TEXAS BOARD OF WATER ENGINEERS

H. A. Beckwith, Chairman
A. P. Rollins, Member
James S. Guleke, Member

BULLETIN 5003

GEOLOGY AND GROUND-WATER RESOURCES OF WALKER COUNTY, TEXAS

By
Allen G. Winslow
United States Geological Survey

Prepared cooperatively by the Geological Survey,
United States Department of the Interior

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ABSTRACT

Walker County, of which Huntsville is the county seat, is on the Gulf Coastal Plains about 50 miles north of Houston. The county is underlain by a series of sedimentary rocks of Tertiary and Quaternary age that dip gently southeastward toward the Gulf of Mexico at an angle slightly greater than the slope of the land surface, thus creating favorable conditions for artesian water. The rocks that crop out in the county from north to south, and thus in ascending stratigraphic order, are the Yegua formation, the Jackson group, undifferentiated, the Catahoula sandstone, the Lagarto clay and Oakville sandstone, undifferentiated, the Willis sand, and Recent alluvial deposits. Rocks that do not crop out in the area but are encountered in wells are, in ascending order, the Wilcox group undifferentiated; the Carrizo sand; the Mount Selman formation consisting of the Reklaw member, the Queen City sand member, and the Weches greensand member; the Sparta sand; and the Cook Mountain formation.

The Wilcox group, the Carrizo sand, and the Mount Selman formation are not potential sources of fresh-water supplies in Walker County. The Sparta sand has not been tested in the county, but electrical logs of oil wells indicate that large supplies of fresh water may be obtained from it in the northern part of the county. The Cook Mountain formation is composed largely of shale and is not an important source of water.

The Yegua formation is not known to yield large supplies of water but may furnish small amounts of water to wells on and near the outcrop. The sands of the Jackson group yield moderate supplies of good water to wells at the Country Campus of the Sam Houston State Teachers College and to other wells near the outcrop. The Catahoula sandstone is the most important aquifer in the county. It furnishes moderate quantities of hard but otherwise good water to the wells of the city of Huntsville. The Lagarto clay and Oakville sandstone yield moderate to small supplies of water to wells throughout the southern part of the county. Water from wells in the Lagarto clay and Oakville sandstone is usually moderately mineralized. The Willis sand and the Recent alluvial deposits are of little importance as aquifers in the county.

The total amount of ground water used in the county is small and is roughly estimated to average less than 3,000,000 gallons a day. Huntsville uses an average of about 800,000 gallons a day. The results of the investigation indicate that additional quantities of water can be obtained from the Oakville sandstone, the Catahoula sandstone, and sands in the Jackson group; the Sparta sand appears to be a potential source of large quantities of water in the north-central part of the county.

INTRODUCTION

LOCATION AND PHYSICAL FEATURES OF THE COUNTY

Walker County, about 50 miles north of Houston in southeastern Texas, is in the Gulf Coastal Plain and is bounded on the north by Houston, Madison, and Trinity Counties, on the east by San Jacinto County, on the south by Montgomery County, and on the west by Grimes County. (See fig. 1.)

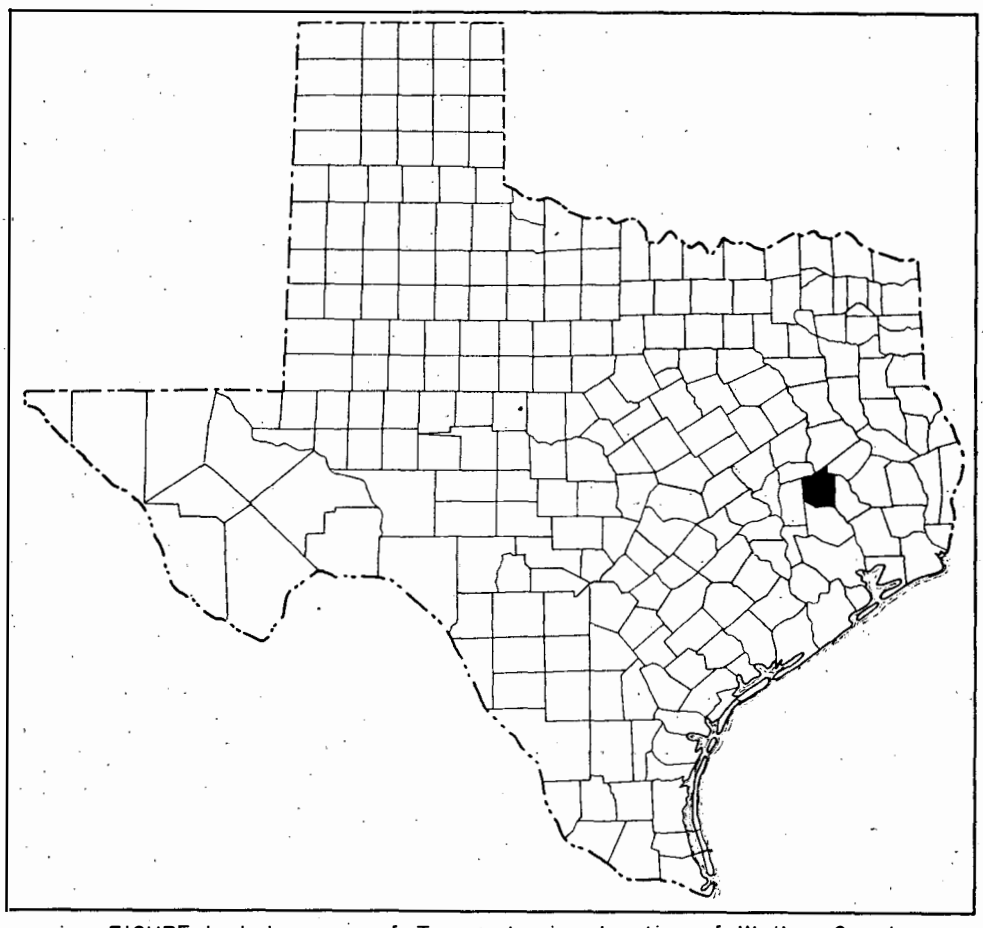


FIGURE 1.- Index map of Texas showing location of Walker County.

The land surface is gently rolling to hilly, except along the Trinity and San Jacinto Rivers where it is nearly flat. The altitude of the county ranges from about 100 feet on the Trinity River near Riverside to about 450 feet at Huntsville.

Drainage is in all directions away from the highland area around Huntsville. The main streams draining the northern part of the county are Bedias, Nelson, Harmon, and Mill Creeks, all of which flow into the Trinity River. Measurements of the flow of the Trinity River at Riverside have been made by the Texas Board of Water Engineers and the Surface Water Branch of the United States Geological Survey since October 1923. During this period a minimum flow of 70 cubic feet per second, a maximum flow of 121,000 cubic feet per second, and an average flow of 7,192 cubic feet per second were recorded. The southwestern part of the county is drained by the West Fork of the San Jacinto River and West Sandy, Robinson, McDonald, and East Sandy Creeks, which are tributaries of the San Jacinto. The southeastern part of the county is drained principally by Winters Bayou and Goard Creek. These creeks join in San Jacinto County to form Nebblets Creek, which flows into the East Fork of the San Jacinto River.

The county has an area of 786 square miles and had a population of 19,868 in 1940. Huntsville, whose population was 5,108 in 1940, is the county seat and site of Sam Houston State Teachers College and the State Penitentiary. Riverside had a population of 300 in 1940; the other villages are Dodge, New Waverly, and Phelps.

ECONOMIC DEVELOPMENT

Lumbering and the production of pulpwood are important industries in the county. The Sam Houston National Forest includes approximately 200 square miles, but much lumber is produced from other parts of the county. Dairying is practiced extensively and the production of beef and dairy cattle is an important industry. Farming is practiced throughout the county, the main crops being cotton, corn, feed, fruit, and vegetables. Many oil-test wells have been drilled and oil has been obtained in small amounts from the Sam Houston field, about 3 miles east of Huntsville. Fuller's earth is quarried and processed at two plants at Riverside.

PURPOSE AND SCOPE OF INVESTIGATION

The investigation in Walker County was made as part of a cooperative program of the Texas Board of Water Engineers and the U. S. Geological Survey to study the ground-water resources of Texas. In this investigation information regarding the thickness, areal extent, and depth of the fresh-water formations was obtained; a pumping test was made in the city wells at Huntsville to determine the water-yielding properties of sands from which the city obtains its water supply; samples of water were obtained from 70 wells and analyzed in the laboratory of the Geological Survey to determine the chemical character of the water; the surface geology was examined during the course of the field work; and two cross sections showing the generalized geology of the area were prepared.

The well records and water samples were collected during the summer and fall of 1948; the pumping test at Huntsville was made in May 1949; and the report was prepared in 1949.

The investigation was made under the general direction of A. N. Sayre, Chief of the Ground Water Branch of the Geological Survey, and the immediate supervision of W. L. Broadhurst, district geologist in charge of ground-water investigations in Texas.

PREVIOUS INVESTIGATIONS

A small amount of investigational work had been done on the occurrence of ground water in Walker County prior to this investigation. The geology and ground-water resources of Walker County were discussed briefly in a report by Deussen 1/ in which records of four wells were published. The public water supply of the city of Huntsville was described by Sundstrom, Hastings, and Broadhurst 2/ in 1948.

1/ Deussen, Alexander, Geology and underground waters of the southeastern part of the Texas Coastal Plain: U. S. Geol. Survey Water-Supply Paper 335, pp. 355-357, 1914.

2/ Sundstrom, R. W., Hastings, W. W., and Broadhurst, W. L., Public water supplies in eastern Texas: U. S. Geol. Survey Water-Supply Paper 1047, pp. 273-274, 1948.

ACKNOWLEDGMENTS

The writer is indebted to the officials of the city of Huntsville, the Gibbs Brothers Land Co., and well drillers, particularly Mr. J. L. Dunnica of Huntsville, who furnished valuable logs and other data.

CLIMATE

According to the records of the United States Weather Bureau, the average annual precipitation at Huntsville over a period of 60 years (1889-1948) was 45.50 inches. The annual precipitation (fig. 2 C) ranged from a low of 17.93 inches in 1917 to a high of 69.79 inches in 1900. The monthly averages (fig. 2 A) show that April and May are the wettest months. However, the range in monthly averages is not great; the lowest is 2.66 inches in August and the highest is 4.91 inches in May. Table 1 gives the available record of precipitation at Huntsville between 1889 and 1948, as reported by the U. S. Weather Bureau. Figure 2 B gives the average monthly temperatures. The highest and lowest temperatures recorded during the period were 107° F. and -2° F., respectively.

Table 1.- Precipitation, in inches, at Huntsville, Walker County, Tex., 1889 to 1948

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
1889	7.49	2.14	3.41	3.37	2.30	7.64	2.32	1.96	2.67	.02	6.49	.40	40.21
1890	10.46	3.92	4.38	8.32	2.86	3.24	3.02	4.85	3.11	3.62	3.52	1.73	53.03
1891	10.06	3.56	2.07	13.74	1.69	1.59	3.61	4.09	4.64	.10	4.49	8.58	58.22
1892	5.25	2.00	2.49	2.91	2.97	10.82	2.70	7.35	.33	2.19	7.22	5.96	52.19
1893	1.20	.75	1.20	2.15	4.74	9.93	1.00	4.40	.23	.30	5.60	1.15	32.65
1894	3.54	2.64	4.35	2.45	1.60	3.82	1.19	6.13	6.35	.46	.65	3.11	36.29
1895	3.06	4.75	3.49	2.40	13.06	7.74	1.25	.89	1.10	5.41	2.60	2.70	48.45
1896	6.94	6.77	2.08	2.00	2.35	.45	1.42	.92	4.85	4.64	2.42	1.50	36.34
1897	4.55	.18	3.90	1.73	1.50	2.17	.30	2.98	3.44	5.86	1.78	4.25	32.64
1898	4.43	5.15	3.53	5.00	5.65	6.82	3.26	4.19	.98	6.60	4.14	3.47	53.22
1899	3.08	1.83	2.35	2.23	1.20	9.42	4.05	.33	2.48	3.35	1.55	8.06	39.93
1900	5.19	4.38	9.15	6.30	6.69	3.22	7.12	8.87	6.84	1.91	8.45	1.67	69.79
1901	1.15	3.96	4.08	3.08	3.85	2.34	2.35	1.11	1.40	.93	1.82	2.55	28.62
1902	1.68	2.52	3.14	2.95	4.31	3.27	11.90	.33	6.76	8.53	6.35	2.15	53.89
1903	5.00	7.47	5.67	1.31	2.44	4.11	5.42	1.12	1.40	4.39	1.44	3.83	43.60
1904	1.63	1.92	.58	2.30	6.46	3.91	7.80	1.87	1.34	1.54	1.34	6.45	37.14
1905	2.29	5.34	10.58	8.73	3.29	5.58	3.02	.10	.47	1.72	6.11	4.72	51.95
1906	3.45	2.53	.69	.82	2.08	3.71	6.05	1.79	1.55	2.26	1.15	3.17	29.25
1907	1.72	3.30	2.46	5.69	13.28	T	1.11	1.00	1.81	7.94	11.25	3.70	53.26
1908	1.83	5.26	1.95	7.71	10.92	1.58	.73	1.31	4.37	2.35	4.23	.47	42.71
1909	.55	2.03	2.81	3.02	10.06	2.25	1.38	.64	.18	3.07	2.11	4.90	33.00
1910	1.02	4.41	.83	6.48	4.35	4.66	5.77	.65	2.09	2.05	2.39	7.11	41.81
1911	T	3.04	4.08	11.33	2.49	3.26	3.87	.95	3.83	1.78	2.74	11.19	48.56
1912	2.08	3.04	6.14	4.14	1.88	4.68	2.22	2.32	.48	1.47	1.94	6.10	36.49
1913	1.90	4.99	3.37	3.34	2.90	2.00	T	1.01	7.16	7.81	2.44	9.88	46.80
1914	.72	5.65	6.20	9.54	4.82	.37	1.12	7.14	2.08	1.34	6.90	7.92	53.80
1915	5.04	2.62	1.55	8.51	.82	2.18	3.33	6.94	.84	.28	2.86	4.03	39.00
1916	4.23	T	.40	3.00	11.05	2.90	7.19	1.35	3.08	.58	2.68	1.55	38.01
1917	3.60	2.88	.94	3.22	1.55	.90	1.05	.45	1.57	.60	1.17	T	17.93
1918	.67	3.65	1.60	5.41	2.30	2.95	3.00	5.10	1.90	6.17	8.03	2.43	43.21
1919	2.70	5.15	2.73	2.55	10.58	8.36	1.95	8.10	2.65	8.35	1.50	1.15	55.77
1920	8.90	2.55	1.65	1.15	5.12	5.80	3.18	5.15	1.35	3.53	3.45	3.55	45.38
1921	2.50	3.95	4.35	10.85	1.30	12.75	5.20	2.65	1.50	.08	1.52	3.91	50.56
1922	5.94	4.01	8.16	8.65	8.10	4.70	1.20	3.60	.60	1.00	6.72	1.20	53.88
1923	2.50	7.04	4.20	5.95	6.65	2.95	.70	2.83	7.45	1.70	5.60	10.65	58.22
1924	2.80	3.80	3.60	7.20	5.30	2.30	.00	T	2.60	.00	1.20	2.50	31.30
1925	2.20	T	.60	1.05	2.20	1.00	3.80	1.30	2.70	16.30	12.50	2.20	45.85
1926	6.20	.40	8.80	8.90	4.00	4.20	5.10	2.40	.50	2.10	2.60	8.40	53.60
1927	.80	3.70	7.90	4.90	3.50	7.40	2.00	.00	.50	7.70	2.60	4.30	45.30

