

TEXAS BOARD OF WATER ENGINEERS

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BULLETIN 5208

WATER RESOURCES OF WALLER COUNTY, TEXAS

By

Thomas R. Fluellen, Geologist  
Texas Board of Water Engineers

and

William H. Goines, Engineer  
United States Geological Survey

Prepared in cooperation with the Geological Survey,  
United States Department of the Interior

September 1952



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# WATER RESOURCES OF WALLER COUNTY, TEXAS

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Thomas R. Fluellen and William H. Goines

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## ABSTRACT

Waller County is on the Gulf Coastal Plain about 30 miles west of Houston. The county is underlain by a series of sedimentary rocks which dip gently southeastward toward the Gulf of Mexico at an angle slightly greater than the slope of the land, thus creating conditions favorable for artesian water. The water-bearing rocks that contain potable water, in ascending order, are the Catahoula sandstone, Oakville sandstone and Lagarto clay, undifferentiated, Willis sand, Lissie formation, Beaumont clay, and Pleistocene and Recent alluvium. Available data indicate that throughout the county all strata below the Catahoula sandstone contain highly mineralized water.

From a study of electric logs it appears that potable water might be obtained at a maximum depth of about 2,400 feet in the Catahoula sandstone. The overlying sands in the Oakville and Lagarto formations yield small supplies to several flowing wells along the Brazos River, and they yield moderately large supplies to wells of the city of Hempstead and of the Prairie View College. The water is slightly hard but is of good quality otherwise. The Willis sand yields large quantities of good water throughout the county, especially in the irrigated area. The Lissie formation yields water that is slightly hard. The Beaumont clay and Pleistocene and Recent alluvium are not important sources of water in Waller County.

The estimated average withdrawal of ground water in the county during 1950 was about 38,000,000 gallons a day, of which 33,700,000 gallons a day was used to irrigate about 16,000 acres of rice. The water level in the Katy rice-growing area declined at the average rate of about 1.4 feet a year from 1942 to 1951.

Surface water is generally available in abundance in the Brazos River in Waller County. Storage of flood water is necessary, however, for large and continuous withdrawals.

## INTRODUCTION

### PURPOSE AND SCOPE OF REPORT

The investigation in Waller County upon which this report is based was made as a part of a cooperative study of the water resources of Texas by the United States Geological Survey and the Texas State Board of Water Engineers.

This report contains brief discussions of the geology of the county and of the relation of the geology to the occurrence of ground water, and a brief summary of the use of ground water. Records of 203 wells were obtained to determine the depth, areal extent, and thickness of the water-bearing formations in Waller County. Samples of water were obtained from 66 wells for chemical analysis. The well records are given in table 6, and the chemical analyses of water from wells are listed in table 9. The report contains a brief discussion of the surface-water supply of the county.

### PERSONNEL

The ground-water studies were made by Thomas R. Fluellen of the Texas Board of Water Engineers. The section on surface-water supply was prepared by William H. Goines, hydraulic engineer, Surface Water Branch, U. S. Geological Survey. The text was revised by William O. George, geologist, Ground Water Branch. Discussions of the quality of water were reviewed by Burdge Irelan, district chemist, Quality of Water Branch, U. S. Geological Survey. The investigation was made under the administrative direction of A. Nelson Sayre, chief of the Ground Water Branch of the Geological Survey, and under the immediate supervision of William L. Broadhurst, district geologist in charge of ground-water investigations in Texas.

### LOCATION OF COUNTY

Waller County is in southeast Texas on the Gulf Coastal Plain, about 30 miles west of Houston. The county is bounded on the north by Grimes County, on the east by Montgomery and Harris Counties, on the south by Fort Bend County, and on the west by Austin and Washington Counties (fig. 1). The Katy rice-growing area, a large irrigated area west of Houston which includes the southeastern part of Waller County, is irrigated almost entirely with water pumped from wells.

### PHYSICAL FEATURES

The northern part of the county is rolling; the southern part is an almost featureless plain. The most outstanding topographic feature is the Hockley escarpment, which separates the rolling land in the north half of the county from the flat land in the south half. The difference in elevation between the top and bottom of the escarpment is about 50 feet. Altitudes range from about 100 feet on the banks of the Brazos River near Fort Bend County to approximately 300 feet in the northeast corner of Waller County.



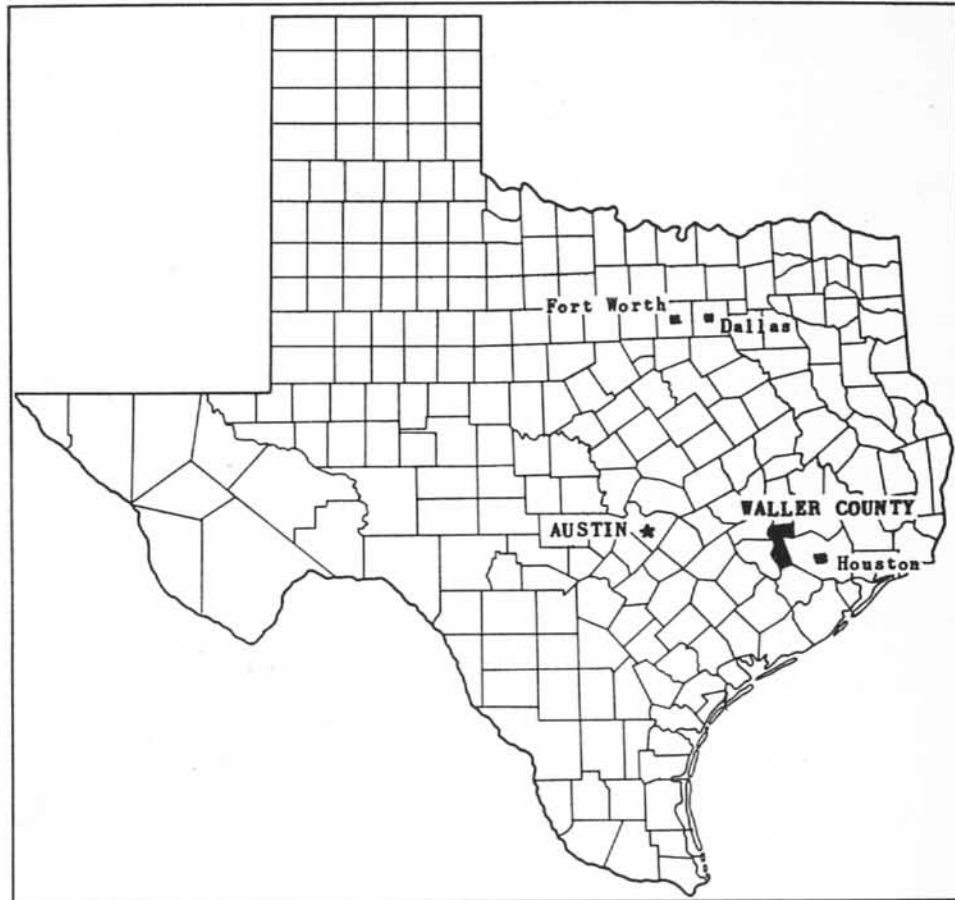


FIGURE 1.- Map of Texas showing location of Waller County.

The western part of the county is drained by the Brazos River and its tributaries, which include Donahoe, Clear, and Iron Creeks and Walnut Bayou. The northeastern part of the county is drained by Spring, Brushy, and Walnut Creeks, tributaries of the San Jacinto River. Drainage in the southeast is poorly developed; most of the runoff flows down Buffalo Bayou and Mound Creek.

#### ACKNOWLEDGMENTS

Acknowledgments are due the well owners and operators, well drillers, and industrial representatives whose cooperation made this report possible. Plummer's descriptions (Sellards, Adkins, and Plummer, 1932, pp. 655-763, 780-795)<sup>a/</sup> of the geologic formations of Texas were used to supplement inferences based on electrical logs, drillers' logs, and observations of outcrops.

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<sup>a/</sup> See references, page 18.

## PREVIOUS REPORTS

Ground water in Waller County was discussed as early at 1907 by Taylor (1907, p. 41). That report was followed by further studies by Duessen (1914, pp. 353-355). Well records, obtained by S. F. Turner and Penn Livingston (1939), and chemical analyses of well water were published by the Texas State Board of Water Engineers in mimeographed form. Ground-water data for the Katy rice-growing area have been published in progress reports on the Houston district, which were released by the Texas State Board of Water Engineers in 1932, 1937, 1938, 1939, 1940, 1942, 1944, 1946, 1950, and 1951.

Results of water-level measurements in observation wells in Waller County have been published in U. S. Geological Survey Water-Supply Papers 840, 845, 886, 909, 939, 947, 989, 1019, and 1026. These measurements and all later measurements are included in this report (table 8). The identifying numbers for all wells for which water-level records have been published previously, and the corresponding numbers in this report, are given in table 1.

Table 1.- Index of previously published well numbers and corresponding numbers in this report

Old no.	New no.	Old no.	New no.
7	A-7	239	F-10
14	A-8	240	H-28
59	D-41	241	F-15
65	D-42	242	F-39
107	C-34	243	F-11
108	C-22	244	F-14
115	C-33	245	F-27
117	D-28	246	F-20
119	D-24	247	F-33
120	D-23	248	F-40
121	D-25	249	H-6
128	D-29	250	F-8
151	D-30	251	H-9
152	D-31	252	H-21
159	F-45	253	H-25
162	F-46	254	H-26
174	E-3	255	H-27
221	F-21	256	H-32
223	F-25	257	F-42
225	F-43	260	F-19
226	F-44	261	F-28
230	H-38	262	F-38
233	H-24	263	F-22
235	H-35	269	H-5
238	H-22		

Data relating to the public water supply of Hempstead were published in U. S. Geological Survey Water-Supply Paper 1047 (Sundstrom, Hastings, and Broadhurst, 1948).

## CLIMATE

The average annual precipitation at Hempstead for the periods, 1882-84 and 1903-50 was 37.05 inches, according to records of the United States Weather Bureau. The monthly average precipitation is shown graphically in figure 2. The Weather Bureau records show that the maximum yearly total, 68.32 inches, was in 1940 and the minimum yearly total, 19.30 inches, in 1917. In 1948 only 13.38 inches was measured, but no measurements were recorded for January and November. The available record of precipitation at Hempstead is given in table 2.

Table 2.- Precipitation at Hempstead, Texas  
(From U. S. Weather Bureau Records)

(Inches)

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1882	-	-	-	0.77	9.06	0.52	3.05	1.35	2.91	5.73	-	-	23.39 <sup>a</sup>
1883	-	-	-	3.48	1.90	1.19	2.04	1.92	2.38	-	-	-	12.91 <sup>a</sup>
1884	-	-	-	-	14.00	.90	.01	.03	4.05	-	-	-	19.59 <sup>a</sup>
1903	-	-	-	-	-	-	-	-	-	2.77	.04	2.20	5.01 <sup>a</sup>
1904	.93	3.35	T	3.45	5.40	2.43	3.20	3.77	6.06	2.59	2.71	4.39	38.28
1905	2.10	4.32	9.29	9.32	7.15	6.08	3.24	.80	.35	1.00	5.98	4.66	54.29
1906	4.02	2.04	1.23	1.35	2.20	1.32	7.55	2.89	5.80	1.69	2.23	1.65	33.97
1907	2.38	4.02	2.75	2.15	10.94	.70	1.60	6.83	1.28	7.82	9.90	4.65	55.02
1908	1.48	6.14	2.87	4.18	7.65	1.88	2.00	3.32	3.44	3.99	1.97	1.32	40.24
1909	.07	.96	1.14	2.26	8.39	1.34	1.39	1.88	.25	1.70	.79	3.38	23.55
1910	.57	1.59	.95	2.50	4.01	2.80	2.05	.70	.65	3.25	2.08	4.15	25.30
1911	.25	.75	2.80	6.13	6.15	.25	3.65	3.78	.85	2.27	1.37	7.90	36.15
1912	.85	2.80	3.14	3.28	3.42	1.05	.60	.98	.34	2.54	1.10	6.49	26.59
1913	1.80	4.75	3.25	3.05	3.50	2.50	.40	0	7.16	9.36	4.03	5.57	45.37
1914	.80	6.08	11.05	3.95	7.34	T	2.00	5.49	.63	3.09	4.48	6.03	50.94
1915	4.90	2.90	1.92	8.05	2.95	.10	3.16	8.90	.70	*.68	1.21	*5.60	41.07 <sup>a</sup>
1916	*2.73	.10	.30	3.28	6.02	2.99	1.92	2.76	2.74	4.06	1.84	T	28.74 <sup>a</sup>
1917	1.84	1.16	1.20	1.78	4.38	T	3.93	1.79	1.26	T	1.46	.50	19.30
1918	.12	6.50	2.36	4.94	1.59	.58	1.99	.80	1.78	4.24	6.39	2.84	34.13
1919	5.59	3.03	2.07	1.43	13.70	10.05	2.83	5.30	3.29	9.21	1.62	2.07	60.19
1920	7.30	-	-	-	-	-	-	7.69	1.46	5.22	2.49	-	24.16 <sup>a</sup>
1921	1.99	2.14	4.82	7.39	2.25	11.51	1.94	.32	3.77	.34	.93	3.48	40.88
1922	6.19	3.66	8.07	7.36	5.85	2.25	2.79	1.65	.99	3.41	7.09	.99	50.30
1923	2.89	5.81	5.32	6.33	2.81	1.49	1.89	6.22	7.02	3.26	6.23	9.68	58.95
1924	3.61	7.67	2.86	6.49	4.94	3.02	1.22	0	3.16	.47	1.11	1.66	36.21
1925	2.21	0	.58	.78	.79	3.14	.81	2.98	2.11	13.64	6.52	1.55	35.11
1926	5.46	.42	6.90	2.84	4.01	4.99	2.96	1.11	.59	7.06	2.71	4.94	43.99
1927	.85	.92	3.16	3.74	1.70	5.81	4.82	0	3.33	4.52	.87	3.98	33.70
1928	.13	4.05	2.11	2.37	1.35	6.90	2.29	2.41	3.24	.47	5.67	5.59	36.58
1929	2.89	1.77	5.12	6.90	10.78	1.20	5.81	1.10	.45	2.90	9.81	1.30	50.03
1930	4.71	2.57	2.83	.88	3.50	2.15	0	2.10	4.53	3.15	4.58	3.09	34.09
1931	4.67	6.07	4.71	1.11	3.31	1.80	3.64	3.65	.26	2.71	.80	7.64	40.37
1932	8.87	3.98	3.28	2.13	.91	1.69	1.99	2.12	8.17	.31	1.10	5.69	40.24
1933	3.16	5.26	1.73	2.81	3.30	.67	2.51	5.03	1.87	.78	1.05	2.85	31.02
1934	8.44	5.59	4.19	4.46	1.28	0	2.23	.56	2.34	1.41	5.82	5.22	41.54
1935	3.11	3.50	3.37	4.65	11.25	1.56	4.42	1.39	5.35	.90	4.64	7.57	51.71
1936	.73	1.37	1.36	3.01	9.51	.18	12.62	2.27	5.67	1.72	2.64	2.01	43.09
1937	3.87	.48	3.00	.77	0	2.66	2.16	2.27	3.59	5.93	3.59	3.62	31.94
1938	2.24	-	-	-	-	-	-	-	-	.95	1.46	3.55	8.09 <sup>a</sup>
1939	4.26	4.51	1.65	1.02	2.62	2.22	3.11	2.39	3.12	.43	3.91	2.53	31.77
1940	2.16	3.06	.46	3.71	4.40	9.22	3.94	.68	2.76	5.07	25.57	7.29	68.32
1941	1.71	3.67	4.83	9.71	3.89	4.98	5.08	1.86	4.46	6.43	1.82	1.43	49.87
1942	1.08	1.87	.98	10.63	.48	5.07	6.64	2.55	2.22	2.00	2.53	2.73	38.78
1943	2.74	.11	2.87	2.44	4.44	3.20	5.44	.56	5.10	1.79	3.17	3.58	33.24
1944	8.62	2.28	2.99	.38	8.62	2.17	.80	3.67	2.10	.60	4.19	6.14	42.56
1945	2.25	3.77	3.88	6.99	3.28	4.50	2.06	12.87	1.90	3.60	.80	2.22	48.12
1946	3.47	6.04	6.61	3.90	7.21	4.25	5.94	1.69	4.46	4.31	9.47	1.73	59.08
1947	3.61	1.09	1.38	.70	6.42	.98	.65	-	.87	.80	3.06	-	19.56 <sup>a</sup>
1948	-	2.06	.85	1.58	2.00	0	1.20	1.09	3.05	.10	-	1.45	13.38 <sup>a</sup>
1949	4.72	6.11	3.16	5.70	.84	-	2.60	2.49	3.99	6.31	.22	4.60	40.74 <sup>a</sup>
1950	2.61	4.15	1.26	7.17	3.95	8.09	2.37	.93	4.78	.26	.72	1.90	38.19
Average:	3.06	3.21	3.20	3.90	4.92	2.94	2.93	2.64	2.91	3.27	3.70	3.85	37.05

a/ Incomplete.

\* Estimate.

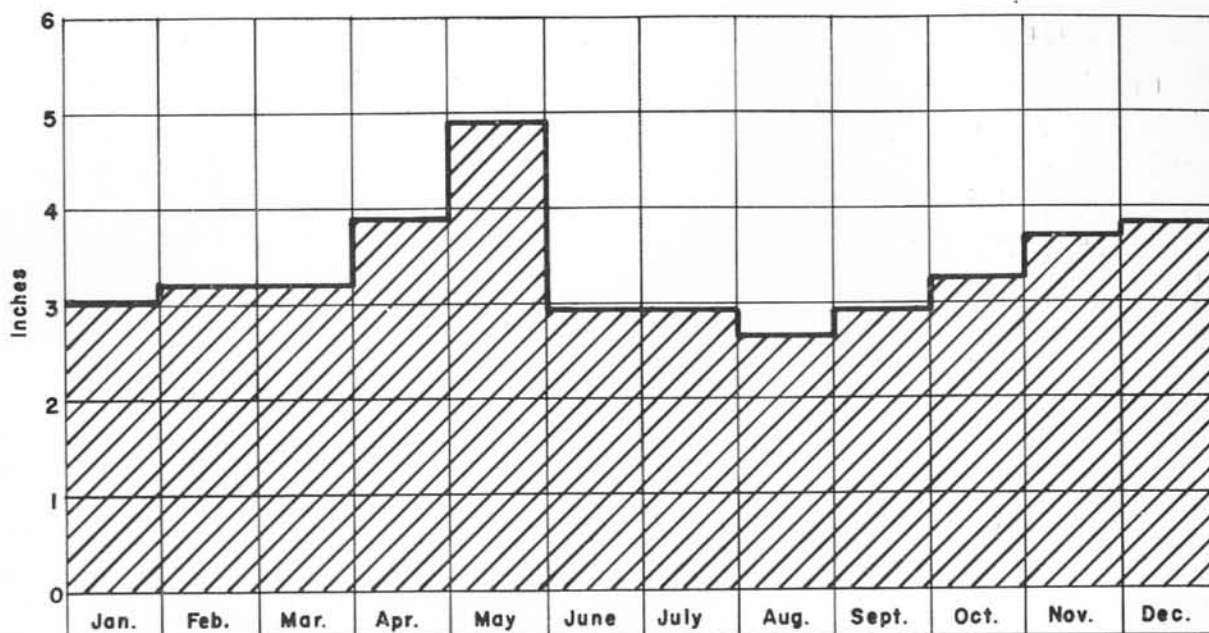


FIGURE 2.-Average monthly precipitation at Hempstead, Tex.

#### RELATION OF THE GEOLOGY TO THE OCCURRENCE OF GROUND WATER

The rocks in Waller County, both at the surface and those penetrated by the drill, are of sedimentary origin and of Quaternary and Tertiary age. They consist primarily of clay, gumbo, sandy clay, and sand and are generally red, buff, or gray in color. The rocks crop out in belts roughly parallel to the Gulf of Mexico (fig. 3), and dip southeastward toward the Gulf at an angle slightly greater than the slope of the land. Therefore, in going from southeast to northwest the outcrops of progressively older formations are encountered, and the rocks lowest in the geologic column have the highest topographic exposure. The rocks within 2,000 feet of the surface dip about 20 feet per mile, although salt domes locally modify the dip of the deeper of these formations. "Cap rock" of the Brookshire salt dome was encountered in wells G-4 and G-5 at 2,569 and 2,432 feet, respectively, but at those depths the salt domes have only a minor effect on the dip of the overlying fresh-water sands.

Permeable sands interbedded with relatively impermeable clays dip toward the coast and form ideal recharge areas for artesian reservoirs. Water enters a given sand bed at the outcrop in a relatively higher inland part of the county and moves slowly through the sand down the dip toward the Gulf. In the low areas along the Brazos River, some of the artesian wells flow.

