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CHEMICAL COMPOSITION OF TEXAS SURFACE WATERS, 1947

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United States Department of the Interior
Geological Survey
and others

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by

Burdge Irelan and James R. Avrett

Introduction

This report includes the analyses made by the Geological Survey of samples collected from streams in Texas during the year ended September 30, 1947. Quality of water records for previous years have been compiled in reports, "Chemical Composition of Texas Surface Waters, 1938-1945," by W. W. Hastings and J. H. Rowley, and "Chemical Composition of Texas Surface Waters, 1946" by W. W. Hastings and B. Irelan.

The analyses given herewith were made by the United States Geological Survey at Austin, Texas, in cooperation with the Texas Board of Water Engineers, Bureau of Reclamation, Corps of Engineers, Red Bluff Water Power Control District, Lower Colorado River Authority, Brazos River Conservation and Reclamation District, and other local groups.

The methods are those regularly in use and described in United States Water-Supply Paper 596-H, pages 236-261, 1928: "Notes on practical water analysis" by W. D. Collins. On the basis of specific electrical conductance, daily samples of similar composition were mixed together for analysis. At most stations three composites were made for each month as follows: samples for the first ten days, next ten days and the remainder of the month. For streams showing large changes in the quality of the water, composites were made more frequently, depending on the total salt content as indicated by measurement of the conductivity of the daily samples. For a few stations the compositing was done on a monthly basis.

Weighted average analyses are given for certain stations where sampling was considered adequate. The weighted average analysis approximates the composition of the water that would be stored in a reservoir holding all of the flow for the entire year. The analyses are reported in parts per million.

RED RIVER NEAR GAINESVILLE, TEXAS, October 1946 to May 1947

Analyses of samples collected at gaging station at bridge on U. S. Highway 77, a quarter of a mile downstream from Gulf, Colorado and Santa Fe Railway bridge, 5 miles downstream from Fish Creek, and 7 miles North of Gainesville. Drainage area 29,460 square miles.

Analyzed by Geological Survey — Parts per million

Date of collection	Specific conductance ($K \times 10^5$ at 25°C)	Chloride (Cl)	Date of collection	Specific conductance ($K \times 10^5$ at 25°C)	Chloride (Cl)	Date of collection	Specific conductance ($K \times 10^5$ at 25°C)	Chloride (Cl)
Oct. 1, 1946	337	800	Oct. 29, 1946	619		Nov. 26, 1946	560	
Oct. 2	341		Oct. 30	546	1,390	Nov. 27	538	
Oct. 3	371		Oct. 31	532		Nov. 28	566	
Oct. 4	407		Nov. 1	510	1,350	Nov. 29	566	
Oct. 5	448	1,110	Nov. 2	164		Nov. 30	538	1,370
Oct. 6	694		Nov. 3	194		Dec. 1	505	
Oct. 7	699		Nov. 4	196	485	Dec. 2	491	
Oct. 8	817	2,160	Nov. 5	196		Dec. 3	496	
Oct. 9	756		Nov. 6	296		Dec. 4	535	1,340
Oct. 10	521	1,220	Nov. 7	230		Dec. 5	528	
Oct. 11	499		Nov. 8	130		Dec. 6	528	
Oct. 12	486		Nov. 9	125	264	Dec. 7	526	
Oct. 13	482		Nov. 10	--		Dec. 8	241	760
Oct. 14	442		Nov. 11	353	890	Dec. 9	234	
Oct. 15	414	980	Nov. 12	353		Dec. 10	72.4	86
Oct. 16	429		Nov. 13	505		Dec. 11	68.4	
Oct. 17	394	920	Nov. 14	525	1,380	Dec. 12	67.3	
Oct. 18	436		Nov. 15	525		Dec. 13	62.7	108
Oct. 19	482		Nov. 16	511		Dec. 14	--	
Oct. 20	501	1,230	Nov. 17	523		Dec. 15	73.2	
Oct. 21	522	1,220	Nov. 18	523		Dec. 16	111	
Oct. 22	540		Nov. 19	544		Dec. 17	112	
Oct. 23	597		Nov. 20	557	1,410	Dec. 18	265	660
Oct. 24	592		Nov. 21	600	1,530	Dec. 19	332	810
Oct. 25	608		Nov. 22	591		Dec. 20	--	
Oct. 26	628		Nov. 23	594		Dec. 21	431	1,040
Oct. 27	676	1,740	Nov. 24	594		Dec. 22	431	
Oct. 28	634		Nov. 25	571	1,470	Dec. 23	429	

RED RIVER NEAR GAINESVILLE, TEXAS, October 1946 to May 1947
(Continued)

Analyzed by Geological Survey — Parts per million

Date of collection	Specific conductance ($K \times 10^5$ at 25°C)	Chloride (Cl)	Date of collection	Specific conductance ($K \times 10^5$ at 25°C)	Chloride (Cl)	Date of collection	Specific conductance ($K \times 10^5$ at 25°C)	Chloride (Cl)
Dec. 24, 1946	481		Jan. 23, 1947	695		Feb. 22, 1947	505	
Dec. 25	481		Jan. 24	686		Feb. 23	505	1,370
Dec. 26	493	1,220	Jan. 25	666		Feb. 24	485	
Dec. 27	493		Jan. 26	665		Feb. 25	485	
Dec. 28	480		Jan. 27	650		Feb. 26	485	
Dec. 29	481		Jan. 28	650		Feb. 27	493	
Dec. 30	493		Jan. 29	650		Feb. 28	493	
Dec. 31	524	1,270	Jan. 30	655		Mar. 1	508	1,390
Jan. 1, 1947	524	1,290	Jan. 31	633	1,630	Mar. 2	508	
Jan. 2	480		Feb. 1	636	1,640	Mar. 3	501	
Jan. 3	477		Feb. 2	630		Mar. 4	501	
Jan. 4	463		Feb. 3	630		Mar. 5	496	
Jan. 5	466		Feb. 4	630		Mar. 6	481	
Jan. 6	456	1,140	Feb. 5	616		Mar. 7	467	1,130
Jan. 7	460		Feb. 6	616		Mar. 8	494	
Jan. 8	482		Feb. 7	603	1,580	Mar. 9	494	
Jan. 9	482		Feb. 8	586		Mar. 10	494	
Jan. 10	482	1,190	Feb. 9	595		Mar. 11	493	
Jan. 11	492		Feb. 10	557	1,380	Mar. 12	508	
Jan. 12	482	1,220	Feb. 11	539	1,410	Mar. 13	508	
Jan. 13	482		Feb. 12	527		Mar. 14	489	
Jan. 14	507		Feb. 13	527		Mar. 15	510	
Jan. 15	507		Feb. 14	521		Mar. 16	508	
Jan. 16	575	1,460	Feb. 15	521		Mar. 17	510	
Jan. 17	608		Feb. 16	512		Mar. 18	483	
Jan. 18	608		Feb. 17	508		Mar. 19	473	1,230
Jan. 19	709		Feb. 18	502		Mar. 20	528	1,390
Jan. 20	735	1,970	Feb. 19	502	1,310	Mar. 21	529	
Jan. 21	711	1,850	Feb. 20	471	1,240	Mar. 22	471	1,180
Jan. 22	704		Feb. 21	471		Mar. 23	491	

RED RIVER NEAR GAINESVILLE, TEXAS, October 1946 to May 1947
(Continued)

Analyzed by Geological Survey — Parts per million

Date of collection	Specific conductance ($K \times 10^5$ at 25°C)	Chloride (Cl)	Date of collection	Specific conductance ($K \times 10^5$ at 25°C)	Chloride (Cl)	Date of collection	Specific conductance ($K \times 10^5$ at 25°C)	Chloride (Cl)
Mar. 24, 1947	558		Apr. 23, 1947	258	620	May 24, 1947	133	
Mar. 25	554		Apr. 24-25	--		May 25	95.3	
Mar. 26	596	1,550	Apr. 26	108		May 26	64.4	96.
Mar. 27	565		Apr. 27	102	214	May 27	156	
Mar. 28	568		Apr. 28	97.5		May 28	156	
Mar. 29	568		Apr. 29	90.1	182	May 29	159	
Mar. 30	548		Apr. 30	150		May 30	172	
Mar. 31	548	1,440	May 1	235	570	May 31	238	475
Apr. 1	265		May 2	242				
Apr. 2	261		May 3	238				
Apr. 3	153	345	May 4	242				
Apr. 4	150		May 5	307	770			
Apr. 5	181		May 6	307				
Apr. 6	181		May 7	261				
Apr. 7	128		May 8	226				
Apr. 8	126	258	May 9	162	400			
Apr. 9	257		May 10	193				
Apr. 10	271	645	May 11	195				
Apr. 11	310		May 12	200	420			
Apr. 12	403		May 13	356				
Apr. 13	408	1,090	May 14	318	700			
Apr. 14	175		May 15	248				
Apr. 15	168		May 16	178	330			
Apr. 16	114		May 17	127				
Apr. 17	112	230	May 18	185				
Apr. 18	172		May 19	170				
Apr. 19	181		May 20	122	192			
Apr. 20	154	336	May 21	106	178			
Apr. 21	161		May 22	132				
Apr. 22	187		May 23	138				

RED RIVER AT DENISON DAM, NEAR DENISON, TEXAS, October 1946 to September 1947

Analyses of composites of daily samples collected immediately below dam on Red River, 1.7 miles upstream from Sand Creek and 5 miles north of Denison. Discharge records reported are for gaging station at old highway toll bridge 1.3 miles downstream from Sand Creek, 2 miles south of Colbert, Oklahoma. No appreciable inflow between dam and gaging station except during periods of heavy local rains. Drainage area 38,700 square miles above gaging station.

Analyzed by Geological Survey

Parts per million

Date of collection	Mean discharge (second feet)	Specific conductance ($K \times 10^5$ at 25°C)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na+K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride Cl)	Nitrate (NO_3)	Dissolved Solids Parts per million	Dissolved Solids Tons per acre foot	Dissolved Solids Tons per day	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Non-carbonate	Per cent sodium
Oct. 1-10, 1946	2,528	107	70	23	116	163	120	185	1.5	644	0.88	4,400	269	136	48
Oct. 11-19	4,330	111	75	25	115	162	126	195	1.5	648	.88	7,580	290	157	46
Oct. 20-31	2,347	229	143	34	298	145	321	490	1.5	1360	1.85	8,620	497	378	57
Nov. 1-10	4,445	189	115	30	239	152	248	388	.5	1100	1.50	13,200	410	286	56
Nov. 11-20	5,115	142	90	26	172	160	176	278	.8	957	1.30	13,200	332	200	53
Nov. 21-30	5,060	129	84	25	160	161	161	255	2.0	822	1.12	11,200	312	180	53
Dec. 1-10	4,974	136	86	25	160	159	159	250	1.2	800	1.09	10,700	318	187	51
Dec. 11-20	12,700	136	89	26	147	158	158	250	1.5	814	1.11	27,900	329	199	49
Dec. 21-31	16,270	138	90	25	152	160	165	250	1.5	795	1.08	34,900	328	196	50
Jan. 1-10, 1947	5,275	139	88	24	150	157	154	250	1.8	779	1.06	11,100	318	189	51
Jan. 11-20	5,165	135	86	24	153	158	162	245	2.0	772	1.05	10,800	313	184	51
Jan. 21-31	4,943	133	88	24	148	156	159	245	1.2	750	1.02	10,000	318	190	50
Feb. 1-10	4,864	131	88	23	148	154	157	245	.5	740	1.01	9,720	314	188	51
Feb. 11-19	4,353	133	83	24	154	155	164	242	1.8	758	1.03	8,910	306	178	52
Feb. 20-28	3,661	126	80	24	148	154	160	232	.8	722	.98	7,140	298	172	52
Mar. 1-10	2,323	122	82	26	134	151	153	226	.0	728	.99	4,570	312	188	48
Mar. 11-20	2,208	122	87	27	129	149	154	232	.0	734	1.00	4,380	328	206	46
Mar. 21-31	1,996	126	84	24	143	149	151	240	1.0	772	1.05	4,160	308	186	50
Apr. 1-10	2,314	125	85	24	150	128	145	268	2.5	779	1.06	4,870	310	206	51
Apr. 11-20	5,400	125	85	24	150	151	149	252	1.2	766	1.04	11,200	310	186	51
Apr. 21-30	11,240	123	88	24	144	152	150	246	3.0	805	1.09	24,400	318	194	50
May 1-10	7,506	123	86	24	134	152	146	231	3.0	773	1.05	15,700	313	188	48
May 11-20	8,503	139	89	24	161	151	158	269	2.8	844	1.15	19,400	320	196	52
May 21-31	49,670	137	91	25	147	147	154	260	3.0	801	1.09	107,000	330	210	49

RED RIVER AT DENISON DAM, NEAR DENISON, TEXAS, October 1946 to September 1947
(Continued)

Analyzed by Geological Survey — Parts per million

Date of collection	Mean discharge (second feet)	Specific conductance (Kx10^5 at 25°C)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na+K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Dissolved solids: Parts per million	Dissolved solids: Tons per acre foot	Dissolved solids: Tons per day	Hardness as $CaCO_3$: Total	Hardness as $CaCO_3$: Non-carbonate	Per cent sodium
June 1-30, 1947	26,080	133	90	22	143	140	167	238	1.8	804	1.09	56,600	315	200	50
July 1-31	4,217	123	94	21	136	140	166	232	3.0	776	1.06	8,840	321	206	48
Aug. 1-31	2,335	130	94	22	150	135	188	242	2.2	829	1.13	5,230	325	214	50
Sept. 1-30	2,314	129	88	24	149	136	185	238	2.0	791	1.08	4,940	318	206	50
Weighted average	7,923	134	90	24	149	148	164	250	2.0	805	1.09	17,200	323	202	50

WASHITA RIVER NEAR DURWOOD, OKLAHOMA, October 1946 to December 1947

Analyses of samples collected at gaging station at Mulkey Bridge on State Highway 18, 1½ miles downstream from Caddo Creek and 4 miles north of Durwood.

Analyzed by Geological Survey — Parts per million

Date of collection	Specific conductance ($K \times 10^5$ at 25°C)	Chloride (Cl)	Date of collection	Specific conductance ($K \times 10^5$ at 25°C)	Chloride (Cl)	Date of collection	Specific conductance ($K \times 10^5$ at 25°C)	Chloride (Cl)
Oct. 1, 1946	88.0	64	Oct. 28, 1946	88.5		Nov. 24, 1946	95.3	
Oct. 2	97.0		Oct. 29	94.1	64	Nov. 25	97.0	61
Oct. 3	100		Oct. 30	89.8		Nov. 26	85.8	
Oct. 4	98.7	58	Oct. 31	--		Nov. 27	92.2	63
Oct. 5	98.7		Nov. 1	94.5	58	Nov. 28	92.2	
Oct. 6	101		Nov. 2	90.8		Nov. 29	94.0	
Oct. 7	93.6		Nov. 3	93.5		Nov. 30	105	
Oct. 8	93.6		Nov. 4	35.8	20	Dec. 1	90.6	74
Oct. 9	94.7		Nov. 5	66.2		Dec. 2	101	
Oct. 10	115	126	Nov. 6	56.0		Dec. 3	92.0	
Oct. 11	113		Nov. 7	44.2	24	Dec. 4	112	
Oct. 12	122	138	Nov. 8	47.8		Dec. 5	102	
Oct. 13	113		Nov. 9	43.1				
Oct. 14	107	82	Nov. 10	70.5	40			
Oct. 15	111		Nov. 11	67.7				
Oct. 16	59.2		Nov. 12	62.6	30			
Oct. 17	73.4		Nov. 13	79.7				
Oct. 18	74.3		Nov. 14	89.3	56			
Oct. 19	73.1		Nov. 15	85.6				
Oct. 20	71.8	28	Nov. 16	77.5				
Oct. 21	61.1	30	Nov. 17	84.0				
Oct. 22	65.3		Nov. 18	81.9	44			
Oct. 23	68.3		Nov. 19	83.6				
Oct. 24	72.1		Nov. 20	84.2				
Oct. 25	77.3		Nov. 21	111	56			
Oct. 26	79.5	46	Nov. 22	94.0				
Oct. 27	81.6		Nov. 23	92.2				

ANALYSES OF SPOT SAMPLES COLLECTED AT VARIOUS POINTS IN RED RIVER BASIN IN TEXAS

Analyzed by Geological Survey — Parts per million

Date of collection	Specific conductance ($K \times 10^5$ at 25° C)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na+K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Dissolved Solids	Total Hardness as $CaCO_3$
Elm Creek near Shamrock, Texas										
Sept. 30, 1946	141	212	37	60	162	525	92	2.2	1,010	681
Oct. 26 a/	112	--	--	--	277	305	82	9.0	--	--
Oct. 26 b/	105	139	31	57	306	230	70	11	743	474
Oct. 26 c/	162	260	36	104	262	655	90	.0	1,270	797
Oct. 26 d/	132	--	--	--	194	471	98	2.8	--	--
Oct. 26 e/	124	169	29	100	241	403	98	5.0	923	541
Nov. 25	132	178	31	70	260	352	94	14	998	572
Dec. 16	124	156	28	73	196	359	90	4.0	864	504
Feb. 13, 1947	123	173	35	54	242	343	95	3.8	908	576
Apr. 8	122	161	28	81	248	342	92	5.0	891	517
May 6	124	151	28	78	204	351	90	1.2	898	492
June 12	122	181	31	38	264	310	83	7.4	853	579
July 7	121	--	--	--	--	--	95	--	--	--
Aug. 12	125	162	29	71	208	351	97	5.5	943	524
Quitaque Creek near Quitaque, Texas										
Oct. 12, 1946	50.8	37	16	42	214	20	34	5.6	298	158
Oct. 15	75.1	37	35	67	312	40	60	.8	445	236
Nov. 15	80.9	38	39	65	335	35	60	.2	452	256
Low Water Pools on Mountain Creek, near Childress, Texas, Hall County										
Sept. 13, 1947	378	167	75	641	288	974	615	2.0	2,620	726
Sulphur River near Darden, Texas										
Sept. 5, 1947	442	76	125	658	114	290	1,230	4.5	2,440	704
Sept. 6	179	49	13	284	96	116	420	2.2	978	176
Sept. 7-10	113	43	9.2	164	102	77	240	1.2	623	146
Sept. 11-15	84.3	34	6.1	132	99	62	177	1.2	485	110
Sept. 16-19	100	35	12	142	83	66	218	3.2	585	137
Sept. 20,22-23	159	30	15	262	63	125	371	1.8	884	136
Sept. 21	319	49	18	610	81	218	870	2.5	1,810	196
Sept. 24-30	81.2	27	4.7	134	80	79	162	2.2	478	87

a/ SE Corner Sec. 87 Blk 16, upstream from spring
b/ Center Sec. 87 Blk 16, upstream at forks
c/ SE corner Sec. 87 Blk 16, from spring
d/ NW corner Sec. 84 Blk 16, above Hwy. bridge
e/ NW corner Sec. 75 Blk 16.