Table 1.- Precipitation in inches, at Huntsville, Walker County, Tex., 1889 to 1948--Continued

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annua
1928	1.00	3.50	4.50	3.70	1.30	3.40	4.40	.30	.20	2.40	4.00	3.30	32.0(
1929	5.10	3.80	3.70	5.20	19.00	1.00	7.00	1.00	1.00	4.90	5.10	1.70	58.5(
1930	5.90	2.70	4.40	.20	4.80	1.30	.90	2.20	2.70	7.10	6.20	3.60	42.0(
1931	3.80	7.30	4.70	3.50	4.80	2.90	1.90	1.10	.40	2.40	3.70	6.60	43.1(
1932	9.50	6.64	5.00	1.90	1.30	1.77	.70	2.47	.40	.40	1.50	6.75	38.3:
1933	2.79	5.05	2.90	2.50	2.60	1.01	2.88	3.70	3.28	2.45	1.40	4.31	34.8?
1934	7.25	4.68	3.89	5.75	1.80	.70	2.20	.60	5.10	.00	7.00	4.30	43.27
1935	2.20	2.95	3.21	6.41	13.85	4.41	4.16	4.91	3.38	1.17	4.09	5.88	56.62
1936	.42	2.47	.87	2.70	7.97	3.29	13.05	2.35	1.36	4.13	2.68	2.58	43.87
1937	6.40	T	4.26	2.88	.34	2.73	2.05	3.70	4.36	4.37	5.38	3.61	40.08
1938	3.95	1.90	4.64	2.65	4.90	4.32	3.23	1.26	4.45	.33	7.96	3.29	42.88
1939	6.50	6.85	1.04	1.53	3.55	11.98	1.38	.75	2.89	2.83	3.23	4.73	47.26
1940	1.37	3.91	.73	3.95	3.92	11.24	.75	3.19	1.55	3.06	16.61	8.96	59.24
1941	2.98	5.92	3.53	6.01	5.50	9.25	4.99	1.45	7.40	8.67	3.14	1.34	60.18
1942	1.17	1.96	1.45	7.11	4.00	5.61	4.87	7.98	6.31	2.09	2.31	5.48	50.34
1943	3.92	.23	2.70	1.15	4.95	2.96	11.80	.63	4.64	2.96	2.92	4.84	43.70
1944	8.44	3.00	3.41	1.58	8.73	2.13	.32	5.09	.94	.00	7.62	5.81	47.07
1945	4.40	5.32	4.90	8.59	3.73	4.38	5.37	9.40	1.96	4.39	1.70	2.46	56.60
1946	8.57	5.04	6.37	2.55	7.78	5.20	1.63	2.35	2.88	6.00	13.81	1.92	64.10
1947	6.66	1.18	6.19	.32	7.62	1.70	3.07	1.61	1.56	.55	4.13	4.14	38.73
1948	3.05	4.14	4.09	4.19	3.69	1.56	3.01	3.14	.29	.10	2.94	1.16	31.36
Average	3.73	3.48	3.53	4.44	4.91	4.11	3.18	2.66	2.76	3.20	4.13	4.27	44.40

GEOLOGIC FORMATIONS AND THEIR WATER-BEARING PROPERTIES

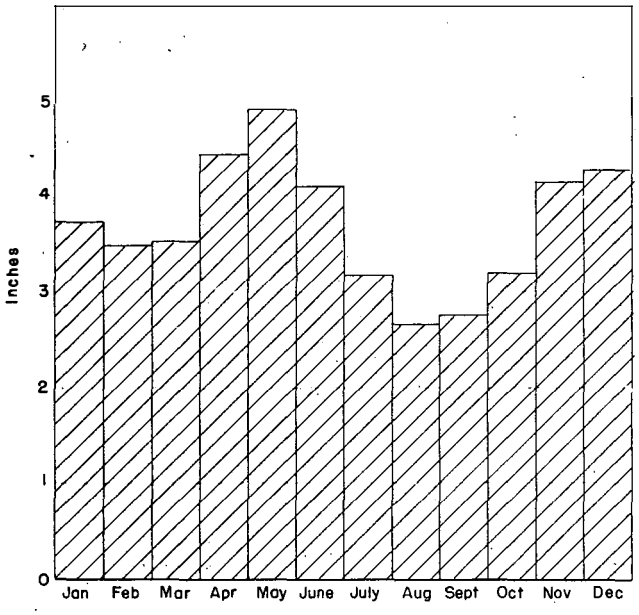
The rocks encountered in Walker County, both on the surface and in wells, are all of sedimentary origin and consist principally of shale, clay, sand, sandstone, and a few thin beds of limestor and lignite. The sand and sandstone are the principal aquifers in the county.

The Geological structure of Walker County is relatively simple. The formations strike in a northeasterly direction and dip southeastward toward the Gulf of Mexico. In the northern part of the county the dip is about 150 feet per mile, but the formations appear to flatten slightly toward the south. Hence the average rate of dip throughout the county is about 120 feet per mile.

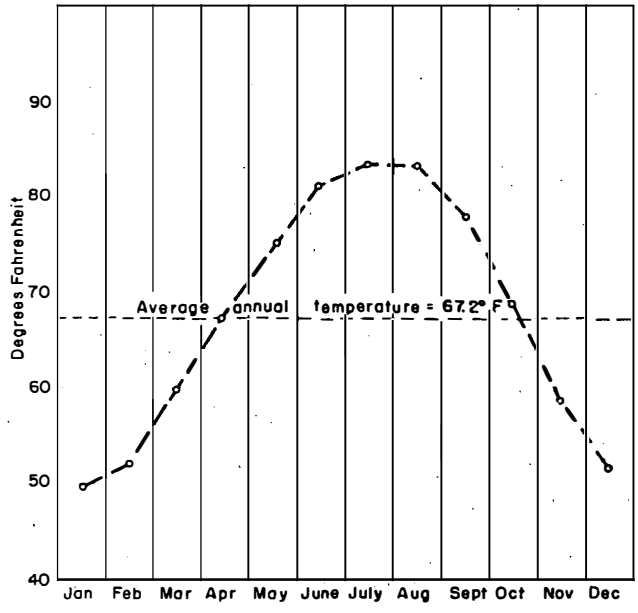
The structure is only slightly complicated by faulting. Faul ing in the west-central part of the county is shown on the geologic map (pl. 1). The cross sections (pl. 2 and fig. 3) show an anomaly in the northern part of the county which is probably caused by a fault that has a vertical displacement of about 200 feet. The position of the fault was not determined.

The formations discussed in the following section are described in upward succession in order of their appearance in the geologic column (table 2).

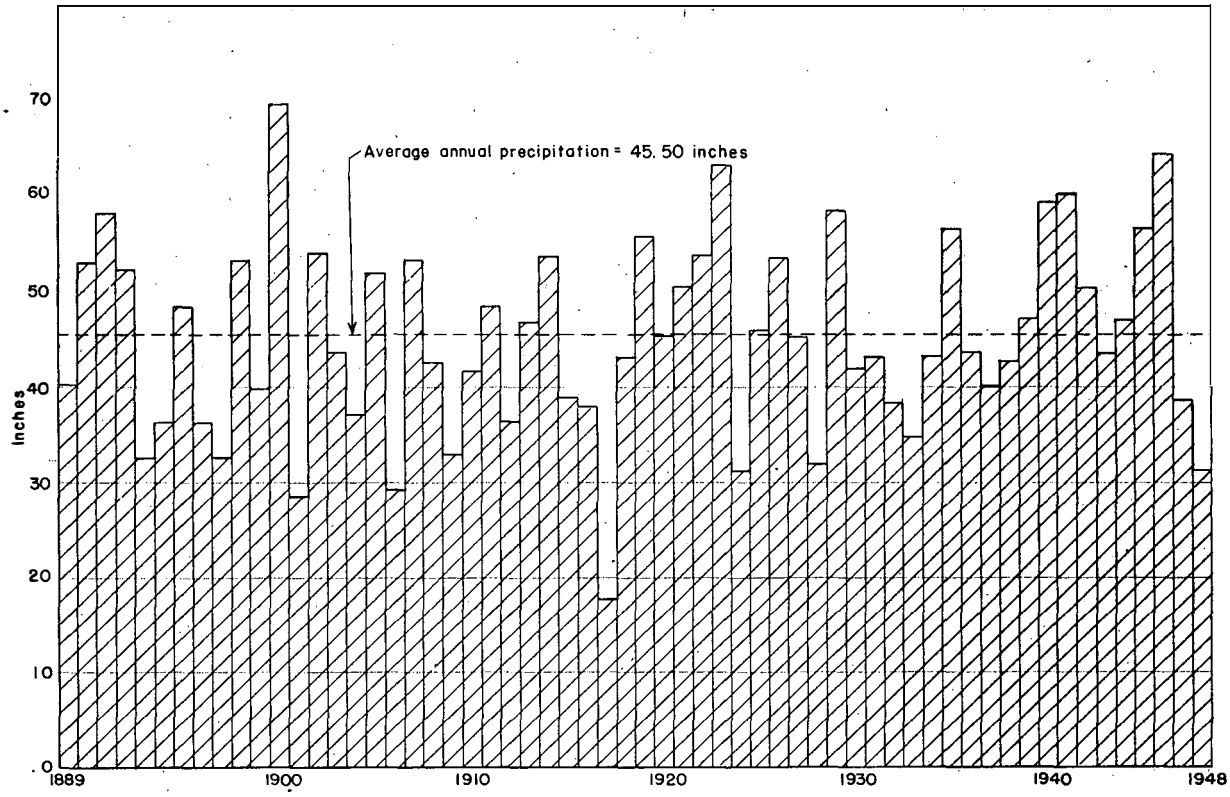
Texas Board of Water Engineers in cooperation with U. S. Geological Survey



A. Average monthly precipitation at Huntsville, Tex.



B. Average monthly temperature at Huntsville, Tex.



C. Annual precipitation at Huntsville, Tex., 1889-1948.

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FIGURE 2.-Graphs showing precipitation and temperature at Huntsville, Tex.

Table 2.- Geologic formations in Walker County, Tex.

System	Series	Group	Formation and member	Approximate thickness (feet)	Character of rocks	Water-bearing properties
Quaternary	Recent		Alluvium	0-30	Sand, silt, clay, and gravel	Not known to yield large supplies.
Tertiary (?)	Pliocene (?)		Willis sand	0-100	Sand, silt, clay, and gravel	No importance as an aquifer in Walker County.
Tertiary	Miocene (?)		Oakville sandstone and Lagarto clay, undifferentiated	0-1,600	Sand, sandy clay, and clay. Clay predominates in upper portion	Yields small supplies of moderately mineralized water.
	Miocene		Catahoula sandstone	0-1,000	Light-colored sand and clay. Some volcanic ash and fuller's earth	Yields moderate supplies of potable but rather hard water.
	Eocene	Jackson	Undifferentiated	0-1,100	Light-colored sand, sandy shale, shale, and a few thin beds of limestone	Yields small supplies of potable soft water.
		Claiborne	Yegua formation	1,000-1,500	Sand and shale, a few beds of lime and lignite, some pyrite	Not known to yield important supplies of water in Walker County.
			Cook Mountain formation	450-500	Predominantly shale, some sand	Electrical logs indicate that the Cook Mountain formation in Walker County is not an important source of fresh water.
			Sparta sand	120-300	Predomintantly gray sand, some shale and lignite	Electrical logs indicate the presence of fresh water in the northern part of Walker County.
			Mount Selman formation: Weches greensand member	100-200	Fossiliferous, glauconitic sand and shale	No importance as a fresh-water aquifer in Walker County.
			Mount Selman formation: Queen City sand member	230-400	Gray sand, a few beds of brown shale	Not a fresh-water aquifer in Walker County.
			Mount Selman formation: Reklaw member	260-290	Brown and gray shale, occasional glauconite beds	Not a fresh-water aquifer in Walker County.
			Carrizo sand	140-220	Medium-grained sand, some sandy clay	Not a fresh-water aquifer in Walker County.
		Wilcox	Undifferentiated	3,300	Sand and clay, shale and sandstone, some lignite and glauconite	Not a fresh-water aquifer in Walker County

TERTIARY SYSTEM

Eocene Series

Wilcox Group, Undifferentiated

Sedimentary rocks of Wilcox age do not crop out in Walker County but are encountered in wells in the northern part of the county at a depth of about 2,800 feet. According to Plummer, 3/ the Wilcox group ranges in thickness from 350 feet to 1,840 feet; however, electrical logs of oil tests in southern Houston County indicate that the Wilcox group is much thicker than described by Plummer, probably about 3,300 feet thick. The group characteristically consists of clay, shale, sandy shale, sand, sandstone, beds of lignite and glauconite. Sands of the Wilcox group have not been penetrated by water wells in Walker County, but the electrical logs indicate the presence of highly mineralized water in the group throughout the county.

Claiborne group

Carrizo sand

The Carrizo sand does not crop out in Walker County but it is found in wells in the northern part of the county at a depth of about 2,600 feet. The thickness of the Carrizo sand in the county, according to electrical logs of oil tests, ranges from about 140 to 220 feet. According to Plummer (p. 615), the Carrizo sand lies disconformably on the Wilcox group. It consists of about nine-tenths medium-grained sand and one-tenth sandy clay. The Carrizo sand is characterized by massive bedding and conspicuous cross-bedding. Much of the sand is white or gray in color; in contrast, many of the exposures in the outcrop areas in east Texas show a mottled red and buff coloring.

The formation can be easily identified for correlation purposes in the electrical logs of oil tests in Walker and Houston Counties. The logs indicate the presence of highly mineralized water in the formation; however, elsewhere in Texas the Carrizo sand is an important aquifer.