The Catahoula sandstone, which crops out in a narrow belt about 15 miles north of Waller County in Washington and Grimes Counties, is believed to be the oldest and lowest formation beneath Waller County that offers possibilities for ground-water development. Electric logs of oil tests (figs. 4 and 5) suggest that potable water may be obtained at a maximum depth of 2,400 feet. The contacts between the various formations underlying Waller County are not sufficiently characteristic or distinctive for positive identification in electric logs, but



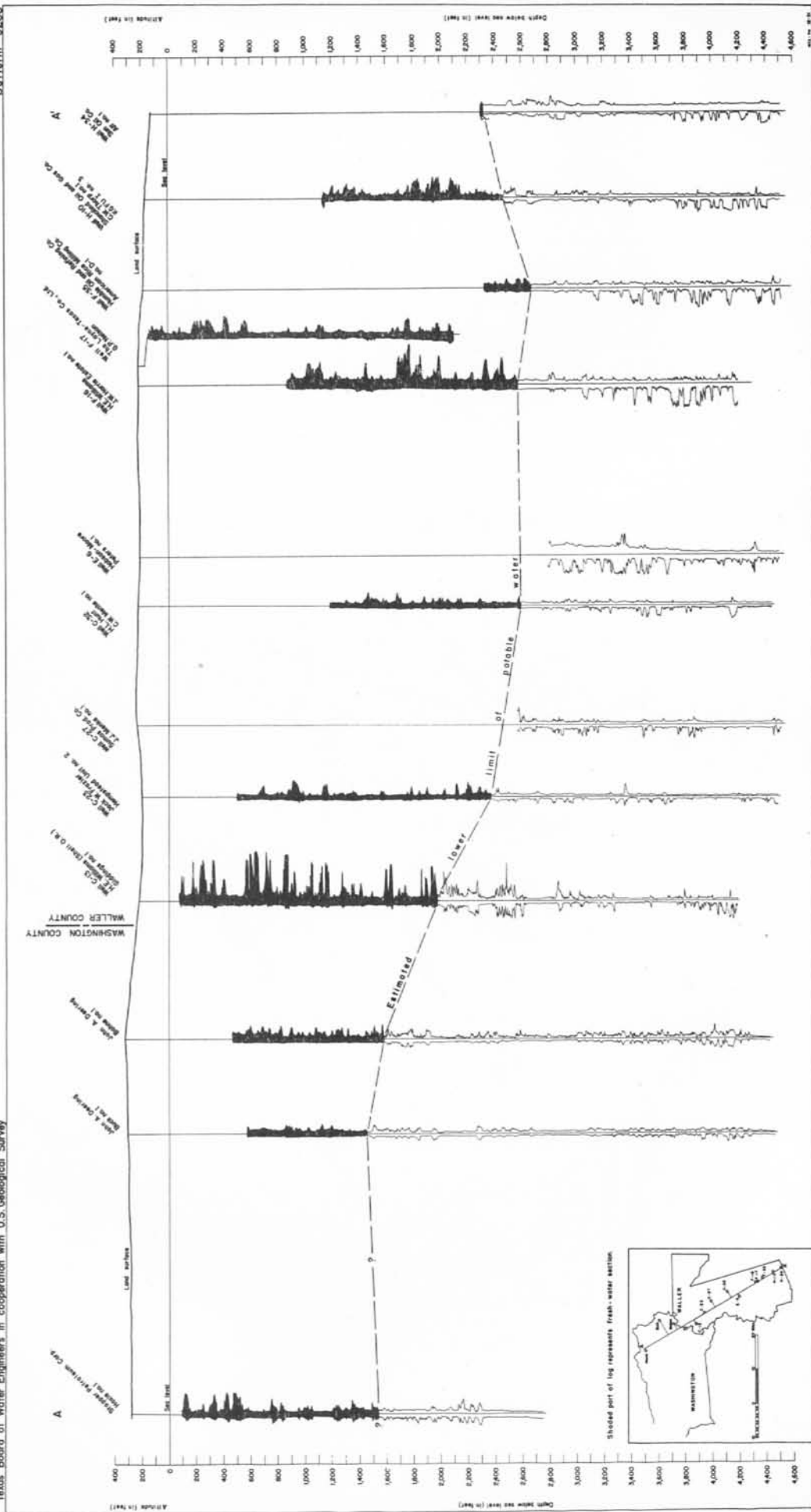


FIGURE 4 - Electric-log section A-A, showing estimated lower limit of potable water in Waller County, Tex.

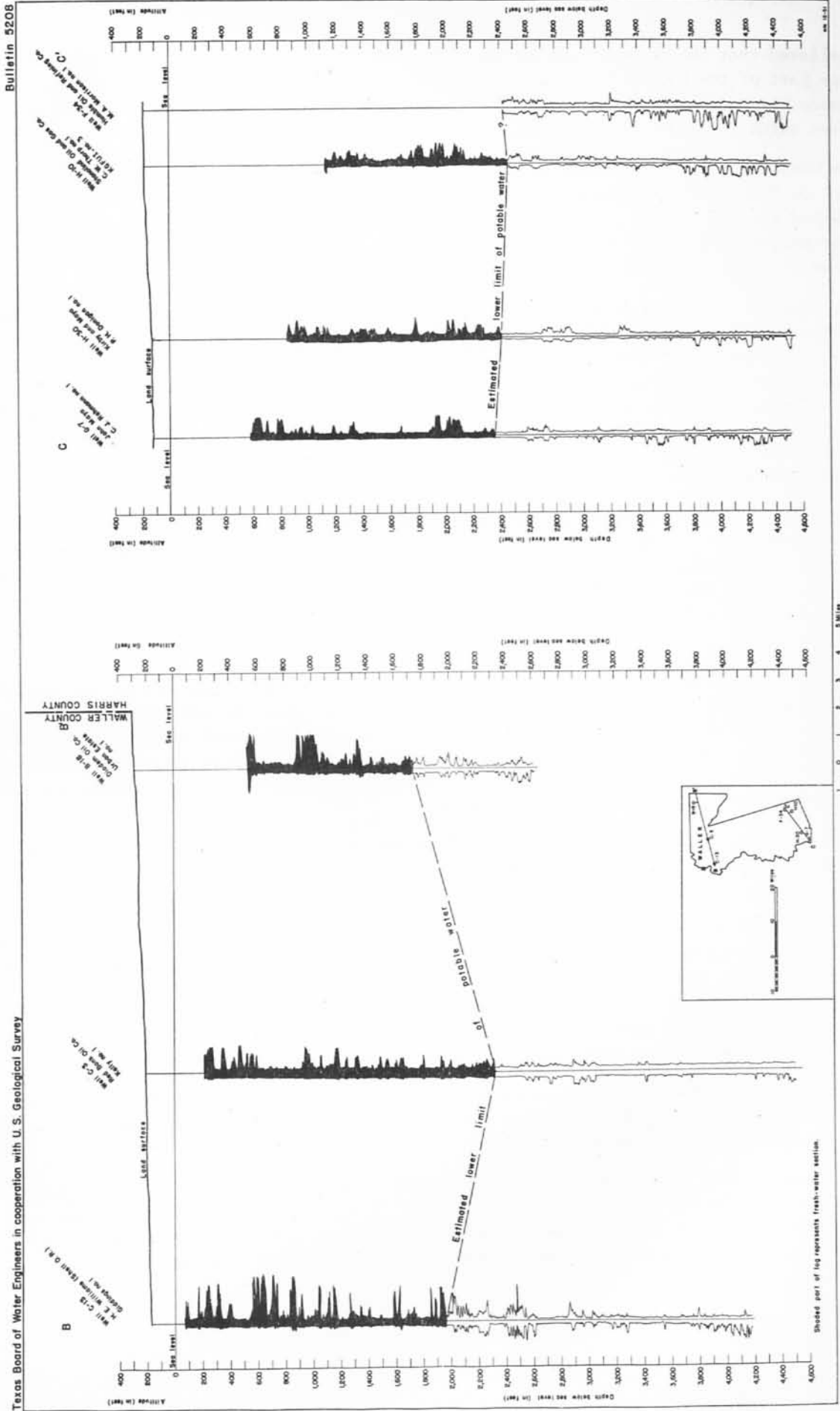


FIGURE 5.- Electric-log sections B-B' and C-C', showing estimated lower limit of potable water in Waller County, Tex.

it is believed that the deeper sands or sandstones indicated by the electric logs are mainly in the upper part of the Catahoula sandstone. Records of water wells in Waller County indicate that these sands have not been tested. It is believed that the Catahoula sandstone may be as much as 2,000 feet thick in Waller County.

The Oakville sandstone and the Lagarto clay, which overlie the Catahoula sandstone, crop out over most of Washington County and in a narrow belt parallel to the Brazos River in Waller County. The combined section, composed of clay, sandy clay, and sand, is probably about 1,700 feet thick. The upper part is predominantly clay but contains several thick sandy zones. The lower part contains less clay and a greater percentage of sand.

The sands of the Oakville and Lagarto formations yield moderately large supplies of water to wells throughout the county. Along the Brazos River in the northern part of the county wells A-1, C-9, C-10, C-11, and C-12, which range in depth from 324 to 430 feet, yield small quantities of water from sands of the Oakville and Lagarto by natural flow. Well A-1 had an estimated flow of 5 gallons a minute on October 12, 1950, and the water level, when the well was shut in, was 3 feet above the land surface. Wells C-9 and C-10 flowed 5 and 19 gallons a minute, respectively, on October 13, 1950, and the static water levels in the wells were 11.0 and 12.5 feet, respectively, above the land surface.

The water from shallow wells in the Oakville and Lagarto formations is rather hard but otherwise is of good quality. Wells A-1, C-9, C-10, and C-11 yield water that has an average hardness of about 200 parts per million and dissolved solids of about 390 parts per million (table 9). Deeper wells to the Oakville and Lagarto formations yield softer water. For example, water samples from wells C-21 and D-24, 745 feet and 576 feet deep, had hardnesses of 100 and 46 parts per million, respectively.

The Willis sand, which lies unconformably on the Lagarto clay, crops out in the northern part of the county. Its maximum estimated thickness is about 400 feet, as indicated by electric logs of wells in the southern part of the county. It consists predominantly of red sand and sandy clay, although gravel is generally found near the base. The formation yields large quantities of good water to irrigation wells in the southeastern part of the county. Small quantities are obtained from shallow domestic wells in the outcrop area.

Water from the Willis sand is of good quality throughout Waller County. The average dissolved-solids content of the water from six wells in the northeastern part of the county was about 184 parts per million and the hardness, about 50 parts per million.

The Lissie formation, which overlies the Willis sand, crops out in an irregular belt which extends the length of Waller County from north to south. It is about 400 feet thick in the southern part of the county. The Lissie formation consists principally of sand and sandy clay and is generally finer in texture than the Willis sand. The Lissie formation furnishes water to domestic wells and also contributes to many of the rice irrigation wells that tap the Willis sand and Oakville and Lagarto formations in the southeastern part of the county.

Water from the Lissie formation is rather hard, especially from wells 100 feet or less in depth. Dissolved solids in the water from six wells averaged about 327 parts per million and the hardness averaged about 185 parts per million.

The Beaumont clay lies unconformably on the Willis sand and crops out in Waller County in a belt 1 to 4 miles wide parallel to the Brazos River. It is about 50 feet thick in the southern part of the county and is characterized by poorly bedded clay and lentils of fine-grained sand. Only small supplies for domestic use are obtained from shallow wells in the Beaumont clay in Waller County.



Recent alluvium lies unconformably on the Beaumont clay and, in the northwesternmost part of the county, on the Lagarto clay. The alluvium along the Brazos River in Waller County is several miles wide and about 30 feet thick. It consists chiefly of clay, sandy clay, and lentils of fine-grained sand. Only a few small domestic supplies are obtained from wells in the alluvium.

### UTILIZATION OF WATER FROM WELLS

The estimated daily withdrawal of ground water in Waller County in 1950 was about 38,000,000 gallons. The following table shows how the ground water was used.

Table 3.- Estimated utilization of ground water in Waller County in 1950

	Gallons a day
Irrigation .....	33,700,000
Industrial	
Recycling plant, Humble Oil & Refining Co. ....	3,025,000
Municipal	
Brookshire .....	35,000
Hempstead .....	100,000
Prairie View .....	300,000
Others .....	700,000
	<hr/> 37,860,000

### IRRIGATION

About nine-tenths percent of the water pumped from wells in Waller County is used for the irrigation of the rice fields in the southeastern part of the county, which forms about one-third of a large area known as the Katy rice area. For purposes of comparison, the pumpage is given as an average daily withdrawal during the entire year, although all the water is actually pumped during the growing season, May to September, inclusive. The daily pumpage during the growing season is therefore much greater than that shown in table 3.

The estimate of withdrawal of water for irrigation is based on studies of the Katy area in connection with investigations of the water resources of the Houston district. It was observed by Lang (1946, p. 15) that the average duty of water, or the number of acre-feet of water (pumpage plus rainfall) needed to produce an acre of rice, was about 3.6 feet. According to the records of the American Rice Growers Association and the average rainfall in the Houston area as reported for several stations by the U. S. Weather Bureau, the rainfall plus pumpage for 14 years ranged from 3.1 to 4.3 acre-feet per acre and the average was about 3.6 acre-feet per acre. (Lang and Winslow, 1950, p. 25). Figure 6 shows the pumpage-rainfall relationship in the Katy area for the growing seasons 1940-50.

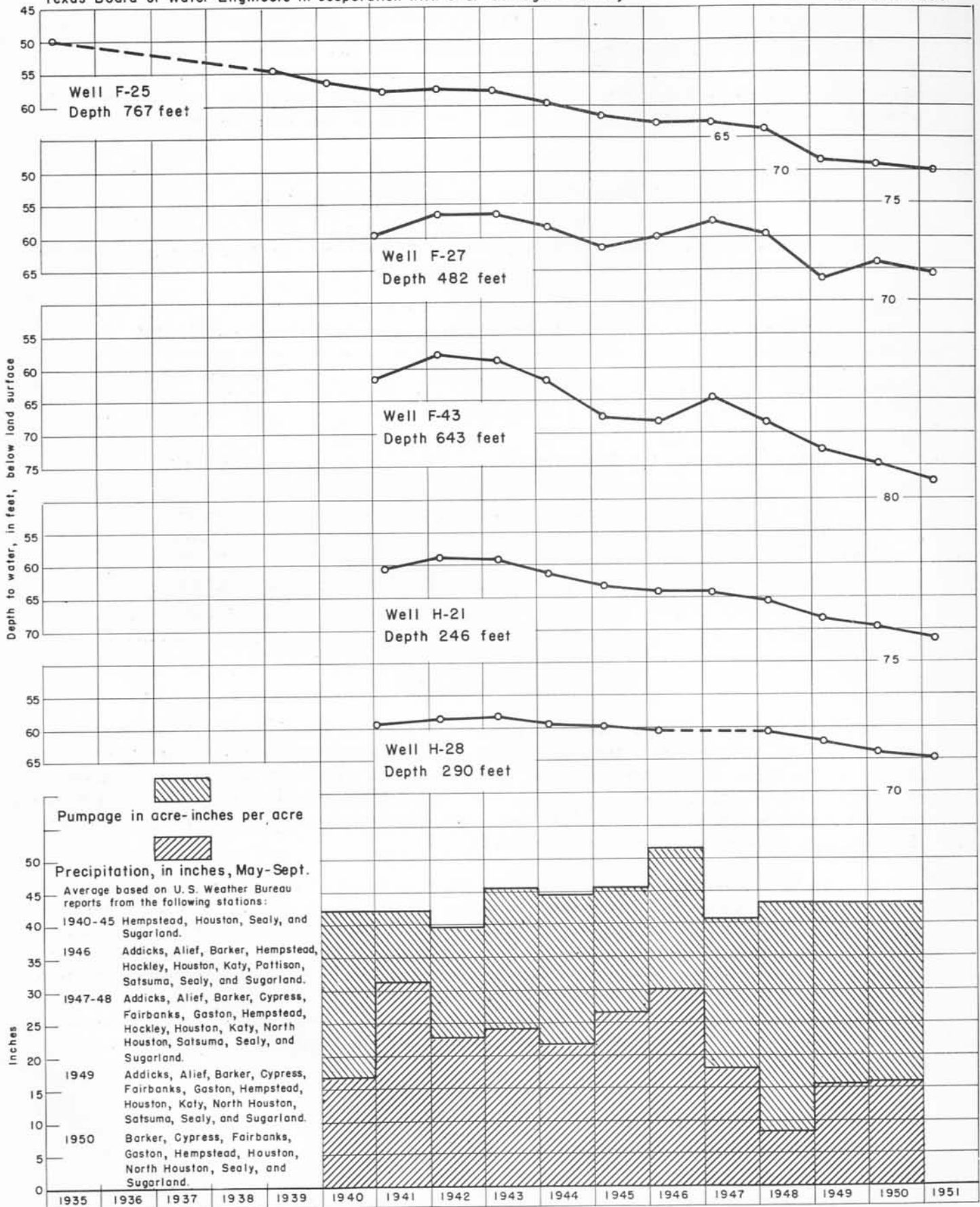


FIGURE 6.- Relationship of pumpage, precipitation, and water levels in Katy area for growing seasons, 1940-50.

The number of acres planted in rice in Waller County has steadily increased from 75 acres in 1907 to about 16,000 acres in 1950. The number of irrigation wells and the volume of water pumped have increased accordingly (fig. 7).

New land may be planted in rice for 2 or 3 years consecutively; afterward the land is planted only once every 3 years. The site of each well is usually selected so that the well can be used for irrigation of three or four separate tracts, to permit proper rotation of planting. This tends to limit the number of wells in the Katy area and also provides protection against overdevelopment in local areas.

Estimated as a proportional part of the Katy rice area as a whole, the daily average pumpage in Waller County for 1949 and for 1950 was about 33,700,000 gallons (38,000 acre-feet per year); for the unusually dry season of 1948, the daily pumpage was about 40 million gallons (45,000 acre-feet per year). Although the estimates may not be quite correct, they are believed to be sufficiently accurate for use in studying the effects of pumping upon the depths to water in wells.

Water levels in wells decline rapidly as a result of heavy pumping during the growing season, but recovery is almost complete before the next growing period. In the period 1942-51 the decline in nine observation wells ranged from 0.8 foot to 1.4 feet per year. Figure 8 shows the approximate altitude of water levels in wells in the spring of 1942 and again in the spring of 1951. The contours are based on altitudes of wells interpolated from a topographic map of the Buffalo Bayou Flood Control Drainage Basin prepared by the Corps of Engineers, U. S. Army, and on depth-to-water measurements.

About 60 irrigation wells were in operation in Waller County in 1950. The wells range in depth from about 200 feet to about 1,600 feet. Most of the wells are "gravel-walled." Slotted pipe is generally used as screen and in many wells all the sands are screened.

The discharges of 12 irrigation wells, measured during the investigation, are shown in table 4. The average discharge of these wells at the time of measurement was about 1,500 gallons a minute.

Table 4.- Discharge and drawdown measurements, Katy area

Well	Discharge (gpm)	Pumping level (feet below measuring point)	Static level <sup>a/</sup> (feet below measuring point)	Specific capacity (gallons a minute per foot of drawdown)	Date
C-31	1,540	62.2	36.8	60.6	Aug. 22, 1949
F-12	2,420				June 29, 1950
F-17	1,400	148.2	65.0	16.8	May 23, 1951
F-18	2,000				Aug. 22, 1949
F-26	1,230	120.3	72.4	10.0	June 29, 1950
F-31	1,880				Aug. 22, 1949
F-43	480				June 29, 1950
H-11	1,700				May 23, 1951
H-19	1,600				June 19, 1951
H-20	1,250				May 22, 1951
H-22	850				Aug. 22, 1951
H-33	1,920				

<sup>a/</sup> Measured in the spring of the year.

Wells in the Katy area draw water from the Oakville and Lagarto formations, the Willis sand, and the Lissie formation. Most of the wells draw from more than one formation; however, a few of the wells draw only from the Lissie formation.

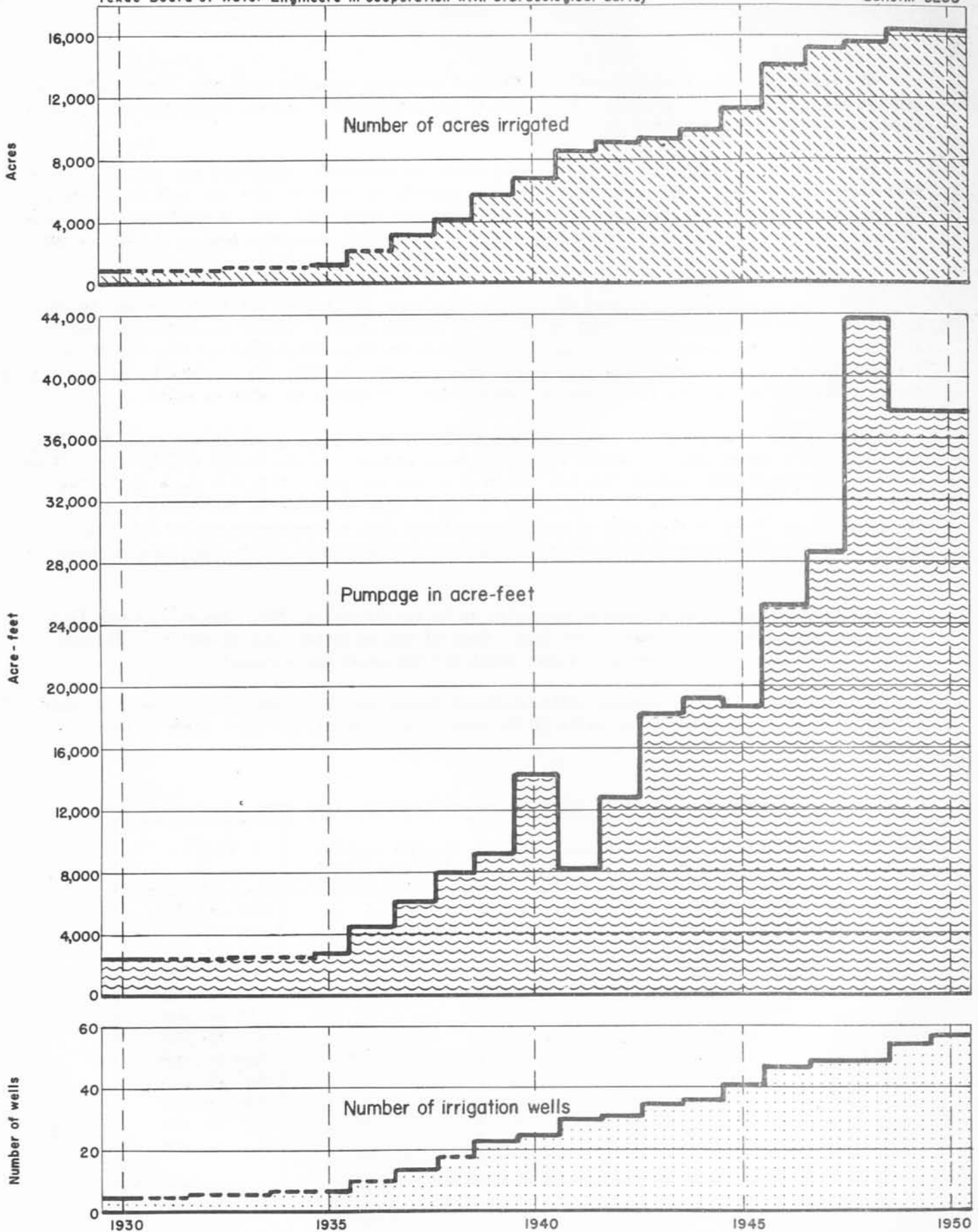


FIGURE 7.- Relationship of pumpage, number of irrigation wells, and number of acres irrigated in Waller County, Tex., 1930-50.

In general the water is chemically suitable for irrigation. Some variations (see table 9) in the chemical content of the water may be ascribed in part to the depths at which the water is taken.

#### INDUSTRIAL

The only industry in Waller County that uses large quantities of ground water is the Humble Oil and Refining Co.'s recycling plant near Katy. Approximately 3,000,000 gallons a day is pumped from the seven wells (H-12, H-13, H-14, H-15, H-16, H-17, and H-18) at the plant. These wells range in depth from 808 feet to 871 feet. The tops of the screens in wells H-12, H-13, H-14, and H-15 range in depth from 557 to 652 feet. These wells probably obtain water only from the Willis sand. In the other wells (H-16, H-17, and H-18) all sands are screened and the water is drawn from both the Willis sand and sands in the Lissie formation.

The Shell Pipeline Co. has one well (H-8) at its plant, and the Texas and New Mexico Pipeline Co. has one well (H-36) at its plant. Neither of these plants uses a large quantity of ground water.

