,330	73.0	1,388
Sept.	3.98	2.89	25	* 280	‡15	.9	* 2.9	* 175	3,418	19,600	* 175	* 2,180
Oct.	3.36	2.83	1	85.0	‡11	.9	1.4	88.9	2,188	19,200	* 86.3	1,337
Nov.	2.86	2.85	‡11	1.3	‡ 4	1.0	1.2	72.8	228	807	62.3	160
Dec.	3.57	2.85	29	76.0	‡ 7	1.1	1.5	90.4	206	408	76.2	173
Yearly	6.99			*13,900		.6	* 35.3	*25,592.8	16,326	40,444	* 3,109.2	*11,678

▫ Estimated * Partly estimated ‡ And other days

TERLINGUA CREEK NEAR TERLINGUA, TEXAS

DESCRIPTION: Water-stage recorder and cable with sit-down cable car equipped for winch and heavy weights, located 2.7 river 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. From January through May, the records of gage heights were from the new gage installed October 8, 1951, and from June through December, from the old gage .3 mile downstream. The zeros of the gages at the old and new gage wells are 2,195.99 feet and 2,203.52 feet, respectively, above mean sea level, U.S.C. & G.S. datum.

RECORDS: Based on 52 meter measurements of low and medium flows, a continuous record of gage heights for medium and high flows, and a high water rating curve determined by slope-area calculations. Computations by shifting channel methods. Records available: January 1, 1932 through December 1952.

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. Min. no flow on September 29 to 30, 1937.

Average Flow in Second-Feet

Daily:	Max.	17,200	June 1, 1937	Min.	0	Sept. 29 to 30, 1937
Monthly:	Max.	921	June 1937	Min.	.83	Oct. 1934
Yearly:	Max.	146	1937	Min.	5.5	1943

Mean Daily Discharge in Second-Feet 1952 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2.2	2.0	2.3	2.2	2.0	2.1	22.1	* 2.6	2.1	2.1	2.4	2.0
2	2.2	2.0	2.3	2.2	2.0	2.3	4.9	* 2.4	2.1	2.1	2.4	2.0
3	2.2	2.0	2.3	2.2	2.0	2.1	3.0	* 2.2	2.1	2.1	2.5	2.1
4	2.2	2.0	2.3	2.2	2.0	2.2	1.7	▪ 2.0	2.1	2.2	2.4	2.1
5	2.1	2.1	2.3	2.2	2.0	1.9	1.7	▪ 2.0	2.1	2.2	2.4	2.1
6	2.1	2.1	2.3	2.2	2.0	1.8	1.3	▪ 2.0	2.1	2.2	2.3	2.1
7	2.1	2.2	2.3	2.2	2.0	1.9	* 362	▪ 2.0	2.1	2.2	2.2	2.2
8	2.1	2.2	2.3	2.3	2.0	1.9	*3,520	▪ 2.0	2.1	2.1	2.1	2.2
9	2.0	2.2	2.3	2.3	1.9	2.4	* 773	▪ 2.0	2.1	2.1	2.1	2.2
10	2.0	2.3	2.3	2.3	1.9	2.4	74.7	▪ 2.0	2.1	2.1	2.0	2.2
11	2.0	2.3	2.3	2.3	1.8	* 318	*2,040	▪ 2.0	2.1	2.1	2.0	2.2
12	2.1	2.3	2.3	2.2	1.8	*2,120	*1,890	▪ 2.0	2.0	2.0	2.0	2.1
13	2.1	2.2	2.3	2.2	1.7	* 281	*2,210	▪ 2.0	2.0	2.0	2.0	2.1
14	2.2	2.2	2.3	2.2	1.7	15.6	*1,380	▪ 2.0	2.0	2.0	2.0	2.1
15	2.2	2.2	2.2	2.1	1.6	6.2	389	▪ 7.7	2.0	2.0	2.0	2.1
16	2.3	2.2	2.2	2.0	1.6	3.9	20.7	* 4.0	2.0	2.0	2.0	2.1
17	2.3	2.1	2.2	2.0	1.6	2.4	1.0	1.5	2.0	2.1	2.0	2.1
18	2.3	2.1	2.2	2.0	1.6	2.2	* 673	1.5	2.0	2.1	2.0	2.1
19	2.2	2.1	2.2	* 137	* 532	2.2	169	1.5	2.0	2.1	2.0	2.2
20	2.2	2.2	2.2	* 552	* 98.2	2.2	* 678	1.6	2.1	2.1	2.0	2.2
21	2.1	2.2	2.2	40.0	* 1.6	2.0	29.9	1.7	2.1	2.1	2.1	2.2
22	2.1	2.2	2.2	11.8	* 1.4	2.1	168	1.7	2.1	2.1	2.1	2.2
23	2.0	2.3	2.2	17.1	* 1.4	2.1	20.0	1.8	2.1	2.1	2.1	2.2
24	2.0	2.3	2.2	* 356	* 1.4	2.0	18.8	1.9	2.1	2.1	2.1	2.2
25	2.0	2.3	2.3	* 120	* 1.4	3.2	8.0	2.0	2.1	2.1	2.1	2.2
26	2.0	2.3	2.3	8.3	* 160	38.4	5.4	2.0	2.1	2.1	2.1	2.2
27	2.0	2.3	2.3	4.5	* 833	13.2	3.8	2.0	2.1	2.1	2.1	2.2
28	2.0	2.3	2.3	3.8	* 106	*1,200	3.4	2.0	2.1	2.2	2.0	2.2
29	2.0	2.3	2.3	3.0	6.6	* 767	* 3.2	2.1	2.1	2.2	2.0	*441
30	2.0		2.3	2.6	2.0	94.0	* 3.0	2.1	2.1	2.3	2.0	*175
31	2.0		2.3		2.0		* 2.8	2.1		2.3		3.1
Sum	65.3	63.5	70.3	*1,295.4	*1,780.2	*4,898.7	*14,481.4	* 68.4	62.2	65.6	63.5	*679.2

Month	#Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Period 1932-1952 Acre-Feet			Acre-Feet
			High		Low							
	High	Low	Day		Day				Average	Maximum	Minimum	Average 1943-1952
	Current Year 1952											
Jan.	.75	.68	¼16	2.3	¼ 9	2.0	2.1	130	* 198	743	82.7	198
Feb.	.65	.65	¼10	2.3	¼ 1	2.0	2.2	126	* 141	267	73.4	158
Mar.	.66	.65	¼ 1	2.3	¼15	2.2	2.3	139	* 282	* 2,410	72.4	* 390
Apr.	5.80	.64	24	*3,680	¼17	2.0	* 43.2	* 2,570	* 1,155	15,500	55.1	* 568
May	5.56		26	*3,560	¼22	1.4	* 57.4	* 3,530	* 4,505	* 26,000	117	* 1,718
June	7.17	1.08	11	*6,050	8	1.6	*163	* 9,720	* 6,984	54,800	59.5	* 3,192
July	8.14	1.74	8	*7,890	17	.2	*467	* 28,700	* 7,960	* 28,700	621	* 9,036
Aug.	2.14	1.86	¼15	27.6	¼16	1.5	* 2.2	* 136	* 4,163	* 26,680	123	* 2,979
Sept.	1.88	1.86	¼ 1	2.1	¼12	2.0	2.1	123	* 6,540	24,600	123	* 3,928
Oct.	1.89	1.86	¼30	2.3	¼12	2.0	2.1	130	* 2,320	8,100	50.8	* 1,737
Nov.	1.89	1.87	3	2.5	¼10	2.0	2.1	126	* 344	▪ 2,980	64.9	172
Dec.	5.65	1.87	29	*3,680	¼ 1	2.0	* 21.9	* 1,350	* 384	3,080	90.0	* 314
Yearly				*7,890		.2	* 64.4	* 46,780	* 34,976	105,807	3,958.0	*24,390

▪ Estimated * Partly estimated ¼ And other days # From January through May, the gage heights shown refer to the upper gage. Those for June through December refer to the lower gage.

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 179 meter measurements during the year and a continuous record of gage heights. Computations by shifting channel methods. Records available: April 1936 through December 1952.

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

EXTREME FLOWS FROM RECORDS: Momentary: Max. 58,800 second-feet on September 23, 1938, with a gage height of 19.75 feet. Min. .9 second-foot on May 17 and 18, 1952, with a gage height of .12 foot.

Average Flow in Second-Feet

Daily:	Max.	56,900	Sept. 10, 1942	Min.	2.3	May 17, 1952
Monthly:	Max.	23,600	Sept. 1942	Min.	131	April 1952
Yearly:	Max.	4,780	1942	Min.	574	1948 and 1951

Mean Daily Discharge in Second-Feet 1952 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	302	278	270	98.6	34.6	128	4,690	672	108	368	166	183
2	299	270	252	97.2	26.8	78.3	1,960	542	94.8	294	155	188
3	302	259	232	84.8	28.4	62.6	1,250	458	87.8	273	149	190
4	309	260	270	76.4	25.4	58.2	* 896	440	78.0	239	146	181
5	315	267	259	62.8	21.0	58.5	* 661	448	68.6	220	150	178
6	318	266	235	56.9	18.6	43.9	539	378	72.5	201	157	178
7	330	272	211	52.9	16.1	37.9	462	332	64.3	190	164	171
8	310	271	205	40.8	13.6	29.9	16,300	297	54.7	187	168	164
9	309	263	197	34.9	14.7	* 21.4	6,540	256	48.0	180	171	170
10	306	271	195	33.9	14.4	* 12.7	1,630	224	43.8	178	171	174
11	303	263	197	32.8	10.1	46.7	4,710	199	45.4	172	173	169
12	322	255	176	29.1	10.1	2,750	8,210	191	43.5	164	166	163
13	303	261	163	24.5	8.9	1,330	13,400	180	38.7	168	159	157
14	281	250	150	23.9	6.8	1,050	19,300	188	34.3	167	170	181
15	275	243	142	19.4	8.6	788	18,700	192	31.1	158	183	195
16	272	238	128	17.1	4.6	893	15,400	456	28.9	150	216	192
17	266	244	117	18.9	2.3	624	5,380	351	28.3	144	177	181
18	272	235	128	20.7	237	416	3,720	277	28.6	137	170	179
19	278	231	130	19.8	356	466	6,030	380	25.5	134	164	161
20	288	232	132	1,120	187	357	3,620	585	25.1	139	158	171
21	273	225	127	214	53.8	222	3,220	482	24.8	245	152	192
22	284	223	126	124	27.4	317	2,810	392	24.4	237	154	194
23	276	223	120	64.7	14.3	531	2,330	303	27.5	218	152	193
24	267	226	130	97.5	76.8	359	1,880	343	27.1	202	152	194
25	262	206	132	935	57.3	230	1,360	262	25.1	179	169	194
26	247	210	128	214	44.0	242	1,340	236	293	156	181	218
27	245	224	120	67.4	3,180	200	1,260	203	1,240	161	183	215
28	251	250	113	109	466	1,280	1,130	173	892	164	185	211
29	277	270	110	85.5	258	5,440	999	144	645	166	186	208
30	276		120	53.4	280	5,140	825	125	464	163	185	524
31	277		106		222		798	113		160		299
Sum	8,895	7,186	5,121	3,929.9	5,724.6	23,213.1	151,350	9,822	4,712.8	5,914	5,032	6,168

Month	Current Year 1952 Extreme Gage Feet High	Low	Extreme Second-Feet High Day	High	Low Day	Low	Average Second-Feet	Total Acre-Feet	Period April 1936-1952 Acre-Feet Average	Maximum	Minimum	Acre-Feet Average 1943-1952
Jan.	1.44	1.18	7	345	27	237	287	17,600	59,618	86,400	17,600	57,430
Feb.	1.28	1.02	2	283	‡25	188	248	14,300	55,662	80,900	14,300	52,950
Mar.	1.26	.72	1	279	31	93.2	165	10,200	46,963	85,300	10,200	46,650
Apr.	4.02	.33	25	3,300	16	15.9	131	7,790	23,671	79,300	7,790	20,173
May	7.31	.12	27	9,310	‡17	.9	185	11,400	52,555	240,000	8,830	25,313
June	6.52	.24	29	7,740	11	6.0	774	46,000	67,735	251,000	12,600	41,100
July	15.32	1.38	8	35,900	7	451	4,880	300,000	150,118	620,000	10,700	126,870
Aug.	2.07	.94	1	744	31	110	317	19,500	133,683	485,000	17,000	68,140
Sept.	2.85	.64	‡26	1,490	22	22.7	157	9,350	316,686	1,404,000	9,350	139,105
Oct.	1.63	1.05	1	412	20	129	191	11,700	183,459	929,000	11,700	119,890
Nov.	1.28	1.06	16	220	24	134	168	9,980	68,740	164,000	9,980	53,168
Dec.	2.58	1.12	30	1,200	‡13	157	199	12,200	58,641	110,000	12,200	47,050
Yearly	15.32	.12		35,900		.9	647	470,020	1,217,531	3,461,400	415,800	797,839

* 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 with 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 67 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 to March 1920; January 1924 through December 1952.

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 about 3:00 P.M. on 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 254 second-feet, which occurred May 12, 1952.

Mean Daily Discharge in Second-Feet 1952 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	580	509	436	364	486	1,290	5,080	1,280	435	970	402	433
2	544	502	451	351 *	374	826	5,270	1,140	414	890	408	427
3	515	489	466	338 *	352	577 u	3,120	1,070	392	805	415	435
4	519	470	468	336 *	330	492 u	2,090	1,010	370	698	408	422
5	524	463	458	328 *	308	451 u	1,580	911	367	622	409	416
6	528	469	465	315 *	298	375 u	1,160 *	852	359	559	409	417
7	532	475	453	313	289	351	1,110 *	808	363	525	409	425
8	542	475	467	311	284	332	933 *	757	361	493	410	440
9	561	487	488	309	275	314	871 *	698	352	469	410	441
10	565	500	469	297	271	308	12,400 *	675	351	452	397	435
11	575	519	438	279	267	306 u	3,710 *	644	355	441	398	435
12	557	525	426	276	258	299 u	4,770	592	343	424	405	428
13	553	511	428	278	255	303	7,830	553	330	421	411	421
14	555	502	423	274	256	2,000	10,100	521	318	418	419	428
15	558	501	418	266	257	1,870	13,500	506	300	405	425	428
16	560	494	413	268	262	1,410	17,300	483	294	400	432	421
17	551	493	408	274	273 *	1,180	17,700	468	290	393	433	414
18	533	491	398	276	294 *	1,040	11,300	445	288	393	413	414
19	524	490	387	278	790	1,040	7,170	438	290	393	412	434
20	521	490	382	1,060	350	856	6,000	573	288	394	424	441
21	518	482	378	644	300	786	7,160	563	279	388	437	441
22	522	489	357	535	377 u	704 u	4,190	515	277	382	421	434
23	523	476	359	699	534 u	590 u	3,870	614	279	382	420	413
24	543	488	356	681	493 u	530 u	2,550	741	276	375	419	400
25	537	469	352	526	407	492 *	2,560 u	695	277	375	432	400
26	565	455	354	472	360	652	2,340	616	279	448	417	414
27	562	461	356	588	400	777	1,850	542	280	455	416	421
28	554	457	358	783	3,130	2,040	1,690	555	282	442	409	421
29	552	460	359	778	2,490	871	1,630	516	283	428	408	442
30	541		367	557	1,420	1,120	1,520	478	509	408	413	450
31	528		373		901		1,410	450		402		457
Sum	16,842	14,092	12,711	13,054	17,341	24,182	163,764	20,709	9,881	15,050	12,441	13,248

Month	Current Year 1952								Period 1924-1952			
	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			Acre-Feet
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum	Average 1943-1952
Jan.	.73	.57	1	594	3	501	543	33,400	90,092	* 245,000	33,400	73,290
Feb.	.61	.52	12	525	28	451	486	28,000	78,575	* 117,000	28,000	69,130
Mar.	.62	.34	10	496	25	346	410	25,200	75,128	118,000	25,200	66,160
Apr.	2.35	.19	20	2,220	14	264	435	25,900	59,248	105,000	25,900	44,960
May	7.13	.14	28	10,600	12	254	559	34,400	93,915	271,000	26,900	55,260
June	4.41	.22	28	5,250	11	295	806	48,000	99,240	299,000	25,400	71,990
July	12.70	1.09	16	18,600	10	850	5,280	325,000	159,853	719,000	31,700	157,570
Aug.	1.61	.48	1	1,350	20	429	668	41,100	191,127	* 730,000	33,800	94,180
Sept.	1.19	.22	30	987	21	274	329	19,600	341,247	1,410,000	19,600	159,470
Oct.	1.21	.43	1	1,000	$22	375	485	29,900	236,490	1,063,000	29,900	152,320
Nov.	.53	.45	21	444	10	391	415	24,700	97,200	* 211,000	24,700	70,830
Dec.	.59	.49	$30	457	$24	393	427	26,300	85,774	135,000	26,300	63,920
Yearly	12.70	.14		18,500		254	911	661,500	1,607,889	3,851,500	633,900	1,079,080

u Estimated * Partly estimated $ And other days

PECOS RIVER NEAR COMSTOCK, TEXAS

DESCRIPTION: Water-stage recorder and cable with sit-down cable car equipped for winch and heavy weights, located at the Pecos High Bridge on the railroad 12 miles northwest of Comstock, Texas, 5.5 miles above the confluence with the Rio Grande. This river enters the Rio Grande 638.2 river miles below the American Dam at El Paso, Texas. The zero of the gage is 1,058.01 feet above mean sea level, U.S.C. & G.S. datum.

RECORDS: Based on 23 meter measurements during the year and a continuous record of gage heights. Water-stage recorder installed May 11, 1942. Computations by shifting channel methods. Records available: March 17, 1898 to December 3, 1898 and May 1900 through December 1952.

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

EXTREME FLOWS FROM RECORDS: The greatest recorded flow was 116,000 second-feet, which occurred September 1, 1932, with a gage height of 38.25 feet. The lowest recorded flow was 81.8 second-feet, which occurred August 25, 1952, with a gage height of -.12 foot.

Mean Daily Discharge in Second-Feet 1952 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	152	178	165	161	150	258	116	108	88.3	113	110	134
2	149	178	164	159	141	214	116	107	86.3	114	112	130
3	148	178	163	155	141	204	115	106	86.6	117	113	132
4	147	179	156	155	137	182	116	99.8	86.6	116	114	132
5	148	181	150	150	133	168	113	105	84.2	113	116	133
6	147	186	152	145	126	162	114	128	83.2	108	121	130
7	146	186	154	140	119	172	115	117	83.2	104	121	131
8	146	183	151	140	114	167	116	107	86.6	104	122	134
9	147	184	151	136	113	160	116	99.8	87.7	104	122	135
10	146	185	153	131	109	156	121	95.9	90.0	103	120	134
11	146	180	148	129	105	146	116	93.4	116	97.7	117	135
12	146	177	147	132	100	140	117	90.8	111	96.2	120	138
13	151	172	145	132	98.0	134	118	88.3	119	94.6	120	141
14	152	170	145	129	94.1	127	117	88.0	159	91.1	124	144
15	150	165	144	124	91.8	122	166	86.6	217	88.5	126	145
16	153	163	144	123	89.5	117	151	86.3	191	86.9	127	146
17	155	163	144	123	92.9	114	141	86.0	169	85.3	127	150
18	158	164	143	129	123	112	153	84.5	156	88.8	123	153
19	158	161	143	129	155	106	254	84.8	149	92.7	119	164
20	161	154	142	136	218	104	222	85.0	143	95.1	119	165
21	163	153	144	178	149	104	207	85.3	136	93.6	121	172
22	163	154	140	370	128	99.1	200	85.6	132	88.0	123	180
23	162	155	136	272	118	97.3	177	85.8	127	89.2	126	185
24	165	156	138	197	118	97.0	162	85.0	124	88.5	126	186
25	170	159	142	168	113	96.8	153	85.3	125	91.7	131	179
26	170	153	142	155	105	104	145	85.5	124	94.9	133	181
27	173	155	146	145	547	108	136	85.8	125	96.2	131	184
28	175	156	145	135	122	107	129	83.8	122	97.4	129	186
29	176	164	149	133	274	113	125	87.5	117	96.6	133	187
30	176		160	131	801	117	118	87.7	114	95.8	133	188
31	179		162		370		113	87.9		105		181
Sum	4,878	4,892	4,608	4,642	5,295.3	4,108.2	4,378	2,892.4	3,638.7	3,049.8	3,679	4,815

Month	Current Year 1952 Extreme Gage Feet High	Extreme Gage Feet Low	Extreme Second-Feet High Day	Extreme Second-Feet High	Extreme Second-Feet Low Day	Extreme Second-Feet Low	Average Second-Feet	Total Acre-Feet	Period 1924-1952 Acre-Feet Average	Maximum	Minimum	Average Acre-Feet 1943-1952
Jan.	.40	.33	31	179	‡11	143	157	9,680	23,222	78,200	9,680	18,498
Feb.	.34	.27	‡ 6	186	‡21	153	169	9,700	18,693	62,300	9,700	15,140
Mar.	.31	.20	2	166	22	135	149	9,140	17,781	40,700	9,140	14,804
Apr.	1.27	.16	22	472	‡16	121	155	9,210	17,139	42,400	9,210	15,553
May	4.55	0	27	3,570	17	89.0	171	10,500	32,720	156,000	10,500	18,730
June	.82	- .01	1	294	25	95.0	137	8,150	32,134	197,000	8,150	14,145
July	1.12	- .02	19	445	31	112	141	8,680	25,143	84,200	7,120	24,620
Aug.	.17	- .12	‡ 5	130	25	81.8	93.3	5,740	18,956	50,400	5,740	13,066
Sept.	.52	- .14	14	239	6	82.2	121	7,220	39,128	324,420	6,190	15,620
Oct.	.10	- .02	3	119	17	84.2	98.4	6,050	48,419	486,000	6,050	25,489
Nov.	.21	.09	‡25	135	‡ 1	110	123	7,300	26,862	209,000	7,300	13,433
Dec.	.35	.18	30	191	2	128	155	9,550	22,646	91,800	9,550	14,190
Yearly	4.55	- .14		3,570		81.8	139	100,920	322,843	1,330,900	100,920	203,288

‡ And other days

GOODENOUGH SPRING NEAR COMSTOCK, TEXAS

DESCRIPTION: Staff gage located 4,000 feet above the confluence with the Rio Grande and 11.75 miles southwest 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 968.42 feet above mean sea level, U.S.C. & G.S. datum.

RECORDS: Based on 19 meter measurements during the year, with the discharge estimated between measurements. Records available: February 23, 1929 through December 1952.

REMARKS: The flow of this spring is very uniform and not modified by diversions or storage. Backwater reaches the station when the Rio Grande reaches a discharge of about 35,000 second-feet near this spring. A maximum gage height of 17.30 feet was reached by backwater on September 1, 1932.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 846 second-feet on September 18, 1941, with a gage height of 4.57 feet. Min. 72.1 second-feet on December 26 to 28, 1951.

Average Flow in Second-Feet

Daily:	Max.	" 455	Oct. 1, 1932	Min.	72.1	Dec. 26 to 28, 1951
Monthly:	Max.	* 421	Oct. 1932	Min.	* 73.5	Jan. 1952
Yearly:	Max.	266	1933	Min.	* 83.1	1952

Mean Daily Discharge in Second-Feet 1952 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	" 72.2	" 77.8	" 79.7	" 83.5	" 83.8	" 84.0	" 86.8	" 92.4	" 88.5	" 85.8	" 80.3	" 82.2
2	" 72.2	" 78.3	" 79.8	" 83.5	" 83.8	" 84.0	" 87.0	" 92.0	" 88.1	" 85.7	" 79.9	" 82.2
3	" 72.3	" 78.7	" 79.9	" 83.5	" 83.8	" 84.0	" 87.2	" 91.6	" 87.7	" 85.6	" 79.6	" 82.2
4	" 72.3	" 79.1	" 79.9	" 83.6	" 83.8	" 84.0	" 87.4	" 91.1	" 87.3	" 85.5	" 79.2	" 82.1
5	" 72.3	" 79.6	" 80.0	" 83.6	" 83.8	" 84.0	" 87.7	" 90.7	" 86.9	" 85.5	" 78.9	" 82.1
6	" 72.3	" 80.0	" 80.1	" 83.6	" 83.8	" 84.0	" 87.9	" 90.3	" 86.4	" 85.4	" 78.6	" 82.1
7	" 72.4	" 80.4	80.2	" 83.6	" 83.8	" 84.0	" 88.1	" 89.9	" 86.0	" 85.3	" 78.2	" 82.0
8	" 72.4	" 80.9	" 80.4	" 83.6	" 83.8	" 84.0	" 88.3	" 89.5	" 85.6	" 85.3	" 77.9	" 82.0
9	72.4	81.3	" 80.6	" 83.6	" 83.8	" 84.0	" 88.5	" 89.1	85.2	85.2	" 77.5	" 82.0
10	" 72.5	" 81.1	" 80.8	" 83.6	" 83.9	" 84.0	" 88.8	" 88.7	" 85.3	" 85.0	77.2	" 81.9
11	" 72.5	" 80.9	" 81.0	" 83.6	" 83.9	" 84.1	" 89.0	" 88.2	" 85.3	" 84.8	" 77.5	81.9
12	" 72.6	" 80.7	" 81.2	" 83.6	" 83.9	" 84.1	" 89.2	" 87.8	" 85.4	" 84.6	" 77.8	" 81.7
13	" 72.6	" 80.5	" 81.4	" 83.6	" 83.9	" 84.1	" 89.4	" 87.4	" 85.4	" 84.4	" 78.2	" 81.5
14	" 72.7	" 80.3	" 81.6	83.6	" 83.9	" 84.1	" 89.6	" 87.0	" 85.5	" 84.2	" 78.5	" 81.3
15	" 72.7	" 80.1	" 81.8	" 83.6	83.9	" 84.1	" 89.9	86.6	" 85.5	" 84.0	" 78.8	" 81.1
16	" 72.8	" 79.9	" 81.9	" 83.6	" 83.9	" 84.1	" 90.1	" 87.1	" 85.6	" 83.8	" 79.2	" 80.9
17	" 72.9	" 79.7	" 82.1	" 83.6	" 83.9	" 84.1	" 90.3	" 87.6	" 85.6	" 83.6	" 79.5	" 80.7
18	" 72.9	" 79.5	" 82.3	" 83.6	" 83.9	" 84.1	" 90.5	" 88.0	" 85.7	" 83.4	" 79.8	" 80.5
19	" 73.0	" 79.3	" 82.5	" 83.6	" 83.9	84.1	" 90.8	" 88.5	" 85.7	" 83.2	" 80.1	" 80.3
20	" 73.0	" 79.1	" 82.7	" 83.7	" 83.9	" 84.3	" 91.0	" 89.0	" 85.8	" 83.1	" 80.4	" 80.1
21	73.1	78.9	" 82.9	" 83.7	" 83.9	" 84.5	" 91.2	" 89.5	" 85.8	" 82.9	" 80.8	" 79.9
22	" 73.5	" 79.0	" 83.1	" 83.7	" 83.9	" 84.8	" 91.4	" 90.0	" 85.9	" 82.7	" 81.1	" 79.7
23	" 74.0	" 79.1	" 83.3	" 83.7	" 83.9	" 85.0	" 91.6	" 90.4	" 85.9	" 82.5	" 81.4	" 79.5
24	" 74.4	" 79.2	83.5	" 83.7	" 84.0	" 85.2	" 91.9	" 90.9	" 86.0	" 82.3	" 81.8	" 79.3
25	" 74.8	" 79.2	" 83.5	" 83.7	" 84.0	" 85.4	" 92.1	91.4	" 86.0	" 82.1	" 82.1	" 79.1
26	" 75.3	" 79.3	" 83.5	" 83.7	" 84.0	" 85.7	" 92.3	" 91.0	86.1	" 81.9	82.4	" 78.9
27	" 75.7	" 79.4	" 83.5	" 83.7	" 84.0	" 85.9	" 92.5	" 90.6	" 86.0	" 81.7	" 82.4	" 78.7
28	" 76.1	" 79.5	" 83.5	" 83.7	" 84.0	" 86.1	" 92.8	" 90.2	" 86.0	" 81.5	" 82.3	" 78.5
29	" 76.6	" 79.6	" 83.5	" 83.7	" 84.0	" 86.3	" 93.0	" 89.7	" 85.9	81.3	" 82.3	" 78.3
30	" 77.0		" 83.5	" 83.8	" 84.0	" 86.5	93.2	" 89.3	" 85.8	" 81.0	" 82.3	" 78.1
31	" 77.4		" 83.5		" 84.0		" 92.8	" 88.9		" 80.6		" 78.0
Sum	*2,310.4	*2,508.9			*2,536.6		*2,774.4		*2,593.9		*2,498.8	
	*2,278.9	*2,537.2			*2,600.8		*2,792.3		*2,581.9		*2,396.0	

Month	Current Year 1952 Extreme Gage Feet High	Extreme Gage Feet Low	ϕ Extreme Second-Feet High Day	High	ϕ Extreme Second-Feet Low Day	Low	Average Second-Feet	Total Acre-Feet	Period March 1929-1952 Acre-Feet Average	Maximum	Minimum	Average Acre-Feet 1943-1952
Jan.			31	" 77.4	‡ 1	" 72.2	* 73.5	* 4,520	8,235	19,620	* 4,520	* 7,103
Feb.			9	81.3	1	" 77.8	* 79.7	* 4,580	7,331	17,030	* 4,580	* 6,342
Mar.			‡24	83.5	1	" 79.7	* 81.8	* 5,030	7,960	17,770	* 5,030	* 7,095
Apr.			30	" 83.8	‡ 1	" 83.5	* 83.6	* 4,980	7,636	16,580	* 4,980	* 6,878
May			‡24	" 84.0	‡ 1	" 83.8	* 83.9	* 5,160	8,283	16,840	* 5,160	* 7,538
June			30	" 86.5	‡ 1	" 84.0	* 84.6	* 5,030	8,313	16,040	* 5,030	* 7,547
July			30	93.2	1	" 86.8	* 90.1	* 5,540	8,854	16,460	* 5,540	* 8,390
Aug.			1	" 92.4	15	86.6	* 89.5	* 5,500	8,487	15,840	5,450	* 7,801
Sept.			1	" 88.5	9	85.2	* 86.1	* 5,120	9,095	" 25,000	* 5,120	* 7,507
Oct.			1	" 85.8	31	" 80.6	* 83.7	* 5,150	9,383	* 25,870	* 5,150	* 8,172
Nov.			‡26	82.4	10	77.2	* 79.9	* 4,750	8,640	21,850	* 4,750	* 7,471
Dec.			‡ 1	" 82.2	31	" 78.0	* 80.6	* 4,960	8,497	20,470	* 4,780	* 7,341
Yearly				93.2		" 72.2	* 83.1	* 60,320	100,714	192,840	* 60,320	*89,185

" Estimated * Partly estimated ‡ And other days ϕ Mean daily

DEVILS RIVER NEAR DEL RIO, TEXAS

DESCRIPTION: Water-stage recorder on the main highway bridge, 12 miles northwest of Del Rio, Texas and 4.5 miles above the confluence with the Rio Grande. Devils River enters the Rio Grande 680.1 river miles below the American Dam at El Paso, Texas. The zero of the gage is 951.80 feet above mean sea level, U.S.C. & G.S. datum.

RECORDS: Based on 23 meter measurements during the year and a continuous record of gage heights. Computations by shifting channel methods. Records available: September 2, 1932 through December 1952. Records are also available from May 1900 to March 1914 for a point 2.8 miles below the highway bridge, and from December 1923 to September 1, 1932 for a point 1.8 miles below the highway bridge.

REMARKS: The monthly flow of this spring-fed river 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.

EXTREME FLOWS FROM RECORDS: The greatest recorded flow was 597,000 second-feet, which occurred September 1, 1932, with a gage height of 41.0 feet at the present station. Zero flow sometimes occurs for a few hours.

Mean Daily Discharge in Second-Feet 1952 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	132	178	159	173	148	276	162	122	180	180	161	202
2	174	163	147	168	153	266	146	133	181	185	158	214
3	152	178	181	190	166	318	153	128	141	227	175	184
4	160	152	152	176	153	180	195	123	154	168	179	250
5	141	152	145	171	146	172	159	123	147	136	170	180
6	142	152	145	166	152	165	143	128	146	152	173	172
7	154	153	115	167	151	172	142	128	145	141	212	175
8	170	146	163	155	151	180	178	134	190	136	220	219
9	202	153	156	151	145	165	162	139	193	170	239	242
10	136	166	170	145	140	146	141	139	189	180	229	185
11	131	160	149	139	140	151	135	139	450	158	165	185
12	150	166	149	139	134	151	136	146	216	171	155	225
13	144	153	148	132	129	151	142	140	141	168	184	229
14	164	146	148	127	114	157	142	124	199	176	180	182
15	145	146	149	132	114	157	136	113	185	189	191	174
16	164	145	144	131	110	165	131	84.5	178	177	210	176
17	146	152	138	137	114	165	136	84.5	177	167	215	224
18	139	151	158	148	110	151	125	104	198	131	227	272
19	156	163	147	147	96.2	123	131	135	191	121	172	353
20	166	186	141	172	122	135	132	149	199	131	160	236
21	140	156	142	170	140	134	126	148	197	156	154	231
22	159	143	143	847	145	133	115	148	205	134	158	188
23	135	176	138	164	143	126	109	127	207	148	198	215
24	135	176	134	145	154	131	109	134	208	158	203	190
25	135	389	140	145	252	142	115	148	197	155	200	180
26	142	167	147	145	396	152	115	125	192	156	167	216
27	136	160	137	138	3,850	145	122	140	182	158	168	240
28	149	160	157	138	1,440	144	127	133	174	166	171	186
29	143	166	170	137	904	149	127	145	155	127	234	225
30	132		178	143	443	145	133	155	170	149	214	326
31	137		172		342		138	137		162		190
Sum	4,611	4,854	4,662	5,238	10,897.2	4,947	4,263	4,056.0	5,687	4,933	5,642	6,666

Month	Current Year 1952 — Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Period 1924-1952 — Acre-Feet			Acre-Feet
	High	Low	High Day	High	Low Day	Low			Average	Maximum	Minimum	Average 1943-1952
Jan.	1.36	.73	9	442	19	29.6	149	9,150	22,024	45,250	9,150	17,625
Feb.	1.61	.74	25	786	22	31.4	167	9,630	20,901	54,500	9,630	19,383
Mar.	1.17	.72	7	278	7	27.4	150	9,250	21,248	43,300	9,250	18,525
Apr.	2.73	.74	22	2,780	20	31.4	175	10,400	23,586	67,800	9,910	19,651
May	4.70	.76	27	10,800	18	35.5	352	21,600	40,491	356,900	10,500	25,720
June	1.45	.88	3	565	30	59.1	165	9,810	47,458	380,000	9,810	56,811
July	1.47	1.02	8	585	‡22	98.0	138	8,460	48,553	377,000	8,460	49,156
Aug.	1.33	.79	29	381	‡ 1	37.4	131	8,050	25,673	107,000	8,050	24,477
Sept.	1.76	.97	11	954	3	102	190	11,300	73,113	895,990	8,660	23,476
Oct.	1.43	.90	‡ 9	530	29	87.3	159	9,780	44,974	349,000	9,780	31,858
Nov.	1.52	.78	9	675	13	58.7	188	11,200	24,185	60,300	9,820	17,272
Dec.	1.52	.90	18	686	1	94.8	215	13,200	22,548	49,520	9,330	16,763
Yearly	4.70	.72		10,800		27.4	182	131,830	414,754	1,284,080	131,830	320,717

‡ And other days

ARROYO LAS VACAS NEAR CD. ACUNA, COAHUILA

DESCRIPTION: Water-stage recorder and cable with sit-down cable car, 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 at a point just above the Del Rio-Cd. Acuña International Bridge. This confluence is 693.5 river miles below the American Dam at El Paso, Texas. The zero of the gage is 884.15 feet above mean sea level, U.S.C. & G.S. datum.

RECORDS: Based on 157 meter measurements during the year and a continuous record of gage heights. Computations by shifting channel methods. Records available: Occasional estimates from June 1935 to March 19, 1938, and continuous record from March 20, 1938 through December 1952.

REMARKS: The low flow of this stream is from springs. Backwater from the Rio Grande reaches this station when the stage at Del Rio Station reaches about 21.0 feet, or a flow of about 110,000 second-feet.

EXTREME FLOWS FROM RECORDS: Momentary: Mar. 25,640 second-feet on October 3, 1944, with a gage height of 17.45 feet. Min. .3 second-foot on various days in October, November and December 1952, with gage heights of 1.25, 1.25, and 1.18 feet, respectively.

Average Flow in Second-Feet

Daily:	Mar.	3,530	Oct. 3, 1944	Min.	.3	several days Oct., Nov., & Dec. 1952
Monthly:	Mar.	153	Oct. 1944	Min.	.4	Oct., Nov., & Dec. 1952
Yearly:	Mar.	25.9	1944	Min.	2.8	1952

Mean Daily Discharge in Second-Feet 1952 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	.8	.7	1.0	1.1	1.8	2.8	1.1	1.1	.7	.4	.3	.4
2	.8	.7	1.0	.7	1.8	2.1	1.1	1.1	.7	.3	.4	.3
3	.8	.7	1.0	.7	1.8	2.1	1.1	.7	.4	.4	.3	.4
4	.8	.7	1.0	.7	1.8	2.1	1.1	.7	.4	.3	.4	.3
5	.7	.7	1.0	.7	1.4	2.1	1.1	.7	.7	.4	.3	.4
6	.7	.7	1.0	.7	1.4	2.1	1.1	.7	.7	.3	.4	.3
7	.7	.7	.7	.7	1.4	1.8	1.1	.7	.4	.4	.3	.4
8	.7	.7	.7	.7	1.0	1.8	1.1	.7	.4	.3	.4	.3
9	.7	.7	.7	.7	1.1	1.4	1.1	.7	.4	.4	.3	.4
10	.7	.7	.7	.7	1.1	1.4	1.1	.7	.7	.7	.4	.4
11	.7	.7	1.0	.7	1.1	1.4	1.0	.7	1.4	.4	.3	.4
12	.7	.7	1.0	.7	1.1	1.8	1.0	.7	1.1	.4	.4	.3
13	.7	.7	1.0	.7	1.1	2.1	1.0	.7	1.1	.4	.3	.4
14	.7	.7	1.0	.7	1.1	1.8	1.0	.7	1.1	.3	.4	.3
15	.7	.7	1.1	.7	1.1	1.8	1.0	.7	.7	.4	.4	.4
16	.7	1.0	1.1	.7	.7	1.4	1.0	.7	.6	.3	.4	.4
17	.7	1.0	1.1	.7	.7	1.4	.7	.7	.6	.4	.3	.3
18	.7	1.0	.7	1.1	6.4	1.8	.7	.7	.6	.3	.4	.4
19	.7	1.0	.7	1.1	1.4	1.4	.7	.7	.6	.4	.3	.3
20	.7	1.0	.7	1.1	1.4	1.4	.7	.7	.6	.3	.4	.4
21	.7	1.1	1.1	1.1	1.4	1.4	.7	.7	.7	.4	.3	.4
22	.7	1.1	1.1	46.3	1.1	1.4	.7	.7	.7	.3	.4	.3
23	.7	1.1	1.1	1.1	1.1	1.4	1.0	.7	.7	.4	.3	.4
24	.7	1.1	1.1	1.1	1.1	1.4	.7	.7	.4	.3	.4	.3
25	.7	1.1	1.1	1.1	1.1	1.4	.7	.7	.4	.4	.3	.4
26	.7	1.1	.7	1.1	1.1	1.4	.7	.7	.4	.3	.4	.3
27	.7	1.1	1.1	.7	649	1.4	.7	.4	.4	.4	.3	.4
28	.7	1.1	1.1	.7	42.3	1.4	.7	.4	.4	.3	.4	.3
29	.7	1.1	1.1	.7	3.2	1.1	.7	.4	.4	.4	.3	.4
30	.7		1.1	8.8	3.2	1.1	.7	.4	.4	.3	.4	.3
31	.7		1.1		3.2		.7	.7		.4		.4
Sum	22.1	25.4	29.9	78.3	738.5	49.4	27.8	21.3	18.8	11.4	10.6	11.1

Month	Current Year 1952								Period 1938-1952			Acre-Feet
	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			Average 1943-1952
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum	
Jan.	1.35	1.25	‡ 1	.8	‡ 9	.7	.7	43.8	375	910	43.8	411
Feb.	1.35	1.21	‡16	1.1	‡ 1	.7	.9	50.4	745	5,950	50.4	974
Mar.	1.35	1.25	‡ 1	1.1	‡ 7	.7	1.0	59.3	768	2,600	59.3	693
Apr.	3.08	1.25	22	* 551	‡ 2	.7	2.6	155	989	4,580	122	849
May	5.74	1.28	27	3,780	‡16	.7	23.8	1,460	1,467	5,090	156	1,958
June	1.35	1.28	1	2.8	‡29	1.1	1.6	98.0	804	3,900	98.0	1,001
July	1.31	1.28	‡ 1	1.1	‡17	.7	.9	55.1	1,586	8,230	55.1	1,798
Aug.	1.28	1.25	‡ 1	1.1	‡27	.4	.7	42.2	861	3,850	42.2	733
Sept.	1.84	1.25	11	10.9	‡ 3	.4	.6	37.3	1,337	6,850	37.3	1,043
Oct.	1.28	1.25	10	.7	‡ 1	.3	.4	22.6	956	9,390	22.6	1,270
Nov.	1.31	1.25	‡ 1	.4	‡ 1	.3	.4	21.0	352	¤ 1,670	21.0	364
Dec.	1.28	1.18	‡ 1	.4	‡ 1	.3	.4	22.0	308	704	22.0	271
Yearly	5.74	1.18		3,780		.3	2.8	2,066.7	10,524	18,808	2,066.7	11,365

¤ Estimated * Partly estimated ‡ And other days

RIO GRANDE NEAR DEL RIO, TEXAS

DESCRIPTION: Water-stage recorder located on the downstream side of a pier of the international highway bridge between Del Rio, Texas and Cd. Acuña, Coahuila, and 693.6 river miles below the American Dam at El Paso, Texas. Measurements from highway bridge. The zero of the gage is 864.30 feet above mean sea level, U.S.C. & G.S. datum.

RECORDS: Based on 68 meter measurements during the year, 50 by the United States and 18 by the Mexican Section of this Commission, and a continuous record of gage heights. Computations by shifting channel methods. Records available: July 2, 1941 through December 1952. Records are also available from May 1900 to April 1915 for a station 11 miles upstream, from December 1919 to March 1920 for a station 7.5 miles upstream at McKee's Switch, and from December 1923 to July 2, 1941 for a station 900 feet above the international highway bridge.

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

EXTREME FLOWS FROM RECORDS: The greatest recorded flow was 605,000 second-feet, which occurred September 1, 1932, with a gage height of 34.5 feet. This is the greatest rate of discharge recorded at any point on the Rio Grande. The lowest recorded flow was 629 second-feet, which occurred May 16, 1952, with a gage height of 4.5 foot.

Mean Daily Discharge in Second-Feet 1952 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,120	1,050	992	935	1,200	1,750	1,880	1,880	874	718	862	928
2	1,120	1,060	985	885	1,040	1,870	5,390	1,760	880	1,240	857	945
3	1,100	1,060	977	898	936	1,570	5,640	1,620	850	1,220	870	953
4	1,080	1,050	980	893	885	1,380	3,720	1,500	812	1,180	865	933
5	1,090	1,050	993	863	846	1,200	2,660	1,460	796	1,090	878	923
6	1,060	1,050	995	858	807	1,150	2,130	1,420	781	1,040	882	904
7	1,040	1,050	994	* 837	786	1,070	1,710	1,320	774	992	876	893
8	1,060	1,050	956	* 834	765	1,030	1,510	1,220	767	935	886	892
9	1,070	1,050	1,000	* 838	760	991	1,380	1,190	777	932	889	907
10	1,050	1,070	1,010	825	732	946	3,140	1,130	778	920	873	905
11	1,020	1,080	981	808	719	902	11,900	1,100	* 848	900	850	902
12	1,030	1,090	953	799	699	885	4,260	1,060	983	888	834	909
13	1,030	1,090	934	789	687	860	5,330	1,040	" 793	877	828	924
14	1,030	1,050	924	788	668	857	9,050	962	" 789	869	863	931
15	1,050	1,040	914	755	656	1,920	12,000	942	776	869	890	919
16	1,040	1,020	896	746	659	2,160	16,000	912	830	861	918	925
17	1,080	1,000	913	761	662	1,820	19,500	840	817	854	936	921
18	1,060	1,010	881	* 784	1,970	1,640	18,700	863	805	854	917	936
19	1,040	1,030	885	* 769	1,430	1,410	9,680	860	784	863	890	970
20	1,040	1,010	879	* 754	1,120	1,480	7,000	849	772	864	881	957
21	1,040	1,000	883	1,230	1,010	1,260	7,270	890	760	857	881	963
22	1,030	975	861	3,000	788	1,160	6,400	958	738	848	915	950
23	1,020	1,000	* 838	1,360	761	1,060	4,800	935	734	831	932	955
24	1,010	1,010	* 833	1,270	958	1,090	4,450	940	730	837	932	969
25	1,030	1,400	* 846	1,240	1,610	1,130	" 3,130	1,070	726	834	931	946
26	1,040	1,010	* 849	1,050	1,090	1,040	" 3,130	1,080	726	831	922	951
27	1,060	955	* 860	935	17,400	1,040	" 2,640	1,030	726	854	921	973
28	1,040	963	888	1,000	5,890	1,310	" 1,960	978	726	886	929	978
29	1,060	970	900	1,140	2,850	2,200	" 1,670	956	718	866	938	993
30	1,070		921	1,300	3,220	1,370	" 1,700	952	710	854	928	1,020
31	1,060		941		2,460		" 1,680	913		849		1,010
Sum	32,670	30,243	28,662	29,944	56,064	39,551	181,410	34,630	23,580	28,313	26,774	29,185

Month	Current Year 1952 Extreme Gage Feet High	Low	Extreme Second-Feet High Day	High	Low Day	Low	Average Second-Feet	Total Acre-Feet	Period 1924-1952 Acre-Feet Average	Maximum	Minimum	Acre-Feet Average 1943-1952
Jan.	1.14	.96	3	1,160	20	992	1,050	64,800	156,371	344,000	64,800	127,700
Feb.	1.87	.88	25	2,120	27	937	1,040	60,000	140,120	261,000	60,000	128,600
Mar.	1.00	* .73	10	1,050	24	* 824	925	56,900	135,640	224,670	56,900	118,910
Apr.	4.46	* .54	22	8,080	20	* 691	998	59,400	123,287	222,000	59,400	103,770
May	13.46	.45	27	43,500	16	629	1,810	111,000	192,674	* 742,000	63,200	126,550
June	2.39	.73	29	3,040	14	840	1,320	78,400	210,277	704,000	61,700	177,500
July	8.30	1.18	17	20,200	1	1,250	5,850	360,000	254,297	*1,228,000	* 82,400	253,720
Aug.	1.55	.69	1	1,900	17	788	1,120	68,700	255,622	865,000	68,700	149,970
Sept.	1.17	.58	12	1,240	‡25	694	786	46,800	491,099	2,754,590	46,800	218,880
Oct.	1.21	.58	2	1,320	1	694	913	56,200	364,592	1,634,000	56,200	232,320
Nov.	.90	.72	17	990	13	793	892	53,100	171,356	467,000	53,100	119,960
Dec.	1.01	.80	30	1,080	10	860	941	57,900	154,060	295,180	57,900	112,460
Yearly	13.46	.45		43,500		629	1,480	1,073,200	2,649,395	6,041,720	1,073,200	1,870,340

" Estimated * Partly estimated ‡ And other days

SAN FELIPE CREEK NEAR DEL RIO, TEXAS

DESCRIPTION: Water-stage recorder at Silos farm road bridge 1.75 miles south of Del Rio, Texas, 2 miles above the confluence with the Rio Grande, which is 1.6 river miles below the Del Rio gaging station on the Rio Grande. This stream enters the Rio Grande 695.2 river miles below the American Dam at El Paso, Texas. The zero of the gage is 875.05 feet above mean sea level, U.S.C. & G.S. datum.

RECORDS: Based on 26 meter measurements during the year, 25 by the United States and 1 by the Mexican Section of this Commission, and a continuous record of gage heights. Computations by shifting channel methods. Rating curves based on low and medium-flow measurements by wading or from bridge, and high-flow measurements by slope-area computations. Records available: September 1, 1931 through December 1952.

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.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 45,000 second-feet on June 14, 1935, with a gage height of 23.20 feet. Min. 2.2 second-feet on December 2, 1934.

Average Flow in Second-Feet

Daily:	Max.	¤ 16,200	June 14, 1935	Min.	2.4	Dec. 1 to 2, 1934
Monthly:	Max.	* 805	June 1935	Min.	8.8	Feb. 1935
Yearly:	Max.	* 136	1935	Min.	28.5	1951

Mean Daily Discharge in Second-Feet 1952 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	16.9	16.2	30.7	14.7	23.6	* 58.3	* 39.6	23.9	13.6	14.9	18.3	* 18.6
2	18.1	16.2	32.4	13.7	21.2	* 57.4	* 39.8	20.7	14.0	14.4	19.5	* 18.6
3	18.0	17.2	32.5	13.6	18.9	* 57.4	* 39.1	20.2	13.8	14.9	18.2	* 16.9
4	17.4	18.4	24.7	13.2	18.9	* 56.5	* 39.2	20.3	14.5	14.4	15.6	* 16.9
5	18.0	18.3	24.9	13.0	18.9	* 55.7	* 38.5	19.2	13.6	15.5	13.9	* 16.9
6	18.5	17.7	24.3	14.3	18.9	* 55.7	* 38.6	17.3	13.7	16.1	14.4	* 16.9
7	18.4	18.2	20.1	14.2	18.1	* 52.1	* 37.9	16.5	14.6	16.1	15.1	* 16.9
8	18.4	17.6	17.6	13.0	17.4	* 48.7	* 36.4	17.4	15.7	17.2	15.2	* 16.9
9	18.9	17.7	22.1	11.2	17.0	* 47.8	35.7	17.5	16.0	17.2	17.0	* 16.8
10	18.9	19.1	18.1	11.8	16.9	* 48.7	37.5	18.3	16.6	17.2	17.2	* 16.8
11	20.0	18.6	14.5	12.4	16.5	* 49.5	38.4	18.4	18.0	16.1	17.3	* 16.8
12	18.8	18.1	15.6	11.0	15.7	* 49.5	38.6	19.2	18.7	16.1	16.8	* 16.8
13	16.5	18.8	¤ 16.0	10.4	16.1	* 47.0	38.7	19.9	17.4	16.1	16.9	* 16.8
14	17.0	18.4	¤ 16.0	* 10.1	15.6	* 45.3	34.8	20.4	17.4	16.1	17.6	* 16.8
15	17.0	18.5	¤ 16.0	* 9.1	15.2	* 47.8	31.3	19.0	17.5	16.1	18.4	* 17.9
16	16.4	18.6	¤ 16.0	* 8.9	15.2	* 44.5	29.2	18.2	16.3	16.1	18.6	* 17.8
17	15.9	18.8	¤ 16.0	11.5	15.1	* 42.5	27.9	17.4	16.9	16.1	18.7	* 17.2
18	15.8	18.9	¤ 16.0	14.6	14.3	* 41.6	* 26.6	17.2	16.1	17.2	16.9	* 16.6
19	16.3	18.4	¤ 16.0	13.0	14.3	* 44.7	* 26.1	16.6	16.2	17.2	18.2	* 15.9
20	16.7	18.6	* 11.4	11.9	13.9	42.4	* 25.5	15.1	16.5	17.8	* 18.9	16.4
21	16.7	19.9	11.8	10.7	13.4	43.4	* 24.2	15.3	17.1	17.7	* 19.0	17.5
22	17.1	20.0	13.2	147	* 12.8	* 43.6	* 25.0	15.2	19.7	17.1	* 19.6	17.4
23	17.2	20.7	13.5	23.0	16.2	* 43.7	* 24.4	15.0	19.7	18.3	* 20.2	17.3
24	17.7	20.3	13.9	18.9	27.7	* 40.5	* 23.8	14.9	17.2	16.3	* 20.3	17.3
25	18.2	21.0	13.1	18.9	34.3	* 39.0	* 23.8	15.4	17.8	15.2	* 20.9	17.8
26	17.1	30.6	13.0	21.8	31.8	* 39.1	25.3	13.7	16.1	15.7	* 20.9	18.4
27	17.0	30.8	13.7	23.0	*6,740	* 37.6	26.8	13.3	15.5	15.0	* 20.3	19.6
28	16.4	30.2	15.4	24.3	71.4	* 39.3	25.5	13.7	16.1	15.0	* 19.8	19.5
29	16.3	29.7	16.2	22.4	61.0	* 39.4	25.6	14.5	16.1	14.3	* 19.2	19.4
30	16.3		16.5	24.3	59.2	* 39.5	24.3	14.0	15.5	18.5	* 18.5	18.7
31	16.3		15.6		58.3		23.8	14.4		18.4		18.7
Sum	538.2	585.5	556.8	579.9	*7,467.8	*1,398.2	* 971.9	532.1	487.9	504.3	* 541.4	*542.8

Month	Current Year 1952 Extreme Gage Feet High	Extreme Gage Feet Low	Extreme Second-Feet High Day	High	Extreme Second-Feet Low Day	Low	Average Second-Feet	Total Acre-Feet	Period Sept. 1931-1952 Acre-Feet Average	Maximum	Minimum	Average 1943-1952
Jan.	.59	.42	12	23.6	31	13.2	17.4	1,070	3,853	7,070	934	3,552
Feb.	.72	.41	27	33.6	19	13.6	20.2	1,160	3,047	8,630	487	3,388
Mar.	.77	.30	3	39.6	20	9.8	18.0	1,100	2,580	5,030	798	2,505
Apr.	5.28	* .18	22	1,020	16	* 6.1	19.3	1,150	2,870	* 8,120	566	2,914
May	22.10	.23	27	39,400	22	4.2	*241	* 14,800	4,215	* 14,800	1,400	4,390
June		.70	1	*ϕ 56.3	*27	32.8	* 46.6	* 2,770	5,805	* 47,900	1,110	4,263
July		.46	2	*ϕ 39.8	31	19.9	* 31.4	* 1,930	3,340	* 8,800	929	3,439
Aug.	.59	.27	1	28.6	30	11.1	17.2	1,060	2,965	6,060	838	2,601
Sept.	.59	.27	22	28.9	5	11.6	16.3	968	4,197	19,100	872	3,011
Oct.	.50	.30	30	22.2	27	10.6	16.3	1,000	3,754	8,470	1,000	3,718
Nov.	.52	.31	¤25	24.8	5	10.7	* 18.0	* 1,070	3,004	5,570	526	2,767
Dec.			27	ϕ 19.6	19	ϕ 15.9	* 17.5	* 1,080	3,014	5,870	496	2,669
Yearly				39,400		4.2	* 40.2	* 29,158	42,644	* 98,137	20,637	39,217

¤ Estimated * Partly estimated ϕ Mean daily

PINTO CREEK NEAR DEL RIO, TEXAS

DESCRIPTION: Water-stage recorder and concrete control dam, .6 mile below the Del Rio-Eagle Pass highway and 5.5 miles above the confluence with the Rio Grande. This creek enters the Rio Grande 717.7 river miles below the American Dam at El Paso, Texas. The zero of the gage is 854.61 feet above mean sea level, U.S.C. & G.S. datum.

RECORDS: Based on 4 meter measurements during the year by wading and a continuous record of gage heights. During periods of low flow, which occurred most of the year, the only flow at this station was leakage through the control dam, and the discharge is based on hydrographer's estimates. The station has a stable rating curve defined by low-flow measurements by wading, medium-flow measurements made from the cable prior to its destruction in 1948, and high-flow measurements by slope-area computations. Records available: November 22, 1928 through December 1952.

REMARKS: Small irrigation diversions modify the flow of this spring-fed creek 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 1952 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	.5	0	▪ 1.0	* 1.7	0	0	0	0	0	0
2	0	0	.4	0	▪ .9	* 1.7	0	0	0	0	0	0
3	0	0	.2	0	▪ .8	* 1.7	0	0	0	0	0	0
4	0	0	.1	0	▪ .7	* 1.7	0	0	0	0	0	0
5	0	0	.1	0	▪ .6	1.5	0	0	0	0	0	0
6	0	0	0	0	▪ .5	1.1	0	0	0	0	0	0
7	0	0	0	0	▪ .4	.9	0	0	0	0	0	0
8	0	0	0	0	▪ .3	.7	0	0	0	0	0	0
9	0	0	0	0	▪ .2	.5	0	0	0	0	0	0
10	0	0	0	0	▪ .1	.5	0	0	0	0	0	0
11	0	0	0	0	0	.4	0	0	0	0	0	0
12	0	0	0	0	0	.4	0	0	0	0	0	0
13	0	0	0	0	0	.3	0	0	0	0	0	0
14	0	0	0	0	0	.3	0	0	0	0	0	0
15	0	0	0	0	0	.2	0	0	0	0	0	0
16	0	0	0	0	0	.2	0	0	0	0	0	0
17	0	0	0	0	0	.1	0	0	0	0	0	0
18	0	0	0	0	0	.1	8.6	0	0	0	0	0
19	0	0	0	0	0	0	12.7	0	0	0	0	0
20	0	0	0	0	0	0	.9	0	0	0	0	0
21	0	0	0	0	0	0	.6	0	0	0	0	0
22	0	0	0	▪ 12.5	0	0	.6	0	0	0	0	0
23	0	0	0	▪ 5.3	0	0	.5	0	0	0	0	0
24	0	0	0	▪ 1.0	0	0	.4	0	0	0	0	0
25	0	6.6	0	▪ 1.0	0	0	.3	0	0	0	0	0
26	0	1.0	0	▪ 1.0	0	0	.2	0	0	0	0	0
27	0	.9	0	▪ 1.0	1,000	0	.1	0	0	0	0	0
28	0	.7	0	▪ 1.0	* 2.1	0	0	0	0	0	0	0
29	0	.6	0	▪ 1.0	* 2.0	0	0	0	0	0	0	0
30	0		0	▪ 1.0	* 2.0	0	0	0	0	0	0	0
31	0		0		* 1.7		0	0		0		0
Sum	0	9.8	1.3	▪ 24.8	1,013.3	* 14.0	24.9	0	0	0	0	0

Month	Current Year 1952 Extreme Gage Feet High	Extreme Gage Feet Low	Extreme Second-Feet High Day	Extreme Second-Feet High	Extreme Second-Feet Low Day	Extreme Second-Feet Low	Average Second-Feet	Total Acre-Feet	Period Dec. 1928-1952 Acre-Feet Average	Maximum	Minimum	Average 1943-1952 Acre-Feet
Jan.						0	0	0	380	2,110	0	180
Feb.	3.82		25	51.0	‡ 1	0	.3	19.4	594	5,760	0	788
Mar.			1	.5	‡ 6	0	0	2.6	475	2,500	0	250
Apr.	3.66		22	33.5	‡ 1	0	▪ .8	▪ 49.2	679	3,600	▪ 16.9	520
May	12.60		27	12,800	‡11	0	32.7	2,010	2,144	20,500	28.0	1,578
June	* 3.15		‡ 1	* 1.7	‡19	0	* .5	* 27.8	* 4,265	* 56,700	0	* 6,586
July	4.00		18	76.0	‡ 1	0	.8	49.4	2,549	30,000	0	698
Aug.						0	0	0	2,323	48,700	0	186
Sept.						0	0	0	1,491	17,300	0	340
Oct.						0	0	0	762	4,000	0	463
Nov.						0	0	0	320	2,150	0	121
Dec.						0	0	0	396	2,180	0	146
Yearly	12.60			12,800		0	3.0	2,158.4	16,378	76,259.3	1,325.2	*11,856

▪ Estimated * Partly estimated ‡ And other days

RIO SAN DIEGO AT JIMENEZ, COAHUILA

DESCRIPTION: Water-stage recorder and cable with sit-down cable car and masonry and concrete Cipoletti weir control for measuring flows up to 700 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 722.4 river miles below the American Dam at El Paso, Texas. The zero of the gage is 828.90 feet above mean sea level, U.S.C. & G.S. datum.

RECORDS: Based on meter measurements made at high flow during past years, the weir discharge table, and a continuous record of gage heights. The discharge did not exceed the capacity of the weir except on February 25, April 22, and May 24. Records available: 1922 through December 1952. The records from 1922 to September 1932 are considered doubtful.

REMARKS: Reservoirs and irrigation diversions modify the flow of this spring-fed stream at this station.

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 on several occasions from April to June 1939, also May 7 and August 6, 1952.

Average Flow in Second-Feet

Daily:	Max.	* 23,200	Sept. 18, 1941	Min.	0	occasionally
Monthly:	Max.	2,380	Oct. 1932	Min.	13.6	July 1952
Yearly:	Max.	527	1935	Min.	37.9	1939

Mean Daily Discharge in Second-Feet 1952 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	52.3	63.2	52.3	42.0	74.9	63.2	24.0	42.0	16.2	24.0	28.3	37.4
2	63.2	63.2	42.0	32.9	87.2	52.3	16.2	32.8	24.0	24.0	28.3	37.4
3	63.2	63.2	42.0	32.8	52.3	42.0	9.9	32.8	24.0	24.0	28.3	37.4
4	63.2	63.2	42.0	32.8	42.0	42.0	9.9	32.8	24.0	24.0	24.0	37.4
5	63.2	63.2	32.9	42.0	42.0	32.8	9.9	16.2	24.0	16.2	24.0	37.4
6	63.2	42.0	32.9	32.8	42.0	24.0	16.2	0	24.0	20.1	24.0	37.4
7	63.2	42.0	32.9	32.8	42.0	24.0	16.2	9.9	24.0	24.0	24.0	37.4
8	63.2	32.8	32.9	32.8	32.8	24.0	16.2	16.2	24.0	24.0	24.0	37.4
9	63.2	32.8	32.9	32.8	32.8	24.0	16.2	24.0	32.8	24.0	16.2	37.4
10	63.2	32.8	32.9	32.8	24.0	16.2	16.2	24.0	32.8	24.0	24.0	32.8
11	63.2	32.8	32.9	32.8	16.2	16.2	9.9	24.0	32.8	24.0	20.1	28.3
12	63.2	32.8	42.0	32.8	16.2	9.9	16.2	24.0	24.0	24.0	16.2	32.8
13	63.2	32.8	42.0	42.0	9.9	9.9	16.2	24.0	24.0	24.0	16.2	32.8
14	52.3	32.8	42.0	42.0	9.9	32.8	16.3	24.0	24.0	24.0	16.2	37.4
15	52.3	32.8	42.0	42.0	9.9	42.0	9.9	24.0	32.8	28.6	13.1	42.0
16	52.3	32.8	32.9	42.0	9.9	32.8	9.9	24.0	24.0	32.8	13.1	32.8
17	52.3	32.8	32.9	42.0	16.2	16.2	9.9	24.0	24.0	32.8	24.0	28.3
18	52.3	32.8	32.9	42.0	42.0	9.9	9.9	24.0	24.0	32.8	24.0	28.3
19	63.2	32.8	32.9	42.0	63.2	9.9	9.9	24.0	24.0	32.8	24.0	37.4
20	63.2	32.8	32.9	42.0	63.2	9.9	9.9	16.2	24.0	32.8	24.0	37.4
21	63.2	32.8	42.0	32.8	52.3	9.9	9.9	9.9	24.0	37.4	24.0	32.8
22	63.2	32.8	42.0	523	42.0	9.9	9.9	9.9	24.0	37.4	24.0	28.3
23	63.2	63.2	42.0	114	42.0	16.2	9.9	16.2	24.0	32.8	24.0	28.3
24	63.2	52.3	42.0	74.9	287	24.0	9.9	16.2	24.0	32.8	24.0	28.3
25	63.2	456	42.0	63.2	245	24.0	9.9	16.2	24.0	28.6	24.0	28.3
26	63.2	114	42.0	52.3	129	32.8	9.9	16.2	24.0	28.6	28.3	28.3
27	63.2	87.2	42.0	52.3	129	32.8	9.9	16.2	24.0	28.6	28.3	28.3
28	74.9	63.2	42.0	52.3	143	32.8	9.9	16.2	24.0	28.6	32.8	28.3
29	63.2	63.2	42.0	52.3	114	42.0	16.3	16.2	24.0	28.6	37.4	28.3
30	63.2		42.0	52.3	87.2	42.0	24.0	16.2	24.0	32.8	37.4	32.8
31	63.2		42.0		87.2		32.9	16.2		32.8		32.8
Sum	1,905.5	1,791.1	1,203.1	1,817.5	2,086.3	800.4	421.3	628.5	747.4	865.9	720.2	1,031.7

Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Period Oct. 1932-1952 Acre-Feet			Average 1943-1952 Acre-Feet
			High		Low							
	High	Low	Day		Day				Average	Maximum	Minimum	
Jan.	2.92	2.82	‡28	74.9	1	42.0	61.5	3,780	7,346	36,430	2,910	5,679
Feb.	4.65	2.76	25	1,260	14	24.0	61.8	3,550	5,878	25,760	1,970	5,776
Mar.	2.89	2.79	1	63.2	‡ 5	32.8	38.8	2,390	5,654	27,040	2,140	5,799
Apr.	5.02	2.76	22	1,670	21	24.0	60.6	3,610	5,689	21,650	1,110	5,283
May	4.33	2.62	24	1,010	17	0	67.3	4,140	* 14,366	* 120,200	1,290	10,952
June	2.89	2.69	1	63.2	‡12	9.9	26.7	1,590	10,504	62,240	1,420	9,754
July	2.82	2.69	31	42.0	‡ 3	9.9	13.6	836	9,472	34,430	836	10,712
Aug.	2.82	2.62	1	42.0	6	0	20.3	1,250	8,071	32,180	1,250	8,227
Sept.	2.85	2.72	11	52.3	1	16.2	24.9	1,480	* 14,896	* 84,620	1,480	8,401
Oct.	2.82	2.72	‡21	37.4	5	16.2	27.9	1,720	19,215	146,640	1,720	11,477
Nov.	2.82	2.69	‡29	42.0	‡16	9.9	24.0	1,430	12,040	68,290	1,430	7,772
Dec.	2.82	2.76	‡14	42.0	11	24.0	33.3	2,050	7,980	45,160	2,050	5,966
Yearly	5.02	2.62		1,670		0	38.3	27,826	121,111	* 381,720	27,460	95,798

* Partly estimated ‡ And other days ⊕ Period Oct. 1932-1952

RIO GRANDE NEAR JIMENEZ, COAHUILA

DESCRIPTION: Temporary water-stage recorder, located 5.0 miles below Jiménez, Coahuila, 26.7 miles above Eagle Pass, Texas and Piedras Negras, Coahuila, and 728.0 miles below the American Dam at El Paso, Texas. The zero of the gage is 755.86 feet above mean sea level, U.S.C. & G.S. datum.