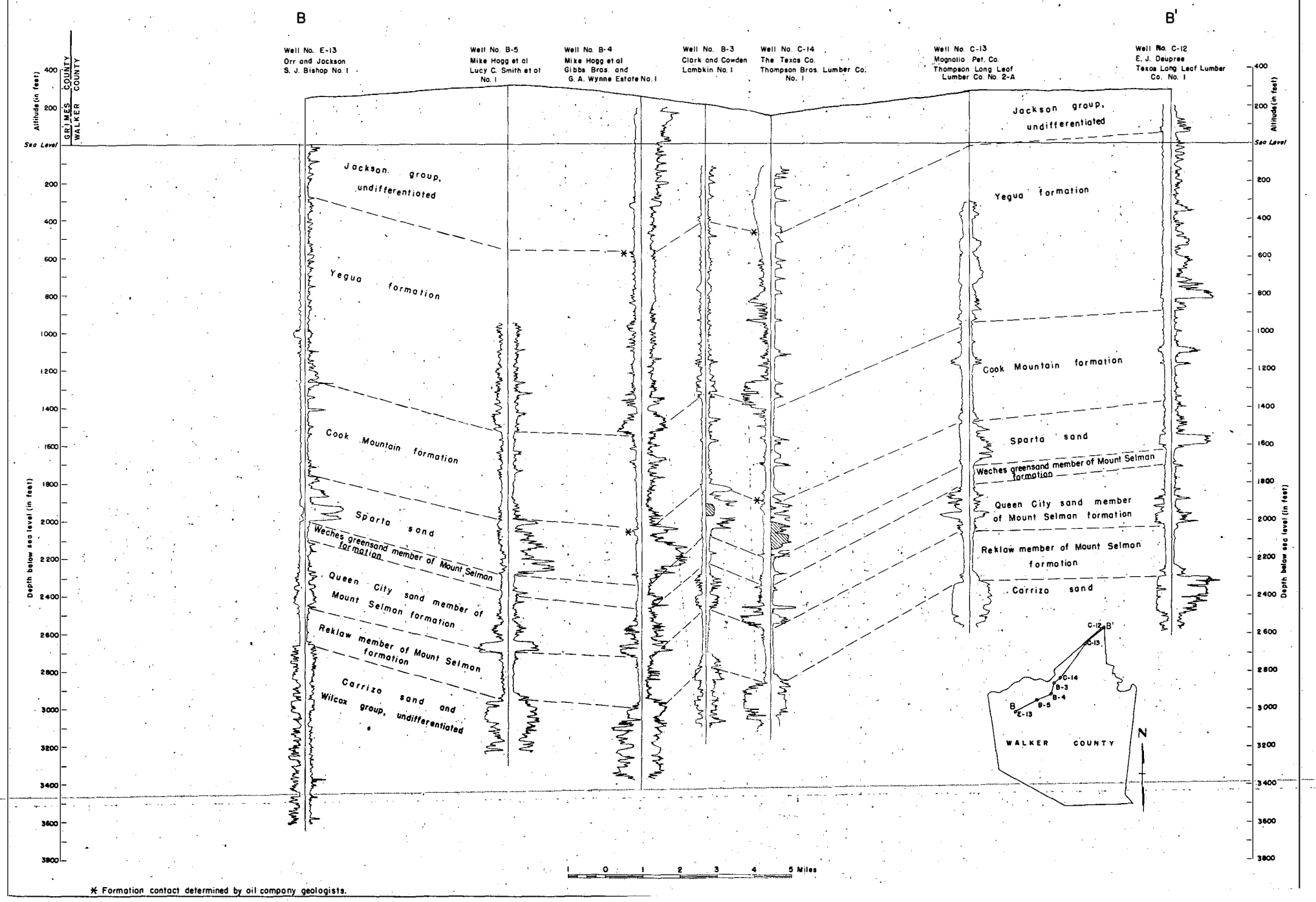
Mount Selman formation

The Mount Selman formation has been divided into three members, which in upward succession, are the Reklaw member, the Queen City sand member, and the Weches greensand member.

Reklaw member.- The Reklaw member does not crop out in Walker County, but it is encountered in wells in the northern part of the county at a depth of about 2,300 feet. The member lies conformably on the Carrizo sand and averages about 270 feet in thickness in the northern part of the county. It consists principally of glauconitic shales, sandy shales, and clays. In the Lufkin area a basal sand member, consisting of 20 to 80 feet of lignitic, micaceous brown sand, has been described. 4/

3/ Sellards, E. H., Adkins, W. S., and Plummer, F. B., The geology of Texas. vol. 1, Stratigraphy: Texas Univ. Bull. 3232 pp. 571-606, 1932.

4/ White, W. N., Sayre, A. N., and Heuser, J. F., Geology and ground-water resources of the Lufkin area, Tex.: U. S. Geol. Survey Water-Supply Paper 849-A, p. 25, 1941.



* Formation contact determined by oil company geologists.

This sand, which has been termed the "Cane River" by some geologists, can be identified in the electrical logs of oil tests in Walker County.

The electrical logs indicate that the Reklaw member does not contain fresh water in Walker County; however, in the dip section (pl. 2) they indicate the presence of fresh water in parts of Houston County.

Queen City sand member.- The Queen City sand member does not crop out in Walker County, but it is encountered in wells in the northern part of the county at a depth of about 2,100 feet. The member lies conformably on the Reklaw member and ranges in thickness from about 230 to 400 feet. It consists principally of gray micaceous sand alternating with beds of brown sandy shale and some lignite.

The member is of no importance as a fresh-water aquifer in Walker County, but it furnishes small quantities of rather highly mineralized water in Angelina and Nacogdoches Counties. 5/

Weches greensand member.- The Weches greensand member does not crop out in Walker County, but it is found in wells at depths of about 2,000 feet in the northern part of the county. The member lies, probably conformably, on the Queen City sand member and ranges in thickness from about 100 to 200 feet. It consists principally of fossiliferous, glauconitic sands and shales, but the shales predominate.

The Weches greensand member is of no importance as a fresh-water aquifer in Walker County, but it has been reported 6/ to furnish small supplies for domestic and stock use in shallow wells in Nacogdoches County.

Sparta sand

The Sparta sand does not crop out in Walker County, but it is encountered in wells in the northern part of the county at a depth of about 1,750 feet. According to Plummer (p. 652), it probably lies conformably on the Weches greensand member of the Mount Selman formation. In well logs, the Sparta sand ranges in thickness from about 120 to about 300 feet. The Sparta sand consists principally of gray-to buff-colored sands, containing some clay, sandy clay, and shale, and in some places lignite. Plummer states (p. 655), that the formation is characterized by its lack of fossils as compared to the underlying Weches greensand member of the Mount Selman formation and the overlying Cook Mountain formation.

In the Lufkin area the Sparta sand is reported to yield moderately mineralized water near the outcrop area; however, farther down the dip the water is too highly mineralized for municipal and most industrial uses. Inasmuch as the Sparta sand is encountered at a minimum depth of about 1,600 feet in the extreme northeastern part of the county, it might be expected that the Sparta would not yield potable water. The electrical logs of wells C-14, B-3, and B-4 in the north-central part of the county, however, indicate the presence of fresh water in the Sparta sand; the sand in this area is about 300 feet thick. The electrical logs of wells along the strike section (fig. 3) indicate that the Sparta sand becomes increasingly shaly both to the east and to the west of the section shown in plate 2. However, in the more shaly parts of the Sparta sand the indications are that the formation still carries fresh water. In the dip section (pl. 2), the electrical log of well G-43, 9½ miles down the dip from well B-4, indicates the presence of highly mineralized water in the Sparta sand at a depth of about 4,050 feet. Owing to the lack of electrical logs between wells B-4 and G-43, however, the position of the brackish-water zone in the Sparta sand cannot be ascertained. The Sparta sand has not been penetrated by water wells anywhere in the county, but the electrical logs indicate that moderate supplies of fresh water might be obtained in the northern part of the county.

5/ White and others, op. cit., p. 26.

6/ White and others, op. cit., pp. 26-27.

Cook Mountain formation

The Cook Mountain formation does not crop out in Walker County, but it is encountered in wells in the northern part of the county at a depth of about 1,200 feet. It lies, probably disconformably, on the Sparta sand. According to the electrical logs and drillers' logs, the Cook Mountain formation ranges in thickness from about 400 to 500 feet and consists predominantly of shale, but in some places it contains sand lenses, thin beds of lignite and lime, and traces of pyrite. The electrical logs indicate that little fresh water is to be found in the Cook Mountain formation.

Yegua formation

The Yegua formation, often referred to as the "Cockfield," crops out in the extreme northwestern corner of Walker County in a narrow belt having a maximum width of about 2 miles. In the southern part of the county the Yegua ranges in thickness from about 1,000 to 1,500 feet. It lies, probably unconformably, on the Cook Mountain formation and consists of alternating sands and shales; in some places it contains beds of lime and lignite and some pyrite.

Well A-1 probably penetrates the Yegua formation; however, no sample of the water was obtained because the well was not equipped with a pump at the time of the field investigation. The electrical logs indicate that the Yegua formation in Walker County is not likely to yield large quantities of fresh water.

Jackson Group, Undifferentiated

The term "Jackson group, undifferentiated," as used here includes all the strata between the Yegua formation and the Catahoula sandstone. Rocks of the Jackson group crop out in a belt about 7 miles wide in the northern part of Walker County; they have a thickness of about 1,100 feet where the complete section occurs in wells. According to Plummer (p. 677) the Jackson overlies the Yegua formation conformably. The rocks consist of light-colored sandy shales, sands, and beds of limestone and green shale.

The wells at the Country Campus of the Sam Houston State Teachers College (wells G-6 to G-9) draw water from sands of the Jackson group. These wells range from 618 to 735 feet in depth and yield 125 to 183 gallons a minute. Well 1 (G-8) had a yield of 183 gallons a minute and a drawdown of 70 feet, which indicated a specific capacity of 2.6 gallons a minute per foot of drawdown. Well 4 (G-9) had a yield of 168 gallons a minute and a drawdown of 115 feet, indicating a specific capacity of 1.4. The water is of good quality, containing about 370 parts per million dissolved solids and having a hardness of 8 to 18 parts per million (see table 7.)

Small-capacity wells that draw water from sands of the Jackson group are used for domestic and stock supply. A few small springs in the county are fed from sands of the Jackson group, but none is important as a major source of water.

From a study of the electrical logs it appears that the Jackson group is an important source of supply to wells of small capacity on and near the outcrop. Although the section there is very sandy, the sands appear as discontinuous lenses and become more shaly down the dip. Therefore, the Jackson group is of minor importance as an aquifer a few miles down dip from the outcrop.

Miocene Series

Catahoula sandstone

The Catahoula sandstone lies unconformably on sedimentary rocks of the Jackson group and, as here described, includes all the strata between the Jackson group, and the Oakville sandstone and Lagarto clay, undifferentiated.

The Catahoula sandstone crops out in the central part of Walker County in a belt ranging in width from about 5 to 8 miles, and has a maximum thickness of about 1,000 feet in the complete section in wells. It is characterized at the base by a sandy section which is cemented with silica in places to form quartzite, whereas the upper portion is more shaly and contains beds of volcanic ash and fuller's earth. The electrical logs indicate that the basal sands of the Catahoula extend continuously down the dip and appear to carry fresh water throughout the county, even in the southernmost part where the basal sands are found at a depth of about 2,500 feet.

The wells supplying the city of Huntsville draw most of their water from the Catahoula sandstone. The amount of dissolved solids in the water is about 450 parts per million, and the hardness is about 260 parts per million.

Many small-capacity wells and a few small springs in the central part of the county draw their water from the Catahoula sandstone. This sandstone appears to be the most dependable source of small to moderate amounts of ground water in the central and southern parts of Walker County.

Miocene and Miocene (?) series
Oakville sandstone, and Lagarto clay, undifferentiated

The Oakville sandstone of Miocene age, and the Lagarto clay of Miocene (?) age are here undifferentiated because of the difficulty in determining the base of the Lagarto, and in this report they will be referred to as the Oakville and Lagarto sequence.

The Oakville and Lagarto sequence, crops out over most of the southern half of Walker County and has a maximum thickness of about 1,600 feet. The sequence overlies the Catahoula sandstone, probably unconformably. It consists of sands, sandy clays, and clays. Although the lower part is sandy, the sands appear to be lenticular and may not be continuous over large areas. The upper part is predominantly clay.

The Oakville and Lagarto strata furnish water to several small springs and numerous domestic and stock wells which yield only small quantities. From a study of the well records and electrical logs of oil tests, it appears that these strata are capable of producing only small quantities of water in Walker County. The chemical character of the water varies considerably, but on the whole the water is acceptable for most uses.

TERTIARY (?) SYSTEM

Pliocene (?) Series

Willis sand

The Willis sand, which lies unconformably on the Oakville and Lagarto sequence crops out in Walker County in a very small area in the extreme southeastern corner of the county. The formation is of no importance as an aquifer in Walker County, but it is one of the most important fresh-water aquifers in the coastal counties to the south.

QUATERNARY SYSTEM

Recent Series

The deposits of Recent age in Walker County consist principally of alluvial deposits along the valleys of the Trinity and the San Jacinto Rivers. There are a few shallow wells in the alluvial deposits in Walker County, but the deposits are thin and are of little importance as a source of ground water.

DEVELOPMENT OF WATER SUPPLY FROM WELLS

The city of Huntsville is the only large user of ground water in Walker County. The central plant of the State prison and the two prison farms each have only one well. The Country Campus of the Sam Houston State Teachers College has four wells (G-6, G-7, G-8, and G-9), but the use of water is not large. Two lumber mills east of Huntsville, two fuller's earth plants at Riverside, and a cotton gin at New Waverly use small amounts of ground water. In the rural areas most of the water for domestic and stock supply is obtained from shallow wells of low capacity. In some areas of the county cisterns are used for domestic supplies. It is estimated that the total withdrawal of ground water in the county does not exceed 3,000,000 gallons a day.

NORTHWESTERN PART OF THE COUNTY

Most of the wells in the northwestern part of the county are shallow, and they obtain water in small quantities from the sands of the Jackson group and the Catahoula sandstone. The quality of the water varies widely from place to place. The shallow flowing wells yield water of good quality, but many of the shallow dug or bored wells that do not flow yield water so highly mineralized as to be unfit for use.

About 3 miles northwest of Crabbs Prairie, a group of shallow flowing wells, ranging in depth from 12 to 100 feet, have small flows of 2 to 12 gallons a minute. The water is soft and of good quality, containing about 160 parts per million dissolved solids. It probably is obtained from sands of the upper Jackson group. An abandoned oil-test well (F-34), about a mile west of these wells, also flows, but from a sand that is thought to be much deeper. Its water is more highly mineralized, containing 487 parts per million of dissolved solids. Small supplies of water of variable quality may be expected from shallow wells. From a study of the available data, it appears that the only potential source of a relatively large supply of potable water in the northwestern part of the county is the Sparta sand, which occurs at a minimum depth of about 2,000 feet.

NORTHEASTERN PART OF THE COUNTY

The area north of the Trinity River is sparsely populated and consequently there are few wells. These are mostly shallow dug or drilled wells which yield only small supplies of moderately to highly mineralized water from the sands of the Jackson group. Well C-4, originally drilled as an oil test, flows a very small amount of rather highly mineralized water. The well was drilled to a reported depth of 2,800 feet, but the depth to which the well is cased and the depth from which the water is flowing were not ascertained.