#### PUBLIC SUPPLIES

The city of Hempstead obtains water from two wells (C-21 and C-22), 745 feet and 868 feet deep, respectively. The deeper well is leased to the Houston and Texas Central Railroad and is used by the city only in emergencies. The city used an average of 114,000 gallons a day during the month of July 1949. The water from these wells is drawn from sands in the Oakville and Lagarto formations.

Three wells (D-23, D-24, and D-25) at Prairie View College, which are about 600 feet deep, are reported to yield about 300,000 gallons a day. These wells draw from the Oakville and Lagarto formations.

The city of Brookshire has two wells (H-29 and H-37), 147 and 297 feet deep, respectively. Well H-29 is used only as a stand-by source. Well H-37 reportedly has a specific capacity of 5.2 gallons a minute per foot of drawdown and is pumped at the rate of about 35,000 gallons a day. The water probably comes from sands in the Lissie formation.

#### DOMESTIC AND STOCK

Several flowing wells (A-1, C-9, C-10, C-11, and C-12) in the northeastern part of the county, which range in depth from 324 feet to 430 feet, flow 5 to 19 gallons a minute. These wells obtain water from sands in the Oakville and Lagarto formations.

Shallow wells in the outcrop areas of the Pleistocene and Recent alluvium, Beaumont clay, Willis sand, and Lissie formation furnish small amounts of water for domestic and stock purposes. Some of these shallow wells penetrate only a few feet of the water-bearing material and are not dependable during droughts.

## SURFACE-WATER SUPPLY IN WALLER COUNTY

One of the largest rivers in Texas, the Brazos, forms the western boundary of Waller County. The Brazos and its tributaries drain more than half the county; small tributary streams of the San Jacinto River and Buffalo Bayou drain the eastern part of the county.

Records of the daily flow of the Brazos River near Hempstead have been obtained since October 1938. Records of the daily flow near San Felipe were obtained from December 1938 to September 1945, but gage-height records only have been obtained since October 1945. The flow has been measured at Richmond, about 100 miles downstream from the Hempstead gaging station, for more than 30 years, January 1903 to June 1906 and October 1922 to the present. The average flow at Richmond for the period 1939-50, including the diversions above Richmond into the American and Richmond irrigation canals, was 8 percent greater than the average flow for that period at Hempstead.

The following table summarizes the runoff at the Hempstead gaging station.

Table 5.- Brazos River near Hempstead, Tex., 1939-50  
(Drainage area 42,670 square miles, of which  
9,240 square miles is probably noncontributing)

Runoff in acre-feet\*

Calendar year	Daily runoff		Average	Monthly runoff		Annual runoff
	Maximum	Minimum		Maximum	Minimum	
1939	100,200	516	5,546	606,200	24,850	2,024,000
1940	230,100	593	18,850	2,426,000	23,750	6,901,000
1941	125,200	3,412	30,620	2,125,000	132,000	11,180,000
1942	176,700	1,646	21,880	2,121,000	75,740	7,985,000
1943	32,530	781	5,375	300,900	37,530	1,962,000
1944	214,200	1,232	22,490	2,837,000	70,830	8,230,000
1945	206,300	2,817	25,840	2,550,000	123,100	9,436,000
1946	152,300	1,894	21,240	1,586,000	83,120	7,754,000
1947	110,900	1,194	12,590	1,009,000	43,140	4,596,000
1948	45,220	664	4,427	300,900	23,770	1,621,000
1949	100,400	889	11,060	794,900	75,790	4,038,000
1950	94,610	863	9,673	778,700	36,100	3,531,000
Average			15,800			5,773,000

\* An acre-foot is the quantity of water required to cover 1 acre to a depth of 1 foot and is equal to 325,829 gallons.

No continuous records of flow have been obtained on any of the smaller streams in the county; however, records on the San Jacinto River and Buffalo Bayou at downstream gaging stations outside the county indicate that during drought periods the flows drop to small quantities.

The records indicate that there is an abundant supply of water available in the Brazos River, but that storage of flood water is necessary if large, continuous supplies are to be obtained. There are no authorized permits for diversion of Brazos River water in Waller County. Uses of water downstream from Waller County have sometimes exceeded the low flows in the past.

The low flow in the Brazos River in the vicinity of Waller County has been greatly affected by release from the Possum Kingdom Reservoir near Graford, since completion of the Possum Kingdom Dam in March 1941. The capacity of the Possum Kingdom Reservoir is 724,700 acre-feet. The low flow will be affected further by operation of the Whitney Reservoir near Whitney, which was completed in 1951. The capacity of the Whitney Reservoir is 2,017,500 acre-feet.

Records of stream flow have been collected by the U. S. Geological Survey in cooperation with the Texas Board of Water Engineers and the Corps of Engineers, U. S. Army. They are published in the Geological Survey's annual series of water-supply papers entitled "Surface water supply of the United States", which can be purchased from the Superintendent of Documents, Washington, D. C. Copies of those records can be obtained at the Austin and Houston offices of the U. S. Geological Survey and at the Texas Board of Water Engineers, Austin.

#### QUALITY OF SURFACE WATER

Records of the chemical quality of the Brazos River at the Possum Kingdom Reservoir, at Whitney, and at Richmond have been published in the annual water-supply papers of the Geological Survey entitled "Quality of surface waters of the United States", and in duplicated publications of the Texas Board of Water Engineers. Analyses of surface water in Waller County are not available, but the records obtained at Richmond indicate that the Brazos River bordering Waller County contains water suitable for public water supply and many industrial purposes. However, the quality of water in the river varies widely, depending on the stage of the river. Most of the time the chloride content, for example, could be expected to be less than 100 parts per million, but during protracted droughts the chloride might reach 500 or 600 parts per million. Other constituents might be expected to vary somewhat less than the chloride. When the Whitney Reservoir is filled it is probable that the maximum chloride content of water downstream probably will not exceed 250 to 300 parts per million.

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Table 6.- Records of wells in Waller County, Tex.

All wells are drilled unless otherwise noted in Remarks

Method of lift: A, air lift; B, bucket; C, cylinder; E, electric; G, gasoline; H, hand; J, jet; T, turbine; W, windmill. Number indicates horsepower.  
 Use of water: D, domestic; Ind, industrial; Irr, irrigation; N, not used; P, public supply; RR, railroad; S, stock.

Well	Distance from Hempstead	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water level		Date of measurement	Method of lift	Use of water	Remarks
							Below (-) or above (+) of land surface (ft.)					
A-1	8 miles north	Roy Chapman	W. J. Swinehart	1946	430	4	+3.0		Oct. 12, 1950	Flows	S	Estimated flow, 5 gpm on October 12, 1950. Temp., 73° F.
A-2	7½ miles north	J. Gillum	J. Gillum	1900	27	24	-20.0		May 12, 1949	B, H	S	Dug.
A-3	do.	F. Kloecker	F. Kloecker	1920	52	10	-34.9		do.	B, H	D, S	Bored.
A-4	7 miles north	H. C. Stevens	Gratehouse Bros.	1945	379	4	-78.2		do.	J, E, I	D, S	
A-5	6 miles north	J. B. Youngblood	J. B. Youngblood	1916	25	8	-17.8		Mar. 10, 1949	B, H	D, S	Bored.
A-6	6 miles northwest	A. Hilliard	--	1938	40	36	-36.2		do.	B, H	D, S	Dug.
A-7	5 miles north	W. G. Henson	--	1930	50	24	a/-45		May 1949	C, E	D, S, Ind	Do.
A-8	6½ miles north	E. M. Taylor	W. E. Bush	--	57	8	--		--	B, H	D, S	Temp., 79° F.
B-1	11½ miles northeast	W. F. Cook	B. E. Patrey	1941	218	4	a/-50		Mar. 1949	C, G, ¼	D, S	Screen from 208 to 218 feet. Temp., 73° F.
B-2	10½ miles northeast	Mrs. -- Haney	do.	1948	78	4	-38.2		Nov. 12, 1948	C, H	D, S	Temp., 74° F.
B-3	11½ miles northeast	A. Karsteter	--	Old	35	10	-28.1		Mar. 9, 1949	B, H	D, S	
B-4	10½ miles northeast	J. D. Robertson	--	1900	56	10	-50.6		do.	H	D, S	
B-5	9½ miles northeast	R. F. Drummerman	F. Emhoff	1920	102	--	a/-62		1946	C, G	D, S	
B-6	9½ miles northeast	A. C. Blumberg	Elmer Bennett	1901	92	12	a/-86		Mar. 9, 1949	C, W	D, S	
B-7	8½ miles northeast	-- Von Blucher	L. Patterson	1948	460	4	a/-100		Oct. 1, 1948	A	Ind	Supply well for an oil test.
B-8	do.	Irene Wallace	W. J. Swinehart	1945	190	4	a/-75		1945	J, E	D, S	Screen from 180 to 190 feet.
B-9	9 miles northeast	W. C. Smith	W. C. Smith	--	22	36	- 7.7		Nov. 23, 1948	C, W	D, S	Dug.
B-10	9½ miles northeast	W. J. Scoggins	W. J. Scoggins	1944	35	10	-21.7		May 10, 1949	B, H	D, S	Bored.
B-11	10½ miles northeast	R. E. Survant	F. Emhoff	1937	93	4	a/-34		1937	C, W	D, S	

Table 6.- Records of wells in Waller County--Continued

Well	Distance from Hempstead	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water level		Date of measurement	Method of lift	Use of water	Remarks
							Below (-) or above (+) land surface (ft.)					
B-12	11 miles northeast	W. W. Bunting	W. J. Swinehart	1944	66	--	--	--	J, E, I	D, S	Temp., 80° F.	
B-13	12½ miles northeast	C. D. Clepper	--	Old	60	10	-48.7	May 8, 1949	B, H	D, S	Bored.	
B-14	13 miles northeast	G. G. Sherfield	G. G. Sherfield	1922	52	3	<u>a</u> /-30	May 1949	C, E	D, S	Bored.	
B-15	14 miles northeast	A. D. Hackenack	--	Old	70	--	<u>a</u> /-45	May 1949	C, E	D, S	Do.	
B-16	17 miles northeast	Rice Institute	J. B. Eby	1937	--	--	--	--	None	N	Oil test. See electrical log. Owner's well 1.	
B-17	19 miles northeast	Percy Allam	A. C. Laird	1947	72	6	-42.8	May 30, 1949	B	D, S	Bored.	
B-18	16 miles northeast	Urban Estate	Diadem Oil Co.	--	--	--	--	--	None	N	Oil test. See electrical log. Owner's well 1.	
C-1	4½ miles northwest	B. Johnson	--	Old	19	10	- 7.2	Mar. 10, 1949	B, H	D, S	Bored.	
C-2	3¾ miles north	Roy Chapman	W. P. Morris	Old	2,640	--	--	--	None	N	Oil test. See log.	
C-3	5½ miles northeast	-- Kelly	Red Bank Oil Co.	1937	4,785	--	--	--	None	N	Oil test. See electrical log. Owner's well 1.	
C-4	6½ miles northeast	J. F. Tompkins	--	1937	33	8	-24.3	May 11, 1949	B, H	D, S	Bored. Temp. 72° F.	
C-5	4½ miles northeast	O. Kirby	--	1938	75	4	-59.4	do.	C, H	D, S		
C-6	3 miles north	W. L. Wernerburg	Gratehouse Bros.	1947	<del>106</del>	4	<u>a</u> /-35	1947	J, E, I	D, S		
C-7	2½ miles northwest	T. R. Jones	--	1935	72	4	-40.4	May 12, 1949	C, E, I	D, S		
C-8	4½ miles northwest	Mrs. Loma Qualla	--	1948	25	36	-16.9	Mar. 10, 1949	C, H	D, S	Dug.	
C-9	6½ miles northwest	-- Duckworth	--	1939	400	4	+12.0	Oct. 13, 1950	Flows	S	Measured flow, 5 gpm on Oct. 13, 1950. Temp., 73° F.	
C-10	6½ miles northwest	do.	--	1939	400	4	+11.5	do.	Flows	S	Measured flow, 19 gpm on Oct. 13, 1950. Temp., 73° F.	
C-11	6½ miles northwest	do.	L. Patterson	1949	324	6	+	Apr. 5, 1949	Flows	Ind	Supply well for an oil test. Estimated flow, 20 gpm on Apr. 15, 1949. Temp., 73° F.	
C-12	6½ miles northwest	do.	--	1939	400	4	+	July 22, 1949	Flows	S	Estimated flow, 5 gpm on July 22, 1949. Temp., 74° F.	
C-13	5½ miles northwest	-- Giddings	H. E. Williams	--	4,407	--	--	--	None	N	Oil test. See electrical log. Owner's well 1.	
C-14	3¾ miles northwest	S. W. Becker	--	1932	200	4	<u>a</u> /-40	May 17, 1949	T, E	D, S	Temp., 75° F.	
C-15	3¾ miles northwest	H. Morgan	H. Morgan	1943	39	4	-33.2	Mar. 10, 1949	B, H	D, S	Bored.	

Table 6.-- Records of wells in Waller County--Continued

Well	Distance from Hempstead	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water level		Method of lift	Use of water	Remarks
							Below or above land surface (ft.)	Date of measurement			
C-16	2½ miles northwest	B. V. Wathal	B. E. Patrey	1940	140	--	--	C, W	D, S		
C-17	2½ miles northeast	W. R. Tompkins	-- Strickland	1926	65	--	Nov. 23, 1948	C, W	D, S		
C-18	3¾ miles east	J. W. Hollyfield	C. Kullman	1948	78	-37.5	May 11, 1949	J, E	D, S		
C-19	4¾ miles northeast	C. Weyland	--	Old	50	-34.7	do.	C, W	D, S	Dug.	
C-20	2¾ miles southeast	Waller County	Gratehouse Bros.	1945	126	-57.3	May 18, 1949	C, E	D, S	Supply well for Waller County fair grounds.	
C-21	In Hempstead	City of Hempstead	The Layne-Texas Co., Ltd.	1939	745	-56.9	Feb. 14, 1939	T, E	P	Screen from 487 to 515 and 669 to 709 feet. Gravel-packed. Reported drawdown 48 feet after 12 hours pumping 200 gpm. Owner's well 2. Temp., 80° F. See log.	
C-22	do.	do.	do.	1930	868	-76.2	Nov. 4, 1948	T, E	RR	Screen from 482 to 514 and 681 to 716 feet. Used by railroad. Owner's well 1. Oil test. See electrical log. Owner's well 1.	
C-23	¾ mile west	Jack W. Frazier	Jack W. Frazier	1943	5,038	--	--	None	N		
C-24	2¼ miles southwest	A. J. Harwell	--	1938	60	-18	May 17, 1949	C, W	D, S		
C-25	3¾ miles southwest	do.	--	1930	130	-61	do.	J, E, I	D, S		
C-26	3¾ miles southwest	J. A. Campbell	Bowie Lilly	1935	50	-46.4	do.	C, W, J, E	D, S		
C-27	2¾ miles southeast	J. J. Menke	Sunas Production Co.	1937	5,095	--	--	None	N	Oil test. See electrical log. Owner's well 1.	
C-28	3 miles southeast	do.	Wildcats of America	1924	2,902	--	--	None	N	Oil test. Owner's well 1. See log.	
C-29	4¾ miles southeast	J. F. Scruggs	F. Emhoif	1939	50	-30	May 18, 1949	C, E	D, S		
C-30	4 miles south	Albert Jozuirak	--	Old	--	-38.2	do.	B, H	D, S	Dug.	
C-31	6¾ miles southeast	M. A. Dodd	Roy Turner	--	1,000	-36.8	Feb. 7, 1949	T, D	Irr		
C-32	7¾ miles southeast	C. W. Menke	H. L. Hunt	--	8,006	--	--	None	N	Drawdown 25.4 feet while pumping 1,540 gpm on Aug. 24, 1949. Temp., 74° F.	
C-33	3¾ miles southeast	D. D. Feagin	D. D. Feagin	Old	38	-23.7	May 28, 1899	--	D, S	Oil test. See electrical log. Owner's well 1. Supplies 93 head of livestock.	
C-34	In Hempstead	B. R. Rehms	H. H. Strickland	--	85	-53.6	--	E, ¼	D, S	Cased to 85 feet.	

Table 6.-- Records of wells in Waller County--Continued

Well	Distance from Hempstead	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water level		Method of lift	Use of water	Remarks
							Below of land surface (ft.)	Below (+) Above (-) measurement			
D-1	7 miles northeast	G. G. Mitchell	F. Emhoff	1940	67	4	-46.6	May 11, 1949	C, W	D, S	
D-2	7½ miles northeast	-- Hancock	--	1850	35	30	-30.9	Nov. 23, 1948	J, E, I	D, S	Dug.
D-3	8¼ miles northeast	W. F. Maxwell	Ren Oil Co.	1926	1,200	--	--	--	None	N	Oil test. See log.
D-4	8½ miles northeast	J. A. Steger	W. J. Swinehart	1945	210	4	a/-65	1945	J, E, I	D, S	
D-5	9 miles northeast	-- Maxwell	Maxwell Oil Co.	1926	2,253	--	--	--	None	N	Oil test. Owner's well 1. See log.
D-6	10 miles northeast	T. C. Baskin	--	1930	40	10	a/-30	Nov. 23, 1948	C, W	D, S	
D-7	10½ miles northeast	S. R. Moore	W. J. Swinehart	1948	111	4	a/-75	May 10, 1949	J, E, I	D, S	Temp., 76° F.
D-8	12 miles northeast	A. J. Gyger	A. J. Gyger	--	50	4	--	--	C, H	D, S	
D-9	11½ miles northeast	C. B. Peterson	C. B. Peterson	1944	20	--	a/-6	May 8, 1949	J, E, I	D, S	Dug.
D-10	13 miles northeast	A. L. Hosmer	F. Emhoff	1945	69	4	--	--	C, E	D, S	Temp., 73° F.
D-11	14½ miles northeast	J. F. Curtner	-- Yates	--	64	8	-33.5	May 8, 1949	B, H	D, S	Bored.
D-12	15½ miles east	W. W. Clepper	W. W. Clepper	1940	48	4	--	--	C, H	D, S	Do.
D-13	16½ miles east	O. M. Dinkins	O. M. Dinkins	1890	90	36	-41.7	May 10, 1949	C, W	D, S	
D-14	15 miles east	L. L. Dinkins	Gratehouse Bros.	1946	300	4	a/-72	1946	T, E, I	D	Temp., 74° F.
D-15	14½ miles east	J. H. Turpin	J. H. Turpin	1925	40	36	-4.5	May 10, 1949	C, E	D, S	Bored. Temp. 73° F.
D-16	14 miles east	O. O. Dinkins	O. O. Dinkins	1929	55	6	-42.6	do.	C, H	D, S	Bored.
D-17	13 miles east	T. H. Lehman	T. H. Lehman	1948	65	10	-51.0	do.	B, H	D, S	Do.
D-18	8 miles northeast	E. E. Levacin	F. Emhoff	1927	130	4	a/-80	June --, 1948	C, E	D, S	
D-19	do.	C. F. Stanford	do.	1913	114	--	a/-84	1947	J, E, I	D, S	Screen from 104 to 114 feet.
D-20	6¼ miles northeast	G. Tompkins	--	--	70	4	-52.9	May 11, 1949	J, E, I	D, S	
D-21	6½ miles east	E. H. Fluckinger	--	1880	62	12	-71.8	Nov. 23, 1949	C, W	N	
D-22	do.	do.	F. Emhoff	1945	97	4	--	--	J, E, I	D, S	

Table 6.- Records of wells in Waller County--Continued

Well	Distance from Hempstead	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water level		Method of lift	Use of water	Remarks
							Below or above land surface (ft.)	Date of measurement			
D-23	5½ miles east	Prairie View College	The Layne-Texas Co., Ltd.	1920	571	6	-180	Nov. 3, 1948	A	P	Screen from 519 to 529 and 550 to 571 feet. See log.
D-24	do.	do.	do.	1930	576	12½, 10	-143.1	Nov. 4, 1948	T,E	P	
D-25	do.	do.	--	Old	600±	--	--	--	A	P	
D-26	8 miles east	C. Holt	B. E. Patrey	1948	118	3	--	--	C,W	S	Screen from 108 to 118 feet.
D-27	8½ miles east	J. H. Talley	-- Strickland	1928	75	4	a/-35	1948	C,E	D,S	
D-28	5½ miles southeast	Mrs. H. L. Milam	--	1931	19	2	--	--	None	N	Test hole. U. S. Geological Survey observation well-117. See table of water-level measurements.
D-29	5½ miles southeast	T. & N. O. RR.	--	--	100	6	--	--	None	N	Observation well, U. S. Geological Survey 128. See table of water-level measurements.
D-30	6½ miles southeast	A. Stokes	--	Old	68	8	--	--	None	N	Observation well, U. S. Geological Survey 151. See table of water-level measurements.
D-31	7 miles southeast	-- Myers	--	1931	20	2	--	--	None	N	Test hole. U. S. Geological Survey observation well. See table of water-level measurements.
D-32	9 miles east	B. D. Flora	-- Tavin	1945	164	4	--	--	C,W	D,S	
D-33	9½ miles southeast	E. A. Hitt	R. B. Lowery	1949	94	4	--	--	J,E, I	D,Ind	
D-34	9¼ miles southeast	W. D. Weaver	W. D. Weaver	Old	58	6	--	--	J,E, I	D,S	Observation well, U. S. Geological Survey 154. See table of water-level measurements.
D-35	10½ miles southeast	W. H. Carter	Dome Oil Co.	--	527	--	--	--	None	N	Oil test. See log.
D-36	8½ miles southeast	W. P. Maxwell	Seven Wells Corp.	1932	668	--	--	--	None	N	Oil test. Owner's well 1. See log.
D-37	7½ miles southeast	L. L. Menke	Gratehouse Bros.	1947	162	4	a/-60	1947	C,W	D,S	
D-38	9¼ miles southeast	O. L. Pritchett	J. White	1939	100	4	a/-55	May 19, 1949	C,E	D,S	
D-39	9 miles southeast	A. F. Baetche	-- Strickland	1927	62	8	a/-40	May 1949	C,W,E	D,S	
D-40	10½ miles southeast	F. Drischer	--	1900	46	24	-32.1	May 18, 1949	J,E, I	D,S	
D-41	11½ miles northeast	W. A. Bradbury	--	1915	20	--	--	--	B,H	D,S	
D-42	16½ miles east	J. H. Turpin	J. H. Turpin	--	50	8	-40	--	B,H	D,S	Water contains hydrogen sulfide.