RECORDS: Based on 36 meter measurements during the year, 35 by the Mexican and 1 by the United States Section of this Commission, by wading during low flow, and a continuous record of gage heights during periods of low and medium flows. Computations by shifting channel methods. Records available: May 9 through 23, October, November, and December 1952.

REMARKS: This station was installed for temporary use in connection with a loss and gain study made on the Rio Grande between this station and San Antonio Crossing station. Operation was resumed in October and continued during periods of low and medium flows through December 1952.

Mean Daily Discharge in Second-Feet 1952 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1										20.8	14.1	41.7
2										21.5	14.1	38.1
3										181	14.1	39.9
4										220	14.1	50.1
5										201	14.1	47.3
6										159	17.0	41.3
7										125	17.0	43.8
8										73.8	14.1	41.7
9					35.0					47.3	17.0	43.8
10					32.1					43.4	20.1	38.5
11					17.7					31.4	14.1	36.7
12					19.1					34.6	17.0	31.1
13					22.6					33.9	17.0	26.5
14					22.2					19.4	20.1	33.9
15					23.7					19.4	20.1	33.5
16					21.5					19.4	23.7	29.7
17					21.2					23.0	27.5	36.4
18					25.8					16.6	23.7	36.0
19										23.7	14.1	40.3
20										24.0	20.1	41.0
21					45.2					17.3	23.7	46.3
22					40.6					14.1	27.5	42.7
23					32.1					16.2	34.3	40.6
24										15.9	30.7	38.5
25										13.4	34.3	36.4
26										13.4	30.7	33.2
27										13.4	34.3	44.8
28										13.4	41.7	44.8
29										13.4	50.5	49.8
30										11.3	37.8	68.5
31										13.8		49.4
Sum										1,493.8	698.6	1,266.3

Month	Current Year 1952								Period		
	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
			High		Low						
	High	Low	Day		Day				Average	Maximum	Minimum
Jan.											
Feb.											
Mar.											
Apr.											
May											
June											
July											
Aug.											
Sept.											
Oct.	1.97	.79	3	254	30	6.0	48.2	2,960			
Nov.	1.21	.85	‡28	50.5	11	11.7	23.3	1,390			
Dec.	1.38	.98	30	81.9	13	26.5	40.8	2,510			
Yearly											

‡ And other days

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 735.4 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 meter measurements made at high flow during past years, the weir discharge table, and a continuous record of gage heights. The discharge did not exceed the capacity of the weir, except on May 1. Records available: 1922 through December 1952. The records from 1922 to 1931 are considered doubtful.

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

Average Flow in Second-Feet

Daily:	Max.	* 27,900	Sept. 7, 1932	Min.	0	frequently
Monthly:	Max.	4,270	Sept. 1932	Min.	0	July 1939, July-Nov. 1952
Yearly:	Max.	571	1932	Min.	7.4	1952

Mean Daily Discharge in Second-Feet 1952 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	31.4	21.2	16.3	8.1	160	12.0	0	0	0	0	0	0
2	31.4	21.2	16.3	12.0	26.1	8.1	0	0	0	0	0	0
3	26.1	16.2	16.3	12.0	21.2	8.1	0	0	0	0	0	0
4	26.1	16.2	16.3	12.0	21.2	8.1	0	0	0	0	0	0
5	21.2	21.2	16.3	12.0	16.2	8.1	0	0	0	0	0	0
6	21.2	21.2	21.2	12.0	12.0	8.1	0	0	0	0	0	0
7	21.2	21.2	16.3	12.0	12.0	4.9	0	0	0	0	0	0
8	21.2	21.2	16.3	12.0	12.0	4.9	0	0	0	0	0	0
9	21.2	16.2	16.3	12.0	12.0	4.9	0	0	0	0	0	0
10	21.2	16.2	16.3	12.0	12.0	4.9	0	0	0	0	0	0
11	21.2	16.2	16.3	12.0	* 12.0	4.9	0	0	0	0	0	0
12	21.2	16.2	12.0	12.0	* 12.0	2.1	0	0	0	0	0	0
13	21.2	16.2	12.0	12.0	* 8.1	2.1	0	0	0	0	0	0
14	21.2	12.0	12.0	12.0	* 8.1	2.1	0	0	0	0	0	0
15	21.2	12.0	12.0	12.0	▪ 8.1	2.2	0	0	0	0	0	0
16	21.2	12.0	8.1	8.2	▪ 4.9	0	0	0	0	0	0	0
17	21.2	12.0	8.1	8.2	▪ 4.9	0	0	0	0	0	0	0
18	21.2	21.2	4.9	8.2	* 4.9	0	0	0	0	0	0	0
19	21.2	16.2	4.9	8.2	31.4	0	0	0	0	0	0	0
20	21.2	21.2	4.9	21.2	21.2	0	0	0	0	0	0	0
21	21.2	21.2	8.1	21.2	12.0	0	0	0	0	0	0	4.9
22	21.2	16.2	4.9	16.2	12.0	0	0	0	0	0	0	5.0
23	21.2	16.2	4.9	16.2	8.1	0	0	0	0	0	0	4.9
24	21.2	16.2	8.1	21.2	16.2	0	0	0	0	0	0	5.0
25	21.2	21.2	4.9	12.0	43.8	0	0	0	0	0	0	4.9
26	21.2	21.2	4.9	12.0	21.2	0	0	0	0	0	0	5.0
27	21.2	16.2	4.9	8.1	21.2	0	0	0	0	0	0	8.1
28	21.2	16.2	12.0	8.1	31.4	0	0	0	0	0	0	8.1
29	21.2	16.2	8.1	8.1	21.2	0	0	0	0	0	0	12.0
30	21.2		8.1	8.1	12.0	0	0	0	0	0		16.2
31	21.2		8.1		12.0		0	0		0		12.0
Sum	687.4	508.0	340.1	361.3	631.4	85.5	0	0	0	0	0	86.1

Current Year 1952

Month	Extreme Gage Feet High	Extreme Gage Feet Low	Extreme Second-Feet High Day	Extreme Second-Feet High	Extreme Second-Feet Low Day	Extreme Second-Feet Low	Average Second-Feet	Total Acre-Feet
Jan.	.26	.16	‡ 1	31.4	29	16.2	22.2	1,360
Feb.	.20	.13	‡ 1	21.2	‡14	12.0	17.5	1,010
Mar.	.20	.07	6	21.2	‡17	4.9	11.0	675
Apr.	.30	.10	20	37.4	‡ 1	8.1	12.0	717
May	1.57	.07	1	484	‡16	4.9	20.4	1,250
June	.13		1	12.0		0	2.8	170
July				0		0	0	0
Aug.				0		0	0	0
Sept.				0		0	0	0
Oct.				0		0	0	0
Nov.				0		0	0	0
Dec.	.20		29	21.2	‡ 1	0	2.8	171
Yearly	1.57			484		0	7.4	5,353

Period 1932-1952

Month	Acre-Feet Average	Acre-Feet Maximum	Acre-Feet Minimum	Acre-Feet Average 1943-1952
Jan.	3,393	14,850	171	2,949
Feb.	2,773	11,580	555	2,813
Mar.	2,508	9,900	576	2,330
Apr.	2,871	21,160	382	3,521
May	5,683	42,330	57.6	5,250
June	6,217	41,660	30.0	7,396
July	3,772	12,170	0	3,652
Aug.	4,626	23,580	0	5,659
Sept.	* 19,177	* 253,960	0	6,027
Oct.	9,657	81,360	0	7,545
Nov.	4,820	24,450	0	4,190
Dec.	3,998	19,060	131	3,555
Yearly	* 69,495	* 414,310	5,353	54,887

▪ Estimated * Partly estimated ‡ And other days ⊕ Period 1932-1952

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 744.9 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 check measurements of flow made by current meter by hydrographers of this Commission under stable flow conditions. Records available: January 1949 through December 1952.

REMARKS: This power plant began operating April 16, 1932. 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. This plant contains 3 vertical turbine generators of 4,000 kw. capacity each, operating under a normal head of about 84 feet.

Mean Daily Discharge in Second-Feet 1952 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	767	646	644	532	973	1,180	819	899	386	190	346	690
2	786	657	650	492	896	1,140	896	878	329	269	375	690
3	790	663	633	430	661	1,180	968	826	335	566	374	690
4	746	625	604	386	570	1,150	984	712	341	510	355	707
5	717	801	589	380	521	1,070	966	690	298	499	359	650
6	710	636	572	380	439	967	998	673	255	472	388	660
7	643	629	603	360	394	854	972	563	296	412	382	637
8	670	635	609	287	354	828	912	538	267	447	396	627
9	740	645	588	243	278	664	830	517	266	452	418	607
10	763	643	635	318	345	603	762	505	288	400	454	558
11	735	644	585	261	263	457	835	502	303	430	457	548
12	719	636	559	250	257	358	938	402	389	410	455	493
13	776	633	512	210	184	371	991	398	457	413	391	472
14	735	635	492	192	189	362	978	367	354	386	389	495
15	770	599	484	216	182	347	997	385	319	385	425	499
16	769	621	459	193	178	799	1,010	382	318	390	464	507
17	766	630	436	187	175	900	1,060	375	380	361	478	507
18	775	599	456	418	308	892	1,050	375	383	321	469	510
19	783	595	425	442	930	798	1,060	322	351	315	479	528
20	781	632	388	348	836	987	1,090	318	342	343	452	607
21	765	483	369	322	787	956	1,090	318	333	327	454	621
22	769	618	331	767	642	669	1,050	343	286	330	401	606
23	729	622	329	945	369	544	1,030	423	267	331	500	618
24	698	636	356	906	451	447	1,050	457	287	319	548	610
25	702	725	293	916	842	494	1,060	455	290	301	534	618
26	712	952	332	866	1,000	408	1,060	495	279	346	524	606
27	727	742	388	717	1,060	428	1,100	468	264	319	524	604
28	700	668	458	559	1,110	528	1,010	447	189	326	592	681
29	671	643	489	627	1,170	821	947	407	261	364	686	651
30	680		542	769	1,220	914	941	375	200	349	689	705
31	666		559		1,190		905	398		329		736
Sum	22,760	18,893	15,369	13,919	18,774	22,116	30,359	15,213	9,313	11,612	13,758	18,738

Current Year 1952 — Period 1949-1952

Month	Extreme Gage Feet		ϕ Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
			High		Low				Average	Maximum	Minimum
	High	Low	Day		Day						
Jan.			3	790	7	643	734	45,100	55,300	64,700	45,100
Feb.			26	952	21	483	651	37,500	50,125	57,200	37,500
Mar.			2	650	25	293	496	30,500	53,600	65,400	30,500
Apr.			23	945	17	187	464	27,600	* 46,375	58,600	27,600
May			30	1,220	17	175	606	37,200	55,850	64,900	37,200
June			ǂ 1	1,180	15	347	737	43,900	58,100	68,900	43,900
July			27	1,100	10	762	979	60,200	56,750	63,000	50,500
Aug.			1	899	ǂ20	318	491	30,200	55,025	68,900	30,200
Sept.			13	457	28	189	310	18,500	51,725	67,500	18,500
Oct.			3	566	1	190	375	23,000	50,550	69,000	23,000
Nov.			30	689	1	346	459	27,300	48,475	63,500	27,300
Dec.			31	736	13	472	604	37,200	52,100	65,500	37,200
Yearly				1,220		175	576	418,200	633,975	740,000	418,200

* Partly estimated ǂ And other days ϕ 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 754.6 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 119 meter measurements during the year, 115 by the Mexican and 4 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; January 1924 through December 1952.

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

EXTREME FLOWS FROM RECORDS: The greatest recorded flow was 569,000 second-feet, which occurred September 2, 1932, with a gage height of 49.00 feet. The lowest recorded flow was 277 second-feet, which occurred October 1, 1952, with a gage height of .69 foot.

Mean Daily Discharge in Second-Feet 1952 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	957	844	879	756	1,980	2,840	1,290	1,700	586	326	484	780
2	957	826	823	664	1,480	2,160	1,610	1,570	572	334	505	780
3	961	848	809	653	1,050	2,000	4,980	1,460	523	493	498	780
4	964	805	756	628	872	1,850	5,370	1,300	561	837	477	780
5	964	805	763	611	763	1,510	3,440	1,230	537	812	477	717
6	932	805	727	604	703	1,290	2,550	1,190	463	731	480	710
7	901	798	777	568	685	1,110	2,050	1,090	431	650	509	667
8	865	756	749	522	650	1,070	1,550	985	456	604	508	692
9	904	795	749	452	547	916	1,220	953	420	572	537	697
10	943	756	749	441	558	799	1,060	869	438	537	593	625
11	904	756	745	434	452	690	3,510	862	431	509	569	590
12	904	742	720	441	438	598	8,230	788	819	509	572	583
13	936	731	692	410	399	473	3,960	720	653	523	540	583
14	925	727	664	399	339	410	6,670	682	569	498	512	583
15	918	727	671	409	333	410	9,360	614	484	487	533	566
16	975	696	650	381	311	1,070	12,780	611	477	456	607	586
17	971	731	628	357	353	1,950	16,070	583	466	448	632	590
18	968	735	607	491	547	1,550	17,270	558	455	477	653	569
19	982	735	586	681	1,360	1,290	13,810	498	417	420	622	579
20	992	738	533	540	1,580	1,290	7,880	473	424	470	632	646
21	964	738	523	512	1,000	1,340	6,110	473	403	466	643	685
22	982	742	508	3,000	855	1,040	7,590	473	360	459	625	664
23	957	773	456	3,430	537	837	5,440	569	360	466	636	664
24	946	876	516	1,500	946	657	4,560	593	360	438	650	667
25	897	1,450	424	1,120	2,850	657	3,880	622	360	438	689	664
26	886	1,730	413	1,110	2,030	629	2,880	646	360	463	671	660
27	918	1,260	438	936	5,050	629	2,900	703	334	459	664	657
28	911	1,010	569	731	26,030	837	2,450	667	283	459	752	710
29	872	925	660	794	6,290	1,380	2,040	632	302	484	865	706
30	876		720	1,090	3,250	1,750	1,880	568	336	487	830	759
31	876		780		3,850		1,780	568		491		752
Sum	28,909	24,860	20,284	24,665	68,088	34,992	168,170	25,250	13,640	15,909	17,965	20,671

Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Period 1924-1952 Acre-Feet			Acre-Feet
			High		Low				Average	Maximum	Minimum	Average 1943-1952
	High	Low	Day		Day							
Jan.	1.64	1.38	3	1,110	‡30	837	933	57,340	169,434	365,000	57,340	132,316
Feb.	2.66	1.25	25	2,770	16	667	857	49,310	151,387	398,200	49,310	141,688
Mar.	1.54	1.02	1	1,030	26	413	654	40,230	141,873	247,440	40,230	119,464
Apr.	4.82	.85	22	7,840	17	336	822	48,920	131,456	270,700	48,920	107,307
May	14.21	.72	28	45,910	16	279	2,200	135,100	226,190	* 918,000	70,210	150,865
June	3.18	* .98	1	3,640	‡14	* 410	1,170	69,410	257,091	1,005,000	48,710	240,792
July	8.20	1.54	18	17,480	2	996	5,420	333,600	268,858	*1,255,000	79,180	264,901
Aug.	2.10	.92	1	1,740	22	445	815	50,080	267,623	* 947,000	50,080	160,039
Sept.	1.84	.72	12	1,450	28	283	455	27,050	525,578	3,079,000	27,050	227,594
Oct.	1.35	.69	4	876	1	277	513	31,560	399,309	1,680,300	31,560	243,525
Nov.	1.28	.85	29	865	4	452	599	35,630	192,695	512,800	35,630	126,740
Dec.	1.38	1.05	30	830	18	540	667	41,000	166,701	369,760	41,000	114,208
Yearly	14.21	.69		45,910		277	1,270	919,230	2,898,195	6,946,510	919,230	1,029,439

* Partly estimated ‡ And other days

RIO ESCONDIDO AT VILLA DE FUENTE, COAHUILA

DESCRIPTION: Water-stage recorder and cable with sit-down cable car, located 3.1 miles southwest of Piedras Negras, Coahuila, on the outskirts of Villa de Fuente, 5 miles above the confluence with the Rio Grande. This stream enters the Rio Grande 758.2 river miles below the American Dam at El Paso, Texas. The zero of the gage is 717.78 feet above mean sea level, U.S.C. & G.S. datum.

RECORDS: Based on 32 meter measurements during the year and a continuous record of gage heights. Computations by shifting channel methods. Records available: 1922 through December 1952. The 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 reaches this station when the flow of the Rio Grande at Eagle Pass reaches approximately 380,000 second-feet.

EXTREME FLOWS FROM RECORDS: ⊕ Momentary: Max. 24,000 second-feet on June 29, 1936, with a gage height of 19.13 feet. Min. .35 second-foot on November 4, 1934, with a gage height of .75 foot.

Average Flow in Second-Feet

Daily:	Max.	6,710	June 29, 1936	Min.	.7	1934, 1945, & 1946 ♂
Monthly:	Max.	647	Oct. 1932	Min.	1.0	Sept. 1945
Yearly:	Max.	83.2	1935	Min.	11.0	1943

Mean Daily Discharge in Second-Feet 1952 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	7.4	11.7	12.7	16.3	14.5	8.5	6.4	2.1	1.7	2.1	1.7	4.2
2	7.4	14.8	12.7	16.3	14.5	7.1	3.5	1.8	1.7	2.1	1.7	4.2
3	12.0	16.6	12.7	16.3	14.5	8.5	2.1	1.8	1.7	2.1	1.7	4.2
4	10.6	16.2	12.7	16.3	12.7	8.5	2.1	1.8	1.7	2.1	1.7	4.2
5	9.2	16.2	12.7	14.5	12.7	8.5	2.1	1.8	1.4	2.1	1.7	4.2
6	9.2	16.2	12.7	14.5	12.7	8.1	1.8	1.8	1.4	2.1	1.7	4.6
7	9.2	14.5	12.7	16.3	12.7	8.1	1.8	1.8	1.4	2.1	1.7	4.6
8	9.2	16.6	12.7	16.3	12.7	7.8	1.8	1.8	1.4	1.8	1.7	4.6
9	9.2	16.6	12.7	16.2	12.7	7.8	526	1.8	1.7	1.8	1.7	4.6
10	9.2	16.6	12.7	16.2	12.7	4.9	199	1.8	1.8	1.8	1.7	4.9
11	8.1	17.0	12.7	16.2	12.7	4.9	15.5	1.8	1.8	1.8	1.7	5.0
12	8.1	17.0	12.7	16.2	12.7	4.6	4.6	1.8	1.8	1.8	1.7	4.9
13	8.1	13.1	12.7	16.2	12.7	4.6	3.5	1.4	1.8	1.8	2.4	5.0
14	8.1	11.7	12.7	16.2	12.7	4.6	3.5	1.4	1.8	1.4	2.8	4.9
15	8.1	11.3	12.7	16.2	12.7	4.2	4.2	1.4	1.8	1.4	3.1	5.0
16	9.2	11.3	12.7	16.2	14.5	4.2	4.6	1.4	1.8	1.4	3.5	4.9
17	9.2	11.3	12.7	14.5	20.1	4.2	4.9	1.4	1.8	1.4	3.8	5.0
18	12.0	10.9	12.7	12.7	73.5	4.2	5.7	1.4	1.8	1.4	6.0	4.9
19	19.4	10.9	12.7	12.7	25.8	3.9	6.0	1.4	1.8	1.4	8.8	5.0
20	17.6	10.9	12.7	14.5	20.5	3.9	6.7	1.4	1.8	1.8	8.1	4.9
21	19.8	10.6	12.7	14.5	16.2	3.9	6.0	1.4	1.8	1.8	7.4	5.0
22	14.1	10.6	12.7	14.5	16.2	3.9	4.6	1.4	1.8	1.8	6.7	4.9
23	14.1	11.7	12.7	14.5	16.2	3.5	4.2	1.4	1.8	1.8	6.0	5.0
24	14.5	11.7	12.7	14.5	125	3.5	6.0	1.8	1.7	1.8	5.2	4.9
25	14.5	11.7	14.5	14.5	54.0	4.2	5.7	1.8	2.1	1.8	4.5	5.0
26	14.8	12.0	14.5	12.7	49.4	4.2	5.7	2.1	2.1	1.8	3.8	4.9
27	14.8	12.0	14.5	12.7	57.2	4.2	3.5	1.8	2.1	1.8	3.8	5.0
28	14.8	12.0	14.5	12.7	132	3.9	3.5	2.5	2.1	1.8	4.1	4.9
29	17.0	15.2	16.2	12.7	126	3.9	3.2	2.5	2.1	1.7	4.2	5.0
30	17.0		16.2	12.7	49.4	18.0	2.8	2.8	2.1	1.7	4.5	4.6
31	15.2		16.2		32.1		2.5	2.1		1.7		4.6
Sum	371.1	388.9	411.4	446.8	1,024.0	174.3	853.5	54.7	53.6	55.2	109.1	147.6

Month	Current Year 1952 Extreme Gage Feet High	Extreme Gage Feet Low	Extreme Second-Feet High Day	Extreme Second-Feet High	Extreme Second-Feet Low Day	Extreme Second-Feet Low	Average Second-Feet	Total Acre-Feet	Period Oct. 1932-1952 Acre-Feet Average	Maximum	Minimum	Acre-Feet Average 1943-1952
Jan.	2.40	2.03	21	27.9	♀ 1	7.4	12.0	736	2,436	15,990	375	1,481
Feb.	2.26	2.13	3	18.7	♀21	10.6	13.4	771	1,616	9,990	179	1,353
Mar.	2.23	2.17	♀29	16.2	♀ 1	12.7	13.3	816	1,395	6,910	206	1,080
Apr.	2.23	2.17	♀ 1	16.3	♀18	12.7	14.9	886	1,665	7,510	195	1,428
May	6.40	2.17	24	1,270	♀ 4	12.7	33.0	2,030	3,787	23,850	494	2,822
June	3.87	2.30	30	226	♀23	3.5	5.8	346	2,901	19,730	270	1,602
July	5.77	2.17	9	982	♀ 6	1.8	27.5	1,690	2,019	9,740	106	1,481
Aug.	2.17	2.07	30	2.8	♀13	1.4	1.8	108	* 2,360	* 20,830	77.8	2,570
Sept.	2.17	2.07	♀25	2.1	♀ 5	1.4	1.8	106	2,477	16,000	57.5	2,912
Oct.	2.17	2.17	♀ 1	2.1	♀14	1.4	1.8	109	3,446	39,790	109	1,623
Nov.	2.30	2.17	19	8.8	♀ 1	1.7	3.6	216	2,175	25,590	101	982
Dec.	2.33	2.26	♀10	5.0	♀ 1	4.2	4.8	293	2,223	20,720	260	1,022
Yearly	6.40	2.03		1,270		1.4	11.2	8,107	28,500	60,241	7,969	20,356

* Partly estimated ♀ And other days ⊕ October 1932-1952 ♂ Various days of the year

RIO GRANDE AT SAN ANTONIO CROSSING NEAR VILLA GUERRERO, COAHUILA

DESCRIPTION: Temporary water-stage recorder located at San Antonio Crossing, which is 5.0 miles northeast of Villa Guerrero, Coahuila, 34.6 river miles below Eagle Pass, Texas and Piedras Negras, Coahuila, and 789.2 river miles below the American Dam at El Paso, Texas. The zero of the gage used during March, April, and May was 579.52 feet and the zero of the gage used during October, November, and December was 581.53 feet, both above mean sea level, U.S.C. & G.S. datum.

RECORDS: Based on 45 meter measurements during the year, 39 by the Mexican and 6 by the United States Section of this Commission, by wading during low flow and by boat during medium flow, and a continuous record of gage heights during the periods of low and medium flows. Computations by shifting channel methods. Records available: March, April, May, October, November, and December 1952, with some days missing.

REMARKS: This station was installed for temporary use in connection with a loss and gain study made on the Rio Grande between Jiménez station and this station. Operation was resumed in October and continued during periods of low and medium flows through December 1952.

Mean Daily Discharge in Second-Feet 1952 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1			*1,020	971	1,700						590	1,020
2			1,020	883	1,760						600	950
3			1,010	798	1,380					388	646	929
4			1,010	802	1,050					706	625	856
5			957	720	925					982	579	869
6			904	735	848					1,010	583	816
7			876	788	759					911	586	851
8			904	689	685					791	590	855
9			957	622	650					791	643	890
10			* 932	551	576					727	749	812
11			* 908	579	636					675	770	784
12			* 883	625	590					696	770	777
13			* 858	636	544					696	734	735
14			819	611	498					675	667	749
15			809	579	473					643	653	780
16			809	526						565	738	830
17			819	484						554	777	802
18			770	491						547	798	770
19			756	706						537	780	777
20			727	812						512	763	763
21			696	657	1,330					593	745	869
22			682	780	1,120					519	745	883
23			667		946					530	731	826
24			703		1,030					537	844	848
25			720							537	900	851
26			639							537	823	872
27			657							625	819	879
28			798	1,030						604	872	865
29			932	893						565	1,010	968
30			1,010	911						614	1,040	1,220
31			992							636		1,090
Sum			26,244								22,170	26,816

Month	Current Year 1952							Period		
	Extreme Gage Feet		Extreme Second-Feet			Average Second-Feet	Total Acre-Feet	Acre-Feet		
	High	Low	High Day	High	Low Day	Low		Average	Maximum	Minimum
Jan.										
Feb.										
Mar.	4.95	4.23	2	1,060	26	636	847	52,050			
Apr.										
May										
June										
July										
Aug.										
Sept.										
Oct.										
Nov.	2.85	2.00	29	1,070	5	561	739	43,970			
Dec.	3.31	2.33	30	1,330	13	717	865	53,190			
Yearly										

* Partly estimated

RIO GRANDE AT LAREDO, TEXAS

DESCRIPTION: Water-stage recorder and cable with stand-up cable car. The recorder is located on the downstream side of the first pier from the Mexican end of the railroad bridge between Laredo, Texas and Nuevo Laredo, Tamaulipas, 884.3 river miles below the American Dam at El Paso, Texas. The cable is located 1.4 miles upstream from the railroad bridge. The zeros of the gages at the recorder and at the cable are 351.51 feet and 352.89 feet, respectively, above mean sea level, U.S.C. & G.S. datum.

RECORDS: Based on 166 meter measurements during the year, 155 by the Mexican and 11 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; January 1923 through December 1952. Gage-height records are available for January, February, and March 1914.

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

EXTREME FLOWS FROM RECORDS: The greatest recorded flow at this station was 335,000 second-feet, which occurred September 3, 1932, with a gage height of 52.20 feet. The lowest recorded flow was 284 second-feet, which occurred May 17, 1952, with a gage height of 3.58 feet.

Mean Daily Discharge in Second-Feet 1952 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,100	911	1,050	943	812	3,370	1,370	1,920	636	442	512	946
2	1,130	918	992	901	968	3,530	1,550	1,840	586	442	575	978
3	1,100	929	915	837	1,820	2,630	1,370	1,760	569	441	565	953
4	1,070	897	908	752	1,430	2,200	2,400	1,630	579	413	579	897
5	1,160	918	897	696	1,130	2,140	4,800	1,530	516	385	607	869
6	1,130	978	925	678	936	3,600	3,960	1,390	470	420	586	844
7	1,110	840	876	639	752	2,670	3,000	1,280	480	653	515	851
8	1,080	894	851	625	717	1,620	2,550	1,180	505	763	526	858
9	1,090	894	823	657	618	1,280	7,630	1,110	459	727	547	865
10	1,070	890	798	600	569	1,300	6,640	992	445	667	1,940	795
11	1,060	851	837	561	541	1,060	2,700	939	452	618	1,190	788
12	1,060	897	833	537	477	890	1,990	900	459	618	763	720
13	1,070	901	855	547	378	844	9,080	925	484	569	766	717
14	1,010	812	798	565	374	780	4,660	858	505	547	724	745
15	1,060	802	756	501	343	710	4,840	749	795	576	682	689
16	1,110	788	682	456	364	622	8,300	671	657	572	660	727
17	1,060	812	678	445	336	537	11,370	643	593	547	618	773
18	1,090	802	675	431	848	526	14,760	593	561	516	674	819
19	1,100	848	664	417	3,810	1,660	16,840	579	579	491	731	809
20	1,100	1,040	653	448	1,780	1,430	14,620	565	554	484	699	742
21	1,150	1,120	629	554	1,320	1,270	8,440	537	572	459	692	763
22	1,130	869	600	618	1,630	1,200	6,360	512	530	431	685	756
23	1,080	911	561	540	1,060	1,330	6,750	487	491	459	720	886
24	1,070	869	547	2,860	1,120	985	5,860	477	473	470	735	925
25	1,070	943	558	2,510	1,070	837	4,480	470	452	456	674	883
26	1,030	1,010	569	1,660	2,900	763	4,340	519	431	473	703	872
27	1,020	1,310	576	1,320	3,710	590	3,340	628	434	473	734	893
28	982	1,730	614	1,110	6,710	685	2,900	628	434	480	738	922
29	996	1,450	682	1,060	23,660	717	2,870	628	438	501	766	918
30	1,010		763	939	7,660	848	2,430	671	438	512	830	978
31	954		883		4,950		2,050	664		484		1,150
Sum	33,252	27,834	23,448	25,407	74,793	42,624	174,250	28,275	15,577	16,089	21,736	26,331

Current Year 1952 — **Period 1924-1952**

Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			Acre-Feet
			High		Low				Average	Maximum	Minimum	Average 1943-1952
	High	Low	Day		Day							
Jan.	4.40	4.20	6	1,170	31	925	1,070	65,960	171,086	351,700	65,960	140,418
Feb.	5.34	4.07	20	3,000	18	763	960	55,210	152,965	423,700	55,210	150,395
Mar.	4.43	3.84	1	1,270	24	547	756	46,500	142,501	223,400	46,500	124,850
Apr.	5.94	3.74	24	4,520	18	410	847	50,390	139,534	316,300	50,390	124,805
May	13.12	3.58	29	32,770	17	284	2,410	148,400	259,321	856,000	68,300	186,984
June	5.87	3.71	6	4,200	27	473	1,420	84,540	292,741	1,357,000	46,850	269,839
July	9.25	4.23	19	17,020	4	1,050	5,620	345,600	280,321	1,250,000	70,210	259,396
Aug.	4.92	3.48	1	1,920	23	452	912	56,080	276,122	883,000	56,080	197,541
Sept.	4.04	3.41	15	855	30	420	519	30,900	543,481	2,943,000	30,900	250,564
Oct.	3.94	3.38	8	788	6	371	519	31,910	432,443	1,951,000	31,910	273,287
Nov.	5.48	3.54	10	3,160	1	480	725	43,110	199,269	570,800	43,110	133,933
Dec.	4.40	3.90	31	1,230	15	689	849	52,230	171,333	352,700	52,230	124,369
Yearly	13.12	3.38		32,770		284	1,390	1,010,830	3,061,117	7,017,110	1,010,830	2,236,381

RIO SALADO AT CD. GUERRERO, TAMAULIPAS

DESCRIPTION: Water-stage recorder and cable with sit-down cable car and two reinforced concrete Cipoletti weirs with a combined capacity of 636 second-feet, located at a place called "El Cable," about 6.2 miles above the confluence of the Río Salado with the Rio Grande and 2 miles southwest of Cd. Guerrero, Tamaulipas. This stream enters the Rio Grande 946.1 river miles below the American Dam at El Paso, Texas. The zero of the gage is 265.75 feet above mean sea level, U.S.C. & G.S. datum.

RECORDS: Based on 7 meter measurements during the year, the weir discharge curve, and a continuous record of gage heights. Computations by shifting channel methods for flows greater than 636 second-feet. Records available: 1900-1913 and 1923 through December 1952.

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

EXTREME FLOWS FROM RECORDS: Momentary: 43,800 second-feet on September 7, 1933, with a gage height of 18.86 feet. Min. occasionally no flow.

Average Flow in Second-Feet

Daily:	Max.	35,070	Sept. 7, 1933	Min.	0	occasionally
Monthly:	Max.	10,950	Oct. 1932	Min.	0	several months 1940 & 1952
Yearly:	Max.	1,850	1932	Min.	34.6	1952

Mean Daily Discharge in Second-Feet 1952 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	11.3	5.3	0	0	0	169	0	0	0	3.9	0	0
2	11.3	5.3	0	0	0	88.3	0	0	0	3.8	0	0
3	11.3	5.3	0	0	0	54.4	0	0	0	3.8	0	0
4	12.7	5.3	0	0	0	28.6	0	0	0	1.4	0	0
5	14.5	5.3	0	0	0	35.0	0	0	0	.7	0	0
6	16.2	5.3	0	0	0	195	0	0	0	.7	0	0
7	14.5	1.4	0	0	0	69.2	0	0	0	0	0	0
8	12.7	1.4	0	0	0	33.2	0	0	0	0	0	0
9	12.7	1.4	0	0	0	35.7	0	0	0	0	0	0
10	12.7	.7	0	0	0	81.2	0	0	0	0	0	0
11	12.7	.7	0	0	0	124	0	0	0	0	0	0
12	12.7	.7	0	0	0	48.7	0	0	0	0	0	0
13	11.3	.7	0	0	0	26.5	13.4	0	0	0	0	0
14	11.3	0	0	0	0	14.5	57.2	0	0	0	0	0
15	11.3	0	0	0	0	6.7	35.7	0	0	0	0	0
16	11.3	0	0	0	0	5.3	18.4	0	105	0	0	0
17	12.7	0	0	0	0	3.9	12.7	0	60.7	0	0	0
18	11.3	0	0	0	0	3.9	8.5	0	24.4	0	0	0
19	11.3	0	0	0	0	1.4	6.7	0	12.7	0	0	0
20	9.9	0	0	0	0	.7	5.3	0	8.5	0	0	0
21	9.9	0	0	0	0	0	3.9	0	5.3	0	0	0
22	9.9	0	0	0	0	0	2.8	0	32.5	0	0	0
23	8.5	0	0	0	0	0	1.4	0	2,560	0	0	0
24	8.5	0	0	0	0	0	1.4	0	699	0	0	0
25	8.5	0	0	0	0	0	.7	0	148	0	0	0
26	6.7	0	0	0	0	0	0	0	48.7	0	0	0
27	6.7	0	0	0	129	0	0	0	22.2	0	0	0
28	8.5	0	0	0	2,430	0	0	0	12.7	0	0	0
29	8.5	0	0	0	2,730	0	0	0	8.4	0	0	0
30	6.7		0	0	1,640	0	0	0	5.3	0	0	0
31	6.7		0		410		0	0		0		0
Sum	334.8	38.8	0	0	7,339	1,025.2	168.1	0	3,753.4	14.3	0	0

Month	Current Year 1952 Extreme Gage Feet High	Extreme Gage Feet Low	Extreme Second-Feet High Day	Extreme Second-Feet High	Extreme Second-Feet Low Day	Extreme Second-Feet Low	Average Second-Feet	Total Acre-Feet	Period 1924-1952 Acre-Feet Average	Maximum	Minimum	Average 1943-1952
Jan.	1.71	1.51	6	16.2	‡25	6.7	10.8	664	13,056	144,110	0	2,108
Feb.	1.48		‡ 1	5.3	‡14	0	1.3	77.0	9,149	98,520	0	1,433
Mar.					‡ 1	0	0	0	9,688	95,740	0	2,513
Apr.					‡ 1	0	0	0	13,240	82,660	0	12,613
May	7.41		28	3,510	‡ 1	0	237	14,560	40,996	* 253,000	3,200	31,201
June	5.09		6	918	‡21	0	34.2	2,030	36,065	192,000	1,620	24,852
July	2.33		14	62.9	‡ 1	0	5.4	333	17,671	100,000	228	8,574
Aug.					‡ 1	0	0	0	28,715	260,180	0	48,865
Sept.	7.61		23	3,850	‡ 1	0	125	7,440	85,401	600,000	3,310	60,724
Oct.	1.44		‡ 1	3.9	‡ 7	0	.5	28.4	61,712	673,070	28.4	27,960
Nov.					‡ 1	0	0	0	20,433	248,590	0	3,894
Dec.					‡ 1	0	0	0	14,432	198,160	0	2,487
Yearly	7.61			3,850		0	34.6	25,132.4	350,558	1,350,300	25,132.4	227,224

* Partly estimated ‡ And other days

RIO GRANDE NEAR ZAPATA, TEXAS

DESCRIPTION: Water-stage recorder and cable with stand-up cable car equipped for winch and heavy weights, located about 3 miles below the town of Zapata, Texas, 7.5 miles northeast of Guerrero, Tamaulipas, 1.4 river miles below the confluence of the Río Salado with the Rio Grande, and 947.5 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 56 meter measurements during the year and a continuous record of gage heights. Computations by shifting channel methods. Records available: January 1932 through December 1952.

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

EXTREME FLOWS FROM RECORDS: The greatest recorded flow was 261,000 second-feet, which occurred September 4, 1932, with a gage height of 262.07 feet. The lowest recorded flow was ϕ* 291 second-feet, which occurred October 4, 1952, with an estimated gage height of 218.60 feet.

Mean Daily Discharge in Second-Feet 1952 —— Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,050	950	1,380	750	1,000	▪ 3,710	472	2,060	679	* 365	464	797
2	1,060	912	1,140	806	851	* 3,500	1,060	1,780	661	* 330	460	900
3	1,080	939	1,010	800	778	3,290	1,350	1,700	562	* 350	493	978
4	1,070	930	922	776	1,660	2,530	1,370	1,650	502	* 291	577	970
5	1,100	892	871	700	1,510	2,110	2,460	1,560	500	* 332	495	895
6	1,120	890	856	627	1,150	5,690	4,660	1,480	486	* 327	498	851
7	1,150	862	850	605	867	4,170	3,740	1,360	479	334	530	824
8	1,100	870	863	548	705	3,190	2,870	1,240	447	444	505	836
9	1,050	861	838	508	580	1,850	3,790	1,170	441	690	481	827
10	1,010	870	796	542	515	1,440	10,300	1,100	426	717	481	800
11	990	870	746	539	429	1,460	5,740	987	407	660	1,360	775
12	953	838	759	500	406	1,200	2,640	892	408	615	1,250	757
13	976	833	709	448	395	988	4,440	808	408	633	894	732
14	1,030	838	703	432	* 373	848	6,800	771	412	575	730	689
15	1,010	807	697	467	▪ 355	735	4,090	743	813	501	683	699
16	990	757	632	460	▪ 339	628	* 5,880	691	703	494	671	689
17	1,050	743	643	446	▪ 326	524	▪ 9,150	632	919	498	643	656
18	1,020	766	588	428	▪ 308	482	▪ 12,600	614	626	488	587	672
19	1,050	744	503	435	* 461	463	▪ 15,900	572	1,390	475	554	714
20	1,090	697	533	442	3,160	1,110	▪ 15,900	503	723	465	617	721
21	1,110	782	525	436	1,870	1,320	* 11,000	484	530	452	600	696
22	1,100	1,180	524	468	1,220	1,210	6,870	473	489	431	616	712
23	1,090	820	517	747	1,610	1,080	5,270	446	4,360	445	615	691
24	1,100	835	524	678	1,320	1,180	6,590	424	* 1,490	394	624	730
25	1,050	914	487	2,440	1,400	958	4,820	421	* 606	411	640	814
26	1,040	891	445	2,520	1,330	769	4,000	424	423	419	608	809
27	1,040	937	437	1,730	3,310	603	3,880	426	* 385	417	600	787
28	1,000	1,110	516	1,410	*12,800	475	3,260	477	* 360	436	761	801
29	952	1,600	570	1,230	▪20,500	489	* 2,770	540	* 363	422	778	852
30	932		563	1,120	▪14,900	761	* 2,640	510	* 376	422	779	871
31	960		619		▪ 6,680		* 2,440	596		455		852
Sum	32,323	25,938	21,766	24,038	*83,108	48,763	*168,752	27,534	21,374	14,288	19,594	24,397

Month	Current Year 1952 Extreme Gage Feet High	Extreme Gage Feet Low	Extreme Second-Feet High Day	Extreme Second-Feet High	Extreme Second-Feet Low Day	Extreme Second-Feet Low	Average Second-Feet	Total Acre-Feet	Period 1932-1952 Acre-Feet Average	Acre-Feet Maximum	Acre-Feet Minimum	Acre-Feet Average 1943-1952
Jan.	219.92	219.66	7	1,170	30	922	1,040	64,100	178,312	* 484,450	64,100	116,980
Feb.	220.35	219.43	29	1,720	20	688	894	51,400	161,470	399,000	51,400	150,670
Mar.	220.17	219.04	1	1,500	27	423	702	43,200	157,680	292,000	43,200	131,720
Apr.	221.26	218.93	25	3,880	14	405	801	47,700	162,085	662,000	47,700	168,460
May	▪228.90	▪218.60	29	▪ 34,600	19	▪ 292	*2,680	* 165,000	297,935	682,000	81,800	250,870
June	222.70	218.95	6	8,680	29	405	1,630	96,700	342,579	1,517,000	59,000	300,070
July	*224.60	219.09	19	* 16,500	1	433	*5,440	* 335,000	330,186	1,238,000	67,900	270,520
Aug.	220.62	218.87	1	2,280	25	415	888	54,600	296,050	* 721,000	54,600	*259,070
Sept.	222.32		23	7,150	28	ϕ* 360	712	42,400	685,475	2,895,330	42,400	*338,980
Oct.	219.41		10	734	4	ϕ* 291	461	28,300	524,145	2,396,440	28,300	318,930
Nov.	220.55		11	2,070	2	450	653	38,900	214,407	748,020	38,900	141,400
Dec.	219.73	219.33	3	998	17	648	787	48,400	181,636	591,380	48,400	131,020
Yearly	▪228.90			▪ 34,600		ϕ* 291	1,400	1,015,700	3,531,960	8,038,070	1,015,700	2,578,690

▪ Estimated * Partly estimated ϕ Mean daily

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 3.1 miles above the confluence of the Río Alamo with the Río Grande and .6 mile west of Cd. Mier, Tamaulipas, at a point called "El Paso del Cántaro." This stream enters the Río Grande 984.6 river miles below the American Dam at El Paso, Texas. On June 11, 1952, the recorder was moved from a point 230 feet above a new highway bridge to a point 285 feet below the bridge and 312 feet above the weir. The zero of the gage was raised from 187.04 feet to 188.35 feet, U.S.C. & G.S. sea level datum, to coincide with the weir crest.

RECORDS: Based on 2 meter measurements 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 1952.

REMARKS: Small reservoirs and irrigation diversions modify the flow of this spring-fed stream at this station.

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 have 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.	505	1944	Min.	16.4	1929

Mean Daily Discharge in Second-Feet 1952 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	2.5	0	0	0	0	4.2	0	0	0	6.0	0	0
2	2.5	0	0	0	0	4.2	0	0	0	4.2	0	0
3	1.1	0	0	0	0	2.5	0	0	0	4.2	0	0
4	1.1	0	0	0	0	2.5	0	0	0	2.5	0	0
5	1.1	0	0	0	0	1.1	0	0	0	1.1	0	0
6	1.1	0	0	0	0	0	0	0	0	0	0	0
7	1.1	0	0	0	0	0	0	0	0	0	0	0
8	1.1	0	0	0	0	0	0	0	0	0	0	0
9	1.0	0	0	0	0	1,800	0	0	0	0	0	0
10	1.0	0	0	0	0	759	0	0	0	0	0	0
11	1.0	0	0	0	0	158	0	0	0	0	0	0
12	1.0	0	0	0	0	675	0	0	0	0	0	0
13	1.0	0	0	0	0	172	0	0	0	0	0	0
14	2.5	0	0	0	0	33.9	0	0	0	0	0	0
15	2.5	0	0	0	0	15.9	0	0	0	0	0	0
16	1.1	0	0	0	0	10.6	0	0	0	0	0	0
17	1.0	0	0	0	0	6.0	0	0	0	0	0	0
18	0	0	0	0	0	6.0	0	0	0	0	0	0
19	0	0	0	0	0	6.0	0	0	0	0	0	0
20	0	0	0	0	0	6.0	0	0	0	0	0	0
21	0	0	0	0	0	59.7	0	0	0	0	0	0
22	0	0	0	0	0	15.9	0	0	0	0	0	0
23	0	0	0	0	0	6.0	0	0	0	0	0	0
24	0	0	0	0	18.0	4.2	0	0	* 241	0	0	0
25	0	0	0	0	5,540	0	0	0	67.1	0	0	0
26	0	0	0	0	1,340	0	0	0	33.9	0	0	0
27	0	0	0	0	63.2	0	0	0	18.8	0	0	0
28	0	0	0	0	27.9	0	0	0	13.1	0	0	0
29	0	0	0	0	15.9	0	0	0	8.1	0	0	0
30	0		0	0	10.6	0	0	0	6.0	0	0	0
31	0		0		6.0		0	0		0		0
Sum	23.7	0	0	0	7,021.6	3,748.7	0	0	* 388.0	18.0	0	0

Month	Current Year 1952 Extreme Gage Feet High	Low	Extreme Second-Feet High Day	High	Low Day	Low	Average Second-Feet	Total Acre-Feet	Period 1924-1952 Acre-Feet Average	Maximum	Minimum	Average Acre-Feet 1943-1952
Jan.	.07		‡ 1	2.5	‡18	0	.8	47.0	4,336	34,920	0	1,738
Feb.					‡ 1	0	0	0	3,067	25,550	0	1,026
Mar.					‡ 1	0	0	0	3,096	19,830	0	1,875
Apr.					‡ 1	0	0	0	6,722	33,990	0	6,084
May	11.91		25	8,930	‡ 1	0	227	13,930	15,485	* 137,000	209	10,763
June	5.25		9	3,570	‡ 6	0	125	7,440	14,452	83,240	0	9,018
July					‡ 1	0	0	0	7,416	37,590	0	2,677
Aug.					‡ 1	0	0	0	15,150	194,200	0	27,362
Sept.	* 2.36		24	* 653	‡ 1	0	* 12.9	* 770	37,674	307,900	* 135	54,985
Oct.	.13		1	6.0	‡ 6	0	.6	35.7	14,026	51,620	0	11,475
Nov.					‡ 1	0	0	0	3,608	21,940	0	1,800
Dec.					‡ 1	0	0	0	3,615	15,000	0	1,506
Yearly	11.91			8,930		0	30.6	22,222.7	128,647	366,826	11,908.7	130,309

* Estimated * Partly estimated ‡ And other days

RIO GRANDE AT ROMA, TEXAS

DESCRIPTION: Water-stage recorder at the international bridge between Roma, Texas and Cd. Miguel Alemán (formerly San Pedro), Tamaulipas, 14.9 river miles above the confluence of the Río San Juan from Mexico, and 992.0 river miles below the American Dam at El Paso, Texas. Measurements are made from the bridge. The zero of the gage was lowered 3.28 feet on January 1, 1952 and is now 142.65 feet above mean sea level, U.S.C & G.S. datum.

RECORDS: Based on 172 meter measurements during the year, 159 by the Mexican and 13 by the United States Section of this Commission, and a continuous record of gage heights. Computations by shifting channel methods. Records available: May 1900 and September 1900 through December 1913; October 1914; September and October 1917; September and October 1919; August and September 1920; June 1922 and November 1922 through December 1952.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station. Backwater from the Río San Juan sometimes reaches this station. On December 29, 1952, the river channel at Falcón Dam, 21 miles upstream from this station, was closed and flow was diverted through the Mexican penstock, a few feet above river level.

EXTREME FLOWS FROM RECORDS: The greatest recorded flow was 203,000 second-feet, which occurred September 5, 1932, with a gage height of 35.4 feet. The lowest recorded flow was 124 second-feet, which occurred December 30, 1952, with a gage height of .92 foot.

Mean Daily Discharge in Second-Feet 1952 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	985	886	1,490	622	908	5,610	731	2,160	477	337	374	742
2	985	897	1,280	731	833	3,530	463	1,890	551	292	399	752
3	1,010	883	1,050	752	692	3,470	805	1,730	600	262	381	837
4	1,030	894	893	728	667	2,990	1,240	1,650	526	251	413	901
5	1,030	915	791	703	1,550	2,410	1,430	1,570	456	239	526	862
6	1,090	855	756	653	1,350	5,190	3,340	1,470	434	243	501	795
7	1,120	855	763	608	1,020	5,860	4,200	1,320	438	263	441	738
8	1,150	830	780	576	759	4,030	3,110	1,190	381	250	480	703
9	1,090	837	819	544	618	4,480	2,510	1,080	417	262	480	731
10	1,050	841	795	519	540	3,030	7,450	1,040	385	622	445	735
11	996	848	682	533	501	1,730	7,560	992	396	650	445	759
12	999	809	720	523	427	2,190	3,810	883	345	611	1,180	756
13	1,000	795	724	470	385	1,460	2,400	777	332	561	1,060	720
14	1,000	802	749	424	357	999	7,200	731	338	590	777	710
15	1,030	809	724	406	332	833	5,120	749	364	579	664	653
16	1,070	763	696	420	262	685	4,030	699	1,080	498	646	650
17	1,030	759	625	431	248	590	7,910	632	668	396	622	650
18	1,050	759	618	392	233	487	10,740	569	795	420	600	650
19	1,020	759	590	396	219	427	14,550	561	696	424	544	671
20	1,050	738	565	420	727	374	16,320	537	1,300	413	526	653
21	1,070	699	576	410	2,380	883	13,950	491	724	396	561	685
22	1,090	798	530	371	1,500	1,280	8,260	466	505	385	569	646
23	1,080	1,090	484	367	1,170	1,110	6,570	431	1,750	360	593	625
24	1,050	844	494	512	1,550	978	6,710	413	3,200	322	597	650
25	1,030	858	466	576	9,570	1,080	6,320	378	1,200	325	604	657
26	1,010	918	441	2,350	3,740	855	4,700	371	682	329	607	759
27	1,020	848	466	1,990	1,430	639	4,480	360	484	378	614	759
28	978	876	487	1,430	11,650	625	3,780	360	399	357	643	763
29	946	1,080	537	1,200	13,280	551	2,970	392	338	381	745	763
30	865		583	1,050	23,980	519	2,780	491	307	378	780	249
31	876		586		8,120		2,540	477		346		558
Sum	31,850	24,545	21,760	21,107	90,998	58,895	167,979	26,860	20,568	12,120	17,817	21,782

Current Year 1952 — **Period 1924-1952**

Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			Acre-Feet
			High		Low				Average	Maximum	Minimum	Average 1943-1952
	High	Low	Day		Day							
Jan.	2.69	2.33	8	1,150	31	851	1,030	63,170	194,611	467,400	63,170	143,123
Feb.	3.08	2.03	29	1,570	21	678	846	48,690	170,503	402,000	48,690	149,406
Mar.	3.12	1.61	1	1,590	26	441	702	43,160	166,787	325,500	43,160	132,576
Apr.	4.20	1.44	26	3,030	22	357	704	41,870	180,430	855,700	41,870	189,504
May	14.17	1.15	30	31,710	20	211	2,940	180,500	339,499	706,300	91,320	270,142
June	7.15	1.61	6	8,020	21	364	1,960	116,800	369,594	1,586,000	53,990	308,479
July	10.14	1.74	20	16,320	2	413	5,420	333,200	325,036	1,217,000	54,020	270,642
Aug.	3.77	1.51	1	2,330	‡27	360	866	53,280	326,546	¤ 904,000	53,280	281,732
Sept.	5.51	1.41	23	4,940	30	307	686	40,800	683,819	3,048,000	40,800	411,350
Oct.	2.03	1.28	11	671	4	235	391	24,040	527,204	3,372,000	24,040	333,074
Nov.	3.12	1.38	12	1,530	1	282	594	35,340	227,612	736,000	35,340	141,690
Dec.	2.43	.92	4	901	30	124	703	43,200	193,790	565,100	43,200	129,332
Yearly	14.17	.92		31,710		124	1,410	1,024,050	3,705,431	8,098,000	1,024,050	2,761,050

¤ Estimated ‡ And other days

RIO GRANDE NEAR RIO GRANDE CITY, TEXAS

DESCRIPTION: Water-stage recorder and cable with stand-up cable car equipped for winch and heavy weights, located about 4 river miles below Rio Grande City, Texas, 3.7 miles northeast of Camargo, Tamaulipas, 7.9 river miles below the confluence of the Río San Juan with the Rio Grande and 1,015.3 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 130 meter measurements during the year, 122 by the United States and 8 by the Mexican Section of this Commission, and a continuous record of gage heights. Computations by shifting channel methods. Records available: 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; January 1924 through December 1952.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station. On December 29, 1952, the river channel at Falcón Dam, 44 miles upstream from this station, was closed and flow was diverted through the Mexican penstock, a few feet above river level.

EXTREME FLOWS FROM RECORD: The greatest recorded flow was 198,800 second-feet, which occurred September 5, 1932, with a gage height of 157.4 feet. The lowest recorded flow was 195 second-feet, which occurred May 20, 1952, with a gage height of 121.13 feet.

Mean Daily Discharge in Second-Feet 1952 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,080	888	1,230	562	910	6,270	533	2,350	469	330	400	801
2	1,070	900	1,260	624	829	4,130	544 *	2,070	512	329	428	800
3	1,030	881	1,100	744	728	3,360 #	425 *	1,900	549	314	444	831
4	1,040	864	891	750	619	3,230 #	890 *	1,770	527	295	453	923
5	1,040	878	813	748	972	2,540 #	1,170	1,660	470	281	496	932
6	1,070	857	743	725	1,450	4,600	2,240	1,590	437	271	580	882
7	1,100	836	726	627	1,060	6,570	4,430	1,390	470	268	510	840
8	1,130	808	* 743	571	854	4,470	3,610	1,330	458	271	520	805
9	1,130	804	* 771	553	656	3,800	2,960	1,160	458	260	542	786
10	1,090	825	* 726	530	561	3,860	4,630	1,130	394	333	525	778
11	1,060	825	698	507	505	2,250	8,500	1,060	380	553	503	749
12	1,040	790	667	504	465	2,010	5,460	980	390	605	750	752
13	1,000	746	667	501	372	2,010	2,930	855	371	576	1,280	725
14	980	749	672	426	330	1,240	4,230	744	372	521	966	728
15	1,040	776	636	372	304	938	6,000	660	387	539	784	701
16	1,090	760	677	365	260	749	4,210	606	894	496	738	685
17	1,010	736	636	419	226	606	5,660	581	974	440	715	693
18	989	701	597	436	244	492	9,400	583	875	430	696	667
19	1,000	685	588	424	224	425	13,000	555	730	443	674	664
20	998	675	542	427	212	391	15,300	537	1,220	433	605	689
21	1,030	660	508	411	1,870	525	14,800	474	1,070	410	582	719
22	1,020	656	503	365	1,820	1,300	9,590	409	577	413	630	716
23	1,010	874	491	343	1,150	1,190	6,960	407	543	382	644	679
24	994	868	470	340	1,350	1,000	6,110	421	3,390	347	648	696
25	1,010	804	455	548	6,570	# 922	6,490	424	2,130	360	643	* 702
26	984	815	440	1,140	6,320	# 917	5,100	398	961	373	646	* 764
27	962	778	425	* 2,270	2,060	# 777	4,400	400	610	402	654	* 824
28	931	798	403	1,600	5,980	# 663	3,910	396	463	427	680	* 816
29	916	851	440	1,250	11,100	# 594	3,160	382	380	437	712	* 813
30	876		495	1,030	22,600	# 463	2,770	423	343	432	803	* 706
31	872		534		10,700		2,650	490		410		* 355
Sum	31,592	23,088	20,547	20,112	83,301	62,292	162,062	28,135	21,804	12,381	19,251	23,221

Current Year 1952									Period 1924-1952			
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			Acre-Feet Average 1943-1952
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum	
Jan.	123.37	122.85	‡ 8	1,140	31	860	1,020	62,700	227,854	521,000	62,700	160,670
Feb.	123.30	122.45	23	1,020	22	642	796	45,800	192,038	410,000	45,800	159,510
Mar.	123.87	121.87	1	1,360	28	389	663	40,800	186,020	401,000	40,800	139,980
Apr.	*125.35	121.65	27	2,480	24	316	670	39,900	196,397 *	850,000	39,900	*195,480
May	136.21	121.13	30	26,500	20	195	2,690	165,000	388,724	833,000	98,900	285,890
June	129.17	121.95	6	7,090	21	329	2,080	124,000	465,045	1,737,000	74,500	317,550
July	132.82	121.87	20	15,500	# 3	367	5,230	321,000	394,314	1,240,000	60,600	276,160
Aug.	124.68	121.61	1	2,460	29	375	908	55,800	387,978	1,280,000	55,800	330,840
Sept.	126.30	121.60	24	3,980	30	320	727	43,200	893,306	3,723,800	43,200	514,060
Oct.	122.26	121.38	12	621	9	252	399	24,600	674,338	2,852,270	24,600	420,960
Nov.	123.52	121.67	13	1,420	1	388	642	38,200	275,107	829,260	38,200	161,660
Dec.	122.86	*121.36	4	952	31	* 280	749	46,100	229,181	625,260	46,100	136,620
Yearly	136.21	121.13		26,500		195	1,390	1,007,100	4,510,302	9,554,530	1,007,100	3,099,380

Estimated * Partly estimated ‡ And other days

CONTRIBUTIONS FROM RIO SAN JUAN

DESCRIPTION: The discharges reported below entered the Rio Grande between the gaging stations at Roma and Below Anzalduas Damsite via various irrigation canals and the Río San Juan channel. The confluence of the Río San Juan and the Rio Grande is 1,006.4 river miles below the American Dam at El Paso, Texas and 12.4 river miles below Marte Gómez Reservoir on the Río San Juan.

RECORDS: Based on meter measurements and weir discharges. Records furnished by the Ministry of Hydraulic Resources of Mexico. Records available: March 10, 1943 through December 1952.

REMARKS: The second tabulation below includes 43,200 acre-feet of water used to supplement irrigation of United States lands in the Lower Rio Grande Valley. This water was released during March, May, and September from Marte Gómez Reservoir on the Río San Juan, 12.4 river miles above its confluence with the Rio Grande. The zero of the reservoir gage is 7.64 feet above mean sea level, U.S.C. & G.S. datum. No water passed over the spillway in 1952. Under this reservoir, in the Lower San Juan Irrigation District in Mexico, 175,400 acres of land were irrigated in 1952, on a part of which two crops per year were grown. Neither the water used for irrigation nor the water which reached the Rio Grande from drains is included in these tables.

Above Rio Grande City Station

These amounts of water consist of small seepage through the bank near the reservoir dam and waste from canals of the first unit of the Irrigation District.

Month	Current Year 1952								Period 1946-1952 ##		
	Extreme Gage Feet ⊕		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
			High		Low						
	High	Low	Day		Day				Average	Maximum	Minimum
Jan.	249.51	248.33					3.5	217	5,146	33,680	217
Feb.	248.16	244.42					3.5	203	3,370	20,920	196
Mar.	244.36	242.72					3.5	217	1,321	7,390	217
Apr.	242.72	239.37					3.2	189	1,504	6,320	189
May	239.27	236.81					3.2	195	16,472	112,700	195
June	239.30	236.91					3.2	189	507	859	189
July	238.06	237.11					3.2	195	450	722	195
Aug.	237.11	234.78					3.2	195	12,731	86,850	195
Sept.	234.71	233.86					3.2	189	32,643	203,800	189
Oct.	233.99	232.84					3.2	195	27,816	192,600	195
Nov.	232.81	232.48					2.8	168	10,510	71,940	168
Dec.	232.48	232.22					2.8	173	1,076	5,910	173
Yearly	249.51	232.22					3.2	2,325	113,546	478,965	2,325

Below Rio Grande City Station

The amounts of water shown below for 1952 reached the Rio Grande through canals of the second unit of the Irrigation District and include water released from Marte Gómez Reservoir for use in the United States.

Month	Current Year 1952								Period 1946-1952		
	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet		
			High		Low						
	High	Low	Day		Day				Average	Maximum	Minimum
Jan.							0	0	3,727	15,960	0
Feb.							0	0	939	2,130	0
Mar.							494	30,430	5,566	30,430	0
Apr.							0	0	11,216	37,140	0
May							57.9	3,550	6,366	18,500	0
June							0	0	4,034	11,870	0
July							0	0	3,823	18,050	0
Aug.							0	0	4,425	15,470	0
Sept.							183	10,890	2,860	10,890	0
Oct.							0	0	974	4,090	0
Nov.							0	0	957	3,360	0
Dec.							0	0	404	1,950	0
Yearly							61.8	44,870	45,291	85,680	314

⊕ Water-surface elevations in Marte Gómez Reservoir ## Records began March 10, 1943, but the period considered is 1946-1952 to make it comparable to the period of contributions from the Río San Juan below Rio Grande City

RIO GRANDE BELOW ANZALDUAS DAM SITE

DESCRIPTION: Temporary station with staff gage and a light cable for boat measurements, located .5 mile below the Headworks of the Anzaldúas Canal and Anzaldúas Damsite, 11.7 river miles above the international highway bridge between Hidalgo, Texas and Reynosa, Tamaulipas, 1,073.1 river miles below the American Dam at El Paso, Texas, and 168.3 river miles from the Gulf of Mexico. The zero of the gage is 84.51 feet above mean sea level, U.S.C. & G.S. datum.

RECORDS: Based on 140 meter measurements during the year, 130 by the Mexican and 10 by the United States Section of this Commission, wading during low flow and by boat during medium flow, and on three or more gage height readings per day from which a continuous chart was made. Computations by shifting channel methods. Records at this station began on January 1, 1952. Records available: January 1 to December 31, 1952.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station. On December 29, 1952, the river channel at Falcón Dam, 104 river miles upstream from this station, was closed and flow was diverted through the Mexican penstock, a few feet above river level.