NECHES RIVER NEAR ROCKLAND, TEXAS, October 1946 to September 1947

Analyses of composites of daily samples collected near gaging station on U. S. Highway 69, one mile north of Rockland, 1/2 mile upstream from Texas and New Orleans Railroad Bridge.

Analyzed by Geological Survey — Parts per million

Date of collection	Mean discharge (second feet)	Specific conductance ($K \times 10^5$ at 25° C)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na+K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Dissolved Solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Non-carbonate
Oct. 1-31, 1946	968	16.8	9.3	4.1	15	26	16	24	1.0	129	40	19
Nov. 1-3	968	18.3	9.2	4.2	21	29	18	31	.8	136	40	16
Nov. 4-30	10,440	8.6	4.9	2.2	18	37	11	13	.5	95	21	0
Dec. 1-31	5,606	14.4	8.1	4.1	14	21	19	22	.2	126	37	20
Jan. 1-31, 1947	10,550	12.1	7.7	4.5	7.9	18	18	15	.5	117	38	23
Feb. 1-28	4,059	21.2	11	4.8	36	58	33	30	.5	156	47	0
Mar. 1-10	3,323	21.3	12	5.0	19	0	31	42	.0	158	50	50
Mar. 11-31	10,810	11.7	7.8	3.4	7.3	14	16	15	.0	101	33	22
Apr. 1-30	4,073	20.0	12	4.9	20	35	22	29	.2	138	50	21
May 1-17, 19	4,126	17.3	10	4.4	19	38	15	26	2.0	124	43	12
May 18, 20-31	8,842	10.5	6.0	3.1	13	27	13	14	.2	101	28	6
June 1-12	6,395	13.0	9.8	4.1	8.8	30	12	16	1.0	122	41	17
June 13-30	1,685	19.3	12	5.4	21	50	18	26	2.0	158	52	11
July 1-31	768	22.3	12	6.0	21	34	20	33	1.0	161	50	23
Aug. 1-31	163	24.7	14	5.9	29	49	14	48	.8	156	59	19
Sept. 1-30	144	22.8	11	4.6	27	51	11	37	.8	154	46	5
Weighted average	4,497	13.7	8.2	3.9	15	28	17	19	.5	118	36	14

ANALYSES OF SPOT SAMPLES COLLECTED AT VARIOUS POINTS IN NECHES RIVER BASIN IN TEXAS

Analyzed by Geological Survey — Parts per million

Date of collection	Specific conductance ($K \times 10^5$ at 25 °C)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na+K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Dissolved Solids	Total Hardness as $CaCO_3$
Neches River at Evadale, Texas										
Aug. 25, 1947	23.6	13	4.7	29	48	9.7	46	0.2	140	52
Sept. 21-25, 27-30	22.5	11	2.8	35	53	20	36	1.2	151	39
Village Creek near Beaumont, Texas										
Aug. 25, 1947	7.7	--	--	--	9.0	2.0	14	--	--	7.5

TRINITY RIVER AT ROMAYOR, TEXAS, October 1946 to September 1947

Analyses of composites of daily samples collected at bridge of Gulf, Colorado and Santa Fe Railway, 1/4 mile west of Romayor and 2-1/2 miles downstream from Big Creek.

Analyzed by Geological Survey — Parts per million

Date of collection	Mean discharge (second-feet)	Specific conductance ($K \times 10^5$ at 25°C)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na+K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Dissolved Solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Non-carbonate
Oct. 1-10, 1947	1,320	63.9	53	6.1	67	146	35	104	1.2	355	158	38
Oct. 11-12,14,17-20	1,056	60.2	40	5.9	76	139	33	99	2.5	334	124	10
Oct. 13, 15-16	1,039	110	51	7.0	146	158	38	215	3.0	585	156	27
Oct. 21-25	1,305	73.2	49	6.5	97	138	40	145	1.5	422	149	36
Oct. 26-31	1,695	43.7	31	5.2	56	115	26	70	1.5	289	99	4
Nov. 1-3	1,177	40.5	32	4.1	53	115	19	69	2.0	257	97	2
Nov. 4-6,10	29,250	21.4	20	2.8	23	78	16	21	.5	184	61	0
Nov. 7-9	34,500	10.5	18	4.0	13	64	13	16	1.0	161	61	9
Nov. 11-20	29,730	24.3	29	3.5	17	90	21	20	.5	170	87	13
Nov. 21-30	30,380	28.3	36	3.6	19	108	24	22	1.0	194	105	16
Dec. 1-10	7,824	36.4	38	3.5	32	105	27	44	2.0	235	109	23
Dec. 11-20	10,520	32.3	41	2.9	24	119	30	26	2.2	220	114	17
Dec. 21-31	19,780	30.6	46	2.7	17	131	28	18	2.0	213	126	19
Jan. 1-10, 1947	19,240	27.0	31	3.9	26	106	22	27	2.2	201	93	7
Jan. 11-20	19,140	25.9	23	3.8	27	72	27	30	3.0	196	73	14
Jan. 21-31	19,960	35.0	34	5.2	33	112	41	29	3.0	229	106	14
Feb. 1-10	5,470	52.4	60	7.4	38	159	54	52	2.2	315	180	50
Feb. 11-19	3,690	55.5	60	7.8	49	164	56	66	3.0	346	182	47
Feb. 20-28	6,192	52.1	48	7.0	58	146	53	69	4.0	363	149	30
Mar. 1-10	4,468	51.3	50	8.6	46	121	59	68	3.5	333	160	62
Mar. 11-13,20,24-31	12,660	43.2	43	6.9	39	99	51	60	3.2	292	136	54
Mar. 14-19,21-23	31,600	28.6	29	4.6	22	79	31	30	1.0	204	91	26

TRINITY RIVER AT ROMAYOR, TEXAS, October 1946 to September 1947
(Continued)

Analyzed by Geological Survey — Parts per million

Date of collection	Mean discharge (second-feet)	Specific conductance ($K \times 10^5$ at 25°C)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na+K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Dissolved Solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Non-carbonate
Apr. 1-10, 1947	4,653	63.7	59	7.5	54	157	60	65	15	375	178	50
Apr. 11-16	5,702	72.8	66	8.3	64	127	65	113	8.5	463	198	94
Apr. 17-25	16,590	33.2	35	3.8	25	114	23	26	4.0	196	103	10
Apr. 26-30	15,950	46.0	43	4.7	49	138	45	47	7.8	292	127	14
May 1-10	4,605	59.1	58	6.8	54	164	52	69	3.8	341	172	38
May 11-13	4,453	56.3	54	6.7	47	140	49	68	5.2	329	162	48
May 14-19	13,190	18.2	16	2.7	19	66	9.5	18	3.0	137	51	0
May 20-26	27,690	29.0	29	4.1	24	87	23	31	3.2	202	89	18
May 27-31, June 1-6	6,295	40.0	31	4.6	34	94	18	48	8.9	226	96	19
June 7-10	3,562	65.1	44	7.0	72	130	36	105	4.5	366	139	32
June 11-20	1,737	62.1	53	6.7	52	154	35	74	8.8	349	160	34
June 21-30	5,808	57.2	49	7.4	56	148	52	70	.0	343	153	32
July 1-10	9,115	48.0	50	5.7	36	146	42	43	2.0	302	148	29
July 11-20	1,601	54.0	52	5.9	51	152	35	65	3.5	319	154	30
July 21-31	999	71.7	56	6.7	75	158	49	104	4.0	413	168	38
Aug. 1-10	876	91.8	65	8.7	107	168	47	167	9.7	524	198	60
Aug. 11-20	910	82.8	53	6.9	104	164	47	141	5.6	470	161	26
Aug. 21-31	1,083	80.3	43	7.2	114	166	53	137	.5	453	137	1
Sept. 1-4	3,470	76.5	44	7.3	97	134	49	128	12	428	140	30
Sept. 5-10	5,240	53.5	52	5.7	46	144	51	56	5.3	304	154	36
Sept. 11-20	2,118	59.0	54	5.4	61	170	49	70	.5	360	157	18
Sept. 21-30	2,339	60.2	58	5.0	53	151	51	71	5.2	360	165	41
Weighted average	9,681	35.1	36	4.6	31	108	32	37	2.7	235	109	20

ANALYSES OF SPOT SAMPLES COLLECTED AT VARIOUS POINTS IN TRINITY RIVER BASIN IN TEXAS

Analyzed by Geological Survey — Parts per million

Date of collection	Specific conductance ($K \times 10^5$ at 25° C)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na+K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Dissolved Solids	Total Hardness as $CaCO_3$
				Trinity River near Oakwood, Texas						
Sept. 4-10, 1947	44.6	50	5.1	35	148	40	40	3.3	296	146
Sept. 11-20	57.7	50	5.0	55	146	49	65	5.0	332	146
Sept. 21-30	58.3	49	6.3	59	148	54	68	5.2	350	148
		Trinity River at Devers pumping plant, near Moss Bluff, Texas, Station 4								
Oct. 1-8, 1946	55.7	53	6.5	59	162	29	88	1.5	342	159
July 1-10, 1947	40.3	48	5.2	27	123	47	34	2.8	262	141
July 11-20	48.7	--	--	--	--	--	--	--	--	--
July 21-31	59.9	--	--	--	--	--	--	--	--	--
Aug. 1-10	70.6	64	6.5	74	188	42	105	.5	396	186
Aug. 11-20	78.1	--	--	--	--	--	--	--	--	--
Aug. 21-31	76.1	--	--	--	--	--	--	--	--	--
Sept. 6	94.0	58	8.5	128	171	65	168	16	580	180
Sept. 11-20	48.6	--	--	--	--	--	52	--	--	--
		Trinity River at Barber Hill pumping plant, near Cove, Texas, Station 3								
Oct. 1-10, 1946	47.4	44	7.3	45	161	11	66	.5	280	140
Oct. 11-16	51.0	47	7.2	48	162	17	71	1.0	296	147
Aug. 24-25, 1947	142	64	20	188	144	77	320	1.0	799	242
Aug. 26-31	64.0	44	7.9	70	127	20	119	1.5	396	142
Sept. 1	102	--	--	--	--	--	226	--	--	--
Sept. 2	99.4	--	--	--	--	--	--	--	--	--
Sept. 3	111	--	--	--	--	--	--	--	--	--
Sept. 4	121	--	--	--	--	--	268	--	--	--
Sept. 5	114	--	--	--	--	--	--	--	--	--
Sept. 6	75.9	--	--	--	--	--	132	--	--	--
Sept. 7	80.7	--	--	--	--	--	--	--	--	--
Sept. 8	54.6	--	--	--	--	--	--	--	--	--
Sept. 9	54.1	--	--	--	--	--	72	--	--	--
Sept. 10	56.4	--	--	--	--	--	--	--	--	--
Sept. 14-20	107	55	15	130	128	60	222	1.5	617	199
Sept. 23-24	55.2	54	6.3	51	174	29	70	.8	385	161

ANALYSES OF SPOT SAMPLES COLLECTED AT VARIOUS POINTS IN TRINITY RIVER BASIN IN TEXAS
(Continued)

Analyzed by Geological Survey — Parts per million

Date of collection	Specific conductance ($K \times 10^5$ at 25° C)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na+K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Dissolved Solids	Total Hardness as $CaCO_3$
				Trinity River at Anahuac, Texas, Station 1						
Aug. 2-3, 1947	339	69	67	534	137	160	942	1.5	1,840	448
Aug. 4-10	123	54	19	166	132	63	282	4.0	716	213
Aug. 11-20 a/	90.9	61	10	109	181	50	161	2.0	533	193
Aug. 11-12,15-20 b/	107	61	13	138	177	57	212	2.0	624	206
Aug. 13-14 b/	250	73	45	377	165	114	660	2.5	1,350	367
Aug. 21-24,27-31	131	46	20	191	120	62	318	1.5	736	197
Aug. 25 a/	753	118	218	1,770	132	469	3,150	--	5,790	1,190
Aug. 25-26 b/	421	88	86	677	131	193	1,230	3.0	2,340	573
Sept. 1-10	108	42	16	152	108	53	252	2.5	625	171
Sept. 11-18a/11-15 b/	87.9	39	12	116	105	43	190	1.2	522	147

a/ a.m. samples
b/ p.m. samples

SAN JACINTO RIVER NEAR HUFFMAN, TEXAS, October 1946 to September 1947

Analyses of composites of daily samples collected at the Sheldon Pumping Plant of the City of Houston, 5½ miles downstream from the Huffman gaging station, located at Beaumont, Sour Lake and Western Railway Bridge, 0.4 mile downstream from confluence of East and West Forks of San Jacinto River and 3.4 miles southwest of Huffman.

Analyzed by Geological Survey — Parts per million

Date of collection	Specific conductance ($K \times 10^5$ at 25° C)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na+K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Dissolved Solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Non-carbonate
Oct. 1-5,8-10, 1946	38.9	22	3.5	55	63	5.8	92	1.0	259	69	18
Oct. 11, 18-20	36.4	18	4.4	53	60	7.0	86	2.0	234	63	14
Oct. 13-17	21.5	9.4	3.0	38	47	8.0	50	1.0	145	36	0
Dec. 2-10	26.3	20	3.2	29	59	5.2	50	1.0	191	63	15
Dec. 11-20	26.2	20	3.6	29	51	5.0	57	.8	208	65	23
Dec. 21-31	32.1	24	4.1	37	69	4.2	67	1.0	231	77	20
Jan. 1-10, 1947	15.1	12	29	14	38	4.5	26	.8	135	42	11
Jan. 11-15,17-20	14.3	11	2.9	14	38	5.6	23	.8	144	39	8
Jan. 21-28, 31	15.1	13	3.8	11	38	5.8	24	.8	142	48	17
Feb. 1-10	31.0	22	3.8	34	64	6.1	60	.5	223	70	18
Feb. 11-19	36.3	25	3.5	40	67	6.8	72	1.0	213	77	22
Feb. 20-28	39.8	26	3.4	48	69	7.7	84	.8	234	79	22
Mar. 1-7,9-13	40.6	29	4.7	45	74	6.5	86	.8	256	92	31
Mar. 14-18	15.8	13	3.6	13	34	7.0	28	.5	157	47	19
Mar. 21-31	27.5	23	4.4	27	56	7.0	57	1.2	215	76	30
Apr. 1-10	38.4	28	3.9	41	82	6.9	72	.0	243	86	19
Apr. 11-20	44.6	31	4.2	52	89	6.7	90	.0	276	95	22
Apr. 21-30	45.2	28	4.1	55	82	6.9	93	.2	270	87	20
May 1-10	46.0	30	4.5	61	86	8.0	104	1.0	269	93	23
May 11-18	50.6	27	4.5	63	74	5.3	111	.5	288	86	25
May 19-21,23-31	21.2	15	3.5	24	53	4.5	39	.5	157	52	8

SAN JACINTO RIVER NEAR HUFFMAN, TEXAS, October 1946 to September 1947
(Continued)

Analyzed by Geological Survey — Parts per million

Date of collection	Specific conductance ($K \times 10^5$ at 25° C)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na+K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Dissolved Solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Non-carbonate
June 1-4, 1947	22.5	16	3.8	35	72	8.0	46	0.2	172	56	0
June 5-10	38.1	23	4.0	44	73	4.4	75	.0	232	74	14
June 11-19	43.4	27	4.5	49	82	4.6	86	.0	264	86	19
June 21-26,28,30	40.4	20	3.6	54	62	4.2	90	.2	253	65	14
July 2-5,9-10	43.4	27	4.6	52	76	4.9	94	.5	260	86	24
July 6-8	77.3	29	5.4	115	74	5.6	196	.5	440	94	34
July 11,13-15,17-19	46.5	24	4.2	66	68	4.4	105	.8	271	77	21
July 21-30	49.8	26	4.0	65	73	5.1	112	.2	296	81	22
Aug. 1-10	50.5	29	4.4	65	79	4.6	114	.5	284	90	26
Aug. 11-20	59.2	29	5.8	78	79	6.3	138	1.0	347	96	32
Aug. 21,25,28-30	74.2	28	7.3	113	73	9.4	195	.5	426	100	40
Aug. 22-24,26-27,31	54.0	23	4.6	76	66	4.4	129	.5	298	76	22
Sept. 1-6, 9-10	50.9	23	4.6	71	70	5.5	119	.8	278	76	19
Sept. 11-20	56.3	28	5.3	75	78	6.4	131	.8	328	92	28
Sept. 21-26	57.5	23	3.9	81	64	4.1	137	.8	326	74	21
Sept. 27-29	124	30	18	187	76	32	325	.8	710	149	86

BRAZOS RIVER NEAR SOUTH BEND, TEXAS, October 1946 to September 1947

Analyses of composites of daily samples collected at gaging station at bridge on Texas Highway No. 67, 0.3 mile upstream from Wichita Falls and Southern Railroad Bridge, 1.6 miles downstream from Clear Fork of Brazos River, and 2.0 miles northeast of South Bend.