Table 6.- Records of wells in Waller County--Continued

Well	Distance from Brookshire	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water level		Date of measurement	Method of lift	Use of water	Remarks
							Below or above land surface (ft.)	{-} (+)				
E-1	16½ miles northwest	J. K. Elkins	J. K. Elkins	1918	80	10	-43.7		May 18, 1949	C,W	D,S	Bored.
E-2	15 miles northwest	J. R. Young	The Texas Co.	1929	4,011	--	--		--	None	N	Oil test. Owner's well 1. See log.
E-3	14½ miles northwest	do.	do.	--	2,088	--	--		--	None	N	Oil test. See log.
E-4	do.	M. A. Dodd	--	1945	82	6	a/-40		May 18, 1949	J,E	D,S	
E-5	12 miles northwest	G. D. Fux	J. S. Falkenbury	1949	128	4	a/-74		Mar. 18, 1949	J,E	D,S	Screen from 100 to 107 feet. See log.
E-6	13 miles northwest	-- Peters	Hobson-Moore	--	5,550	--	--		--	None	N	Oil test. See electrical log. Owner's well 1.
E-7	12 miles northwest	R. Bollinger	The Layne-Texas Co., Ltd.	1946	--	20	-44.7		Nov. 18, 1949	T,E	Irr	Gravel-packed. Temp., 75° F.
E-8	13 miles northwest	Dr. -- Bertner	-- Strickland	1930	55	8	a/-35		1947	J,E, 1	D,S	
E-9	do.	Church Congregation	Church Congregation	1935	30	12	-20.2		Apr. 7, 1947	B,H	D	Bored.
E-10	11½ miles northwest	Roy Turner	Roy Turner	1945	1,008	24	-38.5		Mar. 4, 1949	T,D	Irr	Gravel-packed. Temp., 76° F.
E-11	11 miles northwest	Elvin Urbanek	F. Emhoff	1944	41	4	-18.5		Mar. 18, 1949	C,H	D,S	
E-12	10½ miles northwest	O. M. Pederson, Jr.	A. H. Justman	1947	1,602	20, 13-3-8, 12, 8	-37.9		Mar. 4, 1949	T,D	Irr	Casing: 200 feet of 20-inch, 400 feet of 13 3/8-inch, 500 feet of 12-inch, remainder 8-inch.
E-13	12 miles northwest	-- Stalman	--	1948	--	6	-22.6		Apr. 7, 1949	A	Ind	Supply well for an oil test.
E-14	10 miles northwest	G. Williams	J. Dannon	1948	22	6	-19.1		Mar. 17, 1949	B	D,S	Bored.
E-15	9 miles northwest	D. S. Clark	--	1925	26	8	-19.6		do.	B	D,S	Do.
E-16	10 miles northwest	Brazos Hunting & Fishing Club	--	1946	100	4	-28.8		do.	J,E, 1	D	
E-17	7 miles northwest	W. Harris	--	1900	32	36	-25.1		do.	B,H	D,S	Dug.
E-18	do.	Roy Muske	--	1910	58	4	a/-38		Mar. 18, 1949	C,W	D,S	
E-19	5½ miles northwest	J. J. Neimen	J. J. Neimen	1920	30	3	a/-17		1920	J,E, 1	D,S	Bored.
F-1	14 miles north	J. J. Frey	-- Bradbury	1919	57	4	a/-37		May 18, 1949	C,W	D,S	
F-2	do.	C. Frey	--	--	80	10	-44.8		Mar. 18, 1949	J,E	D,S	

Table 6.- Records of wells in Waller County--Continued

Well	Distance from Brookshire	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water level		Method of lift	Use of water	Remarks
							Below (-) or above (+)	Date of measurement			
F-3	14 miles northeast	H. Parker	Gratehouse Bros.	1946	340	4	-61.5	May 18, 1949	A	D,S	
F-4	13 miles north	J. V. Roehen	--	1930	85	4	-41.5	Mar. 18, 1949	C,W	D,S	
F-5	12½ miles north	A. Pohl	B. E. Patrey	1949	75	4	-33.9	do.	C,W	D,S	
F-6	13 miles north	J. R. Davis	--	1930	120	4	-52.7	May 18, 1949	C,H	D,S	
F-7	10½ miles northwest	I. E. Davis	--	--	38	12	-22.3	Mar. 18, 1949	C,W	D,S	
F-8	10½ miles north	Roy Turner	Ray Woods	1940	846	24, 12½	--	Mar. 4, 1949	T,E	Irr	Casing: 175 feet of 24-inch, 671 feet of 12½-inch; 350 feet slotted between 50 and 838 feet. Temp., 76° F. See log.
F-9	do.	C. Turner	Roy Turner	1945	845	20, 18, 12	-61.8	do.	T,E, 125	Irr	Casing: 250 feet of 20-inch, 112 feet of 18-inch, 210 feet of 12-inch and remainder 10-inch. Gravel-packed. Temp., 76° F.
F-10	10 miles north	Lynn Hebert	Norman Ginn	1939	828	30	-84.3	Nov. 18, 1948	T,E	Irr	Observation well, U. S. Geological Survey no. 239. See table of water-level measurements. Temp., 75° F.
F-11	9 miles northeast	Clyde Nelson	Ray Woods	1939	810	18, 13	-51.0	Mar. 15, 1949	T,E, 75	Irr	Observation well, U. S. Geological Survey no. 243. See table of water-level measurements.
F-12	7½ miles north	R. Robertson	A. H. Justman	1949	1,279	24, 12, 8	--	--	--	Irr	Casing: 240 feet of 24-inch, 679 feet of 12-inch, and 361 feet of 8-inch. Yield, 2,420 gpm on June 29, 1950. See log.
F-13	do.	do.	The Layne-Texas Co., Ltd.	1941	1,065	24, 13, 10½	--	--	T,D	Irr	Casing: 166 feet of 24-inch, 651 feet of 13-inch, and 248 feet of 10½-inch; 441 feet slotted between 177 and 1,063 feet. Plugged back to 1,065 feet. Gravel-packed. Temp. 77° F. See log.
F-14	do.	do.	Ira Southard	1937	893	24, 12	--	--	T,D	Irr	400 feet of screen.
F-15	7½ miles north	John Bollinger	Ray Woods	1938	905	18, 12, 10, 8	--	--	T,D, 125	Irr	Casing: 140 feet of 18-inch, 307 feet of 12-inch, 130 feet of 10-inch, and 318 feet of 8-inch. 106 feet slotted between 260 and 903 feet. Temp., 74° F.

Table 6.-- Records of wells in Waller County--Continued

Well	Distance from Brookshire	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water level Below (-) or above (+) land surface (ft.)	Date of measurement	Method of lift	Use of water	Remarks
F-16	7½ miles north	J. W. Harris Estate	H. E. Williams	1940	7,814	--	--		None	N	Oil test. See Electrical log. Owner's well 1.
F-17	7 miles north	G. P. Neilson	The Layne-Texas Co., Ltd.	1945	2,352	24	-61.6	Nov. 12, 1948	T, E	Irr	Well reported plugged to 1,670 feet. Drawdown 83.2 feet while pumping 1,400 gpm on May 23, 1951. Observation well. See table of water-level measurements. See electrical log. Temp. 80° F.
F-18	do.	do.	A. H. Justman	1949	1,200	24	-67.9	Apr. 13, 1949	T, E	Irr	Yield 2,000 gpm on Aug. 22, 1949. Temp., 74° F.
F-19	do.	do.	Delta Shurwell Co.	1941	990	20, 13, 10½	a/-50	1941	T, E	Irr	Casing: 200 feet of 20-inch, 306 feet of 13-inch, 484 feet of 10½-inch; 396 feet slotted between 74 and 990 feet.
F-20	7½ miles northeast	A. E. Thompson	The Layne-Texas Co., Ltd.	1937	926	18-5/8, 12, 8-5/8	-69.1	Nov. 16, 1948	T, E, 50	Irr	Casing: 151 feet of 18 5/8-inch, 379 feet of 12½-inch, 396 feet of 8 5/8-inch; 161 feet slotted between 45 and 908 feet. Observation well, U. S. Geological no. 246. See table of water-level measurements. Gravel-packed. See log.
F-21	8 miles northeast	Harry Hebert	Harry Hebert	1930	524	16, 12	-62.3	Mar. 15, 1949	None	N	Unused. Observation well. See table of water-level measurements. See log.
F-22	do.	do.	The Layne-Texas Co., Ltd.	1941	884	20, 13, 10½	--	--	T, D	Irr	Casing: 202 feet of 20-inch, 302 feet of 13-inch, and 438 feet of 10½-inch; 362 feet slotted between 102 and 828 feet. Gravel-packed. See log.
F-23	8½ miles northeast	J. H. Longenbaugh	Ray Wood	1941	554	--	-65.3	Feb. 2, 1949	T, E	Irr	Casing slotted opposite all sands below 80 feet.
F-24	7½ miles northeast	T. B. Tucker	The Layne-Texas Co., Ltd.	1949	920	16, 10	-64.7	Apr. 13, 1949	T, E	Irr	Casing: 200 feet of 16-inch and remainder 10-inch. Screen opposite all sands. Gravel-packed. Temp., 75° F.
F-25	7 miles northeast	do.	do.	1928	767	16, 12, 8	-70.4	Nov. 15, 1948	T, E	Irr	Casing: 115 feet of 16-inch, 93 feet of 12-inch, and remainder 8-inch; 196 feet of screen between 117 and 714 feet. Observation well, U. S. Geological Survey no. 223. See table of water-level measurements. Temp., 72° F.
F-26	6½ miles northeast	J. Bollinger	American Water Co.	1946	907	20	-66.3	Mar. 15, 1949	T, E, 100	Irr	Yield 1,230 gpm on June 29, 1950. Temp., 78° F.



Table 6.-- Records of wells in Waller County--Continued

Well	Distance from Brookshire	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water level		Method of lift	Use of water	Remarks
							Below (-) or above (+) land surface (ft.)	Date of measurement			
F-27	6 miles north	G. P. Nelson	Ray Woods	1939	482	20, 16, 12	-67.0	Nov. 15, 1948	None	N	Unused. Casing: 148 feet of 20-inch, 169 feet of 16-inch, and 169 feet of 12-inch; 288 feet slotted between 51 and 482 feet. Observation well, U. S. Geological Survey no. 245. See table of water-level measurements.
F-28	5½ miles north	G. E. Longenbaugh	Norman Ginn	1941	585	--	--	--	T, E, 75	Irr	
F-29	do.	Longenbaugh & Beckendorff	A. H. Justman	1946	936	24, 13½	-69.1	Mar. 15, 1949	T, E	Irr	Casing: 250 feet of 24-inch and remainder 13½-inch.
F-30	5½ miles north	American Rice Milling Co.	The Layne-Texas Co., Ltd.	1943	644	20, 12½	-65.2	do.	T, D	Irr	Casing: 269 feet of 20-inch and 376 feet of 12½-inch; 328 feet slotted between 124 and 641 feet. Plugged back to 644 feet. See log.
F-31	5½ miles northeast	do.	A. H. Justman	1949	--	--	-66.8	Mar. 4, 1949	T, D	Irr	Yield, 1,880 gpm on June 29, 1950. Temp., 73° F.
F-32	5½ miles northeast	do.	The Layne-Texas Co., Ltd.	1943	765	20, 12½, 10½	-71.0	Mar. 15, 1949	T, D, 100	Irr	Casing: 207 feet of 20-inch, 405 feet of 12½-inch, and 153 feet of 10½-inch; 367 feet slotted between 104 and 761 feet. Plugged back to 765 feet. See log.
F-33	6½ miles northeast	T. B. Tucker	Ray Wood	1938	641	18, 12, 8	-74.5	Nov. 15, 1948	T, E	Irr	Casing: 120 feet of 18-inch, 78 feet of 12-inch, and 443 feet of 8-inch; 181 feet slotted between 75 and 630 feet. Observation well, U. S. Geological Survey no. 247. See table of water-level measurements. Temp., 72° F.
F-34	7½ miles northeast	M. A. Morrison	Humble Oil & Refining Co.	1943	7,452	--	--	--	None	N	Oil test. Owner's well 1. See electrical log.
F-35	5½ miles northeast	American Rice Milling Co.	do.	1943	7,912	--	--	--	None	N	Oil test. Owner's well D-1. See electrical log.
F-36	5 miles north	Robichaux & Thompson	The Layne-Texas Co., Ltd.	1944	739	18, 13-3/8	-76.5	Mar. 15, 1949	T, E	Irr	Casing: 270 feet of 18-inch and 469 feet of 13 3/8-inch; 346 feet slotted between 98 and 734 feet. Plugged back to 739 feet. Gravel-packed. See log.
F-37	4½ miles northwest	J. Metzke	Elmer Bennett	1941	186	4	-26	May 1949	J, E, 1	D, S	
F-38	4 miles north	Robichaux & Thompson	Ray Wood	--	32	4	-19.5	Nov. 15, 1948	None	N	
F-39	do.	do.	do.	1939	555	18, 12, 8	-63.8	do.	T, E	Irr	Casing: 130 feet of 18-inch, 277 feet of 12-inch, and 148 feet of 8-inch; 207 feet slotted between 60 and 555 feet. Pumping level 127 feet on May 24, 1951. Observation well, U. S. Geological Survey no. 242. See table of water-level measurements. Temp., 70° F.

Table 6.- Records of wells in Waller County--Continued

Well	Distance from Brookshire	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water level		Method of lift	Use of water	Remarks
							Below (-) or above (+) land surface (ft.)	Date of measurement			
F-40	3½ miles northeast	John & C. R. England	Ray Wood	1939	428	18, 12	--	--	T, E, 85	Irr	Casing: 130 feet of 18-inch and remainder 12-inch; slotted-opposite all sands below 80 feet.
F-41	5½ miles northeast	L. E. Morrison	The Layne-Texas Co., Ltd.	1946	800	--	--	--	T, E	Irr	Temp., 72° F.
F-42	do.	do.	do.	1939	213	20, 12	--	--	T, E	Irr	Screen 120 feet between 56 and 212 feet. See log.
F-43	do.	do.	do.	1929	643	24, 12	-88.8	Nov. 15, 1948	T, E	Irr	Casing: 125 feet of 24-inch and remainder 12-inch; 166 feet slotted between 155 and 628 feet. Drawdown 47.9 feet while pumping 480 gpm on Aug. 22, 1949. Observation well, U. S. Geological Survey no. 225. See table of water-level measurements. Temp., 75° F. See log.
F-44	6½ miles northwest	Campbell & Jones	W. M. Justman	1930	470	16, 12	--	--	T, E	Irr	Temp., 72° F.
F-45	14¼ miles northeast	R. S. Montgomery	Harry Bennett	--	28	6	--	--	C, W	D, S	Elevation 210± feet.
F-46	13 miles north	Clyde Fuller	W. M. King & Elmer Gray	1924	65	8	--	--	B, H	D, S	Temp., 71° F.
G-1	8½ miles northwest	W. R. Kohler	-- Lindbeck	1948	50	4	-29.3	Mar. 11, 1949	C, W	S	
G-2	4¼ miles northwest	G. L. Buller	H. Bennett	1935	50	4	-11.8	do.	C, H	S	
G-3	4 miles northwest	G. W. Newman & G. M. Pattison	--	1925	1,003	--	--	--	None	N	Oil test. Owner's well 1. See log.
G-4	3¼ miles west	G. T. Rogers	Kirby Petroleum Co.	1929	3,634	--	--	--	None	N	Do.
G-5	3½ miles west	do.	do.	1930	3,432	--	--	--	None	N	Oil test. Owner's well 2. See log.
G-6	4½ miles west	D. Vaughan	do.	1929	3,330	--	--	--	None	N	Oil test. Owner's well 1. See log.
G-7	5½ miles southwest	C. J. Rehmann	John Mayo	1940	6,018	--	--	--	None	N	Oil test. Owner's well 1. See electrical log.
H-1	3¼ miles northwest	H. P. Donigan	--	Old	100	--	-39.6	Nov. 15, 1948	C, W	D, S	
H-2	3 miles northwest	Christ Lutheran Church	--	1945	75	4	-56.4	Apr. 16, 1949	J, E, 1	D, S	
H-3	2¼ miles north	C. D. Wiltpitz	W. P. Smith	1909	70	4	<u>a</u> /-58	May 1949	C, W	D, S	

Table 6.- Records of wells in Waller County--Continued

Well	Distance from Brookshire	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water level		Method of lift	Use of water	Remarks
							Below or above land surface (ft.)	Date of measurement			
H-4	3 miles north	John & C. R. England		1945	--	18	-65.8	Mar. 4, 1949	T,D	Irr	Observation well, U. S. Geological Survey no. 269. See table of water-level measurements. Temp., 72° F. Casing: 166 feet of 18 5/8-inch and remainder 13-inch; slotted opposite all sands from 86 to 485 feet. Gravel-packed. Temp., 74° F. See log.
H-5	do.	do.	The Layne-Texas Co., Ltd.	1941	600	18-5/8 13	-68.6	Mar. 15, 1949	T,E	Irr	Casing: 166 feet of 18 5/8-inch and remainder 13-inch; slotted opposite all sands from 86 to 485 feet. Gravel-packed. Temp., 74° F. See log.
H-6	2 1/2 miles northeast	Cardiff Bros.	do.	1940	586	18-5/8 13	-67.4	do.	T,E	Irr	261 feet of screen between 151 and 576 feet. Temp., 74° F.
H-7	1 1/2 miles northeast	J. D. Woods	A. H. Justman	--	--	--	-78.6	Nov. 12, 1948	T,E, 100	Irr	
H-8	3 miles northeast	Shell Pipe Line Co.	--	1928	--	6	-64.6	Apr. 13, 1949	C,E, 2	D, Irr	
H-9	3 1/2 miles northeast	J. V. Cardiff	The Layne-Texas Co., Ltd.	1925	653	24, 12, 10	--	--	T,E, 50	Irr	141 feet of screen between 136 and 623 feet.
H-10	4 1/2 miles northeast	C. W. Thorp	Stanolind Oil & Gas Co.	1934	7,643	--	--	--	None	N	Oil test. Owner's well 1. See electrical log.
H-11	do.	J. V. Cardiff	The Layne-Texas Co., Ltd.	1949	478	12	-66.3	Apr. 16, 1949	T,E	Irr	Gravel-packed. Yield, 1,700 gpm on June 29, 1950. Temp., 75° F.
H-12	4 1/2 miles northeast	Humble Oil & Refining Co.	do.	1943	808	10, 8, 6	a/-168	1948	T,E, 75	Ind	Casing: 267 feet of 10-inch, 278 feet of 8-inch, and 289 feet of 6-inch; 81 feet of screen between 607 and 795 feet. Owner's well 4. See log.
H-13	5 miles northeast	do.	do.	1941	819	10, 8, 6	a/-154	--	T,E	Ind	Casing: 211 feet of 10-inch, 333 feet of 8-inch, and 215 feet of 6-inch; 95 feet of screen between 607 and 802 feet. Plugged back to 819 feet. Gravel-packed. Owner's well 2. See log.
H-14	do.	do.	do.	1942	812	10, 8, 6	a/-160	1948	T,E	Ind	Casing: 168 feet of 10-inch, 492 feet of 8-inch, and 262 feet of 6-inch; 80 feet of screen between 652 and 805 feet. Owner's well 1. See log.
H-15	4 1/2 miles northeast	do.	do.	1943	812	10, 8, 6	a/-174	1948	T,E	Ind	Casing: 255 feet of 10-inch, 300 feet of 8-inch, and 298 feet of 6-inch; 92 feet of screen between 555 and 790 feet. Owner's well 3. See log.
H-16	do.	do.	A. H. Justman	1948	858	16, 8	--	--	T,E	Ind	Casing: 598 feet of 16-inch and 324 feet of 8-inch; slotted opposite all sands. Gravel-packed. Owner's well 7. See log.

Table 6.- Records of wells in Waller County--Continued

Well	Distance from Brookshire	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water level		Method of lift	Use of water	Remarks
							Below or above land surface (ft.)	Date of measurement			
H-17	5 miles northeast	Humble Oil & Refining Co.	A. H. Justman	1948	812	--	--	T, E	Ind	Screen opposite all sands.	
H-18	5½ miles northeast	do.	do.	1948	871	16, 8	--	T, E, 60	Ind	Casing: 600 feet of 16-inch and 321 feet of 8-inch; screen opposite all sands. Gravel-packed. Owner's well 6. See log.	
H-19	5½ miles northeast	Cecil Beckendorff	--	1946	--	--	-68.1	T, E	Irr	Yield, 1,600 gpm on May 23, 1951. Temp., 71° F.	
H-20	6½ miles northeast	do.	--	--	--	14	-68.9	T, E, 50	Irr	Yield, 1,250 gpm on June 19, 1951.	
H-21	6½ miles northeast	J. A. Kimball	The Layne-Texas Co., Ltd.	1936	246	24, 13	-69.6	T, E	Irr	114 feet of screen between 90 and 246 feet. Observation well, U.S. Geological Survey no. 252. See table of water-level measurements. Gravel-packed. Temp., 73° F.	
H-22	5 miles east	Francis Young	Ray Woods	1936	280	12	-70.9	T, E, 60	Irr	Screen opposite all sands below 9 feet. Yield, 850 gpm on May 22, 1951. U. S. Geological Survey no. 238. See table of water-level measurements. Temp., 71° F.	
H-23	4 miles east	Humble Oil & Refining Co.	The Layne-Texas Co., Ltd.	1944	195	6, 4	a/-63	T, E, 7½	Ind	Casing: 148 feet of 6-inch and 47 feet of 4-inch; 22 feet of screen between 171 and 195 feet. See log.	
H-24	do.	John Alt	--	1927	256	12	--	T, D	Irr	86 feet of screen between 130 and 256 feet.	
H-25	2 miles east	J. D. Woods	Ray Woods	1937	311	16, 8	a/-58	T, D	Irr	Casing: 147 feet of 16-inch and 165 feet of 8-inch; 146 feet of screen between 81 and 305 feet.	
H-26	do.	do.	do.	1935	165	16, 8	--	T, D	Irr	85 feet of screen.	
H-27	1½ miles east	Ray Woods	do.	1936	150	16, 8	--	T, D	Irr	Screen opposite all sands below 80 feet.	
H-28	do.	do.	do.	1939	290	20, 14	-64.1	T, D, 150	Irr	Screen opposite all sands below 80 feet. Observation well, U.S. Geological Survey no. 240. See table of water-level measurements.	
H-29	In Brookshire	City of Brookshire	A. H. Justman	1946	147	8	--	T, E	P	20 feet of screen. Used as standby.	
H-30	2½ miles west	P. H. Donigan	Kirby & Mayo	1941	8,001	--	--	None	N	Oil test. Owner's well 1. See electrical log.	
H-31	2½ miles southeast	Ray Woods	Ray Woods	1947	910	22	-67.8	T, E	Irr	Screen opposite all sands.	
H-32	2½ miles southeast	Chester Jordan	do.	1936	335	16, 12	--	T, E, 60	Irr	Casing: 178 feet of 16-inch and 157 feet of 12-inch; slotted opposite all sands below 84 feet.	