Mean Daily Discharge in Second-Feet 1952 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	946	876	780	319	653	7,350	406	2,240	431	335	340	579
2	985	876	971	279	756	4,800	360	1,960	445	364	293	685
3	946	879	968	374	932	3,450	477	1,740	424	347	328	572
4	904	692	770	544	805	3,080	519	1,550	399	357	420	593
5	929	579	622	614	523	2,980	1,180	1,220	424	311	371	614
6	879	530	653	569	576	2,610	2,040	1,140	420	277	399	685
7	865	682	876	413	883	4,480	1,970	1,080	431	226	427	650
8	872	749	1,060	337	784	5,440	3,440	992	427	256	487	667
9	918	756	1,180	312	632	4,340	3,210	908	494	270	477	653
10	1,040	735	876	* 207	402	3,740	2,600	865	434	251	463	724
11	1,220	667	798	* 178	226	3,740	4,410	706	424	227	459	689
12	1,160	639	756	463	110	2,510	5,440	742	441	438	392	586
13	1,090	593	893	544	71.3	1,970	3,920	706	410	586	441	523
14	876	685	1,110	* 364	65.0	1,940	2,610	781	448	547	886	664
15	685	735	1,120	u 131	66.7	1,490	3,740	756	448	459	780	544
16	646	727	968	u 108	117	1,190	4,380	632	491	448	572	618
17	795	724	664	* 316	194	939	3,530	590	597	452	424	551
18	1,040	576	643	441	222	756	5,160	551	953	396	392	540
19	1,040	554	590	427	45.6	636	8,550	526	752	374	441	512
20	1,010	533	685	328	67.1	618	10,840	502	780	381	463	576
21	736	604	805	296	315	590	11,720	495	826	357	350	434
22	639	650	883	364	879	636	9,010	463	1,080	347	385	480
23	625	643	922	427	1,760	752	6,180	438	780	353	347	434
24	720	696	664	445	1,390	950	5,260	431	795	295	448	417
25	978	840	650	466	u 1,670	819	5,160	466	1,940	284	424	388
26	1,010	678	660	523	u 8,550	855	5,090	424	1,690	296	439	526
27	1,030	657	833	660	u 3,960	869	4,060	371	798	319	357	526
28	823	703	946	1,520	u 2,400	731	3,780	332	509	312	473	720
29	664	738	939	1,360	u 8,510	650	3,430	333	420	314	452	703
30	572		879	946	u11,970	509	2,560	333	392	321	480	756
31	689		650		*15,930		2,240	353		328		576
Sum	27,334	19,996	25,814	14,275	*65,464.7	65,420	127,272	24,626	19,303	10,828	13,410	18,185

Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Period Acre-Feet		
				High		Low					
	High	Low	Day		Day				Average	Maximum	Minimum
	Current Year 1952										
Jan.	3.08	2.00	11	1,220	30	512	882	54,220			
Feb.	2.66	1.84	25	890	6	530	690	39,660			
Mar.	3.08	1.64	‡ 8	1,200	31	452	833	51,200			
Apr.	3.81	u .56	28	1,650	16	* 93.6	476	28,310			
May	15.39	- .07	31	* 19,030	20	27.9	*2,110	* 129,800			
June	u 11.02	2.17	1	u 11,160	30	441	2,180	129,800			
July	11.32	1.80	21	11,970	2	296	4,110	252,400			
Aug.	5.09	1.64	1	2,390	‡27	311	794	48,850			
Sept.	4.89	1.64	25	* 2,450	30	340	643	38,290			
Oct.	2.23	1.18	13	604	8	217	349	21,480			
Nov.	2.92	1.25	14	1,030	‡ 2	249	447	26,600			
Dec.	2.43	1.51	‡ 2	816	25	349	587	36,070			
Yearly	15.39	- .07		* 19,030		27.9	1,180	856,680			

u Estimated * Partly estimated ‡ And other days

RIO GRANDE FLOODWAY DISCHARGES IN THE LOWER RIO GRANDE VALLEY

On the United States Side

During floods, water is diverted from the Rio Grande to the United States floodway system at Mission Inlet and Hackney Lake Inlet, approximately 15 and 4 miles, respectively, above the Hidalgo gaging station. Water diverted at Mission Inlet flows through the North Floodway branch and that entering the Hackney Lake Inlet flows through the South Floodway branch. They join about 5 miles northeast of Hidalgo to flow eastward in the Main Floodway to a point approximately 3 miles southwest of Mercedes. Here, the floodwaters may divide, part going northeastward through the Arroyo Colorado Floodway to the Gulf of Mexico, the remainder going to the Gulf via the North Floodway, traveling first northward and then eastward. Mission Inlet flows are measured at the North Floodway Station south of McAllen, Hackney Lake Inlet flows are measured at the South Floodway Station south of McAllen, and North Floodway flows are measured near Sebastian. Arroyo Colorado Floodway flows are measured near La Feria.

In 1952, there was no flow from the Rio Grande through these floodways. For 1952 discharges of North Floodway near Sebastian, Texas, see the following page.

On the Mexican Side

There are several regular floodways on the Mexican side which divert excess Rio Grande floodwater to the Gulf of Mexico. During 1952, no flow was diverted from the Rio Grande into these regular floodways.

Records of flows through Retamal Canal, which serves as a floodway during periods of high flow, are shown on page 59.

NORTH FLOODWAY NEAR SEBASTIAN, TEXAS

DESCRIPTION: Water-stage recorder located on the downstream side of the bridge on U. S. Highway 77, about 2.5 miles south of Sebastian, Texas. High flow measurements are made from the highway bridge and low flow measurements are made from a low timber bridge just upstream from the highway bridge. The zero of the gage is at mean sea level, U.S.C. & G.S. datum.

RECORDS: Based on 32 current meter measurements made during the year and a continuous record of gage heights. Computations by shifting channel methods. Records available: October 1940 through December 1952. Continuous records were discontinued December 31.

REMARKS: The channel of this floodway in the vicinity of Sebastian serves as a drainage channel as well as a floodway.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 10,500 second-feet on September 4, 1944, with a gage height of 42.95 feet. Min. occasionally no flow.

Average Flow in Second-Feet

Daily:	Max.	10,000	Sept. 4, 1944	Min.	0	occasionally
Monthly:	Max.	2,110	Sept. 1944	Min.	1.5	April 1952
Yearly:	Max.	218	1944	Min.	14.4	1952

Mean Daily Discharge in Second-Feet 1952 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	22.7	* 4.0	4.0	4.0	0	48.1	18.9	38.7	5.9	13.0	0	10.0
2	20.5	* 3.8	2.0	4.0	1.4	41.8	10.0	41.0	7.0	11.7	▪ .1	9.0
3	24.2	* 2.4	2.0	4.7	8.4	36.0	0	▪ 31.2	* 3.8	12.4	2.2	8.3
4	34.0	* 3.4	2.5	4.0	0	30.8	0	* 23.4	▪ 2.0	11.1	10.6	7.9
5	28.2	* .5	2.0	2.0	0	31.1	0	21.8	▪ 2.6	10.0	9.5	6.1
6	26.6	* .5	2.5	2.0	0	51.0	0	31.7	▪ 3.0	5.3	8.3	8.8
7	* 18.0	* .5	2.5	2.0	0	58.1	0	26.9	▪ 3.0	0	6.0	10.7
8	* 13.1	* .5	5.8	2.0	0	74.6	0	27.7	▪ 3.0	0	6.2	9.5
9	17.5	* .5	6.8	2.0	0	65.2	0	33.0	* 4.0	0	6.0	9.2
10	* 12.4	* .5	8.6	4.0	0	54.3	0	36.1	* 3.6	0	5.6	6.4
11	* 7.0	1.0	6.5	4.0	0	55.9	0	32.6	* 3.9	0	4.7	4.3
12	* 9.4	.5	6.8	4.0	0	48.0	0	26.1	9.8	0	4.7	7.7
13	* 13.1	.8	6.2	0	0	43.5	9.4	23.6	7.8	0	4.6	7.4
14	* 5.5	.5	3.6	0	0	38.3	33.0	24.1	9.0	0	4.5	6.9
15	* 1.3	.5	2.0	0	0	33.9	34.3	20.1	81.8	0	4.5	3.2
16	* .6	.5	2.0	0	0	32.8	47.4	17.2	258	1.6	6.1	0
17	* 4.8	1.2	2.0	0	0	27.7	18.8	17.8	86.7	3.9	6.3	0
18	* 10.5	.8	2.0	0	0	21.1	18.3	16.6	46.1	3.7	6.1	▪ .3
19	* 7.2	0	2.0	0	.6	23.0	42.7	16.4	31.5	4.9	5.3	0
20	* 6.6	.2	2.0	0	0	19.7	45.1	14.8	24.4	4.7	4.7	0
21	* 5.5	.1	2.0	3.0	0	13.0	60.2	14.2	25.4	3.7	5.3	0
22	* 5.4	.1	2.0	2.0	0	21.6	57.3	11.6	22.0	1.8	6.6	0
23	* 2.3	.2	1.0	1.0	0	18.9	54.2	10.3	19.7	1.0	7.4	0
24	* 2.1	.5	1.0	0	0	11.9	46.4	10.0	24.6	.3	7.1	▪ .4
25	* .8	9.6	2.1	0	173	0	* 41.0	8.0	25.5	3.3	7.4	▪ .4
26	* 2.5	9.2	3.6	0	136	0	▪ 38.1	6.8	23.4	0	5.6	0
27	* 4.1	7.2	2.0	0	51.6	0	▪ 36.9	6.4	20.1	0	4.7	0
28	* 1.3	3.0	2.0	0	257	25.1	▪ 32.5	5.9	18.9	0	5.1	0
29	* 1.3	4.0	2.0	0	367	21.0	* 32.0	▪ 3.3	15.4	0	5.5	0
30	* 1.5		2.0	0	160	28.2	32.3	* 5.1	14.2	0	6.8	5.0
31	* 3.8		4.0		71.2		33.0	6.8		0		2.9
Sum	*313.8	* 56.5	97.5	44.7	1,226.2	974.6	741.8	609.2	806.1	92.4	167.5	124.4

Current Year 1952 — Period Oct. 1940-1952

Month	Extreme Gage Feet High	Extreme Gage Feet Low	Extreme Second-Feet High Day	Extreme Second-Feet High	Extreme Second-Feet Low Day	Extreme Second-Feet Low	Average Second Feet	Total Acre-Feet	Acre-Feet * Average	Acre-Feet Maximum	Acre-Feet Minimum	Acre-Feet Average 1943-1952
Jan.	27.91		4	44.0	‡28	0	* 10.1	* 622	3,224	▪ 7,450	* 622	* 2,985
Feb.	26.92		25	12.2	‡18	0	* 1.9	* 112	3,074	▪ 6,010	* 112	* 2,926
Mar.	26.81		10	9.9	‡ 1	0	3.1	193	3,498	6,900	193	* 3,471
Apr.	26.74		3	6.4	‡13	0	1.5	88.7	4,330	22,000	58.7	* 4,386
May	32.58		28	436	‡ 1	0	39.6	2,430	6,558	▪ 24,200	▪ 2,299	* 5,160
June	29.05		8	99.7	‡25	0	32.5	1,930	4,520	9,110	* 602	* 3,797
July	28.41		21	67.8	‡ 2	0	23.9	1,470	3,466	11,000	▪ 865	3,096
Aug.	28.16		2	44.9	‡29	▪ 2.0	19.7	1,210	2,490	▪ 7,400	▪ 605	* 2,652
Sept.	31.77		16	336	‡ 4	▪ 2.0	26.9	1,600	19,304	▪ 125,700	▪ 1,400	*22,539
Oct.	27.17		3	15.8	‡ 6	0	3.0	183	3,863	10,200	▪ 136	* 4,531
Nov.	27.13		4	14.2	‡ 1	0	5.6	332	2,866	6,200	332	* 3,258
Dec.	27.01		7	11.7	‡10	0	4.0	247	3,236	6,100	247	* 3,307
Yearly	32.58			436		0	14.4	10,417.7	60,429	▪ 158,550	10,417.7	*62,108

▪ Estimated * Partly estimated ‡ And other days

RIO GRANDE AT MATAMOROS, TAMAULIPAS

DESCRIPTION: Water-stage recorder with sit-down cable car and winch. The recorder is attached to the left pier on the downstream side of the railroad bridge between Matamoros, Tamaulipas and Brownsville, Texas, 57.6 miles upstream from the Gulf of Mexico and 1,183.8 river miles below the American Dam at El Paso, Texas. The cable is located .3 mile upstream from the bridge. The zero of the gage is 12.11 feet above mean sea level, U.S.C. & G.S. datum.

RECORDS: Based on 218 meter measurements during the year, 200 by the Mexican and 18 by the United States Section of this Commission, and a continuous record of gage heights. The river bottom shifts greatly at this station. At low flow, the recorder was affected by a small earth dam that was built below the railroad bridge to impound water for the city of Matamoros. Computations by shifting channel methods. Records available: 1901 to 1913; 1923 through December 1952.

REMARKS: Reservoirs, irrigation and flood flow diversions, and drainage returns greatly modify the flow at this station. On December 29, 1952, the river channel at Falcón Dam, 213 miles upstream from this station, was closed and flow was diverted through the Mexican penstock, a few feet above river level.

EXTREME FLOWS FROM RECORDS: The greatest recorded flow was 36,320 second-feet on June 22, 1903. The greatest flow since 1923 was 32,950 second-feet, which occurred April 30, 1949, with a gage height of 24.89 feet on the present gage. There was no flow at this station on a few occasions in March and April 1930, January and February 1951, and February through May 1952.

Mean Daily Discharge in Second-Feet 1952 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	76.3	4.9	9.5	13.4	0	11,720	156	819	64.6	35.7	78.4	42.4
2	73.3	7.1	2.1	25.4	0	6,640	91.5	781	90.4	31.1	61.4	42.4
3	71.0	8.8	1.4	6.4	0	3,640	74.9	777	61.1	39.6	62.5	29.0
4	71.0	10.9	14.8	6.0	0	2,090	65.7	646	57.9	61.4	79.1	38.8
5	68.2	4.6	9.5	8.5	0	1,450	67.8	607	33.2	55.1	42.4	29.0
6	68.2	0	1.8	7.8	0	1,200	169	364	15.5	61.8	45.9	33.5
7	80.9	2.5	1.1	10.6	0	1,170	193	216	27.5	71.3	53.7	30.0
8	73.1	0	1.4	2.8	0	1,350	231	67.8	92.9	53.0	61.4	31.8
9	105	4.2	1.1	.7	0	2,200	243	30.4	135	70.6	48.7	23.3
10	24.4	0	15.5	0	0	2,710	125	13.8	58.6	58.3	57.2	36.0
11	50.1	0	36.7	0	0	2,220	152	21.5	153	52.3	49.4	46.6
12	84.4	7.1	67.8	0	0	1,880	77.0	8.8	109	51.6	27.9	49.1
13	83.6	81.9	10.6	0	0	1,800	125	3.2	62.9	58.6	30.0	38.1
14	71.3	108	1.4	0	0	1,420	953	14.1	63.9	30.0	43.8	44.5
15	42.4	25.8	1.1	2.1	0	964	939	205	48.4	45.2	39.2	42.4
16	10.2	4.9	.7	0	0	615	516	120	66.0	48.0	38.8	30.0
17	4.9	3.9	13.8	0	0	548	523	120	91.1	50.9	51.2	19.1
18	4.9	2.8	50.9	0	0	321	795	91.8	81.2	44.1	55.4	24.7
19	4.2	2.1	3.9	0	0	81.9	911	82.3	52.3	39.2	34.3	63.6
20	3.9	1.8	4.2	0	0	34.6	1,970	67.5	55.8	84.8	30.7	54.7
21	3.2	2.5	3.5	0	0	21.5	5,370	78.4	42.7	50.1	41.0	29.0
22	2.1	8.8	2.8	0	0	149	7,420	63.2	27.5	45.2	51.6	32.1
23	2.1	2.5	2.5	0	0	122	7,630	30.4	36.4	45.6	71.7	30.7
24	13.1	2.8	21.2	0	0	83.0	5,120	29.7	33.9	53.3	46.3	29.3
25	12.4	2.8	4.2	0	0	15.5	3,160	58.3	97.5	45.6	39.2	30.4
26	9.2	2.5	1.1	0	202	19.4	2,370	52.6	52.6	32.5	36.7	37.8
27	6.4	31.1	4.9	86.9	123	67.8	2,190	55.1	24.7	43.8	31.8	37.4
28	3.2	151	9.9	121	213	114	2,140	31.4	63.9	39.6	49.4	37.4
29	2.1	99.6	13.8	24.7	968	149	1,600	32.8	64.6	39.9	47.3	45.6
30	1.8		17.7	0	799	178	1,000	23.0	42.4	27.2	40.6	43.1
31	2.8		46.3		4,450		837	57.6		41.7		22.6
Sum	1,135.2	584.9	377.2	316.3	6,751	44,973.7	47,174.9	5,568.7	1,906.5	1,507.1	1,446.0	1,124.4

Month	Current Year 1952 Extreme Gage Feet High	Extreme Gage Feet Low	Extreme Second-Feet High Day	Extreme Second-Feet High	Extreme Second-Feet Low Day	Extreme Second-Feet Low	Average Second-Feet	Total Acre-Feet	Period 1924-1952 Acre-Feet Average	Maximum	Minimum	Acre-Feet Average 1943-1952
Jan.	3.41	1.05	9	111	30	1.8	36.6	2,250	180,781	490,800	842	91,232
Feb.	4.49		13	" 177	‡20	0	20.2	1,160	130,208	328,300	1,160	72,638
Mar.	3.31		12	67.8	‡22	0	12.2	748	108,362	313,600	748	65,988
Apr.	3.74		27	151	‡ 1	0	10.5	627	106,241	425,800	627	74,962
May	13.49		31	9,610	‡ 1	0	218	13,390	257,633	721,000	13,390	139,638
June	15.12	2.17	1	12,960	21	13.1	1,500	89,210	329,139	1,180,500	2,580	162,988
July	13.39	2.33	23	8,160	13	34.6	1,520	93,470	281,326	756,600	7,630	133,345
Aug.	5.38	"1.84	1	855	13	" 1.4	180	11,050	257,696	833,700	7,110	144,938
Sept.	3.05	2.03	11	207	7	4.6	63.6	3,780	546,775	1,363,200	3,780	320,974
Oct.	2.82	2.23	20	84.8	3	20.5	48.6	2,990	510,137	1,408,500	2,990	311,548
Nov.	2.85	2.26	4	92.5	13	22.6	48.2	2,870	230,916	827,500	2,870	87,835
Dec.	2.56	2.20	19	69.6	17	15.5	36.3	2,230	176,020	594,200	2,230	65,745
Yearly	15.12			12,960		0	308	223,875	3,115,234	6,579,500	223,875	1,671,851

" Estimated ‡ And other days

RIO GRANDE AT LOWER BROWNSVILLE, TEXAS

DESCRIPTION: Water-stage recorder and cable with stand-up cable car equipped for winch and heavy weights, located about 1,000 feet below the El Jardin pumping plant, about 6.6 river miles below Brownsville, Texas and Matamoros, Tamaulipas, 50.4 river miles upstream from the Gulf of Mexico, and 1,191.0 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. An auxiliary water-stage recorder, located at the El Jardin pumping plant, was used during periods of low flow.

RECORDS: Based on 38 meter measurements during the year and a continuous record of gage heights. Computations by shifting channel methods. Records available: January 1934 through December 1952.

REMARKS: Reservoirs, diversions, and drainage returns modify the river flow at this station. During floods, a portion of the upstream river flow finds outlet to the Gulf of Mexico through flood channels in both countries, which divert from the Rio Grande within 124.6 miles above this station. On December 29, 1952, the river channel at Falcón Dam, 220 miles upstream from this station, was closed and flow was diverted through the Mexican penstock, a few feet above river level.

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.

Mean Daily Discharge in Second-Feet 1952 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	11.7	0	8.5	0	0	8,820	67.6	804	15.4	2.0	11.6	4.4
2	8.5	0	6.9	0	0	6,880	47.0	774	27.0	7.6	21.2	10.7
3	7.6	0	0	0	0	3,580	12.4	762	5.5	6.0	20.8	3.5
4	1.7	0	0	0	0	2,160	27.8	656	19.8	11.0	38.3	3.9
5	7.6	0	5.0	0	0	1,420	.6	628	15.9	16.9	24.7	3.3
6	.1	0	0	0	0	1,070	37.4	412	8.1	8.3	17.8	4.3
7	11.6	0	0	0	0	1,080	62.9	149	9.7	25.2	12.8	1.6
8	1.3	0	0	0	0	1,210	81.1	32.9	23.2	3.5	25.0	4.7
9	25.4	0	0	0	0	1,860	165	7.8	24.0	13.7	37.3	7.7
10	3.8	0	0	0	0	2,510	66.3	10.9	6.0	18.3	16.0	6.8
11	4.0	0	0	0	0	2,250	57.2	4.2	38.7	24.1	17.9	3.6
12	20.8	0	0	0	0	1,880	32.8	.9	22.9	22.8	18.0	4.5
13	8.2	0	0	0	0	1,820	32.6	1.1	2.0	15.9	15.6	2.7
14	6.8	22.3	0	0	0	1,480	636	4.5	7.6	11.6	22.8	3.0
15	1.1	0	0	0	0	1,080	852	56.0	16.2	13.0	24.4	3.2
16	1.6	0	0	0	0	709	600	52.3	31.1	17.0	19.7	1.8
17	0	0	0	0	0	472	515	43.6	36.7	21.4	19.3	1.3
18	0	0	0	0	0	192	710	23.9	33.4	17.9	17.0	3.9
19	0	0	0	0	0	20.0	824	28.2	10.7	14.0	14.3	5.6
20	0	0	0	0	0	6.3	1,460	18.9	16.7	17.0	16.1	7.5
21	0	0	0	0	0	5.5	4,320	25.2	26.0	15.9	15.1	4.0
22	0	0	0	0	0	78.1	6,120	22.1	15.5	14.8	9.9	4.4
23	0	0	0	0	¤ 1.6	65.1	6,540	6.8	2.0	15.4	28.3	6.2
24	0	0	0	0	¤ 2.0	26.9	4,800	13.6	2.6	12.7	18.8	11.8
25	0	0	0	0	5.0	12.2	3,080	14.8	10.9	11.6	16.4	17.9
26	0	0	0	0	84.5	17.4	2,310	19.2	18.5	8.0	10.9	4.0
27	0	0	0	27.7	81.6	31.6	2,100	19.9	2.3	12.6	10.1	2.4
28	0	23.7	0	77.6	44.3	48.1	2,140	11.8	11.0	11.4	12.4	3.0
29	0	23.1	0	6.3	838	61.0	1,690	13.2	25.5	11.7	3.9	6.6
30	0		0	0	858	68.4	1,070	11.4	9.5	10.9	5.0	13.7
31	0		0		3,050		799	8.2		16.3		8.1
Sum	121.8	69.1	20.4	111.6	4,965.0	40,913.6	41,256.7	4,636.4	494.4	428.5	541.4	170.1

Month	Current Year 1952 Extreme Gage Feet High	Extreme Gage Feet Low	Extreme Second-Feet High Day	Extreme Second-Feet High	Extreme Second-Feet Low Day	Extreme Second-Feet Low	Average Second-Feet	Total Acre-Feet	Period 1934-1952 Acre-Feet Average	Acre-Feet Maximum	Acre-Feet Minimum	Acre-Feet Average 1943-1952
Jan.	9.76		12	41.9	‡ 4	0	3.9	242	139,669	299,000	¤ 55.9	84,950
Feb.	10.10		28	85.2	‡ 1	0	2.4	137	103,701	237,000	137	66,004
Mar.	9.62		1	29.5	‡ 1	0	.7	40.5	93,755	311,000	40.5	63,005
Apr.	10.54		28	157	‡ 1	0	3.7	221	86,625	* 372,000	221	* 66,007
May	20.53		31	6,770	‡ 1	0	160	9,850	235,350	717,000	9,850	126,565
June	22.85		1	9,430	‡19	0	1,360	81,200	285,557	*1,161,000	1,380	157,758
July	20.98	9.34	23	6,770	5	.1	1,330	81,800	254,350	759,000	6,040	124,074
Aug.	12.30		1	833	‡10	0	150	9,200	206,393	679,000	6,000	129,655
Sept.	10.15		11	68.9	3	0	16.5	981	478,962	1,337,000	981	301,028
Oct.	10.02		7	51.7	3	0	13.8	850	* 424,454	*1,427,000	850	297,065
Nov.	9.83		9	45.1	‡24	0	18.0	1,070	158,887	614,000	1,070	83,266
Dec.	9.66		30	33.5	‡ 3	0	5.5	337	123,314	341,000	337	60,636
Yearly	22.85			9,430		0	256	185,928.5	2,591,017	*6,526,000	185,928.5	1,560,013

¤ Estimated * Partly estimated ‡ And other days

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 1952 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
1952	0	4.5	4.6	144	104	.7	3.0	1.1	9.4	0	2.1	0	273.4
* Average	59.6	55.7	75.3	50.2	96.7	88.9	77.3	66.2	44.0	50.1	38.7	45.9	748.6

EL PASO SEWAGE OUTFALL

This sewage outfall enters the Rio Grande 6.6 river miles below the American Dam. The 1952 record of outfall 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-passed the meter, minus estimated diversions between the Sewage Plant and the Rio Grande for irrigation use on 120 acres of land.

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Yearly
1952	1,030	1,020	1,060	976	1,040	1,070	1,120	1,120	1,080	1,120	991	930	12,557
ϕ Average	742	698	753	729	790	832	898	879	831	844	787	772	9,555

EL PASO COUNTY WATER CONTROL AND IMPROVEMENT DISTRICT NO. 1 SEWAGE OUTFALLS

This water enters the Rio Grande through the sewer system of the El Paso County Water Control and Improvement District No. 1 between Ascarate and Ysleta, Texas, 9 and 15 miles, respectively, below the American Dam. The tabulation includes the outfalls from Disposal Plant No. 1 at Ascarate, Texas and Disposal Plant No. 2, a few miles downstream. Records 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
1952	55.1	50.1	61.9	35.6	0	0	0	0	0	46.7	69.4	67.0	385.8
# Average	44.3	40.7	25.3	16.3	4.3	5.7	13.1	17.2	24.5	40.0	48.4	47.3	327.1

LAREDO SEWAGE OUTFALL

This sewage outfall enters the Rio Grande 885.7 river miles below the American Dam at El Paso, Texas and 1.4 river miles below 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
1952	167	166	177	182	187	152	169	198	185	171	162	146	2,062
x Average	157	158	174	175	174	161	176	182	166	159	158	155	1,995

* Period 1940-1952; some years missing ϕ Period 1936-1952 # Period 1950-1952 x Period 1950-1952

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 that exceed 15,000 acre-feet in capacity. 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 sources of the data are: Rio Grande, Continental, Santa Maria, Terrace and Mountain Home from the Colorado State Engineer; Sanchez and Costilla from the San Luis Power and Water Company; El Vado from the Middle Rio Grande Conservancy District; Elephant Butte, Caballo, Alamogordo, 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, Colina, and Rosetilla from the Río Conchos Agriculture and the Electric Power Company of Mexico; Francisco I. Madero, Centenario and San Miguel, Venustiano Carranza, Marte Gómez, Culebrón, Villa Cárdenas, and Palito Blanco from the Ministry of Hydraulic Resources of Mexico.

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		Sanchez (Capacity 103.2)	
	1952	# Average 1927-1952	1952	# Average 1928-1952	1952	# Average 1928-1952	1952	# Average 1925-1952	1952	# Average 1924-1952	1952	# Average 1927-1952
Jan.	5.3	13.9	2.5	5.4	1.9	7.9	2.0	2.7	1.0	4.1	2.6	11.2
Feb.	5.5	15.1	▪ 3.8	5.6	2.6	8.5	▪ 2.2	3.0	1.2	4.5	3.0	11.3
Mar.	6.8	16.5	5.0	5.8	2.8	9.6	2.3	3.4	1.4	4.9	4.8	12.1
Apr.	2.7	15.9	6.9	6.3	2.8	11.2	3.4	4.1	1.9	5.5	7.9	13.9
May	16.4	24.2	3.2	8.6	20.1	16.5	12.0	7.3	5.4	7.9	14.7	19.4
June	45.7	26.7	11.4	9.4	29.1	19.3	16.1	9.2	7.4	7.9	17.6	18.5
July	23.2	15.9	9.5	7.1	14.4	13.3	8.4	5.7	2.8	5.6	9.7	12.8
Aug.	10.1	6.9	3.3	4.9	9.1	6.2	5.7	3.0	1.9	3.5	3.6	9.4
Sept.	10.9	6.7	2.8	5.0	9.1	5.7	5.6	2.4	1.6	3.0	2.2	9.6
Oct.	10.9	8.0	2.9	4.7	8.3	6.0	4.4	2.6	1.3	3.1	2.7	10.3
Nov.	12.3	11.1	3.3	4.9	8.6	6.8	4.4	2.2	1.6	3.4	3.5	10.4
Dec.	13.9	12.6	▪ 3.9	5.2	9.0	7.4	4.5	2.6	1.9	3.7	4.4	10.7
Avg.	13.6	14.5	4.9	6.1	9.8	9.9	5.9	4.0	2.4	4.8	6.4	12.5
Max.	45.7	51.8	11.4	26.7	29.1	42.1	16.1	17.7	7.4	16.4	17.6	62.4
Min.	2.7	0	2.5	0	1.9	0	2.0	0	1.0	0	2.2	0

Month	Costilla (Capacity 15.7)		El Vado (Capacity 200.3)		Bluewater (Capacity 43.5)		Elephant Butte (Capacity 2,185.4)		Caballo (Capacity 346.0)	
	1952	# Average 1922-1952	1952	Average 1935-1952	1952	# Average 1927-1952	1952	Average 1915-1952	1952	# Average 1938-1952
Jan.	* 1.6	3.9	0	59.5			36.5	957.6	46.0	182.5
Feb.	* 2.0	4.2	0	52.6			17.3	958.6	86.6	195.7
Mar.	2.4	4.8	0	48.9			18.9	946.8	78.2	175.7
Apr.	3.9	6.0	40.1	104.6	1952 Data		59.3	950.8	59.2	144.4
May	8.3	8.6	139.9	164.8			259.0	1,081.2	79.7	134.6
June	12.7	7.9	123.1	153.2	Not Available		421.2	1,134.8	81.6	110.1
July	10.6	4.8	55.1	123.6			390.7	1,076.6	80.8	79.0
Aug.	9.2	3.2	8.9	90.6			385.7	1,005.1	24.0	40.7
Sept.	8.8	2.7	8.2	73.0			360.9	963.5	9.9	35.3
Oct.	8.6	3.0	8.4	66.7			357.2	953.9	13.8	64.6
Nov.	9.0	3.4	8.8	59.4			355.3	953.2	17.4	97.0
Dec.	9.6	3.7	8.9	57.3			376.9	957.6	30.3	130.8
Avg.	7.2	4.7	33.4	87.8			253.2	995.0	50.6	115.9
Max.	12.7	15.1	139.9	203.5			ϕ 423.2	ϕ 2,302.8	ϕ 99.7	ϕ 346.6
Min.	* 1.6	0	0	0			ϕ 16.3	3.3	ϕ 2.4	ϕ .1

▪ Estimated * Partly estimated # Some months missing ϕ Daily extreme

STORED WATER IN LARGE RESERVOIRS OF THE RIO GRANDE BASIN

In Thousands of Acre-Feet

In the United States

Month	Alamogordo (Capacity 132.2)		McMillan and Avalon (Capacity 43.5)		Red Bluff (Capacity 310.0)		Willacy (Capacity 25.0)		Total in United States Reservoirs ♂ (Capacity 3,520.5)	
	1952	# Average 1937-1952	1952	# Average 1908-1952	1952	# Average 1936-1952	1952	# Average 1939-1952	1952	Estimated Average
Jan.	28.3	63.1	3.4	29.3	41.0	124.1	4.0	14.0	176.1	1,479.2
Feb.	31.5	67.1	4.8	29.5	43.9	127.8	0	13.0	204.4	1,496.5
Mar.	23.2	57.3	1.8	27.6	40.6	125.1	0	12.2	188.2	1,450.7
Apr.	7.5	45.9	5.4	19.3	30.5	103.8	0	11.0	231.5	1,442.7
May	19.3	57.8	2.1	22.6	29.8	114.3	0	12.5	609.9	1,680.3
June	3.3	51.1	6.1	21.8	26.3	123.9	8.6	13.3	810.2	1,707.1
July	29.3	53.6	2.6	18.9	27.9	108.8	14.6	13.5	679.6	1,539.2
Aug.	18.3	53.4	4.6	16.8	¤ 15.0	92.9	5.9	12.4	505.3	1,349.0
Sept.	18.5	51.6	1.0	19.1	¤ 15.0	95.5	4.2	14.1	458.7	1,287.2
Oct.	17.6	54.2	2.9	21.6	¤ 17.0	101.0	3.3	14.3	459.3	1,314.0
Nov.	23.4	53.1	3.5	23.1	¤ 22.0	105.8	0	13.1	473.1	1,346.9
Dec.	29.6	57.2	5.8	26.9	25.8	112.2	0	14.3	524.5	1,402.2
Avg.	20.8	55.4	3.7	23.0	27.9	111.3	3.4	13.1	443.4	1,457.9
Max.	31.5	156.3	6.1	85.5	43.9	327.5	14.6	22.0	810.2	
Min.	3.3	.4	1.0	0	¤ 15.0	10.0	0	0	176.1	

In Mexico

Month	● Boquilla (Capacity 2,417.5)		La Colina (Capacity 19.5)		Rosetilla (Capacity 15.4)		Madero (Capacity 344.6)		Centenario and San Miguel (Capacity 19.9)	
	1952	# Average 1914-1952	1952	Average 1940-1952	1952	Average 1940-1952	1952	# Average 1948-1952	1952	Average 1934-1952
Jan.	99.0	1,446.8	18.6	17.9	15.4	13.6	53.0	143.4	7.6	12.8
Feb.	85.3	1,414.9	19.2	18.1	14.9	14.7	53.8	145.0	5.2	12.5
Mar.	70.0	1,363.7	18.7	17.8	15.0	14.1	54.0	140.4	2.4	9.3
Apr.	16.9	1,298.4	18.2	18.5	9.6	13.1	50.8	127.4	2.1	7.6
May	395.6	1,244.0	17.9	18.7	3.7	11.1	46.1	114.8	2.8	9.1
June	377.5	1,158.2	18.9	18.4	12.3	13.5	55.2	106.0	1.3	8.1
July	563.8	1,200.1	18.2	18.5	14.6	13.2	219.2	124.2	1.6	7.9
Aug.	524.2	1,358.9	19.0	18.0	1.8	12.5	191.2	117.3	2.2	8.8
Sept.	479.0	1,507.2	18.5	18.2	5.7	14.4	174.8	145.6	2.3	11.1
Oct.	465.9	1,498.5	18.2	17.8	10.1	14.1	172.7	149.8	2.4	12.6
Nov.	458.1	1,460.3	14.9	17.7	14.8	13.3	171.1	149.6	2.7	11.6
Dec.	452.4	1,442.5	14.4	17.4	15.2	14.2	168.8	148.6	3.0	11.6
Avg.	332.3	1,366.1	17.9	18.1	11.1	13.5	117.6	134.3	3.0	10.2
Max.	563.8	2,224.5	19.2	20.4	15.4	19.4	219.2	268.5	7.6	20.7
Min.	16.9	16.9	14.4	13.5	1.8	.4	46.1	1.4	1.3	.6

Month	Venustiano Carranza (Capacity 1,123.0)		Marte Gómez (Capacity 876.4)		θ Culebrón (Capacity 73.0)		Palito Blanco (Capacity 178.4)		Total in Mexican Reservoirs (Capacity 5,067.7)	
	1952	Average 1930-1952	1952	# Average 1943-1952	1952	# Average 1939-1952	1952	Average 1942-1952	1952	Estimated Average
Jan.	71.3	404.9	796.1	508.3	5.7	47.4	4.9	39.5	1,071.6	2,634.6
Feb.	66.2	388.3	664.8	465.2	2.7	41.9	4.2	30.4	916.3	2,531.0
Mar.	51.0	366.3	610.5	394.2	0	33.2	.2	30.7	821.8	2,369.7
Apr.	41.8	354.3	511.6	378.8	0	31.0	0	20.7	651.0	2,249.8
May	37.4	342.4	454.8	377.2	6.2	38.9	2.6	17.4	967.1	2,173.6
June	15.1	334.5	477.5	357.7	33.9	51.3	11.8	21.5	1,003.5	2,069.2
July	10.1	325.0	449.9	327.1	60.5	46.5	53.6	31.7	1,391.5	2,094.2
Aug.	9.5	325.6	391.6	370.6	16.0	44.4	31.3	32.7	1,186.8	2,288.8
Sept.	10.1	375.0	376.2	472.6	10.4	57.2	20.2	38.6	1,097.2	2,639.9
Oct.	9.6	396.5	347.0	512.9	5.8	61.2	10.6	54.1	1,042.3	2,717.5
Nov.	9.7	406.7	339.7	507.6	5.7	51.6	10.5	53.2	1,027.2	2,671.6
Dec.	9.2	407.7	334.0	510.8	5.0	50.2	6.3	47.7	1,008.3	2,650.7
Avg.	28.4	368.9	479.5	431.9	12.7	46.2	13.0	34.8	1,015.4	2,424.2
Max.	71.3	1,163.4	796.1	914.5	60.5	116.8	53.6	140.1		
Min.	9.2	.7	334.0	ϕ 2.1	0	0	0	0		

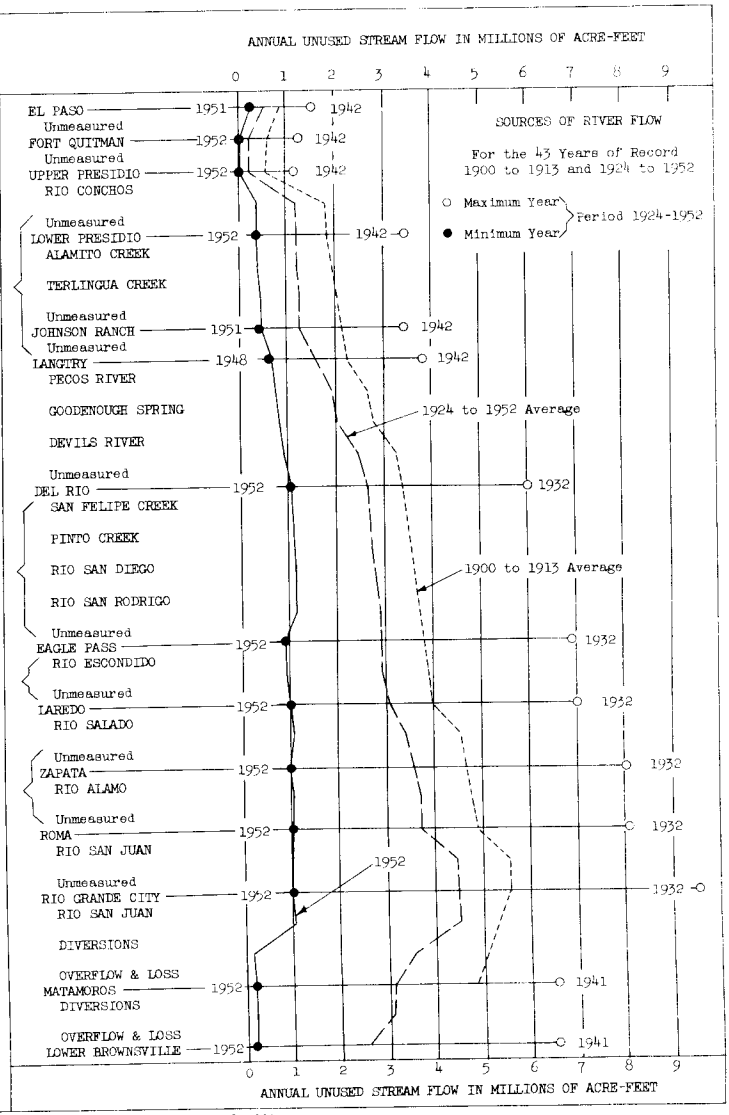
¤ Estimated # Some months missing ϕ Daily extreme θ Includes Villa Cárdenas ● In May 1952, a new and lower outlet was installed, thereby increasing the usable storage 402,900 A.F. ♂ Excludes Bluewater Reservoir

SOURCES OF RIVER FLOW

The graph and the column of figures on this page represent data on the annual yield of the 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. Because there were no reservoirs of consequence on the area from 1900 to 1913, the figures in the first column are the same as those in the graph for that period, except that the column figures have been reduced to a per-square-mile basis. Because some large reservoirs began storing water between 1913 and 1924, large volumes of unused runoff were not permitted to pass on downstream as unused stream flow until later years, when the impounded water was released and added to the stream flow. Elephant Butte and La Boquilla reservoirs illustrate this. Reservoirs which began storing water after January 1, 1924 were, on December 31, 1952, retaining large volumes of runoff water which had not yet passed downstream as stream flow. Caballo and Marte Gómez reservoirs illustrate this. The column figures below, for the period 1924 to 1952, differ from the corresponding graphic values because of such adjustments between unused runoff and unused stream flow incident to changes of reservoir storage.

On December 29, 1952, the river channel at Falcón Dam, located 21.1 river miles above Roma gaging station, was closed and flow was diverted through the Mexican penstock, a few feet above river level.

AVERAGE ANNUAL UNUSED RUNOFF A.F. per Sq.Mi.	
1900-1913	1924-1952
29.7	18.1
19.6	6.0
16.4	5.1
51.0	37.2
20.7	20.9
28.2	19.0
12.4	9.2
106.1	99.1
55.7	66.2
28.0	20.9
112.6	69.6
30.4	22.3
32.7	30.4
30.5	22.7
27.2	16.3
65.1	57.8
31.1	22.9
52.8	* 62.2



* Includes Río San Juan above and below Rio Grande City

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 head gates 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 34 meter measurements during the year, a stable rating curve, and a continuous record of gage heights. Records available: June 2, 1938 through December 1952.

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. occasionally no flow.

Average Flow in Second-Feet

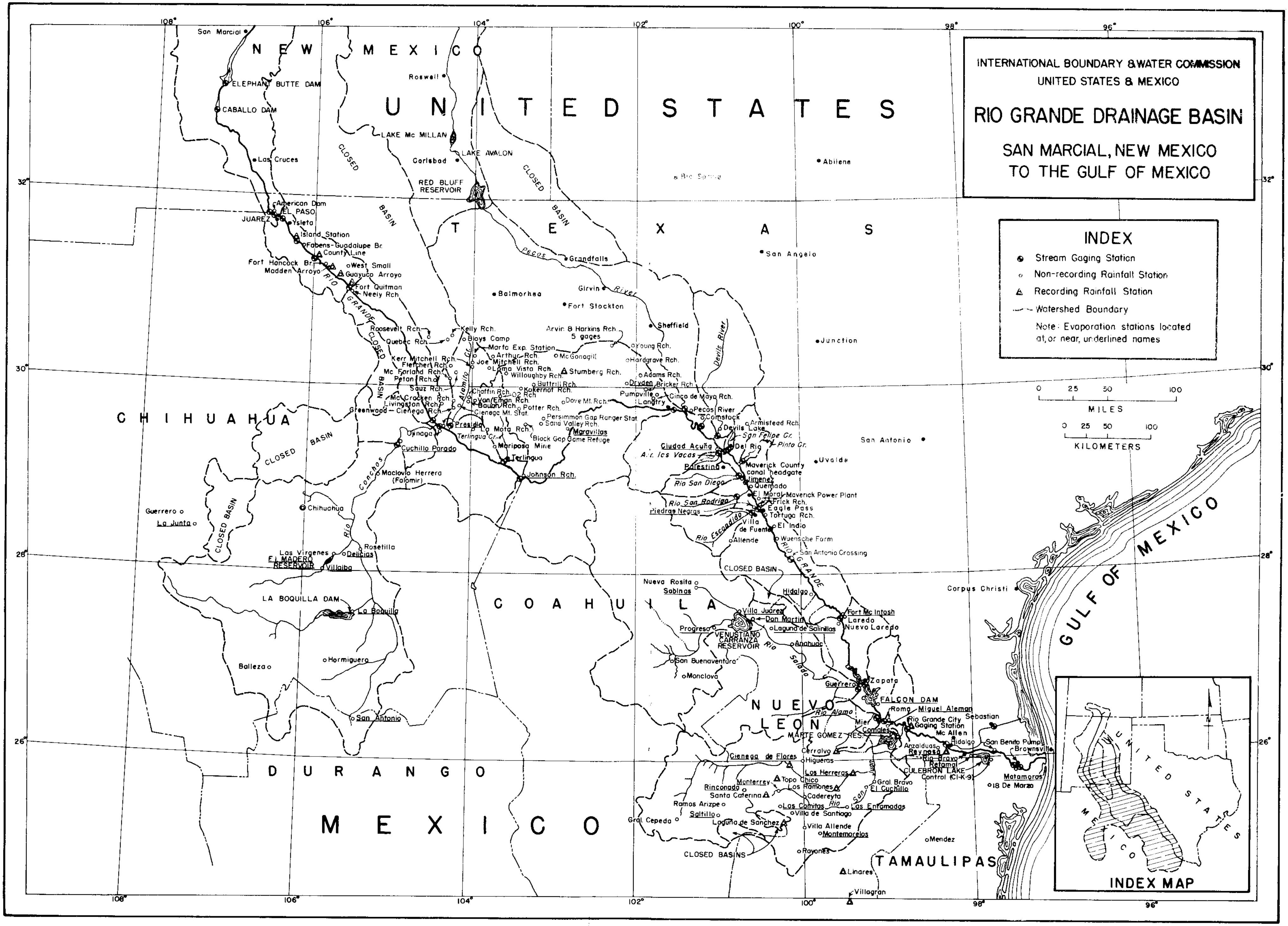
Daily:	Max.	1,510	Aug. 13, 1945	Min.	0	occasionally
Monthly:	Max.	1,210	Aug. 1943	Min.	0	Jan. & Feb. 1952
Yearly:	Max.	748	1943	Min.	277	1951

Mean Daily Discharge in Second-Feet 1952 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	0	499	189	266	722	596	910	171	82.3	0
2	0	0	0	527	181	307	669	778	963	158	78.4	0
3	0	0	0	454	182	298	512	918	858	151	75.3	0
4	0	0	0	407	212	440	461	938	794	147	27.9	0
5	0	0	0	381	249	328	538	1,160	729	141	0	0
6	0	0	0	382	257	218	534	916	743	128	0	0
7	0	0	0	418	364	131	628	746	869	130	0	0
8	0	0	0	429	343	169	571	613	943	132	0	0
9	0	0	0	407	392	198	625	731	910	131	0	0
10	0	0	0	392	402	272	636	720	772	130	0	47.5
11	0	0	0	559	457	322	539	897	701	127	0	70.1
12	0	0	0	623	645	520	503	985	688	126	0	74.5
13	0	0	0	593	743	588	483	869	800	123	0	74.5
14	0	0	0	526	665	638	316	984	797	110	0	74.5
15	0	0	0	466	551	874	258	887	424	33.5	0	75.3
16	0	0	0	399	474	1,160	309	697	330	0	0	70.1
17	0	0	0	368	421	687	549	510	302	0	30.2	73.8
18	0	0	0	332	411	583	707	484	294	0	63.1	80.0
19	0	0	¤ 14.0	263	475	704	814	497	262	0	63.1	79.2
20	0	0	¤ 17.0	260	503	835	977	488	252	0	63.8	77.6
21	0	0	¤ 17.0	278	493	913	1,090	406	242	0	64.5	78.4
22	0	0	¤ 17.0	272	506	957	1,000	419	239	0	65.2	74.5
23	0	0	122	250	382	1,010	863	481	238	0	64.5	25.9
24	0	0	561	260	340	913	800	717	109	48.5	67.9	0
25	0	0	376	255	370	843	866	1,040	0	37.4	69.4	0
26	0	0	367	163	319	760	932	787	0	88.2	32.9	0
27	0	0	411	225	349	831	918	850	0	83.2	0	0
28	0	0	419	241	310	777	835	804	0	80.7	0	0
29	0	0	488	237	289	800	794	772	0	80.0	0	0
30	0		505	218	258	741	706	729	123	82.3	0	0
31	0		452		186		623	913		81.5		0
Sum	0	0	3,766.0	11,089	11,918	18,083	20,778	23,332	14,292	2,570.3	848.5	975.9

Month	Current Year 1952 — Extreme Gage Feet High	Extreme Gage Feet Low	Extreme Second-Feet High Day	Extreme Second-Feet High	Extreme Second-Feet Low Day	Extreme Second-Feet Low	Average Second-Feet	Total Acre-Feet	Period June 1938-1952 — Acre-Feet Average	Maximum	Minimum	Average 1943-1952
Jan.					‡ 1	0	0	0	1,899	8,110	0	1,980
Feb.					‡ 1	0	0	0	9,294	19,500	0	8,315
Mar.	7.43		23	645	‡ 1	0	121	7,470	34,138	50,100	7,470	34,087
Apr.	7.47	3.55	12	653	26	78.4	370	22,000	51,343	70,900	22,000	50,390
May	7.99	4.01	13	775	3	121	384	23,600	44,056	69,000	12,200	42,850
June	9.96	3.93	16	1,350	7	112	603	35,900	50,233	65,700	26,200	48,780
July	9.32	4.72	21	1,140	15	205	670	41,200	57,713	70,700	36,700	58,520
Aug.	10.65	5.89	25	1,600	22	360	753	46,300	58,353	74,600	37,300	59,740
Sept.	8.80		8	988	‡24	0	476	28,300	39,980	63,100	16,200	38,310
Oct.	4.62		24	195	‡15	0	82.9	5,100	20,362	39,100	5,100	18,283
Nov.	3.66		1	87.4	‡ 4	0	28.3	1,680	11,760	21,000	1,680	11,681
Dec.	3.84		10	103	‡ 1	0	31.5	1,940	12,237	25,500	1,940	11,549
Yearly	10.65			1,600		0	294	213,490	391,368	541,610	200,791	384,485

¤ Estimated ‡ And other days



INTERNATIONAL BOUNDARY & WATER COMMISSION
UNITED STATES & MEXICO
RIO GRANDE DRAINAGE BASIN
SAN MARCIAL, NEW MEXICO
TO THE GULF OF MEXICO
INDEX
Stream Gaging Station
Non-recording Rainfall Station
Recording Rainfall Station
Watershed Boundary
Note: Evaporation stations located at, or near, underlined names
0 25 50 100
MILES
0 25 50 100
KILOMETERS
UNITED STATES
MEXICO
NEW MEXICO
TEXAS
CHIHUAHUA
COAHUILA
NUEVO LEON
TAMAULIPAS
DURANGO
GULF OF MEXICO
RIO GRANDE
San Marcial
ELEPHANT BUTTE DAM
CABALLO DAM
Las Cruces
American Dam
EL PASO
JUAREZ
Ysleta
Roswell
LAKE Mc MILLAN
LAKE AVALON
Carlsbad
RED BLUFF RESERVOIR
Abilene
San Angelo
Junction
San Antonio
Uvalde
Corpus Christi
Del Rio
Ciudad Acuña
Eagle Pass
Piedras Negras
Laredo
Nuevo Laredo
FALCON DAM
Brownsville
Matamoros
Chihuahua
Monterrey
Saltillo
Monclova
VENUSTIANO CARRANZA RESERVOIR
LA BOQUILLA DAM
CLOSED BASIN
CLOSED BASINS
INDEX MAP

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 97 meter measurements during the year, 69 by the Mexican and 28 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 1952.

REMARKS: In 1952, 47,200 acre-feet were distributed to lands irrigated in the first unit under the canal. The remainder of the water from this canal was used, together with drainage water which entered the canal at the lower end of the first unit, to irrigate lands farther down 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 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.	45.7	1951

Mean Daily Discharge in Second-Feet 1952 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	0	0	89.0	120	211	152	122	0	0	0
2	0	0	0	0	98.5	132	197	178	87.2	0	0	0
3	0	0	0	21.5	95.0	127	184	171	81.9	0	0	0
4	0	0	0	75.2	96.1	114	185	159	85.5	0	0	0
5	0	0	0	75.9	95.3	111	192	168	92.5	0	0	0
6	0	0	0	72.0	97.1	112	195	166	95.0	0	0	0
7	0	0	0	71.3	91.8	108	201	159	87.6	0	0	0
8	0	0	0	71.3	162	109	197	156	83.0	0	0	0
9	0	0	0	73.2	203	109	177	172	62.2	0	0	0
10	0	0	0	73.8	202	107	184	174	56.1	0	0	0
11	0	0	0	81.2	203	111	179	191	0	0	0	0
12	0	0	0	82.6	214	111	172	211	0	0	0	0
13	0	0	0	83.7	227	110	164	200	0	0	0	0
14	0	0	0	82.6	225	109	159	224	0	0	0	0
15	0	0	0	86.2	230	118	155	194	0	0	0	0
16	0	0	0	78.0	89.0	279	140	185	0	0	0	0
17	0	0	0	80.5	72.4	265	144	191	0	0	0	0
18	0	0	0	78.4	73.6	263	150	194	0	0	0	0
19	0	0	0	79.8	71.7	262	150	211	0	0	0	0
20	0	0	0	79.1	75.2	262	154	197	0	0	0	0
21	0	0	0	75.6	73.5	255	150	201	0	0	0	0
22	0	0	0	79.8	146	270	145	202	0	0	0	0
23	0	0	0	72.7	251	274	164	200	0	0	0	0
24	0	0	0	72.7	254	268	163	203	0	0	0	0
25	0	0	0	79.1	261	262	160	221	0	0	0	0
26	0	0	0	75.6	257	276	162	208	0	0	0	0
27	0	0	0	73.8	256	282	163	209	0	0	0	0
28	0	0	0	73.8	259	272	158	212	0	0	0	0
29	0	0	0	72.4	280	274	165	186	0	0	0	0
30	0		0	70.3	278	268	186	186	0	0	0	0
31	0		0		268		185	199		0		0
Sum	0	0	0	2,092.4	5,296.4	5,740	5,291	5,860	853.0	0	0	0

Month	Average Rainfall Inches 1938-1952 **	Current Year 1952						Period 1938-1952			
		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			Acre-Feet
		High		Low				Average	Maximum	Minimum	Average 1945-1952
		Day		Day							
Jan.	.47	.17		0		0	0	0	0	0	0
Feb.	.27	.41		0		0	0	0	0	0	0
Mar.	.29	.42		0		0	0	1,578	5,540	0	729
Apr.	.22	.76	11	89.7	‡ 1	0	69.7	4,150	6,709	11,720	2,030	5,814
May	.44	.95	30	294	17	66.0	171	10,510	12,729	17,380	5,260	12,109
June	.81	1.52	16	308	7	98.5	191	11,390	10,456	15,700	7,310	9,708
July	1.39	1.45	10	251	16	139	171	10,490	10,110	15,170	7,910	9,972
Aug.	1.25	1.10	12	296	1	144	190	11,660	9,936	12,410	5,200	10,560
Sept.	1.07	.07	1	216	‡11	0	28.4	1,690	7,392	12,380	18.6	7,696
Oct.	.82	0		0		0	0	0	103	328	0	92.6
Nov.	.30	.33		0		0	0	0	0	0	0	0
Dec.	.57	.24		0		0	0	0	0	0	0	0
Yearly	7.88	7.42		308		0	68.7	49,890	59,013	83,930	33,058.6	56,676.6

‡ And other days ** Average for Valley floor from El Paso to Island Station

DIVERSIONS FROM THE RIO GRANDE

MAVERICK CANAL 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 17.4 river miles below the international bridge between Del Rio, Texas and Cd. Acuña, Coahuila and 711.0 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 water diverted returns to the river through the Maverick Power Plant and the remainder enters the Maverick Canal Extension. The discharges shown below are based on records from three water stage recorders on the main Maverick Canal, operated during the periods indicated.

LAS MORAS CREEK STATION: Located 15.4 canal miles below the diversion point, about 400 feet above the Las Moras Creek Siphon. Measurements were made from a gate structure about 550 feet above the siphon. The zero of the gage is 796.82 feet above mean sea level, U.S.C. & G.S. datum. Records used for January-March.

MILE 3 STATION: Temporary installation, approximately 3 miles below the diversion point. Measurements were made from a bridge. Records used for April-July.

MILE 13 STATION: Approximately 13 canal miles below the diversion point. Records used for August-December.

RECORDS: Based on 65 current meter measurements during the year, 41 by the United States and 24 by the Mexican Section of this Commission, and a continuous record of gage heights. Three of the measurements were made at Las Moras Creek Station, 41 at Mile 3, and 21 at Mile 13. Computations by shifting channel methods. Records available: June 21, 1949 through December 1952.

REMARKS: In 1952, a total of 42,091 acres of land was irrigated from this canal and its extension. Of this, 12,648 acres were above the power plant. This total includes land irrigated by water diverted from the canal ahead of the gaging stations as follows: Above Las Moras Creek Station, 1,082 acres; above Mile 3 Station, 100 acres; above Mile 13 Station, 900 acres. A total of 418,200 acre-feet of water returned to the river at the power plant and some was returned through the irrigation system.

EXTREME FLOWS FROM RECORDS: Momentary peak: Max. 1,650 second-feet on May 27, 1952. Min. 674 second-feet, on September 28, 1952.

Average Flow in Second-Feet

Daily:	Max.	1,620	July 13, 1952	Min.	697	Sept. 28, 1952
Monthly:	Max.	* 1,530	July 1952	Min.	790	Sept. 1952
Yearly:	Max.	1,390	1950	Min.	1,050	1952

Mean Daily Discharge in Second-Feet 1952 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,160	1,080	1,080	1,030	1,260	1,450	1,350	1,430	838	702	884	939
2	1,190	1,080	1,080	963	1,170	1,480	1,490	1,380	867	857	879	928
3	1,200	1,080	1,070	922	1,030	1,470	1,510	1,320	856	1,070	871	944
4	1,160	1,080	1,060	934	939	1,410	1,500	1,260	818	1,050	871	944
5	1,140	1,070	1,040	905	909	* 1,290	* 1,520	1,210	796	1,000	882	930
6	1,140	1,070	1,050	895	887	* 1,240	* 1,460	1,150	* 784	956	895	909
7	1,110	1,060	1,050	886	873	1,170	* 1,460	1,110	788	912	893	903
8	1,120	1,070	1,030	874	842	1,130	* 1,460	1,090	776	936	922	914
9	1,150	1,070	1,040	* 852	821	1,130	* 1,430	1,070	793	897	952	944
10	1,160	1,070	1,070	* 842	808	* 1,120	* 1,400	1,070	793	887	970	944
11	1,140	1,080	1,040	829	* 770	* 1,080	1,600	1,060	801	856	960	917
12	1,130	1,080	1,030	840	* 753	* 1,050	1,610	1,030	973	840	930	926
13	1,160	1,090	1,000	* 809	* 744	* 1,000	1,620	1,010	850	840	912	924
14	1,150	1,080	987	807	722	946	1,550	988	758	834	930	918
15	1,160	1,070	982	" 784	710	1,070	1,540	971	770	860	947	899
16	1,160	1,070	971	* 769	708	1,520	1,550	942	806	865	988	888
17	1,170	1,070	972	780	713	* 1,530	* 1,590	913	820	876	1,010	897
18	1,170	1,060	976	812	941	1,510	" 1,590	911	794	" 873	990	916
19	1,140	1,080	934	814	1,430	1,390	" 1,590	893	777	" 870	" 927	1,010
20	1,130	1,080	939	830	1,040	1,400	" 1,590	892	771	" 867	* 906	1,000
21	1,130	1,070	928	920	1,190	* 1,320	" 1,580	894	767	" 863	894	989
22	1,120	1,070	920	1,370	921	1,300	1,560	918	770	" 858	930	1,000
23	1,100	1,050	915	1,400	820	1,240	1,570	947	756	" 846	994	984
24	1,080	1,080	903	1,330	900	1,200	1,560	929	762	" 846	993	984
25	1,080	1,160	894	1,310	1,300	1,190	1,540	1,000	762	" 846	983	973
26	1,100	1,260	904	1,190	1,180	1,140	1,560	* 1,060	749	" 841	956	950
27	1,100	1,110	922	1,040	1,380	1,080	1,560	1,040	742	" 867	969	992
28	1,110	1,070	953	996	1,360	1,290	1,520	993	697	" 894	996	1,020
29	1,100	1,080	971	1,060	1,390	1,410	1,510	945	715	920	975	1,010
30	1,100		989	1,290	1,460	1,390	1,490	943	708	884	949	1,050
31	1,090		999		1,460		1,460	932		879		1,020
Sum	35,150	31,440	30,699	29,083	31,431	37,946	* 47,320	32,301	23,707	*27,392	28,158	29,566

Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Period July 1949-1952 *** Acre-Feet		
			High		Low				Average	Maximum	Minimum
	High	Low	Day		Day						
Current Year 1952											
Jan. ⊕			3	1,200	24	1,080	1,130	69,700	80,733	89,500	69,700
Feb. ⊕			25	1,320	23	1,030	1,080	62,400	73,900	82,500	62,400
Mar. ⊕			2	1,100	25	885	990	60,900	78,267	90,700	60,900
Apr.**			22	1,470	21	740	969	57,700	69,867	81,000	57,700
May **			27	1,650	16	706	1,010	62,300	74,433	82,200	62,300
June**			16	1,600	15	891	1,260	75,300	82,733	86,800	75,300
July**			13	ϕ 1,620	1	ϕ 1,350	*1,530	* 93,900	* 86,300	* 93,900	* 77,700
Aug. #			1	1,440	20	875	1,040	64,100	* 78,875	88,500	64,100
Sept.#			12	1,050	28	674	790	47,000	* 72,950	* 84,500	47,000
Oct. #			3	ϕ 1,070	1	702	* 884	* 54,300	* 73,775	* 87,200	* 54,300
Nov. #			17	1,040	4	841	939	55,900	72,350	82,800	55,900
Dec. #			30	1,060	16	867	954	58,600	75,250	85,600	58,600
Yearly				1,650		674	1,050	762,100	* 919,433	1,004,200	762,100

" Estimated * Partly estimated ϕ Mean daily ⊕ Maverick Canal at Las Moras Creek ** Maverick Canal at Mile 3 # Maverick Canal at Mile 13 *** Records from July 1949 through March 1952 are for Maverick Canal at Las Moras Creek

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 the Maverick Canal Extension which is used to transmit irrigation water. The water-stage recorder is located at a wood pile bridge about 1 mile below the heading of this canal extension. Meter measurements are made from the bridge.

RECORDS: Based on 22 meter measurements during the year and a continuous record of gage heights. Computations by shifting channel methods. Records available: April 1, 1939 through December 1952.

REMARKS: Irrigation from this canal extension began in June 1938, and in 1952, 29,443 acres of land were irrigated north and south of Eagle Pass. Some water from this canal extension returns to the river below the power plant.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 472 second-feet on July 6, 1951. Min. occasionally no flow.

Average Flow in Second-Feet

Daily:	Max.	430	July 4, 1951	Min.	0	occasionally	
Monthly:	Max.	394	July 1951	Min.	¤ 18.7	March	1939
Yearly:	Max.	321	1952	Min.	62.1		1939

Mean Daily Discharge in Second-Feet 1952 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	298	¤ 316	313	327	263	177	¤ 389	336	¤ 312	324	* 366	* 265
2	305	¤ 316	312	364	254	197	¤ 405	329	¤ 297	333	* 376	* 264
3	¤ 298	¤ 312	308	352	295	209	¤ 376	322	¤ 300	334	* 360	* 264
4	* 289	¤ 312	304	365	301	209	¤ 388	326	298	338	* 350	* 262
5	298	¤ 315	303	355	301	211	¤ 392	325	299	357	* 342	* 262
6	298	¤ 317	315	338	317	216	¤ 396	326	311	340	* 343	* 258
7	297	* 317	310	332	314	239	¤ 400	323	324	335	* 339	* 266
8	311	316	301	345	312	236	¤ 383	337	313	* 351	* 339	* 279
9	311	310	312	383	322	275	* 388	336	309	* 353	* 366	* 298
10	303	318	318	* 364	300	292	394	339	306	* 345	* 367	* 333
11	309	322	307	¤ 356	314	313	376	335	302	* 358	* 368	* 339
12	303	326	307	¤ 356	319	350	382	333	304	* 378	* 345	* 325
13	309	329	313	¤ 358	316	340	387	338	300	* 363	* 346	* 324
14	313	329	312	¤ 358	317	326	377	334	303	* 350	* 368	* 354
15	312	330	312	* 356	317	341	363	331	308	* 340	* 363	* 331
16	308	325	315	369	319	370	367	330	314	* 336	* 350	* 306
17	313	* 312	319	364	326	364	368	338	317	* 326	* 331	* 306
18	320	* 301	337	279	289	363	372	341	301	* 345	* 362	* 306
19	299	314	324	250	179	412	370	343	300	* 405	* 333	* 332
20	291	317	330	297	215	286	378	352	295	* 377	* 341	* 326
21	288	305	349	312	270	232	365	356	300	* 372	* 304	* 304
22	288	322	360	346	281	312	362	361	306	* 365	* 300	* 316
23	* 293	309	361	342	304	371	367	338	304	¤ 357	* 325	* 318
24	¤ 303	318	332	335	263	384	365	¤ 299	300	¤ 351	* 322	* 294
25	¤ 302	289	358	329	197	¤ 390	364	¤ 318	305	* 368	* 303	* 300
26	¤ 302	262	359	326	179	¤ 380	355	¤ 323	304	* 368	* 305	* 294
27	¤ 303	284	355	321	173	¤ 400	331	¤ 328	310	* 353	* 300	* 297
28	¤ 312	302	325	326	161	¤ 380	327	¤ 316	339	* 366	* 325	* 302
29	¤ 317	314	319	333	177	¤ 360	328	¤ 315	318	* 382	* 280	* 296
30	¤ 317		308	321	178	¤ 370	332	¤ 309	317	* 366	* 279	* 304
31	¤ 316		303		172		335	¤ 308		¤ 357		* 292
Sum	*9,431	*9,059	10,001	10,159	8,245	9,305	* 11,482	10,245	9,216	*10,993	*10,098	*9,317

Month	1939-1952 Average Rainfall Inches **	Current Year 1952 Extreme Second-Feet High Day	High	Low Day	Low	Average Second-Feet	Total Acre-Feet	Period 1939-1952 Acre-Feet Average	Maximum	Minimum	Acre-Feet Average 1943-1952
Jan.	1.00 .05	¤29	335	22	257	* 304	* 18,700	10,043	19,800	¤ 2,140	11,940
Feb.	1.08 .42	16	348	26	224	* 312	* 18,000	9,214	18,200	¤ 2,120	11,266
Mar.	.87 .80	23	373	8	259	323	19,800	10,208	19,800	¤ 1,150	12,324
Apr.	1.48 .76	‡ 9	391	19	211	339	20,200	10,123	20,200	3,430	12,099
May	3.43 3.38	18	341	28	144	266	16,400	8,231	16,400	2,840	9,798
June	1.94 .49	19	464	1	175	310	18,500	9,028	* 18,500	3,750	10,369
July	1.28 .24	2	*ϕ 405	28	ϕ 327	* 370	* 22,800	11,347	24,300	4,510	13,486
Aug.	2.24 0	22	373	24	ϕ¤ 299	330	20,300	10,110	20,300	3,480	11,872
Sept.	2.50 .28	28	ϕ 339	20	ϕ 295	307	18,300	9,303	18,300	4,600	10,856
Oct.	1.59 .24	19	*ϕ 405	1	ϕ 324	* 355	* 21,800	10,608	* 21,800	5,130	12,258
Nov.	.69 1.18	2	*ϕ 376	30	ϕ* 279	* 337	* 20,000	11,196	* 20,000	4,170	12,719
Dec.	.75 .47	14	*ϕ 354	6	ϕ* 258	* 301	* 18,500	11,679	20,200	4,280	13,229
Yearly	18.85 8.33					* 321	*233,300	121,290	* 233,300	44,950	142,206

¤ Estimated * Partly estimated ‡ And other days ϕ Mean daily ** On U. S. side from Quemado to El Indio, Texas.