In the area northwest of Riverside, south of the Trinity River, a group of wells (C-5 to C-10) draw small supplies of water from the Jackson group.

In the area southwest of Riverside, the Country Campus of the Sam Houston State Teachers College has four wells (G-6 to G-9) ranging in depth from 618 to 735 feet. The wells have been drilled through the Catahoula sandstone and draw water from sands of the Jackson group. The wells yield water in quantities ranging from 125 to 183 gallons a minute. The water is very soft and low in dissolved solids.

East of Huntsville wells G-31 and G-34, 375 and 386 feet deep, respectively, supply lumber mills. These wells furnish small supplies of moderately hard water, probably from the basal sands of the Oakville sandstone.

Northwest of Huntsville, well G-11, 837 feet deep, supplies Wynne State Prison farm and obtains its water from the Catahoula sandstone. The water contains 492 parts per million dissolved solids and has a hardness of 164 parts per million. Small supplies of water of good quality may be expected from wells in the Catahoula, ranging in depth from about 20 to 800 feet. It appears that somewhat larger supplies can be obtained from the Sparta sand at depths of about 2,000 feet in the northern part of the area.

SOUTHERN PART OF THE COUNTY

The wells in the southern part of the county draw water from sands of the Oakville and Lagarto sequence. The water from the shallow wells varies widely in chemical composition. A group of wells along the San Jacinto River, reported to have been drilled as "shot holes" for geophysical exploration, flow small quantities of moderately hard water from the shallow sands. In the summer of 1948, wells J-1, J-2, J-3, and J-4, had estimated flows of 20 to 30 gallons a minute, but well J-15 had an estimated flow of 100 gallons a minute. Several wells of low capacity, ranging in depth from 180 to 300 feet, in the vicinity of New Waverly furnish water that is excessively hard but otherwise of good quality.

From a study of the available data it appears that the southern part of the county has the greatest potentialities for the development of large supplies of ground water. Electrical logs indicate the presence of fresh-water sands to depths ranging from about 1,300 feet at Huntsville to about 2,500 feet at the southern boundary of the county. It appears likely, therefore, that properly developed wells might yield fairly large supplies of water of good quality throughout the southern part of the county.

CITY OF HUNTSVILLE

Huntsville is on the outcrop of the Oakville and Lagarto sequence, about 2 miles south of its contact with the Catahoula sandstone. The city wells draw water from sands in the Oakville sandstone and the underlying Catahoula sandstone at depths ranging from about 230 to 780 feet. The Oakville and Lagarto strata are about 350 feet thick at Huntsville and contribute a relatively small proportion of the city's water supply.

Three wells (fig. 4) were used by the city in 1948. Well 7 (G-22), 673 feet deep, was completed in June 1937. A pumping test was made by the Layne-Texas Company, Ltd., on November 3, 1937. During this test, well 7 yielded 480 gallons a minute with a drawdown of 82 feet, indicating a specific capacity of 5.85 gallons a minute per foot of drawdown. The pumping level was 282 feet below the land surface. On April 3, 1947, the pumping level in the well was 294 feet below the land surface after the pump had been operated for 8½ hours.

Well 8 (G-23) was completed on July 17, 1940. It was drilled to a depth of 1,024 feet but subsequently was plugged back to 713 feet and none of the sands was screened below 710 feet. During a preliminary pumping test by the Layne-Texas Co., Ltd., on June 28, 1940, the well yielded 405 gallons a minute with a drawdown of 85 feet, indicating a specific capacity of 4.76 gallons a minute per foot of drawdown. The static water level on April 3, 1947, was 196.5 feet below the land surface after the pump had been idle for 2 days and well 7 had been pumping for 7½ hours.

Well 9 (G-24), 779 feet deep, was completed in 1947. It is 747 feet south of well 8. During a pumping test by the Layne-Texas Co., Ltd., in September 1947, the well yielded 640 gallons a minute with a drawdown of 57 feet, indicating a specific capacity of 11.23 gallons a minute per foot of drawdown.

The average daily pumpage from all wells in use since 1939 is given, in gallons a day, in the following table:

Table 3.- Average daily pumpage for the city of Huntsville from January 1, 1939 to April 1, 1949

Calendar year	Average daily pumpage (thousand gallons a day)
1939	362
1940	350
1941	323
1942	309
1943	390
1944	401
1945	395
1946	504
1947	560
1948	795
1949, January through March	864

Quality of water.- The results of analyses of water from the city wells and from a tap in the City Hall are given in table 4.

as Board of Water Engineers in cooperation with U. S. Geological Survey

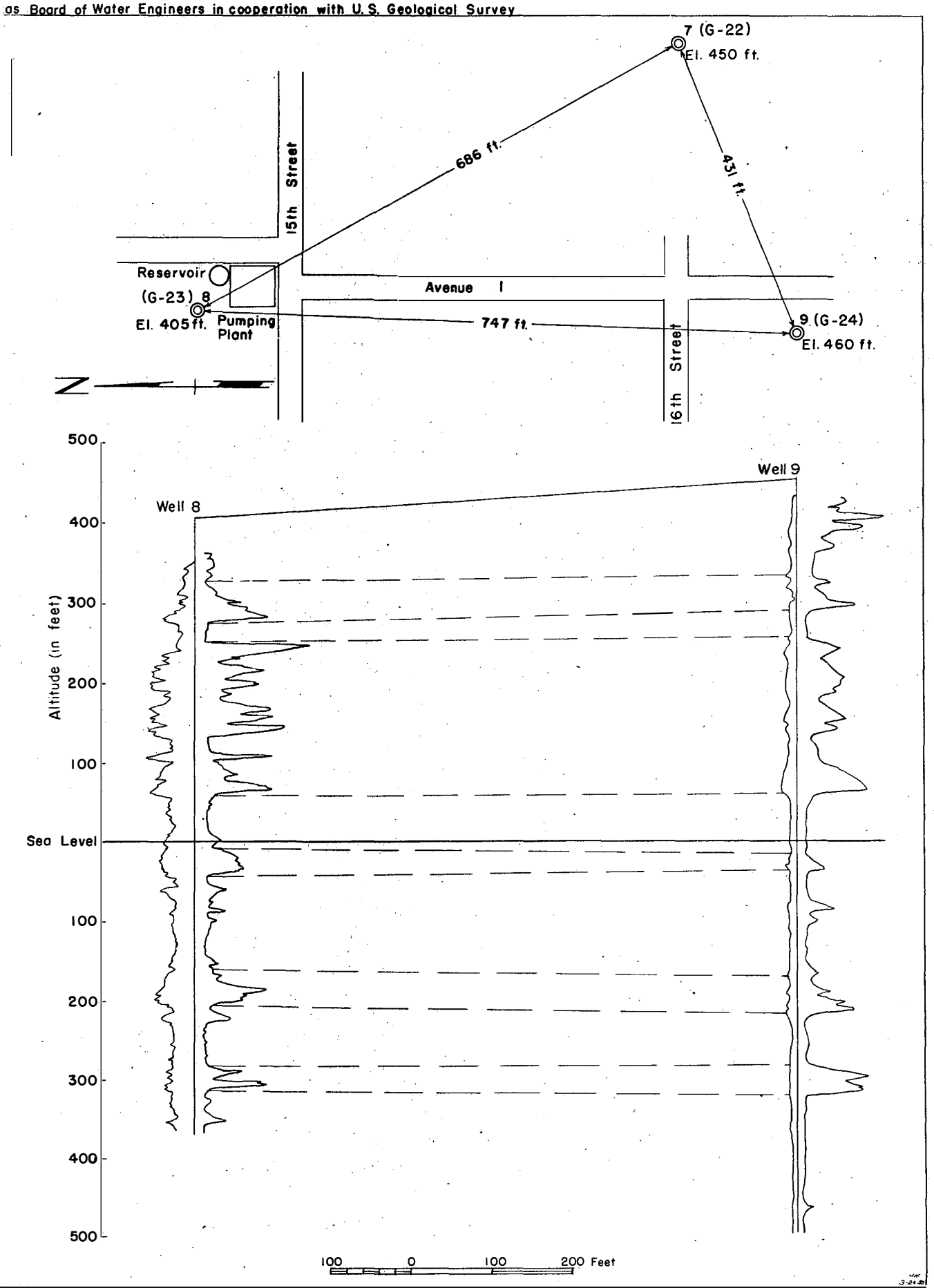


FIGURE 4.-Municipal wells and cross section between wells 8 and 9, Huntsville, Tex.

Table 4.- Chemical analyses of Huntsville public water supply
(Parts per million)

Source	Well 7 (G-22)			Well 8 (G-23)			Well 9 (G-24)	Tap water
Date of collection	Sept. 22, 1941	Feb. 27, 1947 1/	Mar. 3, 1948	Sept. 22, 1941	Feb. 27, 1947 1/	Mar. 3, 1948	Aug. 18, 1948	Mar. 3, 1948
Silica (SiO_2)	57	--	--	52	47	--	64	--
Iron (Fe)	.09	--	--	.07	.14	--	--	--
Calcium (Ca)	96	90	86	90	116	78	110	34
Magnesium (Mg)	3.0	6.0	3.2	2.7	14	2.6	5.9	1.7
Sodium and potassium (Na + K)	52	57	71	51	25	78	37	139
Bicarbonate (HCO_3)	317	--	314	287	342	289	330	276
Sulfate (SO_4)	14	27	20	20	19	34	13	30
Chloride (Cl)	63	--	73	60	--	73	68	89
Fluoride (F)	.3	--	--	.1	--	--	--	--
Nitrate (NO_3)	.5	--	.0	.2	--	.0	.2	.2
Dissolved solids	476	422	480	440	443	482	468	508
Total hardness as $CaCO_3$	253	249	228	231	347	205	299	92

1/ Analysis by Texas State Department of Health.

Water from the Huntsville wells is generally hard. Drill-stem samples taken during construction of well 8 (G-23), in 1940, showed progressively softer water at greater depth. For purposes of comparison, the chemical analyses of six public water supplies obtained from the Catahoula sandstone or the Oakville and Lagarto sequence in Grimes, San Jacinto, and Polk Counties are given in table 5. Anderson, Navasota, and Camden have about the same position as Huntsville in relation to the contact between the Catahoula and Oakville outcrops, whereas Oakhurst, New Willard, and Pointblank are 3 to 4 miles south and down dip from that contact and draw water from the Oakville sandstone. The water in all these supplies is softer than that of Huntsville.

Table 5.- Chemical analyses of Navasota, Anderson, Oakhurst, Pointblank, New Willard, and Camden public water supplies

Source	Navasota (well 8)	Anderson	Oakhurst	Pointblank	New Willard	Camden
Date of collection	Sept. 12, 1942	Jan. 7, 1943	Oct. 1941	Oct. 8, 1946	Oct. 23, 1941	Oct. 23, 1941
Silica (SiO_2)	29	73	61	--	60	48
Iron (Fe)	.10	.00	.18	.04	.40	.14
Calcium (Ca)	21	63	55	24	37	13
Magnesium (Mg)	3.0	5.0	3.6	.8	3.4	2.4
Sodium and potassium (Na + K)	220	121	56	141	29	29
Bicarbonate (HCO_3)	518	254	268	342	128	79
Sulfate (SO_4)	2	25	12	16	8	12
Chloride (Cl)	82	135	28	52	40	19
Fluoride (F)	.3	.1	.4	-	.2	.3
Nitrate (NO_3)	.0	1.5	.0	.2	.0	.0
Dissolved solids	615	576	366	458	241	163
Total hardness as $CaCO_3$	65	178	152	64	107	42
pH	7.8	7.8	-	-	-	-

Pumping test of May 1949.- On May 4, 1949, a short pumping test was made in the well field of the city of Huntsville to ascertain whether the nonequilibrium formula 7/ could be used to determine the coefficients of transmissibility and storage.

The coefficient of transmissibility may be expressed as the amount of water in gallons a day passing through each vertical strip 1 foot wide extending the height of the aquifer under a unit gradient.

The coefficient of storage may be expressed as the amount of water in cubic feet discharged from each vertical column of the aquifer with a base 1 foot square as the water level falls 1 foot. These fundamental hydraulic properties of a water-bearing formation determine the extent to which ground-water levels are lowered by pumping from wells.

If the coefficients of storage and transmissibility are known, the drawdown can be computed for any time and any point on the cone of depression. If the drawdown is known, the coefficients of storage and transmissibility can be computed.

The city wells could be shut down for only short periods of time, owing to the lack of storage facilities at the plant. Prior to the test, all three wells (nos. 7 (G-22), 8 (G-23), and 9 (G-24), in the field were idle for a period of 7½ hours. Careful observations of water levels were made in well 7 before and during the test. During the test, well 8 was pumped at a rate of 730 gallons a minute for 10 hours and the effect of pumping was observed in well 7.

The data obtained from the test and the available information on the characteristics of the aquifer were analyzed and were found to conform generally to the requirements necessary for substitution in the nonequilibrium formula for determining the coefficients of storage and transmissibility. The results of the computations give a coefficient of storage of 0.0037 and a coefficient of transmissibility of 27,400 gallons a day per foot.

It should be borne in mind that the short test gives coefficients of a small portion of the aquifer and at only one locality. However, the coefficients obtained from the test should prove useful in determining the most advantageous spacing for new wells. In using the above coefficients to compute drawdowns on the cone of depression, boundary effects should be taken into consideration when the cone of depression reaches the outcrop, which is about 2 miles north of the well field.

Future development.- From a study of the electrical logs, it appears that fresh water occurs to a depth of about 1,300 feet at Huntsville. However, as the sands dip southward, fresh water may be found at increasingly greater depths south of Huntsville. It appears that wells having yields comparable to or even greater than those now in use could be obtained south of the City. It is probable that water obtained from wells south of Huntsville would be softer than water obtained from the existing wells.

7/ Theis, C. V., The relation between the lowering of the piezometric surface and the rate and duration of discharge of a well using ground-water storage: Am. Geophys. Union Trans., pp. 519-524, 1935.

WELL RECORDS

Table 6. Records of wells in Walker County, Tex.

Method of lift: A, air lift; B, bucket; C, cylinder; Cf, centrifugal; 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; PS, public supply; RR, railroad; S, stock.

a/ Reported by owner or driller.