Table 6.- Records of wells in Waller County--Continued

Well	Distance from Brookshire	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water level		Method of lift	Use of water	Remarks
							Below (-) or above (+) land surface (ft.)	Date of measurement			
H-33	3 miles southeast	Chester Jordan	Texas Water Wells Inc.	1943	340	18, 14	--	--	T, E	Irr	Screen opposite all sands below 80 feet. Yield, 1,920 gpm on Aug. 22, 1949. Temp., 72° F.
H-34	5 miles east	-- Alt	Sun Oil Co.	1943	7,317	--	--	--	None	N	Oil test. Owner's well 1. See electrical log.
H-35	5½ miles east	John Cope	--	1932	545	--	-68.6	Nov. 10, 1948	T, E	Irr	Observation well, U. S. Geological Survey no. 235. See table of water-level measurements. Temp., 72° F. See log.
H-36	7 miles east	Texas-New Mexico Pipe Line Co.	--	1937	237	6	--	--	T, E, 8	D	Twenty-one feet of screen. See log.
H-37	In Brookshire	City of Brookshire	Texas Water Wells Inc.	1950	297	12¾, 6-5/8	--	--	T, E, 30	P	Casing: 223 feet of 12¾-inch and 124 feet of 6 5/8-inch; 60 feet slotted between 222 and 294 feet. Reported specific capacity 5.2 gpm per foot at drawdown. Temp., 72° F.
H-38	5¼ miles northeast	Francis Young	- Olsen	1922	273	26	--	--	T, G	Irr	Casing: 68 feet of 26-inch and 12-inch to bottom. Yield, 470 gpm, Aug. 1, 1932.

a/ Reported by owner or driller.

Table 7.- Drillers' logs of wells in Waller County, Tex.

Thickness (feet)		Depth (feet)		Thickness (feet)		Depth (feet)	
Well C-2, partial log							
Roy Chapman, 3¼ miles north of Hempstead.							
Clay	20	20	Shale	68	728		
Sand	20	40	Sand, hard	6	734		
Clay	30	70	Gumbo	36	770		
Sand	35	105	Chalk broken and rock	20	790		
Clay	45	150	Shale	215	1,005		
Rock, black	4	154	Sand	20	1,025		
Clay	33	187	Shale, gummy	8	1,033		
Sand and shells	73	260	Chalk, broken and sand	8	1,041		
Shale	85	345	Shale, sandy	64	1,105		
Sand	95	440	Sand	32	1,137		
Sand and gravel	30	470	Shale, sandy	18	1,155		
Shale, gummy	60	530	Sand	10	1,165		
Sand	30	560	Shale, sandy	35	1,200		
Shale	54	614	Total Depth		2,640		
Gumbo	46	660					
Well C-21							
City of Hempstead, Owner's well 2, in Hempstead.							
Clay	38	38	Sand, white	12	393		
Sand, red	15	53	Gumbo	36	429		
Shale, sandy	13	66	Sand	30	459		
Sand, coarse	9	75	Shale, sandy	27	486		
Gumbo	45	120	Rock, lime	1	487		
Shale, sandy	24	144	Sand	28	515		
Gumbo	16	160	Shale	74	589		
Shale, sandy	8	168	Sand	7	596		
Sand	27	195	Shale	73	669		
Gravel	10	205	Sand	40	709		
Shale, sticky	7	212	Rock, lime	1	710		
Sand and gravel	37	249	Shale, sandy	15	725		
Gumbo	2	251	Gumbo	20	745		
Shale	130	381					
Well C-22							
City of Hempstead, Owner's well 1, in Hempstead.							
Soil	2	2	Sand	60	272		
Clay	47	49	Rock	1	273		
Sand, coarse	38	87	Gumbo	84	357		
Clay	20	107	Sand	19	376		
Sand, fine	12	119	Gumbo	12	388		
Clay	8	127	Sand	14	402		
Rock, soft	9	136	Gumbo	26	428		
Clay	34	170	Sand	19	447		
Rock	1	171	Gumbo	34	481		
Clay	8	179	Sand	33	514		
Rock	1	180	Gumbo	169	683		
Sand	31	211	Sand	36	719		
Rock	1	212	Gumbo	149	868		

Table 7.- Drillers' logs of wells in Waller County--Continued

		Thickness (feet)	Depth (feet)			Thickness (feet)	Depth (feet)
Well C-28							
J. J. Menke, Owner's well 1, 3 miles southeast of Hempstead.							
Clay		25	25	Sand, coarse		5	1,715
Sand		30	55	Shale		15	1,730
Gravel and clay		10	65	Gumbo		30	1,760
Sand and shale		115	180	Sand		20	1,780
Gumbo, hard		40	220	Gumbo		20	1,800
Shale, soft		19	239	Chalk		7	1,807
Gumbo		26	265	Gumbo		13	1,820
Shale		15	280	Shale		15	1,835
Gumbo		30	310	Sand		3	1,838
Shale		10	320	Gumbo		42	1,880
Gumbo		15	335	Shale		15	1,895
Shale		10	345	Chalk		5	1,900
Rock, hard		3	348	Shale		15	1,915
Shale		27	375	Gumbo		15	1,930
Shale and boulders		25	400	Shale		15	1,945
Gumbo, blue		28	428	Gumbo		133	2,078
Shale		37	465	Shale and gumbo		135	2,213
Gumbo, hard		35	500	Sand		15	2,228
Shale, brown		18	518	Shale and gumbo		47	2,275
Gumbo		20	538	Sand		25	2,300
Shale, soft		62	600	Gumbo and limestone		44	2,344
Gumbo		29	629	Limestone and chalk		4	2,348
Shale and sand		21	650	Sand		25	2,373
Gumbo		25	675	Shale and gumbo		25	2,398
Chalk		150	825	Shale, mixed, gumbo, and conglomerate		100	2,498
Shale		15	840	Sand		8	2,506
Rock		20	860	Limestone and gumbo		8	2,514
Shale		40	900	Sand		16	2,530
Gumbo		15	915	Gumbo and limestone		14	2,544
Shale		30	945	Shale		4	2,548
Gumbo		25	970	Chalk and limestone		5	2,553
Shale		15	985	Gumbo, hard sandy		5	2,558
Gumbo		35	1,020	Gumbo, blue		6	2,564
Shale		25	1,045	Gumbo and limestone		25	2,589
Gumbo		13	1,058	Sand		3	2,592
Shale		22	1,080	Shale, green and gray		5	2,597
Gumbo		20	1,100	Gumbo		15	2,612
Shale		20	1,120	Limestone		4	2,616
Gumbo		25	1,145	Shale		2	2,618
Shale and rock		20	1,165	Gumbo and limestone		39	2,657
Sand, blue and lime		41	1,206	Shale		17	2,674
Sand		104	1,310	Gumbo		6	2,680
Rock		3	1,313	Shale, sandy and shells		16	2,696
Shale		7	1,320	Gumbo and sandy shell		69	2,765
Sand		9	1,329	Sand		24	2,789
Shale		21	1,350	Shale, sandy, gumbo and limestone		26	2,815
Gumbo		15	1,365	Sand		41	2,856
Sand		10	1,375	Gumbo		2	2,858
Shale and gumbo		25	1,400	Shale, sandy		8	2,866
Sand		15	1,415	Limestone, hard, sandy and gumbo		19	2,885
Gumbo		10	1,425	Shale, sandy		2	2,887
Shale and sand		30	1,455	Gumbo, sandy and limestone		8	2,895
Gumbo		20	1,475	Shale, sandy		2	2,897
Shale		20	1,495	Gumbo		3	2,900
Sand		105	1,600	Shale, sandy		2	2,902
Chalk		10	1,610				
Sand		10	1,620				
Shale and gumbo		30	1,650				
Sand		10	1,660				
Shale		15	1,675				
Gumbo		15	1,690				
Shale		20	1,710				

Table 7.- Drillers' logs of wells in Waller County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well D-3					
W. F. Maxwell, 8¼ miles northeast of Hempstead.					
Sand and clay	16	16	Shale and boulders	15	635
Sand	6	22	Gumbo	30	665
Clay, sandy	96	118	Shale and boulders	13	678
Clay and boulders	22	140	Gumbo	66	744
Gumbo	204	344	Shale and boulders	29	773
Sand, hard	10	354	Gumbo	31	804
Gumbo	18	372	Shale and boulders	30	834
Sand, hard	11	383	Gumbo and lime	24	858
Gumbo	25	408	Shale and gravel	55	913
Sand, hard	10	418	Gumbo and lime	17	930
Gumbo	78	496	Shale and boulders	20	950
Shale and boulders	32	528	Gumbo and lime	60	1,010
Gumbo	7	535	Lime	20	1,030
Shale and boulders	20	555	Gumbo and lime	114	1,144
Gumbo	30	585	Lime	43	1,187
Shale and boulders	9	594	Shale and boulders	10	1,197
Rock	4	598	Gumbo	3	1,200
Gumbo	22	620			
Well D-5					
-- Maxwell, Owner's well 1, 9 miles northeast of Hempstead.					
Surface	20	20	Gumbo	85	1,098
Sand	6	26	Rock	42	1,140
Clay and shale	140	166	Gumbo	21	1,161
Gumbo	64	230	Shale	9	1,170
Shale, hard	20	250	Gumbo	40	1,210
Gumbo	46	296	Shale, hard	12	1,222
Shale, chalky	8	304	Lime	14	1,236
Gumbo	16	320	Gumbo	50	1,286
Lignite	10	330	Sand, green	32	1,318
Gumbo	51	381	Shale, hard	22	1,340
Lignite	14	395	Gumbo	10	1,350
Shale	18	413	Shale, hard	43	1,393
Shale, hard and boulders	7	420	Shale, sandy	14	1,407
Gumbo	14	434	Shale, hard	39	1,446
Shale	9	443	Sand	5	1,451
Shale, hard	1	444	Shale, chalky	10	1,461
Gumbo	54	498	Lime	7	1,468
Shale, hard	7	505	Shale, chalky	4	1,472
Shale and boulders	31	536	Lime	4	1,476
Shale, hard	14	550	Gumbo, limey	18	1,494
Gumbo	8	558	Shale, soft	6	1,500
Shale and boulders	7	565	Gumbo and lime	40	1,540
Gumbo	13	578	Gumbo	21	1,561
Shale and boulders	66	644	Shale and hard lime	10	1,571
Gumbo	11	655	Gumbo and lime	54	1,625
Shale, hard	4	659	Shale and lime	9	1,634
Gumbo	10	669	Shale, sandy	13	1,647
Shale, sandy	6	675	Gumbo and lime	15	1,662
Shale and boulders	27	702	Shale	11	1,673
Gumbo	13	715	Gumbo and lime	23	1,696
Shale and boulders	17	732	Shale and lime	11	1,707
Gumbo	83	815	Gumbo and lime	11	1,718
Shale, sticky	10	825	Shale, chalky	12	1,730
Shale, hard chalky	38	863	Gumbo and lime	10	1,740
Gumbo	10	873	Shale and lime	11	1,751
Shale, hard chalky	23	896	Lime and gumbo	22	1,773
Gumbo	27	923	Lime	6	1,779
Shale, hard	6	929	Shale, sandy	4	1,783
Gumbo	26	955	Gumbo and lime	10	1,793
Shale	10	965	Shale, sandy	11	1,804
Gumbo	38	1,003	Lime	4	1,808
Shale, sandy	10	1,013	Gumbo and lime	4	1,812

(Continued on next page)



Table 7.- Drillers' logs of wells in Waller County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well D-5--Continued					
Shale and lime .....	5	1,817	Gumbo and lime .....	49	1,991
Gumbo and lime .....	16	1,833	Shale, sandy .....	13	2,004
Shale and lime .....	17	1,850	Shale .....	10	2,014
Gumbo and lime .....	11	1,861	Gumbo and lime .....	55	2,069
Shale .....	19	1,880	Shale .....	14	2,083
Lime .....	3	1,883	Gumbo and lime .....	20	2,103
Shale and lime .....	7	1,890	Lime .....	9	2,112
Lime .....	3	1,893	Gumbo and lime .....	24	2,136
Gumbo and lime .....	14	1,907	Shale .....	14	2,150
Lime .....	4	1,911	Shale, sandy .....	10	2,160
Gumbo and lime .....	26	1,937	Shale and lime .....	15	2,175
Shale .....	5	1,942	Gumbo and lime .....	78	2,253
Well D-23					
Prairie View State University, 5½ miles east of Hempstead.					
Surface soil .....	20	20	Rock, hard .....	1	355
Sand, red .....	60	80	Clay .....	90	445
Clay .....	220	300	Rock .....	38	483
Rock, soft .....	1	301	Sand .....	50	533
Sand, packed .....	30	331	Clay .....	17	550
Clay .....	23	354	Sand .....	21	571
Well D-35					
W. H. Carter, 10¼ miles southeast of Hempstead.					
Surface sand .....	10	10	Sand, hard .....	5	1,695
Clay .....	40	50	Sand and gumbo .....	40	1,735
Sand .....	30	80	Gumbo .....	140	1,875
Gravel .....	5	85	Shale and boulders .....	10	1,885
Gumbo .....	19	104	Shale and gumbo .....	205	2,090
Sand .....	51	155	Shale, gumbo and sand .....	70	2,160
Gumbo .....	80	235	Shale and sand .....	44	2,204
Shale and sand .....	39	274	Shale, sticky .....	41	2,245
Gumbo .....	42	316	Sand, blue .....	30	2,275
Sand .....	41	357	Gumbo .....	50	2,325
Gumbo .....	83	440	Sand and shale .....	29	2,354
Rock .....	5	445	Gumbo .....	51	2,405
Gumbo .....	8	453	Sand and shale .....	25	2,430
Rock .....	12	465	Gumbo .....	164	2,594
Gumbo .....	23	488	Shale, sandy .....	20	2,614
Shale .....	14	502	Gumbo .....	43	2,657
Gumbo .....	137	639	Shale and boulders .....	10	2,667
Rock .....	1	640	Gumbo and gypsum .....	336	3,003
Gumbo .....	60	700	Gumbo, green, shale and sand .....	47	3,050
Shale and boulders .....	45	745	Shale, green and sand .....	20	3,070
Gumbo .....	303	1,048	Shale, blue and sand .....	49	3,119
Boulders .....	20	1,068	Gumbo and gypsum .....	235	3,354
Gumbo .....	41	1,109	Shale and sand .....	46	3,400
Sand and shale .....	21	1,130	Shale, sand and gumbo .....	14	3,414
Shale and sand .....	15	1,145	Gumbo .....	31	3,445
Gumbo .....	286	1,431	Sand, hard and shale .....	15	3,460
Gypsum .....	8	1,439	Gumbo .....	18	3,478
Rock .....	2	1,441	Sand, hard blue .....	8	3,486
Shale, rock and gypsum .....	59	1,500	Gumbo .....	41	3,527
Sand .....	35	1,535			
Shale and boulders .....	40	1,575			
Rock .....	75	1,650			
Soapstone .....	40	1,690			

Table 7.- Drillers' logs of wells in Waller County--Continued

		Thickness (feet)	Depth (feet)			Thickness (feet)	Depth (feet)
Well D-36, partial log							
W. P. Maxwell, Owner's well 1, 8¼ miles southeast of Hempstead.							
Sand and clay		26	26	Sand and boulders		55	1,515
Sand and boulders		124	150	Shale and lime		45	1,560
Shale		76	226	Shale		35	1,595
Sand		10	236	Sand and boulders		63	1,658
Shale		20	256	Sand and hard lime		50	1,708
Sand		31	287	Shale and lime		42	1,750
Shale		108	395	Shale, sandy		60	1,810
Sand and boulders		60	455	Sand and boulders		110	1,920
Shale		25	480	Shale, sandy		32	1,952
Sand and gravel		90	570	Lime		5	1,957
Shale		84	654	Shale, sandy		34	1,991
Sand, gray		24	678	Shale, sticky and lime		189	2,180
Shale		15	693	Lime		4	2,184
Sand		5	698	Shale		61	2,245
Shale		12	710	Shale, sticky and lime		94	2,339
Sand		15	725	Sand and shale		36	2,375
Shale		63	788	Shale		35	2,410
Sand and gravel		30	818	Shale, sticky and sand		58	2,468
Shale		152	970	Shale, sticky		116	2,584
Sand		8	978	Shale, sandy		46	2,630
Shale		38	1,016	Shale, sticky		30	2,660
Sand and gravel		14	1,030	Shale, sandy		5	2,665
Shale		35	1,065	Shale		105	2,770
Sand		28	1,093	Shale and lime		15	2,785
Shale		62	1,155	Shale		45	2,830
Sand		10	1,165	Shale and lime		7	2,837
Shale		13	1,178	Shale		48	2,885
Sand, hard		24	1,202	Shale and lime		10	2,895
Shale		66	1,268	Shale		33	2,928
Sand		12	1,280	Shale, sandy		27	2,955
Shale		60	1,340	Shale and lime		45	3,000
Sand and boulders		87	1,427	Total depth			4,668
Shale		33	1,460				
Well E-2							
J. R. Young, Owner's well 1, 15 miles northwest of Brookshire.							
Surface soil		2	2	Rock		2	705
Clay, surface		18	20	Gumbo and boulders		36	741
Sand and clay		26	46	Rock		2	743
Sand		20	66	Gumbo		68	811
Rock		1	67	Sand and boulders		28	839
Sand		4	71	Gumbo and boulders		55	894
Rock		4	75	Gumbo		53	947
Sand		7	82	Gumbo and lime		124	1,071
Rock		1	83	Sandy lime and boulders		5	1,076
Clay		25	108	Rock		3	1,079
Clay, sandy		45	153	Gumbo and boulders		15	1,094
Rock		1	154	Gumbo, lime, and boulders		40	1,134
Clay, sandy		118	272	Shale, sticky, and boulders		10	1,144
Rock		2	274	Rock		6	1,150
Clay		66	340	Gumbo and lime		35	1,185
Sand and boulders		19	359	Gumbo, lime, and boulders		58	1,243
Clay, sandy		24	383	Shale and boulders		23	1,266
Rock		2	385	Gumbo and lime		8	1,274
Clay		15	400	Shale and boulders		61	1,335
Sand and boulders		12	412	Gumbo		40	1,375
Gumbo		106	518	Sand		8	1,383
Sand and boulders		30	548	Gumbo		36	1,419
Gumbo		97	645	Sand		7	1,426
Gumbo and lime		35	680	Gumbo and lime		74	1,500
Sand and boulders		23	703	Shale, sandy		7	1,507

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Table 7.- Drillers' logs of wells in Waller County--Continued

Thickness (feet)		Depth (feet)		Thickness (feet)		Depth (feet)	
Well E-2--Continued							
Shale, sandy, and lime .....	28	1,535	Shale, sandy .....	218	2,979		
Shale, sandy, lime and boulders ...	174	1,709	Shale .....	41	3,020		
Shale, sandy .....	54	1,763	Shale, sandy .....	85	3,105		
Sand .....	11	1,774	Shale .....	50	3,155		
Shale, sandy .....	32	1,806	Shale, sandy and lignite .....	18	3,173		
Shale, sandy, and lime .....	115	1,921	Shale, sandy .....	43	3,216		
Sand .....	30	1,951	Shale, sandy, and shell .....	41	3,257		
Shale, sandy .....	50	2,001	Shale, sandy .....	91	3,348		
Shale, sandy, lime and gravel .....	24	2,025	Shale .....	5	3,353		
Sand .....	14	2,039	Sand, shale, shell and lignite ..	22	3,375		
Shale and boulders .....	22	2,061	Shale and shell .....	17	3,392		
Shale, sandy and boulders .....	40	2,101	Shale .....	88	3,480		
Sand and boulders .....	52	2,153	Shale, sandy .....	139	3,619		
Shale and lime .....	67	2,220	Shale .....	20	3,639		
Shale and sand .....	15	2,235	Shale, sandy .....	30	3,669		
Shale, sandy .....	442	2,677	Shale and boulders .....	15	3,684		
Shale, sandy and lime .....	25	2,702	Sand .....	15	3,699		
Shale and lime .....	2	2,704	Shale, sandy .....	60	3,759		
Sand, packed .....	6	2,710	Shale .....	63	3,822		
Shale and lime .....	8	2,718	Sand and shale .....	2	3,824		
Shale, sandy .....	5	2,723	Sand .....	2	3,826		
Sand .....	8	2,731	Shale .....	185	4,011		
Shale .....	30	2,761					
Well E-3							
J. R. Young, Owner's well 1, 1 1/4 miles northwest of Brookshire.							
Topsoil .....	25	25	Gumbo, tough, hard .....	51	758		
Sand .....	22	47	Gumbo and lime .....	26	784		
Clay .....	2	49	Sand, hard rough .....	9	793		
Sand .....	7	56	Gumbo .....	80	873		
Clay .....	5	61	Sand, hard .....	3	876		
Gravel and sand .....	18	79	Sand and boulders .....	43	919		
Clay .....	17	96	Gumbo, hard .....	89	1,008		
Gumbo .....	8	104	Sand .....	16	1,024		
Sand and boulders .....	10	114	Gumbo, boulders, and lime .....	143	1,167		
Gumbo .....	12	126	Gumbo .....	71	1,238		
Sand, hard .....	17	143	Lime and sand .....	30	1,268		
Gumbo .....	15	158	Gumbo .....	25	1,293		
Sand .....	26	184	Lime and sand .....	7	1,300		
Gumbo .....	31	215	Lime .....	11	1,311		
Shale, sticky .....	14	229	Lime, broken, sand and shale .....	10	1,321		
Sand .....	23	252	Shale, lime, and sand .....	10	1,331		
Gumbo .....	30	282	Shale, sandy, and lime .....	20	1,351		
Sand .....	1	283	Lime, sandy .....	10	1,361		
Gumbo and boulders .....	13	296	Sand, brown .....	1	1,362		
Gumbo .....	11	307	Lime, sandy, and shale .....	31	1,393		
Sand .....	1	308	Lime and sandy shale .....	10	1,403		
Sand, hard .....	7	315	Shale, gray and green .....	61	1,464		
Gumbo .....	27	342	Sand .....	7	1,471		
Shale, sandy, and boulders .....	29	371	Shale, green, and lime .....	39	1,510		
Rock .....	2	373	Shale, sandy, green, and lime .....	114	1,624		
Sand, hard .....	3	376	Sand and shale .....	17	1,641		
Gumbo .....	35	411	Shale, gummy, and lime .....	37	1,678		
Gumbo, brown .....	82	493	Lime, gummy, and shale .....	186	1,864		
Sand, gray .....	11	504	Sand, white .....	48	1,912		
Sand .....	22	526	Shale and lime .....	10	1,922		
Gumbo .....	9	535	Shell and shale .....	8	1,930		
Sand, hard .....	5	540	Sand, gray .....	33	1,963		
Gumbo, blue, and shale .....	26	566	Shale, sandy, and lime .....	23	1,986		
Gumbo .....	55	621	Sand and shale .....	12	1,998		
Sand, bluish-gray, soft .....	42	663	Shale, blue and gray .....	24	2,022		
Boulders and gumbo .....	37	700	Shale, sandy, and lime .....	66	2,088		
Sand and shale .....	7	707					