Analyzed by Geological Survey

Parts per million

Date of collection	Mean discharge (second-feet)	Specific conductance ($K \times 10^5$ at 25°C)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na+K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Dissolved Solids: Parts per million	Dissolved Solids: Tons per acre foot	Dissolved Solids: Tons per day	Hardness as $CaCO_3$: Total	Hardness as $CaCO_3$: Non-carbonate	Per cent sodium
Oct. 1-2,6-10, 1946	1,707	320	209	28	446	100	514	700	1.5	1,950	2.65	8,990	636	554	60
Oct. 3-5	692	621	393	46	938	96	975	1,500	2.0	3,900	5.30	7,290	1,170	1,090	64
Oct. 11-16	4,623	135	126	17	137	98	291	210	2.2	892	1.21	11,100	384	304	44
Oct. 17-20	555	230	164	20	311	103	391	478	2.2	1,420	1.93	2,130	492	407	58
Oct. 21-25	238	411	227	38	604	125	528	980	3.0	2,440	3.32	1,570	722	620	65
Oct. 26-31	110	613	298	55	1,000	122	728	1,620	1.0	3,760	5.11	1,120	970	870	69
Nov. 1-2	476	698	340	65	1,130	120	807	1,860	1.5	4,260	5.79	5,470	1,120	1,020	69
Nov. 3,8,10	1,704	187	102	21	245	103	153	445	1.8	1,020	1.39	4,690	341	256	61
Nov. 4,7	3,519	115	68	12	146	96	101	248	2.0	657	.89	6,240	218	140	59
Nov. 5-6	1,710	62.5	44	9.0	66	107	33	118	2.0	361	.49	1,670	147	60	49
Nov. 9	442	331	153	30	515	105	360	825	1.5	1,940	2.64	2,320	506	420	69
Nov. 11-14	215	325	181	34	470	127	379	790	2.0	1,920	2.61	1,110	592	488	63
Nov. 15-20	99.8	598	312	60	946	151	672	1,600	1.0	3,670	4.99	989	1,020	901	67
Nov. 21-26,28-30	85.3	747	338	67	1,300	150	777	2,130	.5	4,690	6.38	1,080	1,120	996	72
Nov. 27	122	339	157	31	542	105	301	920	1.0	2,000	2.72	659	520	434	69
Dec. 1-10	82.9	675	318	63	1,120	150	724	1,830	2.0	4,140	5.63	927	1,050	930	69
Dec. 11	3,280	568	289	62	836	135	679	1,400	2.5	3,340	4.54	29,600	976	865	65
Dec. 12-15	5,550	143	91	21	156	110	165	275	3.2	852	1.16	12,800	314	224	52
Dec. 16-17	1,140	286	134	32	423	97	331	680	2.2	1,650	2.24	5,080	466	386	66
Dec. 18-20	647	462	220	41	689	92	536	1,120	3.0	2,650	3.60	4,630	718	642	68
Dec. 21-31	270	599	282	49	983	147	657	1,570	1.0	3,630	4.94	2,650	906	785	69

BRAZOS RIVER NEAR SOUTH BEND, TEXAS, October 1946 to September 1947
(Continued)

Analyzed by Geological Survey — Parts per million

Date of collection	Mean discharge (second-feet)	Specific conductance ($K \times 10^5$ at 25°C)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na+K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Dissolved Solids: Parts per million	Dissolved Solids: Tons per acre foot	Dissolved Solids: Tons per day	Hardness as $CaCO_3$: Total	Hardness as $CaCO_3$: Non-carbonate	Per cent sodium
Jan. 1-10, 1947	132	677	334	66	1,100	173	713	1,860	2.5	4,160	5.66	1,480	1,100	963	68
Jan. 11-20	129	906	378	81	1,600	172	887	2,620	--	5,650	7.68	1,970	1,280	1,140	73
Jan. 21-31	76.0	1,030	412	89	1,880	144	912	3,130	--	6,490	8.83	1,330	1,390	1,280	75
Feb. 1-10	41.8	1,100	472	101	1,980	163	998	3,350	--	6,980	9.49	788	1,590	1,460	73
Feb. 11-19	34.3	1,040	464	104	1,830	171	1,020	3,100	--	6,600	8.98	611	1,590	1,450	72
Feb. 20-28	35.9	981	456	100	1,710	163	999	2,900	--	6,250	8.50	606	1,550	1,420	71
Mar. 1-10	36.4	937	442	111	1,610	152	960	2,720	--	5,920	8.05	582	1,460	1,340	71
Mar. 11-20	65.0	883	404	95	1,480	150	841	2,560	1.0	5,450	7.41	956	1,400	1,280	70
Mar. 21-31	78.2	934	388	96	1,580	132	736	2,800	--	5,660	7.70	1,200	1,380	1,270	71
Apr. 1-10	39.0	1,060	456	111	1,840	132	928	3,200	--	6,600	8.98	695	1,590	1,490	71
Apr. 11-16	62.3	1,280	530	127	2,290	110	1,240	3,860	--	8,100	11.02	1,360	1,840	1,750	73
Apr. 17-20	113	984	432	103	1,640	122	821	2,920	--	5,980	8.13	1,820	1,500	1,400	70
Apr. 21-30	61.3	938	404	97	1,610	141	920	2,720	--	5,820	7.92	963	1,410	1,290	71
May 1-7	29.9	1,180	494	115	2,120	147	1,020	3,640	--	7,460	10.15	602	1,710	1,590	73
May 8-9	2,904	558	246	55	911	130	395	1,630	5.0	3,310	4.50	26,000	840	734	70
May 10-12,15-17, 19-20	10,860	125	114	17	138	80	237	240	3.6	843	1.15	24,700	354	289	46
May 13-14,18	26,570	231	204	25	285	98	473	465	2.8	1,500	2.04	108,000	612	532	50
May 21-24	8,542	161	142	20	168	134	271	288	4.5	960	1.31	22,100	436	326	46
May 25-27	11,340	86.3	83	10	78	120	141	120	2.8	540	.73	16,500	248	150	41
May 28-31	1,418	308	237	31	395	135	514	660	2.8	1,910	2.60	7,310	719	608	54

BRAZOS RIVER NEAR SOUTH BEND, TEXAS, October 1946 to September 1947
(Continued)

Analyzed by Geological Survey

Date of collection	Mean discharge (second-feet)	Specific conductance ($K \times 10^5$ at 25°C)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na+K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Parts per million: Dissolved Solids: Parts per million	Dissolved Solids: Tons per acre foot	Dissolved Solids: Tons per day	Hardness as $CaCO_3$: Total	Hardness as $CaCO_3$: Non-carbonate	Per cent sodium
June 1-10, 1947	483	590	346	62	909	145	825	1,500	2.2	3,720	5.06	4,850	1,120	1,000	64
June 11-15	272	822	464	94	1,300	145	1,070	2,230	2.5	5,230	7.11	3,840	1,540	1,430	65
June 16-19	526	498	261	56	773	155	523	1,340	2.5	3,030	4.12	4,300	882	755	66
June 20-27	984	580	339	65	859	127	756	1,480	3.0	3,560	4.84	9,460	1,110	1,010	63
June 28-30	728	383	220	38	558	125	568	865	5.0	2,320	3.16	4,560	705	602	63
July 1-10	164	593	320	61	903	118	785	1,470	.5	3,610	4.91	1,600	1,050	953	64
July 11-18	98.1	733	376	80	1,130	125	894	1,910	1.0	4,450	6.05	1,180	1,270	1,160	66
July 19-20	110	1,060	516	108	1,840	123	1,240	3,080	—	6,840	9.30	2,030	1,730	1,630	70
July 21-24	63.0	1,060	564	107	1,730	122	1,440	2,840	—	6,740	9.17	1,150	1,850	1,750	67
July 25-31	47.6	655	394	71	979	116	1,010	1,600	1.5	4,110	5.59	528	1,280	1,180	63
Aug. 1-10	8.29	808	492	96	1,260	126	1,240	2,100	2.5	5,250	7.14	118	1,620	1,520	63
Aug. 11-20	.51	794	466	93	1,250	122	1,120	2,120	1.0	5,110	6.95	7.0	1550	1,450	64
Aug. 21-31	.02	870	456	107	1,420	120	1,160	2,380	—	5,580	7.59	.3	1580	1,480	66
Sept. 1-10	.00	932	480	107	1,530	114	1,130	2,620	—	5,920	8.05	.0	1640	1,540	67
Sept. 11-14	53.0	927	472	108	1,540	122	1,040	2,680	—	5,900	8.02	844	1,620	1,520	67
Sept. 15-16	457	90.0	69	16	87	167	73	150	2.2	527	.72	650	238	101	44
Sept. 17	112	354	194	44	525	131	445	875	3.2	2,150	2.92	650	665	558	63
Sept. 18-20	81.0	695	426	89	1,090	127	1,100	1,800	3.0	4,570	6.22	999	1,430	1,320	62
Sept. 21-30	17.3	577	406	74	827	108	1,050	1,370	3.0	3,780	5.14	177	1,320	1,230	58
Weighted average	1,032	231	165	26	308	106	358	514	3.0	1,450	1.97	4,040	519	432	56

BRAZOS RIVER AT POSSUM KINGDOM DAM, NEAR GRAFORD, TEXAS, October 1946 to September 1947

Analyses of composites of daily samples collected immediately below dam on Brazos River, 2.6 miles upstream from Loving Creek and 11.3 miles southwest of Graford. Discharge records reported for Palo Pinto gaging station at bridge on Palo Pinto-Graford highway, 300 feet downstream from Dark Valley Creek and 6-1/2 miles north of Palo Pinto. The gage is about 15 miles downstream from Possum Kingdom Dam. No appreciable inflow between dam and gaging station except during periods of heavy local rains. Drainage area above dam 22,550 square miles; above gaging station 22,760 square miles.

Analyzed by Geological Survey

Parts per million

Date of collection	Mean discharge (second feet)	Specific conductance ($K \times 10^5$ at 25°C)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na+K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Dissolved Solids: Parts per million	Dissolved Solids: Tons per acre foot	Dissolved Solids: Tons per day	Hardness as $CaCO_3$: Total	Hardness as $CaCO_3$: Non-carbonate	Per cent sodium
Oct. 1-10, 1946	2,123	267	164	31	359	126	325	620	1.0	1,560	2.12	8,940	537	434	59
Oct. 11-20	4,235	267	163	28	364	116	333	617	1.0	1,560	2.12	17,800	522	427	60
Oct. 21-31	1,736	259	158	26	358	120	337	588	1.2	1,530	2.08	7,170	502	403	61
Nov. 1-10	1,721	248	152	25	330	114	320	548	1.5	1,430	1.94	6,640	482	389	60
Nov. 11-20	986	240	145	25	349	113	321	565	1.5	1,460	1.99	3,890	465	372	62
Nov. 21-30	876	240	148	30	325	114	316	550	1.0	1,430	1.94	3,380	493	400	59
Dec. 1-10	924	252	151	24	340	109	315	550	2.0	1,450	1.97	3,620	476	386	58
Dec. 11-20	2,182	237	142	25	313	111	303	518	2.0	1,360	1.85	8,010	458	366	60
Dec. 21-31	654	233	138	23	312	110	295	510	1.8	1,330	1.81	2,350	439	349	61
Jan. 1-10, 1947	1,140	225	138	23	302	111	284	502	1.2	1,300	1.77	4,000	439	348	60
Jan. 11-20	1,018	229	138	21	310	114	301	495	1.5	1,320	1.80	3,630	431	338	61
Jan. 21-31	817	227	140	22	313	112	298	508	1.2	1,340	1.82	2,960	440	348	61
Feb. 1-10	500	232	140	21	319	118	300	510	1.0	1,350	1.84	1,820	436	340	61
Feb. 11-19	493	232	138	21	313	114	293	505	.8	1,330	1.81	1,770	431	338	61
Feb. 20-28	512	227	138	22	320	114	293	518	1.5	1,350	1.84	1,870	435	342	62
Mar. 1-10	290	235	140	25	319	114	305	522	.0	1,370	1.86	1,070	452	359	61
Mar. 11-20	310	231	138	23	317	113	297	515	.0	1,350	1.84	1,130	439	346	61
Mar. 21-31	213	232	138	24	309	113	294	508	.0	1,330	1.81	765	443	350	60
Apr. 1-10	396	237	146	27	308	97	279	548	1.2	1,360	1.85	1,450	476	396	58
Apr. 11-30	315	231	147	26	291	116	266	520	1.8	1,310	1.78	1,110	474	379	57
May 1-10	561	229	138	22	320	112	289	522	1.2	1,350	1.84	2,040	435	343	62
May 11-20	7,858	229	137	22	326	101	286	538	2.0	1,360	1.85	28,900	432	350	62
May 21-31	7,622	229	139	22	311	116	280	515	1.8	1,330	1.81	27,400	438	342	61

BRAZOS RIVER AT POSSUM KINGDOM DAM, NEAR GRAFORD, TEXAS, October 1946 to September 1947
(Continued)

Analyzed by Geological Survey — Parts per million

Date of collection	Mean discharge (second feet)	Specific conductance ($K \times 10^5$ at 25°C)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na+K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Dissolved Solids: Parts per million	Dissolved Solids: Tons per acre foot	Dissolved Solids: Tons per day	Hardness as $CaCO_3$: Total	Hardness as $CaCO_3$: Non-carbonate	Per cent sodium
June 1-30, 1947	1,451	236	140	22	324	116	308	515	3.2	1,370	1.86	5,370	440	345	62
July 1-31	670	227	146	23	305	118	300	488	1.5	1,330	1.81	2,410	459	362	58
Aug. 1-31	625	214	159	24	261	117	329	442	1.8	1,270	1.73	2,140	496	400	53
Sept. 1-30	620	208	149	23	264	116	338	420	2.0	1,250	1.70	2,090	466	372	55
Weighted average	1,343	236	145	24	321	113	303	530	1.7	1,380	1.88	5,000	460	368	60

BRAZOS RIVER AT RICHMOND, TEXAS, October 1946 to September 1947

Analyses of composites of daily samples collected at gaging station at bridge on U. S. Highway 90 in Richmond, about 1,500 feet downstream from Texas and New Orleans Railroad Bridge.

Analyzed by Geological Survey — Parts per million

Date of collection	Mean discharge (second feet)	Specific conductance ($K \times 10^5$ at 25°C)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na+K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Dissolved Solids: Parts per million	Dissolved Solids: Tons per acre foot	Dissolved Solids: Tons per day	Hardness as $CaCO_3$: Total	Hardness as $CaCO_3$: Non-carbonate	Per cent sodium
Oct. 1,3,5-8,1946	6,443	59.2	49	8.6	55	137	48	81	2.5	326	0.44	5,670	158	46	43
Oct. 2,4,9-10	6,370	95.5	72	13	100	141	95	166	1.2	608	.83	10,500	233	118	48
Oct. 11-20	4,281	151	108	19	182	162	167	308	1.5	935	1.27	10,800	348	214	53
Oct. 21-31	4,859	186	121	22	235	147	216	395	1.0	1,060	1.44	13,900	392	272	57
Nov. 1-4	4,128	187	114	20	246	155	211	392	1.0	1,060	1.44	11,800	366	240	59
Nov. 5,7-8	29,330	69.9	55	9.4	73	122	72	112	2.0	433	.59	34,300	176	76	47
Nov. 6,9-10	23,430	42.2	44	6.8	32	118	40	48	2.0	273	.37	17,300	138	41	34
Nov. 11-20	22,220	39.2	43	5.8	31	121	32	43	1.2	243	.33	14,600	131	40	28
Nov. 21-24	16,450	34.2	35	7.3	22	100	25	40	1.0	218	.30	9,680	118	36	29
Nov. 25-30	10,630	53.7	46	8.4	44	117	41	75	1.2	323	.44	9,270	150	54	39
Dec. 1-10	5,709	74.3	64	9.0	75	151	78	109	1.8	454	.62	7,000	197	73	45
Dec. 11-20	15,380	72.7	67	12	61	160	71	101	1.8	442	.60	18,400	217	85	38
Dec. 21-31	6,766	55.3	60	8.7	45	166	51	66	2.0	356	.48	6,500	186	49	35
Jan. 1-10, 1947	7,959	69.2	68	11	59	174	67	92	2.0	425	.58	9,130	214	72	37
Jan. 11-20	18,380	55.7	57	9.0	45	148	58	66	2.0	342	.47	17,000	180	58	35
Jan. 21-31	23,110	46.3	48	7.3	36	144	44	43	3.5	288	.39	18,000	150	32	34
Feb. 1-10	7,735	68.0	45	12	52	200	64	82	2.8	415	.56	8,670	236	72	32
Feb. 11-19	4,853	89.5	92	16	77	247	87	119	2.5	552	.75	7,230	296	93	36
Feb. 20-28	4,686	97.3	92	17	90	236	100	139	2.5	590	.80	7,460	300	106	40
Mar. 1-14	5,065	91.9	88	17	76	235	88	121	1.5	543	.74	7,430	290	97	36
Mar. 15-20	19,100	38.2	45	7.2	22	113	39	40	1.2	238	.32	12,300	142	49	26
Mar. 21-31	20,370	46.7	57	8.6	32	157	48	47	2.0	296	.40	16,300	178	49	28

BRAZOS RIVER AT RICHMOND, TEXAS, October 1946 to September 1947
(Continued)