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

The total diversion of 752,400 acre-feet to this area was made almost entirely by pumping from the river to irrigate 506,684 acres. Diversions were actually measured for 90% of the acreage. Diversions to the remainder were estimated. Measurements in general were made by Venturi meters, by open channel rating stations, and deflection meters developed by this Commission, although a small part was measured by plant efficiency and power input. There is some re-use of drainage water within the area. Drainage water which escapes from the area does not return to the Rio Grande. In addition to the irrigated area, there were 148,317 acres of dry-farmed land within the area. More than one crop per year is often grown on some of the land.

Average Flow in Second-Feet

Daily ϕ:	Max.	5,400	June 15, 1951	Min.	0	Sept. 25, 1949, Oct. 25, 1951
Monthly:	Max.	3,660	June 1949	Min.	25.2	June 1930
Yearly:	Max.	2,060	1950	Min.	653	1941

Mean Daily Discharge in Second-Feet 1952 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1,250	230	583	1,270	1,540	1,990	1,240	1,960	408	685	394	881
2	1,210	456	732	971	655	2,280	1,090	1,940	532	433	514	931
3	1,160	700	1,280	290	417	2,570	393	1,780	523	534	484	1,030
4	1,050	1,260	1,240	242	761	2,600	376	2,120	719	495	587	1,040
5	1,230	924	1,210	270	1,300	2,430	463	2,410	569	564	573	951
6	1,200	895	682	728	1,240	2,280	916	2,110	549	562	578	991
7	1,510	283	661	1,190	1,200	1,300	2,020	1,890	562	579	567	1,020
8	1,320	159	650	915	531	1,290	2,380	1,890	809	535	605	998
9	1,300	310	897	984	802	1,520	2,650	1,720	834	518	655	869
10	925	583	1,570	790	877	1,880	3,060	1,610	756	462	721	784
11	660	802	1,410	667	1,060	1,600	2,690	1,660	644	470	645	944
12	754	589	1,120	401	1,240	1,560	2,890	1,440	758	459	661	1,010
13	1,010	523	334	322	801	1,550	2,790	1,220	685	541	635	1,010
14	1,950	371	454	517	657	1,660	3,100	401	787	593	824	912
15	1,750	297	684	1,000	403	1,300	2,610	925	757	634	982	857
16	1,160	388	1,020	848	370	1,840	2,680	1,110	831	558	1,110	664
17	700	565	1,870	317	214	1,960	3,020	1,160	861	652	1,170	665
18	354	869	1,640	279	283	1,820	2,780	1,150	1,100	545	1,040	766
19	491	612	1,390	390	816	1,550	2,200	996	1,190	534	793	773
20	861	572	637	751	503	649	2,220	920	1,180	572	613	789
21	1,710	205	534	947	219	605	2,950	848	1,180	624	662	645
22	1,460	164	553	662	217	993	2,600	844	1,200	590	705	641
23	1,140	403	809	356	410	1,600	2,340	759	1,230	628	698	731
24	446	605	1,380	232	512	1,380	2,460	707	1,280	602	742	752
25	295	622	1,110	232	1,140	1,480	2,330	819	1,530	625	716	647
26	678	601	997	370	2,420	662	2,360	814	1,820	561	678	678
27	801	602	298	689	3,590	799	1,780	788	1,810	585	611	675
28	1,610	481	394	1,460	2,640	983	2,760	723	1,510	524	673	703
29	1,170	596	613	1,760	2,280	1,070	2,840	649	1,060	506	725	787
30	976		861	1,890	2,620	1,440	2,280	438	815	455	827	868
31	406		1,560		2,680		2,040	513		508		939
Sum	32,537	15,667	29,173	21,740	34,398	46,641	68,308	38,314	28,489	17,183	21,188	25,956

Month	1922-1952 Average Rainfall Inches**		Current Year 1952 ϕ Extreme Second-Feet High Day	High	Low Day	Low	Average Second-Feet	Total Acre-Feet	Period 1922-1952 Acre-Feet Average	Maximum	Minimum	Acre-Feet Average 1943-1952
Jan.	1.42	.21	14	1,950	25	295	1,050	64,500	46,452	117,000	7,700	65,660
Feb.	1.02	.38	4	1,260	8	159	540	31,100	63,368	134,000	6,960	70,580
Mar.	1.17	.36	17	1,870	27	298	941	57,900	85,081	156,000	14,100	94,870
Apr.	1.27	.45	30	1,890	‡24	232	725	43,100	74,685	125,000	29,300	89,070
May	3.41	3.96	27	3,590	17	214	1,110	68,200	71,420	135,000	4,510	100,190
June	2.72	3.52	4	2,600	21	605	1,550	92,500	75,716	218,000	1,500	114,890
July	1.82	1.82	14	3,100	4	376	2,200	135,000	77,721	161,000	10,000	134,800
Aug.	2.09	.19	5	2,410	14	401	1,240	76,000	80,776	157,000	19,100	106,470
Sept.	4.56	2.86	26	1,820	1	408	950	56,500	59,213	133,000	8,020	81,040
Oct.	2.13	.09	1	685	30	455	554	34,100	61,671	131,000	21,400	71,420
Nov.	1.23	2.60	17	1,170	1	394	706	42,000	68,659	128,000	11,500	89,690
Dec.	1.60	.55	4	1,040	22	641	837	51,500	49,923	124,000	10,400	75,840
Yearly	24.44	16.99		3,590		159	1,040	752,400	808,685	1,489,800	472,500	1,094,520

‡ And other days ϕ Mean daily ** Lower Rio Grande area on U. S. side from Rio Grande City to the Gulf of Mexico. ⊕ Period 1938-1952

DIVERSIONS FROM THE RIO GRANDE
ANZALDUAS CANAL NEAR REYNOSA, TAMAULIPAS

DESCRIPTION: For irrigation and domestic use in Mexico, water is diverted from the Rio Grande into Anzaldúas Canal at a point 12.2 river miles above the international bridge between Hidalgo, Texas and Reynosa, Tamaulipas, 1,072.6 river miles below the American Dam at El Paso, Texas, and 168.8 river miles upstream from the Gulf of Mexico. It is the principal diversion canal from the Rio Grande into Mexico and has a capacity of 8,750 second-feet. The station is equipped with a temporary staff gage at the railroad bridge, about 2.5 canal miles below the intake, and a light cable for boat measurements. Zero of the gage is 85.01 feet above mean sea level, U.S.C. & G.S. datum.

RECORDS: Based on 25 meter measurements during the year. Computations by shifting channel methods. Records available: January 1 through December 31, 1952.

REMARKS: Part of the water diverted into this canal can be returned to the river through the Poniente Drain which intersects this canal about 5.4 miles below the Anzaldúas Canal intake. Anzaldúas Canal is also used to convey water for storage in Culebrón, Villa Cárdenas, and Palito Blanco reservoirs. Diversions from the Rio Grande into this canal began on May 26, 1952.

Mean Daily Discharge in Second Feet 1952 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	0	0	0	2,140	0	166	0	0	0	0
2	0	0	0	0	0	1,340	0	83.0	0	0	0	0
3	0	0	0	0	0	851	0	35.3	0	0	0	0
4	0	0	0	0	0	396	0	1.1	0	0	0	0
5	0	0	0	0	0	323	0	0	0	0	0	0
6	0	0	0	0	0	265	244	0	0	0	0	0
7	0	0	0	0	0	396	212	0	0	0	0	0
8	0	0	0	0	0	512	555	0	0	0	0	0
9	0	0	0	0	0	812	406	0	0	0	0	0
10	0	0	0	0	0	643	244	0	0	0	0	0
11	0	0	0	0	0	452	926	0	0	0	0	0
12	0	0	0	0	0	265	1,610	0	0	0	0	0
13	0	0	0	0	0	65.0	873	0	0	0	0	0
14	0	0	0	0	0	41.0	268	0	0	0	0	0
15	0	0	0	0	0	.7	700	0	0	0	0	0
16	0	0	0	0	0	0	1,090	0	0	0	0	0
17	0	0	0	0	0	0	618	0	0	0	0	0
18	0	0	0	0	0	0	1,340	0	0	0	0	0
19	0	0	0	0	0	0	2,590	0	0	0	0	0
20	0	0	0	0	0	0	3,380	0	0	0	0	0
21	0	0	0	0	0	0	3,640	0	0	0	0	0
22	0	0	0	0	0	0	2,740	0	0	0	0	0
23	0	0	0	0	0	0	1,770	0	0	0	0	0
24	0	0	0	0	0	0	1,510	0	0	0	0	0
25	0	0	0	0	0	0	1,310	0	18.3	0	0	0
26	0	0	0	0	665	0	1,250	0	35.3	0	0	0
27	0	0	0	0	3,450	0	964	0	0	0	0	0
28	0	0	0	0	3,310	0	632	0	0	0	0	0
29	0	0	0	0	2,770	0	495	0	0	0	0	0
30	0		0	0	3,120	0	268	0	0	0	0	0
31	0		0		3,280		223	0		0		0
Sum	0	0	0	0	16,595	8,501.7	29,658	285.4	53.6	0	0	0

Current Year 1952									Period			Acre-Feet
Month	Extreme Gage Feet		Extreme Second-Feet				Average Second-Feet	Total Acre-Feet	Acre-Feet			Average
	High	Low	Day	High	Day	Low			Average	Maximum	Minimum	
Jan.			‡ 1	0	‡ 1	0	0	0				
Feb.			‡ 1	0	‡ 1	0	0	0				
Mar.			‡ 1	0	‡ 1	0	0	0				
Apr.			‡ 1	0	‡ 1	0	0	0				
May	9.84	- .33	‡30	4,560	‡ 1	0	535	32,920				
June	6.89		1	2,440	‡15	0	283	16,860				
July	8.99		21	3,670	‡ 1	0	957	58,830				
Aug.	¤ 2.13		1	¤ 187	‡ 4	0	9.2	566				
Sept.	¤ 1.48		26	¤ 60.0	‡ 1	0	1.8	106				
Oct.			‡ 1	0	‡ 1	0	0	0				
Nov.			‡ 1	0	‡ 1	0	0	0				
Dec.			‡ 1	0	‡ 1	0	0	0				
Yearly	9.84			4,560		0	151	109,282				

¤ Estimated ‡ And other days

DIVERSIONS FROM THE RIO GRANDE
RETAMAL CANAL NEAR RIO BRAVO, TAMAULIPAS

DESCRIPTION: Water-stage recorder and cable with car located .87 mile below head gate, which is about 1,000 feet from the Rio Grande. This canal has a capacity of about 7,000 second-feet. It diverts from the Rio Grande at a point about 24 river miles below the Hidalgo-Reynosa Bridge near Hidalgo, Texas and 1,108.8 river miles below the American Dam at El Paso, Texas. The zero of the gage is .85 foot above mean sea level, U.S.C. & G.S. datum.

RECORDS: Based on 60 meter measurements during the year. Computations by shifting channel methods. Records available: September 1939 through December 1952.

REMARKS: Retamal Canal empties into Culebrón Reservoir, which in turn discharges into Villa Cárdenas Reservoir, from which a canal leads to Palito Blanco Reservoir. These reservoirs are used for irrigation purposes. During Rio Grande floods, floodwater may escape from Villa Cárdenas via Floodway No. 1 to the Gulf of Mexico. No use was made of this floodway in 1952. In 1952, 123,552 acres with irrigation facilities were cultivated under Retamal Canal, of which 32,830 acres were irrigated with 38,870 acre-feet of water.

EXTREME FLOWS FROM RECORDS: Momentary: Max. 6,990 second-feet on September 12, 1944, with a gage height of 76.31 feet. Min. occasionally no flow.

Average Flow in Second-Feet

Daily:	Max.	6,920	Sept. 12, 1944	Min.	0	occasionally
Monthly:	Max.	3,280	Sept. 1944	Min.	0	occasionally
Yearly:	Max.	769	1949	Min.	92.6	1952

Mean Daily Discharge in Second-Feet 1952 — Annual and Period Summary

Day	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	0	0	0	0	0	1,490	0	271	0	0	0	0
2	0	0	0	0	0	894	0	261	0	0	0	0
3	0	0	0	0	0	678	0	242	0	0	0	0
4	0	0	0	0	0	541	0	195	0	0	0	0
5	0	0	0	0	0	396	0	69.6	0	0	0	0
6	0	0	0	0	0	290	97.1	19.4	0	0	0	0
7	0	0	0	0	0	406	124	14.5	0	0	0	0
8	0	0	0	0	0	738	130	13.4	0	0	0	0
9	0	0	0	0	0	798	357	9.2	0	0	0	0
10	0	0	0	0	0	608	344	4.6	0	0	0	0
11	0	0	0	0	0	544	410	0	0	0	0	0
12	0	0	0	0	0	463	727	0	0	0	0	0
13	0	0	0	0	0	286	840	0	0	0	0	0
14	0	0	0	0	0	216	565	0	0	0	0	0
15	0	0	0	0	0	214	413	0	0	0	0	0
16	0	0	0	0	0	151	519	0	0	0	0	0
17	0	0	0	0	0	93.6	629	0	0	0	0	0
18	0	0	0	0	0	61.4	583	0	0	0	0	0
19	0	0	0	0	0	42.0	1,140	0	0	0	0	0
20	0	0	0	0	0	31.8	1,500	0	0	0	0	0
21	0	0	0	0	0	42.4	1,750	0	0	0	0	0
22	0	0	0	0	0	55.8	1,540	0	0	0	0	0
23	0	0	0	0	6.4	44.8	1,190	0	0	0	0	0
24	0	0	0	0	146	6.0	1,010	0	0	0	0	0
25	0	0	0	0	114	13.8	805	0	0	0	0	0
26	0	0	0	0	277	17.0	742	0	0	0	0	0
27	0	0	0	0	699	30.0	685	0	0	0	0	0
28	0	0	0	0	470	41.3	537	0	0	0	0	0
29	0	0	0	0	438	33.2	424	0	0	0	0	0
30	0		0	0	1,360	18.4	371	0	0	0	0	0
31	0		0		2,280		325	0		0		0
Sum	0	0	0	0	5,790.4	9,244.5	17,757.1	1,099.7	0	0	0	0

Month	1940-1952 Average Rainfall Inches **	Current Year 1952 Rainfall Inches **	Extreme Second-Feet High Day	High	Extreme Second-Feet Low Day	Low	Average Second-Feet	Total Acre-Feet	Period Sept. 1939-1952 Acre-Feet Average	Maximum	Minimum	Acre-Feet Average 1943-1952
Jan.	1.42	.15		0	‡ 1	0	0	0	12,423	25,790	0	14,084
Feb.	.98	.47		0	‡ 1	0	0	0	9,950	38,200	0	12,062
Mar.	1.26	.08		0	‡ 1	0	0	0	10,683	54,110	0	11,324
Apr.	1.23	.52		0	‡ 1	0	0	0	13,929	98,580	0	16,533
May	3.52	2.85	31	2,410	‡ 1	0	187	11,490	27,770	82,980	4,490	30,033
June	2.79	3.30	1	2,090	30	3.5	308	18,340	30,752	82,400	1,590	34,523
July	1.28	2.24	21	1,820	‡ 1	0	573	35,220	26,126	110,700	360	31,893
Aug.	2.72	.19	1	293	‡11	0	35.5	2,180	28,634	96,180	138	32,698
Sept.	3.94	5.56		0	‡ 1	0	0	0	58,676	195,100	0	59,397
Oct.	2.50	.55		0	‡ 1	0	0	0	51,101	124,600	0	49,441
Nov.	.99	2.43		0	‡ 1	0	0	0	14,448	32,300	0	14,724
Dec.	1.24	.44		0	‡ 1	0	0	0	11,092	21,080	0	11,074
Yearly	23.87	18.78		2,410		0	92.6	67,230	295,584	556,590	67,230	317,786

‡ And other days ** Mean rainfall Reynosa to Matamoros

MUNICIPAL WATER USES

In Acre-Feet

Tabulated below are yearly and monthly amounts of water pumped from the Rio Grande or tributaries into the municipal distribution systems of several cities along the border. The basic data are furnished by the municipalities. The municipal and industrial water supply for the El Paso area in Texas came from wells prior to November 7, 1943. During the months of July, August, September, and October 1952, the city of El Paso pumped water from wells near Canutillo, Texas into the Rio Grande. This water, minus transportation losses from Canutillo to El Paso, estimated by the United States Bureau of Reclamation, amounted to 2,435 acre-feet and is included in the figures below. The Del Rio water comes from San Felipe Springs, the Guerrero water comes from the Río Salado, and the others from the Rio Grande. Prior to September 1951, Eagle Pass water came from infiltration wells in or adjacent to the bed of the Rio Grande. Because of changing conditions, the period records are limited here to the past ten years.

Population figures for Mexico are from 1950 census. Population figures for United States cities are estimates made by the Chamber of Commerce in each city.

In the United States

Month	El Paso (Pop. 148,165)				Del Rio (Pop. 16,500)			
	1952	Period Nov. 1943-1952			1952	Period 1943-1952		
		Average	Maximum	Minimum		Average	Maximum	Minimum
Jan.	868	235.9	963.2	0	194.0	127.6	194.9	87.5
Feb.	843	326.7	843.0	0	188.6	132.0	198.0	90.0
Mar.	506	390.8	812.8	63.4	233.9	174.3	233.9	129.1
Apr.	61.4	465.1	854.8	28.5	223.1	189.7	246.8	135.0
May	511	560.7	959.2	43.0	254.1	219.3	268.8	154.2
June	1,039	762.1	1,093.6	519.9	376.0	258.1	376.0	179.4
July	1,056	794.1	1,056.0	538.1	366.0	284.1	366.0	218.7
Aug.	1,119	792.8	1,128.5	514.4	457.5	286.5	457.5	180.3
Sept.	1,036	707.4	1,036.0	207.7	347.6	226.5	347.6	157.2
Oct.	733	610.0	917.9	193.4	189.0	161.6	232.9	84.8
Nov.	557	412.4	789.9	0	189.4	148.4	214.8	85.4
Dec.	646	481.1	952.8	0	160.7	132.1	184.2	78.5
Yearly	8,975.4	6,521.2	8,975.4	4,049.5	3,179.9	2,340.2	3,179.9	1,807.4

Month	Eagle Pass (Pop. 8,800)				Laredo (Pop. 57,000)			
	1952	Period 1943-1952			1952	Period 1943-1952		
		Average	Maximum	Minimum		Average	Maximum	Minimum
Jan.	87.2	60.7	87.2	44.9	430.6	348.4	430.6	271.7
Feb.	82.8	58.8	82.8	46.5	411.2	343.5	411.3	297.2
Mar.	67.5	75.8	95.0	54.5	478.4	443.3	479.2	360.6
Apr.	96.7	78.0	97.1	64.5	557.6	483.8	557.6	422.1
May	109.1	78.6	109.1	55.0	579.4	529.7	607.0	384.8
June	135.0	89.7	135.0	40.0	541.9	563.5	660.7	413.8
July	155.8	112.3	155.8	95.6	676.2	642.3	751.0	544.4
Aug.	178.4	106.9	178.4	75.4	818.4	649.2	818.4	474.1
Sept.	146.3	90.6	146.3	65.2	668.6	514.9	668.6	389.0
Oct.	107.7	69.6	107.7	41.0	590.7	470.9	590.7	379.6
Nov.	79.1	61.4	99.9	47.8	428.6	393.9	428.6	350.5
Dec.	81.9	63.2	81.9	47.0	371.1	354.7	406.4	292.4
Yearly	1,327.5	945.6	1,327.5	771.5	6,552.7	5,738.1	6,552.7	4,967.7

Month	Roma (Pop. 4,100)*				Rio Grande City (Pop. 3,500)				Brownsville (Pop. 40,000)			
	1952	Period 1943-1952			1952	Period 1943-1952			1952	Period 1943-1952		
		Average	Maximum	Minimum		Average	Maximum	Minimum		Average	Maximum	Minimum
Jan.	14.0	7.0	14.3	2.4	50.5	28.9	50.5	14.7	556.5	320.3	556.5	130.4
Feb.	14.2	7.4	14.2	3.6	47.9	28.4	49.9	14.8	442.6	305.3	520.4	144.8
Mar.	15.9	9.4	15.9	4.7	54.6	33.7	55.9	20.0	479.3	331.8	535.5	168.8
Apr.	16.9	9.8	16.9	5.1	56.6	35.6	56.6	18.8	375.2	348.8	593.8	185.4
May	17.3	11.2	17.3	5.9	62.9	38.8	62.9	21.1	302.8	380.3	699.7	189.0
June	17.2	11.6	17.3	5.6	60.6	37.4	64.1	19.4	538.8	410.3	711.7	176.4
July	16.8	12.4	18.6	5.9	79.0	45.6	79.0	17.1	687.4	487.4	830.5	200.3
Aug.	20.4	12.1	20.4	5.2	70.1	45.3	70.4	18.5	763.4	461.4	763.4	207.2
Sept.	18.8	10.6	18.8	4.3	65.0	41.1	69.6	17.1	568.8	398.6	645.8	163.8
Oct.	17.5	9.7	17.5	3.4	62.1	37.8	62.1	19.0	553.3	371.3	569.2	154.8
Nov.	13.8	8.3	13.8	3.0	45.7	33.2	51.7	15.9	467.1	340.5	491.0	132.5
Dec.	12.5	7.8	13.0	2.6	42.4	32.4	67.9	13.9	514.5	341.4	514.5	121.2
Yearly	195.3	117.3	195.3	52.6	687.4	438.2	687.4	218.0	6,249.7	4,497.4	7,180.8	2,038.3

In Mexico

Month	Nuevo Laredo (Pop. 59,274)				Cd. Guerrero (Pop. 1,995)				Matamoros (Pop. 42,897)			
	1952	Period 1943-1952			1952	Period 1943-1952			1952	Period 1943-1952		
		Average	Maximum	Minimum		Average	Maximum	Minimum		Average	Maximum	Minimum
Jan.	348.7	216.8	348.7	101.9	4.7	4.9	5.5	4.3	202.1	102.9	202.1	72.0
Feb.	357.6	213.3	357.6	103.9	4.9	4.7	5.2	4.3	144.0	90.7	144.0	64.0
Mar.	388.3	267.0	388.3	134.4	5.3	5.5	6.3	5.0	213.7	108.1	213.7	76.0
Apr.	412.3	283.6	412.3	176.0	5.4	6.1	7.3	5.3	141.5	99.4	141.5	75.2
May	469.0	314.0	469.0	194.3	5.8	7.0	8.0	5.8	127.7	103.9	127.7	77.9
June	471.3	321.0	471.3	178.6	6.3	7.6	8.5	6.3	239.2	113.9	239.2	74.8
July	487.2	354.6	487.2	189.0	7.1	8.6	10.1	7.1	251.9	118.4	251.9	83.1
Aug.	540.9	363.1	540.9	202.0	8.5	10.0	11.3	8.5	249.6	119.6	249.6	82.2
Sept.	470.2	311.9	470.2	140.0	8.8	8.6	9.2	7.3	239.8	114.4	239.8	82.9
Oct.	464.1	300.1	464.1	159.6	8.5	8.2	8.9	6.5	252.9	120.3	252.9	78.5
Nov.	384.0	261.7	384.0	132.8	7.5	6.8	7.3	4.9	233.4	110.8	233.4	77.2
Dec.	361.3	247.1	386.4	120.7	5.8	5.6	6.3	5.0	237.5	110.6	237.5	74.8
Yearly	5,154.9	3,454.2	5,154.9	1,827.9	78.6	83.6	87.5	78.6	2,533.3	1,313.0	2,533.3	960.9

* Population figure includes Los Saenz. In addition to Roma and Los Saenz, Escobares (pop. 250) and Cd. Miguel Alemán in Mexico (formerly San Pedro de Roma, pop. 2,032) are served by this system.

SUSPENDED SILT IN THE RIO GRANDE AND SOME TRIBUTARIES AND DIVERSIONS

At each station, several water samples were taken each month by one of four methods:

A. By lowering an open small-necked bottle in one or more verticals in the stream cross-section, being careful to approach but not to strike bottom, thus securing an integrated sample at all depths. A monthly composite sample was later made by using, from each sample, a quantity proportional to the river flow volume represented by each sample. The gravimetric percentage of silt in this composite represented that in the monthly river flow.

B. By obtaining one depth integrated sample with a U.S.-D43 sampler at each of three verticals, spaced at 1|6, 1|2, and 5|6 of the stream width. The gravimetric percentage of silt for each measurement was computed by weighting the percentage of silt represented by each of the three samples by the partial flow in its section of the stream. These measurements were plotted on the station gage-height hydrograph from which a silt concentration graph was then drawn between plotted points. From this graph, mean daily silt concentrations were then determined.

C. 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. A coefficient of 1.10 was applied to the average gravimetric percentage of silt in the three bottles and this product was applied to the volume of streamflow represented by that set of samples.

D. By dipping near the surface with a small-necked bottle in turbulent water at the head gate of the Maverick Canal. The gravimetric percentage of silt in each weekly sample was then applied to the volume of canal flow represented by that sample. The flows represented by each sample were determined on the basis of Rio Grande stages at Del Rio.

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

Month	1952							Period of Record		
	Tons		Number 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 1947-1952

Jan.	5,825,000	55.8	31	.0009583			.04	.47	1.4	.04
Feb.	4,338,000	306	29	.007047			.21	.73	2.2	.08
Mar.	12,188,000	4,560	31	.03738			3.1	15.4	33.7	3.1
Apr.	35,451,000	5,600	30	.01581			3.9	20.1	33.5	3.9
May	46,727,000	10,800	31	.02308			7.4	21.2	63.3	1.9
June	64,009,000	51,000	30	.07963			35.1	52.1	152	11.2
July	69,443,000	55,600	31	.08032			38.4	53.4	124	18.8
Aug.	78,773,000	57,900	31	.07344			39.9	55.9	56.8	11.9
Sept.	44,441,000	9,060	30	.02039			6.2	26.7	92.3	1.7
Oct.	10,077,000	274	31	.002720			.19	3.0	11.8	.19
Nov.	6,957,000	142	30	.002040			.10	.70	1.5	.10
Dec.	6,791,000	187	31	.002752			.13	.63	2.1	.12
Yearly	385,020,000	195,684.8	366	.05082			134.67	230.33	436.87	76.94

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

Río Conchos at Cuchillo Parado, Chihuahua

Period 1945-1952

Jan.	24,493,000	0	14	0	0	0	0	0	0	0
Feb.	20,161,000	0	13	0	0	0	0	.64	4.0	0
Mar.	14,452,000	0	0	0	0	0	0	.38	3.0	0
Apr.	5,496,000	0	13	0	0	0	0	0	0	0
May	11,185,000	0	13	0	0	0	0	6.4	28.2	0
June	74,653,000	981,000	16	1.3141	3.0707	0	676	107	676	0
July	262,279,000	2,637,000	15	1.0054	2.2292	0	1,820	570	1,820	0
Aug.	26,787,000	1,150	13	.0043	.0200	0	.79	252	948	.79
Sept.	20,541,000	22,800	13	.1112	.3211	0	15.7	379	1,190	.32
Oct.	16,692,000	0	14	0	0	0	0	226	997	0
Nov.	14,842,000	0	12	0	0	0	0	.47	3.6	0
Dec.	15,225,000	0	14	0	0	0	0	.10	.83	0
Yearly	506,786,000	3,641,950	150	.7186	3.0707	0	2,512.49	1,541.99	2,590.4	156.13

Samples and Analyses by Mexican Section, Method C

Rio Grande at Lower Presidio Station

Period October 1949-1952

Jan.	24,019,000	1,420	13	.0059	.0086	.0016	.98	5.2	10.3	.98
Feb.	18,511,000	222	8	.0012	.0020	.0000	.15	7.5	13.0	.15
Mar.	13,312,000	413	10	.0031	.0075	.0003	.28	7.2	14.6	.28
Apr.	3,985,000	3,620	14	.0908	.5073	.0006	2.5	2.0	2.5	1.2
May	6,155,000	1,430	11	.0232	.0447	.0066	.98	5.9	15.1	.98
June	67,415,000	740,000	14	1.0970	1.5916	.0143	510	212	510	7.9
July	286,653,000	2,629,000	15	.9173	1.5138	.0191	1,810	1,050	1,810	193
Aug.	25,051,000	4,860	12	.0194	.0480	.0025	3.3	198	506	3.3
Sept.	16,507,000	70,300	14	.4261	1.6169	.0001	48.4	535	1,440	48.4
Oct.	16,528,000	1,810	12	.0111	.0179	.0061	1.2	154	509	1.2
Nov.	14,400,000	648	10	.0045	.0102	.0020	.45	6.5	13.1	.45
Dec.	15,702,000	1,660	12	.0106	.0282	.0056	1.1	3.6	7.6	1.1
Yearly	508,038,000	3,455,383	145	.6801	1.6165	.0000	2,379.34	2,186.9	3,780.9	449.37

Samples and Analyses by U. S. Section, Method B * Estimated

SUSPENDED SILT IN THE RIO GRANDE AND SOME TRIBUTARIES AND DIVERSIONS

Month	1952						Period of Record		
	Tons		Number 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 Lower Presidio Station								Period October 1951-1952	
Jan.	24,019,000	240	13	.0010			.17		
Feb.	18,511,000	222	8	.0012			.15		
Mar.	13,312,000	413	10	.0031			.28		
Apr.	3,983,000	8,890	12	.2231			6.1		
May	6,155,000	1,260	11	.0204			.87		
June	67,415,000	603,000	14	.8938			415		
July	286,653,000	2,759,000	15	.9624			1,900		
Aug.	25,051,000	6,490	12	.0259			4.5		
Sept.	16,507,000	137,200	14	.8284			94.4		
Oct.	16,328,000	1,520	12	.0093			1.0	2.2	3.4	1.0
Nov.	14,400,000	1,020	10	.0071			.70	1.2	1.7	.70
Dec.	15,702,000	1,960	12	.0125			1.3	1.1	1.3	.90
Yearly	508,038,000	3,521,015	143	.6931			2,424.47			

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

Rio Grande at Johnson Ranch, Texas									Period 1951-1952	
Jan.	23,978,000	1,990	12	.0083	.0145	.0049	1.4	5.6	5.8	1.4
Feb.	19,371,000	1,220	12	.0063	.0093	.0047	.84	8.2	15.6	.84
Mar.	13,805,000	1,410	13	.0102	.0167	.0049	1.0	10.6	20.3	1.0
Apr.	10,594,000	160,000	15	1.5089	3.6156	.0005	110	56.0	110	1.9
May	15,432,000	343,000	14	2.2256	4.8922	.0046	236	158.3	236	80.6
June	62,575,000	1,957,000	14	3.0968	7.9741	.0002	1,330	820	1,330	310
July	407,991,000	7,148,000	16	1.7520	2.4538	.0860	4,920	2,318	4,920	715
Aug.	26,477,000	5,000	9	.0189	.0453	.0056	3.4	153	302	3.4
Sept.	12,704,000	84,600	15	.6650	1.7577	.0011	58.3	236	413	58.3
Oct.	15,942,000	2,660	14	.0129	.0444	.0040	1.4	24.4	47.5	1.4
Nov.	13,565,000	597	13	.0044	.0072	.0023	.41	2.6	4.7	.41
Dec.	16,627,000	36,800	14	.2216	2.4144	.0004	25.3	13.5	25.3	1.7
Yearly	639,061,000	9,721,677	160	1.5212	7.9741	.0002	6,688.05	4,304.2	6,688.05	1,918.1

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

Rio Grande at Johnson Ranch, Texas									Period October 1951-1952	
Jan.	23,978,000	1,220	12	.0051			.84			
Feb.	19,371,000	1,490	12	.0077			1.0			
Mar.	13,805,000	290	13	.0021			.20			
Apr.	10,594,000	247,000	15	2.3357			170			
May	15,432,000	435,000	14	2.8200			300			
June	62,575,000	2,273,000	14	3.6318			1,570			
July	407,991,000	5,853,000	16	1.4347			4,030			
Aug.	26,477,000	4,000	12	.0151			2.8			
Sept.	12,704,000	143,000	14	1.1256			98.5			
Oct.	15,942,000	3,540	14	.0222			2.4	31.8	61.2	2.4
Nov.	13,565,000	407	13	.0030			.28	.94	1.6	.28
Dec.	16,627,000	70,200	14	.4225			48.3	26.1	48.3	3.9
Yearly	639,061,000	9,032,147	163	1.4133			6,224.32			

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

Rio Grande at Langtry, Texas									Period April 1944-1952	
Jan.	45,401,000	2,720	11	.005984			1.9	6.8	11.4	1.1
Feb.	37,988,000	5,580	9	.01469			3.8	9.1	36.9	3.0
Mar.	34,265,000	3,780	8	.01102			2.6	9.2	27.0	2.6
Apr.	35,189,000	26,800	8	.07609			18.5	19.4	66.4	1.1
May	46,746,000	289,000	8	.6175			199	139	448	3.7
June	66,187,000	447,000	9	.6853			308	457	1,220	2.8
July	441,455,000	8,394,000	27	1.9014			5,780	1,801	5,780	60.9
Aug.	55,825,000	7,820	8	.0140			5.4	882	3,130	4.7
Sept.	26,636,000	1,390	8	.005200			1.0	1,487	3,280	1.0
Oct.	40,570,000	7,440	6	.01834			5.1	872	3,261	5.1
Nov.	33,537,000	1,870	8	.005574			1.3	31.4	88.2	1.3
Dec.	35,712,000	258	8	.0007229			.18	10.9	46.8	.18
Yearly	898,511,000	9,187,658	118	1.0295			6,326.78	5,724.8	8,747.7	1,347.2

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

Pecos River near Comstock, Texas									Period June 1943-1952	
Jan.	13,150,000	270	16	.002056			.19	.45	.96	.15
Feb.	13,187,000	379	13	.006667			.61	.73	2.1	.13
Mar.	12,422,000	369	16	.007804			.67	.66	1.4	.29
Apr.	12,513,000	360	16	.002874			.25	5.1	41.7	.19
May	14,274,000	3,240	17	.02270			2.2	5.8	21.7	.54
June	11,074,000	527	15	.004762			.36	3.4	15.7	.17
July	11,802,000	597	15	.005061			.41	17.2	67.1	.19
Aug.	7,797,000	40.4	16	.0005179			.03	2.3	20.0	.03
Sept.	9,809,000	354	15	.003614			.24	2.3	9.4	.15
Oct.	8,221,000	322	15	.003913			.22	24.1	176	.22
Nov.	9,917,000	366	15	.003695			.25	.38	1.2	.05
Dec.	12,900,000	552	16	.004252			.38	.50	1.3	.01
Yearly	137,146,000	8,476.4	184	.006181			5.81	62.92	199.36	5.81

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

SUSPENDED SILT IN THE RIO GRANDE AND SOME TRIBUTARIES AND DIVERSIONS

Month	1952						Period of Record		
	Tons		Number of Samples	Gravimetric Percentages			Acre-Feet at 1,452 Tons Per Acre Foot		
	Water	Silt		Average	Maximum Sample	Minimum Sample	Average	Maximum	Minimum

Maverick Canal at Headgate

Period 1950-1952

Jan.	94,753,000	5,690	3	.006	.008	.004	3.9	4.4	5.0	3.9
Feb.	84,752,000	10,200	10	.012	.037	.006	7.0	5.8	7.0	4.6
Mar.	82,755,000	8,280	12	.010	.021	.004	5.7	5.7	5.9	5.5
Apr.	78,598,000	19,600	13	.025	.104	.004	13.5	8.6	13.5	3.8
May	84,728,000	108,000	10	.128	.350	.008	74.4	55.6	74.4	36.9
June	102,290,000	419,900	8	.401	1.797	.010	282	344	406	282
July	127,560,000	1,989,000	9	1.559	2.687	.586	1,370	748	1,370	520
Aug.	87,073,000	35,700	8	.041	.099	.004	24.6	263	600	24.6
Sept.	63,906,000	7,670	11	.012	.031	.002	5.3	186	353	5.3
Oct.	73,846,000	7,380	12	.010	.025	.002	5.1	108	308	5.1
Nov.	75,905,000	9,110	14	.012	.034	.002	6.3	10.1	13.9	6.3
Dec.	79,700,000	4,780	12	.006	.021	.002	3.3	6.6	10.4	3.3
Yearly	1,035,660,000	2,615,410	122	.253	2.687	.002	1,801.1	1,745.8		

Samples and Analyses by Division of Irrigation, Soil Conservation Service, Method D

Rio Grande at Eagle Pass, Texas

Period 1934-1952

Jan.	77,927,000	7,010	26	.009032			4.0	22.6	124	.07
Feb.	67,012,000	14,400	23	.021			9.9	54.5	768	2.6
Mar.	54,679,000	5,340	20	.01617			6.1	26.7	188	3.8
Apr.	66,439,000	67,560	22	.09849			45.1	69.5	466	3.0
May	183,543,000	147,000	20	.1274			136	532	4,220	17.7
June	94,207,000	204,200	23	.2167			140	994	4,340	4.3
July	453,233,000	4,891,000	26	1.0788			5,370	1,392	7,840	12.0
Aug.	68,066,000	32,190	26	.04729			92.1	1,061	5,310	14.8
Sept.	36,769,000	10,200	26	.02771			7.0	2,561	10,800	7.0
Oct.	42,886,000	5,400	27	.01259			3.7	1,321	5,820	3.7
Nov.	46,428,000		4					113	562	12.3
Dec.	55,722,000	2,200	22	.003952			1.5	22.2	84.1	1.1
Yearly	1,249,184,000		269					7,866.5	20,842.8	1,633.2

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

Río Alamo at Cd. Mier, Tamaulipas

Period 1934-1952

Jan.	63,900	"	0	0	" 0	" 0	" 0	" 0	2.5	21.8	0
Feb.	0		0	0	0	0	0	0	.38	6.6	0
Mar.	0		0	0	0	0	0	0	8.6	91.6	0
Apr.	0		0	0	0	0	0	0	26.0	227	0
May	18,928,000	"	88,700	0	" .4687	" .5600	" 0	" 61.1	47.8	230	2.2
June	10,105,000		92,300	1	.9135	1.3600	0	63.6	72.8	471	0
July	0		0	0	0	0	0	0	19.0	92.8	0
Aug.	0		0	0	0	0	0	0	160	1,610	0
Sept.	* 1,046,000	*	2,840	1	.2715	.4081	0	* 2.0	264	2,920	1.5
Oct.	48,500	"	0	0	" 0	" 0	" 0	" 0	82.1	558	0
Nov.	0		0	0	0	0	0	0	.82	5.2	0
Dec.	0		0	0	0	0	0	0	1.2	16.1	0
Yearly	30,191,400	*	183,840	2	* .6089	1.3600	0	* 126.7	685.20	3,156.57	* 126.7

Samples and Analyses by Mexican Section, Method C

Rio Grande at Roma, Texas

Period March 1929-1952

Jan.	85,857,000	2,250	31	.002619			1.5	35.4	169	.41
Feb.	66,165,000	4,760	29	.007189			3.3	65.6	1,010	.83
Mar.	58,658,000	4,200	31	.007160			2.9	118	1,830	1.3
Apr.	56,898,000	5,030	30	.008840			3.5	331	2,780	.76
May	245,301,000	1,367,000	32	.5573			941	1,196	5,230	15.4
June	158,762,000	249,000	30	.1568			171	1,251	7,220	10.6
July	452,818,000	4,940,000	31	1.0909			3,400	1,583	9,070	4.7
Aug.	72,406,000	92,500	31	.1282			63.9	1,307	3,720	9.3
Sept.	55,445,000	36,800	30	.06640			25.3	3,388	18,000	13.4
Oct.	32,672,000	759	31	.002324			.52	1,893	9,240	.52
Nov.	48,029,000	1,920	30	.003992			1.3	137	660	1.3
Dec.	58,717,000	3,990	31	.006793			2.7	48.7	319	1.0
Yearly	1,391,728,000	6,708,592	367	.4820			4,616.92	11,153.7	30,839	2,514.0

Samples by Mexican Section and Analyses by U. S. Section, Method A " Estimated * Partly estimated # Some months missing

CHEMICAL ANALYSIS OF WATER SAMPLES FROM THE RIO GRANDE AND TRIBUTARIES – 1952

The following chemical analyses are from composites made up periodically from independent water samples composed by taking from each sample an amount of water proportional to the volume of river flow represented by that sample. This compositing and the determination of the electrical conductivity of the individual water samples were done by the United States Section of the International Boundary and Water Commission. The chemical analyses were made by the Rubidoux Laboratory of the U. S. Department of Agriculture at Riverside, California.

To convert "Milligram Equivalents" to parts per million by weight, multiply each ion by its appropriate conversion factor. These factors are (HCO_3 plus CO_3), 30.5; Cl, 35.5; SO_4, 48; Ca, 20; Mg, 12.16; Na, 23; NO_3, 62. To convert tons per acre-foot to parts per million, multiply tons per acre-foot by 735.5.

Electrical conductivity, reported in the following tables as ECx10^6 at 25°C, is a relative measure of the total salt concentration in the water samples.

Rio Grande at El Paso, Texas

Sampling by U. S. Section

Month	No. of Samples	Dissolved Solids: Tons Per Acre Foot	Dissolved Solids: Total Tons	Mean ECx10^6 @25°C	Boron p.p.m.	pH	% Na **	% Cl ***	Mean Milligram Equivalents per Liter: Ca	Mg	Na	CO_3 + HCO_3	SO_4	Cl	NO_3
Jan.	31	1.98	8,490	2,180	.38	7.8	62	36	5.80	2.73	14.42	5.05	9.63	8.10	.01
Feb.	29	2.08	6,640	2,280	.41	8.1	65	37	5.62	2.46	14.90	5.00	9.81	8.70	.01
Mar.	31	1.58	14,200	1,770	.24	7.8	58	39	5.01	2.17	9.98	3.55	7.31	6.95	T
Apr.	30	1.34	35,000	1,510	.24	7.8	55	37	4.84	1.90	8.21	3.47	6.04	5.60	T
May	31	1.12	38,500	1,270	.24	7.8	50	31	4.32	1.95	6.25	3.30	5.40	4.00	.02
June	30	.83	39,100	948	.18	7.7	47	27	3.59	1.36	4.45	3.10	3.80	2.60	.02
July	31	.75	38,300	866	.16	7.7	47	26	3.26	1.16	4.10	3.10	3.33	2.25	.02
Aug.	31	.72	41,800	816	.11	7.8	43	26	3.22	1.28	3.46	3.07	3.03	2.15	.03
Sept.	30	.94	30,700	1,070	.25	7.8	50	29	4.01	1.32	5.40	3.51	4.12	3.15	.02
Oct.	31	1.75	13,000	1,930	.14	8.0	62	35	5.20	2.16	11.90	4.49	8.43	6.95	T
Nov.	30	1.84	9,420	2,030	.35	8.1	62	35	5.66	2.39	12.90	4.95	8.73	7.30	.02
Dec.	31	1.91	9,550	2,070	.28	8.1	63	35	5.46	2.34	13.40	4.85	9.01	7.55	.02
Mean ⊕	ϕ 366	1.00	ϕ 284,700	1,130	.194	7.8	52	31	3.92	1.54	5.81	3.37	4.57	3.53	.019
Period Average		1.11	599,000	1,220			53	30	4.36	1.62	6.67	3.47	5.45	3.77	
Tons of Constituents, 1952									30,300	7,220	51,500	39,600	84,600	48,200	
Average Tons Period 1930-1952									64,400	14,500	113,000	78,000	193,000	98,500	

Rio Grande at Fort Quitman, Texas

Sampling by U. S. Section

Jan.	7	6.81	11,200	7,350	.66	7.8	64	67	18.32	9.61	50.21	4.54	21.57	52.50	.01
Feb.	6	7.51	7,810	8,200	.71	7.8	64	68	20.65	10.76	55.50	4.39	23.31	59.30	0
Mar.	4	9.32	3,090	9,840	.77	7.8	63	71	25.35	13.80	67.60	4.21	26.87	76.00	T
Apr.	0		0												
May	0		0												
June	0	"1.86	" 714	" 2,190			"52	"58	" 7.30	" 2.59	" 11.10	" 3.15	" 5.77	" 12.50	
July	5	1.86	4,240	2,190	.25	7.8	52	58	7.30	2.59	11.10	3.15	5.77	12.50	.03
Aug.	2	1.80	333	2,080	.40	7.8	55	56	7.01	2.65	11.75	3.31	6.14	12.25	.01
Sept.	2	8.02	2,090	8,800	.80	8.0	66	70	20.35	11.45	61.60	2.84	25.45	65.80	T
Oct.	5	7.19	6,100	7,840	.70	7.8	66	67	18.30	9.52	55.20	3.42	24.44	55.60	0
Nov.	4	6.23	9,410	6,840	.60	8.0	64	64	17.18	8.90	45.40	4.71	21.13	46.50	T
Dec.	6	5.07	13,400	5,610	.53	7.8	63	62	15.12	6.92	36.80	5.00	17.59	36.45	.02
Mean ⊕	ϕ 41	5.29	ϕ 58,387	5,770			63	65	15.05	7.35	38.03	4.16	17.16	39.52	
Period Average		2.36	499,000	2,800			61	55	7.58	3.09	16.67	3.55	8.71	15.23	
Tons of Constituents, 1952									4,560	1,350	13,200	1,920	12,500	21,200	
Average Tons Period 1930-1952									43,600	10,800	110,000	31,100	120,000	155,000	

Rio Grande at Upper Presidio Station

Sampling by U. S. Section

Jan.	0		0												
Feb.	0		0												
Mar.	0		0												
Apr.	3	.99	254	1,070	.10	7.8	43	31	4.75	1.16	4.61	1.90	5.42	3.25	.04
May	0		ß 0											.95	
June	2	.79	1,920	798			31		# 5.59		2.48	2.50		1.20	.10
July	7	.52	5,190	569	.08	7.7	46	20	# 2.39	.66	2.75	2.50	2.16	2.40	
Aug.	1	.83	99.6	878			48		# 4.61		4.28	2.55			
Sept.	0		0												
Oct.	0		0												
Nov.	0		0												
Dec.	0		0												
Mean ⊕	ϕ 13	.583	ϕ 7,463.6	695			43		# 3.60		2.75	2.49		1.20	
Period Average		1.95	396,000	2,210			59		# 9.02		13.15	3.09		11.34	
Tons of Constituents, 1952											1,100	1,320		741	
Average Tons Period 1935-1952											83,500	26,000		111,000	

" Estimated T Trace ϕ Total ⊕ Weighted mean ** Percent of total cations *** Percent of total anions ß Flow inappreciable
Sum of calcium and magnesium

CHEMICAL ANALYSIS OF WATER SAMPLES FROM THE RIO GRANDE AND TRIBUTARIES – 1952

Río Conchos at Cuchillo Parado, Chihuahua

Sampling by Mexican Section

Month	No. of Samples	Dissolved Solids: Tons Per Acre Foot	Dissolved Solids: Total Tons	Mean EC x 10⁶ @25°C	Boron p.p.m.	pH	% Na **	% Cl ***	Mean Milligram Equivalents per Liter: Ca	Mg	Na	CO_3 + HCO_3	SO_4	Cl	NO_3
Jan.	13	1.11	20,000	1,150	.29	7.8	47	16	# 4.76	1.53	5.82	3.30	6.94	2.00	.03
Feb.	12	1.15	17,100	1,190			49		# 6.26		5.93	3.05		2.00	
Mar.	13	1.22	13,000	1,250			50		# 6.28		6.26	2.83		2.50	
Apr.	13	1.34	5,410	1,420			54		# 6.28		7.54	2.65		3.70	
May	31	1.25	10,300	1,310			50		# 6.87		6.78	2.40		2.75	
June	13	.85	46,700	848			27		# 6.08		2.22	2.40		.85	
July	14	.73	141,000	722	.10	7.8	26	9	# 4.40	.93	1.92	2.45	4.44	.70	.06
Aug.	12	1.10	21,700	1,140			49		# 5.79		5.50	2.70		2.55	
Sept.*	12	1.07	16,200	1,110			49		# 5.64		5.36	2.63		2.48	
Oct.	14	1.26	15,500	1,310			47		# 6.97		6.30	2.75		2.60	
Nov.	12	1.32	14,400	1,390			49		# 7.22		6.98	3.01		2.82	
Dec.	13	1.36	15,200	1,420			49		# 7.38		7.00	3.23		3.10	
Mean ⊕	ϕ 172	.902	ϕ 336,510	913			37		# 5.80		3.38	2.59		1.33	
Period Average		.764	410,000	791			40		# 4.78		3.22	2.56		1.00	
Tons of Constituents, 1952											39,400	40,100		23,900	
Average Tons Period 1946-1952											54,000	57,000		26,000	

Río Conchos near Ojinaga, Chihuahua

Sampling by U. S. Section

Month	No. of Samples	Dissolved Solids: Tons Per Acre Foot	Dissolved Solids: Total Tons	Mean EC x 10⁶ @25°C	Boron p.p.m.	pH	% Na **	% Cl ***	Mean Milligram Equivalents per Liter: Ca	Mg	Na	CO_3 + HCO_3	SO_4	Cl	NO_3
Jan.	6	1.10	19,500	1,160	.23	7.8	48	18	# 4.67	1.59	5.89	3.30	6.86	2.25	.03
Feb.	7	1.16	15,800	1,220			50		# 6.23		6.16	3.00		2.45	
Mar.	8	1.26	12,600	1,290			49		# 6.87		6.58	3.00		2.80	
Apr.	6	1.36	4,380	1,440			49		# 7.52		7.27	3.05		3.80	
May	7	1.30	6,560	1,360			48		# 7.26		6.65	2.27		2.95	
June	5	.79	37,600	846			44		# 4.71		3.72	2.57		1.20	
July	6	.64	129,000	666	.10	7.7	27	11	# 4.09	.82	1.90	2.31	3.74	.75	.11
Aug.	6	1.14	21,700	1,160			44		# 6.57		5.20	2.95		2.40	
Sept.	7	1.07	13,300	1,130			43		# 6.77		5.18	2.50		2.35	
Oct.	5	1.26	15,400	1,330			48		# 6.93		6.32	2.73		3.00	
Nov.	6	1.35	14,300	1,430			49		# 7.49		7.08	3.07		3.40	
Dec.	6	1.34	15,500	1,430			48		# 7.57		7.05	3.17		3.45	
Mean ⊕	ϕ 75	.840	ϕ 305,640	878			39		# 5.49		3.48	2.55		1.44	
Period Average		.615	550,000	657			38		# 4.16		2.58	2.56		.931	
Tons of Constituents, 1952											39,600	38,500		25,300	
Average Tons Period 1939-1952											72,200	94,900		40,200	

Rio Grande at Johnson Ranch, Texas

Sampling by U. S. Section

Month	No. of Samples	Dissolved Solids: Tons Per Acre Foot	Dissolved Solids: Total Tons	Mean EC x 10⁶ @25°C	Boron p.p.m.	pH	% Na **	% Cl ***	Mean Milligram Equivalents per Liter: Ca	Mg	Na	CO_3 + HCO_3	SO_4	Cl	NO_3
Jan.	3	1.14	20,100	1,210	.23	7.8	48	20	# 4.76	1.70	6.27	3.05	7.28	2.55	.03
Feb.	4	1.22	17,400	1,300			51		# 6.33		6.70	2.85		2.70	
Mar.	4	1.35	13,800	1,370			52		# 6.83		7.34	3.01		2.95	
Apr.	7	1.03	8,020	1,060			46		# 5.89		5.05	2.45		1.20	
May	6	1.31	14,900	1,250			33		# 9.12		4.50	2.60		1.15	
June	8	.93	42,800	942			34		# 6.38		3.30	2.85		.90	
July	8	.64	192,000	652	.10	7.8	31	9	# 3.81	.64	2.14	2.30	3.77	.60	.06
Aug.	5	1.30	25,400	1,340			46		# 7.36		6.38	2.65		3.20	
Sept.	4	*1.16	* 10,800	1,190			*44		#* 6.77		* 5.28	* 2.06		* 2.58	
Oct.	5	1.46	17,100	1,500			44		# 8.53		6.65	2.60		3.25	
Nov.	4	1.43	14,300	1,550			50		# 7.89		7.76	2.85		3.88	
Dec.	4	1.44	17,600	1,530			49		# 8.00		7.62	3.10		3.80	
Mean ⊕	ϕ 62	.839	ϕ 394,220	860			39		# 5.39		3.38	2.47		1.21	
Period Average		.933	585,000	992			45		# 5.47		4.53	2.63		2.10	
Tons of Constituents, 1952											49,700	48,200		27,400	
Average Tons Period 1948-1952											88,800	68,400		63,400	

Rio Grande at Langtry, Texas

Sampling by U. S. Section

Month	No. of Samples	Dissolved Solids: Tons Per Acre Foot	Dissolved Solids: Total Tons	Mean EC x 10⁶ @25°C	Boron p.p.m.	pH	% Na **	% Cl ***	Mean Milligram Equivalents per Liter: Ca	Mg	Na	CO_3 + HCO_3	SO_4	Cl	NO_3
Jan.	10	.86	28,700	940	.19	7.9	41	19	3.84	1.87	4.15	3.20	4.92	1.90	.04
Feb.	9	.87	24,400	950	.18	8.0	41	18	3.80	1.74	3.91	3.10	4.84	1.80	.04
Mar.	8	.89	22,400	963	.21	8.0	41	20	3.71	1.94	4.00	3.05	4.81	2.00	.03
Apr.	9	.81	21,000	874	.20	7.9	41	18	3.61	1.63	3.68	2.80	4.44	1.65	.05
May	8	.67	23,000	720	.18	8.0	33	13	3.61	1.35	2.41	2.81	3.58	1.00	.07
June	9	.69	33,100	741	.11	7.8	37	13	3.58	1.12	2.75	2.57	3.93	1.00	.06
July	18	.65	211,000	694	.11	7.8	30	9	4.10	.65	2.12	2.35	4.03	.65	.06
Aug.	8	.97	39,900	1,020	.11	7.7	39	21	4.54	1.71	4.02	2.55	5.62	2.15	.06
Sept.	8	*.77	* 15,100	819			*38	*20	* 3.82	* 1.34	* 3.14	* 1.86	* 4.77	* 1.69	
Oct.	6	.94	28,100	995	.07	7.9	38	20	4.64	1.63	3.81	2.26	5.79	2.05	.05
Nov.	8	.86	21,200	950	.18	8.1	38	22	4.01	2.16	3.74	2.90	4.78	2.15	.03
Dec.	8	.92	24,200	974	.20		42	21	3.92	1.91	4.21	3.03	5.02	2.10	.06
Mean ⊕	ϕ 109	.744	ϕ 492,100	798			36	15	4.01	1.15	2.86	2.55	4.39	1.20	
Period Average		.791	803,000	803			44	23	3.69	1.14	3.81	2.54	4.19	1.96	
Tons of Constituents, 1952									72,300	12,600	59,200	70,000	190,000	38,300	
Average Tons Period 1945-1952									102,000	19,100	121,000	107,000	278,000	96,000	

* Estimated ϕ 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 – 1952

Pecos River near Comstock, Texas

Sampling by U. S. Section

Month	No. of Samples	Dissolved Solids: Tons Per Acre Foot	Dissolved Solids: Total Tons	Mean EC x 10^6 @25°C	Boron p.p.m.	pH	% Na **	% Cl ***	Mean Milligram Equivalents per Liter: Ca	Mg	Na	CO_3 + HCO_3	SO_4	Cl	NO_3
Jan.	16	3.64	35,200	4,180	.26	7.7	58	62	9.40	8.39	25.54	3.10	13.36	27.00	.05
Feb.	13	4.18	40,500	4,700	.31	7.7	59	63	10.50	9.13	28.70	2.72	15.21	30.60	T
Mar.	16	4.04	36,900	4,530	.28	7.7	59	63	9.90	9.11	27.60	2.50	14.56	29.60	.02
Apr.	15	4.25	39,100	4,720	.23	7.8	61	63	10.22	8.84	29.75	2.50	15.35	30.95	.04
May	17	2.65	27,600	3,100	.30	8.1	58	62	7.18	5.80	17.80	2.25	9.33	19.40	.09
June	15	2.62	21,400	3,020	.23	7.8	59	62	6.58	5.80	17.80	2.35	9.02	18.80	.05
July	15	2.15	18,700	2,590	.26	7.7	57	60	5.84	4.90	14.80	2.40	7.79	15.55	.05
Aug.	16	2.34	13,400	2,750	.25	7.7	57	61	6.11	5.72	15.60	2.45	8.04	16.80	.04
Sept.	15	2.54	18,300	2,980	.26	7.9	57	62	6.96	5.76	16.60	2.57	8.71	18.20	.04
Oct.	15	2.70	16,300	3,070	.22	7.9	57	61	7.18	5.98	17.50	2.61	9.37	18.90	.03
Nov.	15	2.46	18,000	2,900	.23	8.1	56	61	7.06	5.66	16.00	2.67	8.64	17.52	.04
Dec.	16	3.36	32,100	3,870	.26	8.0	58	62	8.92	7.48	23.10	3.05	12.13	24.45	.05
Mean ⊕	ϕ 184	3.15	ϕ 317,700	3,610	.260	7.8	59	62	8.15	7.02	21.45	2.61	11.25	22.88	.043
Period Average		3.94	1,289,000	4,180			55	56	12.23	7.82	24.44	2.48	17.28	24.73	
Tons of Constituents, 1952									22,400	11,700	67,700	10,900	74,200	111,000	
Average Tons Period 1935-1952									109,000	42,300	250,000	33,700	369,000	390,000	

Río San Diego at Jiménez, Coahuila

Sampling by Mexican Section

Jan.	4	.39	1,470	443	.08	7.9	16	12	3.14	.75	.68	3.05	.98	.55	.04
Feb.	2	.47	1,670	506			16		# 4.56		.89	3.45		.65	
Mar.	3	.45	1,080	462			18		# 3.96		.84	2.80		.40	
Apr.	3	.41	1,480	471			17		# 4.12		.87	3.00		.75	
May	4	.39	1,610	454			16		# 3.82		.72	3.00		.60	
June	4	.40	636	467			16		# 4.12		.76	3.10		.70	
July	3	.44	368	456	.11	7.8	22	16	2.61	.89	1.01	2.65	1.18	.75	.05
Aug.	4	.42	525	452			19		# 3.83		.88	2.67		.70	
Sept.	3	.43	636	463			20		# 3.98		.98	2.71		.75	
Oct.	3	.41	705	471			16		# 4.28		.79	3.00		.70	
Nov.	3	.51	729	538			17		# 4.71		.94	3.28		.78	
Dec.	3	.51	1,050	532			15		# 4.71		.82	3.42		.69	
Mean ⊕	ϕ 39	.430	ϕ 11,959	471			17		# 4.13		.821	3.06		.647	
Period Average		.403	18,100	449			18		# 3.81		.841	2.70		.722	
Tons of Constituents, 1952											715	3,530		868	
Average Tons Period 1950-1952											1,170	4,980		1,550	

Río San Rodrigo near El Moral, Coahuila

Sampling by Mexican Section

Jan.	3	.35	476	403	.07	8.1	11	10	2.94	.75	.48	3.05	.67	.40	.04
Feb.	2	.40	404	450			13		# 4.12		.61	3.18		.50	
Mar.	3	.45	304	497			15		# 4.51		.79	3.33		.60	
Apr.	3	.31	222	363			15		# 3.14		.55	2.70		.40	
May	3	.27	338	305			9		# 3.04		.29	2.60		.25	
June	2	.33	56.1	290			26		# 2.35		.84	2.35		.30	
July	0	0	0												
Aug.	0	0	0												
Sept.	0	0	0												
Oct.	0	0	0												
Nov.	0	0	0												
Dec.*	0	.41	70.1	442	.03	8.1	10		# 4.12		.44	2.86	1.41	.30	.06
Mean ⊕	ϕ 16	.349	ϕ 1,870.2	393			13		# 3.62		.519	2.93		.403	
Period Average		.374	8,230	412			16		# 3.60		.687	2.77		.583	
Tons of Constituents, 1952											86.9	651		104	
Average Tons Period 1950-1952											473	2,530		619	

Rio Grande at Eagle Pass, Texas

Sampling by Mexican Section

Jan.	26	1.02	58,500	1,180	.18	7.9	44	37	4.17	2.35	5.10	3.20	4.23	4.30	.04
Feb.	23	1.19	58,700	1,340			47		# 7.06		6.15	3.00		5.35	
Mar.	20	1.16	46,700	1,290			48		# 6.67		6.09	2.95		5.25	
Apr.	22	.94	46,000	1,110			49		# 5.69		5.40	2.70		4.65	
May	20	.56	75,700	652			35		# 4.12		2.24	2.60		1.95	
June	23	.91	63,200	1,020			42		# 5.89		4.18	2.69		3.30	
July	26	.66	220,000	718	.08	7.8	31	17	3.85	1.08	2.30	2.43	3.57	1.25	.14
Aug.	26	.84	42,100	959			41		# 5.49		3.89	2.45		2.75	
Sept.	26	.83	22,500	964			43		# 5.90		4.00	2.45		3.35	
Oct.	27	.90	28,400	1,060			42		# 6.04		4.42	2.70		3.70	
Nov.*	4	.90	32,100	1,060			42		# 6.04		4.42	2.70		3.70	
Dec.	22	1.01	41,400	1,180	.20	8.1	46	39	# 6.43		5.38	2.95	4.22	4.65	.07
Mean ⊕	ϕ 262	.800	ϕ 735,300	904			40		# 5.40		3.57	2.63		2.75	
Period Average		1.01	2,623,000	1,150			47		# 6.10		5.33	2.42		4.41	
Tons of Constituents, 1952											102,600	100,300		121,900	
Average Tons Period 1938-1952											431,000	259,000		550,000	

* Estimated T Trace ϕ 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 – 1952