Table 7.- Drillers' logs of wells in Waller County--Continued

Thickness (feet)		Depth (feet)		Thickness (feet)		Depth (feet)	
Well E-5							
G. D. Fux, 12 miles northwest of Brookshire.							
Soil and clay .....	10	10	Clay .....	45	100		
Sand and clay .....	13	23	Sand .....	7	107		
Clay .....	21	44	Gravel .....	21	128		
Sand .....	11	55					
Well F-8							
Roy Turner, 10½ miles north of Brookshire.							
Soil .....	10	10	Gumbo .....	12	442		
Quicksand, and dry gravel .....	35	45	Sand, hard .....	8	450		
Clay .....	5	50	Shale .....	12	462		
Sand and gravel .....	34	84	Sand .....	11	473		
Clay .....	101	185	Gumbo .....	11	484		
Sand .....	31	216	Sand .....	14	498		
Clay .....	9	225	Clay .....	17	515		
Shale, hard .....	12	237	Sandstone .....	11	526		
Shale, sandy .....	7	244	Clay .....	50	576		
Sand .....	6	250	Sandstone .....	30	606		
Clay .....	6	256	Clay .....	43	649		
Sand .....	14	270	Sandstone .....	23	672		
Shale .....	8	278	Shale .....	29	701		
Shale, sandy .....	15	293	Sand .....	21	722		
Clay .....	12	305	Clay .....	16	738		
Sand .....	20	325	Sand and boulders .....	18	756		
Clay .....	15	340	Shale .....	28	784		
Shale, sandy .....	29	369	Sand .....	21	805		
Shale .....	11	380	Gumbo .....	12	817		
Sand .....	22	402	Sand, fine .....	18	835		
Shale .....	12	414	Sandstone .....	3	838		
Sand, hard .....	16	430	Shale .....	8	846		
Well F-12							
R. Robertson, 7½ miles north of Brookshire.							
Topsoil .....	77	77	Sand .....	22	732		
Gravel ..	23	100	Shale .....	22	754		
Clay .....	3	103	Rock and sand .....	18	772		
Sand .....	14	117	Shale .....	45	817		
Clay .....	31	148	Sand .....	23	840		
Sand .....	14	162	Shale .....	37	877		
Clay .....	38	200	Sand .....	13	890		
Sand .....	14	214	Shale .....	4	894		
Clay .....	39	253	Sand .....	24	918		
Sand .....	55	308	Shale .....	11	929		
Clay .....	26	334	Sand .....	15	944		
Sand .....	14	348	Shale .....	9	953		
Clay .....	44	392	Sand .....	22	975		
Sand .....	71	463	Shale .....	28	1,003		
Clay .....	13	476	Shale, sandy .....	15	1,018		
Sand .....	18	494	Shale .....	14	1,032		
Clay .....	12	506	Sand .....	14	1,046		
Sand .....	35	541	Shale .....	44	1,090		
Clay .....	37	578	Shale, sandy .....	18	1,108		
Sand .....	10	588	Shale .....	56	1,164		
Clay .....	67	655	Shale, sandy .....	14	1,178		
Sand .....	19	674	Shale .....	32	1,210		
Shale .....	36	710	Sand and rock .....	69	1,279		

Table 7.- Drillers' logs of wells in Waller County--Continued

		Thickness (feet)	Depth (feet)			Thickness (feet)	Depth (feet)
Well F-13							
R. Robertson, 7½ miles north of Brookshire.							
Topsoil .....	3	3	Shale, hard sandy .....	3	539		
Clay .....	12	15	Sand .....	15	554		
Sand, fine .....	24	39	Clay, tough .....	111	665		
Clay .....	5	44	Rock, hard, and clay .....	2	667		
Sand, fine .....	8	52	Shale .....	26	693		
Sand and gravel .....	63	115	Sand .....	34	727		
Rocks, hard .....	11	126	Clay .....	12	739		
Clay .....	51	177	Sand, fine .....	10	749		
Sand .....	31	208	Clay .....	11	760		
Clay .....	56	264	Sand .....	48	808		
Sand and clay .....	39	303	Clay, tough sticky .....	8	816		
Clay .....	15	318	Clay, tough and rock .....	7	823		
Sand .....	23	341	Sand, hard, and shale .....	27	850		
Clay .....	59	400	Clay .....	43	893		
Sand .....	5	405	Sand .....	22	915		
Clay .....	7	412	Clay, tough .....	44	959		
Sand and clay .....	5	417	Sand and shale .....	29	988		
Sand, good .....	30	447	Shale, tough .....	18	1,006		
Clay .....	2	449	Sand .....	10	1,016		
Clay, sandy, and sand .....	5	454	Clay, tough .....	21	1,037		
Clay and sand .....	30	484	Sand .....	23	1,060		
Sand and sandy clay .....	16	500	Clay, tough sticky .....	44	1,104		
Shale .....	36	536	Plugged at 1,065 feet.				
Well F-20							
A. E. Thompson, 7½ miles northeast of Brookshire.							
Soil .....	3	3	Sand, white .....	27	498		
Clay .....	8	11	Sand and clay .....	30	528		
Clay, sandy, and sand .....	26	37	Clay .....	5	533		
Clay, red .....	40	77	Shale .....	29	562		
Sand and gravel .....	33	110	Sand and shale .....	32	594		
Clay .....	7	117	Shale, tough .....	50	644		
Sand and clay .....	27	144	Shale, sandy .....	8	652		
Sand and coarse gravel .....	8	152	Shale, tough .....	96	748		
Clay .....	4	156	Shale, tough brown .....	22	770		
Sand and coarse gravel .....	12	168	Sand, hard fine .....	8	778		
Rock .....	1	169	Shale, tough .....	26	804		
Clay, tough .....	38	207	Sand, hard fine .....	7	811		
Clay, red .....	22	229	Shale .....	17	828		
Clay and hard sand .....	38	267	Sand .....	4	832		
Sand, fine yellow .....	20	287	Shale .....	14	846		
Clay, sandy .....	157	444	Sand .....	37	883		
Sand and clay .....	13	457	Shale .....	7	890		
Sand, white .....	4	461	Sand .....	24	914		
Clay .....	10	471	Shale, tough .....	12	926		
Well F-21							
Harry Hebert, 8 miles northeast of Brookshire.							
Topsoil and clay .....	80	80	Gumbo .....	10	383		
Sand and gravel .....	70	150	Sand .....	22	405		
Gumbo .....	136	286	Gumbo .....	73	478		
Sand .....	40	326	Sand .....	43	521		
Gumbo .....	32	358	Gumbo .....	3	524		
Sand .....	15	373					

Table 7.- Drillers' logs of wells in Waller County--Continued

		Thickness (feet)	Depth (feet)			Thickness (feet)	Depth (feet)
Well F-22							
Harry Hebert, 8 miles northeast of Brookshire.							
Clay	12	12	Rock	1	569		
Sand	14	26	Sand	10	579		
Clay	14	40	Rock	1	580		
Sand	43	83	Sand	20	600		
Clay	18	101	Gumbo	5	605		
Sand	36	137	Rock	1	606		
Clay	86	223	Gumbo	28	634		
Rock	1	224	Sand	25	659		
Sand	10	234	Gumbo	28	687		
Rock	2	236	Gumbo	1	688		
Sand	32	268	Rock	37	725		
Clay	28	296	Gumbo	1	726		
Sand	12	308	Rock	2	728		
Clay	24	332	Sand	10	738		
Sand	58	390	Gumbo	18	756		
Gumbo	80	470	Shale	1	757		
Sand	10	480	Rock	6	763		
Gumbo	23	503	Shale	25	788		
Sand	33	536	Rock and sand	17	805		
Gumbo	24	560	Shale	23	828		
Sand	8	568	Sand	56	884		
			Shale				
Well F-30							
American Rice Milling Co., 5½ miles north of Brookshire.							
Clay	20	20	Sand	55	538		
Sand	9	29	Clay, sandy	32	570		
Clay	10	39	Sand	21	591		
Sand	13	52	Rock	4	595		
Sand, coarse	105	157	Clay, sandy	33	628		
Sand	2	159	Rock	3	631		
Rock	1	160	Clay	9	640		
Sand	22	182	Clay, tough	44	684		
Clay	83	265	Clay	40	724		
Gravel and clay	25	290	Clay, tough	43	767		
Sand	28	318	Clay	13	780		
Clay	20	338	Rock	5	785		
Sand	55	393	Clay	215	1,000		
Clay	90	483					
			Plugged at 644 feet.				
Well F-32							
American Rice Milling Co., 5¼ miles northeast of Brookshire.							
Clay, sandy	15	15	Clay	56	554		
Sand	17	32	Sand	58	612		
Sand and fine gravel	45	77	Clay	31	643		
Sand	23	100	Rock	2	645		
Sand and gravel	55	155	Sand	7	652		
Sand	17	172	Clay	28	680		
Clay	28	200	Sand	67	747		
Sand	33	233	Clay	65	812		
Clay	33	266	Clay, tough	40	852		
Sand	23	289	Clay	45	897		
Clay	21	310	Clay, tough	33	930		
Sand, gravel, and lime	60	370	Clay	5	935		
Clay	16	386	Sand	22	957		
Sand, fine, gravel	20	406	Clay	48	1,005		
Clay	64	470					
Clay, sandy	28	498	Plugged at 765 feet.				

Table 7.- Drillers' logs of wells in Waller County--Continued

		Thickness (feet)	Depth (feet)			Thickness (feet)	Depth (feet)
Well F-36							
Robichaux & Thompson, 5 miles north of Brookshire.							
Clay and topsoil	12	12	Rock and Gravel	2	334		
Sand, fine	10	22	Sand	80	414		
Clay, sandy	13	35	Clay	10	424		
Clay, tough	25	60	Sand	25	449		
Clay, sandy	5	65	Clay	62	511		
Sand, coarse and gravel	59	124	Sand	11	522		
Rock	6	130	Clay	52	574		
Clay and sand	16	146	Sand	27	601		
Sand, clay, and gravel	29	175	Clay, hard	93	694		
Sand	10	185	Sand	38	732		
Clay	24	209	Clay tough	37	769		
Sand	5	214	Shale, sandy	7	776		
Clay and sand	18	232	Shale and sandy shale	43	819		
Clay	5	237	Shale, tough sticky	81	900		
Clay, tough, and sand	95	332	Plugged at 739 feet.				
Well F-42							
L. E. Morrison, 5½ miles northeast of Brookshire.							
Topsoil	5	5	Clay, hard	13	153		
Clay, sandy	15	20	Gravel	35	188		
Sand	7	27	Clay	6	194		
Clay, red	29	56	Rock	2	196		
Sand	44	100	Clay, hard	10	206		
Gravel	22	122	Sand	6	212		
Clay	18	140	Clay	1	213		
Well F-43							
L. E. Morrison, 5½ miles northeast of Brookshire.							
Soil, sandy	2	2	Sand, fine	18	331		
Clay	15	17	Rock	1	332		
Sand	10	27	Sand, fine	17	349		
Clay	27	54	Gumbo, tough	8	357		
Sand, coarse	25	79	Rock	1	358		
Clay	10	89	Gumbo	27	385		
Sand and gravel	12	101	Sand	60	445		
Gumbo and clay	35	136	Gumbo	6	451		
Rock	3	139	Shale	12	463		
Gumbo, tough	21	160	Gumbo, tough	24	487		
Sand and coarse gravel	11	171	Sand	12	499		
Rock	1	172	Gumbo	8	507		
Clay	20	192	Sand	10	517		
Rock	2	194	Gumbo	10	527		
Clay	10	204	Sand, coarse	48	575		
Sand, coarse	10	214	Gumbo and shale	30	605		
Gumbo, tough	76	290	Sand	15	620		
Sand	8	298	Rock	1	621		
Gumbo, tough	15	313	Sand and rock	22	643		

Table 7.- Drillers' logs of wells in Waller County--Continued

Thickness (feet)		Depth (feet)		Thickness (feet)		Depth (feet)	
Well G-3							
G. W. Newman & G. M. Pattison, Owner's well 1, 4 miles northwest of Brookshire.							
Clay .....	11	11	Sand, blue .....	16	703		
Sand, loose .....	73	84	Lime .....	6	709		
Gravel .....	21	105	Gumbo, greenish-brown .....	43	752		
Lime and sand .....	104	209	Shale, sandy .....	25	777		
Packsand, hard, and lime .....	29	238	Shale, bluish-brown and lime .....	40	817		
Gumbo, pink .....	72	310	Packsand, hard .....	20	837		
Gumbo, pink and white .....	21	331	Shale, bluish-brown and lime .....	19	856		
Shale, brown .....	64	395	Rock .....	10	866		
Lime, sandy .....	21	416	Gumbo, hard, brown .....	32	898		
Shale, red and blue .....	21	437	Rock .....	10	908		
Shale, brownish-blue, and lime .....	102	539	Packsand, hard .....	4	912		
Sand, brown, and shale .....	12	551	Gumbo, hard, brownish blue .....	6	918		
Gumbo and boulders .....	32	583	Packsand, hard .....	7	925		
Gumbo and lime .....	22	605	Gumbo, brownish blue .....	11	936		
Sand and pink shale .....	20	625	Sand, hard .....	38	974		
Shale, sandy, and lime .....	21	646	Shale, bluish-pink, and brown .....	15	989		
Sand .....	22	668	Packsand, hard .....	5	994		
Sand, blue and pink gumbo .....	12	680	Gumbo, blue .....	9	1,003		
Lime .....	7	687					
Well G-4							
G. T. Rogers, Owner's well 1, 3¼ miles west of Brookshire.							
Sand .....	46	46	Rock and shale .....	10	1,655		
Sand and gravel .....	84	130	Sand and boulders .....	45	1,700		
Sand, hard .....	8	138	Shale, sticky .....	52	1,752		
Sand .....	12	150	Lime, sandy .....	10	1,762		
Clay, red .....	50	200	Gumbo and lime .....	3	1,765		
Sand and boulders .....	30	230	Sand, hard, shale and shells .....	30	1,795		
Sand and rock .....	5	235	Gumbo, blue .....	20	1,815		
Sand and shale .....	15	250	Gumbo, pink .....	60	1,875		
Clay, red .....	50	300	Shale, sticky .....	25	1,900		
Lime and clay .....	50	350	Gumbo and lime .....	40	1,940		
Gumbo, pink .....	35	385	Lime, hard, sandy .....	10	1,950		
Sand, soft .....	15	400	Lime and blue gumbo .....	15	1,965		
Gumbo, pink .....	53	453	Lime, sandy .....	14	1,979		
Clay, red .....	47	500	Gumbo, blue .....	21	2,000		
Sand and shale .....	75	575	Shale, sticky .....	50	2,050		
Shale, sticky .....	44	619	Gumbo and lime .....	30	2,080		
Shale, red, sticky .....	31	650	Gumbo, tough, blue .....	29	2,109		
Shale, hard, sandy .....	50	700	Lime and gumbo .....	31	2,140		
Shale, sticky .....	55	755	Lime, hard, sandy .....	19	2,159		
Sand, soft .....	25	780	Sand, hard .....	7	2,166		
Gumbo, pink, and lime .....	48	828	Shale, sticky, sand and shells .....	24	2,190		
Shale, hard, and lime .....	42	870	Lime and shells .....	11	2,201		
Sand, hard .....	15	885	Lime, sandy .....	15	2,216		
Shale, tough, sticky .....	12	897	Sand, hard .....	4	2,220		
Gumbo, pink .....	63	960	Gumbo, blue, and lime .....	30	2,250		
Shale, gummy, and boulders .....	30	990	Shale, sticky .....	16	2,266		
Lime .....	8	998	Shale, sticky and shells .....	22	2,288		
Sand, soft .....	22	1,020	Sand, hard .....	4	2,292		
Shale, gummy .....	60	1,080	Sand, shale, and shells .....	14	2,306		
Sand and shell .....	21	1,101	Lime, sandy .....	22	2,328		
Shale, gummy .....	49	1,150	Gumbo, blue .....	22	2,350		
Shale and boulders .....	50	1,200	Sand and shale .....	15	2,365		
Gumbo .....	20	1,220	Gumbo and lime .....	25	2,390		
Lime, soft .....	60	1,280	Gumbo, tough, blue .....	6	2,396		
Gumbo, pink .....	40	1,320	Shale, gummy .....	270	2,666		
Shale and boulders .....	80	1,400	Sand, shale, and lime .....	9	2,675		
Shale, sticky .....	10	1,410	Lime, sandy, hard .....	2	2,677		
Gumbo, sticky .....	60	1,470	Shale, sticky, lime and shells .....	18	2,695		
Shale and boulders .....	10	1,480	Lime, hard .....	4	2,699		
Gumbo, sticky .....	35	1,515	Lime .....	4	2,703		
Shale, hard .....	35	1,550	Shale, sandy .....	42	2,745		
Gumbo, pink .....	10	1,560	Gumbo, blue .....	17	2,762		
Shale .....	15	1,575	Shale, sticky, lime, and shells .....	14	2,776		
Gumbo .....	70	1,645	Gumbo, blue .....	9	2,785		

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Table 7.- Drillers' logs of wells in Waller County--Continued

Thickness (feet)		Depth (feet)		Thickness (feet)		Depth (feet)	
Well G-4--Continued							
Shale, gummy and lime	30	2,815		Gumbo and lime	35	3,312	
Gumbo, blue, and boulders	15	2,830		Shale, sandy	11	3,323	
Shale, blue, and lime	40	2,870		Sand	28	3,351	
Gumbo, blue, and lime	30	2,900		Gumbo	5	3,356	
Shale, blue, and lime	60	2,960		Shale, gummy	25	3,381	
Gumbo, blue	20	2,980		Sand	9	3,390	
Shale, gummy	30	3,010		Shale, sticky	37	3,427	
Lime	7	3,017		Lime	7	3,434	
Gumbo, tough blue, and lime	5	3,022		Shale, gummy and lime	56	3,490	
Shale, tough gummy	50	3,072		Sand	11	3,501	
Gumbo	50	3,122		Shale, blue	29	3,530	
Shale, sticky	35	3,157		Sand, lime and calcite	10	3,540	
Gumbo, blue	13	3,170		Shale, sandy	10	3,550	
Sand, hard	3	3,173		Shale, sandy, and lime	18	3,568	
Sand, soft blue and white	55	3,228		Anhydrite, caprock, top of	1	3,569	
Gumbo, hard blue and lime	4	3,232		Anhydrite, solid	65	3,634	
Gumbo	45	3,277					
Well G-5							
G. T. Rogers, Owner's well 2, 3½ miles west of Brookshire.							
Topsoil	50	50		Sand, hard	14	2,101	
Sand and gravel	10	60		Sand and shale	10	2,111	
Clay and shale	110	170		Sand and boulders	45	2,156	
Sand, hard	15	185		Shale, sandy	50	2,206	
Sand and shale	26	211		Sand	20	2,226	
Shale	20	231		Shale, sticky	50	2,276	
Clay, red	40	271		Shale and hard sand	81	2,357	
Shale	149	420		Gumbo	8	2,365	
Gumbo	10	430		Shale, sandy	10	2,375	
Shale, sticky	132	562		Shale, blue sandy	30	2,405	
Sand and boulders	38	600		Sand and blue shale	20	2,425	
Shale	70	670		Sand, hard	9	2,434	
Sand	100	770		Shale, hard sandy	16	2,450	
Shale	50	820		Gumbo	10	2,460	
Sand	50	870		Shale, sticky	50	2,510	
Gumbo, pink, and lime	58	928		Shale, lime, and shells	25	2,535	
Shale, sticky	23	951		Lime and shale	85	2,620	
Sand and shale	50	1,001		Gumbo, blue	28	2,648	
Shale, sticky	10	1,011		Shale, sticky blue	50	2,698	
Sand and boulders	34	1,045		Gumbo	10	2,708	
Shale, brown	30	1,075		Shale, sandy hard	5	2,713	
Gumbo	25	1,100		Sand	40	2,753	
Shale and boulders	50	1,150		Gumbo	10	2,763	
Gumbo, pink	10	1,160		Shale, sticky	126	2,889	
Shale, sticky	85	1,245		Gumbo	5	2,894	
Gumbo	29	1,274		Shale, sticky	20	2,914	
Shale, sandy	151	1,425		Gumbo, tough	5	2,919	
Gumbo, blue, and lime	75	1,500		Shale, sandy	80	2,999	
Shale and boulders	20	1,520		Gumbo and lime	49	3,048	
Gumbo, blue, and lime	10	1,530		Gumbo, tough	18	3,066	
Shale, blue sticky, and lime	130	1,660		Sand	35	3,101	
Lime and blue shale	65	1,725		Shells, hard lime	2	3,103	
Gumbo, tough blue	25	1,750		Shale, sandy	10	3,113	
Shale, sticky	100	1,850		Gumbo and lime	20	3,133	
Gumbo	20	1,870		Shale	37	3,170	
Lime and shale	20	1,890		Lime, hard sandy	6	3,176	
Shale, sticky	109	1,999		Gumbo	24	3,200	
Lime, hard sandy	20	2,019		Gumbo, blue, and lime	95	3,295	
Lime, sandy and shale	20	2,039		Shale, sandy	15	3,310	
Shale, sandy and shells	30	2,069		Gumbo, blue	8	3,318	
Shale, sandy	10	2,079		Shale, blue sandy, and pyrites	7	3,325	
Lime and sand	8	2,087		Shale, blue sticky	4	3,329	