Analyzed by Geological Survey — Parts per million

Date of collection	Mean discharge (second feet)	Specific conductance ($K \times 10^5$ at 25°C)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na+K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Dissolved solids: Parts per million	Dissolved solids: Tons per acre foot	Dissolved solids: Tons per day	Hardness as $CaCO_3$: Total	Hardness as $CaCO_3$: Non-carbonate	Per cent sodium
Apr. 1-10, 1947	7,072	57.1	65	11	45	191	52	66	1.2	364	0.50	6,950	207	50	32
Apr. 11-20	7,818	66.6	72	12	48	207	63	69	1.5	398	.54	8,400	229	60	31
Apr. 21-30	6,963	68.5	73	11	55	191	73	80	1.5	424	.58	7,970	227	70	34
May 1-10	4,532	66.5	72	12	55	215	62	76	1.5	419	.57	5,130	229	53	34
May 11-20	8,888	65.1	64	11	54	181	62	76	3.0	386	.52	9,260	204	56	37
May 21-23	32,500	40.1	45	6.6	28	144	30	34	3.0	234	.32	20,500	139	21	30
May 24-31	24,850	114	82	13	132	132	129	214	2.0	703	.96	47,200	258	150	53
June 1-10	10,310	129	96	16	127	140	135	230	2.2	776	1.06	21,600	306	191	47
June 11-20	3,690	114	92	17	114	164	120	203	.8	708	.96	7,050	300	165	45
June 21-26,28	3,951	158	114	21	191	172	185	320	1.2	917	1.25	9,780	371	0	53
June 27,29-30	4,227	91.6	74	12	92	140	101	151	1.8	562	.76	6,410	234	120	46
July 1-10	2,107	107	87	15	104	193	94	173	1.2	639	.87	3,640	278	128	44
July 11-20	1,501	137	100	21	151	222	139	239	1.0	840	1.14	3,400	336	154	49
July 21-31	1,385	144	103	22	159	210	155	254	.5	868	1.18	3,250	348	175	50
Aug. 1-10	855	140	104	22	162	211	154	260	2.0	832	1.13	1,920	350	176	50
Aug. 11-20	864	151	107	26	186	210	177	298	1.0	942	1.28	2,200	374	202	52
Aug. 21-26	1,759	151	105	25	178	194	181	285	2.5	924	1.26	4,390	365	206	51
Aug. 27-31	31,140	22.8	29	5.9	10	92	16	18	1.0	133	.18	11,200	97	21	18
Sept. 1-3	10,070	29.2	38	5.1	15	106	25	25	.8	194	.26	5,270	116	29	22
Sept. 4-13	2,222	66.2	60	9.1	61	133	69	98	.8	400	.54	2,400	187	78	41
Sept. 14-20	1,243	101	91	16	95	194	112	158	1.0	617	.84	2,070	293	134	41
Sept. 21-30	1,138	153	131	25	173	192	218	298	1.0	941	1.28	2,890	430	272	47
Weighted average	8,765	69.1	63	11	63	152	70	100	1.9	425	0.58	10,100	202	78	40

ANALYSES OF SPOT SAMPLES COLLECTED AT VARIOUS POINTS IN BRAZOS RIVER BASIN IN TEXAS

Analyzed by Geological Survey — Parts per million

Date of collection	Specific conductance ($K \times 10^5$ at 25°C)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na+K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Dissolved Solids	Total Hardness as $CaCO_3$
Brazos River 25 miles south of Possum Kingdom Dam										
Feb. 1947	211	--	--	--	160	267	450	--	--	--
Brazos River near Glen Rose, Texas										
Oct. 12, 1946	176	--	--	--	120	200	380	--	--	--
Nov. 5	62.9	--	--	--	118	49	93	--	--	--
Brazos River near Whitney, Texas										
Oct. 24, 1946	257	--	--	--	121	312	585	--	--	--
Sept. 9-11, 1947	221	149	26	284	111	349	455	0.2	1,320	479
Sept. 12-20	174	122	21	220	111	286	340	.5	1,040	391
Sept. 21-30	203	144	19	271	117	339	410	.2	1,240	438
Brazos River at Waco, Texas										
Oct. 25, 1946	255	--	--	--	124	314	580	--	--	--
Brazos River near Marlin, Texas										
Oct. 9, 1946	235	--	--	--	147	233	530	2.5	--	--
Nov. 14	157	--	--	--	155	193	322	--	--	--
Dec. 21	91.9	83	15	84	160	103	150	1.2	560	268
Feb. 19, 1947	137	80	20	154	102	165	256	.2	759	282
Mar. 26	64.8	69	9.4	60	172	79	82	2.8	430	210
Apr. 30	78.3	91	15	59	220	107	88	2.0	498	288
Brazos River near Bryan, Texas										
Oct. 8, 1946	193	--	--	--	135	279	410	1.5	--	--
Nov. 13	56.6	--	--	--	148	48	65	--	--	--
Jan. 14, 1947	95.0	93	14	84	214	106	129	4.5	597	290
Feb. 18	92.6	76	21	80	184	100	136	3.2	537	276
Mar. 25	67.9	73	11	58	192	72	84	3.0	436	227
Apr. 29	54.5	46	8.5	60	200	49	45	3.5	351	300
Aug. 14	179	96	28	240	129	245	365	2.2	1,040	354
Brazos River at Pumping Plant of American Canal Company, Ft. Bend County										
Aug. 7, 1947 a/	135	99	21	140	202	128	240	0.5	790	334
Aug. 7 b/	162	111	22	196	206	186	305	.0	960	368
Navasota River near Easterly, Texas										
Aug. 13-25, 1947	243	--	--	--	--	--	688	--	--	--
Aug. 26-30	98.6	--	--	--	--	--	254	--	--	--
Aug. 31	363	--	--	--	--	--	1,130	--	--	--
Sept. 1-3,5-15	356	--	--	--	--	--	1,120	--	--	--
Sept. 25-30	198	--	--	--	--	--	570	--	--	--

a/ at pump lift b/ discharge of pump.

COLORADO RIVER AT COLORADO CITY, TEXAS, October 1946 to September 1947

Analyses of composites of daily samples collected at gaging station 3,517 feet upstream from U. S. Highway 80 bridge, 4,100 feet upstream from Texas and Pacific Railway bridge, 1.6 miles upstream from Lone Wolf Creek.

Analyzed by Geological Survey

Parts per million

Date of collection	Mean discharge (second feet)	Specific conductance ($K \times 10^5$ at 25°C)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na+K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Dissolved Solids: Parts per million	Dissolved Solids: Tons per acre foot	Dissolved Solids: Tons per day	Hardness as $CaCO_3$: Total	Hardness as $CaCO_3$: Non-carbonate	Per cent sodium
Oct. 1-9, 1946	148	736	176	59	1,370	117	448	2,200	2.0	4,310	5.86	1,720	682	586	81
Oct. 9,10,13	1,067	60.5	32	6.8	79	107	42	104	4.0	338	.46	974	108	20	61
Oct. 11-12	1,026	37.9	27	5.8	46	135	29	34	3.2	228	.31	632	91	0	52
Oct. 14-16	31.7	160	51	13	253	110	98	380	3.0	894	1.22	77	181	90	75
Oct. 17-20	9.82	353	103	28	596	119	207	960	2.0	1,950	2.65	52	372	274	78
Oct. 21-31	3.41	673	161	53	1,230	129	402	1,960	2.5	3,870	5.26	36	620	514	81
Nov. 1-10	2.32	897	228	79	1,730	133	579	2,800	1.0	5,480	7.45	34	894	785	81
Nov. 11-20	1.42	1,260	287	103	2,460	142	803	3,930	2.0	7,660	10.42	29	1,140	1,020	82
Nov. 21-26,28-30	4.71	1,280	291	109	2,410	139	831	3,860	2.0	7,570	10.30	96	1,170	1,060	82
Nov. 27	12.0	696	174	63	1,240	108	451	2,010	3.0	3,990	5.43	129	693	604	80
Dec. 1-9	4.16	1,200	281	102	2,290	144	764	3,660	.4	7,170	9.75	81	1,120	1,000	81
Dec. 10,12-20	49.7	606	138	59	1,070	120	355	1,740	2.5	3,420	4.65	459	587	488	80
Dec. 11	203	233	72	19	353	97	162	548	3.5	1,210	1.65	663	258	178	75
Dec. 21-31	3.57	966	224	77	1,830	156	590	2,910	1.5	5,710	7.77	55	876	748	82
Jan. 1-10, 1947	5.61	1,210	289	128	2,250	176	768	3,690	--	7,210	9.81	109	1,250	1,100	80
Jan. 11-20	3.92	1,160	273	96	2,160	181	756	3,430	--	6,800	9.25	72	1,080	928	81
Jan. 21-31	3.24	1,240	295	106	2,450	176	853	3,870	--	7,660	10.42	67	1,170	1,030	82
Feb. 1-10	1.85	1,500	320	129	3,040	171	1,050	4,760	--	9,380	12.76	47	1,330	1,190	83
Feb. 11-19	2.04	1,590	373	134	3,260	167	1,080	5,180	--	10,100	13.74	56	1,480	1,340	83
Feb. 20-28	2.67	1,640	366	141	3,280	159	1,220	5,120	--	10,200	13.87	74	1,490	1,360	83
Mar. 1-10	2.74	1,720	378	155	3,460	160	1,280	5,420	--	10,800	14.69	80	1,580	1,450	83
Mar. 11-20	3.84	1,690	378	162	3,380	132	1,200	5,390	--	10,600	14.42	110	1,610	1,500	82
Mar. 21-31	3.85	1,520	352	152	3,190	126	1,110	5,090	--	9,960	13.55	104	1,500	1,400	82

See footnotes at end of table.

COLORADO RIVER AT COLORADO CITY, TEXAS, October 1946 to September 1947
(Continued)

Analyzed by Geological Survey — Parts per million

Date of collection	Mean discharge (second feet)	Specific conductance ($K \times 10^5$ at 25°C)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na+K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Dissolved Solids: Parts per million	Dissolved Solids: Tons per acre foot	Dissolved Solids: Tons per day	Hardness as $CaCO_3$: Total	Hardness as $CaCO_3$: Non-carbonate	Per cent sodium
Apr. 1-3, 1947	19.8	1,720	393	158	3,580	124	1,240	5,690	--	11,100	15.10	593	1,630	1,530	83
Apr. 4-7	2.42	453	112	36	804	83	291	1,280	0.2	2,560	3.48	17	428	360	80
Apr. 8-10	1.03	734	198	70	1,330	91	492	2,190	--	4,320	5.88	12	782	708	79
Apr. 11-15	.82	1,050	250	94	2,060	109	721	3,300	--	6,480	8.81	14	1,010	921	82
Apr. 16-20	.80	1,600	360	144	3,190	140	1,110	5,070	--	9,940	13.52	21	1,490	1,380	82
Apr. 21-30	.27	1,910	423	181	4,020	122	1,410	6,360	--	12,500	17.00	9.1	1800	1,700	83
May 1-8	.10	2,070	453	187	4,300	148	1,470	6,800	6.0	13,300	18.09	3.6	1900	1,780	83
May 9	1.30	896	234	73	1,610	102	625	2,580	6.0	5,180	7.04	18	884	800	80
May 10, 7:30 a.m. [2]	90.6	1,330	287	118	2,620	157	988	4,060	10	8,160	11.10	2,000	1,200	1,070	83
May 10, 6:00 p.m. [2]	90.6	2,070	441	192	4,370	110	1,500	6,900	4.0	13,500	18.36	3,300	1,890	1,800	83
May 10,11,15-16 18-19 [3]	2,950	71.2	37	7.3	92	118	52	120	3.5	391	.53	311	122	26	62
May 12-14,17	6,532	34.2	27	4.9	35	112	26	30	1.8	206	.28	3,630	88	0	46
May 20-23	192	199	76	18	307	128	131	485	6.0	1,090	1.48	565	264	158	72
May 24-27	117	151	60	13	221	104	89	356	4.6	853	1.16	269	203	118	70
May 28-31	13.2	362	119	30	606	129	223	990	4.3	2,040	2.77	73	420	315	76
June 1-4	7.68	472	163	46	811	165	327	1,330	8.0	2,770	3.77	57	596	460	75
June 5-10	3.27	744	230	66	1,290	153	483	2,140	3.5	4,290	5.83	38	846	720	77
June 11-20	5.88	967	266	85	1,750	130	629	2,870	4.0	5,670	7.71	90	1,010	907	79
June 21-22	8.40	1,150	317	104	2,130	136	783	3,490	--	6,890	9.37	156	1,220	1,110	79
June 23	76.0	414	149	36	696	174	285	1,130	.5	2,380	3.24	488	520	378	74
June 24-25	288	100	54	8.5	129	114	74	198	1.5	564	.77	438	170	76	62
June 26	39.0	201	77	16	311	96	117	520	1.0	1,090	1.48	115	258	180	72
June 27	16.0	409	142	33	675	99	258	1,140	1.0	2,300	3.13	99	490	409	75
June 28-30	6.37	930	290	80	1,660	120	611	2,790	--	5,490	7.47	94	1,050	954	77

See footnotes at end of table

COLORADO RIVER AT COLORADO CITY, TEXAS, October 1946 to September 1947
(Continued)

Analyzed by Geological Survey — Parts per million

Date of collection	Mean discharge (second feet)	Specific conductance (K x 10^5 at 25°C)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na+K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Dissolved solids: Parts per million	Dissolved solids: Tons per acre foot	Dissolved solids: Tons per day	Hardness as $CaCO_3$: Total	Hardness as $CaCO_3$: Non-carbonate	Per cent sodium
July 1-10, 1947	0.92	1,390	373	115	2,600	100	859	4,310	--	8,310	11.30	21	1,400	1,320	80
July 11-12	24.0	1,450	368	123	2,760	100	921	4,530	--	8,750	11.90	567	1,420	1,340	81
July 13-20	3.31	623	154	55	1,100	92	438	1,740	1.5	3,550	4.83	32	610	535	79
July 21-31	12.4	826	210	69	1,470	99	517	2,400	--	4,710	6.41	158	808	726	80
Aug. 1-Sept. 9 [4]	.72	826	192	67	1,520	93	487	2,470	--	4,780	6.50	9.3	754	678	81
Sept. 10 [5]	81.7	283	96	21	441	109	186	708	5.0	1,510	2.05	333	326	236	75
Sept. 10 [6]	5.10	1,960	473	161	4,100	121	1,350	6,560	--	12,700	17.27	175	1,840	1,740	83
Sept. 10	5.10	705	248	58	1,190	128	505	2,000	5.0	4,070	5.54	56	858	752	75
Sept. 11	21.2	486	133	32	858	93	252	1,410	2.5	2,730	3.71	1,560	464	388	80
Sept. 12-15	71.7	219	66	16	366	95	154	558	1.5	1,210	1.65	234	230	152	78
Sept. 16-20	3.28	486	113	37	862	100	267	1,380	1.5	2,710	3.69	24	434	352	81
Sept. 21-30	.44	758	158	59	1,450	90	454	2,300	--	4,470	6.08	5.3	637	563	83
Weighted average	147	123	47	12	201	115	85	298	2.7	724	0.98	287	157	73	72

[1] Includes 1/2 discharge for Oct. 9.
[2] Includes 1/4 discharge for May 10.
[3] Includes 1/2 discharge for May 10.
[4] No flow Aug. 7-Sept. 9.
[5] Includes 2/3 discharge for Sept. 10.
[6] Includes 1/6 discharge for Sept. 10.

MORGAN CREEK NEAR COLORADO CITY, TEXAS, May 1947 to September 1947

Analyses of composites of daily samples collected at gaging station 227 feet downstream from U. S. Highway 80 bridge about 1 mile upstream from Texas and Pacific Railway bridge, 5 miles westof Colorado City and 5½ miles downstream from Cherry Creek.

Analyzed by Geological Survey

Parts per million

Date of collection	Mean discharge (second feet)	Specific conductance ($K \times 10^5$ at 25°C)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na+K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Dissolved solids: Parts per million	Dissolved solids: Tons per acre foot	Dissolved solids: Tons per day	Hardness as $CaCO_3$: Total	Hardness as $CaCO_3$: Non-carbonate	Per cent sodium
May 1-10, 1947 a/	11.0	323	162	58	451	161	528	665	4.0	1,950	2.65	58	643	511	60
May 10-13,16-18 b/	629	29.5	31	5.2	23	100	31	22	3.2	182	.25	309	99	17	33
May 14-16,19-20 c/	18.2	70.3	50	10	81	129	94	97	2.8	428	.58	21	166	60	52
May 21-24	.78	157	94	24	209	169	226	290	3.8	968	1.32	2.0	333	194	58
May 25-31	.29	269	130	37	410	186	389	572	3.8	1,630	2.22	1.3	476	324	65
June 1-10	.10	382	175	57	591	200	571	848	2.0	2,340	3.18	.6	671	507	66
June 11-23	.00	503	196	86	805	132	802	1,170	.5	3,120	4.24	.0	842	734	68
June 24 d/	20.0	130	84	24	153	86	309	176	.2	858	1.17	46	308	238	52
June 24 d/	20.0	77.1	59	11	84	140	136	84	1.2	475	.65	26	192	78	49
June 25-July 10	.20	185	110	35	234	96	426	285	5.1	1,140	1.55	.6	418	340	55
July 11	142	49.9	43	8.3	49	159	54	36	4.5	300	.41	115	141	11	39
July 12	25.0	37.8	37	7.3	31	123	45	28	4.5	254	.35	17	122	22	36
July 13-Aug. 28	.04	61.6	42	11	56	112	73	72	2.8	358	.49	.0	150	58	45
Aug. 29-Sept. 9	.22	111	62	17	147	120	193	171	4.7	706	.96	.4	224	126	59
Sept. 10 e/	28.0	502	252	113	762	249	1,090	1,000	2.0	3,340	4.54	253	1,090	890	60
Sept. 10 e/	28.0	158	81	24	205	147	230	272	3.2	928	1.26	70	300	180	60
Sept. 10 f/	28.0	46.0	32	7.3	49	127	56	38	1.8	277	.38	21	110	6	49
Sept. 11, 13	38.0	27.6	26	5.4	26	99	38	13	5.2	171	.23	18	87	6	39
Sept. 12	16.0	57.4	42	8.2	60	103	101	55	2.2	352	.48	15	138	54	49
Sept. 14-17	4.02	36.2	35	6.2	31	113	40	32	.0	233	.32	2.5	113	20	37
Sept. 18-19	.05	99.4	46	12	139	172	117	143	2.8	587	.80	.1	164	24	65
Sept. 20-30	.00	215	63	26	413	311	298	420	6.2	1,380	1.88	.0	264	9	77
Weighted average	31.2	38.7	35	6.8	36	104	47	40	3.3	238	0.32	20	116	30	41

a/ Includes 1/8 discharge for May 10

b/ Includes 7/8 discharge for May 10; 9/10 discharge for May 16

c/ Includes 1/10 discharge for May 16.

d/ Includes 1/2 discharge for June 24

e/ Includes 1/4 discharge for Sept. 10

f/ Includes 1/2 discharge for Sept. 10

COLORADO RIVER AT WHARTON, TEXAS, October 1946 to September 1947

Analyses of composites of daily samples collected at gaging station on bridge on U. S. Highway 96 in Wharton, Wharton County, 1,000 feet downstream from Texas and New Orleans Railroad bridge and 12 miles upstream from Jones Creek.