Month	No. of Samples	Dissolved Solids: Tons Per Acre Foot	Dissolved Solids: Total Tons	Mean $EC \times 10^6$ @25°C	Boron p.p.m.	pH	% Na **	% Cl ***	Mean Milligram Equivalents per Liter: Ca	Mg	Na	CO_3 + HCO_3	SO_4	Cl	NO_3
Río Salado at Cd. Guerrero, Tamaulipas															
Sampling by Mexican Section															
Jan.	4	1.57	1,040	1,640	.37	7.8	41	30	# 6.21	3.73	7.00	1.90	10.10	5.15	.11
Feb.	2	2.00	154	2,020			41		# 12.51		8.60	2.17		6.60	
Mar.	0	0	0												
Apr.	0	0	0												
May	3	1.50	21,800	1,530			41		# 9.52		6.52	2.00		4.50	
June	1	.62	1,260	667			33		# 4.51		2.22	2.63		1.35	
July	2	.58	193	635			28	17	3.35	1.07	1.86	2.61	2.72	1.12	.11
Aug.	0	0	0												
Sept.*	3	.40	2,980	402					# 2.58		1.60	.83		1.14	
Oct.	1	.45	12.8	495			34		# 3.28		1.69	1.71		1.25	
Nov.	0	0	0												
Dec.	0	0	0												
Mean Φ | ϕ 16		1.09	ϕ 27,439.8	1,120			40		# 7.01		4.66	1.71		3.03	
Period Average		.598	212,000	943			39		# 4.96		3.89	1.92		2.64	
Tons of Constituents, 1952											3,690	1,740		3,910	
Average Tons Period 1935-1952											28,700	18,500		30,000	
Rio Grande at Roma, Texas															
Sampling by Mexican Section															
Jan.	31	1.04	65,790	1,200	.22	7.6	47	37	3.94	2.43	5.76	2.25	4.70	4.60	.02
Feb.	29	1.11	54,000	1,230	.18	7.8	48	40	4.01	2.49	5.95	2.70	4.88	5.05	T
Mar.	31	1.19	51,400	1,360	.22	7.8	50	43	4.04	2.72	6.65	2.55	5.16	5.75	.01
Apr.	30	1.25	92,300	1,450	.13	7.8	53	44	3.99	2.73	7.45	2.40	5.51	6.30	.02
May	31	.72	130,000	863	.15	8.0	40	33	3.69	1.44	3.40	2.60	3.06	2.80	.05
June	30	*.60	* 70,100	690			*31	*16	* 3.68	* .80	* 2.84	* 2.27	* 3.28	* 1.66	
July	31	.71	237,000	764	.14	7.7	31	16	4.32	.94	2.40	2.67	3.86	1.25	.10
Aug.	31	.81	43,200	869	.14	7.7	40	24	4.01	1.38	3.51	2.50	4.19	2.10	.07
Sept.	30	.87	35,500	1,000	.25	8.0	46	34	3.68	1.65	4.62	2.15	4.40	3.35	.03
Oct.	31	.95	22,800	1,090	.14	7.8	49	40	3.29	2.03	5.08	2.21	4.28	4.25	T
Nov.	30	.92	32,500	1,070	.20	7.8	44	36	3.66	2.24	4.66	2.23	4.51	3.88	.03
Dec.	31	1.01	43,600	1,130	.16		45	38	3.69	2.35	5.00	2.61	4.25	4.20	.04
Mean Φ | ϕ 366		.82	ϕ 838,100	922			40	29	3.96	1.50	3.69	2.56	3.96	2.71	
Period Average		.744	2,060,000	860			46	35	3.26	1.29	3.84	2.23	3.24	2.95	
Tons of Constituents, 1952									111,000	25,400	118,000	109,000	265,000	134,000	
Average Tons Period 1944-1952									246,000	58,900	332,000	256,000	586,000	393,000	
North Floodway near Sebastian, Texas															
Sampling by U. S. Section															
Jan.	4	4.05	2,520	4,480	2.17	8.0	57	59	11.00	8.59	26.60	4.10	14.77	27.60	.04
Feb.	4	7.03	787	7,350	4.32		60		# 30.90		46.80	3.94		51.70	
Mar.	5	7.02	1,350	7,370	4.02		60		# 30.95		47.00	3.88		51.55	
Apr.	2	5.21	462	5,830	3.41		65		# 21.09		39.20	4.02		37.80	
May	6	1.01	2,450	1,190	.55		56		# 5.00		6.24	1.65		6.20	
June	5	3.40	6,560	3,800	1.66		57		# 16.68		22.00	4.35		22.95	
July	3	3.06	4,500	3,440	1.43		59	58	8.22	5.43	20.70	3.00	11.76	20.10	.02
Aug.	4	2.52	3,050	2,850	1.24		57		# 12.56		16.40	3.35		15.70	
Sept.	3	2.98	4,770	3,300	1.83		58		# 14.08		19.50	3.49		19.45	
Oct.	2	3.96	725	4,530	3.20		68		# 14.22		30.90	2.85		29.02	
Nov.	3	6.18	2,050	6,780	3.47		61		# 27.16		42.30	4.48		46.80	
Dec.	2	4.35	1,070	4,800	2.10		58	62	# 20.93		28.50	3.74	15.21	30.60	T
Mean Φ | ϕ 43		2.91	ϕ 30,294	3,260	1.56		58		# 13.65		19.23	3.21		19.55	
Period Average		2.22	135,000	2,480					# 10.57		14.46	2.62		14.09	
Tons of Constituents, 1952											6,270	1,390		9,820	
Average Tons Period 1941-1952											27,500	6,620		41,300	

* Estimated T Trace ϕ Total Φ Weighted mean ** Percent of total cations *** Percent of total anions # Sum of calcium and magnesium

ELECTRICAL CONDUCTIVITY OF WATER SAMPLES

1952

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

Rio Grande at El Paso, Texas

January		February		March		April		May		July		August		September		October		November	
1	2,110	7	2,230	15	2,540	21	1,500	28	1,150	3	871	9	806	15	1,040	22	1,970	28	2,130
2	2,100	8	2,320	16	2,610	22	1,450	29	1,120	4	953	10	803	16	1,530	23	1,950	29	2,120
3	2,100	9	2,260	17	2,620	23	1,490	30	1,140	5	946	11	811	17	1,420	24	1,950	30	2,060
4	2,100	10	2,250	18	2,760	24	1,530	31	1,170	6	828	12	769	18	1,590	25	1,940	December	
5	2,100	11	2,190	19	2,730	25	1,490	June		7	868	13	754	19	1,570	26	1,940	1	1,990
6	2,090	12	2,210	20	2,710	26	1,580	1	1,190	8	890	14	752	20	1,670	27	1,930	2	2,040
7	2,100	13	2,240	21	2,800	27	1,570	2	1,240	9	836	15	753	21	1,700	28	1,970	3	2,060
8	2,100	14	2,300	22	2,970	28	1,510	3	1,250	10	825	16	813	22	1,720	29	1,970	4	2,070
9	2,110	15	2,240	23	2,910	29	1,560	4	1,200	11	964	17	943	23	1,700	30	1,970	5	2,060
10	2,200	16	2,170	24	1,670	30	1,530	5	1,090	12	991	18	989	24	1,750	31	1,980	6	2,050
11	2,140	17	2,090	25	1,580	May		6	1,180	13	946	19	955	25	1,740	November		7	2,040
12	2,120	18	2,260	26	1,590	1	1,510	7	1,230	14	1,060	20	908	26	1,730	1	1,950	8	2,050
13	2,230	19	2,290	27	1,580	2	1,490	8	1,340	15	1,230	21	958	27	1,710	2	1,950	9	2,070
14	2,170	20	2,300	28	1,560	3	1,560	9	1,330	16	1,140	22	1,020	28	1,720	3	2,000	10	2,070
15	2,200	21	2,300	29	1,530	4	1,490	10	1,240	17	890	23	898	29	1,770	4	1,970	11	2,100
16	2,180	22	2,360	30	1,520	5	1,450	11	1,190	18	771	24	857	30	1,790	5	1,970	12	2,100
17	2,220	23	2,310	31	1,510	6	1,430	12	1,060	19	743	25	765	October		6	2,020	13	2,090
18	2,250	24	2,370	April		7	1,390	13	1,020	20	790	26	780	1	1,820	7	2,020	14	2,080
19	2,140	25	2,360	1	1,490	8	1,330	14	1,020	21	777	27	756	2	1,840	8	2,010	15	2,070
20	2,230	26	2,380	2	1,520	9	1,310	15	1,000	22	759	28	771	3	1,790	9	2,000	16	2,120
21	2,260	27	2,310	3	1,520	10	1,290	16	908	23	770	29	771	4	1,860	10	2,000	17	2,140
22	2,260	28	2,290	4	1,520	11	1,290	17	922	24	780	30	817	5	1,890	11	2,020	18	2,060
23	2,240	29	2,340	5	1,530	12	1,270	18	923	25	794	31	766	6	1,910	12	2,020	19	2,040
24	2,230	March		6	1,520	13	1,230	19	885	26	776	September		7	1,930	13	2,020	20	2,070
25	2,270	1	2,130	7	1,490	14	1,210	20	869	27	778	1	804	8	1,920	14	2,030	21	2,080
26	2,290	2	2,110	8	1,460	15	1,230	21	845	28	767	2	803	9	1,920	15	2,040	22	2,100
27	2,300	3	2,230	9	1,510	16	1,260	22	835	29	772	3	820	10	1,860	16	2,040	23	2,100
28	2,290	4	2,330	10	1,520	17	1,310	23	823	30	789	4	840	11	1,910	17	2,050	24	2,100
29	2,280	5	2,310	11	1,530	18	1,280	24	840	31	795	5	922	12	1,930	18	2,050	25	2,090
30	2,260	6	2,340	12	1,430	19	1,250	25	817	August		6	937	13	1,830	19	2,050	26	2,080
31	2,230	7	2,310	13	1,420	20	1,230	26	826	1	782	7	899	14	1,940	20	2,050	27	2,070
February		8	2,310	14	1,420	21	1,210	27	821	2	778	8	882	15	2,000	21	2,060	28	2,070
1	2,250	9	2,350	15	1,430	22	1,220	28	834	3	743	9	892	16	2,020	22	2,040	29	2,070
2	2,280	10	2,370	16	1,430	23	1,160	29	823	4	738	10	954	17	2,020	23	2,070	30	2,070
3	2,390	11	2,330	17	1,460	24	1,170	30	826	5	694	11	940	18	2,040	24	2,050	31	2,060
4	2,340	12	2,390	18	1,460	25	1,160	July		6	773	12	900	19	2,040	25	2,010		
5	2,320	13	2,460	19	1,480	26	1,200	1	834	7	818	13	873	20	1,970	26	2,040		
6	2,330	14	2,490	20	1,520	27	1,170	2	846	8	824	14	907	21	1,960	27	2,060		

Rio Grande at Fort Quitman, Texas

January		January		February		March		July		July		September		October		November		December	
3	7,130	29	9,110	13	8,020	5	9,050	8	1,000	30	11,100	24	12,590	15	8,170	13	9,120	10	5,390
9	7,080	30	9,650	20	8,150	11	10,540	10	10,860	August		30	8,430	22	7,860	19	8,240	16	5,480
15	6,930	February		26	8,860	12	9,790	16	963	12	1,100	October		29	6,280	26	5,600	17	4,900
16	7,130	6	7,830	27	9,530	19	10,780	16	952	13	10,310	1	7,740	November		December		24	6,780
23	7,340	12	7,830					29	10,860			8	9,630	5	6,650	3	5,390	31	5,550

Rio Grande at Upper Presidio Station

April		April		June		June		July		July		July		July		July		August	
20	1,110	20	1,150	28	993	30	555	3	716	10	452	13	509	19	640	21	657	15	821
20	926			28	968			10	447	13	502	16	577	19	635	24	680		

Río Conchos at Cuchillo Parado, Chihuahua

January		February		March		April		June		July		August		September		October		December	
1	1,110	8	1,220	21	1,280	30	1,270	9	1,430	4	920	11	1,350	17	1,610	27	1,350	3	1,420
1	1,130	11	1,200	24	1,330	May		11	1,090	7	1,090	13	1,220	19	1,570	29	1,350	8	1,420
2	1,110	15	1,170	26	1,350	2	1,270	11	1,080	9	1,070	15	1,200	22	1,540	31	1,460	10	1,420
4	1,110	18	1,170	28	1,420	5	1,300	13	1,110	11	644	18	882	24	1,540	November		12	1,420
7	1,130	20	1,180	31	1,410	7	1,210	13	1,200	12	470	18	888	28	2,360	3	1,360	15	1,460
9	1,120	22	1,210	April		9	1,380	13	1,200	12	653	20	888	28	2,320	5	1,340	17	1,450
14	1,150	25	1,210	2	1,420	12	1,310	16	612	14	679	22	1,080	October		7	1,340	19	1,410
16	1,150	27	1,210	4	1,490	14	1,390	18	1,060	16	737	25	1,220	1	1,060	11	1,340	22	1,390
18	1,150	29	1,180	9	1,680	16	1,350	22	969	18	710	27	1,430	3	1,020	12	1,350	24	1,390
21	1,150	March		11	1,490	16	1,320	23	865	21	784	29	1,310	6	1,320	14	1,360	26	1,390
23	1,150	3	1,170	14	1,680	21	1,340	27	419	23	895	September		8	1,330	17	1,370	29	1,390
25	1,150	5	1,130	16	1,620	21	1,480	27	396	25	961	1	1,750	10	1,290	19	1,440	31	1,400
28	1,150	7	1,180	18	1,690	28	1,120	28	724	28	932	3	1,380	13	1,330	21	1,400		
30	1,150	10	1,220	21	1,610	30	1,250	28	725	30	1,080	5	1,550	15	1,360	24	1,350		
February		12	1,250	23	1,460	June		28	964	August		8	1,590	17	1,360	26	1,410		
1	1,150	14	1,260	25	1,350	2	1,340	30	697	1	1,160	10	1,650	20	1,330	28	1,430		
4	1,160	17	1,270	25	1,350	4	902	July		6	1,290	12	1,620	22	1,370	December			
6	1,180	19	1,280	28	1,250	6	1,330	2	791	8	1,560	15	1,570	24	1,400	1	1,370		

ELECTRICAL CONDUCTIVITY OF WATER SAMPLES

1952

Río Conchos near Ojinaga, Chihuahua

Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C
January		February		March		April		May		July		August		September		October		December	
2	1,160	11	1,230	14	1,290	18	1,420	26	1,500	2	730	6	1,340	17	1,580	29	1,440	2	1,440
7	1,110	18	1,230	17	1,290	23	1,430	30	1,210	9	839	11	1,370	23	1,600	November		8	1,400
12	1,170	21	1,220	20	1,310	28	1,530	June		13	542	18	1,050	25	996	4	1,430	12	1,420
18	1,140	25	1,240	24	1,340	May		2	1,260	16	654	22	959	29	1,010	7	1,430	17	1,450
23	1,180	28	1,210	28	1,390	2	1,380	9	1,450	16	644	27	1,290	October		12	1,420	23	1,420
30	1,180	March		April		7	1,370	18	1,240	23	667	September		3	1,100	17	1,420	29	1,410
February		3	1,230	2	1,390	13	1,460	22	861	28	1,070	2	1,470	9	1,230	24	1,420		
2	1,200	7	1,230	7	1,430	19	1,480	30	590	August		8	1,550	14	1,420	28	1,440		
7	1,210	11	1,250	14	1,470	22	1,410			1	1,160	12	1,490	22	1,360				

Rio Grande at Johnson Ranch, Texas

January		February		April		May		June		July		July		September		October		November	
7	1,200	26	1,330	7	1,500	8	1,270	9	1,030	1	888	27	1,050	1	1,330	13	1,410	23	1,520
14	1,210	March		14	1,510	12	1,580	12	1,640	7	871	August		15	1,540	19	1,490	December		
21	1,230	3	1,300	20	829	19	515	15	694	8	622	3	1,190	21	1,570	21	1,550	1	1,520
February		11	1,320	20	829	20	426	17	1,210	12	733	11	1,460	27	1,110	27	1,490	7	1,540
4	1,260	16	1,360	21	610	26	1,790	22	826	14	550	18	1,630	27	1,110	November		15	1,530
11	1,280	24	1,480	25	1,110	27	1,320	28	990	17	604	26	1,180	October		2	1,530	21	1,510
18	1,310			28	1,120	June		29	599	21	724	29	1,230	5	1,520	11	1,580		
						1	1,280									17	1,550		

Rio Grande at Langtry, Texas

January		February		March		April		June		July		July		August		September		November	
1	953	5	945	20	918	29	1,080	14	763	10	776	17	663	17	934	29	718	18	940
3	954	11	940	22	926	May		18	609	11	613	17	664	20	930	October		23	954
6	930	12	960	27	890	6	926	20	1,050	12	676	18	697	24	1,040	6	1,180	25	970
10	934	15	957	29	875	10	758	25	976	13	678	19	625	28	1,180	10	848	30	966
12	953	19	953	April		17	753	27	706	14	620	20	609	31	1,050	14	837	December	
16	941	23	950	1	889	20	697	28	770	14	685	21	759	September		19	1,080	1	973
19	945	27	940	5	847	23	749	29	376	14	678	25	685	2	999	21	936	7	975
22	919	29	943	11	862	28	338	July		15	595	27	821	7	876	26	850	10	978
26	921	March		13	854	29	610	1	765	15	601	31	828	11	829	November		14	953
30	934	5	956	19	832	31	1,030	2	681	16	593	August		13	798	1	928	16	970
30	929	7	958	20	830	June		3	718	16	579	3	1,070	16	782	9	936	20	963
February		10	982	21	386	3	606	6	759	16	586	10	955	21	758	12	922	22	961
1	950	14	992	27	1,010	6	847	10	752	16	613	11	954	23	750	16	921	28	969

Pecos River near Comstock, Texas

January		February		March		April		May		July		August		September		October		December	
1	4,140	8	4,500	19	4,680	26	5,270	31	3,410	6	2,790	13	2,490	20	2,870	28	2,860	1	3,320
3	4,210	10	4,720	21	4,400	28	4,020	June		8	3,010	15	2,610	22	3,870	30	2,840	3	3,350
5	3,770	12	4,740	23	4,500	30	3,130	2	3,190	10	2,700	17	2,920	24	3,780	November		5	3,470
7	4,180	14	4,910	25	4,320	May		4	1,650	12	2,700	19	3,020	26	3,310	1	2,740	7	3,350
9	4,270	16	4,930	27	4,400	2	3,560	6	2,110	14	2,670	21	2,900	28	3,280	3	2,730	9	3,420
12	4,140	20	4,830	29	4,400	5	3,690	8	2,910	16	2,790	23	2,910	30	3,330	5	2,670	11	3,270
13	4,230	22	4,830	31	4,420	6	3,760	10	3,220	18	2,800	25	2,960	October		7	2,660	13	3,720
15	4,210	24	4,880	April		8	3,560	12	3,190	20	2,770	27	2,770	2	3,450	9	2,760	15	3,870
17	4,230	26	4,720	2	4,480	10	3,500	14	3,190	22	1,350	29	2,710	4	3,500	11	2,780	17	3,610
19	4,210	28	4,550	4	4,710	12	3,760	16	3,510	24	2,400	31	2,700	6	3,610	13	2,760	19	3,980
21	4,020	March		6	4,810	14	3,610	18	3,650	26	2,400	September		8	3,330	15	2,770	21	4,030
23	4,250	1	4,550	8	4,830	16	3,540	20	3,940	28	2,730	2	2,770	10	3,340	17	2,880	23	4,000
25	4,290	3	4,630	10	5,000	18	3,290	22	3,500	30	2,520	4	2,650	12	3,020	19	2,970	25	4,020
27	4,250	5	4,550	12	5,160	20	3,250	24	3,100	August		6	2,610	14	2,920	21	3,010	27	4,160
29	4,360	7	4,630	14	4,950	22	3,440	26	3,210	1	2,500	8	2,570	16	2,950	23	3,080	29	4,440
31	4,290	9	4,750	16	4,900	24	3,440	28	3,210	3	2,680	10	2,550	18	2,900	25	3,180	31	4,440
February		11	4,680	18	4,690	26	2,220	30	2,830	5	2,630	12	2,600	20	2,780	27	3,190		
2	4,350	13	4,530	20	4,580	27	370	July		7	2,850	14	2,670	22	2,870	29	3,290		
4	4,570	15	4,530	22	4,600	28	2,960	2	2,550	9	2,690	16	2,700	24	2,780				
6	4,480	17	4,460	24	4,970	29	3,060	4	2,870	11	2,630	18	2,640	26	2,870				

Río San Diego at Jiménez, Coahuila

January		February		March		May		June		July		August		September		October		December	
1	392	1	476	19	460	3	455	1	440	1	444	8	390	9	454	20	468	1	445
8	466	8	484	April		9	496	9	456	9	462	17	448	18	466	November		11	594
15	438	March		2	504	17	483	18	472	19	427	27	464	October		1	499	21	560
22	463	1	384	9	483	27	388	25	446	August		September		1	419	10	553		
		10	509	21	439					1	425	1	424	9	482	17	526		

Río San Rodrigo near El Moral, Coahuila

January		January		February		March		March		April		April		May		May		June	
1	327	23	524	2	318	3	307	15	502	1	332	16	311	1	316	13	291	2	289
16	326			9	591	8	619			10	467			14	294			16	310

ELECTRICAL CONDUCTIVITY OF WATER SAMPLES
1952

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

Rio Grande at Eagle Pass, Texas

Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C
January		February		March		April		May		July		August		September		October		November	
1	1,140	2	1,240	7	1,290	16	1,350	29	492	1	897	2	820	3	1,030	4	1,060	5	988
2	1,130	4	1,240	8	1,300	17	1,330	30	485	2	640	4	884	4	1,040	6	972	December	
3	1,130	5	1,260	10	1,320	18	1,370	31	533	3	631	5	901	5	1,010	7	1,090	5	1,130
4	1,150	6	1,260	11	1,270	19	1,370	June		4	705	6	847	6	975	8	1,090	6	1,130
5	1,150	7	1,220	12	1,310	21	1,310	1	549	5	711	7	970	8	1,010	9	1,050	8	1,140
7	1,170	8	1,270	13	1,310	22	547	2	1,100	7	842	8	951	9	1,010	10	1,270	9	1,140
8	1,160	9	1,290	14	1,300	26	1,380	3	1,200	8	890	9	935	10	955	11	1,270	10	1,090
9	1,180	11	1,310	15	1,300	28	1,330	4	1,160	9	909	11	1,140	11	962	13	1,180	11	1,150
10	1,170	12	1,320	17	1,290	29	1,130	5	1,270	10	833	12	963	12	748	14	1,110	12	1,140
12	1,180	13	1,330	18	1,310	30	1,240	6	1,260	11	769	13	981	13	748	15	1,010	13	1,150
14	1,170	14	1,350	19	1,310	May		7	986	12	803	14	992	15	823	16	1,030	16	1,170
15	1,160	15	1,350	26	1,290	1	1,180	9	800	14	647	15	992	16	817	17	997	17	1,160
16	1,170	17	1,350	28	1,270	2	1,130	13	922	15	601	16	957	17	951	18	1,030	18	1,180
17	1,150	18	1,340	29	1,250	3	1,130	14	994	16	739	17	978	18	954	20	984	19	1,210
18	1,190	19	1,340	31	1,290	8	1,040	16	1,000	17	606	19	968	19	952	21	982	20	1,220
19	1,160	22	1,360	April		9	1,060	17	1,100	18	612	20	951	20	1,040	22	1,010	22	1,220
21	1,160	23	1,880	1	1,250	10	1,080	18	955	19	746	21	968	22	1,040	23	971	23	1,200
22	1,160	25	1,860	2	1,240	12	1,040	19	933	21	698	22	947	23	1,010	24	1,040	24	1,250
23	1,160	26	974	3	1,280	13	1,130	20	1,190	22	726	23	938	24	1,020	25	1,040	25	1,240
24	1,180	27	1,020	6	1,340	14	1,140	21	1,180	23	724	25	959	25	989	27	1,040	26	1,230
25	1,170	28	1,130	7	1,290	17	973	22	882	25	823	26	974	26	987	28	999	27	1,260
26	1,170	29	1,290	8	1,300	19	975	24	916	26	830	27	1,010	27	985	29	1,000	29	1,260
28	1,170	March		9	1,240	20	600	25	1,030	28	830	28	971	29	1,100	30	974	30	1,270
29	1,180	1	1,300	10	1,290	21	603	26	1,030	29	823	29	976	30	1,110	31	973	31	1,260
30	1,190	3	1,280	11	1,300	22	645	27	1,070	30	805	30	995	October		November			
31	1,180	4	1,190	12	1,330	23	798	28	1,060	31	837	September		1	1,050	1	973		
February		5	1,200	14	1,340	26	795	30	1,050	August		1	987	2	1,090	3	978		
1	1,190	6	1,260	15	1,290	28	361			1	851	2	1,040	3	1,160	4	987		

Río Salado at Cd. Guerrero, Tamaulipas

Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C
January		January		February		March		May		May		July		August		October		November	
1	1,430	24	1,890	8	2,040	1	2,110	1	2,410	30	609	1	553	1	634	1	470	1	531
8	1,560	February		16	2,090	April		28	2,800	June		14	625	20	650	15	517		
17	1,780	1	1,990	24	2,090	1	2,240	29	909	1	639	22	604						

Rio Grande at Roma, Texas

Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C
January		February		March		April		May		July		August		September		October		November	
1	1,140	7	1,250	15	1,120	21	1,430	28	958	2	1,130	8	815	14	1,120	21	1,190	27	1,060
2	1,160	8	1,260	16	1,180	22	1,440	29	1,070	3	1,120	9	853	15	1,120	22	1,190	28	1,070
3	1,140	9	1,270	17	1,290	23	1,430	30	737	4	1,010	10	881	16	1,150	23	1,180	29	1,070
4	1,150	10	1,250	18	1,330	24	1,430	30	740	5	956	11	893	17	1,080	24	1,150	30	1,080
5	1,170	11	1,250	19	1,350	25	1,430	31	414	6	1,050	12	895	18	900	25	1,150	December	
6	1,160	12	1,240	20	1,360	26	1,450	June		7	1,090	13	894	19	915	26	1,160	1	1,070
7	1,160	13	1,250	21	1,350	27	1,470	1	411	8	1,050	14	902	20	1,080	27	1,120	2	1,070
8	1,170	14	1,250	22	1,350	28	1,480	2	384	9	879	15	910	21	1,240	28	1,090	3	1,080
9	1,160	15	1,260	23	1,370	29	1,480	3	412	10	760	16	925	22	1,200	29	1,080	4	1,080
10	1,170	16	1,270	24	1,380	30	1,460	4	415	11	612	17	930	23	1,170	30	1,100	5	1,080
11	1,170	17	1,270	25	1,390	May		5	432	12	472	18	937	24	832	31	1,120	6	1,090
12	1,180	18	1,280	26	1,390	1	1,460	6	531	13	520	19	941	25	506	November		7	1,080
13	1,180	19	1,290	27	1,390	2	1,360	7	603	14	472	20	941	26	460	1	1,170	8	1,080
14	1,180	20	1,290	28	1,400	3	1,030	8	692	15	936	21	945	27	610	2	1,220	9	1,090
15	1,190	21	1,300	29	1,390	4	790	9	666	16	873	22	947	28	761	3	1,290	10	1,090
16	1,200	22	1,300	30	1,390	5	803	10	551	17	788	23	966	29	788	4	1,340	11	1,090
17	1,190	23	1,300	31	1,390	6	1,230	11	572	18	756	24	962	30	846	5	1,320	12	1,100
18	1,200	24	1,300	April		7	894	12	785	19	547	25	975	October		6	1,300	13	1,090
19	1,200	25	1,320	1	1,390	8	935	13	806	20	772	26	1,010	1	899	7	1,250	14	1,100
20	1,180	26	1,340	2	1,400	9	1,170	14	887	21	672	27	1,020	2	899	8	1,200	15	1,120
21	1,200	27	1,340	3	1,400	10	1,400	15	932	22	716	28	1,040	3	1,040	9	1,160	16	1,130
22	1,200	28	1,280	4	1,390	11	1,440	16	969	23	758	29	1,050	4	1,090	10	1,090	17	1,130
23	1,210	29	1,220	5	1,400	12	1,440	17	974	24	800	30	1,080	5	1,100	11	1,100	18	1,130
24	1,220	March		6	1,420	13	1,400	18	993	25	809	31	1,110	6	1,080	12	1,090	19	1,140
25	1,220	1	1,390	7	1,420	14	1,330	19	1,050	26	743	September		7	1,080	13	1,110	20	1,130
26	1,210	2	1,400	8	1,410	15	1,270	20	1,080	27	731	1	1,130	8	1,080	14	1,140	21	1,140
27	1,210	3	1,380	9	1,420	16	1,270	21	1,100	28	725	2	1,140	9	1,030	15	1,150	22	1,140
28	1,220	4	1,390	10	1,410	17	1,320	22	1,110	29	688	3	1,140	10	951	16	1,130	23	1,150
29	1,220	5	1,390	11	1,410	18	1,340	23	1,160	30	734	4	1,150	11	973	17	941	24	1,160
30	1,220	6	1,400	12	1,410	19	1,340	24	965	31	846	5	1,140	12	1,010	18	756	25	1,160
31	1,220	7	1,410	13	1,420	20	1,330	25	877	August		6	1,140	13	1,040	19	777	26	1,170
February		8	1,410	14	1,410	21	1,290	26	932	1	879	7	1,130	14	1,100	20	807	27	1,180
1	1,250	9	1,410	15	1,420	22	1,240	27	1,010	2	858	8	1,130	15	1,150	21	883	28	1,190
2	1,270	10	1,390	16	1,430	23	1,190	28	1,050	3	699	9	1,130	16	1,140	22	999	29	1,190
3	1,250	11	1,290	17	1,420	24	938	29	1,030	4	707	10	1,140	17	1,120	23	947	30	1,200
4	1,260	12	1,160	18	1,420	25	541	30	1,060	5	729	11	1,130	18	1,120	24	898	31	1,230
5	1,250	13	1,190	19	1,430	26	460	July		6	756	12	1,120	19	1,120	25	999		
6	1,240	14	1,160	20	1,430	27	795	1	1,080	7	773	13	1,120	20	1,140	26	1,040		

ELECTRICAL CONDUCTIVITY OF WATER SAMPLES

1952

Rio Grande at Mercedes, Texas, Pumps

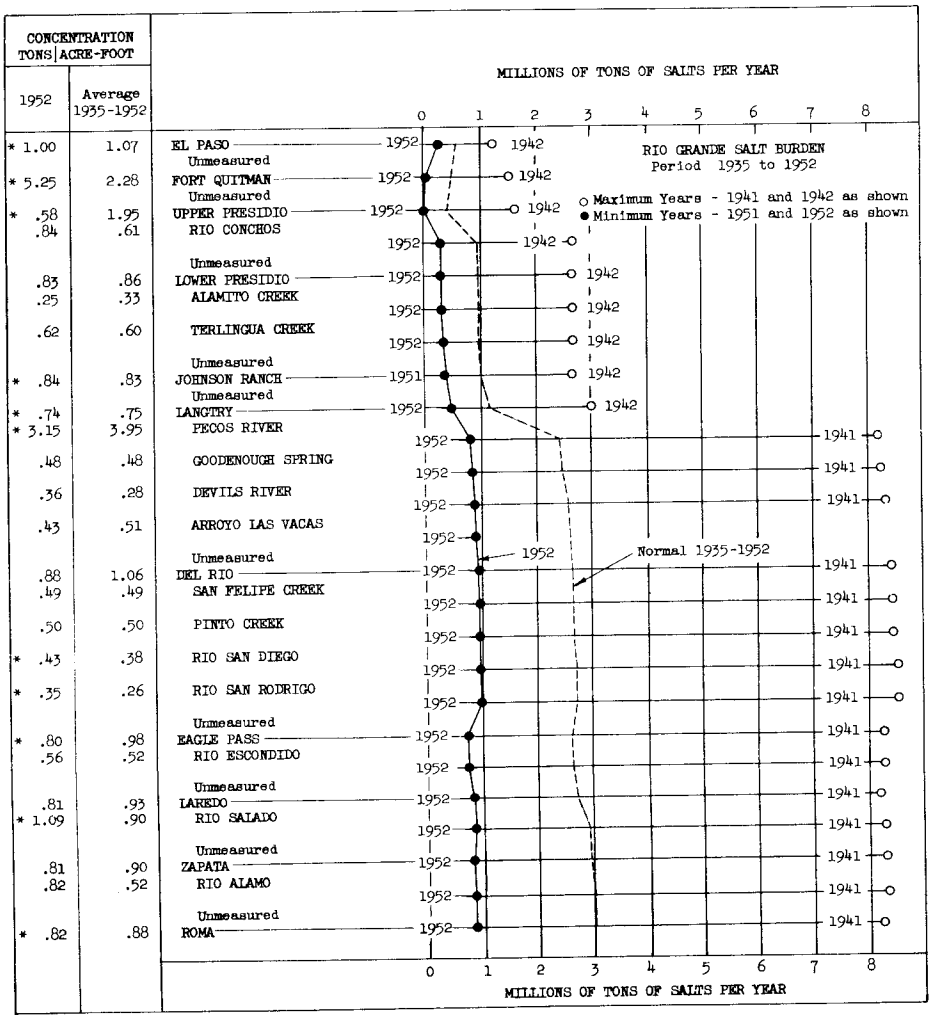
Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C
January		February		March		April		May		June		August		September		October		November	
2	1,530	8	1,770	16	1,760	22	3,310	27	1,080	30	2,070	4	1,010	11	2,400	20	2,290	26	2,110
3	1,520	9	1,700	17	1,620	23	3,320	27	2,320	July		5	1,130	12	2,180	21	2,250	27	2,080
4	1,530	10	1,930	18	1,630	24	3,020	28	1,050	1	2,140	6	1,210	13	2,050	22	2,330	28	1,850
5	1,520	11	1,980	19	1,650	25	3,130	29	629	2	2,250	8	1,310	14	2,000	23	2,340	29	1,810
6	1,520	12	1,890	20	1,600	26	3,420	30	887	3	2,220	9	1,240	15	1,980	24	2,540	30	1,790
7	1,570	13	1,920	21	1,590	27	3,560	30	977	4	2,170	10	1,190	16	1,970	25	2,540	December	
8	1,550	14	1,890	22	1,570	28	3,520	31	996	5	2,250	11	1,280	17	1,930	26	2,600	1	1,860
9	1,550	15	1,870	23	1,580	29	3,500	June		6	2,740	12	1,310	18	2,020	27	2,560	2	1,930
10	1,560	16	1,950	24	1,500	30	3,530	1	1,080	7	2,250	13	1,320	20	2,640	28	2,600	3	1,910
11	1,570	17	2,030	25	1,530	May		2	764	8	842	14	1,390	21	1,670	29	2,680	4	1,860
12	1,590	18	2,110	26	1,570	1	2,520	2	753	9	1,830	15	1,470	22	1,700	30	2,690	5	1,860
13	1,550	19	2,060	27	1,560	2	2,020	3	689	10	1,150	16	1,510	23	1,780	31	2,760	6	1,860
14	1,500	20	2,050	28	1,640	3	2,010	4	618	11	1,330	17	1,580	24	1,630	November		7	1,820
15	1,500	21	2,060	29	1,700	4	2,220	5	618	12	1,340	18	1,560	25	1,430	1	2,780	8	1,770
16	1,540	22	2,070	30	1,710	5	2,580	6	690	13	988	19	1,680	26	1,390	2	2,860	9	1,780
17	1,540	23	2,130	31	1,630	6	2,520	7	745	13	985	20	1,670	28	1,390	3	2,920	10	1,710
18	1,520	24	2,230	April		7	2,600	8	1,100	14	985	21	1,730	29	1,230	4	2,690	11	1,730
19	1,540	25	2,270	1	1,600	8	2,570	9	674	15	792	22	1,710	30	1,290	5	2,700	12	1,740
20	1,650	26	2,250	2	1,650	9	2,580	10	720	16	756	23	1,840	October		6	2,650	13	1,790
21	1,570	27	2,290	3	1,580	10	3,090	11	753	17	726	24	1,880	1	1,320	7	2,720	14	1,830
22	1,570	28	2,290	4	1,660	11	2,390	12	882	18	736	25	1,910	2	1,200	8	2,750	15	1,750
23	1,610	29	2,140	5	1,620	12	2,130	13	833	19	1,110	26	2,070	3	1,410	9	2,570	16	1,820
24	1,650	March		6	1,970	13	1,960	14	872	19	992	27	2,070	4	1,530	10	2,620	17	1,820
25	1,600	1	2,030	7	2,400	14	2,020	15	933	20	897	28	2,080	5	1,700	11	2,430	18	1,820
26	1,610	2	2,150	8	2,590	15	1,860	16	1,000	21	758	29	2,160	6	1,800	12	2,370	19	1,800
27	1,670	3	2,200	9	2,570	16	1,720	17	1,130	22	775	30	2,220	7	2,200	13	2,400	20	1,830
28	1,610	4	2,210	10	2,430	17	1,850	18	1,300	23	726	31	2,270	8	2,250	14	2,490	21	1,870
29	1,620	5	2,190	11	2,280	18	1,780	19	1,450	24	740	September		9	2,300	15	2,390	22	1,930
30	1,670	6	2,020	12	2,430	19	2,110	20	1,550	25	771	1	2,220	10	2,310	16	2,420	23	1,970
31	1,660	7	2,010	13	2,400	20	1,900	21	1,700	26	804	2	2,330	11	2,390	17	2,120	24	1,970
February		8	1,860	14	2,450	21	2,040	22	1,920	27	863	3	2,640	12	2,580	18	1,830	25	1,970
1	1,630	9	1,880	15	2,590	22	1,920	23	2,200	28	881	4	2,890	13	2,660	19	1,740	26	1,970
2	1,770	10	1,850	16	2,950	23	1,710	24	2,250	29	950	5	2,690	14	2,850	20	1,720	27	2,050
3	1,730	11	1,650	17	2,690	24	1,880	25	2,230	30	907	6	2,760	15	3,320	21	1,760	28	2,020
4	1,640	12	1,740	18	2,480	25	2,420	26	2,460	August		7	2,640	16	3,390	22	1,930	29	2,030
5	1,710	13	1,720	19	2,570	26	1,700	27	2,100	1	934	8	2,540	17	2,800	23	2,020	30	1,910
6	1,810	14	1,710	20	2,540	26	1,630	28	2,050	2	979	9	2,410	18	2,460	24	2,050	31	1,930
7	1,720	15	1,710	21	2,640	26	1,760	29	2,160	3	974	10	2,340	19	2,320	25	2,020		

North Floodway near Sebastian, Texas

Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C	Date	ECx10⁶ @25°C
January		February		March		May		May		June		August		September		November		December	
4	4,770	11	7,130	17	7,100	19	11,850	29	848	30	2,050	4	2,980	22	3,070	10	6,470	1	5,380
7	4,430	18	6,980	24	6,950	26	1,710	June		July		11	2,870	29	4,030	17	7,530	8	4,410
14	4,110	25	7,990	31	8,440	26	1,700	1	3,560	14	4,270	18	3,110	October		24	6,310		
21	4,450	March		April		28	714	9	3,400	21	2,920	25	2,440	6	4,040				
February		3	7,590	7	7,390	28	713	16	4,550	28	3,530	September		20	5,790				
4	4,500	10	7,200	21	4,290	29	858	23	4,480			8	4,230						

RIO GRANDE SALT BURDEN

The term "salt," as used herein, means total dissolved solids. The 1952 concentrations which are marked by an asterisk (*) are based on the chemical analyses shown on preceding pages of this bulletin. Those not asteriaked are either based on chemical analyses reported in previous water bulletins or have been arrived at by deduction. The normal concentrations shown for the period 1935 to 1952 are the weighted means of the values determined for the 18-year period indicated.



* Based on 1952 chemical analyses

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," Ninth Edition (1946), 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 per cent saturation at the elevation of the sampling station.

Date 1952	D. O. Percent Saturation	B. O. D. Parts Per Million	Coliform Organisms per 100 c. c.	Total Bacteria per c. c. (plate count)	Date 1952	D. O. Percent Saturation	B. O. D. Parts Per Million	Coliform Organisms per 100 c. c.	Total Bacteria per c. c. (plate count)
Rio Grande at El Paso, Texas, Water Plant									
Jan. 2	91.7	2.4	70,000	8,250	Mar. 18	97.3	2.1	16,000	2,000
8	101	2.8	3,600	5,300	Oct. 21	109	2.1	6,200	10,750
15	105	2.1	9,400	7,100	Nov. 4	108	1.1	11,000	9,250
22	100	2.9	24,000	5,300	11	93.7	3.7	24,000	6,000
29	109	2.8	16,000	1,450	Dec. 2	104	1.2	2,300	5,400
Feb. 5	108	2.3	11,000	1,600	9	102	2.8	2,300	2,950
12	92.8	1.6	24,000	6,900	30	101	2.0	3,600	5,000
19	105	1.4	5,500	1,800					
26	115	1.9	16,000	5,450					
Mar. 4	110	2.0	3,600	1,900	Total	1,884.5	40.2	264,500	88,700
11	132	3.0	16,000	1,800	Average	104.7	2.2	14,700	4,900
Franklin Canal at El Paso, Texas, Water Plant									
Mar. 25	94.1	3.5	3,400	7,600	Aug. 5	86.5	1.6	70,000	16,300
Apr. 1	91.5	4.7	24,000	4,000	12	82.2	2.3	24,000	62,800
8	100	3.2	3,600	4,800	19	94.0	1.5	6,200	15,000
15	96.6	2.0	6,200	4,000	26	89.7	1.2	24,000	35,050
22	98.6	2.5	24,000	3,900	Sept. 2	101	2.4	5,500	1,700
29	110	2.3	24,000	4,650	9	100	2.2	5,500	7,800
May 6	97.0	2.2	24,000	3,000	16	95.5	.6	6,200	12,650
13	90.2	3.4	9,400	16,900	23	101	1.7	6,200	10,650
20	98.0	1.6	38,000	12,150	30	91.5	2.6	140,000	25,900
27	97.2	9.5	24,000	8,900	Oct. 7	106	1.8	70,000	8,250
June 3	95.4	2.2	6,200	7,850	14	106	.9	38,000	12,050
10	92.6	2.3	38,000	16,100	28	99.7	1.3	11,000	7,750
17	89.7	2.6	24,000	25,750	Nov. 18	110	2.2	2,300	10,200
24	90.8	1.6	24,000	17,450	25	89.3	1.1	6,200	14,950
July 1	96.9	1.8	70,000	11,350	Dec. 16	92.9	.9	3,600	2,200
8	92.3	2.2	38,000		23	86.3	1.0	3,600	3,150
15	93.1	1.9	38,000	7,400					
22	88.2	1.4	24,000	17,900	Total	3,339.3	78.0	903,100	440,700
29	95.5	1.8	38,000	20,600	Average	95.4	2.2	25,800	13,000
Rio Grande at Ysleta, Texas–Zaragosa, Chih. Bridge									
Jan. 2	44.4	12.0	3,400,000	860,000	July 15	59.3	8.6	7,000,000	1,835,000
8	55.4	15.0	3,600,000	620,000	22	58.1	4.4	630,000	635,000
15	63.6	24.6	6,200,000	820,000	29	38.5	11.4	3,800,000	1,790,000
22	30.8	48.1	24,000,000	1,450,000	Aug. 5	57.0	6.0	7,000,000	1,055,000
29	61.0	40.5	2,300,000	1,300,000	12	44.8	5.7	14,000,000	4,350,000
Feb. 5	26.4	58.7	11,000,000	2,450,000	19	55.8	5.7	2,400,000	1,930,000
12	31.1	50.9	11,000,000	3,100,000	26	59.5	5.1	940,000	725,000
19	43.4	42.3	6,200,000	1,250,000	Sept. 2	72.7	4.4	940,000	280,000
26	57.3	47.8	3,600,000	1,250,000	9	72.8	5.9	940,000	825,000
Mar. 4	23.3	52.8	11,000,000	7,300,000	16	40.0	7.6	620,000	855,000
11	3.5	109	24,000,000	2,590,000	23	0	106	38,000,000	6,800,000
18	20.4	127	24,000,000	2,200,000	30	66.1	8.8	7,000,000	1,120,000
25	82.5	17.4	1,600,000	280,000	Oct. 7	0	45.3	140,000,000	3,675,000
Apr. 1	70.2	10.6	360,000	355,000	14	0	76.0	36,000,000	3,525,000
8	67.7	10.9	620,000	555,000	21	103	11.3	3,600,000	1,215,000
15	67.8	9.0	1,100,000	695,000	28	0	60.5	140,000,000	2,820,000
22	74.2	11.0	1,100,000	645,000	Nov. 4	0	76.4	55,000,000	3,070,000
29	64.9	12.0	2,300,000	735,000	12	44.4	21.6	24,000,000	1,825,000
May 6	66.3	6.8	14,000,000	2,050,000	18	90.9	17.8	6,200,000	780,000
13	59.3	10.6	230,000	43,000	25	46.7	58.9	24,000,000	2,025,000
20	58.3	12.0	3,800,000	1,310,000	Dec. 2	60.8	19.7	3,600,000	985,000
27	66.5	9.5	7,000,000	1,395,000	9	37.6	41.0	24,000,000	1,030,000
June 3	68.2	7.2	1,600,000	985,000	16	0	109	70,000,000	3,360,000
10	61.3	12.6	14,000,000	2,355,000	23	3.1	103	24,000,000	2,620,000
17	56.5	6.3	3,600,000	475,000	30	57.3	21.0	2,300,000	915,000
24	67.0	6.8	1,100,000	1,065,000					
July 1	79.9	7.9	1,300,000	675,000	Total	2,599.0	1,627.2	822,370,000	89,888,000
8	59.3	6.8	2,400,000	1,035,000	Average	49.0	30.7	15,500,000	1,700,000

SANITARY ASPECTS OF WATER QUALITY

Rio Grande at Laredo, Texas, Water Plant

Date 1952	Coliform Organisms per 100 c. c.	Total Bacteria per c. c. (plate count)	Date 1952	Coliform Organisms per 100 c. c.	Total Bacteria per c. c. (plate count)	Date 1952	Coliform Organisms per 100 c. c.	Total Bacteria per c. c. (plate count)
Jan. 2	110	1,400	May 12	160	1,050	Sept.15	620	1,700
7	360	2,100	19	13,000	238,500	22	940	1,400
14	130	450	26	6,200	21,000	29	550	1,000
21	360	1,250	June 2	2,300	29,000	Oct. 6	2,400	1,450
28	200	850	9	2,300	8,000	13	110	950
Feb. 4	620	1,700	16	110	1,100	20	1,100	1,300
11	36	1,200	23	1,100	1,700	27	620	550
18	62		30	3,600	3,500	Nov. 3	360	350
25	6,200	3,400	July 7	23,000	225,000	17	1,600	8,000
Mar. 3	2,300	900	14	6,200	197,500	24	620	1,450
10	14,000	700	21	3,600	80,000	Dec. 1	230	1,100
17	340	1,650	28	9,400	90,000	8	160	1,350
24	360	1,000	Aug. 4	2,300	7,950	15	110	550
31	110	1,500	11	280	1,800	22	110	900
Apr. 7	230	850	18	230	1,100	29	110	400
21	1,600	700	25	360	600			
28	6,200	7,300	Sept. 2	360	700	Total	121,578	960,850
May 5	3,600	1,700	8	620	1,250	Average	2,400	19,200

Rio Grande 5.6 Miles Below Laredo, Texas, R. R. Bridge

Jan. 7	62,000	8,500	June 2	160,000	38,500	Sept.29	11,000	24,000
14	55,000	10,000	9	240,000	35,000	Oct. 6	16,000	53,000
21	23,000	12,000	16	2,300	205,000	13	3,600	27,500
28	62,000	41,000	23	36,000	32,500	20	5,400	110,000
Feb. 11	36,000	27,000	30	62,000	43,000	Nov. 17	11,000	31,000
25	160,000	31,500	July 7	380,000	259,000	24	16,000	21,500
Mar. 3	130,000	4,000	14	110,000	218,000	Dec. 8	16,000	10,000
10	700,000	10,000	21	23,000	95,000	15	94,000	10,000
31	16,000	183,500	Aug. 4	36,000	38,500	22	1,100	8,000
Apr. 14	2,300	20,000	11	34,000	27,000			
28	240,000	103,000	18	3,600	123,000			
May 12	2,300	19,500	25	5,400	60,000			
19	62,000	36,200	Sept. 2	3,600	155,000	Total	2,986,800	2,434,200
26	160,000	85,500	8	6,200	218,000	Average	80,700	65,800

Rio Grande near Zapata, Texas

Jan. 2	3,800	3,100	May 12	620	1,550	Sept.22	620	2,650
7	3,600	2,250	19	1,600	4,000	29	160	2,000
14	9,400	850	26	6,200	26,500	Oct. 6	620	1,750
21	3,600	900	June 2	38,000	65,500	13	160	1,450
28	140,000	8,600	9	23,000	26,000	20	62	1,300
Feb. 4	62,000	34,000	16	230	1,350	27	230	1,550
11	1,100	9,000	23	1,100	1,550	Nov. 3	230	1,150
18	6,200		30	930	1,150	17	2,300	5,000
26	3,600	55,000	July 7	62,000	101,000	24	1,100	3,000
Mar. 3	7,200	1,350	14	5,400	103,000	Dec. 1	14,000	16,300
10	59,000	1,250	21	36,000	115,000	8	2,400	3,800
17	2,300	1,500	28	62,000	131,000	15	2,400	3,300
24	93	1,200	Aug. 4	36,000	14,500	22	620	1,200
31	3,600	5,650	11	3,600	22,900	29	1,100	1,500
Apr. 7	620	1,650	18	620	1,100			
14	230	800	25	210	1,300			
21	1,100	1,000	Sept. 2	360	1,000			
28	8,100	12,200	8	1,600	9,700	Total	645,245	816,050
May 5	24,000	900	15	230	800	Average	12,400	16,000

Rio Grande at Mercedes, Texas, Pumps

Jan. 7	2,300		May 19	11,000		Sept.22	1,100	
14	11,000		26	2,800		29	3,600	
21	5,500		June 2	9,400		Oct. 6	5,500	
28	3,600		9	24,000		13	6,200	
Feb. 4	560		16	1,600		20	2,100	
11	6,200		23	360		27	3,600	
18	2,300		30	2,300		Nov. 3	3,600	
25	1,600		July 7	2,100		10	6,200	
Mar. 10	6,200		14	38,000		17	5,500	
17	3,600		21	6,200		24	6,200	
24	2,300		28	16,000		Dec. 1	6,200	
31	3,600		Aug. 4	2,300		8	2,300	
Apr. 7	1,100		11	2,300		15	3,600	
14	3,600		18	230		22	2,300	
22	1,600		25	360				
28	3,600		Sept. 2	620				
May 5	930		8	1,100		Total	239,420	
12	620		15	540		Average	4,800	

RAINFALL ON THE RIO GRANDE WATERSHED IN INCHES – 1952

In the United States

The daily rainfall records tabulated below have not been published elsewhere. For each station there are indicated the source of the record and the type of rain gage in use. The general location of each station is shown on the map of the watershed, pages 52 and 53 of this bulletin.

American Dam Near El Paso, Texas

Standard gage — I. B. & W. C.

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.	T																			.02						T						.02	.49
Feb.										.67					.25																	.92	.59
Mar.	.87	.14							T								T															1.01	.39
Apr.											.93	T					.01								.04							1.17	.30
May																		.04	.15	.01	.03					.24	.07					.55	.32
June		1.04	.06																T						T	.02	.67			T		1.79	.87
July		.02	T	T		.04	.40	.07		1.36	.02				.02			.01				.18						T	.07		2.19	1.48
Aug.		.41						T	T	T	.20	.36		.57			.05	.14				.01	.05				.13				1.92	1.13
Sept.																					T	.05	.07					T				.12	.89
Oct.																																0	.67
Nov.			T					T															.01	.10						T		.11	.22
Dec.																		.05													T	.05	.46

Latitude 31° 47' Longitude 106° 32' Elevation 3,750 Feet — Period 1938-1952 — Total 1952: 9.69 — 7.61

Island Station

Recording gage — I. B. & W. C.

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.		.02																		.05						.04						.12	.38
Feb.										.19					.07	.01																.27	.27
Mar.	.35	.03														.01																.38	.30
Apr.										.10	.55														.08							1.08	.24
May																		.22	.34	.01						.39	.21					.82	.46
June	.10	.57																							.67		.39			.10		1.83	.53
July							.15				.11							.02					.08						.05		.41	.98
Aug.			.05						.07	.15	.64	.28		.04				.08								.07						1.53	1.20
Sept.																						.10	.12									.22	1.03
Oct.																																0	.83
Nov.				.01	T			.06															.05	.09					.04			.21	.25
Dec.																	.03	.13														.20	.46

Latitude 31° 32' Longitude 106° 14' Elevation 3,630 Feet — Period 1939-1952 — Total 1952: 6.98 — 6.88

Fabens-Guadalupe Bridge, Texas

Standard gage — I. B. & W. C.

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.		.12																		.07												.19	.45
Feb.										.17				.38																		.55	.31
Mar.	.30	.09																														.39	.36
Apr.										.48										.50					.28							1.26	.34
May																		.22								.27	.20					.69	.46
June	.17	.68									.14														.08	.20	.25			.05		1.57	.66
July						.15	.22	.06		.10																						.62	.72
Aug.									.11		.34	.18			.04		.05	.06														.69	1.46
Sept.																						.09										.09	1.15
Oct.																																0	1.04
Nov.			.12					.11															.15	.08								.46	.26
Dec.																	.10															.10	.31

Latitude 31° 26' Longitude 106° 08' Elevation 3,610 Feet — Period April 1940-1952 — Total 1952: 6.57 — 7.71

County Line

Recording gage — I. B. & W. C.

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.		.03									.33									.11						.06	.01					.21	.48
Feb.																	.27															.60	.23
Mar.	.33	.05									.04	.44																				.38	.34
Apr.												.04	.04					.30	.53	.07												1.08	.33
May																										.76	.34					1.40	.36
June		.97																									.17					1.22	.66
July							.02	.70		.02							.01	.33	.01													1.09	1.02
Aug.											.12	.51	.14					.02														.59	1.39
Sept.																													.01			.01	1.09
Oct.																																0	.87
Nov.			.09	.17	.01			.08															.01	.04	.01							.41	.25
Dec.																		.05												.06		.09	.47

Latitude 31° 25' Longitude 105° 59' Elevation 3,550 Feet — Period 1938-1952 — Total 1952: 7.08 — 7.49

Fort Hancock Bridge, Texas

Standard gage — I. B. & W. C.

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.		.02	.02							.01	.07					.26	T				.08						.20					.32	.51
Feb.	.36										.20						T															.34	.28
Mar.																																.36	.29
Apr.																	T															1.71	.39
May																		.30	.04	1.47	T					.62	.41					1.33	.59
June		.14	.63									.04															.51					1.32	1.02
July			.14				.36	.04	.05			.04						.05											T	T		.68	.99
Aug.	.04		.14							.38		.69					.02		.09										T		.05	1.36	1.13
Sept.																																.05	1.16
Oct.																																0	1.01
Nov.				.48														.02						.05	.13					T		.68	.23
Dec.																		.02	.06										.26			.34	.27

Latitude 31° 16' Longitude 105° 51' Elevation 3,500 Feet — Period April 1940-1952 — Total 1952: 8.49 — 8.17

Madden Arroyo Highway (U. S. 80) Bridge, Texas

Recording gage — I. B. & W. C.

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.		.05								.01						.16			.19							.25						.47	.41
Feb.																																.17	.15
Mar.	.22	.01																														.23	.17
Apr.											.11						.04		.47	.05												.67	.41
May																		.12		.01						1.35	.52					2.00	.50
June	.14	.57									.47																.10	.02				1.30	.69
July						.02	.01	.01		.02								.04					.20		.02							.30	1.04
Aug.			.28							.12	.30	.61				.04		.04					.02						.02			1.41	1.27
Sept.																																.04	1.16
Oct.																																0	1.22
Nov.			.10	.30					.02															.04								.46	.17
Dec.																		.04														.04	.53

Latitude 31° 13' Longitude 105° 46' Elevation 3,500 Feet — Period September 1941-1952 — Total 1952: 7.09 — 7.70

West Small, Texas

Standard gage — C. E. Chandler

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.										.50																						0	.47
Feb.		.25																														.50	.31
Mar.																			.87													.25	.25
Apr.																																.87	.45
May																												.89				.89	.65
June		.35																											2.00			2.35	1.06
July		.60						.30		.25						.80		.65														2.35	1.68
Aug.																			.15													.40	1.67
Sept.																																0	1.47
Oct.																																0	1.34
Nov.																																0	.22
Dec.																					.80								.25			1.05	.74

Latitude 31° 16' Longitude 105° 33' Elevation 4,070 Feet — # Period May 1940-1952 — Total 1952: 8.62 — 10.29

Some months missing

RAINFALL ON THE RIO GRANDE WATERSHED
IN INCHES – 1952

In the United States

Guayuco Arroyo Highway (U. S. 80) Bridge, Texas

Recording gage — I. B. & W. C.

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.		.01								.01					.05					.14						.21						.36	.44
Feb.																																.06	.14
Mar.	.23	.04									.26						.01															.27	.19
Apr.																	.02	.19	.41	.07												.73	.26
May																				.04						.15	.46					.86	.44
June	.22	.29									.21															.02	.29	.02				1.05	.62
July							.02	.08		.05			.03		.20			.79														1.15	1.49
Aug.		.04								.20	.11	.63											.05									1.03	1.49
Sept.																							.03					.02				.05	1.40
Oct.																																0	1.20
Nov.				.11					.05																.02							.18	.19
Dec.																		.02														.02	.52

Latitude 31° 10' Longitude 105° 40' Elevation 3,600 Feet — # Period May 1940-1952 — Total 1952: 5.78 — Average: 8.38

Fort Quitman, Texas

Recording gage — I. B. & W. C.

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.		.01																		.10						.20						.31	.54
Feb.																																0	.22
Mar.	.25										.16						.17	.18	.54	.06												.25	.26
Apr.																																.93	.85
May											.01														.06	.14	.35					.67	.49
June	.09	.22	.04																							.19	.12	.34				1.07	.86
July																															.05	1.78	1.42
Aug.		.02	.03		.04			.24		.15	.03	.22		.01	.02	.09		1.10			.32							.04				.73	1.27
Sept.														.14				.01					.15						.04			.19	1.12
Oct.																																0	.74
Nov.				.20	T				.08															.01					.01			.30	.25
Dec.																		.03											.01	.01		.05	.43

Latitude 31° 06' Longitude 105° 36' Elevation 3,430 Feet — # Period 1937-1952 — Total 1952: 6.28 — Average: 7.95

Neely Ranch, Texas

Standard gage — Mrs. Tom Neely

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.																															.35	.35	.47
Feb.																																0	.12
Mar.	.25											.12						.13	.31					.09								.23	.18
Apr.																		.19														.65	.16
May																										.21	.31					.31	.53
June		.25																							.33	.26						.84	.82
July						.35	.62				.14	.26		.65				1.15				.10						.28				2.17	1.60
Aug.																																1.00	1.39
Sept.																																.58	1.64
Oct.																																0	.86
Nov.				.51					.06																							.57	.16
Dec.																													.19			.19	.48

Latitude 30° 59' Longitude 105° 32' Elevation 3,350 Feet — Period August 1941-1952 — Total 1952: 7.09 — Average: 8.41

Al Roosevelt Ranch

Visual gage — Al Roosevelt

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.	.20									.20					T					.20					T	.25						.65	.32
Feb.	.10																								T							.20	.10
Mar.																									.21							.10	.58
Apr.						T											T	T	T													.21	.10
May																T	T									.60						.68	.51
June	T										.22								T					T		.10	.40	.40	.10	.25		1.47	.74
July							1.20		.40	.30	.10	.20			.10			.55								T		T	.15			3.00	2.50
Aug.				.15		T	.10			T																			T			.25	.12
Sept.																							.30	.10					.12			.52	1.14
Oct.																																0	0
Nov.																							.10									.10	.05
Dec.																			.30										.40	.10		.80	.50

Latitude 30° 32' Longitude 104° 33' Elevation 4,330 Feet — Period 1951-1952 — Total 1952: 7.92 — Average: 6.46

Quebec Ranch

Visual gage — George Jones

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.										.10		.40			.10											.20							.60	.48
Feb.																																.20	.12
Mar.																																0	.39
Apr.																			.50													.50	.52
May																										.20	.20					.40	.52
June	.20										1.50												.50	.50		.80		.40				3.90	2.32
July							.90	.50		.70	.30																				.10	2.50	2.41
Aug.																																0	1.41
Sept.																								.80								.80	1.90
Oct.																																0	.30
Nov.																								.25								.25	.06
Dec.																			.65									.20				.85	.34

Latitude 30° 31' Longitude 104° 24' Elevation 4,600 Feet — Period 1949-1952 — Total 1952: 10.00 — Average: 10.77

Kelly Ranch

Visual gage — George Jones

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.												.40																				.40	.72
Feb.																																0	.10
Mar.			.40																													.40	.67
Apr.															No Daily Records Available																	1.40	.69
May																										.50	.40					.70	.88
June												.15											.20	.20	.80	.20	.25	.10				1.90	1.52
July																																3.80	3.77
Aug.			.20	.25																												.85	.88
Sept.							.90	.60	.70	.40		.50		.40			.40	.20		.30			.60	.20								.80	2.22
Oct.																								.45								0	.52
Nov.																																.45	.11
Dec.																			.50										.50			1.00	.49

Latitude 30° 32' Longitude 104° 16' Elevation 5,320 Feet — Period April 1949-1952 — Total 1952: 11.70 — Average: 12.53

Petan Ranch

Standard gage — W. L. Harrington

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.																				.40								.80				1.20	.40
Feb.									.09																							.09	.11
Mar.	.10																												.10			.20	.42
Apr.																			.50													.50	.27
May																																0	1.47
June											.10								2.50				.65	.20	.60				.50			4.55	3.48
July	.10																				.10									.10		8.40	4.85
Aug.										.10																				.20		1.50	2.00
Sept.		.10	.50	.20			3.20	.60	.80	.50	.60	.80	.80	.45	.70	.05	.30						.50									.60	2.48
Oct.																																0	.52
Nov.																								.60	.40							1.00	.33
Dec.																		1.00	.20									.10				1.30	.57

Latitude 30° 04' Longitude 104° 29' Elevation 5,400 Feet — Period 1950-1952 — Total 1952: 19.34 — Average: 16.90

Livingston Ranch

Standard gage — J. S. Livingston

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.																																0	.12
Feb.																																0	0
Mar.																																0	.18
Apr.																																0	0
May															No Daily Records Available																	1.25	.70
June							1.60																									1.60	1.30
July																																0	.24
Aug.																																0	.61
Sept.																																0	.80
Oct.																																0	1.62
Nov.																					.75				.50							1.25	.62
Dec.																											1.00					1.00	.50

Latitude 29° 49' Longitude 104° 22' Elevation 4,150 Feet — Period 1951-1952 — Total 1952: 5.10 — Average: 6.69

Some months missing

RAINFALL ON THE RIO GRANDE WATERSHED IN INCHES – 1952

In the United States

Presidio, Texas

Standard gage — I. B. & W. C.

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.											.15								.02	.01							.35		.07			.38	.28
Feb.																																.22	.16
Mar.																				T				.27	.26	.03						0	.23
Apr.																			.10							.41	.10	.12				.56	.22
May												.04	.57														.09					.32	.32
June																																1.11	1.09
July								.70		.05	.25	1.18		.05				.25														2.44	2.02
Aug.					.04							.01		.02		.01										T						.08	.31
Sept.																																T	.78
Oct.																																0	.45
Nov.																								.60								.60	.15
Dec.																		.01	.20											.31		.52	.30

Latitude 29° 34' Longitude 104° 23' Elevation 2,550 Feet — Period November 1949-1952 — Total 1952: 6.23 — 6.26

Bloys Camp

Visual gage — J. H. McMichael

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.																																0	.57
Feb.															.45																	.45	.50
Mar.	.50	T	T						T																T		T					.50	.39
Apr.			T						T											.50					.40							.90	.43
May																		.50	T				T								.10	.40	1.64
June							T			.10	.10									.40		.20		.70	1.10	2.00	.80	.30				5.70	2.66
July		.20		.60		.50	1.00	.20	.10	1.40		.40				.10	.70	.50	.50			T	T						T			5.40	3.14
Aug.			.30					T	T	.20														.30	.20			.10				.90	3.25
Sept.																																.80	3.07
Oct.																								.80	.20							0	1.64
Nov.																													.10			1.10	.49
Dec.																		.50										.40	.10			1.00	.69

Latitude 30° 33' Longitude 104° 07' Elevation 5,650 Feet — ♯ Period 1941-1952 — Total 1952: 17.15 — 18.47

Marfa Experiment Station

Standard gage — P. H. Vardiman

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.																				.23							.52	.18					.93	.43
Feb.										.02						.02																.04	.11
Mar.	.12																												.46	T		.58	.58
Apr.																																0	.28
May												.01						.07								.15	.42					.65	1.42
June										.10	.08													.61	1.06	1.33	.05					3.03	2.19
July							1.29		.14					1.84	.06		.03															3.30	2.82
Aug.																																.06	1.07
Sept.																								.21						.10		.31	1.99
Oct.																																0	.11
Nov.																																0	T
Dec.																			.52											.17		.69	.29

Latitude 30° 20' Longitude 103° 59' Elevation 4,800 Feet — Period 1950-1952 — Total 1952: 9.79 — 11.29

Kerr Mitchell Ranch

Standard gage — Mrs. Kerr Mitchell

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.																				.16						.50	.10					.76	.61
Feb.																																0	.04
Mar.	.07																											T				.07	.18
Apr.																			.15					T	.10							.25	.73
May																										.63				T	T	.63	1.24
June																								.13	.38	1.50	.25	2.18	.02			4.36	2.02
July		.33				1.51	.13		.75	.22	.91					.56	.17	.19														4.57	2.40
Aug.									.12						.71																	.83	2.03
Sept.																								.52								.52	2.00
Oct.																																0	1.41
Nov.																								.82	.05							.87	.25
Dec.																		.58												.13		.71	.57

Latitude 30° 15' Longitude 104° 00' Elevation 4,460 Feet — ♯ Period March 1941-1952 — Total 1952: 13.59 — 15.48

Loma Vista Ranch

Standard gage — Hays Mitchell

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.																				.10							1.05	.15				1.28	1.07
Feb.																													.10			.10	.18
Mar.																																0	.21
Apr.																				.15						.33						.48	.86
May																				.20												.35	1.19
June										1.00										.15				.60					.50			2.10	2.02
July							2.65	.20	.10	.45		.55					.60	.65														5.20	2.90
Aug.																																0	1.54
Sept.																																0	2.25
Oct.																																0	1.49
Nov.																							1.19									1.19	.48
Dec.																				.75								.35				1.10	.76

Latitude 30° 13' Longitude 103° 47' Elevation 5,450 Feet — ♯ Period 1941-1952 — Total 1952: 11.80 — 14.49

H. T. Fletcher Ranch

Standard gage — H. T. Fletcher, Jr.