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Table 7.- Drillers' logs of wells in Waller County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well G-5--Continued					
Shale and lime .....	4	3,333	Shell, hard .....	1	3,390
Gumbo, blue .....	20	3,353	Sand and shale .....	12	3,402
Shale, sandy, and pyrites .....	21	3,374	Lime, caprock .....	24	3,426
Shale, sticky .....	15	3,389	Anhydrite, caprock .....	6	3,432
Well G-6					
D. Vaughan, Owner's well 1, 4½ miles west of Brookshire.					
Sand and gravel .....	40	40	Sand .....	5	2,055
Clay, red .....	35	75	Gumbo, tough blue .....	5	2,060
Sand and gravel .....	35	110	Gumbo, blue .....	1	2,061
Clay .....	75	185	Sand and lime .....	20	2,081
Sand and gravel .....	66	251	Sand and blue gumbo .....	9	2,090
Gumbo .....	9	260	Lime, hard .....	4	2,094
Sand and shale .....	40	300	Sand .....	6	2,100
Shale, sticky .....	100	400	Gumbo and lime .....	45	2,145
Sand and gumbo .....	30	430	Sand, hard .....	4	2,149
Sand and boulders .....	20	450	Gumbo, pink .....	16	2,165
Sand, boulders, and gumbo .....	50	500	Sand, hard .....	5	2,170
Gumbo and lime .....	50	550	Gumbo, blue .....	115	2,285
Gumbo and sand .....	10	560	Gumbo and boulders .....	14	2,299
Gumbo and boulders .....	40	600	Gumbo and lime .....	66	2,365
Lime and gumbo .....	130	730	Gumbo, pink .....	35	2,400
Shale, gumbo and boulders .....	140	870	Gumbo, blue, and lime .....	35	2,435
Gumbo .....	50	920	Sand, hard .....	5	2,440
Sand and boulders .....	10	930	Sand and shale .....	80	2,520
Sand, lime, and shale .....	30	960	Gumbo, tough blue .....	20	2,540
Gumbo .....	40	1,000	Shale, green sandy .....	2	2,542
Gumbo, shale, and boulders .....	100	1,100	Sand and gumbo .....	25	2,567
Sand and boulders .....	25	1,125	Shale, gummy .....	8	2,575
Gumbo .....	20	1,145	Gumbo, blue .....	55	2,630
Sand and boulders .....	30	1,175	Shale, gummy, and boulders .....	25	2,655
Sand and gumbo .....	25	1,200	Gumbo, blue .....	7	2,662
Sand and boulders .....	20	1,220	Shale, sticky .....	78	2,740
Gumbo and lime .....	95	1,315	Sand .....	4	2,744
Gumbo .....	25	1,340	Sand and shale .....	20	2,764
Sand, shale and boulders .....	35	1,375	Gumbo, blue .....	25	2,789
Gumbo and lime .....	35	1,410	Shale, sticky, and boulders .....	39	2,828
Shale, sandy, and lime .....	23	1,433	Shale, gummy and lime .....	22	2,850
Shale, sandy .....	12	1,445	Gumbo and lime .....	50	2,900
Gumbo, pink .....	105	1,550	Shale, sticky .....	10	2,910
Lime, sandy .....	42	1,592	Lime .....	5	2,915
Sand and shells .....	27	1,619	Sand and shale .....	16	2,931
Gumbo, blue .....	11	1,630	Shale, sandy .....	22	2,953
Gumbo, blue, and lime .....	30	1,660	Shale, sticky .....	38	2,991
Gumbo, blue .....	90	1,750	Shell .....	1	2,992
Shale, sandy .....	22	1,772	Sand .....	45	3,037
Gumbo, blue .....	15	1,787	Gumbo, tough, and lime .....	13	3,050
Shale, sticky .....	13	1,800	Shale, blue gummy .....	46	3,096
Shale, green sandy .....	20	1,820	Shale, blue .....	12	3,108
Gumbo and lime .....	30	1,850	Shale, blue sticky .....	20	3,128
Gumbo and shale .....	40	1,890	Shale and gumbo .....	12	3,140
Gumbo, blue .....	15	1,905	Shale and lime .....	5	3,145
Gumbo and lime .....	20	1,925	Shale, tough gummy .....	34	3,179
Lime, sandy, and pyrites .....	15	1,940	Lime, sandy .....	1	3,180
Gumbo and lime .....	10	1,950	Lime and shale .....	73	3,253
Sand .....	2	1,952	Lime and sand .....	9	3,262
Shale and lime .....	33	1,985	Lime, sand, and anhydrite .....	18	3,280
Sand .....	40	2,025	Anhydrite .....	50	3,330
Gumbo, pink .....	25	2,050			

Table 7.- Drillers' logs of wells in Waller County--Continued

Thickness (feet)		Depth (feet)		Thickness (feet)		Depth (feet)	
Well H-5							
John & C. R. England, 3 miles north of Brookshire.							
Topsoil .....	3	3	Clay, pink and white .....	20	353		
Clay, red and white .....	11	14	Shale, tough brown .....	23	376		
Sand, fine red .....	31	45	Sand .....	32	408		
Clay, red and white .....	26	71	Sand, hard .....	19	427		
Sand and gravel .....	35	106	Lime and sand .....	11	438		
Sand, gravel, lime, and clay .....	17	123	Clay, white .....	27	465		
Sand .....	26	149	Sand, hard .....	18	483		
Lime and clay .....	21	170	Clay .....	24	507		
Sand and white clay .....	11	181	Sand, hard, and clay .....	19	526		
Clay, white .....	17	198	Sand .....	37	563		
Clay, sandy, and sand .....	24	222	Clay .....	3	566		
Clay .....	23	245	Sand .....	5	571		
Lime, clay and sand .....	12	257	Clay, hard sandy .....	8	579		
Clay .....	52	309	Shale and sand .....	6	585		
Sand and clay .....	5	314	Shale .....	15	600		
Sand, lime, and clay .....	19	333					
Well H-12							
Humble Oil & Refining Co., Owner's well 4, 4 1/4 miles northeast of Brookshire.							
Clay, red .....	21	21	Sand, blue .....	46	478		
Sand, red .....	10	31	Clay .....	59	537		
Clay .....	40	71	Clay, sandy .....	8	545		
Sand, coarse and gravel .....	46	117	Sand .....	7	552		
Clay .....	8	125	Clay .....	2	554		
Sand, coarse .....	61	186	Sand .....	27	581		
Sand, coarse, and clay .....	33	219	Clay .....	21	602		
Clay, sandy .....	10	229	Sand .....	24	626		
Clay and sandy clay .....	50	279	Clay .....	8	634		
Clay, sandy .....	11	290	Clay and sandy clay .....	16	650		
Rock .....	3	293	Sand .....	31	681		
Clay .....	63	356	Clay, sandy .....	5	686		
Clay, sandy .....	10	366	Clay .....	21	707		
Sand .....	15	381	Clay, sandy .....	7	714		
Rock .....	5	386	Clay and sandy clay .....	46	760		
Clay and sandy clay .....	17	403	Sand .....	32	792		
Clay, sandy .....	6	409	Clay and sand .....	12	804		
Sand .....	16	425	Clay .....	4	808		
Clay .....	7	432					
Well H-13							
Humble Oil & Refining Co., Owner's well 2, 5 miles northeast of Brookshire.							
Topsoil .....	1	1	Sand, hard, and boulders .....	8	818		
Clay, sandy .....	37	38	Gumbo .....	74	892		
Clay .....	25	63	Sand, hard .....	7	899		
Clay, sandy .....	10	73	Shale, hard sandy .....	26	925		
Sand and gravel .....	55	128	Shale, hard tough .....	117	1,042		
Sand and clay .....	20	148	Shale, sandy .....	8	1,050		
Sand and gravel .....	53	201	Gumbo .....	38	1,088		
Rock .....	1	202	Shale .....	28	1,116		
Sand and clay .....	59	261	Sand .....	12	1,128		
Clay .....	89	350	Shale .....	58	1,186		
Sand .....	40	390	Sand, hard and shale .....	17	1,203		
Clay .....	39	429	Shale .....	62	1,265		
Sand .....	58	487	Shale and sand .....	8	1,273		
Clay .....	28	515	Gumbo .....	30	1,303		
Clay, sandy .....	22	537	Shale .....	84	1,387		
Sand .....	53	590	Sand, hard .....	12	1,399		
Clay .....	13	603	Shale .....	8	1,407		
Sand .....	26	629	Sand, hard .....	7	1,414		
Clay .....	18	647	Gumbo .....	54	1,468		
Sand .....	38	685	Shale and sand .....	24	1,492		
Clay .....	75	760	Shale .....	18	1,510		
Sand .....	50	810					
			Plugged at 819 feet				

Table 7.- Drillers' logs of wells in Waller County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well H-14					
Humble Oil & Refining Co., Owner's well 1, 5 miles northeast of Brookshire.					
Topsoil .....	2	2	Clay .....	37	431
Clay .....	65	67	Sand .....	52	483
Sand and clay .....	30	97	Clay .....	29	512
Sand and gravel .....	39	136	Clay, sandy .....	25	537
Clay and sand .....	23	159	Sand .....	50	587
Sand and gravel .....	46	205	Clay .....	17	604
Sand and clay .....	19	224	Sand .....	23	627
Sand and boulders .....	4	228	Clay .....	19	646
Sand and clay .....	34	262	Sand .....	39	685
Clay .....	91	353	Clay .....	72	757
Sand .....	41	394	Sand .....	55	812
Well H-15					
Humble Oil & Refining Co., Owner's well 3, 5 miles northeast of Brookshire.					
Clay, red .....	16	16	Sand .....	17	421
Sand, fine red .....	10	26	Clay and sand .....	15	436
Clay, red .....	40	66	Sand, blue .....	46	482
Sand, coarse and fine gravel .....	52	118	Clay .....	54	536
Clay .....	6	124	Sand .....	48	584
Sand, coarse and gravel .....	61	185	Clay .....	11	595
Sand and clay .....	32	217	Sand .....	30	625
Clay .....	67	284	Sand and sandy clay .....	21	646
Clay, sandy .....	13	297	Sand .....	39	685
Clay .....	12	309	Clay .....	7	692
Clay and sandy clay .....	28	337	Clay and sandy clay .....	69	761
Clay .....	13	350	Rock .....	1	762
Sand .....	32	382	Sand .....	42	804
Rock .....	2	384	Clay .....	8	812
Clay, sandy and clay .....	20	404			
Well H-16					
Humble Oil & Refining Co., Owner's well 7, 4 1/4 miles northeast of Brookshire.					
Topsoil .....	80	80	Clay .....	13	609
Sand .....	153	233	Sand .....	22	631
Clay and lime rock .....	7	240	Clay .....	15	646
Sand .....	32	272	Sand .....	42	688
Clay and rock .....	153	425	Clay .....	74	762
Sand .....	41	466	Sand .....	73	835
Clay .....	94	560	Clay .....	23	858
Sand .....	36	596			
Well H-18					
Humble Oil & Refining Co., Owner's well 6, 5 1/4 miles northeast of Brookshire.					
Topsoil .....	20	20	Clay .....	11	606
Sand .....	16	36	Sand .....	23	629
Clay .....	45	81	Clay .....	13	642
Clay and lime rock .....	174	255	Sand .....	42	684
Clay .....	91	346	Clay .....	68	752
Sand .....	45	391	Sand .....	80	832
Clay .....	33	424	Clay .....	39	871
Sand .....	61	485			
Clay .....	62	547			
Sand .....	48	595			

Table 7.- Drillers' logs of wells in Waller County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well H-23					
Humble Oil & Refining Co., 4 miles east of Brookshire.					
Topsoil .....	2	2	Clay .....	58	90
Clay .....	18	20	Sand, gravel and rock .....	105	195
Sand, red .....	12	32			
Well H-35					
John Cope, 5½ miles east of Brookshire.					
Soil and clay .....	18	18	Boulders and clay .....	6	228
Sand .....	27	45	Rock, honeycombed .....	32	260
Clay .....	6	51	Sand .....	10	270
Sand .....	21	72	Rock, honeycombed and clay .....	86	356
Clay, red .....	26	98	Sand .....	29	385
Sand and gravel .....	47	145	Shale .....	54	439
Clay .....	9	154	Sand, hard and rock .....	32	471
Packsand .....	12	166	Sand and gravel .....	44	515
Clay, tough .....	6	172	Gumbo .....	30	545
Sand and gravel .....	50	222			
Well H-36					
Texas-New Mexico Pipe Line Co., 7 miles east of Brookshire.					
Clay, hard red .....	50	50	Sand .....	70	180
Clay, sandy .....	25	75	Sand and gravel .....	56	236
Sand .....	30	105	Lime and shale .....	1	237
Gravel .....	5	110			

Table 8.- Water levels in wells in Waller County, Tex.  
(All measurements are in feet below land surface)

Date	Water level	Date	Water level
Well D-28			
Mrs. H. L. Milam, 5¼ miles southeast of Hempstead.			
May 11, 1931	3.80	June 15, 1940	16.96
13	3.92	21	17.70
22	3.67	July 1	15.59
28	4.43	16	15.40
June 5	5.00	Nov. 28	12.33
19	5.5	Jan. 9, 1941	7.43
July 14	Dry	17	1.73
Aug. 13	Dry	24	5.45
Sept. 24	Dry	29	6.25
Jan. 27, 1932	16.45	Feb. 12	3.66
Feb. 3	16.64	21	2.81
10	16.48	26	2.21
16	16.43	Mar. 26	2.19
23	13.06	May 13	6.77
Mar. 1	15.31	27	17.60
8	13.90	June 10	14.75
15	15.97	20	10.00
22	18.54	July 7	11.53
29	18.95	30	14.73
Apr. 5	19.21	Nov. 6	12.74
Mar. 13, 1933	11.68	Dec. 17	6.33
Apr. 25, 1934	17.86	Jan. 23, 1942	7.98
May 30, 1935	12.72	May 5	11.22
Feb. 26, 1936	3.12	Jan. 21, 1943	5.71
Feb. 2, 1938	13.45	Jan. 31, 1944	1.93
May 10	4.28	May 31	2.43
Mar. 23, 1939	16.85	Dec. 14	5.70
Feb. 20, 1940	17.67	Jan. 25, 1945	2.02
June 11	18.04	Mar. 15	2.03
12	16.03	Jan. 17, 1946	1.27
13	16.55		
Well D-29			
Texas & New Orleans Railroad Co., 5¼ miles southeast of Hempstead.			
Apr. 25, 1940	43.39	Jan. 29, 1941	43.53
30	43.40	Feb. 12	42.90
May 7	43.30	21	43.27
9	43.55	26	43.06
10	43.52	Mar. 26	42.65
11	43.50	May 13	42.23
13	44.17	27	41.95
21	43.51	June 10	41.73
27	43.57	20	41.71
29	44.15	July 7	41.47
30	44.60	30	41.49
June 6	43.65	Sept. 4	41.23
11	43.64	Dec. 17	39.98
12	43.55	Jan. 23, 1942	39.99
13	43.60	May 5	39.92
15	43.52	July 28	39.78
21	43.65	Jan. 21, 1943	40.09
26	43.67	Apr. 28	42.89
July 1	43.70	June 18	40.20
16	43.30	Aug. 25	40.26
Aug. 19	43.74	Jan. 31, 1944	40.25
Oct. 7	43.83	May 31	39.40
Nov. 28	44.03	Sept. 14	39.25
Jan. 9, 1941	43.97	Dec. 14	40.03
17	43.55	Jan. 25, 1945	39.31
24	43.53	Mar. 15	38.87

Table 8.- Water levels in wells in Waller County--Continued

Date	Water level	Date	Water level
Well D-30			
A. Stokes, 6½ miles southeast of Hempstead.			
May 28, 1931	41.97	Mar. 15, 1932	29.00
June 19	30.18	Apr. 19	38.12
July 14	30.32	May 24	42.30
Aug. 13	37.90	June 22	49.88
Sept. 24	36.70	July 22	50.95
Nov. 7	34.43	Aug. 25	46.70
14	34.43	Sept. 29	48.02
20	34.42	Oct. 28	49.54
27	34.68	Nov. 28	49.97
Dec. 4	34.74	Dec. 28	49.94
11	34.60	June 26, 1933	51.08
16	34.57	Feb. 25, 1936	3.12
Jan. 13, 1932	25.84	May 10, 1938	1.50
Feb. 10	32.34		
Well D-31			
-- Myers, 7 miles east of Hempstead.			
May 22, 1931	3.34	Mar. 23, 1939	3.61
28	4.25	May 30	9.24
June 19	5.59	Aug. 2	8.64
July 14	6.90	Feb. 20, 1940	2.90
Aug. 13	8.10	Apr. 3	6.85
Nov. 7	Dry	30	5.42
Jan. 13, 1932	1.78	May 7	4.70
20	1.93	9	5.02
27	1.47	10	5.20
Feb. 3	2.00	11	5.70
10	2.11	13	6.37
16	2.23	21	7.66
23	1.20	27	8.02
Mar. 1	2.62	29	8.00
8	2.26	30	4.27
15	2.95	June 1	3.80
22	3.60	3	4.23
29	4.45	6	4.50
Apr. 5	4.91	10	1.18
12	7.56	11	2.78
19	16.58	12	2.11
26	19.75	13	2.48
May 4	19.90	15	2.69
10	19.92	21	3.30
17	19.95	26	3.85
24	19.95	July 1	1.46
June 1	19.98	16	2.78
8	19.95	Oct. 7	11.20
15	19.97	Nov. 28	3.00
22	20.02	Jan. 9, 1941	1.85
29	19.90	17	1.81
July 7	19.90	24	2.31
14	19.93	29	2.50
22	19.90	Feb. 12	2.18
28	19.95	21	1.70
Aug. 4	19.98	26	1.61
11	19.95	Mar. 26	1.75
18	19.98	May 13	2.98
Mar. 13, 1933	2.52	27	4.49
May 10	18.70	June 10	4.50
Apr. 25, 1934	3.75	20	2.25
May 30, 1935	3.30	July 7	3.64
Feb. 25, 1936	2.20	30	3.83
May 14	3.77	Sept. 4	7.69
Feb. 2, 1938	2.78	Nov. 6	2.36
May 10	2.35	Dec. 17	2.26

(Continued on next page)

Table 8.- Water levels in wells in Waller County--Continued

Date	Water level	Date	Water level
Well D-31--Continued			
Feb. 27, 1942	2.33	Mar. 15, 1945	2.60
May 5	3.02	Jan. 17, 1946	1.52
July 28	4.88	May 21	2.09
Sept. 17	8.68	July 9	3.11
Jan. 21, 1943	2.42	Dec. 18	2.09
Apr. 28	4.68	Jan. 30, 1947	1.94
June 18	4.49	Mar. 13	2.10
Aug. 25	6.69	June 6	3.58
Jan. 31, 1944	1.45	Feb. 16, 1948	2.26
May 31	2.95	Dec. 16, 1949	2.93
Sept. 14	8.25	Feb. 27, 1950	2.46
Jan. 25, 1945	2.18	June 16	3.62
Well D-34			
W. D. Weaver, 9/4 miles southeast of Hempstead.			
May 28, 1931	12.03	Nov. 28, 1940	13.00
June 19	12.59	Jan. 28, 1941	11.69
July 14	13.30	Mar. 1	11.09
Sept. 24	14.80	Apr. 4	10.88
Nov. 7	14.80	May 22	10.97
Dec. 11	14.60	July 7	10.30
Feb. 10, 1932	14.72	Sept. 4	11.50
Apr. 19	12.42	Nov. 6	10.68
June 22	13.74	Jan. 23, 1942	10.35
Sept. 29	15.26	May 5	9.73
Nov. 28	15.34	July 28	13.15
Dec. 28	15.20	Sept. 17	11.97
Jan. 31, 1933	14.66	Jan. 21, 1943	10.85
Nov. 28, 1934	15.84	Apr. 28	11.05
May 30, 1935	12.52	June 18	10.90
Feb. 25, 1936	12.45	Aug. 25	11.84
May 13	12.23	Jan. 31, 1944	9.83
Nov. 9, 1937	14.87	May 31	9.40
Feb. 2, 1938	14.04	Sept. 14	18.80
May 10	11.93	Jan. 25, 1945	13.39
Nov. 22	13.83	Mar. 15	10.91
Jan. 25, 1939	13.69	June 26	11.11
Mar. 23	12.98	Jan. 17, 1946	9.85
May 30	13.61	May 21	10.67
Aug. 2	13.75	July 9	10.29
Sept. 25	14.87	Sept. 18	13.65
Dec. 16	15.12	Dec. 18	8.54
Feb. 20, 1940	14.08	Jan. 30, 1947	7.49
Apr. 30	13.93	Mar. 13	25.13
June 29	13.56	June 6	8.67
Aug. 19	13.95	Sept. 16	12.08
Oct. 7	14.88		
Well F-10			
Lynn Hebert, 10 miles north of Brookshire.			
Mar. 15, 1941	54.98	Mar. 28, 1946	58.50
May 16	53.92	Mar. 28, 1947	54.01
Nov. 27	60.16	Mar. 18, 1948	58.20
Jan. 20, 1942	54.33	Nov. 18	84.30
Mar. 18	53.00	Jan. 25, 1949	68.37
Apr. 13, 1943	52.05	Mar. 8	63.97
Nov. 9	65.90	Nov. 28	74.62
Mar. 29, 1944	55.10	Mar. 14, 1950	62.94
Oct. 6	84.55	Nov. 20	79.74
Mar. 16, 1945	60.40	Apr. 2, 1951	63.69



Table 8.- Water levels in wells in Waller County--Continued

Date	Water level	Date	Water level
Well F-11			
Clyde Nelson, 9 miles northeast of Brookshire.			
Mar. 15, 1941	44.53	Mar. 18, 1942	43.85
May 21	43.80	Nov. 11, 1948	59.40
Oct. 28	47.33	Mar. 15, 1949	50.45
Jan. 20, 1942	44.10		
Well F-17			
G. P. Nelson, 7 miles north of Brookshire.			
Mar. 28, 1946	34.65	Mar. 8, 1949	64.89
Mar. 28, 1947	45.73	Nov. 28	70.92
Mar. 18, 1948	45.20	Mar. 14, 1950	62.00
Nov. 15	60.14	Apr. 2, 1951	64.97
Well F-20			
A. E. Thompson, 7½ miles northeast of Brookshire.			
Oct. 7, 1940	57.14	Oct. 6, 1944	66.45
Jan. 22, 1941	52.63	Mar. 17, 1945	55.18
Mar. 15	51.90	Nov. 6	60.87
May 21	51.67	Mar. 26, 1946	55.61
Oct. 28	54.48	Mar. 18, 1948	56.98
Jan. 20, 1942	52.03	Nov. 16	69.13
Mar. 18	51.37	Mar. 8, 1949	60.93
Oct. 21	55.42	Nov. 28	65.90
Apr. 13, 1943	51.78	Mar. 14, 1950	61.84
Nov. 9	59.03	Nov. 21	68.49
Mar. 29, 1944	53.70	Mar. 30, 1951	63.68
Well F-21			
Harry Hebert, 8 miles northeast of Brookshire.			
Feb. 10, 1931	44.75	Nov. 16, 1948	72.30
Mar. 17, 1933	46.03	Mar. 15, 1949	57.28
Mar. 15, 1939	50.16		
Well F-25			
T. B. Tucker, 7 miles northeast of Brookshire.			
Feb. 10, 1931	48.17	Mar. 13, 1943	57.29
Apr. 28	47.53	Nov. 9	62.62
Mar. 17, 1935	49.76	Mar. 29, 1944	59.40
Mar. 15, 1939	54.01	Oct. 6	67.15
Sept. 15	61.36	Mar. 17, 1945	61.40
Dec. 21	57.11	Nov. 6	65.18
Mar. 12, 1940	56.06	Mar. 26, 1946	62.16
Apr. 27	55.84	Mar. 24, 1947	62.03
Oct. 7	62.58	Mar. 18, 1948	63.12
Jan. 22, 1941	58.39	Nov. 15, 1948	69.69
Mar. 15	57.62	Jan. 25, 1949	68.08
May 21	60.20	Mar. 8	66.45
Oct. 28	59.86	Nov. 28	70.14
Jan. 15, 1942	57.87	Mar. 14, 1950	68.70
Mar. 18	57.05	Nov. 21	72.72
Oct. 21	60.29	Mar. 30, 1951	69.98