Analyzed by Geological Survey — Parts per million

Date of collection	Mean discharge (second feet)	Specific conductance ($K \times 10^5$ at 25°C)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na+K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Dissolved solids: Parts per million	Dissolved solids: Tons per acre foot	Dissolved solids: Tons per day	Hardness as $CaCO_3$: Total	Hardness as $CaCO_3$: Non-carbonate	Per cent sodium
Oct. 1-10, 1946	3,158	43.0	46	14	24	178	29	34	1.5	262	0.36	2,230	172	26	23
Oct. 11-20	3,128	44.3	45	15	27	185	27	37	1.5	265	.36	2,240	174	22	25
Oct. 21-31	2,644	46.1	48	18	36	198	35	52	.8	305	.41	2,180	194	32	29
Nov. 1-4	3,828	47.9	48	18	34	198	29	53	1.0	311	.42	3,210	194	32	28
Nov. 5-10	12,800	27.2	36	6.7	12	120	21	15	3.0	187	.25	6,460	117	19	18
Nov. 11-20	6,814	34.7	43	9.6	29	151	30	38	2.0	261	.35	4,800	147	23	30
Nov. 21-30	3,990	40.4	51	11	25	192	25	29	2.5	270	.37	2,910	173	15	24
Dec. 1-10	2,673	51.8	58	18	24	219	30	42	1.5	316	.43	2,280	218	39	19
Dec. 11-20	5,083	46.7	56	14	21	196	31	35	2.0	286	.39	3,930	198	37	19
Dec. 21-31	3,448	51.8	60	16	30	227	30	39	1.5	308	.42	2,870	216	29	21
Jan. 1-10, 1947	4,278	48.6	49	15	31	186	37	42	2.0	293	.40	3,380	184	32	27
Jan. 11-20	7,931	42.1	48	12	23	164	36	33	1.8	251	.34	5,370	170	35	23
Jan. 21-31	5,114	47.6	58	13	26	210	33	32	3.0	292	.40	4,030	198	26	22
Feb. 1-10	3,617	54.6	63	18	32	236	35	49	2.0	337	.46	3,290	231	38	23
Feb. 11-19	3,348	53.9	62	18	27	237	29	44	1.8	301	.41	2,720	228	34	21
Feb. 20-28	3,222	52.1	58	18	26	227	28	42	1.2	292	.40	2,540	218	32	21
Mar. 1-10	3,050	52.4	58	19	26	224	33	42	1.0	317	.43	2,610	222	39	20
Mar. 11-20	4,088	47.7	54	16	21	183	39	39	2.0	298	.41	3,290	201	51	19
Mar. 21-31	3,743	49.9	58	15	22	189	40	40	1.2	315	.43	3,180	206	51	19
Apr. 1-10	2,360	52.3	58	19	30	214	37	51	1.8	331	.45	2,110	222	47	23
Apr. 11-20	3,074	49.4	56	14	25	173	45	42	3.5	308	.42	2,560	198	56	21
Apr. 21-30	1,854	53.0	62	16	26	212	39	44	2.5	325	.44	1,630	220	47	21
May 1-10	1,102	50.9	48	18	34	199	34	47	3.0	307	.42	913	194	31	27
May 11-20	1,780	48.7	44	16	34	181	32	46	3.0	281	.38	1,350	176	27	29
May 21-31	2,865	45.2	47	13	26	173	29	37	4.0	262	.36	2,030	171	29	25

COLORADO RIVER AT WHARTON, TEXAS, October 1946 to September 1947
(Continued)

Analyzed by Geological Survey — Parts per million

Date of collection	Mean discharge (second feet)	Specific conductance (Kx10^5 at 25°C)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na+K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Dissolved solids: Parts per million	Dissolved solids: Tons per acre foot	Dissolved solids: Tons per day	Hardness as $CaCO_3$: Total	Hardness as $CaCO_3$: Noncarbonate	Per cent sodium
June 1-10, 1947	1,336	51.5	49	18	29	200	31	43	2.8	294	0.40	1,060	196	32	24
June 11-20	1,335	50.5	48	19	25	191	28	46	1.8	287	.39	1,030	198	42	21
June 21-30	1,527	49.5	46	18	26	185	30	44	1.5	275	.37	1,130	189	37	23
July 1-10	1,192	50.3	48	19	28	192	29	49	3.2	306	.42	985	198	40	24
July 11-20	1,459	48.0	43	18	29	180	29	46	1.5	291	.40	1,150	181	34	26
July 21-31	1,278	48.0	45	19	29	187	26	46	1.0	288	.39	994	190	47	23
Aug. 1-10	1,441	49.0	47	20	25	184	32	49	1.5	294	.40	1,140	200	48	22
Aug. 11-26	1,465	47.8	45	20	27	191	29	45	3.8	294	.40	1,160	194	38	23
Aug. 27-31	6,792	27.1	34	7.6	9.6	114	16	18	1.8	179	.24	3,280	116	23	15
Sept. 1-10	1,734	48.3	48	16	26	185	27	44	1.5	282	.38	1,320	186	34	24
Sept. 11-20	1,633	50.2	46	19	29	193	29	47	1.8	292	.40	1,290	193	35	25
Sept. 21-30	1,480	52.1	49	21	30	205	33	50	.5	310	.42	1,240	209	41	24
Weighted average	3,095	45.4	50	15	25	186	31	38	2.1	280	0.38	2,340	186	34	23

ANALYSES OF SPOT SAMPLES COLLECTED AT VARIOUS POINTS IN THE COLORADO RIVER BASIN IN TEXAS

Analyzed by Geological Survey — Parts per million

No.	Date of collection	Specific conductance ($K \times 10^5$ at 25° C)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na+K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Dissolved Solids	Total Hardness as $CaCO_3$
		Spot samples collected on Colorado River near Colorado City, Texas									
1	Feb. 13, 1947	4,340	--	--	--	--	2,300	18,200	--	--	--
2	Apr. 30	1,140	--	--	--	--	--	3,100	--	--	--
3	Feb. 13	3,080	--	--	--	--	1,550	11,200	--	--	--
4	Apr. 30	4,560	--	--	--	--	--	17,200	--	--	--
5	July 7	2,020	--	--	--	99	1,050	6,990	--	--	--
6	July 8	2,080	--	--	--	121	1,140	7,260	--	--	--
7	July 7	99.0	--	--	--	195	98	43	--	--	--
8	Apr. 30	1,570	--	--	--	--	--	4,920	--	--	--
9	--	2,880	--	--	--	--	--	9,930	--	--	--
10	Apr. 29	2,900	--	--	--	--	--	10,100	--	--	--
11	Apr. 30	2,900	--	--	--	--	--	10,100	--	--	--
12	Apr. 30	1,860	--	--	--	--	--	6,010	--	--	--
13	Apr. 30	2,340	--	--	--	--	--	7,830	--	--	--
		Creeks in Colorado River Basin near Colorado City, Texas									
14	Feb. 6, 1947	1,480	--	--	--	--	1,480	4,560	--	--	--
15	Feb. 6	1,480	--	--	--	--	704	4,880	--	--	--
16	Feb. 6	230	--	--	--	--	284	438	--	--	--
17	Feb. 6	212	--	--	--	--	426	262	--	--	--
18	Feb. 6	355	--	--	--	--	318	770	--	--	--
19	Feb. 6	1,220	--	--	--	--	714	3,890	--	--	--
20	Feb. 13	47.2	--	--	--	--	20	16	--	--	--
21	Apr. 30	336	102	78	489	131	609	635	--	1,980	575
22	July 7	2,740	--	--	--	114	1,850	9,310	--	--	--
23	Feb. 6	472	--	--	--	--	709	580	--	--	--
24	Feb. 6	821	--	--	--	--	863	2,280	--	--	--
25	Feb. 6	7,200	--	--	--	--	2,600	31,300	--	--	--
26	Feb. 6	271	--	--	--	--	384	510	--	--	--
27	Feb. 13	110	--	--	--	--	171	160	--	--	--
28	Apr. 30	247	144	68	255	94	351	532	--	1,400	639
29	July 7	3,650	--	--	--	91	1,750	14,000	--	--	--

ANALYSES OF SPOT SAMPLES COLLECTED AT VARIOUS POINTS IN THE COLORADO RIVER BASIN IN TEXAS

Analyzed by Geological Survey (Continued) Parts per million

No.	Date of collection	Specific conductance (Kx10^5 at 25° C)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na+K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Dissolved Solids	Total Hardness as $CaCO_3$
		Creeks in Colorado River Basin near Colorado City, Texas-Continued									
30	Feb. 13, 1947	287	--	--	--	--	756	120	--	--	--
31	Apr. 30	223	59	67	350	197	759	165	--	1,500	422
32	Apr. 30	267	--	--	--	--	--	245	--	--	--
33	Feb. 13	208	--	--	--	--	490	155	--	--	--
34	Apr. 30	140	100	47	113	112	431	105	--	917	443
35	May 1	623	212	235	983	101	2,210	885	--	4,570	1,500
36	Apr. 30	748	--	--	--	--	--	1,130	--	--	--
37	Apr. 30	372	340	273	242	136	1,980	230	--	3,130	1,970
38	June 22	107	--	--	--	155	218	109	--	--	--
39	July 11	73.1	--	--	--	147	150	71	--	--	--
40	July 11	42.2	--	--	--	120	55	36	--	--	--
41	July 14	87.4	--	--	--	179	177	91	--	--	--
42	July 8	189	142	78	144	185	495	228	--	1,180	675
43	Aug. 25	34.1	--	--	--	122	32	12	4.0	--	--
44	Aug. 27	41.9	--	--	--	110	81	29	2.0	--	--
45	Sept. 30	156	--	--	--	206	437	158	.0	--	--
		Colorado River near Robert Lee, Texas									
	Sept. 16-17, 1947	116	53	13	162	92	110	245	3.8	698	186
	Sept. 18-20	227	84	21	342	89	182	550	1.5	1,220	296
	Sept. 21-31	228	94	24	350	122	251	418	2.8	1,300	333
		Colorado River near San Saba, Texas									
	Sept. 18, 1947	134	89	30	151	184	195	225	2.2	837	346
	Sept. 19	222	136	41	273	148	303	470	3.2	1,300	508
	Sept. 20	342	163	56	493	156	391	830	3.2	2,010	638
	Sept. 21-30	198	118	40	240	182	288	375	2.2	1,150	459
		North Concho River at San Angelo, Texas, on Highway 87									
	Sept. 16, 1947	150	75	40	180	261	100	300	1.8	920	352
		South Concho River near San Angelo, Texas									
	Sept. 16, 1947	62.8	47	22	53	226	36	71	0.5	362	208
		San Saba River at bridge on Highway 190, west of San Saba, Texas									
	Sept. 16, 1947	38.1	24	32	7.1	212	12	13	2.8	222	192

ANALYSES OF SPOT SAMPLES COLLECTED AT VARIOUS POINTS IN THE COLORADO RIVER BASIN IN TEXAS
(Continued)

Description of sampling points:

1. Colorado River, SW 1/4 SW 1/4, Sec. 127 Blk. 97, H&TC Survey
2 Colorado River west of mouth of Bull Creek, west of Ira, Texas
3 Colorado River at Suspension Bridge, SE 1/4 SE 1/4 Sec. 105, Blk 97, H&TC Survey
4 Colorado River north of Cuthbert, Texas, at suspension bridge.
5 Colorado River at suspension bridge near Colorado City, Texas
6 Colorado River at suspension bridge near Colorado City, Texas
7 Colorado River at concrete slab on road corssing near Borden County
8 Colorado River above Colorado City, nearMitchell-Scurry line above oil field
9 Colorado River at ford near Mitchell-Scurry line
10 Colorado River northeast of Buford, Texas
11 Colorado River at low water bridge above Colorado City, Texas
12 Colorado River at iron and wood bridge above Colorado City, Texas, near dam site
13 Colorado River at ford at sand and gravel pit above Colorado City, Texas
14 Pit on west bank of Bull Creek just below crossing, SE 1/4 SW 1/4 Sec. 143 Blk. 97, H&TC Survey
15 Pit on east bank of Bull Creek just below crossing, SE 1/4 SW 1/4 Sec. 143 Blk. 97, H&TC Survey
16 Bull Creek just above road crossing, about 1½ mile above Colorado River, SE 1/4 SW 1/4 Sec. 143 Blk 97, H&TC Sur.
17 Bull Creek 3/4 mile above road crossing, SW 1/4 SW 1/4 Sec. 142, Blk. 97, H&TC Survey
18 Bull Creek about 200 feet below road crossing, SE 1/4 SW 1/4 Sec. 143, Blk. 97 H&TC Survey
19 Bull Creek about 1/2 mile above Colorado River, SW 1/4 SW 1/4 Sec. 128, Blk. 97, H&TC Survey
20 Bull Creek, NW 1/4 NW 1/4 Sec. 162, Blk 97, H&TC Survey
21 Bull Creek west of Ira, Texas, at ford about 1 mile above mouth
22 Seep in left bank of Colorado River just above Bluff Creek, near Colorado City
23 Bluff Creek about 3/4 mile below road crossing, SE 1/4 SE 1/4 Sec. 130 Blk 97, H&TC Survey
24 Bluff Creek about 1 mile below road crossing, SE 1/4 NE 1/4 Sec. 123 Blk 97, H&TC Survey
25 Pool on east bank of Bluff Creek, about 1 mile below road crossing, SE 1/4 NE 1/4 Sec. 123 Blk 97 H&TC Survey
26 Bluff Creek at road crossing, 2 miles above Colorado River SE 1/4 NE 1/4 Sec. 123 Blk 97, H&TC Survey
27 Bluff Creek, SE 1/4 SW 1/4 Sec. 149 Blk 97, H&TC Survey
28 Bluff Creek at bridge west of Ira, Texas, about 1 mile from mouth
29 Bluff Creek above confluence with Colorado River
30 Canyon Creek
31 Canyon Creek near mouth
32 Canyon Creek east of Ira, Texas, crossing north of Colorado River ford

ANALYSES OF SPOT SAMPLES COLLECTED AT VARIOUS POINTS IN THE COLORADO RIVER BASIN IN TEXAS
(Continued)

Description of sampling points - Continued:

33 Canyon Creek about 200 yds. from Colorado River
34 Deep Creek near mouth above dam
35 Deep Creek at Highway 101 crossing, east fork
36 Cherry Creek above junction with Morgan Creek
37 Lone Wolf Creek at Colorado City at highway 80 bridge
38 North Champlin Creek near Colorado City, Texas
39 North Champlin Creek near Colorado City, Texas
40 North Champlin Creek near Colorado City, Texas
41 North Champlin Creek near Colorado City, Texas
42 Champlin Creek 1/4 mile below 7 wells
43 Mouth of Champlin Creek
44 Mouth of Champlin Creek
45 Mouth Champlin Creek.

GUADALUPE RIVER AT VICTORIA, TEXAS, October 1946 to September 1947

Analyses of daily samples collected at bridge on U. S. Highway 96 in Victoria, Victoria County, 1,300 feet upstream from Texas and New Orleans (Galveston, Harrisburg and San Antonio) Railroad bridge and 10 miles upstream from Coleto Creek.