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.	T		T							T						.11				.14					T	.19	.36					.69	.92
Feb.	.12										T														T				.10			.11	.13
Mar.																	T	T	.66				.19		T							.22	.34
Apr.											T					T	T	T							T							.85	.57
May															T			T								.08	.02				.14	.24	1.33
June											.11	.13				T		T	T	T	.13			.54	1.03	.08	.04	.09				1.95	1.55
July		.03				T	2.15	1.65		.90	.43	.34	T	T	T	.51	T	.23		T			T						.03	.14	6.21	2.82
Aug.			T	.11						.07			T	T	T							T	.06	.22	.16				.12	.08	.18	3.16
Sept.			T																													.64	1.71
Oct.	.04																								1.07							.04	1.49
Nov.					T				T																	T	T	.18			1.07	.35
Dec.																			.41													.59	.43

Latitude 30° 12' Longitude 104° 16' Elevation 5,100 Feet — ♯ Period 1939-1952 — Total 1952: 12.79 — 14.80

Sauz Ranch ♦

Standard gage — H. T. Fletcher, Jr.

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.	T		T							T						.11				.14					T	.19	.36					.69	.69
Feb.	.12										T														T				.10			.11	.09
Mar.																	T	T	T				T		T							.22	.49
Apr.											T					T	T	T							T							T	.24
May															T			T								.08	T				.16	.24	1.38
June											.12			.15		T				T	.10			.57	.93	.07	.05	.09				2.08	1.29
July		T				T	2.14	.95	T	1.06	.50	.25		.13	T	.36	.04	.65					T						.03	.07	6.03	2.85
Aug.			.04	.02			.07			.12														.01	.11	.15			T	.06		.58	2.08
Sept.			T																													.33	2.18
Oct.					T																				.50	.65						0	1.57
Nov.									T																							1.15	.35
Dec.																			.44													.62	.35

Latitude 30° 10' Longitude 104° 12' Elevation 4,880 Feet — ♯ Period 1940-1952 — Total 1952: 11.85 — 13.68

McFarland Ranch

Standard gage — M. E. Bomar

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.																				.26								.56				.82	1.02
Feb.																													.13			0	.20
Mar.																																.13	.40
Apr.																			.42									.22			.13	.42	.73
May													.40	.07										.50	.60	.07	.28		.06			.35	1.34
June																																1.98	1.21
July							.50	1.32	1.42		.55	.33	.20						.29													4.61	3.24
Aug.			.40	.50					.27															.25	.31							1.17	2.45
Sept.																																.56	2.50
Oct.	.17																							1.10	.30							.17	1.38
Nov.																												.15				1.40	.48
Dec.																			.54													.69	.72

Latitude 30° 06' Longitude 104° 16' Elevation 5,310 Feet — ♯ Period 1941-1952 — Total 1952: 12.30 — 15.87

♯ Some months missing ♦ This station is listed as "Fletcher Ranch" in "Climatological Data", "Hydrology Bulletin", and "Hydrologic Network", published by U. S. Weather Bureau, and as "Turner Fletcher" in previous issues of I. B. & W. C. Water Bulletins.

RAINFALL ON THE RIO GRANDE WATERSHED
IN INCHES – 1952

In the United States

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
N. B. Chaffin Ranch — Standard gage — N. B. Chaffin																																	
Jan.																				.10								.30				.40	.62
Feb.																													.20			.20	.21
Mar.																																0	.38
Apr.																		.55							.73							1.28	.54
May																	.15										.71					.86	.92
June																		.83											.42	.60		1.85	1.78
July							.40		.30		.57	.75	.20	.10		.11		.40														2.81	1.88
Aug.																														.10		.10	1.60
Sept.																								.48								.48	2.28
Oct.																																0	.18
Nov.																			.90													.90	.31
Dec.											.50											.85										1.35	.82
	Latitude 29° 54' Longitude 104° 02' Elevation 3,800 Feet																								# Period 1947-1952							Total 1952 10.83	11.52
A. L. Baugh Ranch — Standard gage — A. L. Baugh																																	
Jan.																											.18					.18	.81
Feb.										.32																			.10			.42	.10
Mar.																																0	.28
Apr.																				.31												.31	.44
May																					.38											0	.76
June																											1.53					1.91	1.39
July	.42						1.10	.33		.28	.37	.15	1.42																			4.07	2.12
Aug.																																0	2.02
Sept.																																0	1.62
Oct.																																0	1.03
Nov.																							.90									.90	.38
Dec.																		.45											.20			.65	.74
	Latitude 29° 52' Longitude 104° 02' Elevation 3,820 Feet																								# Period 1942-1952							Total 1952 8.44	11.69
McCracken Ranch — Standard gage — J. M. Humphreys																																	
Jan.																							.11					.37				.48	.70
Feb.																																0	.13
Mar.	.14																															.14	.17
Apr.																			.38					.14		.20						.52	.62
May																		.10														.30	.89
June											.08	.42												.02	.24			.80				1.56	1.28
July	.20							1.33	.40		.57	.89	.45		.27		.09															3.93	2.57
Aug.																													.47			.74	2.07
Sept.				.03																			.18	.05	.22							.48	1.91
Oct.																																0	1.31
Nov.																									1.00							1.00	.34
Dec.																		.43											.36			.79	.66
	Latitude 29° 51' Longitude 104° 14' Elevation 4,250 Feet																								# Period 1941-1952							Total 1952 9.94	12.65
H. M. Greenwood (Cienega Ranch) — Standard gage — H. M. Greenwood																																	
Jan.																				.05							.43					.48	.64
Feb.										.02																						.02	.10
Mar.	.15																															.15	.17
Apr.																		.20	.31						.32							.63	.78
May													.02													.20					.06	.48	.97
June											.18	.39							.05					.10	.71		2.27					3.70	1.77
July							.92	.46			.35	1.64						.05														3.42	2.12
Aug.												.11			.28											.07					.14	.53	1.83
Sept.																																.07	2.62
Oct.																																0	1.31
Nov.																									1.00							1.00	.30
Dec.																		.35											.19			.54	.68
	Latitude 29° 48' Longitude 104° 13' Elevation 4,000 Feet																								# Period 1941-1952							Total 1952 11.02	13.29
Cienega Mountain — Visual gage — H. M. Greenwood																																	
Jan.																																0	0
Feb.																																0	0
Mar.																																0	.55
Apr.																			1.00													1.00	.50
May																																0	0
June												.75												.95	.55		2.20					4.45	2.22
July												5.12																				5.12	2.56
Aug.																																0	0
Sept.																																0	1.38
Oct.																																0	0
Nov.																																0	.02
Dec.																																0	.15
	Latitude 29° 47' Longitude 104° 11' Elevation 4,100 Feet																								Period September 1950-1952							Total 1952 10.57	7.38
Van Eman Ranch — Standard gage — L. T. Van Eman																																	
Jan.	T																			.10							.35					.45	.53
Feb.																																0	.11
Mar.	.10																															.10	.36
Apr.																		.30							.10							.40	.56
May																	.15										.10	.25			T	.50	.52
June											.10	.50												.42	.12		.25	.06				1.45	1.08
July							1.00	.50	.32	.25	1.00	1.72	.30			T		.56		.25	.10								T	T	6.00	2.88
Aug.			.15						T		.15																				.30	1.91
Sept.																																0	1.67
Oct.																																0	.37
Nov.																																.95	.31
Dec.																		.60						.55	.40		.10			.35		1.05	.74
	Latitude 30° 52' Longitude 103° 59' Elevation 3,890 Feet																								# Period 1947-1952							Total 1952 11.20	10.98
La Mota Ranch — Visual gage — Mrs. A. I. Mills																																	
Jan.													.30																			.30	.82
Feb.																																0	.11
Mar.	.30																															.30	.38
Apr.																			.80						.25							1.05	.52
May																																0	1.14
June											.40								.40													.80	1.70
July					.50	1.50	.10	.25																.15		.10			.75			3.35	1.79
Aug.																																0	.91
Sept.																																0	2.02
Oct.																																0	.05
Nov.																							.50									.50	.39
Dec.																													.50			.50	.27
	Latitude 30° 33' Longitude 103° 59' Elevation 3,750 Feet																								# Period 1945-1952							Total 1952 6.80	9.90
02 Ranch — Standard gage — Caven Woodward																																	
Jan.																																	
Feb.																																	
Mar.																																	
Apr.															Record began April 1, 1952																	0	
May									.11						.75																	.86	
June																																0	
July							1.75				1.20																					2.95	
Aug.																																0	
Sept.																								.45								.45	
Oct.																																0	
Nov.																							.60	.10								.70	
Dec.																		.04											.27			.31	
	Latitude 29° 51' Longitude 103° 45' Elevation 3,780 Feet																																

Some months missing

RAINFALL ON THE RIO GRANDE WATERSHED
IN INCHES – 1952

In the United States

Terlingua Creek Station

Recording gage — I. B. & W. C.

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.																													.15				
Feb.	.15				.02	.03					.17				Record began February 28, 1952							.12	.02								.03	.54	
Mar.		.02								.02								.04	.70					.55	.47	.02				.01		1.77	
Apr.																									.15	.08	.06					.20	
May																										.04		.40				.59	
June																																	
July							1.03				.83																					1.86	
Aug.															.10													.02				.12	
Sept.																						.03										.03	
Oct.																							.15									0	
Nov.																																.15	
Dec.																		.17											.78	.01		.96	

Latitude 29° 12' Longitude 103° 36' Elevation 2,260 Feet

Johnson Ranch, Texas

Standard gage — I. B. & W. C.

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.																												T				T	.51
Feb.																																0	.13
Mar.	.05																													.02		.07	.16
Apr.																		.17	.40	.05					.41	T						.61	.49
May																.04											.10					.54	.94
June	.05												.19													.24	.56	.04	.10			1.18	1.19
July								.14	.18			T	T																			.32	1.33
Aug.																																0	.72
Sept.																																0	1.47
Oct.																																0	.64
Nov.										.03														.05					.06	T		.14	.24
Dec.																			.13								.03			.25		.41	.38

Latitude 29° 01' Longitude 103° 23' Elevation 2,050 Feet — # Period 1935-1952 — Total 1952 3.27 — 8.20

Ray Willoughby Ranch

Standard gage — Cliff St. Clair

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.															Record began January 1, 1952					.20								.30				.50	
Feb.																																0	
Mar.																				.50												.50	
Apr.																																0	
May																		.20														2.20	
June											1.52													.26		.30	1.50				.20	2.03	
July							.30	2.00			.04		.75			.50		.60			.92					.25				.10	6.21	
Aug.																																0	
Sept.																																0	
Oct.															No daily records available																	T	
Nov.																																0	
Dec.																	.50															.50	

Latitude 30° 12' Longitude 103° 33' Elevation 3,050 Feet — Total 1952 11.94

Buttrill Ranch

Standard gage — Mrs. L. F. Buttrill

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.																																	
Feb.																																	
Mar.															Record began March 1, 1952																	0	
Apr.																		.48														.48	
May																		.89										1.43				2.32	
June										.14																.15	.29					.58	
July								.75				.45	.29	.04																		1.53	
Aug.																																0	
Sept.																						.10										.10	
Oct.																																0	
Nov.																			.21													.21	
Dec.																																0	

Latitude 30° 00' Longitude 103° 16' Elevation 3,500 Feet

Kokernot Ranch – Headquarters

Standard gage — David Kokernot

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.															Record began January 1, 1952					.05								.20				.25	
Feb.																																0	
Mar.	.17																															.17	
Apr.											.05																					.39	
May											.11							.13	.54							.24						.37	
June																																.11	
July								1.26	.25			1.46																				2.97	
Aug.																																0	
Sept.																																0	
Oct.																																0	
Nov.																								.70								.70	
Dec.						.60																						T				.60	

Latitude 29° 58' Longitude 103° 34' Elevation 4,120 Feet — Total 1952 5.56

Kokernot Ranch No. 2

Visual gage — David Kokernot

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.																																0	.42
Feb.																																0	.05
Mar.	.15																															.15	.34
Apr.																			.32													.52	.47
May																																0	.52
June																																0	.82
July								1.87	.25			2.30																			.50	4.42	2.22
Aug.																																.50	1.40
Sept.																																0	2.62
Oct.																																0	.72
Nov.																								.70								.70	.18
Dec.						.60																						T				.60	.42

Latitude 29° 59' Longitude 103° 35' Elevation 4,170 Feet — Period 1949-1952 — Total 1952 6.49 — 10.18

A. M. Potter Ranch

Standard gage — A. M. Potter

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.																				.06												.06	
Feb.																					.05											.05	
Mar.	.03																															.03	
Apr.																			.30													.30	
May																										1.03						1.03	
June																																0	
July								1.75																								1.75	
Aug.																																0	
Sept.																																0	
Oct.															No daily records available																	0	
Nov.																																.30	
Dec.																																0	

Latitude 29° 46' Longitude 103° 25' Elevation 3,440 Feet — Total 1952 3.50

Black Gap Game Refuge

Standard gage — F. O. Moore

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.															Record began January 1, 1952																	.20	
Feb.										.05																						.05	
Mar.	.12																															.12	
Apr.																																.60	
May											.44	.18	.23					1.36	.60					.15		.52	.52					2.20	
June																																1.00	
July													.18	.07																		.25	
Aug.																						.17										0	
Sept.																							.40									.17	
Oct.																																0	
Nov.																			.16													.40	
Dec.																													.98			1.14	

Latitude 29° 35' Longitude 103° 21' Elevation 2,250 Feet — Total 1952 6.13

RAINFALL ON THE RIO GRANDE WATERSHED
IN INCHES - 1952

In the United States

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average

Sand Valley Ranch

Standard gage — Mrs. W. G. Gullthur

Jan.												Record began January 1, 1953							.01								.02	.21				.24	
Feb.	.27									.10													.02									.12	
Mar.																																.27	
Apr.												.01							.55		.02			.01								.59	
May																		.01						.35			.40	.04				.45	
June	.01									.01	1.35	.01															.23					1.96	
July							1.55			.35		.05						.16	.05			.01										2.16	
Aug.										.01																						.02	
Sept.																																0	
Oct.																																0	
Nov.											.01													.17		.06						.24	
Dec.																		.51								.07			.15			.73	

Latitude 29° 33' Longitude 103° 16' Elevation 3,250 Feet — Total 1952: 6.78

Persimmon Gap Ranger Station

Standard gage — Park Ranger

Jan.																					.05	.04				.15						.15	.08
Feb.	.24	.01																			.15											.09	.04
Mar.			Station not attended March 21 to April 13										$.40			.06			.03	.05	.40												.42
Apr.																			.05														.26
May												.48							.05							.22		.31	.18			.61	.90
June																																.70	1.35
July								.33				1.08	Station not attended July 13 to August 27																T				1.10
Aug.																																	.57
Sept.																																	.48
Oct.																																0	
Nov.																																0	
Dec.																			.32					.22	.07		.02		.10			.29	.14
																																.44	.25

Latitude 29° 40' Longitude 103° 10' Elevation 2,900 Feet — ♯ Period 1948-1952

Dove Mountain Ranch

Standard gage — Roy McCracken

Jan.																																	
Feb.	T																	T														T	
Mar.												Record began March 1, 1952																				.15	
Apr.																		.10						.15		.17	.50				.54	1.31	.65
May																																	
June										.05	.16	.42																					
July								.02		1.60	.02																					1.64	
Aug.																																0	
Sept.																																0	
Oct.																																0	
Nov.																																0	
Dec.																			.60											.54		1.14	

Latitude 29° 49' Longitude 102° 53' Elevation 2,770 Feet

Maravillas

Standard gage — I. B. & W. C.

Jan.																				T				T			T					T	.12
Feb.		.09					T	T						T									T				T	T			T	.06
Mar.										T	.01							T		1.30				.01								.09	.32
Apr.																			.57								.58					1.32	.99
May												.49														.21			.19	T		1.15	1.23
June																															T	.89	1.82
July								T		.54	T							T														.54	1.15
Aug.											T																					T	1.77
Sept.																								.53								.53	1.01
Oct.																																0	.53
Nov.				T	T																			T		.33	T	T				.33	.08
Dec.																	T				.14						T	T	.02		.10	.26	.24

Latitude 29° 34' Longitude 102° 47' Elevation 1,810 Feet — Period October 1949-1952 — Total 1952: 5.11 — 9.28

Steve Stumberg Ranch

Recording gage — I. B. & W. C.

Jan.																																0	.92
Feb.																																0	.20
Mar.																																0	.13
Apr.																																0	.58
May											.05			.04	.13				.23								.05	.45				.20	1.10	2.13
June																												.08				.13	1.09
July								.07			.03	.05																			.43	.58	2.30
Aug.																													.55			.35	1.32
Sept.																								.50								.50	2.24
Oct.																																0	1.19
Nov.								.02														.02	.47									.51	.55
Dec.																			.66										.24			.90	1.01

Latitude 30° 11' Longitude 102° 53' Elevation 4,300 Feet — ♯ Period 1943-1952 — Total 1952: 4.07 — 13.60

Cinco de Mayo Ranch

Standard gage — Louis Arledge

Jan.																																	
Feb.																																	
Mar.																																	
Apr.																																	
May																		.35	.30							.50	1.45					2.60	
June																										.43						.43	
July																																0	
Aug.																																0	
Sept.																																0	
Oct.																																0	
Nov.																								.25		.26		.01	.09			.27	
Dec.																																.34	

Latitude 29° 50' Longitude 101° 51' Elevation 1,680 Feet

McGonagill Ranch--Headquarters

Standard gage — W. E. McGonagill

Jan.																																	
Feb.																																	
Mar.																																	
Apr.												Record began April 1, 1952																				.30	
May										.08								.20	.30						.25		1.09					1.29	
June																											.06					.89	
July							.30	.10		.22	.72							.51		.75	.49										.10	2.97	
Aug.																													.10			.10	
Sept.																								.67						.15		.82	
Oct.																																0	
Nov.																								.68								.68	
Dec.																		.71											.29			1.00	

Latitude 30° 20' Longitude 102° 58' Elevation 4,150 Feet

McGonagill Ranch--East Mill

Visual gage — W. E. McGonagill

Jan.																																	
Feb.																																	
Mar.																																	
Apr.																																	
May												Record began May 1, 1952															1.00					1.00	
June																																0	
July										.10	.60							.20		.40												1.30	
Aug.																																0	
Sept.										.50														.90								1.40	
Oct.																																0	
Nov.																									.61							.61	
Dec.																			.50										1.80			2.30	

Latitude 30° 20' Longitude 102° 55' Elevation 4,050 Feet

♯ Some months missing ‡ Cumulative amount for two or more days

RAINFALL ON THE RIO GRANDE WATERSHED
IN INCHES – 1952

In the United States

Arvin and Harkins Ranch – Header

Visual gage — Sid Harkins

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.																																0	.06
Feb.																																0	.10
Mar.																																0	.90
Apr.															.40			.80	1.40											.50		2.70	1.82
May																		.60									1.20					2.20	2.20
June																																0	1.32
July										1.60																				.30		1.90	1.40
Aug.																																0	2.50
Sept.																																0	1.15
Oct.																																0	.80
Nov.																							.50									.50	.38
Dec.																		.80														.80	.34

Latitude 30° 27' Longitude 102° 26' Elevation 3,400 Feet — Period November 1948-1952 — Total 1952: 8.10 — 12.57

Arvin and Harkins Ranch – Bean

Visual gage — Sid Harkins

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.																																0	.68
Feb.																																0	.22
Mar.																																0	.42
Apr.															.40			.40	1.30											1.10		2.80	1.75
May																		.70									1.00					2.10	1.80
June																																0	1.25
July										1.30									.10													1.40	1.35
Aug.																																0	2.60
Sept.																																0	.85
Oct.																																0	.90
Nov.																							.40									.40	.20
Dec.																		1.10														1.10	.40

Latitude 30° 26' Longitude 102° 25' Elevation 3,100 Feet — Period November 1948-1952 — Total 1952: 7.80 — 12.22

Arvin and Harkins Ranch – Camel

Visual gage — Sid Harkins

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.																																0	.40
Feb.																																0	.05
Mar.																																0	.45
Apr.															.40				.80											1.50		2.30	1.52
May																			.80								.70					1.90	1.75
June																																0	.68
July										.10																				.60		.70	1.15
Aug.																																0	1.75
Sept.																																0	.95
Oct.																																0	.75
Nov.																							.40									.40	.14
Dec.																		.70														.70	.88

Latitude 30° 25' Longitude 102° 20' Elevation 2,890 Feet — Period November 1948-1952 — Total 1952: 6.00 — 9.81

Arvin and Harkins Ranch – Headquarters

① Standard gage July 22 - Dec. 31, 1952 — Sid Harkins

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.																																0	.75
Feb.																																0	.15
Mar.																																0	.42
Apr.				.20														.10	.90											1.32		2.52	1.48
May																.11		.60	.10							.04	.67	.07				1.55	2.59
June																																.04	.78
July							.30			.20									.54											.14		1.18	1.32
Aug.																																0	2.05
Sept.																																0	.80
Oct.																																0	.80
Nov.																								.34								.34	.17
Dec.																		.70														.70	.30

Latitude 30° 27' Longitude 102° 19' Elevation 2,950 Feet — Period November 1948-1952 — Total 1952: 6.33 — 11.81

Arvin and Harkins Ranch – Monty Corder

Visual gage — Sid Harkins

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.																																0	.65
Feb.																																0	.10
Mar.																																0	.52
Apr.															.40			.90		1.20										.60		1.80	1.70
May																											.90					2.20	2.05
June																																0	.75
July										.20																				.80		1.00	1.10
Aug.																																0	1.10
Sept.																																0	1.10
Oct.																																0	.55
Nov.																								.60								.60	.18
Dec.																		.70														.70	.30

Latitude 30° 27' Longitude 102° 14' Elevation 2,850 Feet — Period November 1948-1952 — Total 1952: 6.30 — 10.10

E. W. Hardgrave Ranch

Standard gage — Jack Hardgrave

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.																																	
Feb.																																	
Mar.																																	
Apr.									Record began April 1, 1952						.16			.10		1.80							.62	.40	.15	.75	.04	2.65	
May																		.85									.55					2.20	
June																																.55	
July										.47																				.13		.60	
Aug.																																0	
Sept.									.09								.03						.03									.15	
Oct.																								.41								0	
Nov.																																.41	
Dec.																		.35	.20											.08		.63	

Latitude 30° 18' Longitude 102° 09' Elevation 2,650 Feet

Adams Bros. Ranch

Visual gage April 1-26, 1952
Standard gage Apr. 29 - Dec. 1952 — George Adams

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.																																	
Feb.																																	
Mar.																																	
Apr.									Record began April 1, 1952									.90		.85		.50					.33	1.05	.25		.25		1.60	
May																																2.20	
June																																.55	
July										.36			.05																			.41	
Aug.																																0	
Sept.									.07		.85																					.98	
Oct.	.07																															.07	
Nov.				.10																												.50	
Dec.																		.60												.10		.70	

Latitude 30° 10' Longitude 101° 58' Elevation 2,150 Feet

Bricker Ranch

Standard gage — Lena Mae Bricker

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.																																	
Feb.																																	
Mar.																																	
Apr.									Record began May 1, 1952									.90									1.94	1.10					2.00	
May																												.02				1.96	
June																															.01	.01	
July																																0	
Aug.																																.01	
Sept.										.01																						0	
Oct.																																.01	
Nov.				.10																					.25							.35	
Dec.																		.49												.16		.65	

Latitude 29° 59' Longitude 101° 52' Elevation 1,680 Feet

① Visual gage Jan. 1 - April 26, 1952; Recording gage April 26 - July 22, 1952

RAINFALL ON THE RIO GRANDE WATERSHED
IN INCHES – 1952

In the United States

Dryden, Texas

Standard gage — I. B. & W. C.

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.																																.11	.65
Feb.											.11										.04											.11	.41
Mar.	.04	T																							T		.02	.05				.04	.42
Apr.												.05																				1.01	.91
May	.89																	.99	.01	.80		.15										2.61	2.22
June		.07																	.15							1.20	.57	.01				1.27	1.10
July											.33	T	.02					.05	.47												.21	1.08	1.25
Aug.																																0	1.43
Sept.									.05	.03																						.08	1.70
Oct.																																0	1.13
Nov.				.06																												.47	.40
Dec.																		.32	.17		T				.36	.03	T		.02	T .01	.02	.52	.61

Latitude 30° 03' Longitude 102° 08' Elevation 2,160 Feet — # Period 1931-1952 — Total 1952: 7.30 — 12.23

Pumpville, Texas

Standard gage — C. Cash

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.																																.20	.78
Feb.										.10																	.20					.10	.42
Mar.																											T		T			T	.57
Apr.											.05																		.14			1.11	.88
May																	.50	.20	.80		.12					.20	.60	.04				1.54	2.09
June																										.80						.80	1.13
July											T																				.05	.03	.31
Aug.																																0	.64
Sept.								T																								T	1.78
Oct.																																0	1.55
Nov.				.10																				.32								.42	.12
Dec.																		.34											.02			.36	.67

Latitude 29° 57' Longitude 101° 44' Elevation 1,800 Feet — Period October 1946-1952 — Total 1952: 4.56 — 10.94

C. L. Arthur Ranch

Standard gage — C. L. Arthur

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.																																.78	1.10
Feb.																		.18									.60					T	.10
Mar.	.10																											T	1.40			1.50	.55
Apr.																	.15										T	.80				T	.55
May																											.16	.30	.43			.98	2.00
June											.11													1.02	.15	1.08						3.79	1.97
July								1.50	.60		.10	.40	.50		.78			.23			.50											4.61	2.69
Aug.																																0	1.59
Sept.																							.60									.60	1.76
Oct.																																0	1.07
Nov.																								1.10	.55							1.65	.36
Dec.																			.60										.10			.70	.32

Latitude 30° 23' Longitude 103° 45' Elevation 4,900 Feet — # Period 1946-1952 — Total 1952: 14.58 — 13.84

E. W. Young Ranch

Visual gage Jan. 1 - May 6, 1952
Standard gage May 7 - Dec. 1952 — Mrs. E. W. Young

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.																																0	
Feb.																																0	
Mar.																																0	
Apr.																																1.30	
May																	.44		.10 .48	1.20 .22							.93 .20	.80				2.87	
June					.30																											.50	
July																																0	
Aug.																																0	
Sept.											.47																					.47	
Oct.																																0	
Nov.																																0	
Dec.																				.80									.20			1.00	

Latitude 30° 26' Longitude 102° 01' Elevation 2,150 Feet — Total 1952: 6.14

Pecos River

Standard gage — I. B. & W. C.

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.																																.03	.92
Feb.																																.07	.72
Mar.									.03																		.36					.39	.71
Apr.																																	1.39
May																	1.00							.27			.98					2.25	1.94
June																										.20				.21		.41	1.69
July																			.31													.31	1.59
Aug.																																0	1.70
Sept.									.05		.47																					.52	1.89
Oct.																																0	1.09
Nov.				.18					.05								.09											.08	.05			.67	.46
Dec.																			.21		.02		.05	.17				.01	.02			.26	.78

Latitude 29° 45' Longitude 101° 21' Elevation 1,060 Feet — # Period March 1938-1952 — Total 1952: — 14.88

Comstock, Texas

Standard gage — George Humphreys

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.																								.15			.43					0	.77
Feb.																																.15	.89
Mar.																																.43	.82
Apr.	.09																.29		.31	.15	.09									.39		1.23	1.57
May																	.78							.14		1.70	.60					3.31	2.05
June																										.12						.12	1.62
July																															.11	.11	1.03
Aug.																																0	2.52
Sept.																																0	1.77
Oct.																																0	1.43
Nov.											.23													.11			.07	.09				.50	.48
Dec.																			.14								.07		.11			.32	.97

Latitude 29° 41' Longitude 101° 11' Elevation 1,530 Feet — Period May 1939-1952 — Total 1952: 6.17 — 15.98

Devils Lake, Texas

Standard gage — Central Power and Light Co.

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.		T																					.05	.67			T					T	.77
Feb.	.08																										.23		.09			.72	.78
Mar.									.03																					.34		.43	.72
Apr.																	.21		.07		1.05											1.67	1.62
May																	.23							.17			2.99					3.35	1.73
June																												.10				.10	1.80
July																			.29												.06	.35	.90
Aug.																																0	1.45
Sept.							T	.01		.81																						.82	1.60
Oct.																		T														T	1.36
Nov.			.02					.07	.20								.16							.09	.04		.01	.13	.10			.52	.48
Dec.																		.44								.10			.05	.03		.62	.85

Latitude 29° 34' Longitude 100° 59' Elevation 1,080 Feet — Period May 1939-1952 — Total 1952: 8.88 — 14.31

Maverick County Canal Headgate

Standard gage — Gate Tender

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.			.18																					.15		1.95		.10				.28	.45
Feb.																																2.08	2.07
Mar.										.10																	.15	.21		.24		.76	.73
Apr.																					.85									.65		1.50	1.28
May																		.25						.54	.18		.60	.25				1.82	1.69
June										.16																.03		.52		.71		1.42	1.61
July																	.25		.15												.55	.95	2.87
Aug.																																0	1.01
Sept.																																0	2.22
Oct.																																0	1.21
Nov.																																1.15	.35
Dec.																			.32								.15		.30	.65	.50	.97	.71

Latitude 29° 10' Longitude 100° 46' Elevation 870 Feet — Period March 1948-1952 — Total 1952: 10.87 — 16.20

Some months missing

RAINFALL ON THE RIO GRANDE WATERSHED
IN INCHES – 1952

In the United States

Maverick Power Plant

Standard gage — Central Power and Light Co.

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.																																	
Feb.																																	
Mar.																																	
Apr.																																	
May																																	
June														Record began June 1, 1952														2.00				2.00	
July										.10							.29		.11												.13	.63	
Aug.																																0	
Sept.																																0	
Oct.																																0	
Nov.																								.42					.77			1.19	
Dec.																			.04													.04	

Latitude 28° 50' Longitude 100° 31' Elevation 800 Feet

Quemado, Texas

Standard gage — Walter F. Cox

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.	T	.08	T	T				T											T	.02	T	T	T				.03					.13	.84
Feb.																					.01	.02	.04	T	.56	T						.63	1.51
Mar.								T	.06																		.60	T	.12	.10		.88	.78
Apr.	.62														T	T	T		.16	.30		1.33	T									1.68	1.89
May										.08	.06						1.50										.48	.10	.52	T		3.38	2.92
June																													.40		.12	.66	1.74
July								T								.11		T	T	T	T									.50	.61	1.21
Aug.																																0	1.41
Sept.								T	T	1.33																						1.33	3.04
Oct.									.12				T	T	T		.05						.18				.05	.78	T	T		1.18	1.51
Nov.																														T	T		.57
Dec.																			T	.07		.14	T			T	.46	T			.67	.66

Latitude 28° 56' Longitude 100° 37' Elevation 765 Feet — # Period November 1941-1952 — Total 1952 — 17.88

Tortuga Ranch, Texas

Standard gage — W. H. Brown

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.																				.02												0	0
Feb.																																.17	.14
Mar.																						.22				.15				.31		.53	.72
Apr.																		.24														.24	.12
May	.34																	.11						1.70			.30	.03				2.98	3.68
June																												.50				.50	.65
July											.20																					.20	.85
Aug.																																0	1.53
Sept.															.25			.15														0	1.72
Oct.																																0	.38
Nov.																												.48				.88	.29
Dec.																																0	.08

Latitude 28° 39' Longitude 100° 26' Elevation 790 Feet — Period May 1950-1952 — Total 1952 — 5.50 — 9.54

El Indio, Texas

Standard gage — W. C. Smith

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.																																0	.84
Feb.																					.16	.06	.07		.10							.39	.74
Mar.								.08																				.66	.21	.11		1.06	.74
Apr.																		.24												1.00		1.24	.99
May																	.19	.91	.15					1.65			.15	.85				3.90	5.92
June																												.50				.50	1.81
July																																0	.75
Aug.																																0	2.05
Sept.																																0	2.73
Oct.																																0	.96
Nov.								.40								.19											.19	.40				1.18	.53
Dec.																													.10	.70		.80	.71

Latitude 28° 31' Longitude 100° 19' Elevation 725 Feet — Period June 1941-1952 — Total 1952 — 9.07 — 16.78

Armistead Ranch

Standard gage — Floyd Hodges

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.		.04										T		T	T												.04					.08	
Feb.	.05									.01				T							T	.01	.03		.65							.70	
Mar.			T					.01	.01								T										.16	T	.14	T	T	.37	
Apr.	.40																.04		.02	.06		1.30		.20			3.55			.40		1.82	
May											.10	.07						.32										.27				4.47	
June				T													.10	.10														.44	
July																															.53	.73	
Aug.																		T														0	
Sept.							T	.07		.38																						.45	
Oct.								.21							T			.50				.09						.39				0	
Nov.																		.25	.15		T						.13		.03	.15	1.19	
Dec.																																.71	

Latitude 29° 35' Longitude 100° 39' Elevation 1,510 Feet — Total 1952 — 10.96

Frick Farm

Standard gage — Maverick Co. W. C. and I. D. #1

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.															.07						.10	.06		.26								0	
Feb.																																.49	
Mar.																																.42	
Apr.																																1.20	
May																																0	
June	No daily records available March through December																															0	
July																																.52	
Aug.																																0	
Sept.																																0	
Oct.																																0	
Nov.																																1.42	
Dec.																																1.48	

Latitude 28° 45' Longitude 100° 31' Elevation 750 Feet — Total 1952 — 5.53

Wuenache Farm

Standard gage — Maverick Co. W. C. and I. D. #1

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.																																0	
Feb.																No Report																	
Mar.																											.91					.91	
Apr.																	.85	.18														.18	
May																		.37						1.80		.72		.11				3.72	
June						.12				.03																						.26	
July							.11			.22	.02																					.33	
Aug.																																0	
Sept.										.01																						.01	
Oct.														.03																		.03	
Nov.		.25															.17										.29	.60	.02			1.31	
Dec.				.05																						.01						.06	

Latitude 28° 24' Longitude 100° 19' Elevation 640 Feet — Total 1952

Laredo Water Plant

Standard gage — Laredo Water Plant

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.			.04																		.01	.09		.21			.07	.12				.04	.90
Feb.						.18																										.31	.70
Mar.																																.37	.72
Apr.																		.16						1.82			.46	.53				2.97	1.13
May						.76	.71			.02		.19																.40				2.08	2.58
June																																	2.28
July									1.32																							1.32	1.34
Aug.																																0	1.32
Sept.																																0	3.05
Oct.																																0	1.49
Nov.																											.06	.20	.03			.58	.73
Dec.	.04	.01	.02			.01			.01	.27						T		.08									.04	T	.39	.02		.60	1.07

Latitude 27° 33' Longitude 99° 31' Elevation 410 Feet — Period 1950-1952 — Total 1952 — 8.27 — 17.29

Some months missing

RAINFALL ON THE RIO GRANDE WATERSHED
IN INCHES – 1952

In the United States

Fort McIntosh, Laredo, Texas

Standard gage — I. B. & W. C.

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.		.06									T				.01						.04				T .29		T					.06	.05
Feb.					T		.19			.14																			.14	.02	.02	.34	.32
Mar.																																.51	.78
Apr.																			.12		T		T	T	.05							.17	.37
May	T																	.58	.36							1.97	.48		.55			3.74	3.68
June						.93			.45	T	.12	.01																.45				1.94	2.65
July								1.82						.01																		1.83	.72
Aug.																																0	.54
Sept.														T	.19			T														.19	2.38
Oct.																																0	.10
Nov.										.29														T				.25				.56	.98
Dec.	.06		.04		.02												.02		.06										.34	.11		.63	.93

Latitude 27° 30' Longitude 99° 31' Elevation 410 Feet — Period February 1950-1952 — Total 1952 | 9.97 | 12.26

Laredo, Texas, International Bridge

Standard gage — U. S. Weather Bureau

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.			.05												.03						.04		.09	.19				.14	.06			.05	.66
Feb.																																.35	.65
Mar.								.08		.07																						.35	.68
Apr.																			.06													.06	1.73
May																			.43							1.55	.51	.53				3.02	2.02
June						.09	.69					.15																	.10			1.03	2.09
July								1.02																								1.02	1.47
Aug.																																0	1.25
Sept.																.39																.39	3.13
Oct.																																0	1.14
Nov.										.25																		.13	.10			.48	.45
Dec.	.02		.03																.05									.06	.89	.11		.56	.61

Latitude 27° 30' Longitude 99° 29' Elevation 400 Feet — Period 1941-1952 — Total 1952 | 7.51 | 15.88

Falcón Dam, Texas

Standard gage — I. B. & W. C.

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.			.02	.01	T										.03						.10				.07		.08	.06				.03	.04
Feb.																																.17	.08
Mar.							.06								.03																	.25	.64
Apr.										.06											.10				.08							.24	.87
May																								.64				.12				.76	2.08
June						.75			.25	.05	.28																	.33				1.66	2.84
July							.92																									.92	.40
Aug.																																0	.34
Sept.														.05	.46																	.51	2.92
Oct.																																0	.38
Nov.			.15							.04																			.45			.64	.93
Dec.	.15																								.03				.13			.31	.15

Latitude 26° 34' Longitude 99° 08' Elevation 323 Feet — Period April 1950-1952 — Total 1952 | 5.49 | 10.37

Roma, Texas

Standard gage — I. B. & W. C.

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.																								.08	.07							0	.84
Feb.																																.15	.84
Mar.							.16	T							T												.06	.11				.33	1.01
Apr.									.14									.05	.08					T	.12							.34	1.31
May																									2.10		.12					2.27	1.79
June						.66	.85		.22	.08	.25																					1.46	2.55
July					1.35																											1.35	1.11
Aug.																																0	1.89
Sept.														.33																		.33	3.60
Oct.																																0	2.03
Nov.			.15	.04	T																						.45	.05		.03		.72	.32
Dec.																								T			T	.29	T			.29	.42

Latitude 26° 24' Longitude 91° 01' Elevation 230 Feet — Period 1941-1952 — Total 1952 | 7.24 | 17.71

Rio Grande City Gaging Station

Standard gage — I. B. & W. C.

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.																																0	.71
Feb.																																0	.65
Mar.								T									.02											.02	.05			.09	.94
Apr.										.02																						.02	.91
May																									1.36	.16						1.52	1.44
June					1.16	1.32				.50														.05								3.03	2.48
July																																0	.65
Aug.																																0	1.60
Sept.														.62																		.62	2.66
Oct.																																0	1.49
Nov.																												.24				.24	.38
Dec.	.08																															.08	.70

Latitude 26° 20' Longitude 98° 47' Elevation 150 Feet — Period July 1939-1952 — Total 1952 | 5.60 | 14.61

San Benito Pump

Standard gage — I. B. & W. C.

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total Inches	Average
Jan.																					.08			.25								.25	1.33
Feb.																																.08	.66
Mar.																																0	1.16
Apr.																	.17		.80						1.65			1.82				.17	1.16
May			.62																													4.89	2.86
June							.95	.53			.42																		.14			2.04	2.33
July						.25											.22					.22										.69	1.68
Aug.												.45			2.40	.90	1.35	.34												.60		0	1.86
Sept.																																6.04	3.92
Oct.																																0	1.92
Nov.				3.00																			.33						.27	.05		3.65	.86
Dec.																											.18	.10	.21	.10		.59	1.56

Latitude 26° 05' Longitude 97° 45' Elevation 50 Feet — Period October 1933-1952 — Total 1952 | 18.40 | 21.44

RAINFALL ON THE RIO GRANDE WATERSHED
IN INCHES – 1952
In Mexico

The monthly records for Mexican rainfall stations, with averages for their periods of record, are tabulated below in their downstream order. These records have not been published elsewhere. On the following page, the same rainfall stations are listed in alphabetical order, showing the location, elevation, period of record, type of gage in use, tributary or subdivision of the Rio Grande watershed on which the station is located, and the observer. Daily rainfall records of these stations appear in Water Bulletin No. 22 published by the Mexican Section of this Commission.

Month	San Antonio, Durango		Hormiguero, Chih.		Balleza, Chih.		La Boquilla, Chih.		Rosetilla, Chih.		Villalba, Chih.		Las Vírgenes, Chih.		Delicias, Chih.		Guerrero, Chih.	
	1952	Average	1952	Average	1952	Average	1952	Average	1952	Average	1952	Average	1952	Average	1952	Average	1952	Average
Jan.	0	.40	0	.45	0	.30	0	.31	.10	.56	0	.42	T	.28	T	.43	0	.56
Feb.	T	.05	0	.22	.16	.43	T	.15	T	.06	0	.09	T	.03	T	.11	.84	.41
Mar.	0	.04	0	.11	.16	.08	0	.18	0	.20	0	.04	T	.06	0	.13	.46	.21
Apr.	.18	.24	.16	.16	.20	.22	.06	.18	.08	.13	.09	.06	.18	.12	.31	.20	.87	.19
May	.18	.35	2.66	.52	T	.17	.02	.63	1.15	.26	.41	.14	.65	.16	.39	.22	.08	.26
June	3.19	2.21	2.95	2.02	1.67	1.22	3.99	1.50	2.47	1.51	2.35	.94	2.31	1.13	3.32	1.21	5.04	1.64
July	4.63	4.70	4.61	5.60	4.45	4.51	3.43	2.96	2.39	2.51	7.01	3.67	3.52	2.41	3.00	2.33	3.18	4.39
Aug.	.30	3.00	.24	5.34	2.22	4.40	.37	2.87	1.32	2.29	.43	2.32	.21	1.74	.75	2.13	5.18	4.92
Sept.	0	3.69	.30	5.36	.35	3.52	.82	3.01	1.12	2.26	2.30	2.88	.68	1.56	1.12	2.15	.83	3.32
Oct.	T	1.12	0	1.77	0	.69	0	.97	0	.93	0	1.23	0	.68	0	.87	T	1.20
Nov.	.08	.23	T	.50	.55	.62	.31	.40	.31	.23	.22	.22	.21	.17	.30	.28	.63	.55
Dec.	.83	.36	3.33	.82	1.06	.46	1.05	.43	.84	.40	.49	.45	.22	.47	.69	.45	.69	.75
Yearly	9.39	16.39	14.25	22.87	10.82	16.62	10.05	13.59	9.78	11.34	13.30	12.46	7.98	8.81	9.88	10.51	17.80	18.40

Month	La Junta, Chih.		Chihuahua, Chih.		Maclovio Herrera, Chih.		Cuchillo Parado, Chih.		Ojinaga, Chih.		Cd. Acuña, Coah.		Jiménez, Coah.		Piedras Negras, Coah.		Allende, Coah.	
	1952	Average	1952	Average	1952	Average	1952	Average	1952	Average	1952	Average	1952	Average	1952	Average	1952	Average
Jan.	.57	1.02	.04	.31	.22	.41	.04	.08	.04	.25	.14	.07	.06	.03	.11	.06	0	.58
Feb.	1.89	.52	T	.22	T	.12	.22	.12	.16	.17	.28	.14	1.85	1.06	.20	.20	0	1.80
Mar.	.88	.31	.04	.24	0	.26	T	.50	.16	.20	.31	1.05	1.10	1.75	.64	1.19	.62	.56
Apr.	1.72	.18	.55	.19	.57	.30	.31	.16	.51	.24	1.20	.72	2.66	1.62	.72	.36	0	.80
May	T	.28	.43	.36	.38	.70	.63	.46	.43	.55	2.81	2.64	2.95	3.79	3.12	3.52	3.23	2.96
June	3.03	1.66	4.06	1.52	3.58	1.82	1.80	.92	.75	.78	.14	.76	.89	1.29	.62	.48	.20	2.45
July	4.77	5.16	5.83	3.57	4.21	3.34	5.49	3.42	2.13	1.12	T	T	.26	.19	.07	.30	0	1.22
Aug.	5.44	4.98	1.93	3.37	.33	3.30	.22	.43	T	1.29	0	.15	0	.05	0	.26	0	1.54
Sept.	2.09	2.42	.76	3.21	.39	4.35	T	.13		1.22	.61	1.35	0	1.85	.06	1.62	0	2.82
Oct.	.27	1.35	0	.90	0	.70	0	T	0	.93	0	.38	0	1.10	0	1.44	T	1.25
Nov.	.55	.38	.12	.50	.47	.14	.52	.26	.71	.42	.75	.40	1.10	.55	1.60	.80	.41	.29
Dec.	.98	.90	.36	.42	.22	1.19	.30	.28	.55	.43	.65	.49	1.30	.92	.92	.64	.69	.42
Yearly	22.19	19.16	14.12	14.81	10.37	16.63	9.53	6.76		7.60	6.89	8.15	12.17	14.20	8.06	10.87	5.15	16.69

Month	Villa Hidalgo, Coah.		Nuevo Laredo, Tamps.		Monclova, Coah.		San Buenaventura, Coah.		Progreso, Coah.		Nueva Rosita, Coah.		Sabinas, Coah.		Villa Juárez, Coah.		Don Martín, Coah.	
	1952	Average	1952	Average	1952	Average	1952	Average	1952	Average	1952	Average	1952	Average	1952	Average	1952	Average
Jan.	T	T	.07	.76	.02	.46	.06	.67	T	.54	T	.74	.02	.80	.04	.69	.01	.83
Feb.	.16	.10	.30	.74	.05	.44	T	.43	.13	.33	T	.48	.10	.91	.20	.35	.13	.65
Mar.	.75	1.02	.38	.82	.54	.31	.25	.23	.56	.23	T	.35	.48	.62	.63	.28	.81	.63
Apr.	.16	.38	.04	1.16	.64	.56	.60	.56	.70	1.55	1.18	1.22	1.53	1.33	1.61	1.05	1.56	1.28
May	2.14	2.16	3.02	2.38	.84	1.53	.91	1.48	.52	2.40	2.01	2.79	2.83	3.08	2.58	1.86	1.61	2.25
June	.98	1.10	1.21	1.94	.97	1.18	1.65	1.70	1.48	1.76	.24	2.00	.43	2.35	.41	1.37	T	1.88
July	.02	.01	2.91	1.39	.99	1.61	.48	1.75	1.89	.68	.35	1.54	1.66	1.39	.49	.55	.06	1.06
Aug.	0	.32	0	1.04	.12	1.60	.93	1.84	0	1.84	0	1.76	T	2.47	T	1.63	0	1.86
Sept.	.79	2.18	.24	2.74	.38	2.94	.34	2.12	T	3.02	T	2.34	.17	3.75	.39	3.46	.01	2.92
Oct.	0	.32	0	1.23	0	1.21	0	1.30	T	2.06	0	1.56	T	1.71	0	2.02	0	1.60
Nov.	.79	.55	.54	.80	.57	.58	.19	.50	.30	.23	T	.50	.61	.42	2.09	.55	.83	.57
Dec.	1.06	.53	.36	1.05	.14	.59	T	.74	.16	.65	.39	.73	.52	.60	.12	.35	0	.79
Yearly	6.85	8.67	9.07	16.05	5.26	13.01	5.41	13.32	5.74	15.29	4.17	16.01	8.35	19.43	8.56	14.16	5.02	16.32

Month	Laguna de Salinillas, N.L.		Anáhuac, N.L.		Guerrero, Tamps.		Cd. Miguel Alemán, Tamps.		Rayones, N.L.		Montemorelos, N.L.		Laguna de Sánchez, N.L.		Villa Allende, N.L.		Santa Catarina, N.L.	
	1952	Average	1952	Average	1952	Average	1952	Average	1952	Average	1952	Average	1952	Average	1952	Average	1952	Average
Jan.	0	.70	0	.78	.04	.68	T	T	0	.43	.08	.84	0	.59	.39	.94	0	1.12
Feb.	.18	.69	.16	.48	.24	.63	T	T	0	.41	.32	.85	T	.46	.39	.99	.02	.43
Mar.	.83	.68	1.20	.73	.34	.89	.40	1.18	0	.34	2.78	1.17	T	.59	2.52	1.45	.15	.36
Apr.	.24	.91	.26	1.11	.20	1.46	.31	.74	1.71	.77	2.52	2.18	1.69	1.26	3.70	2.23	.72	.73
May	1.10	2.48	1.73	2.63	1.19	2.74	2.28	1.96	T	1.33	3.76	2.84	1.28	1.76	2.42	3.23	.43	.68
June	.20	1.43	.69	1.61	2.46	1.63	1.50	2.92	2.41	2.44	1.98	3.87	4.49	3.81	4.17	5.46	1.59	2.49
July	.24	.60	2.17	1.36	.16	1.23	2.44	1.40	T	1.08	1.82	2.17	.39	2.83	2.76	2.59	0	1.39
Aug.	0	3.26	0	1.79	0	2.17	0	.41	T	3.20	0	3.87	.61	4.98	.79	4.84	0	3.35
Sept.	T	2.35	.85	2.91	1.60	3.21	.20	5.63	3.61	2.91	5.01	5.20	5.18	5.92	8.59	7.09	2.61	3.34
Oct.	0	1.47	0	1.40	T	1.44	0	.88	0	1.72	.55	3.29	0	2.73	.16	5.33	0	1.72
Nov.	.33	.41	.69	.47	.57	.51	.76	.38	T	.34	1.18	1.56	.18	.32	1.30	1.11	.12	.38
Dec.	.75	.53	.82	.85	.35	1.02	.22	.11	0	.27	.16	1.04	T	.48	T	1.12	0	.77
Yearly	3.87	15.51	8.57	16.12	7.15	17.61	8.11	15.61	7.73	15.24	20.16	28.88	13.82	25.73	27.19	36.38	5.64	16.76

Month	Monterrey, N.L.		Las Comitas, N.L.		Villa de Santiago, N.L.		Cadereyta, N.L.		Las Enramadas, N.L.		El Cuchillo, N.L.		Gral. Bravo, N.L.		Gral. Cepeda, Coah.		Saltillo, Coah.	
	1952	Average	1952	Average	1952	Average	1952	Average	1952	Average	1952	Average	1952	Average	1952	Average	1952	Average
Jan.	.16	.67	0	.37	.24	.89	.14	.83	T	1.03	0	.90	T	.78	0	.54	0	.60
Feb.	.04	.61	.02	.29	.31	.94	.12	.91	.71	.63	.22	.55	.20	.42	T	.43	0	.49
Mar.	2.95	.80	.09	.39	2.56	1.14	3.85	1.39	2.05	.72	.96	.44	1.74	.61	0	.31	.06	.39
Apr.	.95	1.19	.96	.95	2.48	1.75	.64	2.01	1.40	1.64	.46	1.70	.39	1.55	.67	.38	.63	.72
May	.33	1.61	.28	.87	1.32	2.78	1.14	2.35	1.00	3.09	1.55	1.96	.99	2.63	.47	.80	.10	1.01
June	2.26	2.92	1.78	2.96	7.56	5.42	1.52	3.78	5.96	3.76	3.54	2.64	5.40	2.78	3.27	2.41	7.47	2.17
July	.04	2.52	.43	1.49	1.18	3.23	.92	2.57	1.08	2.32	.49	1.49	T	2.48	2.14	3.79	1.65	2.73
Aug.	.10	3.11	.27	3.74	.46	5.31	.01	3.34	0	2.99	0	2.39	T	2.12	.49	2.99	.77	2.37
Sept.	2.98	5.78	2.22	4.82	8.33	8.92	4.75	4.69	3.59	5.36	.58	4.02	4.15	3.67	.50	3.17	.02	2.57
Oct.	0	3.23	0	1.97	.08	4.91	1.71	3.02	0	2.34	0	2.01	T	1.58	0	1.30	0	1.25
Nov.	1.65	1.33	0	.33	.51	1.32	.91	1.26	1.42	.64	1.76	.38	2.78	.88	.01	.51	.06	.94
Dec.	.06	.82	0	.52	T	1.03	.03	.80	.04	.74	0	.47	T	.83	.08	.58	.03	.64
Yearly	11.52	24.59	6.05	18.70	25.03	37.64	15.74	26.95	17.25	25.26	9.58	18.95	15.65	20.33	7.63	17.21	10.79	15.88

Month	Ramos Arizpe, Coah.		Rinconada, N.L.		Ciénaga de Flores, N.L.		Topo Chico, N.L.		Higueras, N.L.		Los Ramones, N.L.		Los Herreras, N.L.		Cerralvo, N.L.		Comales, Tamps.	
	1952	Average	1952	Average	1952	Average	1952	Average	1952	Average	1952	Average	1952	Average	1952	Average	1952	Average
Jan.	0	.46	T	.29	.21	1.39	0	.62	.14	.83	T	.68	T	.69	0	.74	T	.76
Feb.	T	.32	0	.42	.47	.58	.32	.85	.56	.57	.33	.64	.26	.53	.19	.55	.07	.62
Mar.	T	.33	.24	.29	2.76	.88	1.13	.81	.20	.61	1.93	.75	1.62	.79	2.74	.89	.59	.83
Apr.	1.02	.48	.55	.77	.83	1.06	.65	1.29	1.61	1.20	.63	2.20	.32	1.57	.63	1.60		1.48
May	T	.71	.84	.53	.09	2.06	0	1.18	.51	1.77	1.93	1.98	1.21	2.90	2.07	3.33	.81	1.98
June	2.86	1.20	2.62	1.25	1.46	2.83	1.19	2.52	.21	2.68	5.91	3.42	3.49	3.38	2.48	3.01	1.37	2.13
July	.67	1.47	0	.48	1.04	2.19	1.25	1.61	.21	2.21	.04	2.12	.34	1.08	.20	1.32	.62	.99
Aug.	.22	1.37	0	1.85	0	3.63	0	3.08	0	2.94	0	3.15	0	2.40	.28	2.85	0	2.59
Sept.	.28	1.81	.12	2.07	1.24	4.97	2.36	4.83	3.80	4.38	2.03	4.31	2.65	4.18	.57	5.23	.58	3.10
Oct.	0	.64	0	.91	T	2.02	0	2.13	0	1.61	0	2.18	0	2.03	.79	2.19	0	1.61
Nov.	.08	.46	.16	.23	T	.69	.86	.88	.67	.83	1.40	.37	1.81	.47	1.30	.44	.68	.42
Dec.	T	.55	.14	.22	T	.75	0	.75	.28	.75	T	.28	.02	.50	.07	.43	.11	.78
Yearly	5.13	9.80	4.67	9.31	8.10	23.05	7.76	20.55	8.19	20.38	14.20	22.08	11.72	20.52	11.32	22.58		17.29

Month	Anzaldúas, Tamps.		Reynosa, Tamps.		Retamal, Tamps.		Control (C 1-K-9), Tamps.		Matamoros, Tamps.		18 de Marzo, Tamps.		Méndez, Tamps.		Linares, N.L.		Villagrán, Tamps.	
	1952	Average	1952	Average	1952	Average	1952	Average	1952	Average	1952	Average	1952	Average	1952	Average	1952	Average
Jan.			.14	1.16	.18	.28	.14	1.21	.26	1.50	T	.12	0	1.00	.10	.98	.04	.35
Feb.			.39	.41	.28	.17	.18	.65	.37	.98	1.44	.72	.58	.62	.27	.83	1.08	.83
Mar.			.83	.64	.09	.79	.08	.93	.18	1.07	T	.55	1.06	.95	2.35	1.23	2.13	1.13
Apr.			1.08	.90	.68	.39	.43	.68	.85	1.45	.69	.34	.06	1.28	2.71	2.46	2.58	2.80
May			2.68	2.89	3.81	3.00	3.31	3.36	2.54	2.92	1.06	5.47	1.81	3.43	2.15	3.57	9.49	5.60
June			2.52	2.10	3.44	3.20	2.46	2.41	2.34	3.41	6.02	4.48	2.09	2.79	2.47	3.83	5.75	4.78
July				1.36	2.13	.89	2.52	1.07	2.11	2.14	4.49	1.97	.99	.87	2.64	3.04	1.34	2.33
Aug.			0	1.56	T	1.04	.41	2.95	.06	2.07	T	.84	0	4.13	.16	3.16	0	6.21
Sept.			.35	2.64	1.48	3.03	5.87	4.62	6.02	5.23	4.33	6.44	3.90	3.88	1.73	6.36	4.94	6.73
Oct.			0	1.44	T	.58	0	1.91	.96	2.80	T	2.65	0	1.85	1.85	3.15	.47	3.37
Nov.			2.32	.70	2.48	.83	3.33	1.16	3.11	1.50	.17	.56	.67	.31	1.34	1.25	.77	.79
Dec.	.57		.51	.69	.53	.37	.39	.63	.63	1.81	T	.05	.02	.47	.05	1.03	.06	.29
Yearly				16.49	15.10	14.57	19.12	21.58	19.43	26.88	18.20	24.19	11.18	21.58	17.82	30.89	28.65	35.21

RAINFALL ON THE RIO GRANDE WATERSHED

In Mexico

STATION	LATITUDE	LONGITUDE	ELEVATION FEET	PERIOD OF RECORD	TYPE OF GAGE	WATERSHED SUBDIVISION	OBSERVER
Allende, Coah.	28° 21'	100° 51'	1,170	# 1947-1952	Standard	Río Escondido	Hydraulic Resources
Anáhuac, N.L.	27° 15'	100° 07'	650	# June 1935-1952	Standard	Río Salado	Hydraulic Resources
Anzaldúas, Tamps.	26° 09'	98° 23'	110	Dec. 1952	Standard	Lower Rio Grande Valley	Hydraulic Resources
Balleza, Chih.	26° 57'	106° 21'	5,870	# 1903-1952	Standard	Río Conchos	Meteor. Serv. of Mexico
Cadereyta, N.L.	25° 36'	99° 59'	1,180	# 1904-1952	Standard	Río San Juan	Hydraulic Resources
Cerralvo, N.L.	26° 06'	99° 37'	1,130	# 1938-1952	Recording	Río San Juan	Hydraulic Resources
Chihuahua, Chih.	28° 38'	106° 04'	4,690	# 1900-1952	Standard	Río Conchos	Meteor. Serv. of Mexico
Ciénaga de Flores, N.L.	25° 58'	100° 10'	1,760	Apr. 1938-1952	Recording	Río San Juan	Hydraulic Resources
Cd. Acuña, Coah.	29° 20'	100° 53'	919	1951-1952	Standard	Langtry to Del Rio	Mexican Section IB&WC
Cd. Miguel Alemán, Tamps.	26° 24'	99° 02'	180	1951-1952	Standard	Falcón to Rio Grande City	Mexican Section IB&WC
Comales, Tamps.	26° 14'	98° 58'	270	Mar. 1938-1952	Recording	Río San Juan	Hydraulic Resources
Control (C 1-K-9), Tamps.	25° 58'	97° 49'	59	# 1942-1952	Standard	Lower Rio Grande Valley	Hydraulic Resources
Cuchillo Parado, Chih.	29° 26'	104° 53'	2,982	1951-1952	Standard	Río Conchos	Mexican Section IB&WC
Delicias, Chih.	28° 11'	105° 31'	3,710	# 1933-1952	Standard	Río Conchos	Hydraulic Resources
18 de Marzo, Tamps.	25° 41'	97° 48'	56	# June 1949-1952	Standard	Lower Rio Grande Valley	Hydraulic Resources
Don Martín, Coah.	27° 30'	100° 36'	790	# 1927-1952	Standard	Río Salado	Hydraulic Resources
El Cuchillo, N.L.	25° 43'	99° 16'	590	June 1938-1952	Standard	Río San Juan	Hydraulic Resources
Gral. Bravo, N.L.	25° 48'	99° 09'	390	# 1906-1952	Standard	Río San Juan	Meteor. Serv. of Mexico
Gral. Cepeda, Coah.	25° 24'	101° 29'	4,920	Aug. 1926-1952	Standard	Río San Juan	Hydraulic Resources
Guerrero, Chih.	28° 33'	107° 30'	6,560	# 1903-1952	Standard	Adjacent to Río Conchos	Meteor. Serv. of Mexico
Guerrero, Tamps.	26° 47'	99° 20'	295	# 1936-1952	Standard	Río Salado	Mexican Section IB&WC
Higueras, N.L.	25° 59'	100° 01'	1,640	# 1906-1952	Standard	Río San Juan	Meteor. Serv. of Mexico
Hormiguero, Chih.	27° 02'	105° 42'	5,580	# 1923-1952	Standard	Río Conchos	Meteor. Serv. of Mexico
Jiménez, Coah.	29° 04'	100° 40'	814	1951-1952	Standard	Del Rio to Eagle Pass	Mexican Section IB&WC
La Boquilla, Chih.	27° 32'	105° 25'	4,320	# 1910-1952	Standard	Río Conchos	Río Conchos Hydroelectric Co.
Laguna de Salinillas, N.L.	27° 26'	100° 22'	750	# 1940-1952	Standard	Río Salado	Hydraulic Resources
Laguna de Sánchez, N.L.	25° 21'	100° 16'	6,500	Apr. 1941-1952	Recording	Río San Juan	Hydraulic Resources
La Junta, Chih.	28° 26'	107° 20'	6,730	# 1925-1952	Standard	Adjacent to Río Conchos	Hydraulic Resources
Las Comitas, N.L.	25° 26'	99° 07'	1,670	1940-1952	Standard	Río San Juan	Hydraulic Resources
Las Enramadas, N.L.	25° 48'	99° 16'	730	# 1926-1952	Standard	Río San Juan	Hydraulic Resources
Las Vírgenes, Chih.	28° 10'	105° 38'	4,068	# 1943-1952	Standard	Río Conchos	Hydraulic Resources
Linares, N.L.	24° 52'	99° 34'	1,180	# 1900-1952	Recording	Adjacent to Río San Juan	Hydraulic Resources
Los Herreras, N.L.	25° 55'	99° 24'	820	Sept. 1939-1952	Recording	Río San Juan	Hydraulic Resources
Los Ramones, N.L.	25° 42'	99° 13'	270	# 1939-1952	Recording	Río San Juan	Hydraulic Resources
Maclovio Herrera, Chih.	29° 03'	105° 08'	3,380	# 1924-1952	Standard	Río Conchos	Meteor. Serv. of Mexico
Matamoros, Tamps.	25° 52'	97° 30'	40	# 1912-1952	Standard	Lower Rio Grande Valley	Meteor. Serv. of Mexico
Méndez, Tamps.	25° 07'	98° 35'	420	# 1939-1952	Standard	Adjacent to Lower Rio Grande Valley	Hydraulic Resources
Monclova, Coah.	26° 54'	101° 25'	1,940	# 1897-1952	Standard	Río Salado	Meteor. Serv. of Mexico
Montemorelos, N.L.	25° 12'	99° 50'	1,420	# 1904-1952	Standard	Río San Juan	Hydraulic Resources
Monterrey, N.L.	25° 40'	100° 18'	1,730	1896-1952	Standard	Río San Juan	Hydraulic Resources
Nueva Rosita, Coah.	27° 55'	101° 17'	1,410	# 1925-1952	Standard	Río Salado	Meteor. Serv. of Mexico
Nuevo Laredo, Tamps.	27° 29'	99° 31'	420	# 1909-1952	Standard	Laredo to Falcón	Meteor. Serv. of Mexico
Ojinaga, Chih.	29° 34'	104° 25'	2,620	# 1906-1952	Standard	Río Conchos	Meteor. Serv. of Mexico
Piedras Negras, Coah.	28° 42'	100° 31'	715	1951-1952	Standard	Del Rio to Eagle Pass	Mexican Section IB&WC
Progreso, Coah.	27° 28'	101° 03'	1,200	# 1943-1952	Standard	Río Salado	Hydraulic Resources
Ramos Arizpe, Coah.	25° 32'	100° 58'	4,590	# 1907-1952	Standard	Río San Juan	Meteor. Serv. of Mexico
Rayones, N.L.	25° 01'	100° 41'	1,970	# 1926-1952	Standard	Río San Juan	Hydraulic Resources
Retamal, Tamps.	26° 02'	98° 02'	82	Oct. 1949-1952	Standard	Lower Rio Grande Valley	Mexican Section IB&WC
Reynosa, Tamps.	26° 06'	98° 17'	130	# 1941-1952	Recording	Lower Rio Grande Valley	Hydraulic Resources
Rinconada, N.L.	25° 40'	100° 40'	4,790	# Apr. 1944-1952	Standard	Río San Juan	Hydraulic Resources
Rosetilla, Chih.	28° 14'	105° 19'	3,780	1940-1952	Standard	Río Conchos	Río Conchos Hydroelectric Co.
Sabinas, Coah.	27° 54'	101° 17'	1,430	# 1922-1952	Standard	Río Salado	Hydraulic Resources
Saltillo, Coah.	25° 26'	101° 00'	5,280	# 1886-1952	Standard	Río San Juan	Hydraulic Resources
San Antonio, Dgo.	26° 25'	105° 21'	5,430	1943-1952	Standard	Río Conchos	Hydraulic Resources
San Buenaventura, Coah.	27° 05'	101° 33'	2,300	# 1926-1952	Standard	Río Salado	Meteor. Serv. of Mexico
Santa Catarina, N.L.	25° 41'	100° 26'	1,970	Oct. 1937-1952	Recording	Río San Juan	Hydraulic Resources
Topo Chico, N.L.	25° 49'	100° 20'	1,640	# 1939-1952	Recording	Río San Juan	Hydraulic Resources
Villa Allende, N.L.	25° 17'	100° 01'	2,210	# 1938-1952	Standard	Río San Juan	Hydraulic Resources
Villa de Santiago, N.L.	25° 25'	100° 07'	1,460	# 1923-1952	Standard	Río San Juan	Hydraulic Resources
Villagrán, Tamps.	24° 29'	99° 29'	1,260	# 1939-1952	Recording	Adjacent to Río San Juan	Hydraulic Resources
Villa Hidalgo, Coah.	27° 47'	99° 52'	499	1951-1952	Standard	Eagle Pass to Laredo	Mexican Section IB&WC
Villa Juárez, Coah.	27° 36'	100° 46'	900	# 1943-1952	Standard	Río Salado	Hydraulic Resources
Villalba, Chih.	28° 01'	105° 46'	3,940	Oct. 1940-1952	Standard	Río Conchos	Hydraulic Resources

Some months missing

AVERAGE RAINFALL ON SUBDIVISIONS OF THE RIO GRANDE WATERSHED IN INCHES

With Totals and Normals for the 82 Years 1871-1952, Inclusive

Watershed Subdivision	Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
El Paso to Fort Quitman	1952	.21	.50	.51	.93	1.16	1.85	1.77	1.34	.09	0	.40	.29	9.05
	Total	38.52	30.87	28.48	24.66	34.00	67.65	194.61	160.31	116.45	75.03	37.48	52.54	860.60
	Average	.47	.38	.35	.30	.41	.82	2.37	1.96	1.42	.92	.46	.64	10.50
Fort Quitman to Upper Presidio	1952	.33	.10	.15	.99	.42	1.41	3.56	.57	.52	0	.60	.42	9.07
	Total	32.29	20.63	21.74	31.94	50.61	100.20	268.74	204.11	163.67	79.64	33.61	48.12	1,055.30
	Average	.39	.25	.27	.39	.62	1.22	3.28	2.49	2.00	.97	.41	.59	12.88
* Upper Presidio to Johnson Ranch	1952	.18	.10	.28	1.07	.39	.94	2.17	.15	.08	.04	.38	.71	6.49
	Total	28.58	22.76	15.56	34.52	64.91	88.62	154.04	154.07	118.41	68.76	28.53	36.06	814.82
	Average	.35	.28	.19	.42	.79	1.08	1.88	1.88	1.44	.84	.35	.44	9.94
Johnson Ranch to Langtry	1952	.08	.04	.09	.91	1.30	.86	1.06	.02	.17	T	.28	.53	5.34
	Total	42.13	26.95	36.48	66.38	126.37	147.03	162.42	187.41	184.26	97.63	51.51	49.14	1,177.71
	Average	.51	.33	.44	.81	1.54	1.79	1.98	2.29	2.25	1.19	.63	.60	14.36
Pecos River Sheffield to Pecos River Station	1952	.21	.23	.21	1.93	2.60	.69	1.04	.05	.27	0	1.06	.77	9.06
	Total	59.84	72.69	68.66	164.80	145.25	201.28	161.02	172.07	199.75	147.96	80.48	67.46	1,541.26
	Average	.73	.89	.84	2.01	1.77	2.45	1.96	2.10	2.44	1.80	.98	.82	18.79
* Langtry to Del Rio	1952	T	.27	.24	1.22	2.17	.33	.18	0	.31	T	.55	.42	5.69
	Total	44.23	51.83	70.26	110.46	165.42	184.92	101.18	138.38	188.70	107.28	68.09	56.74	1,287.49
	Average	.54	.63	.86	1.35	2.02	2.26	1.23	1.69	2.30	1.31	.83	.69	15.71
Devils River	1952	.10	.36	.76	1.56	2.64	.26	.34	.13	.65	0	1.18	.85	8.83
	Total	56.33	52.33	95.67	148.78	214.50	219.72	148.07	175.13	243.74	174.37	139.08	90.89	1,758.61
	Average	.69	.64	1.17	1.81	2.62	2.68	1.81	2.14	2.97	2.13	1.70	1.11	21.47
* Del Rio to Eagle Pass	1952	.12	.93	.65	1.73	3.09	.86	.63	.02	.35	.16	1.16	.91	10.61
	Total	63.54	73.73	89.31	136.33	247.76	201.75	159.92	156.02	250.15	155.32	89.26	77.75	1,700.84
	Average	.77	.90	1.09	1.66	3.02	2.46	1.95	1.90	3.05	1.89	1.09	.95	20.73
* Eagle Pass to Laredo	1952	.01	.29	.79	.44	3.22	1.00	.17	0	.40	T	.98	.87	8.17
	Total	62.38	64.71	85.43	128.88	266.01	208.91	117.16	191.03	246.74	143.98	80.82	87.10	1,683.15
	Average	.76	.79	1.04	1.57	3.24	2.55	1.43	2.33	3.01	1.76	.99	1.06	20.53
* Laredo to Falcón	1952	.04	.30	.35	.30	2.25	2.25	.64	0	.69	T	.60	.54	7.96
	Total	61.83	61.57	73.04	118.91	282.05	151.63	192.69	145.94	236.76	121.37	138.74	69.17	1,653.50
	Average	.75	.75	.89	1.45	3.44	1.85	2.35	1.78	2.89	1.48	1.69	.84	20.16
* Falcón Dam to Rio Grande City	1952	.03	.16	.66	.28	1.36	2.62	1.08	T	1.01	T	.85	.26	8.31
	Total	73.14	63.77	86.96	95.12	202.92	167.50	171.63	168.31	263.26	148.40	58.33	54.90	1,554.24
	Average	.89	.78	1.06	1.16	2.47	2.04	2.09	2.05	3.21	1.81	.71	.67	18.94
United States Side Below Rio Grande City	1952	.21	.38	.36	.45	3.96	3.52	1.82	.19	2.86	.09	2.60	.55	16.99
	Total	100.93	83.80	94.43	106.64	240.72	202.60	149.02	185.71	355.62	194.15	115.11	107.14	1,935.87
	Average	1.23	1.02	1.15	1.30	2.94	2.47	1.82	2.26	4.34	2.37	1.40	1.31	23.61

* Excluding Río Conchos, Alamito and Terlingua Creeks

* Excluding Pecos and Devils Rivers and Arroyo las Vacas

* Excluding San Felipe and Pinto Creeks, Río San Diego and Río San Rodrigo

* Excluding Río Escondido

* Excluding Río Salado

* Excluding Río Alamo and Río San Juan

INDEX TO PRECIPITATION RECORDS

The precipitation stations listed below and on the following pages include all stations of record within or adjacent to the watershed of the Rio Grande and its tributaries in the state of Texas in the United States and in the states of Chihuahua, Coahuila, Nuevo León, and Tamaulipas in Mexico. For each station, there is shown its location and elevation together with the publication where may be found each month's record for the years 1945 through 1952 on the United States side and for the years 1941 through 1952 on the Mexican side.