Table 8.- Water levels in wells in Waller County--Continued

Date	Water level	Date	Water level
Well F-27			
G. P. Nelson, 6 miles north of Brookshire.			
Jan. 22, 1941	59.5	Nov. 5, 1945	69.77
Oct. 27	63.21	Mar. 28, 1946	59.98
Jan. 20, 1942	57.5	Mar. 28, 1947	57.38
Mar. 18	56.75	Mar. 18, 1948	59.35
Sept. 23	70.35	Nov. 15	65.98
Apr. 13, 1943	56.40	Mar. 8, 1949	66.40
Nov. 9	68.15	Nov. 28	69.11
Mar. 29, 1944	58.30	Mar. 14, 1950	63.96
Oct. 6	95.55	Nov. 21	77.18
Mar. 16, 1945	61.40	Apr. 2, 1951	65.49
Well F-33			
T. B. Tucker, 6½ miles northeast of Brookshire.			
Mar. 15, 1939	55.57	Oct. 6, 1944	71.90
Sept. 15	68.00	Mar. 17, 1945	62.73
Dec. 21	58.90	Nov. 6	66.20
Mar. 12, 1940	57.59	Mar. 26, 1946	62.71
Apr. 27	57.47	Mar. 24, 1947	63.30
Oct. 7	66.71	Mar. 18, 1948	65.04
Mar. 15, 1941	59.01	Nov. 15	74.66
Oct. 28	62.00	Mar. 8, 1949	67.87
Jan. 20, 1942	59.12	Nov. 28	72.23
Mar. 18	58.35	Mar. 14, 1950	72.20
Oct. 21	62.45	Nov. 21	76.10
Nov. 9, 1943	64.91	Mar. 30, 1951	73.83
Mar. 29, 1944	60.44		
Well F-39			
Robichaux & Thompson, 4 miles north of Brookshire.			
Oct. 27, 1941	63.15	Mar. 24, 1947	61.23
Jan. 20, 1942	60.25	Mar. 18, 1948	61.78
Mar. 18	58.76	Nov. 15	64.03
Apr. 13, 1943	59.46	Mar. 8, 1949	63.09
Mar. 29, 1944	60.72	Nov. 28	68.00
Oct. 6	77.54	Mar. 14, 1950	66.23
Mar. 16, 1945	62.70	Nov. 21	65.78
Nov. 5	64.45	Apr. 2, 1951	65.23
Mar. 28, 1946	61.58		
Well F-43			
L. E. Morrison, 5½ miles northeast of Brookshire.			
Oct. 7, 1940	76.91	Nov. 6, 1945	78.34
Jan. 22, 1941	61.69	Mar. 27, 1946	68.11
Oct. 28	65.29	Mar. 24, 1947	64.81
Jan. 20, 1942	59.41	Mar. 17, 1948	68.09
Mar. 18	57.88	Nov. 15	89.36
Oct. 21	65.95	Mar. 8, 1949	72.39
Apr. 13, 1943	58.69	Nov. 28	80.15
Nov. 9	72.03	Mar. 14, 1950	74.82
Mar. 29, 1944	61.85	Nov. 21	91.18
Oct. 6	98.35	Mar. 30, 1951	77.22
Mar. 17, 1945	67.29		

Table 8.- Water levels in wells in Waller County--Continued

Date	Water level	Date	Water level
Well H-4			
John & C. R. England, 3 miles north of Brookshire.			
Mar. 15, 1941	58.58	Mar. 18, 1942	57.71
May 16	59.50	Nov. 10, 1948	76.08
Oct. 27	60.38	Mar. 15, 1949	68.64
Jan. 20, 1942	58.50		
Well H-21			
J. A. Kimball, 6½ miles northeast of Brookshire.			
Oct. 4, 1940	63.41	Nov. 5, 1945	66.46
Jan. 22, 1941	61.37	Mar. 26, 1946	64.11
Mar. 15	60.45	Mar. 24, 1947	64.16
May 22	59.87	Mar. 17, 1948	65.80
Jan. 15, 1942	60.19	Nov. 10	69.57
Mar. 17	58.93	Jan. 20, 1949	68.79
Sept. 24	62.58	Mar. 7	68.42
Apr. 13, 1943	59.02	Nov. 29	70.47
Nov. 9	63.84	Mar. 14, 1950	69.71
Mar. 29, 1944	61.39	Nov. 16	72.54
Oct. 6	66.15	Mar. 29, 1951	71.52
Mar. 17, 1945	63.07		
Well H-22			
Francis Young, 5 miles east of Brookshire.			
Oct. 4, 1940	64.18	Mar. 17, 1942	62.48
Jan. 22	63.24	Nov. 16, 1948	69.76
Oct. 28	63.89	Mar. 15, 1949	70.90
Jan. 26, 1942	63.00		
Well H-28			
Ray Woods, 1½ miles east of Brookshire.			
Oct. 2, 1940	60.90	Mar. 16, 1945	59.80
Jan. 23, 1941	59.51	Nov. 5	61.30
Oct. 27	59.36	Mar. 21, 1946	60.20
Jan. 20, 1942	58.86	Mar. 19, 1948	60.53
Mar. 17	58.64	Nov. 15	64.10
Sept. 23	59.59	Mar. 8, 1949	62.09
Apr. 13, 1943	58.08	Nov. 28	63.63
Nov. 9	59.76	Mar. 13, 1950	63.79
Mar. 29, 1944	59.29	Mar. 21, 1951	64.40
Oct. 6	61.45		
Well H-35			
John Cope, 5½ miles east of Brookshire.			
Mar. 12, 1931	48.55	Mar. 29, 1944	60.38
Mar. 18, 1933	50.81	Oct. 4	63.70
Mar. 15, 1939	55.02	Mar. 16, 1945	60.95
Sept. 18	59.35	Nov. 1	63.82
Dec. 21	60.45	Mar. 28, 1946	62.00
Mar. 12, 1940	58.50	Mar. 28, 1947	62.62
Jan. 23, 1941	60.32	Mar. 19, 1948	63.92
Mar. 15	60.06	Nov. 10	68.40
May 16	59.52	Jan. 25, 1949	67.37
Oct. 28	60.88	Mar. 8	66.80
Jan. 15, 1942	59.74	Dec. 1	68.79
Mar. 17	58.88	Mar. 13, 1950	68.40
Sept. 22	58.78	Nov. 22	70.69
Apr. 13, 1943	58.77	Mar. 21, 1951	69.86
Nov. 9	62.14		

Table 9.- Analyses of water from wells in Waller County, Tex.  
(Analyses are in parts per million except Specific conductance, pH, and Percent sodium)

Well	Owner	Depth of well (ft.)	Date of collection	Specific conductance (Microhmhos at 25° C.)	pH	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium and potassium (Na + K)	Bicarbonate (HCO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids	Total hardness as CaCO <sub>3</sub>	Percent sodium
A-1	Roy Chapman	430	May 17, 1949	632	7.9	33	-	59	14	63	333	23	31	-	0.0	-	388	204	40
A-4	H. C. Stevens	379	June 11, 1949	849	7.6	34	-	78	21	71	336	15	102	-	.2	-	480	281	24
A-7	W. G. Henson	50	Aug. 2, 1933	-	-	-	-	-	-	-	89	12	340	-	1.1	-	-	363	-
A-8	E. M. Taylor	57	Aug. 19, 1932	-	-	-	0.07	376	24	189	352	71	770	-	.25	-	1,600	1,040	-
B-1	W. F. Cook	218	June 11, 1949	366	7.8	29	-	45	8.6	18	192	4.3	17	-	.2	-	220	148	21
B-2	Mrs. -- Haney	78	do.	229	6.9	25	-	8.8	2.2	37	82	3.5	28	-	.8	-	152	31	77
B-7	-- Von Blucher	460	Nov. --, 1948	739	-	24	-	8.5	23	44	272	23	110	-	.2	0.15	448	306	24
B-12	W. W. Bunting	66	June 11, 1949	241	7.0	32	-	9.8	.7	36	40	8.0	43	-	3.8	-	154	27	74
B-17	Percy Allam	72	May 30, 1949	358	7.4	28	-	36	4.9	29	122	12	38	-	9.2	-	224	110	37
C-4	J. F. Tompkins	33	June 11, 1949	1,150	5.7	55	-	30	20	151	11	7.6	332	-	.0	-	698	157	68
C-9	-- Duckworth	400	July 22, 1949	634	7.4	40	-	57	11	72	369	15	19	-	.0	-	386	188	46
C-10	do.	400	do.	634	7.4	45	-	56	11	74	369	15	19	-	.0	-	396	185	46
C-11	do.	324	Apr. 5, 1949	673	7.6	23	-	61	15	65	365	16	28	-	.0	-	391	214	40
C-14	S. W. Becker	200	May 17, 1949	691	8.0	24	-	66	21	51	278	24	77	-	.0	-	396	251	31
C-21	City of Hempstead	745	Apr. 5, 1944	696	7.2	19	.06	30	6.1	124	370	6.0	39	0.08	.2	.15	408	100	70
L/C-22	do.	485-518	Jan. 2, 1930	-	-	29	15	40	11	138	390	6.7	85	-	-	-	517	145	-
L/C-22	do.	687-723	Jan. 6, 1930	-	-	-	20	50	7.5	115	372	10	66	-	-	-	451	156	-
C-25	A. J. Harwell	130	May 17, 1949	678	7.8	22	-	62	20	56	343	22	39	-	.0	-	392	236	34
C-33	D. D. Feagin	38	Aug. 2, 1933	-	-	-	.13	15	6.1	21	23	9.3	30	-	46	-	139	63	-
C-34	B. R. Rehas	85	Aug. 19, 1932	-	-	-	.21	58	6.1	25	168	7	53	-	5.3	-	237	170	-
D-7	S. R. Moore	111	June 11, 1949	195	7.2	32	-	8.4	1.2	30	58	3.9	27	-	2.2	-	128	26	72
D-10	A. L. Hosmer	69	do.	371	7.0	42	-	23	5.4	38	73	4.1	70	-	.5	-	242	79	51
D-13	O. M. Dinkins	90	do.	211	7.2	15	-	7.8	1.7	30	29	4.0	29	-	28	-	134	26	71
D-14	L. L. Dinkins	300	do.	384	7.5	44	-	35	4.5	36	131	5.4	50	-	.5	-	247	106	42
D-15	J. H. Turpin	40	do.	1,940	6.9	21	-	92	37	220	108	95	210	-	465	-	1,190	382	56
D-23	Prairie View College	571	Mar. 24, 1928	-	-	33	-	36	5.5	111	336	30	34	-	-	-	415	113	-
D-24	do.	576	Oct. --, 1942	-	7.7	28	3.8	14	2.5	29	71	2	34	-	.0	-	169	46	58
D-41	W. A. Bradbury	20	Aug. 5, 1933	-	-	-	-	8	5.5	24	31	7.8	30	-	23	-	114	43	-
D-42	J. H. Turpin	50	do.	-	-	-	-	-	-	-	40	8	388	-	313	-	-	321	-
E-7	R. Bollinger	-	June 7, 1949	456	-	22	-	51	8.1	32	200	9.3	39	-	.08	-	261	161	43
E-10	Roy Turner	1,008	Aug. 11, 1947	574	-	-	-	-	-	-	246	32	76	-	1.0	-	-	135	-

L/ Collected while drilling; total depth of well 868 feet.  
Well C-22, analysis of water by Curtis Laboratories.  
Well D-23, analysis of water by International Filter Company.

Table 9.- Analyses of water from wells in Waller County--Continued

Well	Owner	Depth of well (ft.)	Date of collection	Specific conductance (Micromhos at 25° C.)	pH	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium and potassium (Na + K)	Bicarbonate (HCO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids	Total hardness as CaCO <sub>3</sub>	Percent sodium
E-12	O.M. Pederson, Jr.	1,602	June 7, 1949	955	8.2	22	-	37	14	145	269	118	86	-	0.2	-	557	150	68
F-8	Roy Turner	846	Aug. 12, 1947	592	-	-	-	-	-	-	224	3	76	-	-	-	-	128	-
F-9	C. Turner	845	June 7, 1949	383	7.7	14	-	42	6.6	34	169	19	33	-	.2	-	232	132	36
F-10	Lynn Hebert	828	Aug. 11, 1947	496	-	-	-	-	-	-	202	3	50	-	-	-	128	-	-
F-11	Clyde Nelson	810	do.	379	-	-	-	-	-	-	158	2	42	-	-	-	128	-	-
F-13	R. Robertson	1,065	do.	609	-	-	-	-	-	-	246	5	76	-	-	-	122	-	-
F-14	do.	893	do.	523	-	-	-	-	-	-	208	6	64	-	-	-	182	-	-
F-15	John Bollinger	905	do.	537	-	-	-	-	-	-	192	10	72	-	-	-	135	-	-
F-17	G. P. Nelson	2,352	do.	1,190	-	-	-	-	-	-	512	50	110	-	.5	-	-	-	-
F-17	do.	1,670	June 7, 1949	1,120	8.6	28	-	10	11	223	343	86	113	-	.0	-	660	70	-
F-18	do.	1,200	do.	536	7.5	28	-	46	6	55	199	13	59	-	.0	-	310	140	46
F-19	do.	990	Aug. 11, 1947	571	-	-	-	-	-	-	222	7	70	-	.2	-	-	116	-
F-20	A. E. Thompson	926	do.	404	-	-	-	-	-	-	158	2	52	-	-	-	-	110	-
F-22	Harry Hebert	884	do.	452	-	-	-	-	-	-	206	3	44	-	-	-	-	128	-
F-23	J. H. Logenbaugh	554	do.	408	-	-	-	-	-	-	194	2	36	-	.5	-	-	135	-
F-24	T. B. Tucker	920	June 7, 1949	470	7.6	33	-	43	4.9	51	217	5.9	38	-	1.2	-	280	127	47
F-25	do.	767	Aug. 11, 1947	459	-	-	-	-	-	-	204	2	48	-	-	-	-	148	-
F-26	J. Bollinger	907	June 7, 1949	613	7.9	28	-	44	11	74	238	22	70	-	.0	-	354	155	51
F-29	Longenbaugh & Beckendorff	936	Aug. 12, 1947	512	-	-	-	-	-	-	194	9	64	-	-	-	-	132	-
F-30	American Rice Milling Co.	644	do.	518	-	-	-	-	-	-	200	11	64	-	.4	-	-	122	-
F-31	do.	-	June 7, 1949	557	7.8	26	-	58	18	29	213	15	65	-	.2	-	325	218	29
F-32	do.	765	Aug. 12, 1947	522	-	-	-	-	-	-	204	10	64	-	.5	-	-	128	-
F-33	T. B. Tucker	641	Aug. 11, 1947	473	-	-	-	-	-	-	202	3	50	-	-	-	-	176	-
F-36	Robichaux & Thompson	739	Aug. 12, 1947	526	-	-	-	-	-	-	190	15	68	-	.2	-	-	128	-
F-41	L. E. Morrison	800	Aug. 11, 1947	462	-	-	-	-	-	-	186	2	54	-	.8	-	-	189	-
F-42	do.	213	do.	464	-	-	-	-	-	-	188	2	58	-	-	-	-	162	-
F-44	Campbell & Jones	470	do.	449	-	-	-	-	-	-	202	3	46	-	-	-	-	142	-
F-45	R. S. Montgomery	28	Aug. 9, 1933	-	-	-	0.72	2.8	1.6	19	18	9.9	18	-	6.3	-	66	14	-
F-46	Clyde Fuller	65	Aug. 19, 1932	-	-	-	.12	8.0	5.1	29	48	2	41	-	6.0	-	115	41	-
H-1	H. P. Donigan	100	Nov. 5, 1948	509	-	23	-	77	6.2	13	228	6.6	28	-	15	-	298	218	11
H-4	John & C.R. England	-	Aug. 12, 1947	559	-	-	-	-	-	-	192	2	80	-	1.0	-	-	128	-
H-5	do.	600	June 7, 1949	515	7.5	28	-	54	3.9	45	180	5.3	67	-	1.2	-	292	151	39
H-6	Cardiff Bros.	586	do.	545	7.7	26	-	60	9.6	41	214	1.1	64	-	.2	-	325	189	32
H-7	J. D. Woods	-	Aug. 14, 1947	578	-	-	-	-	-	-	208	5	80	-	.5	-	-	155	-

Table 9.- Analyses of water from wells in Waller County--Continued

Well	Owner	Depth of well (ft.)	Date of collection	Specific conductance (Micromhos at 25° C.)	pH	Silica (SiO <sub>2</sub> )	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium and potassium (Na + K)	Bicarbonate (HCO <sub>3</sub> )	Sulfate (SO <sub>4</sub> )	Chloride (Cl)	Fluoride (F)	Nitrate (NO <sub>3</sub> )	Boron (B)	Dissolved solids	Total hardness as CaCO <sub>3</sub>	Percent sodium
H-9	J. V. Cardiff	653	Aug. 14, 1947	464	-	-	-	-	-	-	190	3	54	-	-	-	-	135	-
H-11	do.	478	June 7, 1949	458	7.4	28	-	48	7.1	38	178	12	52	-	.2	-	271	149	36
H-19	Cecil Beckendorff	-	Aug. 11, 1947	456	-	-	-	-	-	-	200	2	52	-	.8	-	-	135	-
H-21	J. A. Kimball	246	June 7, 1949	538	7.7	32	-	64	7.9	35	231	3.3	52	-	1.2	-	308	192	28
H-22	Francis Young	280	Aug. 11, 1947	476	-	-	-	-	-	-	206	2	52	-	-	-	-	142	-
H-24	John Alt	256	do.	469	-	-	-	-	-	-	202	2	50	-	-	-	-	155	-
H-26	J. D. Woods	165	Aug. 14, 1947	600	-	-	-	-	-	-	206	3	90	-	.5	-	-	196	-
H-28	Ray Woods	290	do.	613	-	-	-	-	-	-	234	2	82	-	-	-	-	176	-
H-29	City of Brookshire	147	June 7, 1949	649	7.4	26	-	67	8.3	53	246	4.8	78	-	0	-	374	201	36
H-32	Chester Jordan	335	Aug. 14, 1947	503	-	-	-	-	-	-	218	2	54	-	-	-	-	152	-
H-33	do.	340	do.	643	-	-	-	-	-	-	252	2	82	-	-	-	-	196	-
H-35	John Cope	545	Aug. 11, 1947	554	-	-	-	-	-	-	232	2	64	-	.5	-	-	155	-
H-38	Francis Young	273	Aug. 1, 1932	-	-	-	0.02	63	5.9	24	220	2	37	-	.15	-	240	182	-

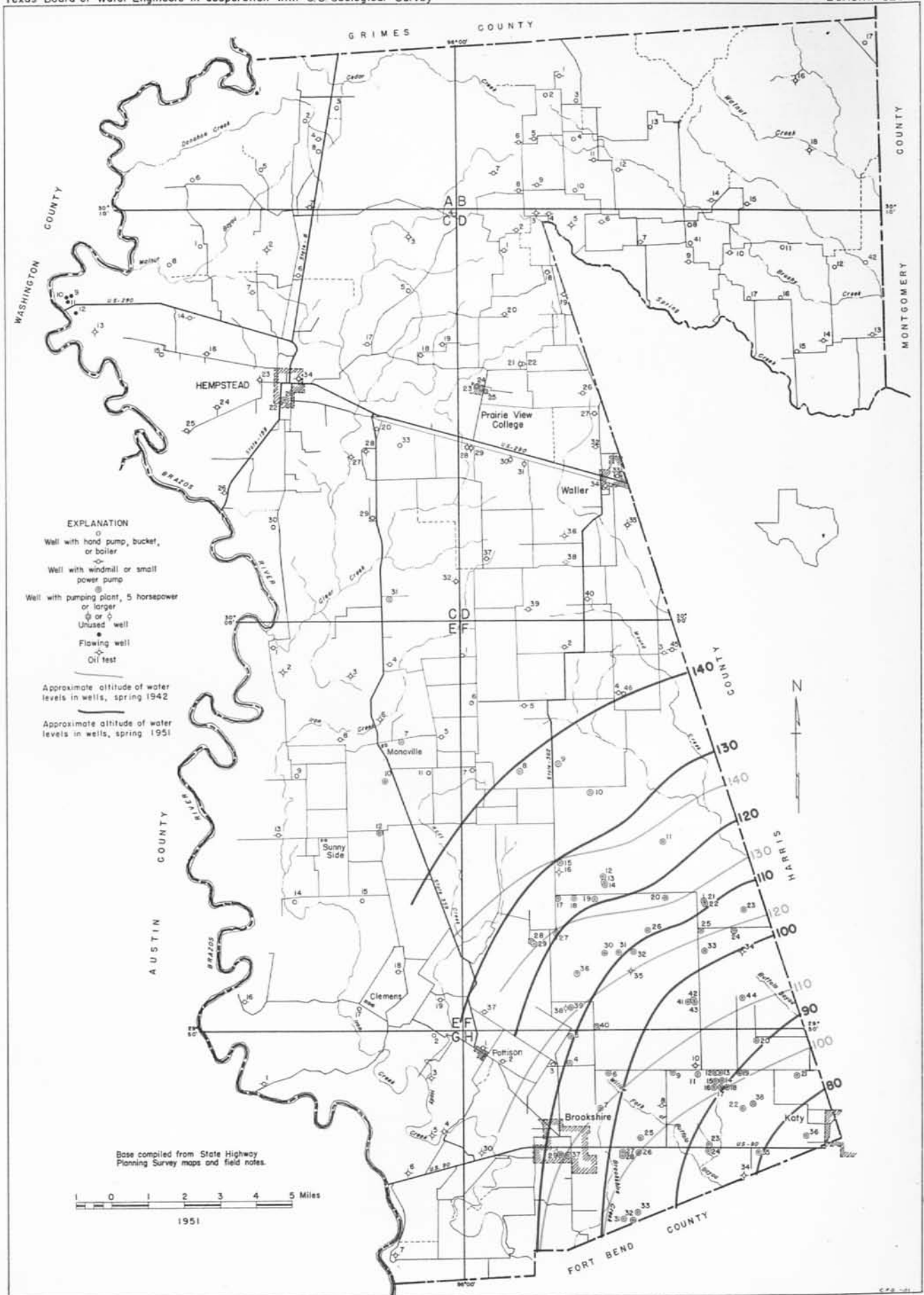


FIGURE 8.-Map of Waller County, Tex., showing water wells and approximate altitudes of water levels in wells in irrigated area.