Analyzed by Geological Survey — Parts per million

Date of collection	Specific conductance ($K \times 10^5$ at 25° C)	Chloride (Cl)	Date of collection	Specific conductance ($K \times 10^5$ at 25°C)	Chloride (Cl)	Date of collection	Specific conductance ($K \times 10^5$ at 25°C)	Chloride (Cl)
Oct. 1, 1946	--		Nov. 1, 1946	106	182	Dec. 2, 1946	127	248
Oct. 2	34.5	32	Nov. 2	90.9		Dec. 3	93.1	
Oct. 3	46.8		Nov. 3	94.5		Dec. 4	94.1	
Oct. 4	55.4	60	Nov. 4	58.8		Dec. 5	96.1	
Oct. 5	60.7		Nov. 5	77.9	116	Dec. 6	96.1	
Oct. 6-7	--		Nov. 6	97.0		Dec. 7	101	168
Oct. 8	75.8	128	Nov. 7	55.4		Dec. 8	94.1	
Oct. 9	--		Nov. 8	62.4		Dec. 9	96.1	
Oct. 10	46.6		Nov. 9	51.5		Dec. 10	92.3	150
Oct. 11	45.9	60	Nov. 10	56.4	80	Dec. 11	97.0	
Oct. 12	48.5		Nov. 11	48.6		Dec. 12	102	166
Oct. 13	71.3		Nov. 12-15	--		Dec. 13	97.5	
Oct. 14	80.1	128	Nov. 16	63.9	84	Dec. 14	101	
Oct. 15	69.4		Nov. 17	40.6	50	Dec. 15	120	
Oct. 16	73.1		Nov. 18	42.5		Dec. 16	65.4	84
Oct. 17	20.4	20	Nov. 19	71.9		Dec. 17	67.4	
Oct. 18	25.5		Nov. 20	72.6	100	Dec. 18	67.4	
Oct. 19-20	--		Nov. 21	60.4	66	Dec. 19	69.4	82
Oct. 21	96.2		Nov. 22	60.4		Dec. 20	98.1	
Oct. 22	81.9	136	Nov. 23	71.9		Dec. 21	76.2	98
Oct. 23	86.9		Nov. 24	79.7	104	Dec. 22	81.5	
Oct. 24	87.2		Nov. 25	88.7		Dec. 23	81.5	
Oct. 25	101	168	Nov. 26	88.7		Dec. 24	84.7	
Oct. 26	102		Nov. 27	86.1		Dec. 25	95.8	
Oct. 27	101		Nov. 28	--		Dec. 26	89.7	
Oct. 28	98.2		Nov. 29	97.5		Dec. 27	91.5	138
Oct. 29	115		Nov. 30	98.4	148	Dec. 28	88.5	
Oct. 30	115	204	Dec. 1	100		Dec. 29	106	

GUADALUPE RIVER AT VICTORIA, TEXAS, October 1946 to September 1947
(Continued)

Analyzed by Geological Survey — Parts per million

Date of collection	Specific conductance ($K \times 10^5$ at 25°C)	Chloride (Cl)	Date of collection	Specific conductance ($K \times 10^5$ at 25°C)	Chloride (Cl)	Date of collection	Specific conductance ($K \times 10^5$ at 25°C)	Chloride (Cl)
Dec. 30, 1946	111	196	Jan. 28, 1947	--		Feb. 26, 1947	94.5	
Dec. 31	98.7		Jan. 29	77.1		Feb. 27	97.1	152
Jan. 1, 1947	98.7		Jan. 30	78.5		Feb. 28	95.0	
Jan. 2	99.4	164	Jan. 31	78.5	104	Mar. 1	99.3	
Jan. 3	--		Feb. 1	80.2	108	Mar. 2	95.6	
Jan. 4	97.0		Feb. 2	84.2		Mar. 3	94.5	158
Jan. 5	--		Feb. 3	85.5		Mar. 4	94.5	
Jan. 6	93.9		Feb. 4	85.5		Mar. 5	98.4	
Jan. 7	--		Feb. 5	84.8		Mar. 6	101	
Jan. 8	166	380	Feb. 6	84.8		Mar. 7	106	150
Jan. 9	78.8		Feb. 7	92.2	108	Mar. 8	102	
Jan. 10	77.4	98	Feb. 8	87.2		Mar. 9	106	
Jan. 11	--		Feb. 9	85.5		Mar. 10	95.6	
Jan. 12	87.5		Feb. 10	86.5		Mar. 11	99.4	184
Jan. 13	190	455	Feb. 11	89.4	140	Mar. 12	97.0	
Jan. 14	190		Feb. 12	90.4		Mar. 13	97.0	
Jan. 15	72.1		Feb. 13	76.5		Mar. 14	99.4	
Jan. 16	76.3		Feb. 14	78.1	132	Mar. 15	95.1	
Jan. 17	74.8		Feb. 15	92.3		Mar. 16	108	
Jan. 18	81.9	114	Feb. 16	89.2		Mar. 17	140	166
Jan. 19	70.9		Feb. 17	95.3	150	Mar. 18	92.9	
Jan. 20	52.3	58	Feb. 18	92.5		Mar. 19	90.6	196
Jan. 21	40.4	42	Feb. 19	88.5		Mar. 20	--	
Jan. 22	50.4		Feb. 20	81.7	150	Mar. 21	64.8	
Jan. 23	61.1		Feb. 21	90.4		Mar. 22	56.4	
Jan. 24	59.6	58	Feb. 22	90.8		Mar. 23	48.4	142
Jan. 25	--		Feb. 23	85.9		Mar. 24	--	
Jan. 26	59.6		Feb. 24	90.4	150	Mar. 25	65.1	
Jan. 27	72.6		Feb. 25	85.9		Mar. 26	64.2	54

GUADALUPE RIVER AT VICTORIA, TEXAS, October 1946 to September 1947
(Continued)

Analyzed by Geological Survey — Parts per million

Date of collection	Specific conductance ($K \times 10^5$ at 25°C)	Chloride (Cl)	Date of collection	Specific conductance ($K \times 10^5$ at 25°C)	Chloride (Cl)	Date of collection	Specific conductance ($K \times 10^5$ at 25°C)	Chloride (Cl)
Mar. 27, 1947	78.7		Apr. 25, 1947	105		May 24, 1947	42.9	
Mar. 28	90.6		Apr. 26	73.7		Mar. 25	109	204
Mar. 29	90.6		Apr. 27	50.7		May 26	109	
Mar. 30	91.1		Apr. 28	46.1	186	May 27	75.6	
Mar. 31	93.7	84	Apr. 29	84.2		May 28	102	
Apr. 1	101	156	Apr. 30	56.5		May 29	54.6	66
Apr. 2	104		May 1	109		May 30	59.1	
Apr. 3	98.3		May 2	109	210	May 31	57.9	
Apr. 4	108		May 3	107		June 1	63.7	90
Apr. 5	132	250	May 4	108		June 2	66.5	
Apr. 6	121		May 5	106		June 3	75.6	
Apr. 7	121		May 6	117		June 4	69.7	
Apr. 8	—		May 7	117		June 5	73.5	
Apr. 9	98.6	156	May 8	111		June 6	93.8	
Apr. 10	--		May 9	115		June 7	103	
Apr. 11	97.0		May 10	99.7	168	June 8	118	218
Apr. 12	79.8		May 11	--		June 9	114	
Apr. 13	99.7		May 12	87.3	138	June 10	114	
Apr. 14	96.3	176	May 13	101		June 11	118	
Apr. 15	143		May 14	101		June 12	114	
Apr. 16	106		May 15	119	222	June 13	102	178
Apr. 17	108		May 16	101		June 14	118	
Apr. 18	120	50	May 17	118		June 15	107	
Apr. 19	113		May 18	86.5		June 16	132	244
Apr. 20	105		May 19	90.6		June 17	124	
Apr. 21	101		May 20	39.7	58	June 18	—	
Apr. 22	101		May 21	85.0		June 19	118	
Apr. 23	106	156	May 22	85.0	138	June 20	120	
Apr. 24	—		May 23	68.4		June 21	120	

GUADALUPE RIVER AT VICTORIA, TEXAS, October 1946 to September 1947
(Continued)

Analyzed by Geological Survey — Parts per million

Date of collection	Specific conductance ($K \times 10^5$ at 25°C)	Chloride (Cl)	Date of collection	Specific conductance ($K \times 10^5$ at 25°C)	Chloride (Cl)	Date of collection	Specific conductance ($K \times 10^5$ at 25°C)	Chloride (Cl)
June 22, 1947	121		July 22, 1947	155		Aug. 22, 1947	—	
June 23	118		July 23	156		Aug. 23	128	
June 24	133		July 24	157		Aug. 24	134	
June 25	132		July 25	160		Aug. 25	133	
June 26	138	290	July 26	160		Aug. 26	136	
June 27	138		July 27	105	188	Aug. 27	152	290
June 28	124		July 28	—		Aug. 28	152	
June 29	—		July 29	121		Aug. 29	85.3	
June 30	116	222	July 30	124		Aug. 30	82.2	
July 1	84.5	64	July 31	148	324	Aug. 31	82.2	174
July 2	85.0		Aug. 1	133	274	Sept. 1	81.0	
July 3	91.1		Aug. 2	103		Sept. 2	76.3	
July 4	92.3		Aug. 3	105	190	Sept. 3	73.6	132
July 5	90.0		Aug. 4	106		Sept. 4	76.5	
July 6	93.5		Aug. 5	112		Sept. 5	81.5	
July 7	93.5		Aug. 6-7	—		Sept. 6	86.8	
July 8	92.9		Aug. 8	114		Sept. 7	80.3	
July 9	94.4		Aug. 9	112		Sept. 8-9	—	
July 10	97.3	88	Aug. 10	117	232	Sept. 10	109	204
July 11	122		Aug. 11	—		Sept. 11	110	208
July 12	106	164	Aug. 12	114	254	Sept. 12	122	
July 13	110		Aug. 13	122		Sept. 13	—	
July 14	110		Aug. 14	120		Sept. 14	133	
July 15	124		Aug. 15	114		Sept. 15	137	286
July 16	123		Aug. 16	116		Sept. 16	127	
July 17	123		Aug. 17	139		Sept. 17	134	
July 18	123		Aug. 18	141	306	Sept. 18	—	
July 19	134		Aug. 19	141		Sept. 19	165	390
July 20	134	276	Aug. 20	131		Sept. 20	128	
July 21	125	244	Aug. 21	128	276	Sept. 21	127	

GUADALUPE RIVER AT VICTORIA, TEXAS, October 1946 to September 1947
(Continued)

Analyzed by Geological Survey — Parts per million

Date of collection	Specific conductance ($K \times 10^5$ at 25°C)	Chloride (Cl)	Date of collection	Specific conductance ($K \times 10^5$ at 25°C)	Chloride (Cl)	Date of collection	Specific conductance ($K \times 10^5$ at 25°C)	Chloride (Cl)
Sept. 22, 1947	165		Sept. 25, 1947	154		Sept. 28, 1947	145	
Sept. 23	160		Sept. 26	135		Sept. 29	145	
Sept. 24	189	465	Sept. 27	132	276	Sept. 30	—	

NUECES RIVER NEAR THREE RIVERS, TEXAS, October 1946 to September 1947

Analyses of daily samples collected at gaging station 100 feet downstream from San Antonio, Uvalde and Gulf Railroad bridge, half mile downstream from Frio River and 2 miles southeast of Three Rivers.

Analyzed by Geological Survey — Parts per million

Date of collection	Specific conductance ($K \times 10^5$ at 25°C)	Chloride (Cl)	Date of collection	Specific conductance ($K \times 10^5$ at 25°C)	Chloride (Cl)	Date of collection	Specific conductance ($K \times 10^5$ at 25°C)	Chloride (Cl)
Oct. 1, 1946	26.6	12	Oct. 29, 1946	--		Nov. 26, 1946	150	
Oct. 2	--		Oct. 30	105		Nov. 27	160	
Oct. 3	34.4		Oct. 31	109	132	Nov. 28	163	
Oct. 4	32.1		Nov. 1	115		Nov. 29	163	
Oct. 5	35.6		Nov. 2	121		Nov. 30	163	220
Oct. 6	54.6	48	Nov. 3	127		Dec. 1	166	
Oct. 7	67.5		Nov. 4	135		Dec. 2	166	
Oct. 8	78.7	82	Nov. 5	90.7		Dec. 3	172	
Oct. 9	74.2		Nov. 6	119		Dec. 4	172	255
Oct. 10	34.4		Nov. 7	--		Dec. 5	169	
Oct. 11	24.6	10	Nov. 8	132		Dec. 6	164	
Oct. 12	24.6		Nov. 9	138		Dec. 7	169	
Oct. 13	18.2		Nov. 10	142		Dec. 8	162	
Oct. 14	19.6		Nov. 11	142		Dec. 9	159	
Oct. 15	29.3		Nov. 12	144		Dec. 10	159	230
Oct. 16	29.3		Nov. 13	142		Dec. 11	163	
Oct. 17	21.0		Nov. 14	154	208	Dec. 12	165	
Oct. 18	17.1	8	Nov. 15	154		Dec. 13	154	
Oct. 19	21.7		Nov. 16	154		Dec. 14	142	225
Oct. 20	33.0	14	Nov. 17	156		Dec. 15	145	
Oct. 21	43.3	32	Nov. 18	160		Dec. 16	150	
Oct. 22	--		Nov. 19	168	240	Dec. 17	165	
Oct. 23	51.4		Nov. 20	140	202	Dec. 18	165	240
Oct. 24	75.0		Nov. 21	130		Dec. 19	161	
Oct. 25	77.6	78	Nov. 22	129	166	Dec. 20	161	
Oct. 26	90.2		Nov. 23	139		Dec. 21	161	230
Oct. 27	95.6		Nov. 24	--		Dec. 22	160	
Oct. 28	102		Nov. 25	144	188	Dec. 23	161	

NUECES RIVER NEAR THREE RIVERS, TEXAS, October 1946 to September 1947
(Continued)

Analyzed by Geological Survey — Parts per million

Date of collection	Specific conductance ($K \times 10^5$ at 25°C)	Chloride (Cl)	Date of collection	Specific conductance ($K \times 10^5$ at 25°C)	Chloride (Cl)	Date of collection	Specific conductance ($K \times 10^5$ at 25°C)	Chloride (Cl)
Dec. 24, 1946	166		Jan. 23, 1947	142		Feb. 22, 1947	173	
Dec. 25	--		Jan. 24	144		Feb. 23	182	
Dec. 26	166		Jan. 25	142	228	Feb. 24	178	
Dec. 27	166		Jan. 26	147		Feb. 25	173	
Dec. 28	166		Jan. 27	154		Feb. 26	182	
Dec. 29	172		Jan. 28	157		Feb. 27	192	340
Dec. 30	169		Jan. 29	157		Feb. 28	182	
Dec. 31	161	245	Jan. 30	158		Mar. 1	187	
Jan. 1, 1947	170		Jan. 31	158	255	Mar. 2	187	
Jan. 2	167		Feb. 1	168		Mar. 3	184	315
Jan. 3	167	250	Feb. 2	--		Mar. 4	184	
Jan. 4	172		Feb. 3	167	255	Mar. 5	187	
Jan. 5	175		Feb. 4	167		Mar. 6	189	
Jan. 6	175		Feb. 5	168		Mar. 7	187	
Jan. 7	175		Feb. 6	167		Mar. 8	189	
Jan. 8	--		Feb. 7	169		Mar. 9	191	340
Jan. 9	175		Feb. 8	172		Mar. 10	189	
Jan. 10	175	265	Feb. 9	174		Mar. 11	192	330
Jan. 11	134		Feb. 10	174	275	Mar. 12	192	
Jan. 12	133		Feb. 11	164	290	Mar. 13	190	
Jan. 13	163	295	Feb. 12	--		Mar. 14	190	
Jan. 14	145		Feb. 13	164		Mar. 15	200	
Jan. 15	148		Feb. 14	178		Mar. 16	209	385
Jan. 16	150		Feb. 15	178		Mar. 17	206	
Jan. 17	150	220	Feb. 16	182	305	Mar. 18	198	
Jan. 18	150		Feb. 17	170		Mar. 19	195	
Jan. 19	89.7		Feb. 18	173		Mar. 20	125	205
Jan. 20	85.9	122	Feb. 19	170		Mar. 21	112	
Jan. 21	124	188	Feb. 20	170	325	Mar. 22	131	
Jan. 22	145		Feb. 21	178		Mar. 23	128	

NUECES RIVER NEAR THREE RIVERS, TEXAS, October 1946 to September 1947
(Continued)

Analyzed by Geological Survey — Parts per million

Date of collection	Specific conductance ($K \times 10^5$ at 25°C)	Chloride (Cl)	Date of collection	Specific conductance ($K \times 10^5$ at 25°C)	Chloride (Cl)	Date of collection	Specific conductance ($K \times 10^5$ at 25°C)	Chloride (Cl)
Mar. 24, 1947	123		Apr. 23, 1947	167		May 23, 1947	46.8	
Mar. 25	106	132	Apr. 24	167		May 24	40.0	
Mar. 26	109		Apr. 25	170		May 25	36.7	
Mar. 27	119		Apr. 26	170		May 26	27.8	18
Mar. 28	129		Apr. 27	90.4	146	May 27-28	--	
Mar. 29	139		Apr. 28	77.6		May 29	32.7	
Mar. 30	147		Apr. 29	106		May 30	--	
Mar. 31	155	225	Apr. 30	72.4		June 1	37.7	25
Apr. 1	153	225	May 1	99.3	174	June 2	--	
Apr. 2	165		May 2	75.3		June 3	53.1	
Apr. 3	160		May 3	82.6		June 4	58.3	
Apr. 4	161		May 4	83.4		June 5	60.8	
Apr. 5	--		May 5	77.0		June 6	65.7	
Apr. 6	165		May 6	82.6		June 7	94.3	118
Apr. 7	165		May 7	74.9	104	June 8	85.7	
Apr. 8	165		May 8	--		June 9	88.6	
Apr. 9	168		May 9	82.2		June 10	77.6	90
Apr. 10	175	260	May 10	89.2		June 11	77.5	86
Apr. 11	--		May 11	104	150	June 12	98.6	
Apr. 12	172	265	May 12	94.6		June 13	102	
Apr. 13	--		May 13	104		June 14	102	
Apr. 14	54.9	52	May 14	118		June 15	107	138
Apr. 15	--		May 15	136		June 16	115	
Apr. 16	154		May 16	142	214	June 17	109	
Apr. 17	67.2		May 17	164		June 18	122	
Apr. 18	82.6		May 18	159		June 19	124	168
Apr. 19	474	1,380	May 19	83.9		June 20	104	
Apr. 20	288		May 20	46.5	44	June 21	45.7	40
Apr. 21	161		May 21	83.1	123	June 22	43.4	
Apr. 22	165	325	May 22	66.3		June 23	57.2	