These indexes are continuations of two similar tabulations published in Water Bulletins Number 10 and Number 14. The combined indexes cover the one-hundred-and-three-year period, 1850-1952, on the United States side and the fifty-seven-year period, 1896-1952, on the Mexican side.

Corrected records for several stations, published in previous issues of these bulletins are shown on pages 101, 102, and 103 of Water Bulletin Number 21.

In the United States

NAME OF STATION	Latitude	Longitude	Elevation	WHERE MONTHLY REPORTS MAY BE FOUND			
				1945	1946	1947	1948
Adams Bros. Ranch	32° 10'	101° 58'	2,150'	HHHHHH HHHHHH	HHHHHH HHHHHH	HHHHHH HHHHH	CCCCCC CCCCCC
Agua Nueva	26° 54'	98° 36'	460'	HHHHHH HHHHHH	HHHHHH HHHHHH	HHHHHH HHHHH	CCCCCC CCCCCC
Alpine	30° 21'	103° 40'	4,482'	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC
American Dam	31° 47'	106° 32'	3,730'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
Armistead Ranch	29° 39'	100° 39'	1,910'				
Arvin & Harkins Rch. - Bear	30° 26'	102° 23'	3,100'				21 NN
Arvin & Harkins Rch. - Camel	30° 25'	102° 20'	2,890'				21 NN
Arvin & Harkins Rch. - Header	30° 27'	102° 20'	3,400'				21 NN
Arvin & Harkins Rch. - Headquarters	30° 27'	102° 19'	2,930'				21 NN
Arvin & Harkins Rch. - Monty Corder	30° 27'	102° 14'	2,850'				21 NN
Arthur, C. L. Ranch	30° 23'	103° 45'	4,900'		N NN 16 NN N	N N NN 17 NNN NN	NNNNNN 21 NNNNNN
Asherton	28° 26'	99° 46'	975'	HHH HHHHHH	HHHHHH HH H	HHHHH HHHH	
Asherton	28° 26'	99° 43'	400'				C C
Asherton	28° 26'	99° 43'	550'				
Atkinson, D. O. Ranch	29° 53'	104° 26'	4,630'		NN 16 NNNN N	N N NN 17 NNN	
Bakersfield	30° 41'	103° 21'	5,140'	HHHHH HHHHHH	HHHHHH HHHHHH	HHHHHH HHHHHH	HHHHH
Bakersfield	30° 41'	102° 21'	5,530'				C CCCCCC
Balmorhea (W.B.)	31° 00'	103° 41'	4,379'	HHH H HHHHHH	HHHHH HHH	H HHH H	HHHHH
Balmorhea (W.B. Exp. pan)	31° 00'	103° 41'	5,220'				C C
Barrhart	31° 08'	101° 11'	2,450'				CCCC CCCCCC
Baugh, A. L. Ranch	29° 50'	104° 02'	4,820'	N N 15 NNNNNN	N NNN 16 N NN	N N NN 17 NNNN N	N N 18 N N
Big Bend State Park	29° 16'	103° 13'	2,240'	HHHHHH HHHHHH	HHHHHH HHHHHH	HHHHHH HHHHH	
Big Lake	31° 12'	101° 28'	2,636'	HHHH HHH	H HHHHH	H HH HH	CCCCC
Black Gap Game Refuge	29° 39'	103° 22'	2,240'				
Bloys Camp	30° 35'	104° 07'	5,650'	N NN N 15 NNNNNN	N NNN 16 NNNN N	N NNNN 17 NNN NN	NNNNN 18 NN
Boquillas Ranger Station	29° 13'	102° 57'	1,773'				
Bracketville	29° 19'	100° 25'	1,060'	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCC	CCC C CCCCCC
Bricker Ranch	29° 59'	103° 52'	1,680'				
Brite Ranch	30° 25'	104° 32'	4,625'	H HHH HHHH	HHHHH HHHH	H	
Brownsville W.B. A.P.	25° 54'	97° 26'	16'	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC
Buena Vista	31° 12'	102° 39'	2,560'	HHHHHH HHHHHH	HHHH HH HH	HHHHH HHHHH	C CCC C
Banton Ranch	29° 56'	104° 21'	4,550'	HHHHHH HHHHHH	HHHHHH HH		C
Buttrill Ranch	30° 00'	103° 16'	3,900'				
Caballeria	30° 09'	104° 41'	2,870'	HHHHHH HHHHHH	HHHHHH HHHHHH	HHHHHH HHH	CCCCC CCCC
Carrizo Springs	28° 31'	99° 52'	690'	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC
Chaffin, H. B. Ranch	29° 54'	104° 02'	3,300'			NNNNNN 21 NNNNNN	N N NN 21 N NNN
Chamberlain	30° 42'	103° 11'	5,400'	HHHHHH HHH H	HHHHHH HHH	HHH H H H	CC CC C
Chilcoa Basin	29° 16'	103° 15'	5,100'				CCCCCC CCC C
Christmas	30° 13'	104° 30'	2,030'	HHHHHH HHHHHH	HHHHHH HHHHHH	HHHHHH HHHHH	CCCCCC CCCCCC
Chisos Mountain	29° 47'	104° 11'	4,100'				
Chino de Mayo Ranch	29° 50'	101° 51'	1,600'				
Cline	29° 15'	100° 09'	1,000'	HHHHHH HHHHHH	HHHHHH HHHHHH	HHHHHH HHHHH	CCCCCC CCCCCC
Comstock	29° 41'	101° 13'	1,530'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
Cooper's Ranch	29° 37'	103° 05'	2,990'	HHHHHH HHHHHH	HHHHHH HHH		
Corrubias Service Station	31° 46'	105° 28'	4,360'	HHHHHH HHHHHH	HHHHHH HHHHHH	HHH H H	C CCCCCC
Cottonwood Dam #1	31° 53'	106° 02'	3,890'	HHHHHH HHHHHH	HHHHH HHHHH	HH H HHH	C
Cottonwood Dam #2	31° 32'	106° 04'					C CC CC
County Line	31° 23'	105° 59'	3,590'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
Crossen Ranch	30° 05'	103° 41'	4,760'	NNNNNN 21 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 21 NNNNNN
Crystal City	28° 41'	99° 50'	581'	HHHHHH HHHHHH	HHHHHH HHHHHH	HHHHHH HHHHHH	CCCCCC
Davis, B. H. Ranch	30° 07'	103° 44'	5,220'	N N N 15 N NN	N NN 16 NNNN N	NNNNNN 21 NNNNNN	NNNNNN 21 NNNNNN
Decker Bros. Ranch	29° 58'	104° 18'	4,630'	HHHHH	H H H HHHH H	NNN NN 17 NN	
De Long Ranch	30° 09'	100° 43'	2,400'	HHHHHH HHHHHH	HHHHHH HHHHHH	HHHHHH HHHHHH	H HHC CCC
Del Rio W.B. City	29° 21'	100° 53'	977'	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC
Del Rio 3 C & 1 NW	29° 20'	100° 53'	875'				CCCCCC CCCCCC
Del Rio W.B. A.P.	29° 22'	100° 49'	1,094'				
Devils Lake	29° 34'	100° 59'	1,080'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
Dove Mountain Ranch	29° 49'	102° 55'	2,770'				
Dryden	30° 03'	102° 08'	2,160'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
Eagle Pass	28° 43'	100° 30'	743'	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC

INDEX TO PRECIPITATION RECORDS

In the body of the index, letters and numbers are used to indicate the source of the record and have the following meanings:

C "Climatological Data, Texas", a publication of the U.S. Weather Bureau.

H "Hydrologic Bulletin" or "Hydrologic Network", a monthly publication of the U.S. Weather Bureau in cooperation with other government agencies.

N Annual "Water Bulletins" published by this Commission.

15 to 22 "Water Bulletin Numbers" for the years 1945 to 1952.

To determine the type of rain gage used at each station, refer to the publication indicated. Elevations are in feet above mean sea level.

The position of the letters in each column indicates the month for which a record has been published.

In the United States

NAME OF STATION	Latitude	Longitude	Elevation	WHERE MONTHLY REPORTS MAY BE FOUND			
				1949	1950	1951	1952
Adams Bros. Ranch	30° 10'	102° 58'	2,150'				NNN 22 NNNNNN
Agua Nueva	26° 54'	99° 36'	460'	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC
Alpine	30° 21'	103° 40'	4,482'	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC
American Dam	31° 47'	106° 32'	3,736'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Armistead Ranch	29° 35'	100° 39'	1,510'				NNNNNN 22 NNNNNN
Arvin & Harkins Rch. - Bean	30° 26'	102° 23'	3,100'	NNNNNN 21 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Arvin & Harkins Rch. - Camel	30° 25'	102° 20'	2,850'	NNNNNN 21 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Arvin & Harkins Rch. - Header	30° 27'	102° 26'	3,400'	NNNNNN 21 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Arvin & Harkins Rch. - Headquarters	30° 27'	102° 19'	2,930'	NNNNNN 21 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Arvin & Harkins Rch. - Monty Corder	30° 27'	102° 14'	2,850'	NNNNNN 21 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Arthur, C. L. Ranch	30° 23'	103° 45'	4,900'	NNNNNN 21 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Asherton	28° 26'	99° 46'	575'				
Asherton	28° 26'	99° 45'	460'	C			
Asherton	28° 26'	99° 45'	550'	C C CC	C CC CC	CC CC	
Atkinson D. O. Ranch	29° 58'	104° 18'	4,630'				
Bakersfield	30° 41'	102° 21'	3,140'				
Bakersfield	30° 41'	102° 21'	2,530'	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC
Balmorhea (W.B.)	31° 00'	103° 41'	3,075'				
Balmorhea (W.B. Exp. pan)	31° 00'	103° 41'	3,225'	CCCCCC CCCCCC	CCCCCC CCCC	CCCCCC CCCCCC	CCCCCC CCCCCC
Barnhart	31° 08'	101° 11'	2,250'	CCCCCC CCCCCC	CCCCCC CCCC C	CCCCCC CCCC C	CCCCCC CCCCCC
Baugh, A. L. Ranch	29° 52'	104° 02'	3,820'	N NN N 21 NNN NN		NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Big Bend State Park	29° 16'	103° 18'	5,150'				
Big Lake	31° 12'	101° 28'	2,680'	C CC CCCCCC	CCCC C CCCCCC	CCCCCC CCC	
Black Gap Game Refuge	29° 35'	103° 21'	2,250'				NNNNNN 22 NNNNNN
Bloys Camp	30° 33'	104° 07'	5,650'		NNNNNN 21 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Boquillas Ranger Station	29° 12'	102° 57'	1,873'	CCCC			CCCCCC CCCCCC
Bracketville	29° 19'	100° 25'	1,050'	CCCCCC CCCCCC	CCCCCC CCCCCC	CC CCC CCCCCC	CCCCCC CCCCCC
Bricker Ranch	29° 59'	101° 52'	1,680'				NN 22 NNNNNN
Brite Ranch	30° 20'	104° 32'	4,625'	CC			
Brownsville W.B. A.P.	25° 54'	97° 26'	16'	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC
Buena Vista	31° 12'	102° 39'	2,500'	CCC C CCCCCC	CCCC C CCCCCC	CCCCCC CCC	
Bunton Ranch	29° 56'	104° 21'	4,550'				
Buttrill Ranch	30° 00'	103° 16'	3,500'				NNNN 22 NNNNNN
Candelaria	30° 09'	104° 41'	2,875'	CCCC CCCCCC	CCCCCC CCCCCC	CCCCC CCCCCC	CCCCCC CCCCCC
Carrizo Springs	28° 31'	99° 52'	600'	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC
Chaffin, N. B. Ranch	29° 54'	104° 02'	3,800'	NNNNNN 21 NNNNNN	N NNN 21 N N	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Chancellor	30° 42'	103° 11'	3,400'	C	CCC		
Chisos Basin	29° 16'	103° 18'	5,100'	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC
Christoval	31° 13'	100° 30'	2,030'	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC
Cienega Mountain	29° 47'	104° 11'	4,100'		21 NNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Cinco de Mayo Ranch	29° 50'	101° 51'	1,680'				NN 22 NNNNNN
Cline	29° 15'	100° 05'	1,000'	CCCCCC C CCC	CCCCCC CCCC	CCCCCC CCCCCC	CCCCCC CCCCCC
Comstock	29° 41'	101° 11'	1,530'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Cooper's Store	29° 37'	103° 08'	2,590'				
Cornudas Service Station	31° 46'	105° 28'	4,300'	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC
Cottonwood Dam #1	31° 33'	106° 05'	3,850'	CCC			
Cottonwood Dam #2	31° 32'	106° 04'					
County Line	31° 23'	105° 59'	3,550'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Crosson Ranch	30° 03'	103° 41'	4,760'	NNNNNN 21 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 21 NNNNNN	
Crystal City	28° 41'	99° 50'	581'	CCCCCC CCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC
Davis, B. H. Ranch	30° 07'	103° 44'	5,000'	NNNNNN 21 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 21 NNNNNN	
Decker Bros. Ranch	29° 58'	104° 18'	4,630'				
De Long Ranch	30° 59'	100° 48'	2,400'	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC
Del Rio W.B. City	29° 20'	100° 53'	957'	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCC CCCCCC	CCCCCC CCCCCC
Del Rio 3 S & 1 NW	29° 20'	100° 53'	875'	CC	CCCCC CC		
Del Rio W.B. A.P.	29° 22'	100° 49'	1,094'			CC CCCCCC	CCCCCC CCCCCC
Devils Lake	29° 34'	100° 59'	1,080'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Dove Mountain Ranch	29° 49'	102° 53'	2,770'				NNNN 22 NNNNNN
Dryden	30° 03'	102° 08'	2,160'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Eagle Pass	28° 43'	100° 30'	743'	CCCCCC CCCCCC	CCCCCC CCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC

INDEX TO PRECIPITATION RECORDS

In the United States

NAME OF STATION	Latitude	Longitude	Elevation	WHERE MONTHLY REPORTS MAY BE FOUND			
				1945	1946	1947	1948
Edinburg	26° 18'	98° 10'	90'				C CCCCCC
Eldorado	30° 52'	100° 36'	2,420'	HHHHHH HHHHHH	HHHHHH HHHHHH	HHHH HHHHHH	
Eldorado (Near)	30° 46'	100° 44'	2,400'	HHHHHH HHHH	HHHHHH HHHHHH	HHHHHH HHH	
Eldorado 11 SW	30° 47'	100° 46'	2,430'				
Eldorado 16 SW	30° 44'	100° 50'	2,413'				
El Indio	28° 31'	100° 19'	725'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNN	NNNNNN 18 NNNNNN
El Paso W.B. A.P.	31° 48'	106° 24'	3,920'	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC
Encinal	28° 03'	99° 21'	558'	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC
Fabens	31° 32'	106° 04'	3,880'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN		
Fabens #1 (Reclamation)	31° 30'	106° 09'	3,610'	HHHHHH HHHHHH	HHHHHH HHHHHH	HHHHHH H	CCCCCC CCCCCC
Fabens-Guadalupe Bridge	31° 26'	106° 08'	3,610'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
Falcón Dam	26° 34'	99° 08'	323'				
Fawcett, H. K. Ranch	30° 00'	100° 44'	2,000'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN		
Fletcher Ranch	30° 10'	104° 25'	4,850'	HHHH H HHHHHH	HHHH HHHHH	H HHH HHHHH	CCCCCC CCCCCC
Fletcher, H. T. Ranch	30° 12'	104° 16'	5,100'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 N NNNN
Fort Bliss	31° 49'	106° 25'	3,890'	HHHHHH HHHHHH	HH		
Fort Davis	30° 36'	103° 53'	4,800'	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCC
Fort Hancock Bridge	31° 16'	105° 51'	3,500'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
Fort McIntosh	27° 30'	99° 31'	410'				
Fort Quitman	31° 06'	105° 36'	3,430'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
Fort Stockton	30° 54'	102° 52'	2,925'	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC
Frick Farm	28° 45'	100° 31'	750'				
Grand Falls	31° 21'	102° 52'	2,430'	NNNNNN 15 N NNNN	NNNNNN 16 NNNNNN		CCCCCC C
Goodenough Spring	29° 32'	101° 13'	1,200'		16 NNNN	NNNNNN 17 N NNNN	NNN NN 18 NNNN
Greenwood, H. M. (Cienega Ranch)	29° 48'	104° 13'	4,000'	NNNNNN 21 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 21 NNNNNN
Guayuco Arroyo	31° 10'	105° 40'	3,600'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
Hardgrave, E. W. Ranch	30° 18'	102° 09'	2,650'				
Harlingen	26° 11'	97° 42'	37'	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC
Harper, R. D.	29° 49'	104° 03'	3,660'	15 N NNNN	H HH	H H H	
Harper, S. F. (Ted) Ranch	29° 47'	104° 05'	3,690'	N 15 NNNNNN	HHHH	H HHH	
Hollis Haley Ranch	29° 58'	104° 18'	4,630'			17 NN	N N 18
Hayter Ranch	30° 53'	103° 28'	3,350'	NNNNN 15 NNN			
Hebbronville	27° 18'	98° 41'	550'	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC C	CC C
Hidalgo	26° 06'	98° 16'	100'	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC
Holmes, H. B. Ranch	30° 16'	104° 05'	4,630'		HH H	H	
Hot Springs	29° 11'	103° 00'	2,200'	HHHH HHHH	HHHHHH HHHH	H HHHH HHHH	HHHH CC
Humble Pump Station	30° 17'	100° 18'	2,300'				CCCCCC C CCCC
Imperial	31° 16'	102° 43'	4,190'	HH H HHHHHH	HHHHHH HHHHHH	HHHHHH HHHH	HHCCH C
Indian Hot Springs	30° 51'	105° 20'	3,700'		H	H H	
Island Station	31° 32'	106° 14'	3,630'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
Johnson Ranch	29° 01'	103° 23'	2,050'	NNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
Jones, C. B. Ranch	30° 49'	100° 08'	2,100'	HHHHHH HHHH H	HH HHH HHHHHH	HHHHH HHHHH	CC CCCCCC
Jones, E. Ranch	29° 58'	103° 55'	4,760'	HH H HH HH			
Jones, M. W. Ranch	30° 59'	100° 20'	2,275'	HHHHHH HHHHHH	HHHHHH HHHHHH	HHHH H HHHHH	CCCCCC CCCCCC
Junction	30° 29'	99° 46'	1,714'	CCCCCC CCC	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCC CC
Kelly Ranch	30° 32'	104° 16'	5,320'				
Kingston, J. O. Ranch	30° 52'	103° 49'	4,444'	HHHH 16 NNNHHH	NNNNNH 16 HHH		
Kokernot Ranch Headquarters	29° 58'	103° 34'	4,120'				
Kokernot Ranch #2	29° 59'	103° 35'	4,170'				
La Mota Ranch	30° 33'	103° 59'	3,750'	HH H HH	N N N 16 NN	H H	
Langtry	29° 48'	101° 34'	1,397'	HHHHHH HHHHHH	HHHHHH HHHHHH	HHHHHH HHHHHH	CCCCCC CCCCCC
Laredo W.B. A.P.	27° 32'	99° 29'	472'	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC
Laredo International Bridge	27° 30'	99° 29'	400'	NNNNNN 18 NNNNNN	NNNNNN 18 NNNNNN	NNNNNN 18 NNNNNN	NNNNNN 18 NNNNNN
Laredo Water Plant	27° 33'	99° 31'	410'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
La Tuna	32° 00'	106° 36'	3,800'	HHHHHH HHHHHH	HHHHHH HHHHHH	HHHHHH HHHH	C CCC CCCCCC
Leakey	29° 44'	99° 46'	1,675'	HHHHHH HHH	H HHHH		
Livingston Ranch	29° 49'	104° 22'	4,150'				
Loma Alta	29° 55'	100° 46'	2,200'	HHHHHH HHHHHH	HHHHHH HHHHHH	HHHHHH HHHHH	CCCCCC CCCCCC
Loma Vista Ranch	30° 13'	103° 47'	5,450'	NN N 15 NN NNN	N N N 16 NNNN	N N NN 17 NN N	NNNN 18 NN N
Longley, Cole Ranch	30° 15'	104° 11'	4,700'		NNN 16 NNNNNN	NNN NN 17 NNN N	NNN 18 N N
Maddox Arroyo	31° 13'	105° 46'	3,500'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
Marathon	30° 12'	103° 15'	4,043'	HHHHHH H			CCCC CCCCCC
Marfa CAA	30° 19'	104° 02'	4,688'	HHHHHH HHHHHH	HHHHHH HHHHHH	HH HHH HHHHH	C CCCCCC
Marfa CAA A.P.	30° 15'	103° 53'	4,688'				
Marfa Charco Marine Ranch	30° 29'	104° 06'	5,300'				
Marfa Exp. Station	30° 20'	103° 59'	4,800'				
Marfa 16 S	30° 05'	104° 04'	4,800'				
Marfa, Ryan	30° 22'	104° 19'	4,700'				
Marfa, U. S. Army A.F.	30° 16'	103° 52'	4,950'	NNNNNN 15 NNNNNN			
Maravillas	29° 34'	102° 47'	1,810'				
Mariposa Mine	29° 20'	103° 43'	3,500'				
Maverick County Canal Headgate	29° 10'	100° 46'	870'				NNNN 18 NNNNNN
Maverick Power Plant	28° 50'	100° 31'	800'				
McAllen	26° 12'	98° 13'	122'	HHHHHH HHHHHH	HHHHHH HHHHHH	HHHHHH HH HHH	CCCCCC CCCCCC
McCamey	31° 08'	102° 12'	2,454'	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CC CCC	CCCCCC CCCCCC
McCracken Ranch	29° 51'	104° 14'	4,250'	N NN N 15 NNNNNN	N NNN 16 NNNN	NNN NN 17 NNNNNN	N NNNN 18 NNNNNN
McDonald Observatory	30° 40'	104° 00'	6,500'	HHHHHH HHHHHH	HHHHHH HHHHHH	HHHHHH HHHHH	
McFarland Ranch	30° 06'	104° 16'	5,310'	NNN 15 NNNNNN	NNN 16 NNNN N	N N NN 17 NNN NN	NNNN 18 NNNN
McGonagill Ranch, E. Windmill	30° 20'	102° 55'	4,050'				
McGonagill Ranch, Headquarters	30° 20'	102° 58'	4,150'				
McIntosh Ranch	30° 43'	100° 34'	2,350'	HHHHHH HHHHH	HH HHH HHHHHH	HHHH H HHH	CCC CCCC
Medley, Oscar Ranch	30° 32'	104° 11'	5,720'	H HH			
Mellard, F. C. Ranch	30° 04'	104° 05'	4,470'	HHH		H H HH	
Menard	30° 55'	99° 48'	1,960'	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCC	CCCCC CCCCCC
Mercedes	26° 13'	97° 52'	66'	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCC

INDEX TO PRECIPITATION RECORDS

In the United States

NAME OF STATION	Latitude	Longitude	Elevation	WHERE MONTHLY REPORTS MAY BE FOUND							
				1949		1950		1951		1952	
Edinburg	26° 18'	98° 10'	90'	CCCCCC	CCCCCC	CCCC					
Eldorado	30° 52'	100° 36'	2,420'								
Eldorado (Near)	30° 46'	100° 44'	2,400'								
Eldorado 11 SW	30° 47'	100° 46'	2,430'	CC		C C					
Eldorado 16 SW	30° 44'	100° 50'	2,413'						CCCC	CCCCCC	CCCCCC
El Indio	28° 31'	100° 19'	725'	NNNNNN 19	NNNNNN	NNNNNN 20	NNNNNN	NNNNNN 21	NNNNNN	NNNNNN 22	NNNNNN
El Paso W.B. A.P.	31° 48'	106° 24'	3,920'	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC
Encinal	28° 03'	99° 21'	558'	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC
Fabens	31° 32'	106° 04'	3,880'								
Fabens #1 (Reclamation)	31° 30'	106° 09'	3,610'	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC
Fabens-Guadalupe Bridge	31° 26'	106° 08'	3,610'	NNNNNN 19	NNNNNN	NNNNNN 20	NNNNNN	NNNNNN 21	NNNNNN	NNNNNN 22	NNNNNN
Falcón Dam	26° 34'	99° 08'	323'			NNN 20	NNNNNN	NNNNNN 21	NNNNNN	NNNNNN 22	NNNNNN
Fawcett, H. K. Ranch	30° 00'	100° 44'	2,000'								
Fletcher Ranch	30° 10'	104° 25'	4,850'	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCC		
Fletcher, H. T. Ranch	30° 10'	104° 12'	4,880'	NNNNNN 21	NNNNNN	NNNNNN 21	NNNNNN	NNNNNN 21	NNNNNN	NNNNNN 22	NNNNNN
Fort Bliss	31° 49'	106° 25'	3,890'								
Fort Davis	30° 36'	103° 53'	4,800'	CCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC
Fort Hancock Bridge	31° 16'	105° 51'	3,500'	NNNNNN 19	NNNNNN	NNNNNN 20	NNNNNN	NNNNNN 21	NNNNNN	NNNNNN 22	NNNNNN
Fort McIntosh	27° 30'	99° 31'	410'			NNNNN 20	NNNNNN	NNNNNN 21	NNNNNN	NNNNNN 22	NNNNNN
Fort Quitman	31° 06'	105° 36'	3,430'	NNNNNN 19	NNNNNN	NNNNNN 20	NNNNNN	NNNNNN 21	NNNNNN	NNNNNN 22	NNNNNN
Fort Stockton	30° 54'	102° 52'	2,925'	CCCCCC	CCCCCC	CCCCCC	CCCCCC	C CCCC	CCCCCC	CCCCCC	CCCCCC
Frick Farm	28° 45'	100° 31'	750'							NNNNNN 22	NNNNNN
Grand Falls	31° 21'	102° 52'	2,430'	CCCC	CCC	CCCC					
Goodenough Spring	29° 32'	101° 13'	1,200'	NNN NN 19	N NNNN	NNNNNN 20	NNNNNN				
Greenwood, H. M. (Cienega Ranch)	29° 48'	104° 13'	4,000'	NNNNNN 21	NNNNNN	NNNNNN 21	NNNNNN	NNNNNN 21	NNNNNN	NNNNNN 22	NNNNNN
Guayuco Arroyo	31° 10'	105° 40'	3,600'	NNNNNN 19	NNNNNN	NNNNNN 20	NNNNNN	NNNNNN 21	NNNNNN	NNNNNN 22	NNNNNN
Hardgrave, E. W. Ranch	30° 18'	102° 09'	2,650'							NNN 22	NNNNNN
Harlingen	26° 11'	97° 42'	37'	CC CC	CCCCCC	CCCCCC	CCCCCC	C CCCC	CCCCCC	CCCCCC	CCCCCC
Harper, R. D.	29° 49'	104° 03'	3,660'								
Harper, S. F. (Ted) Ranch	29° 47'	104° 05'	3,690'								
Hollis Haley Ranch	29° 58'	104° 18'	4,630'								
Hayter Ranch	30° 53'	103° 28'	3,350'								
Hebbronville	27° 18'	98° 41'	550'	CC C	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCC		C C CC
Hidalgo	26° 06'	98° 16'	100'	C				CCCC	CC C	CCCCCC	CCCCCC
Holmes, H. B. Ranch	30° 16'	104° 03'	4,630'								
Hot Springs	29° 11'	103° 00'	2,200'		C	CCCC C	CCCC	C CCC	C C		
Humble Pump Station	30° 17'	100° 18'	2,300'	CCCCCC	CCCC C	CCCCCC	CCCCCC	CCCCCC	CCC CC	CCCCCC	CCCCCC
Imperial	31° 16'	102° 43'	4,190'	CCCCCC	CCCCCC	CCC C	C CCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC
Indian Hot Springs	30° 51'	105° 20'	3,700'	CCC		CC					
Island Station	31° 32'	106° 14'	3,630'	NNNNNN 19	NNNNNN	NNNNNN 20	NNNNNN	NNNNNN 21	NNNNNN	NNNNNN 22	NNNNNN
Johnson Ranch	29° 01'	103° 23'	2,050'	NNNNNN 19	NNNNNN	NNNNNN 20	NNNNNN	NNNNNN 21	NNNNNN	NNNNNN 22	NNNNNN
Jones, C. B. Ranch	30° 49'	100° 08'	2,100'	CCCCCC	CCCCCC	CCCCCC	CCC CC	CCCCCC	CCCCCC	CCCCCC	CCCCCC
Jones, E. Ranch	29° 58'	103° 55'	4,760'								
Jones, M. W. Ranch	30° 59'	100° 20'	2,275'	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC
Junction	30° 29'	99° 46'	1,714'	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC
Kelly Ranch	30° 32'	104° 16'	5,320'	NNN 21	NNNNNN	NNNNNN 21	NNNNNN	NNNNNN 21	NNNNNN	NNNNNN 22	NNNNNN
Kingston, J. O. Ranch	30° 52'	103° 49'	4,444'					CCC	CCC	C	
Kokernot Ranch Headquarters	29° 58'	103° 34'	4,120'							NNNNNN 22	NNNNNN
Kokernot Ranch #2	29° 59'	103° 35'	4,170'	NNNNNN 21	NNNNNN	NNNNNN 21	NNNNNN	NNNNNN 21	NNNNNN	NNNNNN 22	NNNNNN
La Mota Ranch	30° 33'	103° 59'	3,750'					NNNNNN 21	NNNNNN	NNNNNN 22	NNNNNN
Langtry	29° 48'	101° 34'	1,397'	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCC		
Laredo W.B. A.P.	27° 32'	99° 29'	472'	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC
Laredo International Bridge	27° 30'	99° 29'	400'	NNNNNN 19	NNNNNN	NNNNNN 20	NNNNNN	NNNNNN 21	NNNNNN	NNNNNN 22	NNNNNN
Laredo Water Plant	27° 33'	99° 31'	410'	NNNNNN 19	WNNNNN	NNNNNN 20	NNNNNN	NNNNNN 21	NNNNNN	NNNNNN 22	NNNNNN
La Tuna	32° 00'	106° 36'	3,800'	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC
Leakey	29° 44'	99° 46'	1,675'								
Livingston Ranch	29° 49'	104° 22'	4,150'					NNNNNN 21	NNNNNN	NNNNNN 22	NNNNNN
Loma Alta	29° 55'	100° 46'	2,200'	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCC	CCC		
Loma Vista Ranch	30° 13'	103° 47'	5,450'			NNNNNN 21	NNNNNN			NNNNNN 22	NNNNNN
Longley, Cole Ranch	30° 15'	104° 11'	4,700'								
Madden Arroyo	31° 13'	105° 46'	3,500'	NNNNNN 19	NNNNNN	NNNNNN 20	NNNNNN	NNNNNN 21	NNNNNN	NNNNNN 22	NNNNNN
Marathon	30° 12'	103° 15'	4,043'	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC
Marfa CAA	30° 19'	104° 02'	4,688'	CCCCCC							
Marfa CAA A.P.	30° 15'	103° 53'	4,688'		CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC
Marfa Charco Marins Ranch	30° 29'	104° 06'	5,300'	CCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CC		
Marfa Exp. Station	30° 20'	103° 59'	4,800'			NNNNNN 21	NNNNNN	NNNNNN 21	NNNNNN	NNNNNN 22	NNNNNN
Marfa 16 S	30° 05'	104° 04'	4,800'				C	CCCCCC	CC		
Marfa, Ryan	30° 22'	104° 19'	4,700'					CCC	C C		
Marfa, U. S. Army A.F.	30° 16'	103° 52'	4,950'								
Maravillas	29° 34'	102° 47'	1,810'		20 NNN	NNNNNN 20	NNNNNN	NNNNNN 21	NNNNNN	NNNNNN 22	NNNNNN
Mariposa Mine	29° 20'	103° 43'	3,500'								
Maverick County Canal Headgate	29° 10'	100° 46'	870'	NNNNNN 19	NNNNNN	NNNNNN 20	NNNNNN	NNNNNN 21	NNNNNN	NNNNNN 22	NNNNNN
Maverick Power Plant	28° 50'	100° 31'	800'							N 22	NNNNNN
McAllen	26° 12'	98° 13'	122'	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCC	CCCCCC	CCCCCC	CCCCCC
McCamey	31° 08'	102° 12'	2,454'	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC
McCracken Ranch	29° 51'	104° 14'	4,250'	NNNNNN 21	NNNNNN	NNNNNN 21	NNNNNN	NNNNNN 21	NNNNNN	NNNNNN 22	NNNNNN
McDonald Observatory	30° 40'	104° 00'	6,500'								
McFarland Ranch	30° 06'	104° 16'	5,310'	NNNNNN 21	NNNNNN	NNNNNN 21	NNNNNN	NNNNNN 21	NNNNNN	NNNNNN 22	NNNNNN
McGonagill Ranch, E. Windmill	30° 20'	102° 55'	4,050'							NN 22	NNNNNN
McGonagill Ranch, Headquarters	30° 20'	102° 58'	4,150'							NNN 22	NNNNNN
McIntosh Ranch	30° 43'	100° 34'	2,350'	CCCCCC	CCCCC	CC CCC	CCCCCC	C CCCC	CCCCCC	CCCCCC	CCCCCC
Medley, Oscar Ranch	30° 32'	104° 11'	5,720'								
Mellard, F. C. Ranch	30° 04'	104° 05'	4,470'								
Menard	30° 55'	99° 48'	1,960'	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC
Mercedes	26° 13'	97° 52'	66'								

INDEX TO PRECIPITATION RECORDS

In the United States

NAME OF STATION	Latitude	Longitude	Elevation	WHERE MONTHLY REPORTS MAY BE FOUND							
				1945		1946		1947		1948	
Mercedes Pump (7 S)	26° 04'	97° 54'	75'	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CC C	CCCCCC
Merrill Ranch	30° 31'	104° 00'	5,600'	HH HHH	HHHHHH	HHHHHH	HHHHHH	HH HHH	H HHH	CCCCCC	CCCC C
Miller, C. E. Ranch (Valentine)	30° 37'	104° 38'	4,240'	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCC CC		
Mirando City	27° 27'	99° 00'	770'								CC
Mission	26° 13'	98° 19'	140'	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC
Mission Pumping Station	26° 12'	98° 19'	130'							CCCCCC	CCCCCC
Mitchell, Clay Ranch	30° 13'	104° 05'	4,660'	H	H HH		HHH	HHH HH	HHHHHH		
Mitchell, Kerr Ranch	30° 18'	104° 00'	4,450'	N N 15	NNNNNN	N NN 16	NNNN	N N NN 17	NN NN	NNNN 18	NNNN
Mitchell, Joe C., Ranch	30° 16'	104° 00'	4,710'								
Neely Ranch	30° 59'	105° 32'	3,350'	NNNNNN 15	NNNNNN	NNNNNN 16	NNNNNN	NNNNNN 17	NNNNNN	NNNNNN 18	NNNNNN
One-O-One Ranch	30° 10'	103° 46'	4,950'								
O2 Ranch	29° 51'	103° 45'	3,780'								
Ozona	30° 43'	101° 12'	2,348'	HHHHH	HHHHHH	HHHHHH	HHHHH	HH	HHHHHH	HHHHHC	CCCCCC
Ozona, 8 WSW	30° 41'	101° 20'	2,544'								
Pandale	30° 12'	101° 35'	1,664'	HHHHH	HHHHHH	HHHHHH	HHHHHH	HHHHHH	HHHHHH	HH C	CCCCC
Pecos	31° 26'	103° 30'	2,580'	CCCCCC	CCCCCC	CCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC
Pecos River	29° 45'	101° 21'	1,060'	NNNNNN 15	NNNNNN	NNNNNN 16	NNNNNN	NNNNNN 17	NNNNNN	NNNNNN 18	NNNNNN
Petan Ranch	30° 04'	104° 29'	5,400'					H HH	H		
Persimmon Gap Ranger Station	29° 40'	103° 10'	2,900'								
Pine Springs	31° 55'	104° 47'	5,630'	CCCCCC	CCCCCC						
Popham Ranch	30° 53'	103° 33'	3,300'	HHHHHH	HHHHHH	HHHHHH	HH HHH	HHHHHH	HHHH		
Port Isabel	26° 04'	97° 12'	15'	CCCCCC	CCCCCC	CCCCCC	CCCCCC	C CCCC	CCCCCC	CCCCCC	CCCCCC
Potter, A. M. Ranch	29° 46'	103° 25'	3,440'								
Presidio	29° 34'	104° 23'	2,550'	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC
Pumpville	29° 57'	101° 44'	1,800'			17	NNN	NNNNNN 17	NNNNNN	NNNNNN 18	NNNNNN
Quebec Ranch	30° 31'	104° 24'	4,600'								
Quemado	28° 56'	100° 37'	765'	NNNNNN 15	NNNNNN	NNNNNN 16	NNNNNN	NNNNNN 17	NNNNNN	NNNNNN 18	NNNNNN
Rancho Escondido	30° 01'	103° 46'	4,800'	HHHHHH	HHH		HHHHHH	H HHHH	HHHH	CCCCCC	CCCCCC
Rawls Ranch	29° 45'	104° 02'	3,830'	N N 15	N NN	NNNNNN 21	NNNNNN	NNNNNN 21	NNNNNN	NNNNNN 21	NNNN
Raymondville	26° 29'	97° 47'	31'	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC
Red Bluff Dam #1	31° 54'	103° 55'	2,820'	HHHHHH	HHHHHH	HHHHHH	HHHHHH	HHHHHH	HH		
Red Bluff Dam #2	31° 54'	103° 55'	2,820'	N NNNN 15	NNNNNN	NNNNNN 16	NNNNNN	NNNNNN 17	N NNNN		
Reid Bros.	30° 45'	103° 35'	3,840'	NNNNN 15	NNN	NNNNNN 16	NNNNNN	NNNNNN 17	NNNNNN	NNNNNN 18	NNNNNN
Reiley Ranch	30° 38'	100° 15'	2,450'	HHHHH	HHHH	H H	H		H H	C	CC
Rio Grande City	26° 20'	98° 47'	150'	NNNNNN 15	NNNNNN	NNNNNN 16	NNNNNN	NNNNNN 17	NNNNNN	NNNNNN 18	NNNNNN
Rio Grande City Gaging Station	26° 20'	98° 47'	150'								
Rock Springs	30° 01'	100° 13'	2,400'	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CC CC
Roma	26° 24'	91° 01'	230'	NNNNNN 15	NNNNNN	NNNNNN 16	NNNNNN	NNNNNN 17	NNNNNN	NNNNNN 18	NNNNNN
Roosevelt	30° 30'	100° 04'	2,140'	HHHHHH	HHHHHH	HHHHHH	HHHHHH	HHHHHH	HH HH	CCCCCC	CCCCCC
Roosevelt, Al Ranch	30° 32'	104° 33'	4,330'								
Rose Landon & Son	30° 12'	102° 22'	3,400'	NNNNNN 15	NNNNNN	N NNN 16	NN				
Runge, J. F. Ranch	30° 56'	100° 34'	2,400'	NNNNNN 15	NNNNNN	NNNNNN 16	NNNNNN	NNNNNN 17	NNNNNN	NNNNNN 18	NNNNNN
Ryan Ranch	30° 27'	104° 26'	4,490'	NNNNNN 15	NNNNNN	N NNNN 16	NNNN N	N NNNN 17	NNNNNN	NNNN 18	NNN
Salt Flat	31° 45'	105° 03'	3,650'	HHHHHH	HHHHHH	HHHH H	HHHHHH	H H	HH		
Salt Flat CAA A.P.	31° 45'	105° 05'	3,710							C	CCCCCC
San Benito	26° 08'	97° 38'	37'	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCC	CC	CCC CC	CCC
San Benito Pump	26° 03'	97° 45'	50'	NNNNNN 15	NNNNNN	NNNNNN 16	NNNNNN	NNNNNN 17	NNNNNN	NNNNNN 18	NNNNNN
Sanderson #1	30° 08'	102° 22'	3,000'	NNNNNN 15	NNN					CC C	CCCC C
Sanderson #2	30° 08'	102° 22'	3,000'			HHHHH	HHHHHH	HHHHHH	HHHHHH	HHHHHC	CCCCCC
Sand Valley Ranch	29° 33'	103° 16'	3,250'								
San Manuel	26° 34'	98° 07'	75'	HHHHHH	HHH	H HHH	HHH	H	H	C	
Sauz Ranch	30° 10'	104° 12'	4,880'								
Sheffield	30° 41'	101° 50'	2,200'	HHHHHH	HHHH H	HHHHHH	HHHHHH	HHHHHH	HH HHH	CCCCCC	CCCCCC
Sierra Blanca	31° 10'	105° 21'	4,550'	HH				H			
Smith Bros. Ranch	30° 29'	104° 06'	5,230'	HHHHHH	HHHHHH	HHHHHH	HHHH H	HHHHHH	HHHHH	CCCCCC	CCC CC
Socorro	31° 39'	106° 17'	3,663'							CCC	CCCC
Sonora	30° 34'	100° 39'	2,150'								
Stone Ranch	30° 46'	103° 28'	3,500'	NNN 16		NNNNNN 16	NNNNNN	NNNNNN 17	NNNNNN		
Stumberg, Steve Ranch	30° 11'	102° 53'	4,300'	N NN 15	NNNNNN	NNNNNN 16	NNNNNN	NNNNNN 21	NNNNNN	NNNNNN 21	NNNNNN
Substation 14	30° 16'	100° 35'	2,600'	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	C CCCC	CCCC C	CCCCCC
Telegraph	30° 20'	99° 54'	1,860'	HHHHHH	HHHHHH	HHHHHH	HHHHHH	HHHHHH	HHHHHH	HHCCCC	CCCCCC
Terlingua	29° 26'	103° 36'	2,800'	HHHHHH	HHHHHH	HHHHHH	HHH H	H HHH	HHHH H	C	CCCC
Terlingua Creek Station	29° 12'	103° 36'	2,260'								
Thomas, C. F. Ranch	30° 01'	103° 57'	4,640'	NN 15	N NNN	H HH					
Tortuga	28° 39'	100° 26'	780'								
Townsend Ranch	30° 16'	104° 10'	4,680'	N NN 15	NN NN	HHH	HHHHHH	HHH HH	HHH		
Tri-City A.P.	26° 24'	98° 21'	209'							CCCCCC	CCCCCC
Uvalde	29° 12'	99° 48'	937'	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC
Valentine	30° 30'	104° 38'	4,421'	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCC CC	CCCCCC	CCCCCC
Van Eman Ranch	30° 52'	103° 59'	3,890'					NNNNNN 21	NNNNNN		
Van Horn	31° 02'	104° 51'	4,010'	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC
Walker Place	30° 12'	104° 09'	5,320'	H	H HH	H	H H	H H	HHHHHH	HH	H H
Weslaco	26° 10'	97° 59'	80'	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC	CCCCCC		
Weslaco Exp. Station	26° 09'	97° 58'	80'							CCCCCC	CCCCCC
West Small	31° 16'	105° 33'	4,070'	NNNNNN 15	NNNNNN	NNNNNN 16	NNNNNN	NNNNNN 17	NNNNNN	NNNNNN 18	NNNNNN
Willoughby, Ray Ranch	30° 12'	103° 33'	5,050'								
Wink A.P.	31° 47'	103° 12'	2,785'	HHHHHH	HHHHHH	HHHHHH	HH H	H	H HHH	CCCCCC	CCCCCC
Winterhaven Exp. Station	28° 38'	99° 52'	600'	HHHHHH	HHHHHH	HHHHHH	HHH HH	HHHHHH	HHHHH	CCCCCC	CCCCCC
Wuenache Farm	28° 24'	100° 19'	640'								
Young, E. W. Ranch	30° 26'	102° 01'	2,150'								
Yaleta	31° 42'	106° 19'	3,652'	HHHHHH	HHHHHH	HHHHHH	HHHHH	HHHHHH	HHHHHH	CCCCCC	CCCCCC
Zapata	26° 53'	99° 19'	285'	HHHHHH	HHHHHH	HHHHHH	HHHHHH	HHHHHH	HHHHHH	HHHHHH	CCCCCC

INDEX TO PRECIPITATION RECORDS

In the United States

NAME OF STATION	Latitude	Longitude	Elevation	WHERE MONTHLY REPORTS MAY BE FOUND			
				1949	1950	1951	1952
Mercedes Pump (7 S)	26° 04'	97° 54'	75'	C		CCCC C C CC C	CCCCCC CCCCCC
Merrill Ranch	30° 31'	104° 00'	5,600'	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCC	CCCCCC CCCCCC
Miller, C. E. Ranch (Valentine)	30° 37'	104° 38'	4,240'				
Mirando City	27° 27'	99° 00'	770'	CCCCCC CCC CC	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC
Mission	26° 13'	98° 19'	140'	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCC CCCCCC	CCCCCC CCCCCC
Mission Pumping Station	26° 12'	98° 19'	130'	CCCCCC CCCCCC	CCCC		
Mitchell, Clay Ranch	30° 13'	104° 05'	4,660'				
Mitchell, Kerr Ranch	30° 18'	104° 00'	4,450'	NNNNNN 21 NNNNNN	NNN N 21 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Mitchell, Joe C., Ranch	30° 16'	104° 00'	4,710'		NNNNNN 21 NNNNNN	NNNNNN 21 NNNNNN	
Neely Ranch	30° 59'	105° 32'	3,350'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
One-O-One Ranch	30° 10'	103° 46'	4,950'	CCC CC			
02 Ranch	29° 51'	103° 45'	3,780'				NNN 22 NNNNNN
Ozona	30° 43'	101° 12'	2,348'	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCC CCC C	CCC C
Ozona, S WSW	30° 41'	101° 20'	2,544'			CCCC CCC	
[illegible]ale	30° 12'	101° 35'	1,664'	CCCCC CCCCCC	CCC CCC	CCCCCC CCCCCC	CCCCCC CCCCCC
Pecos	31° 26'	103° 30'	2,580'	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC
Pecos River	29° 45'	101° 21'	1,060'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNN NN 22 NNNNNN
Petan Ranch	30° 04'	104° 29'	5,400'		NNNNNN 21 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Persimmon Gap Ranger Station	29° 40'	103° 10'	2,900'		N 21 NNN NN	NNNNNN 21 NNN N	NN NN 22 NNNN
Pine Springs	31° 55'	104° 47'	5,630'				
Popham Ranch	30° 53'	103° 33'	3,300'				
Port Isabel	26° 04'	97° 12'	15'	CCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC
Potter, A. M. Ranch	29° 46'	103° 25'	3,440'				NNNNNN 22 NNNNNN
Presidio	29° 34'	104° 23'	2,550'	CCCCCC 20 CCCCNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Pumpville	29° 57'	101° 44'	1,800'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Quebec Ranch	30° 31'	104° 24'	4,600'	NNNNNN 21 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Quemado	28° 56'	100° 37'	765'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Rancho Escondido	30° 01'	103° 46'	4,800'	CCCCCC C			
Rawls Ranch	29° 40'	104° 02'	3,830'				
Raymondville	26° 29'	97° 47'	51'	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC
Red Bluff Dam #1	31° 54'	103° 55'	2,820'		CC	C C	CCCCCC CCCCCC
Red Bluff Dam #2	31° 54'	103° 55'	2,820'				
Reid Bros.	30° 45'	103° 35'	3,840'	NNNNNN 19 NNNNNN			
Reiley Ranch	30° 38'	100° 15'	2,450'	C C	C		
Rio Grande City	26° 20'	98° 47'	150'	NNNNNN 19 NNNNNN			
Rio Grande City Gaging Station	26° 20'	98° 47'	150'		NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Rock Springs	30° 01'	100° 13'	2,400'	CCCCCC CCCCCC	CCC C CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC
Roma	26° 24'	91° 01'	230'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Roosevelt	30° 30'	100° 04'	2,140'	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC
Roosevelt, Al Ranch	30° 32'	104° 33'	4,330'			NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Rose Landon & Son	30° 12'	102° 22'	3,400'				
Runge, J. F. Ranch	30° 56'	100° 34'	2,400'	NNNNNN 19 NNNNNN			
Ryan Ranch	30° 27'	104° 26'	4,490'				
Salt Flat	31° 45'	105° 03'	3,650'				
Salt Flat CAA A.P.	31° 45'	105° 05'	3,710'	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC
San Benito	26° 08'	97° 38'	37'	CC CC	C CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC
San Benito Pump	26° 07'	97° 45'	50'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Sandereon #1	30° 08'	102° 22'	3,000'	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC
Sanderson #2	30° 08'	102° 22'	3,000'	CCCCCC CCCC	CCCCCC CCCCCC	CCCCC C C	
Sand Valley Ranch	29° 33'	103° 16'	3,250'				NNNNNN 22 NNNNNN
San Manuel	26° 34'	98° 07'	75'	CC CC CCC	CCCCC		
Sauz Ranch	30° 10'	104° 12'	4,880'				NNNNNN 22 NNNNNN
Sheffield	30° 41'	101° 50'	2,200'	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC	
Sierra Blanca	31° 10'	105° 21'	4,550'		CCC CCCCCC	CC CCC CCC	
Smith Bros. Ranch	30° 29'	104° 06'	5,230'				
Socorro	31° 39'	106° 17'	3,663'	CCCC CCC	CCCC CCCC		
Sonora	30° 34'	100° 39'	2,150'	CC CCCCCC	CCCCCC CCCCCC	CCCCCC C CCCC	CCCCCC CCCCCC
Stone Ranch	30° 46'	103° 28'	3,500'				
Stumberg, Steve Ranch	30° 11'	102° 53'	4,300'	NNNNNN 21 NNNNNN			NNNNNN 22 NNNNNN
Substation 14	30° 16'	100° 35'	2,600'	CCCCCC CCCCCC	CCCC C CCCCCC	CCCCCC CCCCCC	C
Telegraph	30° 20'	99° 54'	1,860'	CCCCCC CCCCCC	CCCCC CCCCCC	C CCCC CCC CC	CCCCCC CCCCCC
Terlingua	29° 26'	103° 36'	2,800'	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCC	
Terlingua Creek Station	29° 12'	103° 36'	2,260'				NNNN 22 NNNNNN
Thomas, C. F. Ranch	30° 01'	103° 57'	4,640'				
Tortuga	28° 39'	100° 26'	780'		NN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Townsend Ranch	30° 16'	104° 10'	4,680'				
Tri-City A.P.	26° 24'	98° 21'	205'	CCCCCC CCCCCC	CCCC		
Uvalde	29° 12'	99° 48'	937'	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC
Valentine 10 WSW	30° 30'	104° 38'	4,421'	CC C C CCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC
Van Eman Ranch	30° 52'	103° 59'	3,890'	NNNNNN 21 NNNNNN		NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Van Horn	31° 02'	104° 51'	4,010'	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC
Walker Place	30° 12'	104° 09'	5,320'	H HHH H H			
Weslaco	26° 10'	97° 59'	80'				
Weslaco Exp. Station	26° 09'	97° 58'	80'	CCC CC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC
West Small	31° 16'	105° 33'	4,070'	NNNNNN 19 NNNNNN	N NNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Willoughby, Ray Ranch	30° 12'	103° 33'	5,050'				NNNNNN 22 NNNNNN
Wink A.P.	31° 47'	103° 12'	2,785'	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC
Winterhaven Exp. Station	28° 38'	99° 52'	600'	C CCCC CCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC
Wuensche Farm	28° 24'	100° 19'	640'				N NNNN 22 NNNNNN
Young, E. W. Ranch	30° 26'	102° 01'	2,150'				NNNNNN 22 NNNNNN
Yeleta	31° 42'	106° 19'	3,652'	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC	CCCCCC CCCCCC
Zapata	26° 53'	99° 19'	285'	C CCC CCCCCC	CCCCCC CC	CCCCCC CCC	