Well No.	Distance from Huntsville	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			
A-1	18 miles northwest	R. B. Stutts	Neal Drilling Co.	1947	336	4	-35.2	Sept. 3, 1948	None	N	
A-2	15 miles northwest	John C. Woods	Denver West	1934	45	96, 48	-28.1	Sept. 2, 1948	J,E,½	D	Dug.
B-1	13 miles northwest	J. W. Langley	----------	Old	26	24	-24.9	Sept. 8, 1948	B,H	D	Do.
B-2	12½ miles northwest	Falba School	O. Hankton	1922	14	28	- 9.3	do.	None	N	Do.
B-3	12 miles northwest	Lambkin Heirs No. 1	Clark & Cowden Drilling Corp.	1934	5,010	10	-----	----------	----	--	Oil test. See log. For electrical log see plate 2 and figure 4.
B-4	10 miles northwest	Gibbs Bros.	Mike Hogg et al.	1941	7,932	10¾	-----	----------	----	--	Do.
B-5	11 miles northwest	Lucy C. Smith et al., No. 1	do.	1941	7,104	8-5/8	-----	----------	----	--	Oil test. For electrical log see figure 4.
C-1	21¼ miles northeast	Texas State Forest Service	----------	1935	56	5	27.7	Sept. 16, 1948	B,H	D	Bored. Reported sulfur taste.
C-2	17½ miles northeast	D. B. Dewalt	J. I. Odom	Old	38	36	26.5	do.	B,H	D	Dug.
C-3	15¼ miles north	Earl Williamson	----------	1938	26	6	19.2	do.	B,H	D	Bored. Water reported hard.
C-4	14 miles north	H. Thompson	-- Hart	----	2,800	10	Flows	----------	----	S	Reported drilled as oil test. Measured flow 0.5 gallons a minute, Oct. 19, 1948. Sulfur odor.

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

Well No.	Distance from Huntsville	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water level: Below (-) or above (+) land surface (ft.)	Water level: Date of measurement	Method of lift	Use of water	Remarks
C-5	12½ miles north	Gibbs Bros.	J. L. Dunnica	1941	160	6-5/8	a/-65	Sept. 1941	C,W	N	Screen at 141-160 feet. Reported 30 feet of drawdown while pumping 8 gallons a minute. Moss Ranch well. See log.
C-6	12½ miles northeast	John Smither	do.	1939	60	4	a/-24	May 1939	J,G	D,S	Drilled to 209 feet. Cement plug at 60 feet. Screen at 39-40 feet. See log.
C-7	14½ miles northeast	Gabe Smither	do.	1940	180	4	a/-10	Feb. 1940	C,W	D	Screen at 157-174 feet. Sulfur water. See log.
C-8	12 miles northeast	Charles Smither	do.	1940	123	4	a/-41	Jan. 1940	None	N	Screen at 78-85, and 116-122 feet. See log.
C-9	12½ miles northeast	do.	do.	1940	297	4	a/-52	1940	C,W	S	Sulfur water. See log.
C-10	11½ miles northeast	do.	do.	1940	157	4	-----	----------	C,W	D,S	Drilled to 204 feet, plugged back to 157 feet. Screen at 139-155 feet. Sulfur odor. See log.
C-11	9 miles northeast	George Flint	----------	----	29	33	-25.1	Sept. 10, 1948	C,W	S	Dug, uncased.
C-12	23 miles northeast	Texas Long Leaf Lumber Co. No. 1	E. J. Deupree	1940	2,940	---	------	----------	------	----	Oil test. For electrical log see figure 4.
C-13	18 miles north	Texas Long Leaf Lumber Co. No.2-A	Magnolia Petroleum Co.	1946	9,539	---	------	----------	------	----	Do.
C-14	13 miles north	Thompson Bros. Lumber Co. No.1	The Texas Co.	1934	3,304	---	------	----------	------	----	Oil test. See log. For electrical log see plate 2 and figure 4.
C-15	8 miles north	Gibbs Bros.	Ralph E. Davis	1929	3,407	---	------	----------	------	----	See log.
C-16	11½ miles northeast	Gabe Smither et al., No. 1	Indian Petroleum Corp.	1930	3,736	12¼, 10, 8¼, 4½	------	----------	------	----	Do.
C-17	21½ miles northeast	W. A. Reynolds No. 1	Ben G. Barnett	1934	2,121	6-5/8	------	----------	------	----	Do.
C-18	20½ miles northeast	Texas Long Leaf Lumber Co. No. 1	East Texas Producing Co.	1934	2,525	10	------	----------	------	----	Oil test. Drill-stem test from 2,000 to 2,020 feet showed fresh water. All water-bearing sands were reported fresh. See log.
D-1	13 miles northeast	The Milwhite Co.	The Milwhite Co.	1947	395	4	a/-80	Sept. 14, 1948	J,E,1	D,Ind	Temperature, 77½° F.
D-2	12½ miles northeast	Riverside School	J. L. Dunnica	1940	135	4	a/-36	Aug. 1940	J,E,½	P,S	Drilled to 221 feet, plugged back to 135 feet. Screen at 42-47 and 120-130 feet. Strong sulfur odor. See log.

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

Well	Distance from Huntsville	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water level: Below (-) or above (+) land surface (ft.)	Water level: Date of measurement	Method of lift	Use of water	Remarks
D-3	12 miles northeast	The Texas Co.	Sam Dominic	1922	65	36	a/-59	Sept. 14, 1948	C,E,3	D	Dug.
E-1	17 miles northwest	A. Stutts	----------	Old	33	36	-19.2	Sept. 3, 1948	B,H	D	Dug, uncased.
E-2	19 miles northwest	C. V. Crowson	-- Vernon	1940	358	4	a/-70	Feb. 1940	C,W	D,S	Well is in Grimes County.
E-3	18 miles northwest	E. Wooderson	----------	Old	34	40	-28.8	Sept. 3, 1948	B,H	N	Dug.
E-4	13½ miles northwest	C. G. Grant	----------	----	36	6	-28.7	Sept. 1, 1948	B,H	D,S	Bored.
E-5	15 miles northwest	H. McAdams	----------	Old	35	30	-14.6	do.	J,E,1	D,S	Dug.
E-6	12 miles west	G. W. Woods	T. Nichols	1942	19	36	-10.5	Aug. 27, 1948	B,H	S	Dug, uncased.
E-7	17½ miles west	J. E. McGowan	----------	Old	21	36	-16.6	Sept. 1, 1948	B,H	D,S	Dug, uncased. Used by six families.
E-8	13 miles west	Gibbs Bros.	----------	----	----	3	+	----------	Flows	D	Many families haul water from this well. Estimated flow 25 gallons a minute, Aug. 26, 1948. Temp. 68° F.
E-9	15½ miles west	E. J. Sims	R. L. Taylor	1944	204	4,3	a/-90	1944	C,W	D,S	Screen at 184-204 feet.
E-10	do.	J. B. Sandel	----------	Old	90	36	------	----------	J,E,1 C,W	D,S	Dug.
E-11	14½ miles southwest	W. Davis	----------	Old	51	30	-27.3	July 29, 1948	None	N	
E-12	13 miles southwest	F. L. Morgan	R. L. Taylor	1944	243	6	a/-38	1944	C,W	D,S	
E-13	13½ miles northwest	Bishop No. 1	Orr & Jackson	1942	4,059	----	-------	----------	----	----	Oil test. For electrical log see figure 4.
E-14	17 miles west	H. A. Bolden No. 1	Arkansas Fuel Oil Co.	1926	3,505	12½	-------	----------	----	----	Oil test. See log.

Table 6- Records of wells in Walker County--Continued

Well	Distance from Huntsville	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water level: Below (-) or above (+) land surface (ft.)	Water level: Date of measurement	Method of lift	Use of water	Remarks
F-1	13 miles northwest	Louella Stutts	M. Brown	1948	25	6	a/ -18	Apr. 1948	J,E, 1/3	D,S,	Bored.
F-2	do.	P. D. Donovan	----------	1945	182	4	--------	----------	C,H	D,S	
F-3	11 miles northwest	J. H. Rose	J. R. Moore	1948	714	4	a/ -140	June 1948	C,E,1	D,S	Screen at 694-714 feet.
F-4	9½ miles northwest	Ovie Brimberry	Ovie Brimberry	1948	72	1½	+	----------	Flows	Irr	Measured flow 7 gallons a minute, Sept. 2, 1948. Temp. 68° F.
F-5	9 miles northwest	W. A. Stutts	W. A. Stutts	1947	-----	2	+	----------	Flows	D,S	Measured flow 2 gallons a minute, Sept. 2, 1948. Temp. 69° F.
F-6	do.	J. W. Cook	J. W. Cook	1947	42	2	+	----------	C,E	D,S	Estimated 10 gallons a minute, Sept. 2, 1948. Temp. 69° F.
F-7	do.	J. W. Aden	----------	1946	100	3	+	----------	C,E	D,S	Measured flow 12 gallons a minute, Sept. 2, 1948. Temp. 69° F.
F-8	8 miles northwest	W. W. Ballew	M. Brown	1948	45	6	a/ -17	Aug. 1948	C,E, 1/6	D,S	Bored. Reported hard water.
F-9	7 miles northwest	J. A. Helton	----------	1910	23	36	-22.3	Sept. 9,1948	B,H	D,S	Dug.
F-10	do.	C. L. Robinson	----------	1945	120	4	a/ -50	1945	J,E,1	D,S	Screen at 114-120 feet.
F-11	6 miles northwest	Ruby Stampley	J. B. Dickey	----	83	36	-74.2	Aug. 27,1948	C,E,½	D,S	Dug.
F-12	do.	C. S. Cauthen	Sidney Cole	1940	65	4	a/ -55	1940	J,E,½	D,S	Bored.
F-13	5½ miles northwest	M. R. Krumnow	Neal Drilling Co.	1947	400	4	-97.4	Sept. 2,1948	None	N	To be used for stock. 3-inch screen from 370 to 400 feet.
F-14	4 miles northwest	W. S. Gibbs	Gratehouse Bros.	1947	396	4	-103.6	Aug. 26,1948	T,E,½	D	Screen at 206-216 and 386-396 feet. See log.
F-15	do.	S. M. Fraser	S. M. Fraser	1947	34	33	-23.8	do.	B,H	N	Dug.
F-16	5 miles northwest	Charley Wilson	J. Fletcher	1944	34	30	-31.2	Sept. 9,1948	B,H	D,S	Do.
F-17	6½ miles northwest	W. C. Robbins	W. Kerns	1948	243	4,3	a/ -80	Aug. 1948	C,E,1	S	
F-18	9 miles west	Joe Wilson	----------	1948	74	6	-56.8	Sept. 1,1948	B,H	D	Bored.

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

Well	Distance from Huntsville	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water level: Below (-) or above (+) land surface (ft.)	Water level: Date of measurement	Method of lift	Use of water	Remarks
F-19	9 miles west	N. H. Hord	M. Brown	1948	84	6	a/-69	Aug. 1948	B,H	D,S	Bored.
F-20	9½ miles northwest	B. V. Conner	J. Coleman	1929	23	36	-12.4	Aug. 27, 1948	B,H	D,S	Dug.
F-21	9½ miles west	Nathan Hall, Sr., et al., No. 1	Wm. A. Wagner	1937	2,174	--	+	----------	Flows	D	Oil test. Casing removed. Estimated flow 10 gallons a minute, Sept. 1, 1948. Temp. 72½° F. See log.
F-22	8½ miles west	R. P. Heath	R. P. Heath	1941	39	30	-35.2	Aug. 26, 1948	B,H	D,S	Dug.
F-23	10½ miles southwest	L. B. Ross	L. B. Ross	1936	46	36	a/-42	1948	J,E,1	D,S	Do.
F-24	7½ miles southwest	W. S. Gibbs	J. L. Dunnica	1939	205	7.4	a/-47	1939	C,W	D,S	Screen at 118-121 and 188-200 feet. See log.
F-25	6 miles southwest	J. A. Johnson	E. Evans	1941	74	36	-66.9	July 29, 1948	J,E,1	D,S	Dug.
F-26	4½ miles southwest	Colored M. E. Church	do.	1945	69	36	-46.4	do.	B,H	D	Do.
F-27	4 miles southwest	J. D. Lowery	----------	1925	52	36	-48.4	July 20, 1948	B,H	D	Do.
F-28	5 miles southwest	H. F. Lindley	Evans Shaw	1946	92	36	-87.4	do.	J,E,1	D	Do.
F-29	6 miles southwest	K. H. Malone	E. Evans	1942	30	36	a/-25	Oct. 1942	J,E,¼	D,S	Do.
F-30	6½ miles southwest	Hightower Bowden	W. Pegoda	1926	30	28	-28	July 20, 1948	B,H	D	Do.
F-31	2 miles southwest	J. W. Oliphint	Neal Drilling Co.	1947	93	3	a/-71	Oct. 1947	J,E	D	See log.
F-32	8 miles northwest	Gibbs Bros.	----------	----	Spring	--	+	----------	Flows	-----	Moffet Springs.
F-33	10½ miles west	T. B. Davis No. 1	C. W. Markle et al.	1941	2,019	--	-----	----------	-----	-----	Oil test.

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

Well	Distance from Huntsville	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water level: Below (-) or above (+) land surface (ft.)	Water level: Date of measurement	Method of lift	Use of water	Remarks
F-34	10 miles northwest	J. H. Rose	J. E. Winans	1932	3,646	10,8, 6-5/8	+	----------	Flows	N	Oil test. Estimated flow 3 gallons a minute, Nov. 17, 1948. Water shut off below 6-5/8-inch casing. Fresh water flows out between two strings of casing. See log.
G-1	6 miles northwest	R. Jordy	----------	Old	38	48	-27.2	Sept. 8, 1948	B,H	N	Dug.
G-2	7 miles north	F. E. Turner	----------	1945	80	3	a/-20	1945	C,E, 1/3	D,S	
G-3	7½ miles northeast	J. M. O'Banion	J. Jeffrey	1935	70	36	-58.2	Sept.10, 1948	None	N	Dug.
G-4	5½ miles north	Pine Prairie School	----------	----	56	24	-48.6	Sept. 9, 1948	J,E,½	PS	Dug. Supplies school.
G-5	5½ miles northeast	-- Crossan	----------	Old	43	30	-40.4	Sept.10, 1948	B,H	D,S	Dug.
G-6	10 miles northeast	Sam Houston State Teachers College No. 3	The Layne-Texas Co., Ltd.	1943	662	8-5/8, 4½	a/-72 -105.8	Apr. 5, 1943 Oct. 12, 1948	T,E,15	N	Drawdown, 86 feet while pumping 125 gallons a minute, Apr. 5, 1943. See log.
G-7	do.	Sam Houston State Teachers College No. 2	do.	1942	634	8-5/8, 5	a/-99 -123.2	July 30, 1942 Oct. 12, 1948	T,E, 15	PS	Yield 120 gallons a minute, Feb. 25, 1948.
G-8	do.	Sam Houston State Teachers College No. 1	do.	1942	618	8-5/8, 5	a/-90 a/-150 -113.4	Aug. 18, 1942 Feb. 25, 1948 Oct. 12, 1948	T,E,, 15	PS	Drawdown, 70 feet while pumping 183 gallons a minute, Feb. 25, 1948.
G-9	do.	Sam Houston State Teachers College No. 4	do.	1943	735	8-5/8, 4½	a/-77 a/-85 -104.3	Feb. 1943 Feb. 25, 1948 Oct. 12, 1948	T,E, 15	PS	Drawdown, 115 feet while pumping 168 gallons a minute, Feb. 25, 1948.
G-10	3 miles north	F. A. Cooper	----------	Old	30	26	-23.9	Sept. 9, 1948	B,H	D,S	Dug.
G-11	2 miles northwest	State of Texas	----------	1939	837	8	------	----------	J,E, 15	PS	Supplies Wynne State Prison farm.
G-12	1½ miles northwest	W. Y. Allen	----------	1939	25	36	-20.3	Aug. 27, 1948	B,H	D	Used by four families.
G-13	do.	W. S. Gibbs	Gatehouse Bros.	1947	236	4	-58	Sept. 1947	J,E, 1	D,S	Screen at 201-216 feet. See log.
G-14	do.	J. R. King	J. L. Dunnica	1939	116	4	-25	Mar. 1939	None	N	See log.
G-15	2½ miles northeast	Mrs. J. D. Sapaugh	Neal Drilling Co.	1947	186	4	-118	Nov. 1947	J,E, ¾	D	Screen at 174-186 feet. See log.