NUECES RIVER NEAR THREE RIVERS, TEXAS, October 1946 to September 1947

Analyzed by Geological Survey (Continued) Parts per million

Date of collection	Specific conductance ($K \times 10^5$ at 25°C)	Chloride (Cl)	Date of collection	Specific conductance ($K \times 10^5$ at 25°C)	Chloride (Cl)	Date of collection	Specific conductance ($K \times 10^5$ at 25°C)	Chloride (Cl)
June 24, 1947	53.0		July 26, 1947	80.0		Aug. 27, 1947	42.8	
June 25	117	262	July 27	80.0		Aug. 28	29.2	18
June 26	112		July 28	81.6		Aug. 29	44.1	
June 27	—		July 29	84.0		Aug. 30	55.2	
June 28	39.3		July 30	84.0		Aug. 31	49.2	
June 29	36.3		July 31	86.0	142	Sept. 1	45.7	
June 30	34.0	24	Aug. 1	89.1	112	Sept. 2	—	
July 1	—		Aug. 2	89.1		Sept. 3	43.5	40
July 2	32.3	6	Aug. 3	93.8		Sept. 4	46.8	
July 3	37.6		Aug. 4	109	142	Sept. 5	52.4	52
July 4	38.8	10	Aug. 5	66.9		Sept. 6	55.0	
July 5	38.6		Aug. 6	36.7		Sept. 7	57.5	
July 6	37.0		Aug. 7	37.2		Sept. 8	55.0	
July 7	36.2		Aug. 8	37.9		Sept. 9	56.9	
July 8	35.0		Aug. 9	51.4		Sept. 10	58.6	58
July 9	34.7		Aug. 10	44.8	42	Sept. 11	64.6	66
July 10	36.2		Aug. 11	47.8	42	Sept. 12	67.4	
July 11	44.1		Aug. 12	48.2		Sept. 13	65.1	
July 12	47.1	16	Aug. 13	57.8		Sept. 14	57.0	
July 13	51.1		Aug. 14	72.7		Sept. 15	59.7	
July 14	40.0	16	Aug. 15	71.5	104	Sept. 16	71.6	
July 15	40.3		Aug. 16	74.4		Sept. 17	74.2	
July 16	83.7	62	Aug. 17	77.7		Sept. 18	84.2	102
July 17	62.5		Aug. 18	81.3		Sept. 19	98.4	
July 18	61.5		Aug. 19	84.0		Sept. 20	102	132
July 19	61.5		Aug. 20	85.7	130	Sept. 21	104	142
July 20	62.6		Aug. 21	85.5	130	Sept. 22	105	
July 21	64.7	68	Aug. 22	75.5		Sept. 23	109	
July 22	69.7		Aug. 23	47.2		Sept. 24	115	
July 23	70.8		Aug. 24	46.9	74	Sept. 25	113	
July 24	75.2	84	Aug. 25	70.2		Sept. 26	116	
July 25	75.2		Aug. 26	45.6		Sept. 27	118	
						Sept. 28	126	176
						Sept. 29	126	
						Sept. 30	124	

PECOS RIVER NEAR ORLA, TEXAS, October 1946 to September 1947

Analyses of composites of daily samples collected at gaging station about 600 feet upstream from Pasotex pipe line crossing, 6 miles southeast of Orla, 16 miles downstream from Salt (Screwbean) Draw, and 19 mile downstream from Red Bluff Dam.

Analyzed by Geological Survey

Date of collection	Mean discharge (second-feet)	Specific conductance ($K \times 10^5$ at 25°C)	Parts per million: Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na+K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Dissolved Solids: Parts per million	Dissolved Solids: Tons per acre foot	Dissolved Solids: Tons per day	Hardness as $CaCO_3$: Total	Hardness as $CaCO_3$: Non-carbonate	Per cent sodium
Oct. 1-10, 1946	31.0	433	408	66	528	73	1,090	880	1.0	3,010	4.09	252	1,290	1,230	47
Oct. 11-20	10.4	918	568	184	1,460	102	1,800	2400	1.0	6,460	8.79	181	2,170	2,090	59
Oct. 21-Dec. 15	13.3	893	566	184	1,410	105	1,820	2,300	1.0	6,330	8.61	227	2,170	2,080	58
Dec. 16-Feb. 10,1947	8.43	673	484	158	908	129	1,600	1,460	.5	4,670	6.35	106	1,860	1,750	52
Feb. 11-19	3.84	680	488	164	967	114	1,660	1,540	.5	4,880	6.64	51	1,890	1,800	53
Feb. 20-28	18.6	670	504	163	1,010	136	1,830	1,490	1.0	5,060	6.88	254	1,930	1,820	53
Mar. 1-10	19.4	665	500	165	879	105	1,650	1,440	3.0	4,690	6.38	246	1,930	1,840	50
Mar. 11-20	54.8	665	502	165	883	95	1,660	1,450	1.0	4,710	6.41	697	1,930	1,850	50
Mar. 21-31	343	636	498	157	824	130	1,630	1,330	1.5	4,500	6.12	4,170	1,890	1,780	49
Apr. 1-10	524	650	494	163	895	106	1,660	1,440	3.5	4,710	6.41	6,660	1,900	1,820	51
Apr. 11-20	548	667	522	172	848	132	1,700	1,400	2.0	4,710	6.41	6,970	2,010	1,900	48
Apr. 21-30	514	689	538	173	875	138	1,740	1,440	2.0	4,840	6.58	6,720	2,050	1,940	48
May 1-10	405	740	524	175	1,020	100	1,760	1,650	3.5	5,180	7.04	5,660	2,030	1,940	52
May 11-20	94.8	749	560	183	1,030	113	1,870	1,660	4.0	5,360	7.29	1,370	2,150	2,060	51
May 21-31	3.57	843	620	210	1,160	110	2,040	1,920	3.0	6,010	8.17	58	2,410	2,320	51
June 1-10	48.9	758	578	187	969	98	1,860	1,630	4.0	5,280	7.18	697	2,210	2,130	49
June 11-20	180	741	570	186	958	112	1,830	1,610	3.0	5,210	7.09	2,530	2,190	2,100	49
June 21-30	233	773	586	190	1,010	129	1,900	1,670	1.5	5,420	7.37	3,410	2,240	2,140	49
July 1-10	325	803	584	198	1,090	92	1,950	1,800	4.0	5,670	7.71	4,980	2,270	2,200	51
July 11-20	306	825	606	205	1,130	101	2,000	1,880	6.0	5,880	8.00	4,860	2,360	2,270	51
July 21-31	236	921	626	216	1,330	126	2,080	2,180	4.5	6,500	8.84	4,140	2,450	2,350	54

PECOS RIVER NEAR ORLA, TEXAS, October 1946 to September 1947
(Continued)

Analyzed by Geological Survey — Parts per million

Date of collection	Mean discharge (second feet)	Specific conductance ($K \times 10^5$ at 25°C)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na+K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Dissolved Solids: Parts per million	Dissolved Solids: Tons per acre foot	Dissolved Solids: Tons per day	Hardness as $CaCO_3$: Total	Hardness as $CaCO_3$: Non-carbonate	Per cent sodium
Aug. 1-10, 1947	165	965	644	223	1,460	110	2,200	2,320	5.0	6,930	9.42	3,090	2,570	2,430	55
Aug. 11-20	124	1,010	634	235	1,550	119	2,240	2,480	--	7,200	9.79	2,410	2,550	2,450	57
Aug. 21-31	49.5	1,200	669	249	1,970	126	2,360	3,130	--	8,440	11.48	1,130	2,690	2,590	61
Sept. 1-10	49.6	1,290	665	262	2,190	117	2,390	3,490	--	9,050	12.31	1,210	2,740	2,640	64
Sept. 11-20	49.3	1,190	672	256	1,900	116	2,350	3,070	--	8,300	11.29	1,100	2,730	2,630	60
Sept. 21-30	50.0	1,160	659	258	1,880	96	2,360	3,020	--	8,220	11.18	1,110	2,710	2,630	60
Weighted average	125	764	554	185	1,050	116	1,840	1,720	3.1	5,410	7.36	1,830	2,140	2,050	51

TOYAH CREEK BELOW TOYAH LAKE, NEAR PECOS, TEXAS, October 1946 to September 1947

Analyses of daily samples collected during periods of actual flow (no flow at most times) at bridge on county road between Pecos and Grandfalls, at lower end of Toyah Lake, 6 miles upstream from mouth and 7.4 miles southeast of Pecos.

Analyzed by Geological Survey — Parts per million

Date of collection	Specific conductance ($K \times 10^5$ at 25°C)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na+K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Dissolved Solids: Parts per million	Dissolved Solids: Tons per acre foot	Hardness as $CaCO_3$: Total	Hardness as $CaCO_3$: Non-carbonate	Per cent sodium
Oct. 9-10, 1946	809	620	134	1,250	44	2,530	1,520	0.8	6,080	8.27	2,100	2,060	56
Oct. 11-20	1,060	756	177	1,770	42	3,380	2,060	--	8,160	11.10	2,610	2,580	60
Oct. 21-25	1,340	895	247	2,370	51	4,240	2,800	--	10,600	14.42	3,250	3,210	61
May 10-14, 1947	289	565	35	146	39	1,410	262	2.5	2,440	3.32	1,550	1,520	17
May 15-21	426	667	66	340	36	1,700	620	1.2	3,410	4.64	1,940	1,910	28
May 22-30	680	992	118	596	37	2,540	1,120	2.5	5,390	7.33	2,960	2,930	30
Aug. 24-31	857	560	94	1,440	44	2,600	1,540	2.5	6,260	8.51	1,780	1,750	64

PECOS RIVER BELOW GRANDFALLS, TEXAS, October 1946 to September 1947

Analyses of composites of daily samples collected at gaging station at bridge on county road between Grandfalls and Imperial, 7.1 miles southeast of Grandfalls, Ward County and about 10 miles downstream from Chacatori Draw.

Analyzed by Geological Survey

Date of collection	Mean discharge (second feet)	Specific conductance ($K \times 10^5$ at 25°C)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na+K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Parts per million: Dissolved solids: Parts per million	Dissolved solids: Tons per acre foot	Dissolved solids: Tons per day	Hardness as $CaCO_3$: Total	Hardness as $CaCO_3$: Non-carbonate	Per cent sodium
Oct. 1-20, 1946	21.2	1,430	789	351	2,360	181	3,020	3,720	--	10,300	14.01	590	3,410	3,260	60
Oct. 21-31	20.8	1,440	789	363	2,390	176	3,050	3,780	--	10,500	14.28	590	3,460	3,320	60
Nov. 1-10	19.6	1,470	753	367	2,470	158	3,040	3,880	--	10,600	14.42	561	3,390	3,260	61
Nov. 11-20	18.2	1,440	767	371	2,370	157	3,010	3,780	--	10,400	14.14	511	3,440	3,310	60
Nov. 21-30	20.0	1,440	759	362	2,340	152	2,970	3,730	--	10,200	13.87	551	3,380	3,260	60
Dec. 1-10	29.2	1,480	759	358	2,430	171	2,910	3,880	--	10,400	14.14	820	3,370	3,230	61
Dec. 11-20	30.7	1,400	729	345	2,380	179	2,810	3,790	--	10,100	13.74	837	3,240	3,090	62
Dec. 21-31	33.5	1,460	732	350	2,450	179	2,810	3,920	--	10,400	14.14	941	3,270	3,120	62
Jan. 1-10, 1947	42.7	1,600	768	363	2,680	184	3,010	4,220	--	11,100	15.10	1,280	3,410	3,260	63
Jan. 11-20	30.1	1,550	751	354	2,560	191	2,900	4,050	--	10,700	14.55	870	3,330	3,170	63
Jan. 21-31	24.0	1,550	740	373	2,580	191	3,020	4,030	--	10,800	14.69	700	3,380	3,220	62
Feb. 1-10	24.7	1,530	769	391	2,540	176	3,050	4,070	--	10,900	14.82	727	3,530	3,380	61
Feb. 11-19	37.0	1,530	769	392	2,670	172	3,050	4,270	--	11,200	15.23	1,120	3,530	3,390	62
Feb. 20-28	32.0	1,540	774	390	2,640	191	3,060	4,200	--	11,200	15.23	968	3,540	3,380	62
Mar. 1-10	54.2	1,650	774	387	2,830	124	3,000	4,570	--	11,600	15.78	1,700	3,520	3,420	64
Mar. 11-20	41.3	1,460	743	354	2,480	99	2,830	4,030	--	10,500	14.28	1,170	3,310	3,230	62
Mar. 21-31	33.2	1,400	738	341	2,280	103	2,780	3,700	--	9,890	13.45	887	3,240	3,160	60
Apr. 1-10	26.5	1,490	753	357	2,490	86	2,890	4,030	2.5	10,600	14.42	758	3,350	3,280	62
Apr. 11-20	30.3	1,490	740	366	2,570	89	2,990	4,080	4.0	10,800	14.69	884	3,350	3,280	63
Apr. 21-30	28.0	1,420	725	351	2,340	89	2,890	3,720	5.5	10,100	13.74	764	3,250	3,180	61
May 1-10	28.7	1,370	722	337	2,280	95	2,860	3,600	5.5	9,850	13.40	763	3,190	3,110	61
May 11-20	43.8	1,240	651	299	1,990	121	2,500	3,180	3.0	8,680	11.80	1,030	2,850	2,760	60
May 21-31	26.3	1,290	689	313	2,050	142	2,640	3,260	4.0	9,030	12.28	641	3,010	2,890	60

PECOS RIVER BELOW GRANDFALLS, TEXAS, October 1946 to September 1947
(Continued)

Analyzed By Geological Survey

Date of collection	Mean discharge (second feet)	Specific conductance ($K \times 10^5$ at 25°C)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na+K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Dissolved Solids: Parts per million	Dissolved Solids: Tons per acre foot	Dissolved Solids: Tons per day	Hardness as $CaCO_3$: Total	Hardness as $CaCO_3$: Non-carbonate	Per cent sodium
			Parts per million												
June 1-4, 1947	49.0	1,430	739	369	2,410	77	3,040	3,810	--	10,400	14.14	1,380	3,360	3,300	61
June 5	445	148	98	23	112	106	171	225	1.0	776	1.06	932	339	252	42
June 6-8	43.0	531	292	121	753	116	950	1,260	3.5	3,440	4.68	399	1,230	1,130	57
June 9-20	25.3	990	536	250	1,520	85	2,000	2,500	--	6,850	9.32	468	2,370	2,300	58
June 21-30	22.3	1,220	658	304	1,880	121	2,460	3,060	--	8,420	11.45	507	2,890	2,790	59
July 1-10	25.0	1,340	713	343	2,080	91	2,750	3,390	--	9,320	12.68	629	3,190	3,120	59
July 11-20	25.0	1,530	790	379	2,570	102	3,220	4,030	--	11,000	14.96	743	3,530	3,450	61
July 21-31	22.4	1,530	817	388	2,540	129	3,310	3,980	--	11,100	15.10	671	3,630	3,530	60
Aug. 1-10	19.5	1,420	791	354	2,430	105	3,250	3,720	--	10,600	14.42	558	3,430	3,340	61
Aug. 11-20	17.9	1,420	802	356	2,360	101	3,200	3,670	--	10,400	14.14	503	3,470	3,380	60
Aug. 21-31	17.7	1,420	803	356	2,420	121	3,260	3,720	--	10,600	14.42	507	3,470	3,370	60
Sept. 1-10	14.6	1,510	752	344	2,590	102	3,210	3,900	--	10,800	14.69	426	3,290	3,210	63
Sept. 11-20	14.5	1,510	761	383	2,480	125	3,180	3,820	--	10,700	14.55	419	3,470	3,370	61
Sept. 21-30	14.0	1,500	742	338	2,580	111	3,180	3,850	--	10,700	14.55	404	3,240	3,150	63
Weighted average	28.2	1,380	709	336	2,290	134	2,770	3,630	--	9,800	13.33	746	3,150	3,040	61

PECOS RIVER NEAR GIRVIN, TEXAS, October 1946 to September 1947

Analyses of composites of daily samples collected at gaging station at bridge on U. S. Highway 67, about half a mile downstream from Panhandle and Santa Fe Railway bridge, 2.1 miles east of Girvin, Pecos County, and 6½ miles downstream from Comanche Creek.