INDEX TO PRECIPITATION RECORDS

In Mexico

NAME OF STATION	Latitude	Longitude	Elevation	WHERE MONTHLY REPORTS MAY BE FOUND			
				1941	1942	1943	1944
Allende, Coah.	28° 21'	100° 51'	1,170'				
Anáhuac, N. L.	27° 15'	100° 07'	650'	NNNNNN 11 NNNNNN	NNNNNN 12 NNNNNN	NNNNNN 13 NNNNNN	NNNNNN 14 NNNNNN
Anzaldúas, Tamps.	26° 09'	98° 23'	110'				
Balleza, Chih.	26° 57'	106° 21'	5,870'			NNNNNN 15 NNNNNN	NNNNNN 15 NNNNNN
Cadereyta, N. L.	25° 36'	99° 59'	1,180'	NNNN 11 NNNNNN	NNNNNN 12 NNNNNN	NNNNNN 13 NNNNNN	NNNNNN 14 NNNNNN
Cd. Acuña (Villa Acuña), Coah.	29° 20'	100° 53'	919'	11 NNN	NNNNNN 12 NNNNNN	NNNNNN 15 NNNNNN	NNNNNN 15 NNN
Cd. Juárez, Chih.	31° 44'	106° 29'	3,740'	NNNNNN 11 NNNNNN	NNNNNN 12 NNNNNN	NNNNNN 13 NNNNNN	NNNNNN 14 NNNNNN
Cd. Miguel Alemán, Tamps.	26° 24'	99° 02'	180'				
Cerralvo, N. L.	26° 06'	99° 37'	1,130'	NNNNNN 11 NNNNNN	NNNNNN 12 NNNNNN	NNNNNN 13 NNNNNN	NNNNNN 14 NNNNNN
Chihuahua, Chih.	28° 38'	106° 04'	4,690'	NNNNNN 11 NNNNNN	NNNNNN 12 NNNNNN	NNNNN 13 NNNNNN	
Ciénaga de Flores, N. L.	25° 58'	100° 10'	1,760'	NNNNNN 11 NNNNNN	NNNNNN 12 NNNNNN	NNNNNN 13 NNNNNN	NNNNNN 14 NNNNNN
Comales, Tamps.	26° 14'	98° 58'	270'	NNNNNN 11 NNNNNN	NNNNNN 12 NNNNNN	NNNNNN 13 NNNNNN	NNNNNN 14 NNNNNN
Control (CIK-9), Tamps.	25° 58'	97° 49'	59'		N 12 NNNNNN	NNNNNN 13 NNNN	14 N NN
Cuchillo Parado, Chih.	29° 26'	104° 53'	2,982'				
Cuesta Fierros, N. L.	25° 43'	100° 43'	3,600'	NNNNNN 11 NNNNNN	NNNNNN 12 NNNNNN	NNNNNN 13 NNNNNN	NNN 14
Delicias, Chih.	28° 11'	105° 31'	3,710'	NNNNNN 11 NNNNNN	NNNNNN 12 NNNNNN	NNNNNN 13 NNNNNN	NNNNNN 14 NNNNNN
18 de Marzo, Tamps.	25° 41'	97° 48'	56'				
Don Martín, Coah.	27° 30'	100° 36'	790'	NNNNNN 11 NNNNNN	NNNNNN 12 NNNNNN	NNNNN 13 NNNNNN	NNNNNN 14 NNNNNN
El Cuchillo, N. L.	25° 43'	99° 16'	590'	NNNNNN 11 NNNNNN	NNNNNN 12 NNNNNN	NNNNNN 13 NNNNNN	NNNNNN 14 NNNNNN
El Mulato, Chih.	29° 23'	104° 11'	2,530'	NNNNNN 11 NNNNNN	NNNNNN 12 NNNNN		
Gral. Bravo, N. L.	25° 48'	99° 09'	390'	NNNNNN 11 NNNNNN	NNNNNN 12 NNNNNN	NNNNNN 13 NNNNNN	14 NN
Gral. Cepeda, Coah.	25° 24'	101° 29'	4,920'	NNNNNN 11 NNNNNN	NNNNNN 12 NNNNNN	NNNNNN 13 NNNNNN	NNNNNN 14 NNNNNN
Guerrero, Chih.	28° 33'	107° 30'	6,560'	NNNNNN 11 NNNNNN	NNNNNN 12 NNNNNN	NNNNNN 13 NNNNNN	NNNNNN 14 NNNNNN
Guerrero, Tamps.	26° 47'	99° 20'	295'	NNNNNN 11 NNNNNN	NNNNNN 12 NNNNNN	NNNNNN 13 NNNNNN	NNNNNN 14 NNNNNN
Higueras, N. L.	25° 59'	100° 01'	1,640'	NNNNNN 11 NNNNNN	NNNNNN 12 NNNNNN	NNNNNN 15 NNNNNN	NNNNNN 8 NNNNNN
Hormiguero, Chih.	27° 02'	105° 42'	5,580'				
Jiménez, Coah.	29° 04'	100° 40'	814'		NNNNNN 12 NNNNNN	NNNNNN 13 NNNNNN	NNNNNN 14 NNNNNN
La Boquilla, Chih.	27° 32'	105° 25'	4,320'	NNNNNN 11 NNNNNN	NNNNNN 12 NNNNNN	NNNNNN 13 NNNNNN	NNNNNN 14 NNNNNN
La Junta, Chih.	28° 26'	107° 20'	6,730'	NNNNNN 11 NNNNNN	NNNNNN 12 NNNNNN	NNNNNN 13 NNNNNN	NNNNN 14 NNNNNN
La Mariposa, Coah.	28° 09'	101° 44'	2,000'	NNNNNN 15 NNNNNN	NNNNNN 15 NNNNNN	NNNNNN 15 NNNNNN	NNNNNN 15 NNNNNN
Lag. de Salinillas, Coah.	27° 26'	100° 22'	750'	NNNNNN 11 NNNNNN	NNNNNN 12 NNNNNN	NNNNNN 14 N	NNNNNN 14 NNNNNN
Lag. Sánchez, N. L.	25° 21'	100° 16'	6,500'	NNN 11 NNNNNN	NNNNNN 12 NNNNNN	NNNNNN 13 NNNNNN	NNNNNN 14 NNNNNN
Las Comitas, N. L.	25° 26'	99° 07'	1,670'	NNNNNN 11 NNNNNN	NNNNNN 12 NNNNNN	NNNNNN 13 NNNNNN	NNNNNN 14 NNNNNN
Las Enramadas, N. L.	25° 48'	99° 16'	730'	NNNNNN 11 NNNNNN	NNNNNN 12 NNNNNN	NNNNNN 13 NNNNNN	NNNNNN 14 NNNNNN
Las Vírgenes, Chih.	28° 10'	105° 38'	4,068'			NNNNNN 13 NNNNNN	NNNNN 14 NNNNN
Linares, N. L.	24° 52'	99° 34'	1,180'	NNNNNN 11 NNNNNN	NNNNNN 12 NNNNNN	NNNNNN 13 NNNNNN	NNNNNN 14 NNNNNN
Los Herreras (La Tableta), N. L.	25° 55'	99° 24'	820'	NNNNNN 11 NNNNNN	NNNNNN 12 NNNNNN	NNNNNN 13 NNNNNN	NNNNNN 14 NNNNNN
Los Ramones, N. L.	25° 42'	99° 13'	270'	NNNNNN 11 NNNNNN	NNNNNN 12 NNNNNN	NNNNNN 13 NNNNNN	NNNNNN 14 NNNNNN
Maclovio Herrera, Chih.	29° 03'	105° 08'	3,380'				NNNNN 14
Matamoros, Tamps.	25° 52'	97° 30'	40'	NNNNNN 12 NNNNNN	NNNNNN 12 NNNNNN	NNNNNN 13 NNNNNN	NNNNN 14 NNNNNN
Méndez, Tamps.	25° 07'	98° 35'	420'	NNNNNN 11 NNNNNN	NNNNNN 12 NNNNNN	NNNNNN 13 NNNNNN	NNNNNN 14 NNNNNN
Monclova, Coah.	26° 54'	101° 25'	1,940'	NNNNNN 11 NNNNNN	NNNNNN 12 NNNNNN	NNN N 13 NNNNNN	NNN 14
Montemorelos, N. L.	25° 12'	99° 50'	1,420'	NNNNNN 11 NNNNNN	NNNNNN 12 NNNNNN	NNNNNN 13 NNNNNN	NNNNNN 14 NNNNNN
Monterrey, N. L.	25° 40'	100° 18'	1,730'	NNNNNN 11 NNNNNN	NNNNNN 12 NNNNNN	NNNNNN 13 NNNNNN	NNNNNN 14 NNNNNN
Múzquiz, Coah.	27° 52'	101° 31'	1,650'	NNNNNN 11 NNNNNN	NNNNNN 12 NNNNNN	NNNNNN 13 NNNNNN	NNNN N 14 NNNNN
Nueva Rosita, Coah.	27° 55'	101° 17'	1,410'	NNNNNN 11 NNNNNN	NNNNNN 12 NNNNNN	NNNNNN 13 NNNNNN	N NNNN 14 NNNNNN
Nuevo Laredo, Tamps.	27° 29'	99° 31'	420'	NNNNNN 11 NNNNNN	NNNNNN 12 NN		
Ojinaga, Chih.	29° 34'	104° 25'	2,620'	NNNNNN 11 NNNNNN	NNNNNN 12 NNNNNN		
Palestina, Coah.	29° 08'	100° 57'	1,080'	NNNNNN 11 NNNNNN	NNNNNN 12 NNNNNN	NNNNN 13 N NNNN	NNN NN 14 NN NNN
Parral, Chih.	26° 56'	105° 39'	5,740'	NNNNNN 11 NNNNNN	NNNNNN 12 NNNNNN	NNNNNN 13 NNNNN	NNNNN 14 NNNNNN
Piedras Negras, Coah.	28° 42'	100° 31'	715'	15 NNNN	NNNNNN 15 NNNNNN	NNNNNN 15 NNNNNN	NNNNNN 15 NNNNNN
Presa Guadalupe, Coah.	25° 45'	103° 14'	3,670'	NNN 13		NNNNNN 13 NNNNNN	NNNNNN 14 NNNNN
Progreso, Coah.	27° 28'	101° 03'	1,200'			NNNNN 13 NNNNNN	NNNNNN 14 NNNNNN
Ramos Arizpe, Coah.	25° 32'	100° 58'	4,590'	NNNNNN 11 NNNNNN	NNNNNN 12 NNNNNN	NNNNNN 13 NNNNNN	NNNNNN 14 NNNNNN
Rancho Los Angeles, Coah.	29° 30'	101° 41'	1,800'		NN 18 NNNNNN	NNNNNN 18 NNNNNN	NNNNNN 18 NNNNNN
Rancho Vidrio, Chih.	31° 42'	106° 24'	3,670'	11 NNNNN			
Rayones, N. L.	25° 01'	100° 41'	1,970'	NNNNNN 11 NNNNNN	NNNNNN 12 NNNNNN	NNNNNN 13 NNNNNN	NNNNNN 14 NNNNNN
Retamal, Tamps.	26° 02'	98° 02'	82'				
Reynosa, Tamps.	26° 06'	98° 17'	130'	NNN NN 11 NNNNNN	NNNNNN 12 NNNNNN	NNNNNN 13 NN NN	NNNNNN 14 NNNNNN
Rinconada, N. L.	25° 40'	100° 40'	4,790'				NNN 14 NNNNNN
Rosetilla, Chih. (#)	28° 14'	105° 19'	3,780'	NNNNNN 18 NNNNNN	NNNNNN 18 NNNNNN	NNNNNN 18 NNNNNN	NNNNNN 18 NNNNNN
Sabinas, Coah.	27° 54'	101° 17'	1,430'	NNNNNN 11 NNNNNN	NNNNNN 12 NNNNNN	NNNNNN 13 NNNN N	NNNNNN 14 NNNNNN
Saltillo, Coah.	25° 26'	101° 00'	5,280'	NNNNNN 11 NNNNNN	NNNNNN 12 NNNNNN	NNNNNN 13 NNNNNN	NNNNNN 14 NNNNNN
San Antonio, Dgo.	26° 25'	105° 21'	5,430'			NNNNNN 13 NNNNNN	
San Buenaventura, Coah.	27° 05'	101° 33'	2,300'	NNNNNN 11 NNNNNN	NNNNNN 12 NNNNNN	NNNNNN 15 NNNNNN	15 NNN
San Pedro, N. L.	25° 23'	100° 07'	1,500'	NNNNNN 11 NNNNNN	NNNNNN 12 NNNNNN		
Santa Catarina, N. L.	25° 41'	100° 26'	1,970'	NNNNNN 11 NNNNNN	NNNNNN 12 NNNNNN	NNNNNN 13 NNNNNN	NNNNNN 14 NNNNNN
Santa Rosalía, Tamps.	26° 10'	98° 57'	250'	NNNNNN 12 NNNNNN	NNNNNN 12 NNNNNN	NNNNNN 13 NN	
Sierra Mojada, Coah.	27° 17'	103° 42'	4,120'	NNNNNN 11 NNNNNN	NNNNNN 12 NNNNNN	NNNNNN 13 NNNNNN	
Topo Chico, N. L.	25° 49'	100° 20'	1,640'	NNNNN 11 NNNNNN	NNNNNN 12 NNNNNN	NNNNNN 13 NNNNNN	NNNNNN 14 NNNNNN
Villa Allende, N. L.	25° 17'	100° 01'	2,210'	NNNNNN 11 NNNNNN	NNNNNN 12 NNNNNN	NNNNNN 13 NNNNNN	NNNNNN 14 NNNNNN
Villa de Santiago, N. L.	25° 25'	100° 07'	1,460'	NNNNNN 11 NNNNNN	NNNNNN 12 NNNNNN	NNNNNN 13 NNNNNN	NNNNNN 14 NNNNNN
Villa Hidalgo, Coah.	27° 47'	99° 52'	499'				
Villa Juárez, Coah.	27° 36'	100° 46'	900'			NNNNNN 13 NNNNNN	NNNNNN 14 NNNNNN
Villagrán, Tamps.	24° 29'	99° 29'	1,260'	NNNNN 11 NNNNNN	NNNNNN 12 NNNNNN	NNNNNN 13 NNNNNN	NNNNNN 14 NNNNNN
Villalba, Chih. (#)	28° 01'	105° 46'	5,940'	NNNNNN 11 NNNNNN	NNNNNN 12 NNNNNN	NNNNNN 13 NNNNNN	NNNNNN 14 NNNNNN

(#) Records for 1940 in Water Bulletin No. 18 6 Records for October and November in Water Bulletin No. 14 and the remaining months in Water Bulletin No. 15

INDEX TO PRECIPITATION RECORDS

In Mexico

NAME OF STATION	Latitude	Longitude	Elevation	WHERE MONTHLY REPORTS MAY BE FOUND			
				1945	1946	1947	1948
Allende, Coah.	28° 21'	100° 51'	1,170'			NNNNNN 19 NNNNNN	NNNNNN 19 NNNNNN
Anáhuac, N. L.	27° 15'	100° 07'	650'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
Anzaldúas, Tamps.	26° 09'	98° 23'	110'				
Balleza, Chih.	26° 57'	106° 21'	5,870'	NNNNNN 15 NNNNNN	NNNNN 16 NNN NN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
Cadereyta, N. L.	25° 36'	99° 59'	1,180'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
Cd. Acuña (Villa Acuña), Coah.	29° 20'	100° 53'	919'	15 NN			
Cd. Juárez, Chih.	31° 44'	106° 29'	3,740'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN		
Cd. Miguel Alemán, Tamps.	26° 24'	99° 02'	180'				
Cerralvo, N. L.	26° 06'	99° 37'	1,130'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
Chihuahua, Chih.	28° 38'	106° 04'	4,690'	NNNNNN 15 N	NNN 17 N N	NN 17	
Chinaga de Flores, N. L.	25° 58'	100° 10'	1,760'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
Comales, Tamps.	26° 14'	98° 58'	270'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
Control (CTK-9), Tamps.	25° 58'	97° 49'	59'	15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
Cuchillo Parado, Chih.	29° 26'	104° 53'	2,982'				
Cuesta Fierros, N. L.	25° 43'	100° 43'	3,600'				
Delicias, Chih.	28° 11'	105° 31'	3,710'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
16 de Marzo, Tamps.	25° 41'	97° 48'	56'				
Don Martín, Coah.	27° 30'	100° 36'	790'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
El Cuchillo, N. L.	25° 43'	99° 16'	590'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
El Mulato, Chih.	29° 23'	104° 11'	2,530'				
Gral. Bravo, N. L.	25° 48'	99° 09'	390'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
Gral. Cepeda, Coah.	25° 24'	101° 29'	4,920'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
Guerrero, Chih.	28° 33'	107° 30'	6,560'	NNNNNN 15 NNNNNN	N NNNN 16 NNNNNN	NNNNN 17 NNNNNN	NNNNNN 19 NNNNNN
Guerrero, Tamps.	26° 47'	99° 20'	295'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
Higueras, N. L.	25° 59'	100° 01'	1,640'	NNNNNN 15 NNN N	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
Hormiguero, Chih.	27° 02'	105° 42'	5,580'	NNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
Jiménez, Coah.	29° 04'	100° 40'	814'				
La Boquilla, Chih.	27° 32'	105° 25'	4,320'	NNNNNN 15 NNNNNN	N NNNN 16 NNNN N	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
La Junta, Chih.	28° 26'	107° 20'	6,730'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	N NNNN 17 NNNNNN	NNNNNN 18 NNNNNN
La Mariposa, Coah.	28° 09'	101° 44'	2,000'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	
Lag. de Salinillas, Coah.	27° 26'	100° 22'	750'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
Lag. Sánchez, N. L.	25° 21'	100° 16'	6,500'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
Las Comitas, N. L.	25° 26'	99° 07'	1,670'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
Las Enramadas, N. L.	25° 48'	99° 16'	730'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
Las Vírgenes, Chih.	28° 10'	105° 38'	4,068'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
Linares, N. L.	24° 52'	99° 34'	1,180'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
Los Herreras (La Tableta), N. L.	25° 55'	99° 24'	820'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
Los Ramones, N. L.	25° 42'	99° 13'	270'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
Maclovio Herrera, Chih.	29° 03'	105° 08'	3,380'	15 NNNNN	NNNNNN 15 NNNNNN	NNNNNN @ NNNNNN	NNNNNN 18 NNNNNN
Matamoros, Tamps.	25° 52'	97° 30'	40'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
Méndez, Tamps.	25° 07'	98° 35'	420'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
Monclova, Coah.	26° 54'	101° 25'	1,940'	NNNNNN 15 NNN NN	NNN NN 16 NNNNNN	NNN 17 NNNNN	NNNNNN 18 NNNNNN
Montemorelos, N. L.	25° 12'	99° 50'	1,420'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
Monterrey, N. L.	25° 40'	100° 18'	1,730'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
Múzquiz, Coah.	27° 52'	101° 31'	1,650'	NNN 15 NNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NN 18 NNNNNN
Nueva Rosita, Coah.	27° 55'	101° 17'	1,410'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNN
Nuevo Laredo, Tamps.	27° 29'	99° 31'	420'	NNNNNN 15 N NNN	N 16	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
Ojinaga, Chih.	29° 34'	104° 25'	2,620'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNN 17 NNNNNN	NNNNNN 18 NNNNNN
Palestina, Coah.	29° 08'	100° 57'	1,080'	NNNNNN 15 NNNNNN	NNNNNN 16 NN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
Parral, Chih.	26° 56'	105° 39'	5,740'	NNNNNN 15 NN	NNNNNN 16 NNNNN	NNNNNN 17 NNNN N	NNNNNN 18 NNNNNN
Piedras Negras, Coah.	28° 42'	100° 31'	715'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
Presa Guadalupe, Coah.	25° 45'	103° 14'	3,670'				
Progreso, Coah.	27° 28'	101° 03'	1,200'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
Ramos Arizpe, Coah.	25° 32'	100° 58'	4,590'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
Rancho Los Angeles, Coah.	29° 30'	101° 41'	1,800'	NNNNNN 18 NNNNNN	NNNNNN 18 NNNNNN	NNNNNN 18 NNNNNN	NNNNNN 19 NNNNNN
Rancho Vidrio, Chih.	31° 42'	106° 24'	3,670'				
Rayones, N. L.	25° 01'	100° 41'	1,970'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
Retamal, Tamps.	26° 02'	98° 02'	82'				
Reynosa, Tamps.	26° 06'	98° 17'	130'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NN
Rinconada, N. L.	25° 40'	100° 40'	4,790'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
Rosetilla, Chih.	28° 14'	105° 19'	3,780'	NNNNNN 18 NNNNNN	NNNNNN 18 NNNNNN	NNNNNN 18 NNNNNN	NNNNNN 18 NNNNNN
Sabinas, Coah.	27° 54'	101° 17'	1,430'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
Saltillo, Coah.	25° 26'	101° 00'	5,280'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
San Antonio, Dgo.	26° 25'	105° 21'	5,450'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
San Buenaventura, Coah.	27° 05'	101° 33'	2,300'	NNNNNN 15 N	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
San Pedro, N. L.	25° 23'	100° 07'	1,500'				
Santa Catarina, N. L.	25° 41'	100° 26'	1,970'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
Santa Rosalía, Tamps.	26° 10'	98° 57'	250'				
Sierra Mojada, Coah.	27° 17'	103° 42'	4,120'				
Topo Chico, N. L.	25° 49'	100° 20'	1,640'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
Villa Allende, N. L.	25° 17'	100° 01'	2,210'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
Villa de Santiago, N. L.	25° 25'	100° 07'	1,460'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
Villa Hidalgo, Coah.	27° 47'	99° 52'	499'				
Villa Juárez, Coah.	27° 36'	100° 46'	900'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NN N 18 NNNNNN	NNNNNN 18 NNNNNN
Villagrán, Tamps.	24° 29'	99° 29'	1,260'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN
Villalba, Chih.	28° 01'	105° 46'	3,940'	NNNNNN 15 NNNNNN	NNNNNN 16 NNNNNN	NNNNNN 17 NNNNNN	NNNNNN 18 NNNNNN

@ Records from January to September in Water Bulletin No. 17 and from October to December in Water Bulletin No. 18.

INDEX TO PRECIPITATION RECORDS

In Mexico

NAME OF STATION	Latitude	Longitude	Elevation	WHERE MONTHLY REPORTS MAY BE FOUND			
				1949	1950	1951	1952
Allende, Coah.	28° 21'	100° 51'	1,170'	NNNNNN 19 NNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Anáhuac, N. L.	27° 15'	100° 07'	650'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Anzaldúas, Tamps.	26° 09'	98° 23'	110'				N
Balleza, Chih.	26° 57'	106° 21'	5,870'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Cadereyta, N. L.	25° 36'	99° 59'	1,180'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Cd. Acuña (Villa Acuña), Coah.	29° 20'	100° 53'	919'			NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Cd. Juárez, Chih.	31° 44'	106° 29'	3,740'				
Cd. Miguel Alemán, Tamps.	26° 24'	99° 02'	180'			NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Cerralvo, N. L.	26° 06'	99° 37'	1,130'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Chihuahua, Chih.	28° 38'	106° 04'	4,690'		NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Ciénaga de Flores, N. L.	25° 58'	100° 10'	1,760'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Comales, Tamps.	26° 14'	98° 58'	270'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNN NN 22 NNNNNN
Control (CIK-9), Tamps.	25° 58'	97° 49'	59'	N N 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Cuchillo Parado, Chih.	29° 26'	104° 53'	2,982'			NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Cuesta Fierros, N. L.	25° 43'	100° 43'	3,600'		NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Delicias, Chih.	28° 11'	105° 31'	3,710'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
18 de Marzo, Tamps.	25° 41'	97° 48'	56'	N 20 NNNNNN	N N NN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Don Martín, Coah.	27° 30'	100° 36'	790'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
El Cuchillo, N. L.	25° 43'	99° 16'	590'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
El Mulato, Chih.	29° 23'	104° 11'	2,530'				
Gral. Bravo, N. L.	25° 48'	99° 09'	390'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Gral. Cepeda, Coah.	25° 24'	101° 29'	4,920'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Guerrero, Chih.	28° 33'	107° 30'	6,560'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNN N 21 NNNNNN	NNNNNN 22 NNNNNN
Guerrero, Tamps.	26° 47'	99° 20'	295'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Higueras, N. L.	25° 59'	100° 01'	1,640'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Hormiguero, Chih.	27° 02'	105° 42'	5,580'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Jiménez, Coah.	29° 04'	100° 40'	814'			NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
La Boquilla, Chih.	27° 32'	105° 25'	4,320'	NNNNNN 18 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
La Junta, Chih.	28° 26'	107° 20'	6,730'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
La Mariposa, Coah.	28° 09'	101° 44'	2,000'				
Lag. de Salinillas, Coah.	27° 26'	100° 22'	750'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Lag. Sánchez, N. L.	25° 21'	100° 15'	6,500'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNN 22 NNNNNN
Las Comitas, N. L.	25° 26'	99° 07'	1,670'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Las Enramadas, N. L.	25° 48'	99° 16'	730'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Las Vírgenes, Chih.	28° 10'	105° 38'	4,068'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Linares, N. L.	24° 52'	99° 34'	1,180'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Los Herreras (La Tableta), N. L.	25° 55'	99° 24'	820'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Los Ramones, N. L.	25° 42'	99° 13'	270'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Maclovio Herrera, Chih.	29° 03'	105° 08'	3,380'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Matamoros, Tamps.	25° 52'	97° 30'	40'	NNNNNN 19 NNNNNN	NNNN 20 N	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Méndez, Tamps.	25° 07'	98° 35'	420'	NNNNNN 21 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Monclova, Coah.	26° 54'	101° 25'	1,940'	NNNN 19 N	NNNNNN 20 NNNNNN	NNNNNN 21 NNNN N	NNNNNN 22 NNNNNN
Montemorelos, N. L.	25° 12'	99° 50'	1,420'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Monterrey, N. L.	25° 40'	100° 18'	1,730'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Múzquiz, Coah.	27° 52'	101° 31'	1,650'	NNNNNN 19			
Nueva Rosita, Coah.	27° 55'	101° 17'	1,410'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Nuevo Laredo, Tamps.	27° 29'	99° 31'	420'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Ojinaga, Chih.	29° 34'	104° 25'	2,620'	NNNNNN 19 NNNNNN		NNNNNN 21 N NNNN	NNNNNN 22 NNNNNN
Palestina, Coah.	29° 08'	100° 57'	1,080'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN		
Parral, Chih.	26° 56'	105° 39'	5,740'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNN 21 N	
Piedras Negras, Coah.	28° 42'	100° 31'	715'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Presa Guadalupe, Coah.	25° 45'	103° 14'	3,670'				
Progreso, Coah.	27° 28'	101° 03'	1,200'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Ramon Aritze, Coah.	25° 32'	100° 58'	4,590'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Rancho Los Angeles, Coah.	29° 30'	101° 41'	1,800'	NNNNNN 19 NNNNNN			
Rancho Vidrio, Chih.	31° 42'	106° 24'	3,670'				
Rayones, N. L.	25° 01'	100° 41'	1,970'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Retamal, Tamps.	26° 02'	98° 02'	82'	20 NNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Reynosa, Tamps.	26° 06'	98° 17'	130'	NNNN 19 NNNNNN	NNNN 20 NNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNN
Rinconada, N. L.	25° 40'	100° 40'	4,790'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Rosetilla, Chih.	28° 14'	105° 19'	3,780'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Sabinas, Coah.	27° 54'	101° 17'	1,430'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Saltillo, Coah.	25° 26'	101° 00'	5,280'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
San Antonio, Dgo.	26° 25'	105° 21'	5,430'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
San Buenaventura, Coah.	27° 05'	101° 33'	2,300'	NNNNNN 19 NNNNNN	NNNNNN 20 NNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
San Pedro, N. L.	25° 23'	100° 07'	1,500'				
Santa Catarina, N. L.	25° 41'	100° 26'	1,970'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Santa Rosalía, Tamps.	26° 10'	98° 57'	250'				
Sierra Mojada, Coah.	27° 17'	103° 42'	4,120'				
Topo Chico, N. L.	25° 49'	100° 20'	1,640'	NN NNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNN N	NNNNNN 22 NNNNNN
Villa Allende, N. L.	25° 17'	100° 01'	2,210'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Villa de Santiago, N. L.	25° 25'	100° 07'	1,460'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNN NN 21 NNNNNN	NNNNNN 22 NNNNNN
Villa Hidalgo, Coah.	27° 47'	99° 52'	499'			NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Villa Juárez, Coah.	27° 36'	100° 46'	900'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Villagrán, Tamps.	24° 29'	99° 29'	1,260'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN
Villalba, Chih.	28° 01'	105° 46'	3,940'	NNNNNN 19 NNNNNN	NNNNNN 20 NNNNNN	NNNNNN 21 NNNNNN	NNNNNN 22 NNNNNN

EVAPORATION IN THE RIO GRANDE BASIN IN INCHES

In the United States

Tabulated below are records of evaporation observed at eight stations from Presidio, Texas to Falcón Dam near Roma, Texas. All of these stations are operated and maintained by the United States Section of this Commission, except two. The one at Del Rio, Texas is operated by the U. S. Weather Bureau and the one at Tortuga Ranch near Eagle Pass, Texas is operated by the Maverick Irrigation District. At all stations, the exposure to wind is uniform and relatively unimpeded. The sites are 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. Within the enclosures, all vegetation either has been eradicated or is kept trimmed to within 3 inches of the ground surface. No water barrels, tanks, or objects of similar size are stored within 100 feet of the enclosures.

Three types of pans are in use at these stations:

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 is in operation at Dryden, Fort McIntosh(Laredo), and Del Rio, 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 is in operation at Presidio, Johnson Ranch, Maravillas Creek, Dryden, Fort McIntosh(Laredo), Falcón Dam, and Tortuga Ranch near Eagle Pass, Texas.

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 is in operation at Dryden and Fort McIntosh(Laredo), Texas.

Month	Presidio, Texas		Johnson Ranch, Texas		Maravillas, Texas		Dryden, Texas					
							2-Foot Pan		4-Foot Pan		12-Foot Pan	
	1952	Average Nov. 1949 -1952	1952	Average Oct. 1949 -1952	1952	Average Nov. 1949 -1952	1952	Average Sept.1949 -1952	1952	Average Oct. 1944 -1952	1952	Average Oct. 1949 -1952
Jan.	4.16	4.13	5.13	4.55	4.59	4.56	4.43	3.81	5.76	4.23	3.96	3.71
Feb.	5.24	4.93	6.40	5.71	5.62	4.70	6.12	4.62	8.39	5.86	6.05	4.44
Mar.	9.12	9.01	9.92	9.40	7.33	7.50	8.03	8.05	11.02	10.35	7.62	7.34
Apr.	10.83	10.84	10.20	10.99	10.15	10.26	9.11	8.66	13.50	12.64	9.35	9.41
May	13.76	13.34	12.69	13.21	10.37	10.21	10.56	10.12	16.68	14.40	11.50	10.83
June	14.67	14.14	14.68	14.70	12.26	12.23	11.18	10.80	16.26	15.76	12.10	11.84
July	13.92	13.07	15.30	14.24	12.44	11.61	13.30	12.97	17.95	16.42	12.77	12.56
Aug.	15.88	15.01	17.01	15.52	13.72	12.58	14.08	12.56	18.81	15.84	13.02	12.17
Sept.	13.90	11.95	13.77	12.43	11.96	10.33	10.33	8.92	13.07	11.93	9.43	9.09
Oct.	9.72	9.21	9.04	9.34	7.56	7.81	8.49	6.79	10.27	7.78	7.57	6.42
Nov.	5.86	5.61	5.94	5.83	5.49	5.68	5.03	5.24	5.56	5.87	4.31	4.79
Dec.	3.22	3.87	4.06	4.62	3.47	4.14	3.49	4.13	3.63	4.63	2.98	3.61
Total	120.28	115.11	124.14	120.54	104.96	101.61	104.15	96.67	140.90	125.71	100.66	96.21

Month	Del Rio, Texas		Tortuga Ranch, Texas		Fort McIntosh, Texas						Falcón Dam, Texas	
					2-Foot Pan		4-Foot Pan		12-Foot Pan			
	1952		1952		1952	Average Feb. 1950 -1952	1952	Average Feb. 1950 -1952	1952	Average Feb. 1950 -1952	1952	Average Apr. 1950 -1952
Jan.			4.24		4.46	4.52	5.41	5.43	3.84	3.86	4.48	4.86
Feb.			5.95		5.39	4.55	6.55	6.05	4.69	4.09	5.84	6.02
Mar.			6.65		6.88	7.11	9.04	8.94	6.22	6.73	7.54	8.92
Apr.			8.07		8.73	8.56	11.22	10.84	7.73	7.40	9.15	9.12
May			9.93		9.86	9.25	13.86	13.17	9.58	9.00	11.69	11.66
June	14.34		11.53		11.67	11.32	*13.90	* 13.89	10.83	10.13	11.38	12.79
July	15.67		13.93		13.34	13.92	14.90	16.67	11.54	12.22	12.66	14.32
Aug.	17.12		16.03		14.28	13.13	15.44	15.60	11.59	11.24	12.96	13.00
Sept.	12.21		11.75		11.30	9.84	12.62	11.93	9.49	9.22	10.64	9.99
Oct.	9.93		8.69		8.37	7.98	9.04	8.61	7.31	6.70	9.32	8.13
Nov.	4.64		4.07		5.12	* 5.07	5.25	5.44	4.24	4.42	5.52	6.22
Dec.	3.82		3.34		3.21	* 3.95	3.89	4.59	2.59	3.26	3.94	4.76
Total			104.18		102.61	99.20	121.12	121.16	89.65	88.27	105.12	109.79

* Partly estimated

EVAPORATION IN THE RIO GRANDE BASIN IN INCHES

In Mexico

Evaporation is observed at nine stations, which are operated and maintained by the Mexican Section of this Commission, on the Río Conchos at Cuchillo Parado, Chihuahua and along the Rio Grande at Cd. Acuña, Jiménez, Piedras Negras, and Villa Hidalgo in the state of Coahuila and Cd. Guerrero, Cd. Miguel Alemán, Retamal, and Matamoros in the state of Tamaulipas. Records of evaporation in the Rio Grande Basin in Mexico are furnished by the Meteorological Service of Mexico, the Ministry of Hydraulic Resources, and the Cía. Agrícola y de Fuerza Eléctrica del Río Conchos, S.A.

At all stations operated by the Mexican Section, the sites are 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. Within the enclosures, all vegetation either has been eradicated or is 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 is uniform and relatively unimpeded.

Two types of pans are in use at the stations listed below:

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

2. A circular pan, 4 feet in diameter and 10 inches deep, made of copper, is set on concrete piers with the rim of the pan 18 inches above the ground. The water level is maintained between 2 and 6 inches below the rim of the pan and is measured with a micrometer gage. This type of pan is used at La Boquilla.

Month	San Antonio, Durango		La Boquilla Dam, Chih.		Villalba, Chih.		F. I. Madero Dam, Chih.		Delicias, Chih.		La Junta, Chih.	
	1952	Average 1943-1952	1952	Average 1938-1952	1952	# Average 1940-1952	1952	Average 1949-1952	1952	# Average 1940-1952	1952	# Average 1936-1952
Jan.	6.89	5.04	6.34	4.43	7.24	5.66	7.06	5.08	4.56	3.72	2.93	2.74
Feb.	7.54	6.82	7.05	6.14	7.75	7.35	7.81	6.10	5.23	5.22	3.67	3.78
Mar.	11.83	10.42	10.71	9.85	11.80	11.64	11.03	9.51	7.76	8.49	5.67	6.36
Apr.	10.74	10.98	11.59	11.82	11.27	13.33	12.48	12.23	9.17	9.89	7.20	8.81
May	13.18	12.10	15.24	14.17	13.40	15.22	15.96	15.04	11.70	11.88	10.43	10.79
June	10.75	10.94	14.11	13.97		14.30	14.12	14.56	12.53	11.95	8.69	10.25
July	8.83	8.37	11.69	11.28	10.57	11.14	11.96	11.72	9.71	10.35	6.49	7.20
Aug.	10.25	8.25	12.31	10.01	11.74	10.16	13.78	11.82	10.82	9.16	6.36	6.29
Sept.	10.83	6.75	10.58	7.96	9.47	8.08	10.76	9.72	8.61	7.78	6.28	5.48
Oct.	8.76	6.09	8.19	6.77	7.43	7.21	8.98	8.21	6.56	6.15	5.09	4.77
Nov.	5.88	5.18	5.67	5.02	5.78	5.82	5.91	5.16	4.37	4.34	3.48	3.36
Dec.	4.44	4.40	3.94	3.86	4.20	4.87	5.21	4.95	2.98	3.47	2.21	2.49
Total	109.92	95.34	117.42	105.28		114.78	125.06	114.10	94.00	92.40	68.50	72.32

Month	Cuchillo Parado, Chih.		Cd. Acuña, Coah.		Jiménez, Coah.		Piedras Negras, Coah.		Hidalgo, Coah.		Progreso, Coah.	
	1952	Average 1951-1952	1952	Average 1951-1952	1952	Average 1951-1952	1952	Average 1951-1952	1952	Average 1951-1952	1952	Average 1950-1952
Jan.	4.55	4.84	4.26	4.71	3.86	3.77	3.88	4.10	5.19	4.57	3.70	3.80
Feb.	6.39	6.02	6.49	5.76	6.36	5.62	5.79	5.36	7.16	5.88	5.82	4.75
Mar.	10.65	10.39	8.13	9.03	6.97	8.18	6.92	7.47	9.56	8.53	7.27	7.39
Apr.	13.24	13.38	9.53	10.60	8.14	8.96	8.44	9.56	9.96	10.58	7.74	7.86
May	15.75	16.08	11.27	10.90	10.01	9.33	11.70	10.73	14.42	13.38	10.46	9.55
June	16.91	17.38	12.80	12.60	11.55	10.84	11.08	11.24	12.47	12.94	11.40	10.61
July	13.63	14.80	14.19	14.70	12.63	13.00	14.71	14.46	13.94	16.38	12.05	12.44
Aug.	15.84	15.83	15.22	14.79	13.52	13.22	15.43	14.41	18.56	17.84	13.28	12.12
Sept.	13.33	13.06	10.26	10.29	9.67	9.02	10.01	10.45	12.27	12.54	8.75	8.54
Oct.	9.30	9.64	7.82	7.31	6.76	6.34	7.14	6.97	9.69	8.85	7.17	6.19
Nov.	5.84	5.33	3.97	4.13	3.59	3.60	3.64	3.65	5.54	5.51	4.08	4.13
Dec.	3.27	4.21	3.36	3.50	2.98	3.02	2.55	3.24	4.85	5.00	3.37	3.73
Total	128.25	130.96	107.30	108.32	96.04	94.90	101.29	101.64	123.61	122.00	95.09	91.11

Some months missing

EVAPORATION IN THE RIO GRANDE BASIN
IN INCHES

In Mexico

Month	Sabinas, Coah.		Villa Juárez, Coah.		Don Martín, Coah.		Lag. de Salinillas, N. L.		Cd. Anáhuac, N. L.	
	1952	# Average 1941-1952	1952	Average 1949-1952	1952	# Average 1927-1952	1952	# Average 1936-1952	1952	# Average 1933-1952
Jan.	4.33	3.26	3.88	3.57	4.03	3.44	4.09	3.76	4.05	2.75
Feb.	5.84	4.01	5.58	4.32	5.79	4.21	5.19	4.78	5.43	3.59
Mar.	9.13	7.16	6.89	7.22	7.30	7.14	5.94	7.76	6.87	6.32
Apr.	9.12	9.67	8.45	8.26	9.70	8.83	8.38	9.45		7.79
May	10.53	10.37	10.80	9.57	12.28	10.23	11.04	10.33		8.39
June	10.70	11.61	12.29	11.50	11.99	11.73	11.22	10.95	10.94	10.25
July	11.80	11.93	13.76	12.98	13.28	12.42	12.01	11.81	13.42	11.16
Aug.	12.54	11.90	15.02	12.68	15.18	12.11	13.82	11.19	12.12	10.83
Sept.	8.14	7.92	9.77	9.26	11.67	8.50	9.56	8.20	10.07	7.47
Oct.	6.54	6.04	6.98	6.21	9.64	6.36	8.07	6.39	7.26	5.51
Nov.	3.87	3.91	3.79	4.17	5.34	4.32	4.82	4.70	4.85	3.65
Dec.	3.15	2.75	3.40	3.20		3.27	3.65	3.58	3.54	2.65
Total	95.69	90.53	100.61	92.94		92.56	97.79	92.90		80.86

Month	Cd. Guerrero, Tamps.		Cd. Miguel Alemán, Tamps.		Montemorelos, N. L.		Monterrey, N. L.		Las Comitas, N. L.	
	1952	Average 1951-1952	1952	Average 1951-1952	1952	# Average 1941-1952	1952	# Average 1921-1952	1952	# Average 1950-1952
Jan.	5.33	5.61	5.88	6.07	3.45	2.84	5.92	4.15	3.81	4.07
Feb.	6.64	6.72	6.94	7.84	4.48	3.45	7.02	5.02	5.77	5.38
Mar.	8.72	8.68	8.34	9.02	4.09	5.35	6.19	6.64	7.46	6.96
Apr.	11.02	11.33	10.19	10.78	4.85	5.74	6.10	7.60	6.85	7.44
May	14.06	12.91	13.29	12.30	6.74	6.45	8.44	8.46	8.95	8.44
June	13.99	14.49	12.00	12.96	7.23	7.68	8.10	9.21	8.79	8.86
July	15.22	16.18	14.30	15.11	8.59	9.06	9.98	10.12	10.13	10.08
Aug.	17.46	16.72	16.94	16.00	11.15	8.81	10.57	9.42	11.12	
Sept.	11.71	11.20	9.50	9.80	6.14	5.80	8.74	6.05	7.57	8.29
Oct.	9.17	8.49	9.48	8.22	5.48	4.03	6.88	5.03	7.18	5.79
Nov.	5.03	5.07	5.56	5.22	3.04	2.94	4.01	4.03	4.26	3.65
Dec.	3.98	4.66	4.57	4.68	2.91	2.62	4.50	3.74	4.11	3.60
Total	122.33	122.06	116.99	118.00	68.15	64.77	86.45	79.47	86.00	

Month	Las Enramadas, N. L.		El Cuchillo, N. L.		Saltillo, Coah.		Rinconada, N. L.		Ciénaga de Flores, N. L.	
	1952	# Average 1950-1952	1952	# Average 1940-1952	1952	# Average 1929-1952	1952	# Average 1950-1952	1952	# Average 1941-1952
Jan.	3.56	3.94	5.59	4.44	5.31	5.06	3.57	4.30	3.81	3.89
Feb.	5.18	5.00	6.48	5.47	6.29	5.41	5.23	5.08	5.77	4.46
Mar.	4.89	5.65	6.95	8.36	4.91	7.59	6.43	6.44	7.46	6.94
Apr.	6.34	7.14	8.92	9.70	7.24	9.06	6.57	7.51	6.85	7.71
May	9.21	8.91	11.62	11.01	9.19	9.31	9.96	9.04	8.95	8.66
June	8.49	9.26	10.48	12.27	8.33	9.44	7.87	8.46	8.79	9.17
July	9.51		12.19	14.22	8.37	8.79	10.60	9.89	10.13	10.16
Aug.	11.76		14.98	13.33	11.61	8.61	12.30	11.00	11.12	9.88
Sept.	7.26	7.40	8.97	9.43	7.39	6.69	7.82		7.57	7.19
Oct.	5.94	5.30	8.32	6.89	7.06	6.02	8.57	6.76	7.18	5.42
Nov.	3.48	3.68	4.41	5.06	4.62	5.10	4.66	4.57	4.26	4.47
Dec.	3.26	3.46	4.36	4.47	4.93	5.25	3.65	3.83	4.11	3.54
Total	78.88		103.27	104.65	85.25	86.33	87.23		86.00	81.49

Month	Los Herreras, N. L.		Comales, Tamps.		Reynosa, Tamps.		Retamal, Tamps.		Matamoros, Tamps.	
	1952	# Average 1941-1952	1952	# Average 1938-1952	1952	# Average 1950-1952	1952	Average 1951-1952	1952	Average 1951-1952
Jan.	5.22	4.13	5.92	4.50	3.96	4.32	5.30	5.47	4.39	4.25
Feb.	6.86	4.91	6.22	5.69	4.75	4.68	6.13	5.96	4.70	4.69
Mar.	6.57	7.64	8.41	8.58	5.79	6.33	7.71	7.52	5.61	4.71
Apr.	8.14	8.59		10.57	6.57	7.37	8.80	8.75	7.33	6.28
May	11.32	9.55		12.05	9.20	8.58	11.47	10.49	9.94	8.73
June	10.29	10.32	12.43	13.71	7.72	8.74	8.52	9.76	6.61	7.82
July	11.68	12.02	13.06	15.36			8.80	10.16	8.32	9.88
Aug.	13.88	11.54	15.91	14.04	10.31	9.71	11.56	10.65	9.13	11.62
Sept.	8.94	8.07	10.16	9.95	8.90	8.50	7.98	7.96	6.56	9.52
Oct.	7.50	6.12	8.65	7.94	5.79	5.40	7.48	6.84	5.15	7.72
Nov.	4.20	4.68	4.76	5.81	7.09	5.30	3.89	3.94	3.69	4.05
Dec.	4.45	4.32	3.49	4.49	2.67	3.38	3.60	4.10	2.52	3.18
Total	99.05	91.89		112.69			91.24	91.60	73.95	82.45

Some months missing

TEMPERATURE, HUMIDITY, AND WIND

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

The mean monthly temperatures and relative humidities at the Dryden, Fort McIntosh, and Falcón Dam evaporation stations 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	Johnson Ranch, Texas		Dryden, Texas		Fort McIntosh, Texas		Falcón Dam, Texas	
	1952	Average Aug. 1945-1952	1952	Average July 1947-1952	1952	Average Feb. 1950-1952	1952	Average July 1950-1952
Jan.	60.2	62.7	54.6	47.2	63.9	61.5	66.7	63.6
Feb.	58.6	63.9	55.1	53.4	62.9	62.7	65.8	64.6
Mar.	64.2	66.9	58.3	59.6	67.3	67.8	70.4	70.0
Apr.	73.1	75.7	67.0	68.2	73.3	75.0	74.3	75.8
May	81.0	83.5	74.9	76.3	79.3	81.0	79.5	81.1
June	88.8	89.1	82.4	82.1	85.6	84.6	82.4	85.4
July	98.2	88.9	83.4	83.8	86.6	87.9	85.1	88.0
Aug.	* 92.5	89.2	87.9	83.4	89.6	88.4	88.3	88.5
Sept.	84.2	83.6	79.0	77.5	85.2	85.8	82.7	84.5
Oct.	70.2	74.7	65.6	69.0	72.2	76.1	73.1	77.1
Nov.	60.5	62.0	53.9	55.4	63.5	63.7	63.7	65.5
Dec.	53.2	55.4	48.3	50.1	56.1	57.8	57.4	60.5
Yearly	72.9	73.4	67.5	67.2	73.5	74.2	74.1	75.4

In Mexico

Month	Cuchillo Parado, Chih.		Cd. Acuña, Coah.		Jiménez, Coah.		Piedras Negras, Coah.	
	1952	Average 1951-1952	1952	Average Apr. 1951-1952	1952	Average Mar. 1951-1952	1952	Average Apr. 1951-1952
Jan.	54.3	53.4	59.0		60.1		58.3	
Feb.	52.2	54.0	59.5		60.1		58.1	
Mar.	57.9	59.7	62.6		62.2	63.8	61.2	
Apr.	67.8	67.6	71.1	71.7	70.2	71.1	70.2	70.7
May	76.3	76.6	78.3	78.8	76.6	77.2	75.6	76.5
June	86.2	85.9	87.4	86.6	84.2	84.4	84.7	85.2
July	83.1	84.8	86.7	89.0	86.7	87.8	87.1	88.4
Aug.	87.1	86.4	91.9	91.4	89.1	88.6	89.2	89.6
Sept.	79.9	79.8	83.5	84.4	81.7	82.0	79.5	81.0
Oct.	66.9	69.6	69.8	72.8	67.8	71.5	65.5	69.9
Nov.	55.8	56.0	60.1	59.6	59.7	60.0	58.6	58.4
Dec.	49.6	51.7	52.0	53.7	52.5	54.2	51.6	52.8
Yearly	68.1	68.8	71.8		70.9		70.0	

Month	Villa Hidalgo, Coah.		Cd. Guerrero, Tamps.		Cd. Miguel Alemán, Tamps.		Retamal, Tamps.		Matamoros, Tamps.	
	1952	Average Aug. 1951-1952	1952	Average 1951-1952	1952	Average 1951-1952	1952	Average 1951-1952	1952	Average Apr. 1951-1952
Jan.	62.2		65.1	62.2	65.5	62.2	67.8	65.2	66.9	
Feb.	60.8		65.3	64.2	65.5	63.7	67.3	64.7	66.9	
Mar.	63.5		68.4	68.3	71.1	70.6	71.6	71.0	70.5	
Apr.	74.1		74.3	75.1	75.7	76.2	74.8	75.7	71.6	72.3
May	78.8		79.9	80.2	81.3	81.3	80.1	80.9	77.7	78.6
June	84.9		83.8	84.0	85.3	86.6	83.8	85.2	81.3	81.8
July	87.4		86.0	85.8	87.1	88.4	85.6	87.2	84.6	84.8
Aug.	90.0	89.4	88.2	85.8	90.0	89.4	88.9	88.2	85.3	85.4
Sept.	82.8	83.3	83.1	83.0	84.9	84.6	82.4	83.5	81.3	81.8
Oct.	71.2	74.2	72.9	75.4	72.9	75.4	72.0	75.6	72.7	75.0
Nov.	62.8	61.8	64.8	64.6	64.8	69.2	66.2	66.4	67.1	66.6
Dec.	53.0	56.8	58.3	61.1	58.5	61.1	60.1	63.0	59.7	61.2
Yearly	72.8		74.2	74.1	75.2	75.4	75.0	75.6	73.8	

Mean Relative Humidity – Percent

In the United States

Month	Dryden, Texas		Fort McIntosh, Texas		Falcón Dam, Texas	
	1952	Average July 1947-1952	1952	Average Feb. 1950-1952	1952	Average July 1950-1952
Jan.	53.4	53.2	59.3	57.6	62.9	57.2
Feb.	53.1	50.4	49.4	55.6	52.9	54.3
Mar.	43.6	40.4	50.4	49.9	55.6	56.4
Apr.	43.7	44.8	49.8	52.1	55.8	56.0
May	51.1	52.4	52.1	55.8	57.5	61.2
June	58.1	51.9	60.3	57.1	65.9	64.3
July	52.1	48.3	53.7	52.0	59.8	57.2
Aug.	44.2	47.8	49.1	51.1	54.4	56.1
Sept.	48.8	51.8	51.9	54.9	57.7	59.9
Oct.	42.0	53.4	44.7	51.7	49.4	57.6
Nov.	60.6	48.8	62.3	56.8	66.1	59.7
Dec.	59.2	52.5	61.0	54.7	61.0	55.7
Yearly	50.1	49.6	53.7	54.1	58.2	58.0

Mean Wind Speed – Miles Per Hour

In the United States

	Dryden, Texas		Fort McIntosh, Texas		Falcón Dam, Texas	
	1952	Average July 1947-1952	1952	Average Feb. 1950-1952	1952	Average July 1950-1952
	3.8	4.4	3.4	3.1	4.1	4.2
	5.0	4.9	4.0	3.9	5.0	5.4
	6.6	5.9	5.7	4.8	5.8	5.8
	6.5	6.1	4.8	4.7	6.8	6.6
	6.8	6.6	5.2	4.9	7.2	7.3
	7.8	6.8	5.4	5.0	7.8	8.1
	6.1	5.7	4.6	4.8	6.8	7.6
	5.5	4.9	4.8	4.3	▫ 6.8	6.2
	4.8	4.4	3.1	3.5	▫ 4.9	5.4
	3.8	3.9	2.8	2.9	3.8	3.8
	4.6	4.1	3.5	3.3	4.9	4.7
	3.5	3.6	2.5	2.5	4.4	3.9
	5.4	5.1	4.2	4.0	5.7	5.8

▫ Estimated * Partly estimated

DRAINAGE BASIN AND IRRIGATED AREAS
Along the Rio Grande and Tributaries – 1952

The total area within the outer rim of the Rio Grande Basin is about 335,500 square miles; however, in many places, particularly along the southwestern boundary of the basin, large areas contribute no surface run-off to the Rio Grande. Such non-contributive areas constitute about 48.8% of the total area, leaving 171,887 square miles of productive watershed. Only the productive part of the watershed is included in the list below.

The irrigated areas shown below are from the most reliable sources available and are listed according to the downstream sequence of the points of diversion of their irrigation water and, consequently, they may or may not be wholly within the indicated main river or tributary reach. They are all within the Rio Grande Basin, except in the Lower Rio Grande Valley below the Rio Grande City gaging station where water is diverted at numerous points to irrigate lands which are adjacent to, but do not contribute surface runoff to the Rio Grande. All of the areas listed are equipped with irrigation facilities. In the United States, all areas were irrigated in 1952. In Mexico, the areas classed as "Secondary" are those for which water is available only after the water requirements of the "Primary" areas have been satisfied.

DESIGNATIONS OF AREAS AND GAGING STATIONS	Drainage Basin Square Miles			Irrigated Areas—Acres			
	United States	Mexico	Total	United States	Mexico		Total
					Primary	Secondary	
Above Elephant Butte Dam	25,923	0	25,923	a726,000	0	0	726,000
Elephant Butte Dam to Caballo Dam	1,295	0	1,295	0	0	0	0
Above Caballo Dam	27,218	0	27,218	726,000	0	0	726,000
Caballo Dam to El Paso Station	2,049	0	2,049	102,624	0	0	102,624
Above El Paso Gaging Station	29,267	0	29,267	828,624	0	0	828,624
El Paso Station to American Dam	4	0	4	16,550	0	0	16,550
Above American Dam	29,271	0	29,271	845,174	0	0	845,174
American Dam to Juárez Station	41	47	88	0	33,112	0	33,112
Above Juárez Gaging Station	29,312	47	29,359	845,174	33,112	0	878,286
Juárez Station to Island Station	146	472	618	39,550	0	0	39,550
Above Island Gaging Station	29,458	519	29,977	884,724	33,112	0	917,836
Island Station to County Line Station	485	186	671	0	0	0	0
American Dam to County Line - Total	672	705	1,377	39,550	33,112	0	72,662
Above County Line Gaging Station	29,943	705	30,648	884,724	33,112	0	917,836
County Line Station to Fort Quitman	663	679	1,342	b 18,468	0	0	18,468
Above Fort Quitman Gaging Station	30,606	1,384	31,990	903,192	33,112	0	936,304
Fort Quitman Station to La Nutria	1,041	886	1,927	c 1,527	6,425	0	7,952
Above La Nutria Gaging Station (Inactive)	31,647	2,270	33,917	904,719	39,537	0	944,256
La Nutria to Upper Presidio Station	580	503	1,083	d 667	9,142	0	9,809
Above Upper Presidio Gaging Station	32,227	2,773	35,000	905,386	48,679	0	954,065
Río Conchos above Boquilla Dam	0	7,322	7,322	0	2,966	0	2,966
Río Conchos below Boquilla Dam	0	17,419	17,419	0	174,208	12,108	186,316
Río Conchos - Total	0	24,741	24,741	0	177,174	12,108	189,282
Upper to Lower Presidio Station - excluding Río Conchos	21	5	26	e 1,331	0	0	1,331
Upper to Lower Presidio Station - Total	21	24,746	24,767	1,331	177,174	12,108	190,613
Above Lower Presidio Gaging Station	32,248	27,519	59,767	906,717	225,853	12,108	1,144,678
Alamito Creek above gaging station	1,504	0	1,504	f 553	0	0	553
Terlingua Creek above gaging station	1,070	0	1,070	0	0	0	0
Lower Presidio to Johnson Ranch Station - excluding Alamito and Terlingua Creeks	1,439	2,671	4,110	g 3,863	3,707	1,977	9,547
Lower Presidio to Johnson Ranch - Total	4,013	2,671	6,684	4,416	3,707	1,977	10,100
Above Johnson Ranch Gaging Station	36,261	30,190	66,451	911,133	229,560	14,085	1,154,778
Johnson Ranch to Langtry Station	6,594	6,330	12,924	h 4,845	0	0	4,845
Above Langtry Gaging Station	42,855	36,520	79,375	915,978	229,560	14,085	1,159,623

a 1952 acreage not known. Latest available data from Water Bulletin No. 19. b Water for these 18,468 acres was supplied partly from wells. c Excludes 409 acres irrigated from wells and includes 1,340 acres supplied partly from wells. d Excludes 381 acres irrigated from wells. e Excludes 15 acres irrigated from wells. f Excludes 218 acres irrigated from wells and 29 acres irrigated from springs. g Excludes 734 acres irrigated from wells. h Excludes 10 acres irrigated from wells and includes 3,435 acres irrigated by spreader dams.

DRAINAGE BASIN AND IRRIGATED AREAS
Along the Rio Grande and Tributaries – 1952

DESIGNATIONS OF AREAS AND GAGING STATIONS	Drainage Basin Square Miles			Irrigated Areas—Acres			
	United States	Mexico	Total	United States	Mexico Primary	Mexico Secondary	Total
Pecos River above Girvin	29,562	0	29,562	[i] 116,860	0	0	116,860
Pecos River, Girvin to IBWC Gaging Station	5,731	0	5,731	[j] 365	0	0	365
Pecos River above IBWC Gaging Station	35,293	0	35,293	117,225	0	0	117,225
Goodenough Spring above Gaging Station	1	0	1	0	0	0	0
Devils River above IBWC Gaging Station	4,185	0	4,185	[k] 0	0	0	0
Arroyo las Vacas above Gaging Station	0	160	160	0	741	494	1,235
Langtry to Del Rio - excluding above tributaries	416	2,495	2,911	[m] 285	0	0	285
Langtry to Del Rio - Total	39,895	2,655	42,550	117,510	741	494	118,745
Above Del Rio Gaging Station	82,750	39,175	121,925	1,033,488	230,301	14,579	1,278,368
San Felipe Creek above Gaging Station	46	0	46	[n] 1,272	0	0	1,272
Pinto Creek above Gaging Station	236	0	236	50	0	0	50
Río San Diego above Gaging Station	0	916	916	0	10,872	0	10,872
Río San Diego - Total	0	926	926	0	12,108	741	12,849
Río San Rodrigo above Gaging Station	0	591	591	0	3,707	3,213	6,920
Río San Rodrigo - Total	0	842	842	0	6,178	3,954	10,132
Del Rio to Eagle Pass - excluding above tributaries	1,213	314	1,527	[p] 42,585	5,683	0	48,268
Del Rio to Eagle Pass - Total	1,495	2,082	3,577	43,907	23,969	4,695	72,571
Above Eagle Pass Gaging Station	84,245	41,257	125,502	1,077,395	254,270	19,274	1,350,939
Río Escondido above Gaging Station	0	1,279	1,279	0	6,178	8,649	14,827
Río Escondido - Total	0	1,320	1,320	0	6,178	8,649	14,827
Eagle Pass to San Antonio Crossing - excluding Río Escondido - Total	237	186	423	210	[q] 247	0	457
Eagle Pass to San Antonio Crossing - Total	237	1,506	1,743	210	6,425	8,649	15,284
Above San Antonio Crossing	84,482	42,763	127,245	1,077,605	260,695	27,923	1,366,223
San Antonio Crossing to Laredo - Total	1,236	2,378	3,614	5,980	8,648	0	14,628
Above Laredo Gaging Station	85,718	45,141	130,859	1,083,585	269,343	27,923	1,380,851
Río Salado above Venustiano Carranza Dam	0	13,819	13,819	0	54,363	8,896	63,259
Río Salado above Gaging Station	0	21,503	21,503	0	83,274	19,027	102,301
Laredo to Zapata - excluding Río Salado	1,097	967	2,064	[r] 12,313	5,931	0	18,244
Laredo to Zapata - Total	1,097	22,470	23,567	12,313	89,205	19,027	120,545
Above Zapata Gaging Station	86,815	67,611	154,426	1,095,898	358,548	46,950	1,501,396
Zapata to Falcón Dam	945	169	1,114	2,538	247	0	2,785
Above Falcón Dam	87,760	67,780	155,540	1,098,436	358,795	46,950	1,504,181
Río Alamo above Gaging Station	0	1,663	1,663	0	4,942	5,436	10,378
Falcón Dam to Roma - excluding Río Alamo	87	158	245	2,800	2,965	0	5,765
Falcón Dam to Roma - Total	87	1,821	1,908	2,800	7,907	5,436	16,143
Above Roma Gaging Station	87,847	69,601	157,448	1,101,236	366,702	52,386	1,520,324
Río San Juan above Marte Gómez Dam	0	12,473	12,473	0	102,548	67,212	169,760
Río San Juan - Total	0	12,679	12,679	0	277,992	67,212	345,204
Roma to Rio Grande City - excluding Río San Juan	678	181	859	3,867	1,977	0	5,844
Roma to Rio Grande City - Total	678	12,860	13,538	3,867	279,969	67,212	351,048
Above Rio Grande City Gaging Station	88,525	82,461	170,986	1,105,103	646,671	119,598	1,871,372
Río Grande City to Anzaldúas Dam Site	409	415	824	94,200	3,460	0	97,660
Above Anzaldúas Dam Site	88,934	82,876	171,810	1,199,303	650,131	119,598	1,969,032
Anzaldúas to Matamoros	32	41	73	394,989	69,189	0	464,178
Above Matamoros Gaging Station	88,966	82,917	171,883	1,594,292	719,320	119,598	2,433,210
Matamoros to Lower Brownsville	2	2	4	13,213	0	0	13,213
Río Grande City to Lower Brownsville	443	458	901	502,402	72,649	0	575,051
Above Lower Brownsville Gaging Station	88,968	82,919	171,887	1,607,505	719,320	119,598	2,446,423
Lower Brownsville to the Gulf of Mexico				4,282	0	0	4,282
Above Gulf of Mexico				1,611,787	719,320	119,598	2,450,705

[i] Excludes 111,500 acres irrigated chiefly from wells, 1949 data. [j] Excludes 9,103 acres irrigated from wells and 230 acres irrigated from springs. [k] Excludes 465 acres irrigated from wells. [m] Excludes 52 acres irrigated from wells. [n] Excludes 45 acres irrigated from wells. [p] Excludes 80 acres irrigated from wells. [q] Includes 247 acres irrigated from springs. [r] Includes 350 acres irrigated from tanks.

CORRECTIONS TO PREVIOUS WATER BULLETINS

RIO GRANDE AT UPPER PRESIDIO STATION

The zero of the gage, as shown in Water Bulletins Nos. 20 and 21 and on page 13 of this bulletin, is 2,576.66 feet above mean sea level, U.S.C. & G.S. datum, determined by levels run in January 1950 and tied to a U.S.C. & G.S. bench mark elevation established in 1943. Elevations shown in bulletins prior to Water Bulletin No. 20 are erroneous.

DIVERSIONS FROM THE RIO GRANDE ON THE UNITED STATES SIDE BELOW RIO GRANDE CITY

The following table shows the revised cultivated area data in acres:

Bulletin No.	Page	Irrigated Acreage	Dry Farmed Acreage	Total Cultivated Acreage
15	59	501,595	45,820	547,415
16	54	533,659	70,076	603,735
17	57	553,826	40,891	594,717
18	56	588,720	36,663	625,383
19	58	612,521	47,722	660,243
20	59	607,523	43,948	651,471

MUNICIPAL WATER USES

During the months of August and September of 1951, the city of El Paso pumped water from wells near Canutillo, Texas into the Rio Grande. This water, minus transportation losses from Canutillo to El Paso, estimated by the United States Bureau of Reclamation, amounted to 166.8 acre-feet and is included in the revised figures for Water Bulletin No. 21, shown in the following table:

Month	ACRE-FEET		
	1951	Average	Maximum
August	758.9	752.1	1,128.5
September	1,010.1	666.3	1,010.1

DRAINAGE BASIN AND IRRIGATED AREAS

The following table shows the revisions of the drainage basin and irrigated area data for Water Bulletins Nos. 15 through 20.

DESIGNATIONS OF AREAS AND GAGING STATIONS	Drainage Basin Square Miles			Irrigated Areas—Acres			
	United States	Mexico	Total	United States	Mexico Primary	Mexico Secondary	Total
WATER BULLETIN NUMBER 15							
Above Zapata Station	86,815	67,611	154,426	215,791	394,378	43,484	653,653
El Tigre Arroyo, Above Gaging Station	261	0	261	0	0	0	0
Zapata to Falcón Dam Site, incl. above Trib.	945	169	1,114	[a] 2,273	0	0	
Above Falcón Dam Site	87,760	67,780	155,540	218,064	394,378	43,484	
Río Alamo Above Gaging Station	0	1,663	1,663	0	4,940	5,440	10,380
Falcón Dam Site to Roma, incl. Río Alamo	87	1,821	1,908	[b] 2,025	4,940	5,440	14,678
Above Roma Gaging Station	87,847	69,601	157,448	220,089	399,318	48,924	668,331
Roma to Rio Grande City				NO REVISION			
Rio Grande City to Lower Brownsville				[c] 544,415			
Above Lower Brownsville Station	88,968	82,919	171,887	[d] 767,504	552,446	[e] 203,938	1,523,888
Lower Brownsville to the Gulf of Mexico				Est. 3,000			
Above Gulf of Mexico				[d] 770,504			

[a] Includes 956 acres dry farmed. [b] Includes 200 acres dry farmed. [c] Includes 45,820 acres dry farmed.
[d] Includes 50,430 acres dry farmed. [e] Includes 87,804 acres dry farmed.

CORRECTIONS TO PREVIOUS WATER BULLETINS

DRAINAGE BASIN AND IRRIGATED AREAS

DESIGNATIONS OF AREAS AND GAGING STATIONS	Drainage Basin Square Miles			Irrigated Areas—Acres			
	United States	Mexico	Total	United States	Mexico		Total
					Primary	Secondary	
WATER BULLETIN NUMBER 16							
Above Zapata Station	86,815	67,611	154,426	219,926	386,976	50,414	657,316
El Tigre Arroyo, Above Gaging Station	261	0	261	0	0	0	0
Zapata to Falcón Dam Site, incl. above Trib.	945	169	1,114	a 2,273	0	0	2,273
Above Falcón Dam Site	87,760	67,780	155,540	222,199	386,976	50,414	659,589
Río Alamo Above Gaging Station	0	1,663	1,663	0	4,940	5,440	10,380
Falcón Dam Site to Roma, incl. Río Alamo	87	1,821	1,908	b 2,175	4,940	5,440	12,555
Above Roma Gaging Station	87,847	69,601	157,448	224,374	391,916	55,854	672,144
Roma to Rio Grande City				NO REVISION			
Rio Grande City to Lower Brownsville Station				c 600,735			
Above Lower Brownsville Station	88,968	82,919	171,887	d 828,699	542,336	e 219,929	1,590,964
Lower Brownsville Station to Gulf of Mexico				Est. 3,000			
Above Gulf of Mexico				d 831,699			
WATER BULLETIN NUMBER 17							
Above Zapata Station	86,815	67,611	154,426	125,061	391,413	50,409	566,883
El Tigre Arroyo, above Gaging Station	261	0	261	0	0	0	0
Zapata to Falcón Dam Site, incl. above Trib.	945	169	1,114	a 3,320	0	0	3,320
Above Falcón Dam Site	87,760	67,780	155,540	128,381	391,413	50,409	570,203
Río Alamo above Gaging Station	0	1,663	1,663	0	4,942	5,437	10,379
Falcón Dam Site to Roma, incl. Río Alamo	87	1,821	1,908	b 1,507	4,942	5,437	11,886
Above Roma Gaging Station	87,847	69,601	157,448	129,888	396,355	55,846	582,089
Roma to Rio Grande City				NO REVISION			
Rio Grande City to Lower Brownsville	443	458	901	c 550,650	65,977	0	616,627
Above Lower Brownsville	88,968	82,919	171,887	682,158	597,745	123,058	1,402,961
Lower Brownsville to Gulf of Mexico				3,176			
Above Gulf of Mexico				685,334			
WATER BULLETIN NUMBER 18							
Above Zapata Gaging Station	86,815	67,611	154,426	1,185,847	394,378	50,409	1,630,634
Zapata to Falcón Dam Site, Total	945	169	1,114	2,730	0	0	2,730
Above Falcón Dam Site	87,760	67,780	155,540	1,188,577	394,378	50,409	1,633,364
Río Alamo above Gaging Station	0	1,663	1,663	0	4,942	5,437	10,379
Falcón Dam Site to Roma, incl. Río Alamo	87	1,821	1,908	2,061	4,942	5,437	12,440
Above Roma Gaging Station	87,847	69,601	157,448	1,190,638	399,320	55,846	1,645,804
Roma to Rio Grande City				NO REVISION			
Rio Grande City to Lower Brownsville	443	458	901	585,220	63,753	0	648,973
Above Lower Brownsville Gaging Station	88,968	82,919	171,887	1,777,832	617,019	123,058	2,517,909
Lower Brownsville Station to Gulf				3,500			
Above Gulf of Mexico				1,781,332			
WATER BULLETIN NUMBER 19							
Rio Grande City to Lower Brownsville Station				608,021	93,653	0	701,674
Above Lower Brownsville Gaging Station				1,821,384	704,740	123,058	2,649,182
Lower Brownsville Station to Gulf of Mexico				4,500			
Above Gulf of Mexico				1,825,884			
WATER BULLETIN NUMBER 20							
Rio Grande City to Lower Brownsville	443	458	901	603,852	100,819	0	704,671
Above Lower Brownsville Station	88,968	82,919	171,887	1,810,972	772,447	119,845	2,703,264
Lower Brownsville to Gulf				3,671			
Above Gulf of Mexico				1,814,643			

a Includes 956 acres dry farmed. b Includes 200 acres dry farmed. c Includes 70,076 acres dry farmed.
d Includes 74,686 acres dry farmed. e Includes 96,865 acres dry farmed.

In addition to the irrigated areas the following areas were dry farmed in 1947: a 175 acres b 243 acres
c 40,891 acres