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

Well	Distance from Huntsville	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water level: Below (-) or above (+) land surface (ft.)	Water level: Date of measurement	Method of lift	Use of water	Remarks
G-16	2 miles northeast	John Lade	J. L. Dunnica	1940	199	-----	a/-114	Sept. 1940	C,E,1	D	Screen at 184-199 feet. See log.
G-17	1¼ miles northeast	D. Hunt	----------	1948	39	3	-35.7	Sept. 9, 1948	J,E,¼	D	Dug.
G-18	4½ miles northeast	State Fish Hatchery	----------	1931	211	6	a/-12	1931	C,E,5	D	
G-19	1¼ miles southwest	L. H. Sandel	L. H. Sandel	1945	52	6	-49.9	July 20, 1948	C,E,½	D	Bored.
G-20	1 mile southwest	C. A. Parkhill	J. L. Dunnica	1940	163	4	a/-86	Apr. 1940	C,E,¼	D	Screen at 142-160 feet. See log.
G-21	In Huntsville	Texas Refrigeration & Ice Co.	West Drilling Co.	1946	322	6	-146.1	July 15, 1948	None	N	Yield too small for practical use. Screen at 160-181, and 251-272 feet.
G-22	do.	City of Huntsville No. 7	The Layne-Texas Co., Ltd.	1937	674	16, 8-5/8	a/-200 -205.6	June 26, 1937 Apr. 8, 1947	T,E,60	PS	Screen between 360 and 659 feet. Drawdown, 82 feet while pumping 480 gallons a minute, Nov. 3, 1947.
G-23	do.	City of Huntsville No. 8	do.	1940	713	16, 10¾	a/-178	June 28, 1940	T,E, 100	PS	Screen between 233 and 710 feet. Drawdown, 85 feet while pumping 405 gallons a minute, June 28, 1940. For electrical log see plate 2 and figure 3. See log.
G-24	do.	City of Huntsville No. 9	do.	1947	779	20, 10¾	--------	----------	T,E, 100	PS	Screen between 227 and 767 feet. Drawdown, 57 feet while pumping 640 gallons a minute, Sept. 1947. For electrical log see figure 3.
G-25	do.	Texas State Prison	T. A. World	1941	587	8, 6	a/-150	1941	T,E,15	PS	Not in use.
G-26	1¼ miles east	E. Johnson	Alec Cooper	1942	54	-----	-53.8	Sept. 9, 1948	B,H	D	Dug.
G-27	2½ miles east	James Gordan	----------	1946	56	-----	-49.4	do.	B,H	D	Bored.
G-28	2 miles southeast	Tom Campbell	J. L. Dunnica	1940	196	-----	a/-149 -144.6	1940 Oct. 18, 1948	C,E,¼	D	See log.
G-29	do.	W. R. Bines	----------	1934	62	36	-20	July 1948	J,E,1	PS	Dug.
G-30	2½ miles southeast	R. Katoaka	Neal Drilling Co.	1945	110	6	a/-55	1945	T,G	Irr	
G-31	2¾ miles east	Minor Bradshaw Lumber Co.	----------	1945	375	7½	--------	----------	A,G	Ind	
G-32	3 miles east	Andy Williams	----------	1917	50	-----	-44.3	Sept. 9, 1948	B,H	D	Bored.
G-33	3½ miles southeast	L. S. Hobby	Moran Oil Co.	1948	147	4	-75.6	July 15, 1948	J,E	D	

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

Well	Distance from Huntsville	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water level: Below (-) or above (+) land surface (ft.)	Water level: Date of measurement	Method of lift	Use of water	Remarks
G-34	5½ miles southeast	M. B. Pursley Lumber Co.	Neal Drilling Co.	1947	386	6	a/-100	1947	Cf,E, 40	D,Ind	
G-35	6 miles southeast	M. B. Cauthen	----------	1936	105	30	- 82.3	May 13, 1948	C,E, ¾	D	Dug.
G-36	6½ miles east	V. Bartee	S. Perry	1945	24	34	-3.3	do.	B,H	D	Do.
G-37	6 miles southeast	Austin Davidson	Austin Davidson	1943	21	32	-7.5	May 14, 1948	B,H	D,S	Do.
G-38	2¼ miles southwest	W. T. Robinson	----------	1940	57	2½	-23.5	Oct. 18, 1948	None	N	
G-39	1¼ miles south	W. R. Johnson	----------	1914	66	34	-8.5	July 16, 1948	None	N	Dug. To be used.
G-40	4 miles southeast	Texas State Prison System	----------	1947	290	6	-------	----------	A,E	PS	Screen at 270-290 feet. Supplies Goree State Prison farm.
G-41	5 miles southeast	Sam Angier	E. Smith	Old	50	-----	-48.2	July 14, 1948	B,H	D,S	Dug.
G-42	10 miles northeast	Eva Gohlman No. 1	S. E. Gray	1935	4,474	10	-------	----------	------	-----	Oil test. See log.
G-43	4½ miles northeast	Gibbs Bros. No. 1	J. M. Wren	1946	5,515	-----	-------	----------	------	-----	Oil test. For electrical log see plate 2.
G-44	5 miles southeast	J. S. Angier No. 1	Hinkle Drilling Co.& R.H.Abercrombie	1948	5,699	10¾	-------	----------	------	-----	Do.
G-45	4½ miles southeast	J. W. Beck No. 1	W. T. Moran, Jr.	1946	2,889	8-5/8	-------	----------	------	-----	See log.
H-1	12½ miles northeast	A. R. Engler	----------	1947	200	4	-56.8	Nov. 2, 1948	J,G	D,S	
H-2	8½ miles northeast	C. Y. Townsley	----------	1947	214	4	a/-107	Sept. 1947	J,E, 2	D,S	
H-3	9 miles east	E. O. Daniels	Lee Taylor	1945	163	-----	--------	----------	J,E	D,S	
H-4	do.	Jim Roberts	Neal Drilling Co.	1947	140	4	a/-72	Aug. 1947	J,E, 1	D	
H-5	9½ miles east	M. B. Cauthen Lumber Co.	M. B. Cauthen	1944	52	36	-50.7	May 11, 1948	B,H	D	Dug.
H-6	10 miles east	Elmer Roark	M. Brown	1948	35	6	-24.2	Sept. 9, 1948	B,H	D	Bored.
H-7	12 miles east	J. H. Farmsworth	----------	1948	48	6	Dry	do.	B,H	D	Do.
H-8	do.	do.	----------	1948	12	3	a/-10	do.	None	N	Do.
H-9	12 miles northeast	Tom Mann	----------	----	Spring	----	-------	----------	----	-----	Estimated flow, 5 gallons a minute, Nov. 1, 1948. Temp. 69 °F.

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

Well	Distance from Huntsville	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water level: Below (-) or above (+) land surface (ft.)	Water level: Date of measurement	Method of lift	Use of water	Remarks
H-10	8¼ miles southeast	M. R. Ellison	J. L. Dunnica	1940	138	4	-97.3	May 11, 1948	None	N	Screen at 122-137 feet. See log.
H-11	11¼ miles east	Cobb Crack School	----------	----	16	24	-7.7	May 10, 1948	None	N	Dug.
H-12	12½ miles east	Carey Land Co. No. 1	Hartman & Page	1948	5,156	10	------	----------	----	-----	Oil test. See log.
I-1	16½ miles southwest	P. B. Parter	----------	----	86	6	-27.0	July 29, 1948	B,H	D,S	Bored.
I-2	15½ miles southwest	Jessie Harman	E. Ready	1929	43	6	-28.3	July 20, 1948	B,H	S	Do.
I-3	17 miles southwest	Welden Hope	----------	----	54	6	-48.8	July 29, 1948	B,H	D,S	Do.
I-4	15 miles southwest	W. M. Pool	W. Davis	1944	31	6	-23.4	do.	B,H	D,S	Do.
J-1	8½ miles southwest	Gibbs Bros.	----------	1938	42	3	+	----------	Flows	N	Drilled by a geophysical crew. Flow estimated 25 gallons a minute, July 22, 1948. Temp. 69° F.
J-2	do.	do.	----------	----	-----	3	+	----------	Flows	N	Drilled by a geophysical crew. Flow estimated 20 gallons a minute, July 20, 1948. Temp. 69½° F.
J-3	do.	do.	----------	----	-----	-----	+	----------	Flows	N	Drilled by a geophysical crew. Flow estimated 30 gallons a minute, July 21, 1948.
J-4	do.	do.	----------	----	-----	-----	+	----------	Flows	N	Drilled by a geophysical crew. Flow estimated 30 gallons a minute, Aug. 31, 1948. Temp. 70½° F.
J-5	8 miles southwest	do.	J. L. Dunnica	1939	196	7	a/-5.0	Sept. 1939	C,G	S	Screen at 174-190 feet. See log.
J-6	7 miles southwest	A. L. Cunningham	O. Mack	1948	15	24	-14.2	July 20, 1948	B,H	D	Dug.
J-7	do.	B. Powells	Neal Drilling Co.	1947	115	3	a/-90	July 1947	C,H	S	
J-8	13 miles southwest	J. J. Walker	W. Davis	1947	53	6	-51.6	July 27, 1948	B,H	D,S	Bored.
J-9	12 miles southwest	Dave Bookman	do.	1948	68	6	-56.8	July 29, 1948	B,H	D	Do.

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

Well	Distance from Huntsville	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water level: Below (-) or above (+) land surface (ft.)	Water level: Date of measurement	Method of lift	Use of water	Remarks
J-10	12½ miles southwest	Ben Ross	W. Davis	1948	87	6	-78.7	July 27, 1948	B,H	D,S	Bored.
J-11	13½ miles southwest	Joe Sanford	----------	----	22	8	-13.9	do.	B,H	D,S	Do.
J-12	12 miles southwest	E. L. Ready	E. L. Ready	1935	62	6	-53.7	do.	B,H	D	Bored. Reported sulfur taste.
J-13	10 miles southwest	-- Smither	----------	1944	59	36	-56.4	July 21, 1948	None	N	Dug.
J-14	8½ miles southwest	M. B. Pegoda	W. Pegoda	1929	15	39	-7.1	July 22, 1948	B,H	D,S	Do.
J-15	11 miles southwest	Mrs. Wince Smith	----------	1940	-----	----	+	----------	Flows	N	Drilled by a geophysical crew. Flow estimated 100 gallons a minute, July 21, 1948. Temp. 68½° F.
J-16	10 miles southwest	S. P. Sandel	----------	----	-----	3	+	----------	Flows	N	Drilled by a geophysical crew. Flow estimated 25 gallons a minute, July 21, 1948. Temp. 69½° F.
J-17	10½ miles southwest	D. Grissom	D. Grissom	1946	49	30	-43.1	July 21, 1948	B,H	D	Dug.
J-18	12½ miles southwest	U. S. Forest Service	----------	1940	14	4	+	----------	Flows	PS	Drilled by a geophysical crew. Flow estimated 30 gallons a minute, July 21, 1948. Temp. 69° F. Supplies park.
J-19	12 miles southwest	Gus Randell	Gus Randell	1947	30	6	-9.5	May 13, 1948	B,H	D,S	Bored.
J-20	11 miles southwest	R. L. Farris	W. Pegoda	1912	54	30	-37.3	July 22, 1948	C,E, 1/3	D,S	Dug.
J-21	7 miles southwest	Gabe Smithers Estate No. 1	Moran Oil Co.	1945	7,240	10¾	-------	----------	------	-----	Oil test. See log.
K-1	4½ miles southeast	J. A. Elkins	----------	----	160	----	a/-19.0	1946	T,E,S	D,S, Irr	
K-2	do.	do.	The Layne-Texas Co., Ltd.	1946	201	4	a/-10.70	Oct. 29, 1946	C,E	D,S	Screen at 181-201 feet.
K-3	7 miles southeast	S. W. Darrell	S. W. Darrell	1947	20	30	-16.7	July 14, 1948	J,E	D,S	Dug.
K-4	do.	Roland M. Lucas	W. Pegoda	1945	65	36	-59.7	May 14, 1948	J,E,½	D	Do.
K-5	10 miles southeast	P. E. Delaney	P. E. Delaney	1936	21	36	-15.8	July 14, 1948	C,H	D,S	Do.

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

Well	Distance from Huntsville	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water level: Below (-) or above (+) land surface (ft.)	Water level: Date of Measurement	Method of lift	Use of water	Remarks
K-6	9 miles southeast	G. G. Buckanan	----------	1931	20	36	-11.0	July 15, 1948	J,E, 1/3	D	Screen at 181-201 feet.
K-7	do.	Mrs. Dora Lee	E. Evans	1929	35	32	-27.6	do.	B,H	D	Do.
K-8	9½ miles south	U. S. Forest Service	----------	----	19	3	+	----------	Flows	N	Drilled by a geophysical crew. Estimated flow 25 gallons a minute, July 21, 1948. Temp. 68° F.
K-9	10½ miles south	C. L. Stewart	C. L. Stewart	1947	17	5	-4.5	May 7, 1948	B,H	D	Bored. Reported sulfur taste.
K-10	11 miles south	-- Stewart	----------	----	30	28	-13.4	May 6, 1948	B,H	D	Dug.
K-11	13½ miles southeast	R. D. Hardy	Neal Drilling Co.	1947	190	64	a/-65.0	June 1947	J,E,½	D	Screen at 180-190 feet.
K-12	do.	New Waverly Gin Co.	----------	1930	190	6	-79.2	May 8, 1948	A,E	Ind	Screen at 172-190 feet.
K-13	13 miles southeast	New Waverly High School	George Crook	1934	180	4	-82.6	May 7, 1948	C,E,3	PS	Screen at 160-180 feet. Supplies two schools and several homes.
K-14	12 miles southeast	Mrs. Annie Campbell	Taylor & Roberts	1912	425	8	a/-95.0	Sept. 1912	None	N	Reported pumped 100 gallons a minute when drilled. See log.
K-15	do.	Lewis Francke	John Pasket	1946	13	24	-8.9	May 14, 1948	B,H	D,S	Dug.
K-16	12½ miles southeast	S. A. Scroggins	----------	1946	239	4	a/-60.0	1946	C,H	D	
K-17	13 miles southeast	W. L. Gregory	W. L. Gregory	1940	82	36	-75.7	May 7, 1948	B,H	D,S	Dug.
K-18	15 miles southeast	Fred Nelson	-- Lowery	1944	180	3½	-------	----------	J,E,1	D,S	Screen at 174-180 feet.
K-19	7½ miles south	T. S. Foster Estate No. 1	B. A. Ferrell	1941	6,159	----	-------	----------	-----	-----	Oil test. For electrical log see plate 2.
K-20	do.	T. S. Foster Estate No. 1	Maren Oil Co & Gar-Flo Oil Co.	1945	6,758	10¾	-------	----------	-----	-----	Oil test. See log.
K-21	6 miles southeast	Gibbs No. 1	E. L. Tissue Drilling Co.	1942	7,500	10¾	-------	----------	-----	-----	Oil test. For electrical log see plate 2.
K-22	11 miles south	Central Coal & Coke Co. No. 1	W. E. Allaum & J. C. Cook Drilling Co.	1944	7,042	9,5½ 2½	-------	----------	-----	-----	Oil test. For electrical log see plate 2. See log.
K-23	14 miles southeast	D. R. Hardy No. 1	H. C. Bishop	1945	7,505	-----	-------	----------	-----	-----	Oil test. For electrical log see plate 2.
K-24	15 miles southeast	G. P. Thompson No. 1	G. W. Strake	1934	4,390	10¾	-------	----------	-----	-----	Oil test. See log.