Analyzed by Geological Survey — Parts per million

Date of collection	Mean discharge (second feet)	Specific conductance ($K \times 10^5$ at 25°C)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na+K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Dissolved Solids: Parts per million	Dissolved Solids: Tons per acre foot	Dissolved Solids: Tons per day	Hardness as $CaCO_3$: Total	Hardness as $CaCO_3$: Non-carbonate	Per cent sodium
Oct. 1-20, 1946	41.8	1,700	747	464	3,060	181	3,400	4,700	--	12,500	17.00	1,410	3,770	3,620	64
Oct. 21-31	36.0	1,830	790	494	3,280	169	3,580	5,160	--	13,400	18.22	1,300	4,000	3,860	64
Nov. 1-10	33.6	1,830	790	483	3,310	191	3,600	5,140	--	13,400	18.22	1,220	3,960	3,800	65
Nov. 11-20	37.1	1,790	803	480	3,300	205	3,590	5,140	--	13,400	18.22	1,340	3,980	3,810	64
Nov. 21-30	40.2	1,790	791	480	3,300	205	3,620	5,090	--	13,400	18.22	1,450	3,950	3,780	64
Dec. 1-10	46.8	1,810	768	480	3,150	178	3,460	4,960	--	12,900	17.54	1,630	3,890	3,740	64
Dec. 11-20	59.2	1,730	686	452	3,120	175	3,270	4,820	--	12,400	16.86	1,980	3,570	3,430	65
Dec. 21-31	52.8	1,750	734	452	3,050	170	3,270	4,810	--	12,400	16.86	1,770	3,690	3,550	64
Jan. 1-10, 1947	69.1	1,700	757	442	2,990	180	3,270	4,720	--	12,300	16.73	2,290	3,710	3,560	64
Jan. 11-20	61.1	1,750	766	457	3,150	182	3,360	4,960	--	12,800	17.41	2,110	3,790	3,640	64
Jan. 21-31	45.3	1,770	761	472	3,250	211	3,440	5,070	--	13,100	17.82	1,600	3,840	3,670	65
Feb. 1-10	46.5	1,890	783	483	3,280	193	3,470	5,180	--	13,300	18.09	1,670	3,940	3,780	64
Feb. 11-19	55.1	1,850	811	478	3,220	184	3,470	5,130	--	13,200	17.95	1,960	3,990	3,840	64
Feb. 20-28	52.6	1,830	790	463	3,260	189	3,450	5,110	--	13,200	17.95	1,870	3,880	3,720	65
Mar. 1-10	63.4	1,790	774	466	3,200	167	3,490	4,990	--	13,000	17.68	2,230	3,850	3,710	64
Mar. 11-20	58.4	1,790	768	449	3,290	157	3,380	5,160	--	13,100	17.82	2,070	3,760	3,630	66
Mar. 21-31	46.3	1,690	754	457	3,080	160	3,400	4,810	--	12,600	17.14	1,580	3,760	3,630	64
Apr. 1-10	36.8	1,890	785	476	3,270	105	3,550	5,130	--	13,300	18.09	1,320	3,920	3,830	64
Apr. 11-20	44.4	1,890	801	489	3,350	125	3,640	5,250	--	13,600	18.50	1,630	4,010	3,910	65
Apr. 21-30	45.6	1,900	783	483	3,270	67	3,580	5,150	--	13,300	18.09	1,640	3,940	3,880	64
May 1-10	46.5	1,860	784	487	3,250	99	3,600	5,110	--	13,300	18.09	1,670	3,960	3,880	64
May 11-20	115	1,570	721	408	2,720	97	3,150	4,270	--	11,300	15.37	3,510	3,480	3,400	63
May 21-31	53.8	1,670	723	426	2,850	74	3,250	4,470	--	11,800	16.05	1,710	3,560	3,500	64

PECOS RIVER NEAR GIRVIN, TEXAS, October 1946 to September 1947
(Continued)

Analyzed By Geological Survey — Parts per million

Date of collection	Mean discharge (second feet)	Specific conductance ($K \times 10^5$ at 25°C)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na+K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Dissolved Solids: Parts per million	Dissolved Solids: Tons per acre foot	Dissolved Solids: Tons per day	Hardness as $CaCO_3$: Total	Hardness as $CaCO_3$: Non-carbonate	Per cent sodium
June 1-9, 1947	121	1,720	697	430	2,910	74	3,200	4,560	1.5	11,800	16.05	3,860	3,510	3,450	64
June 10-15	45.0	750	334	179	1,150	80	1,390	1,810	1.5	4,900	6.66	595	1,570	1,500	61
June 16-20	41.0	1,260	498	317	2,210	77	2,470	3,340	1.5	8,870	12.06	982	2,550	2,480	65
June 21-30	65.7	1,430	590	366	2,450	77	2,800	3,780	1.5	10,000	13.60	1,770	2,980	2,910	64
July 1-10	41.9	1,780	714	489	3,220	89	3,510	5,010	—	13,000	17.68	1,470	3,790	3,720	65
July 11-20	48.4	1,690	714	469	3,060	83	3,410	4,790	—	12,500	17.00	1,630	3,710	3,640	64
July 21-31	39.1	1,890	787	518	3,470	75	3,830	5,380	—	14,000	19.04	1,480	4,090	4,030	65
Aug. 1-10	26.8	1,950	822	537	3,430	85	3,850	5,410	—	14,100	19.18	1,020	4,260	4,190	64
Aug. 11-20	21.5	1,940	829	540	3,490	87	3,940	5,460	—	14,300	19.45	830	4,290	4,220	64
Aug. 21-31	26.8	1,940	813	535	3,390	105	3,810	5,350	—	13,900	18.90	1,010	4,230	4,140	64
Sept. 1-10	26.2	1,910	817	540	3,430	101	4,000	5,300	—	14,100	19.18	997	4,260	4,180	64
Sept. 11-20	27.2	1,910	809	522	3,390	109	3,810	5,300	—	13,900	18.90	1,020	4,170	4,080	64
Sept. 21-30	22.8	1,920	814	515	3,470	111	3,890	5,360	—	14,100	19.18	868	4,150	4,060	65
Weighted average	48.0	1,740	745	458	3,090	136	3,390	4,830	—	12,600	17.14	1,630	3,740	3,630	64

PECOS RIVER NEAR SHEFFIELD, TEXAS, October 1946 to September 1947

Analyses of composites of daily samples collected at gaging station at bridge on U. S. Highway 290, 3½ miles southeast of Sheffield, Pecos County, and about 4 miles upstream from Liveoak Creek.

Analyzed by Geological Survey — Parts per million

Date of collection	Mean discharge (second feet)	Specific conductance ($K \times 10^5$ at 25°C)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na+K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Dissolved solids: Parts per million	Dissolved solids: Tons per acre foot	Dissolved solids: Tons per day	Hardness as $CaCO_3$: Total	Hardness as $CaCO_3$: Non-carbonate	Per cent sodium
Oct. 12-20, 1946	--	1,300	566	343	2,210	163	2,500	3,470	--	9,170	12.47	--	2,820	2,690	63
Oct. 22-31	--	1,340	566	355	2,310	131	2,600	3,610	--	9,510	12.93	--	2,870	2,760	64
Nov. 1-10	--	1,410	577	365	2,410	118	2,680	3,750	--	9,840	13.38	--	2,940	2,840	64
Mar. 1-20, 1947	77.3	1,570	656	399	2,620	166	2,860	4,150	--	10,800	14.69	2,250	3,280	3,140	63
Mar. 21-31	69.0	1,520	636	374	2,530	148	2,650	4,080	--	10,300	14.01	1,920	3,120	3,000	64
Apr. 1-10	59.9	1,480	610	370	2,440	139	2,630	3,900	--	10,000	13.60	1,620	3,040	2,930	64
Apr. 11-20	57.9	1,440	609	373	2,410	119	2,690	3,830	--	9,970	13.56	1,560	3,050	2,960	63
Apr. 21-30	61.1	1,390	585	363	2,360	105	2,590	3,760	--	9,710	13.21	1,600	2,950	2,870	63
May 1-10	112	1,480	593	368	2,440	72	2,620	3,910	--	9,970	13.56	3,010	2,990	2,930	64
May 11-12, 18-19	418	932	436	262	1,770	92	1,940	2,780	3.5	7,240	9.85	8,170	2,170	2,090	64
May 13-17	113	679	270	140	892	128	981	1,460	3.5	3,810	5.18	1,160	1,250	1,140	61
May 20-31	74.3	792	356	189	1,230	128	1,380	1,980	2.5	5,200	7.07	1,040	1,670	1,560	62
June 1-3	58.7	792	370	191	1,230	88	1,480	1,960	2.5	5,280	7.18	837	1,710	1,640	61
June 4-10	124	1,200	537	323	2,040	99	2,360	3,230	1.5	8,540	11.61	2,860	2,670	2,590	62
June 11-23	63.5	1,460	624	384	2,520	82	2,830	3,970	--	10,400	14.14	1,780	3,140	3,070	64
June 24-27	287	830	370	192	1,280	112	1,470	2,040	2.5	5,410	7.36	4,190	1,710	1,620	62
June 28-30	72.0	416	202	100	561	121	680	940	1.2	2,540	3.45	494	915	816	57
July 1-6	57.3	727	274	182	1,150	124	1,260	1,780	3.0	4,710	6.41	729	1,440	1,330	64
July 7-20	51.5	1,080	406	276	1,880	91	1,980	2,780	3.0	7,290	9.91	1,010	2,150	2,070	65
July 21-31	36.9	1,300	519	353	2,210	98	2,510	3,440	--	9,080	12.35	905	2,750	2,670	64

PECOS RIVER NEAR SHEFFIELD, TEXAS, October 1946 to September 1947
(Continued)

Analyzed by Geological Survey — Parts per million

Date of collection	Mean discharge (second feet)	Specific conductance ($K \times 10^5$ at 25°C)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na+K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Dissolved Solids: Parts per million	Dissolved Solids: Tons per acre foot	Dissolved Solids: Tons per day	Hardness as $CaCO_3$: Total	Hardness as $CaCO_3$: Non-carbonate	Percent sodium
Aug. 1-10, 1947	34.0	1,410	569	384	2,450	98	2,670	3,880	--	10,000	13.60	918	3,000	2,920	64
Aug. 11-20	27.7	1,340	554	359	2,270	88	2,550	3,590	--	9,370	12.74	701	2,860	2,790	63
Aug. 21-27	78.6	1,540	633	421	2,640	100	2,950	4,180	--	10,900	14.82	2,310	3,310	3,230	63
Aug. 28-31	48.2	1,000	416	271	1,560	102	1,790	2,550	--	6,640	9.03	864	2,150	2,070	61
Sept. 1-10	38.1	1,320	589	345	2,440	123	2,580	3,830	--	9,840	13.38	1,010	2,890	2,790	65
Sept. 11-20	36.0	1,220	552	322	2,100	116	2,440	3,290	--	8,760	11.91	851	2,700	2,610	63
Sept. 21-30	32.1	1,400	610	374	2,440	103	2,760	3,830	--	10,100	13.74	875	3,060	2,980	63
Weighted average	72.3	1,210	513	311	2,040	112	2,250	3,230	--	8,400	11.42	1,640	2,560	2,470	63

RIO GRANDE AT MISSION PUMPING PLANT, NEAR MISSION, TEXAS, October 1946 to September 1947

Analyses of composites of daily samples collected at Mission Pumping Plant 3 miles south of Mission, Texas.

Analyzed by Geological Survey — Parts per million

Date of collection	Specific conductance ($K \times 10^5$ at 25°C)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na+K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Dissolved Solids	Hardness as $CaCO_3$	
										Total	Non-carbonate
Oct. 1-10, 1946	68.6	66	11	67	156	136	57	5.6	456	210	82
Oct. 11-20	61.8	66	9.3	52	151	110	51	6.9	403	202	78
Oct. 21-31	86.9	88	15	80	180	166	93	5.8	576	281	134
Nov. 1-10	98.7	76	16	110	161	177	124	2.8	627	256	124
Nov. 11-20	107	74	21	124	151	195	150	1.5	677	271	147
Nov. 21-30	108	87	24	104	170	190	145	.2	685	316	176
Dec. 1-10	110	84	26	142	158	219	188	3.0	821	316	187
Dec. 11-18	111	80	24	131	168	196	170	1.5	742	298	160
Jan. 1-8,10,1947	138	92	27	146	174	231	192	4.0	805	340	198
Jan. 11-20	135	92	27	157	182	238	200	3.0	842	340	192
Jan. 21-31	142	90	27	148	183	226	190	3.8	817	336	186
Feb. 1-10	130	90	32	147	176	244	196	2.5	843	356	212
Feb. 11-19	128	88	31	132	176	204	197	.0	840	347	203
Feb. 20-28	128	90	31	138	176	242	180	1.0	855	352	208
Mar. 1-10	133	82	29	159	149	249	202	4.0	904	324	202
Mar. 11-20	131	79	29	159	155	240	200	2.5	856	316	189
Mar. 21-31	145	91	32	171	150	265	233	3.8	950	358	236
Apr. 1-10	144	94	33	164	165	262	224	3.5	933	370	235
Apr. 11-20	144	86	28	165	142	242	224	4.0	875	330	213
Apr. 21-30	131	86	28	142	122	230	211	2.5	822	330	230
May 1-8	137	84	32	146	139	237	210	1.8	887	341	227
May 9-11	217	167	62	225	110	669	265	1.8	1,440	672	582
May 12-20	102	81	21	98	144	190	130	2.2	648	288	170
May 21-31	76.1	70	13	61	122	141	79	3.8	492	228	128

RIO GRANDE AT MISSION PUMPING PLANT, NEAR MISSION, TEXAS, October 1946 to September 1947
(Continued)

Analyzed by Geological Survey — Parts per million

Date of collection	Specific conductance ($K \times 10^5$ at 25°C)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na+K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Dissolved Solids	Hardness as $CaCO_3$ Total	Hardness as $CaCO_3$ Noncarbonate
June 1-3, 1947	68.9	34	4.4	108	160	98	71	6.1	434	103	0
June 4, 6-10	152	104	29	170	149	256	252	6.0	982	378	256
June 11-20	120	88	30	111	132	208	182	4.3	755	343	235
June 21-30	52.2	54	10	35	124	74	50	4.0	333	176	74
July 1-8	55.3	50	9.8	50	124	78	63	4.0	360	166	64
July 9-12	147	99	31	197	125	273	295	1.0	958	374	272
July 13-20	99.0	64	20	110	130	185	128	2.0	633	242	135
July 21-31	102	68	22	114	130	194	140	2.2	653	260	154
Aug. 1-2	116	88	21	121	180	170	170	5.2	725	306	158
Aug. 3-10	51.0	58	7.6	39	138	85	40	6.4	337	176	62
Aug. 11-20	64.4	64	11	55	143	111	63	3.8	419	204	88
Aug. 21-31	75.6	66	13	72	138	143	77	4.0	485	218	105
Sept. 1-10	74.9	69	11	75	147	159	62	6.9	495	217	96
Sept. 11-20	60.1	56	9.0	57	139	109	48	5.9	407	177	63
Sept. 21-30	68.5	71	10	61	146	150	50	5.7	455	218	98

ANALYSES OF SPOT SAMPLES COLLECTED AT VARIOUS POINTS IN THE RIO GRANDE BASIN IN TEXAS

Analyzed by Geological Survey — Parts per million

Date of collection	Specific conductance ($K \times 10^5$ at 25° C)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na+K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Dissolved Solids	Total Hardness as $CaCO_3$
Pecos River at tailrace of Red Bluff Dam, near Orla, Texas										
Feb. 28, 1947	621	482	150	835	134	1,570	1,340	2.0	4,440	1,820
Mar. 31	634	500	159	799	74	1,620	1,340	2.5	4,460	1,900
Mar. 31	685	--	--	--	--	--	1,340	--	--	--
Apr. 7	650	--	--	--	--	--	1,340	--	--	--
Apr. 13	650	--	--	--	--	--	1,360	--	--	--
Apr. 20	681	--	--	--	--	--	1,450	--	--	--
Apr. 27	681	--	--	--	--	--	1,460	--	--	--
May 4	687	--	--	--	--	--	1,460	--	--	--
May 11	710	--	--	--	--	--	1,560	--	--	--
June 3	713	--	--	--	--	--	1,530	--	--	--
June 9	718	--	--	--	--	--	1,560	--	--	--
June 15	723	566	186	926	102	1,830	1,560	1.5	5,120	2,180
Pecos River at Pecos, Texas										
Oct. 9, 1946	862	552	227	1,240	112	1,940	2,050	--	6,060	2,310
Mar. 13, 1947	1,010	682	283	1,490	209	2,320	2,500	--	7,380	2,870
Salt (Screwbean) Draw near Orla, Texas										
Mar. 10,15,20,25	3,000	1,070	607	6,040	106	3,680	10,200	--	21,600	5,170
Mar. 31	2,950	1,120	590	5,860	113	3,750	9,900	--	21,300	5,220
Apr. 4,9,14,19,24,29	2,860	1,070	568	5,620	129	3,600	9,480	--	20,400	5,010
May 4,9,14,19,24,29	2,860	1,060	563	5,730	134	3,640	9,580	--	20,600	4,960
June 4,9,14	2,830	1,060	552	5,530	118	3,670	9,230	--	20,100	4,920
July 3,8,13,18,23,28	2,960	--	--	--	--	--	9,300	--	--	--
Aug. 3,8,13,18,23,28	2,860	--	--	--	--	--	--	--	--	--
Sept. 3,8,13,18,23,28	2,780	--	--	--	--	--	--	--	--	--
Barstow Irrigation Canal at Highway 80 crossing east of Barstow										
Mar. 13, 1947	999	692	254	1,480	145	2,420	2,380	1.5	7,300	2,770
Barstow Drain No. 1										
Oct. 9, 1946	1,190	731	298	1,910	134	2,780	2,970	--	8,760	3,050
Feb. 27, 1947	1,270	772	326	1,990	231	2,810	3,170	--	9,180	3,270
Mar. 13	1,270	802	346	1,970	233	2,830	3,240	--	9,300	3,420
May 15	1,150	754	308	1,720	68	2,730	2,830	8.4	8,380	3,150

ANALYSES OF SPOT SAMPLES COLLECTED AT VARIOUS POINTS IN THE RIO GRANDE BASIN IN TEXAS
(Continued)

Analyzed by Geological Survey — Parts per million

Date of collection	Specific conductance ($K \times 10^5$ at 25° C)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na+K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Dissolved Solids	Total Hardness as $CaCO_3$
Barstow Drain No. 2										
Oct. 9, 1946	897	668	217	1,250	113	2,170	2,070	--	6,430	2,560
Feb. 27, 1947	978	784	271	1,300	78	2,630	2,200	1.5	7,220	3,070
Mar. 13	1,080	770	315	1,610	232	2,720	2,620	--	8,150	3,220
May 15	963	748	259	1,280	84	2,440	2,200	5.0	6,970	2,930
Barstow Drain No. 2-B										
Mar. 13, 1947	1,030	732	259	1,550	144	2,550	2,480	--	7,640	2,890
Barstow Drain No. 3										
Oct. 9, 1946	968	702	258	1,390	104	2,580	2,170	--	7,150	2,810
Mar. 15, 1947	1,040	730	291	1,450	82	2,650	2,370	7.5	7,540	3,020
Toyah Creek near Pecos, Texas										
Mar. 13, 1947	1,840	647	553	3,520	315	4,220	4,890	--	14,000	3,890
Salt Draw near Pecos, Texas										
Mar. 13, 1947	1,040	462	290	1,670	376	2,040	2,520	--	7,170	2,350