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

Well	Distance from Huntsville	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			
L-1	12½ miles southeast	C. W. Ellisor	----------	Old	27	36	-25.4	May 10, 1948	B,H	D,S	Dug.
L-2	14½ miles southeast	----------	----------	----	27	9½	-18.4	do.	None	N	Bored.
L-3	16 miles southeast	D. R. Hardy	David Pursley	1939	37	36	-24.1	May 7, 1948	B,H	D	Dug.
L-4	do.	E. L. Hardy	-- Smith	1928	250	4	-75.2	do.	A,G	D,S	
L-5	14 miles southeast	A. J. Murdock	Neal Drilling Co.	1947	300	4	a/-73	Aug. 1947	C,G	D,S	See log.
L-6	16½ miles southeast	W. G. Ellisor	----------	Old	30	----	-19.3	May 7, 1948	C,W	D,S	Dug.

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well B-3, partial log					
Lambkin Heirs No. 1., 12 miles northwest of Huntsville. Driller, Clark & Cowden Drilling Corp.					
Surface	321	321	Shale and sand	131	1,890
Shale and shell	159	480	Shale and shells	34	1,924
Sand and shale	300	780	Shale, sand and shells	96	2,020
Shale	40	820	Sandy shale	35	2,055
Shale and sand	50	870	Sticky shale	20	2,075
Lime, shell, and shale	70	940	Sandy shale and shells	6	2,081
Sandy shale	55	995	Soft sand, brown and dry	57	2,138
Shale, shell, and sand	55	1,050	Blue shale	62	2,200
Sand	90	1,140	Shale and shells	21	2,221
Shale and sand	135	1,275	Blue sand	19	2,240
Shale and shell	246	1,521	Sandy shale	110	2,350
Lime shell	1	1,522	Sticky shale	52	2,402
White sand	8	1,530	Hard lime	2	2,404
Shale and shells	45	1,575	Sand and shale	39	2,443
Broken sand	17	1,592	Shale, sand, and shells	17	2,460
Sticky shale	88	1,680	Lime and shale	5	2,465
Broken sand, and shale	34	1,714	TOTAL DEPTH		5,010
Hard shell	4	1,718			
Sand and shells	41	1,759			
Well B-4, partial log					
Gibbs Bros., 10 miles northwest of Huntsville. Driller, Mike Hogg et al.					
Surface	140	140	Sandy shale with streaks of hard sand	26	1,993
Sand, boulders, and shale	311	451	Sand	7	2,000
Sand	34	485	Sandy shale	57	2,057
Sand, shale, and lignite	38	523	Sand	6	2,063
Shale and sandy shale	263	786	Shale with streaks of sandy shale	63	2,126
Hard sand, broken	62	848	Shale	139	2,265
Shale and sandy shale	500	1,348	Broken sand	33	2,298
Shale and boulders	30	1,378	Sand and sandy shale	350	2,648
Shale	55	1,433	Shale	55	2,703
Shale with streaks of hard sand	55	1,488	Hard sand and shale	65	2,768
Shale and sandy shale	30	1,518	Hard sandy shale with streaks of hard sand	85	2,853
Shale	18	1,536	Sand	12	2,865
Sand, sandy shale, and boulders	99	1,635	Shale with streaks of hard sand	13	2,878
Hard sand	1	1,636	Shale with streaks of sandy shale	40	2,918
Sand and sandy shale	27	1,663	TOTAL DEPTH		7,932
Shale	50	1,713			
Hard sand	6	1,719			
Sand	10	1,729			
Sandy shale	8	1,737			
Sand and sandy shale	63	1,800			
Shale with streaks of hard sand	53	1,853			
Shale	34	1,887			
Sand	9	1,896			
Shale	60	1,956			
Sand with hard streaks	11	1,967			
Well C-5					
Gibbs Bros., 12½ miles north of Huntsville. Driller, J. L. Dunnica.					
Black and yellow surface clay	16	16	Hard gray sand and shale	17	91
Yellow sand	4	20	Broken sand rock	2	93
Hard yellow clay	11	31	Hard gray sand, shale and pyrites	8	101
Yellow and brown clay, and sand	9	40	Hard white sand, shale, and lime	7	108
White water sand	25	65	Lime rock	4	112
Hard blue-gray sand, and shale	7	72	Gray sand	48	160
Sand rock	2	74			

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well C-6					
John Smither, 12½ miles northeast of Huntsville. Driller, J. L. Dunnica.					
Surface clay and gravel	11	11	Blue-gray shale and hard sand	17	152
Broken volcanic rock and shale	12	23	Sand rock	1	153
Blue gravel and shale	5	28	Hard blue shale	8	161
Blue sand and shale	10	38	Blue-gray shale, hard sand, and pyrites	8	169
Blue-gray water sand	10	48	Sandy shale	2	171
Blue sandy shale	12	60	Lime rock	3	174
Lignite	7	67	Blue-gray shale and sand	2	176
Gray shale with lignite streaks	5	72	Blue-gray shaly sand	7	183
Hard blue-gray sand and shale	3	75	Blue-gray shale and sand	2	185
Blue-gray sandy shale	5	80	Blue-gray shaly sand	2	187
Sand rock	3	83	Blue-gray shale	7	194
Brown shale with hard sand streaks	1	84	Brown shale	3	197
Sand rock	2	86	Blue-gray shale	3	200
Blue-gray shale, hard sand, and lime	18	104	Blue-gray sand and shale	9	209
Lignite	7	111	Plugged back to 60 feet.		
Brown shale, sand, and lignite	9	120			
Soft sand rock	2	122			
Gray sand and shale	13	135			
Well C-7					
Gabe Smither, 14½ miles northeast of Huntsville. Driller, J. L. Dunnica.					
Surface clay and volcanic ash	5	5	Gray shaly sand	5	111
Fuller's earth	5	10	Gray sand, shale, and lignite	2	113
Sand	8	18	Hard gray shale	2	115
Lignitic shale	2	20	Gray sand and shale	2	117
Lime rock	1	21	Hard gray shale	5	122
Gray shale	10	31	Sand and shale	6	128
Gray sandy shale	2	33	Hard sand rock	1	129
Gray shale	8	41	Shale	6	135
Gray sandy shale	3	44	Gray-brown shale, lignite, and sand	4	139
Hard shale	17	61	Brown lignite, and shale	5	144
Lime rock	1	62	Fine-grained gray sand	4	148
Gray sand rock	2	64	Shale with streaks of hard sand	4	152
Hard gray shale and sand	2	66	Sand and shale	5	157
Sand rock	4	70	Sand	20	177
Gray sand and shale	17	87	Soft shale and sand	4	181
Hard shale	12	99	Sand	2	183
Gray shale	7	106			
Well C-8					
Charles Smither, 12 miles northeast of Huntsville. Driller, J. K. Dunnica.					
Yellow clay	15	15	Blue sandy shale	13	70
Yellow sandy clay	15	30	Blue sandstone and pyrite	3	73
White lime rock	1	31	Hard shale, sand, and pyrite	1	74
Hard sand rock	6	37	Sand rock and pyrite	5	79
White sand	2	39	Blue-gray sand	6	85
Hard yellow clay	2	41	Blue-gray sand and shale	7	92
Brown sandstone	1	42	Brown and gray sand, shale, and lignite	8	100
Lignite	1	43	Brown and gray sand, and shale streaks	14	114
Hard blue shale	7	50	Brown shale	2	116
Blue sandstone	1	51	Gray sand	6	122
Hard blue shale	4	55	Gray sandy shale	1	123
Blue sandstone	2	57			

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

	Thickness (feet)	Depth (feet)
Well C-9		
Charles Smither, 12½ miles northeast of Huntsville. Driller, J. L. Dunnica.		
Gray surface clay	8	8
Yellow sandy clay	5	13
Yellow sand	3	16
Sandy clay	12	28
Soft sand rock	4	32
Blue sand and shale	12	44
Hard blue sand and shale	2	46
Blue sandstone	4	50
Shale and sand	3	53
Very hard sand rock	8	61
Brown sandy shale	2	63
Lignite, sand, and shale	17	80
Lignite and sand	10	90
Gray sand and shale	15	105
Hard gray shale	5	110
Gray rock	4	114
Hard gray sand and shale	2	116
Gray sand and shale	3	119
Hard gray sand and shale	20	139
Hard gray rock	2	141
Hard gray sand and shale	5	146
Hard gray rock	2	148
Gray shale and sand	4	152
Hard gray sand and shale	13	165
Soft gray sand and shale	2	167
Hard gray sand and shale	4	171
Lignite, sand, and shale	5	176
Brownish-gray lignitic rock	1	177
Brownish-gray shale, sand, and lignite streaks	8	185
Soft sand and lignite	3	188
Hard brownish-gray rock and pyrite	3	191
Blue-gray shale	3	194
Rock, pyrite, and lignite	1	195
Hard blue-gray sand and shale and lignite streaks	9	204
Blue-gray rock and pyrite	1	205
Hard blue-gray sand and shale	1	206
Blue-gray sand and shale	7	213
Blue-gray rock and pyrite	3	216
Blue-gray shale and sand	4	220
Blue-gray rock with pyrite	1	221
Blue-gray shale and sand	2	223
Blue-gray rock	2	225
Blue sand and shale	4	229
Shale	4	233
Rock	2	235
Gray sand and shale	8	243
Gray sand	2	245
Gray sand and shale	5	250
Gray rock	1	251
Blue shale and sand	3	254
Gray shale and sand	12	266
Gray sand	6	272
Gray and blue sand, and shale	13	285
Gray sand	5	290
Gray rock	1	291
Sand and broken hard shale	6	297
Well C-10		
Charles Smither, 11½ miles northeast of Huntsville. Driller, J. L. Dunnica.		
Surface clay	8	8
Yellow sandy clay	5	13
Yellow sand	3	16
Sandy clay	12	28
Soft sand rock	4	32
Blue sand and shale	12	44
Hard blue sand, and shale	2	46
Sandstone	4	50
Shale and sand	3	53
Gray-brown sand rock	8	61
Brown sandy shale	2	63
Lignite, sand, and shale	17	80
Lignitic sand	10	90
Gray sand and shale	15	105
Hard gray shale	5	110
Gray sand rock	4	114
Hard gray sand and shale	2	116
Gray sand and shale	3	119
Hard gray sand and shale	20	139
Hard gray rock	2	141
Hard gray sand and shale	5	146
Hard gray rock	2	148
Gray shale and sand	4	152
Hard gray sand and shale	13	165
Soft gray sand and shale	2	167
Hard gray sand and shale	4	171
Lignite, sand, and shale	5	176
Rock and lignite	1	177
Shale, sand, and lignite streaks	8	185
Soft brownish-gray sand and lignite	3	188
Hard brownish-gray rock with pyrite	3	191
Blue-gray shale	3	194
Rock with pyrite and lignite	1	195
Hard blue-gray sand and shale with streaks of lignite	9	204
Plugged back to 157 feet.		

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

	Thickness (feet)	Depth (feet)

Well C-14, partial log

Thompson Bros. Lumber Co. No. 1, 13 miles north of Huntsville. Driller, The Texas Company.

Clay	8	8
Sand	10	18
Lignite	3	21
Sticky shale	27	38
Shale and shells	197	235
Gumbo	27	262
Sticky shale	5	267
Gummy shale	65	332
Shale and shells	23	355
Gumbo and shale	7	362
Gummy shale	148	510
Gummy shale and sand	60	570
Shale with streaks of shells	121	691
Gummy shale	114	805
Shale with streaks of shells	80	885
Gumbo	45	930
Sand	30	960
Sand and shale	90	1,050
Gummy shale	50	1,100
Shale	20	1,120
Gummy shale	25	1,145
Shale with streaks of sandy shale	35	1,180
Gummy shale	65	1,245
Sandy shale with streaks of lignite	45	1,290
Rock	1	1,291
Gummy shale	69	1,360
Sandy shale and volcanic ash	20	1,380
Sandy shale, lignite, and volcanic ash	20	1,400
Sandy shale and lignite	20	1,420
Gummy shale	30	1,450
Sandy shale	28	1,478
Dry sand	18	1,496
Sandy shale	44	1,540
Gumbo	26	1,566
Shale with streaks of shell	44	1,610
Gummy shale	84	1,694
Gummy shale with streaks of shells	25½	1,719½
Sand	½	1,720
Dry sand	20	1,740
Gummy shale	55	1,795
Gumbo with streaks of shale	20	1,815
Cap sand and shells	2	1,817
Broken sand and shale with shells	18	1,835
Gummy shale	20	1,855
Sandy shale	20	1,875
Gummy shale	25	1,900
Gummy shale and shells	40	1,940
Gummy shale	15	1,955
Shale and shells	5	1,960
Gummy shale	95	2,055
Rock	1	2,056
Gumbo	24	2,080
Gummy shale	20	2,100
Sandy shale and shells	170	2,270
Gummy shale	39	2,309
Coarse sand	5	2,314
Shale with gummy streaks	17	2,331
Gummy shale	23	2,354
Sandy shale and lime shells	69	2,423
Gummy shale	57	2,480
Sandy shale with streaks of shale	10	2,490
Gummy shale	10	2,500
Sandy shale	83	2,583
TOTAL DEPTH		3,304

Well C-15, partial log

Gibbs Bros., 8 miles north of Huntsville. Driller, Ralph E. Davis.

Surface soil	30	30
Sand and shale	75	105
Sand and gumbo	75	180
Lignite	10	190
Sand	35	225
Gummy shale	45	270
Sand	90	360
Gummy shale	40	400
Mucky shale	200	600
Gumbo	20	620
Sandy shale	80	700
Gumbo	10	710
Gummy shale	120	830
Gumbo	100	930
Sand and shale	10	940
Mucky shale	12	952
Gummy shale	86	1,038
Gumbo	30	1,068
Shale	7	1,075
Sandy shale	10	1,085
Mucky shale	83	1,168
Gumbo	10	1,178
Mucky shale	22	1,200
Gumbo	24	1,224
Sand rock	1	1,225
Sand	4	1,229
Gumbo	31	1,260
Sticky shale	40	1,300
Gumbo	18	1,318
Sand	2	1,320
Sand, tested salt water	10	1,330
Sand	15	1,345
Shale	25	1,370
Gumbo	10	1,380
Gumbo and shale	12	1,392
Sand rock	1	1,393
Sand and shale	5	1,398
Sandy shale	50	1,448
Mucky shale	2	1,450
Shale	10	1,460
Gumbo	15	1,475
Sticky shale	15	1,490
Gumbo	50	1,540
Gummy shale	100	1,640
Shale	20	1,660
Gumbo	5	1,665
Sticky shale	45	1,710
Gumbo and shale	110	1,820
Rock	1	1,821
Sand, tested small amount of gas and salt water	2	1,823
Sand and boulders	7	1,830
Packsand and boulders	74	1,904
Sticky shale	56	1,960
Gumbo	2	1,962
Rock	1	1,963
Sandstone	3	1,966
Sand rock, tested salt water	40	2,006
Gumbo	16	2,022
Shale	8	2,030
Gumbo	11	2,041
Rock	1	2,042
Gumbo	33	2,075
Shale	15	2,090
Gumbo	9	2,099
Rock	1	2,100
TOTAL DEPTH		3,407

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

	Thickness (feet)	Depth (feet)
Well C-16, partial log		
Gabe Smither et al. No. 1, 11½ miles northeast of Huntsville. Driller, Indian Petroleum Corp.		
Surface soil	5	5
Altered fuller's earth	20	25
Impure fuller's earth with shale streaks	10	35
Impure fuller's earth	20	55
Impure fuller's earth with silt	5	60
Impure fuller's earth, green clay, and shale	10	70
Impure fuller's earth	10	80
Impure fuller's earth with small pebbles	10	90
Impure fuller's earth	10	100
Impure fuller's earth, glauconite with pebbles, lower part light-gray, sandy volcanic ash	30	130
Gray, pyritic micaceous sand, silt, and plant remains; carries water	40	170
Gray sandy shale	10	180
Grayish-brown sandy micaceous shale	20	200
Bluish-gray sandy shale	20	220
Brown lignitic sandy shale	20	240
Lignitic blue shale	25	265
Light-blue sandy shale with thin lignite layers	135	400
Light-gray clay	65	465
Gray water sand	10	475
Gray pyritic water sand	4	479
Lignitic clay	6	485
Lignitic brown shale	10	495
Light lignitic sandy brown shale	13	508
Pyritic gray sand with faint show gas; water	6	514
Sandy lignitic shale	6	520
Fine-grained gray sand	8	528
Brown lignitic clay	42	570
Gray sand	1	571
Gray sandy shale	3	574
Black lignitic clay and shale with coal streaks	6	580
Sandy lignitic shale	25	605
Gray water sand	4	609
Lignitic sandy shale	8	617
Sandy lime	3	619
Gray sandy shale	29	648
Gray lignitic sandy shale	12	660
Hard platy lignitic shale	10	670
Hard gray sandy shale with thin lignite layers	57	727
Brown carbonaceous sand	5	732
Gray sand; slight gas show	3	735
Brown carbonaceous sand	20	755
Brown lignitic shale and clay	25	780
Brown alternate layers of lignite, clay, and shale	48	828
Gray water sand; good show gas at top	12	840
Brown pyritic lignitic shale	12	852
Brown lignitic shale and gray sandy shaly clay	23	875
Brown shale and green clay with thin lignitic layers	25	900
Light-green shale with thin layers of lignite	40	940
Sand with thin streaks of sandy shale	3	943
Loose gray sand, carrying water and gas	17	960
Gray lignitic clay	20	980
Gray sandy clay	15	995
Light-green shale	2	997
Light-green sandy shale	8	1,005
TOTAL DEPTH		3,736
Well C-17, partial log		
W. A. Reynolds No. 1, 21½ miles northeast of Huntsville. Driller, Ben G. Barnett.		
Sand	47	47
Gray shale	8	55
Lignite and sand	15	70
Soft sand	5	75
Sand and shale	58	133
Gray sand and blue shale	47	180
Sticky shale	9	189
Soft blue shale	6	195
Soft blue sandy shale	19	214
Shale	6	220
Hard gray-brown sand, showing gas	2	222
Soft blue-gray sandy shale	8	230
Hard sand	2	232
Hard blue gray sand	2	234
Soft blue shale	19	253
Medium blue gray sand	3	256
Soft blue-gray shale	32	288
Hard sand	4	292
Sticky blue-gray shale	88	380
Blue-gray sandy shale	69	449
Soft blue-gray sandy shale	6	455
Sticky blue shale	10	465
Sandy shale	60	525
Sticky blue shale	10	535
Blue-gray sandy shale	135	670
Medium gray sand	2	672
Soft blue-gray sandy shale	33	705
Hard gray sand	5	710
Soft blue-gray sandy shale	8	718
Gray sandy shale with lignite	13	731
Sticky gray shale	17	748
Soft gray sand	6	754
Sticky gray shale	2	756
Hard gray sand	3	759
Sticky gray shale	11	770
Soft gray sand	2	772
Hard lime	3	775
Sticky gray shale	94	869
Blue and brown shale and broken lime	9	878
Sticky blue-gray shale	57	935
Gray sandy shale	15	950
Sticky blue shale	72	1,022
TOTAL DEPTH		2,121

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

	Thickness (feet)	Depth (feet)
Well C-18		
Texas Long Leaf Lumber Co. No. 1, 20½ miles northeast of Huntsville. Driller, East Texas Producing Co.		
Surface clay and sand	115	115
Shale	115	230
Water sand	10	240
Shale	58	298
Shell	1	299
Shale	59	358
Shell	202	560
Sticky shale	225	785
Shale and shells	120	905
Shale	125	1,030
Shale and gravel	15	1,045
Shell	1	1,046
Shale	18	1,064
Shells	6	1,070
Blue sandy shale	120	1,190
Hard shell	4	1,194
Blue shale	16	1,210
Shale and shells	2	1,212
Shale	38	1,250
Shale and shells	52	1,302
Sticky shale	46	1,348
Hard shells	2	1,350
Sticky shale	10	1,360
Shale	29	1,389
Shell	1	1,390
Shale	7	1,397
Shell	1	1,398
Shale	39	1,437
Shell	1	1,438
Shale	27	1,465
Shell	1	1,466
Shale	7	1,473
Shell	1	1,474
Shale	3	1,477
Shell	1	1,478
Shale	84	1,562
Shell	1	1,563
Tough shale	22	1,585
Shell	1	1,586
Shale	14	1,600
Shale and shells	20	1,620
Shale	12	1,632
Shell	2	1,634
Shale and shells	13	1,647
Shale	33	1,680
Shale and shells	109	1,789
Shale	6	1,795
Shell	2	1,797
Shale	8	1,805
Blue shale	25	1,830
Hard shale	2	1,832
Sand and shale	33	1,865
Shale, sand, and shells	29	1,894
Broken shale	6	1,900
Gray sand	17	1,917
Gray sand, tight and fine	12	1,929
Dark sand, tight and fine	11	1,940
Dark-gray sand	54	1,994
Sand with blue and brown shale streaks	6	2,000
Gray sand, and brown and blue shale	10	2,010
Gray sand and shale	10	2,020
Drill stem test from 2,000 feet to 2,020 feet showed 180 feet fresh water in 6-inch OD drill pipe		
Gray sand with lignite spots	10	2,030
Gray sand with dark brownish ash or lignite	5	2,035
Coarse-grained gray sand	5	2,040
Dark-blue and brown shale	5	2,045
Gray, fine-grained soft sand	5	2,050
Gray sand changing to sandy shale	10	2,060
Blue shale	5	2,065
Sticky blue shale	5	2,070
Gray sandy shale	4	2,074
Gray sand and sandy shale	6	2,080
Gray sandy shale	5	2,085
Brown shale	45	2,130
Gumbo	8	2,138
Hard shell	1	2,139
Brown shale	8	2,147
Hard shell	1	2,148
Shale	19	2,167
Sand and shells	1	2,168
Sand with cemented fossils	13	2,181
Fossils, soft and darker than above with less sand and more lignite	1	2,182
Green sand with fossils	3	2,185
Brown shale and lignite	5	2,190
Gray sand with pyrite fossils	5	2,195
Greenish-gray sand	35	2,230
Soft brown shale	5	2,235
Green shale and gray sandy shale	5	2,240
Brownish-gray hard lime	10	2,250
Brown shale with few shells	50	2,300
Shale and shells	5	2,305
Hard shale and shells	3	2,308
Brown shale with streaks of green sand and pyrite	4	2,312
Brown shale with streaks of gray sand	4	2,316
Brown sandy shale with lignite streaks	4	2,320
Gray sand, streaked with shale and brownish sand with lignite and crystals of pyrite	10	2,330
Soft gray sand	10	2,340
Brown shale	7	2,347
Brown lime shell	2	2,349
Brown shale	11	2,360
Gray sand	10	2,370
Brown shale	110	2,480
Shale and shells	20	2,500
Hard shell lime	2	2,502
Shale and shells	23	2,525
This well showed no oil or gas; only fresh water was reported.		

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well D-2					
Riverside School, 12½ miles northeast of Huntsville. Driller, J. L. Dunnica.					
Surface clay	2	2	Greenish-gray shale with pyrite	26	160
Fuller's earth and clay	10	12	Blue sand and shale	8	168
Sand rock	1	13	Blue-green shaly sand	3	171
Fuller's earth with streaks of sand	13	26	Blue-green sand and shale	7	178
Fuller's earth and blue shale	4	30	Hard blue-green shale and sand with pyrite	12	190
Blue-white shale with hard sand streaks	11	41	Sand rock	1	191
Hard blue sand and shale	3	44	Tough blue-green shale	6	197
Hard sand	1	45	Blue-green sand and shale	3	200
Hard sand rock	8	53	Blue-green shaly sand	6	206
Sand rock	1	54	Blue-green shale	1	207
Shale	4	58	Blue-green sand	5	212
Sand and shale	4	62	Shale and sand	1	213
Hard shale	9	71	Sand	4	217
Blue and gray shale and sand	14	85	Shale	4	221
Rotten blue-gray sandy shale	15	100	Plugged back to 135 feet.		
Hard gray shale	4	104			
Greenish-gray sand and shale	6	110			
Greenish-gray shaly sand	24	134			
Well E-14, partial log					
H. A. Bolden No. 1, 17 miles west of Huntsville. Driller, Arkansas Fuel Oil Co.					
Surface clay	8	8	Gummy shale	118	343
Clay	20	28	Water sand	50	383
Shale and lignite	7	35	Gummy shale	107	490
Shale	5	40	Sand	20	510
Shale and boulders	14	54	Sand and shale	10	520
Sand	14	68	Gummy shale	43	565
Sand rock	2	70	Gumbo	15	580
Hard sand rock	10	80	Gummy shale	225	805
Rock	4	84	Sand	15	820
Gummy shale	66	150	Gummy shale	61	881
Rock	3	153	Sand	8	889
Gummy shale	70	223	Gummy shale	162	1,051
Rock	2	225	TOTAL DEPTH		3,505
Well F-14					
W. S. Gibbs, 4 miles northwest of Huntsville. Driller, Gratehouse Bros.					
Clay	230	230	Shale	87	359
Sand	42	272	Blue sand	37	396
Well F-21					
Nathan Hall, Sr., et al. No. 1, 9½ miles west of Huntsville. Driller, Wm. A. Wagner.					
Clay	17	17	Shale	45	710
Sand and clay	31	48	Shale with streaks of sand	66	776
Clay	15	63	Shale	23	799
Shale and boulders	80	143	Sticky shale	108	907
Sand	26	169	Soft shale	23	930
Shale and sand	25	194	Sticky shale with streaks of hard lime	44	974
Sticky shale	86	280	Sticky shale	23	997
Sand and shale	63	343	Tough brown shale	194	1,191
Sand	65	408	Sticky shale	9	1,200
Sticky shale	44	452	Hard sand	14	1,214
Hard sandy shale	22	474	Shale	108	1,322
Sand	43	517	Sand	12	1,334
Shale	61	578	Hard shale with sticky streaks	56	1,390
Shale and sand	66	644	Sandy shale	4	1,394
Sticky shale	21	665			

(Continued on next page)

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well F-21--Continued					
Hard dry shale	6	1,400	Hard sand	4	1,810
Sticky shale	39	1,439	Sand and boulders	101	1,911
Hard sand and shale	5	1,444	Tough sticky shale	10	1,921
Sandy shale	16	1,460	Sand	13	1,934
Sticky shale	14	1,474	Sticky shale	15	1,949
Sticky shale and sand	64	1,538	Sand	17	1,966
Sand	11	1,549	Sticky shale	11	1,977
Sticky shale	15	1,564	Gumbo	38	2,015
Sand, shale, and shell	44	1,608	Sand	12	2,027
Sand	23	1,631	Sticky shale	5	2,032
Shale	59	1,690	Sandy shale	124	2,156
Shale and lime	56	1,746	Sticky shale	10	2,166
Sandy shale	60	1,806	Sandy shale	8	2,174
Well F-24					
W. S. Gibbs, 7½ miles southwest of Huntsville. Driller, J. L. Dunnica.					
Surface clay	10	10	Gray lime and shale	2	118
White sand	10	20	Gray water sand	3	121
White and yellow sand and clay	24	44	Broken lime rock	4	125
Blue shale	11	55	Blue-gray sand, shale, and lime	5	130
Hard rock	2	57	Gray sand	2	132
Blue shale	1	58	Blue shale	2	134
Blue sand rock	4	62	Blue sand and shale	2	136
Blue-gray hard sand and shale	5	67	Broken lime and rock	4	140
Blue sandstone	2	69	Blue-green sand and shale	6	146
Blue-gray hard sand and shale	3	72	Green sandstone	2	148
Blue-gray sand and shale	5	77	Greenish-gray hard sand and shale	11	159
Blue sandstone	1	78	Gray sandstone	2	161
Blue-gray sand and shale	9	87	Greenish-blue sand and shale	8	169
Gray water sand	3	90	Broken rock and gravel	4	173
Blue shale	3	93	Gray hard sand and shale	7	180
Blue shaly sand	10	103	Brownish-gray sand	25	205
Blue sand and shale	13	116			
Well F-31					
J. W. Oliphint, 2 miles southwest of Huntsville. Driller, Neal Drilling Co.					
Shale	12	12	Shale	5	76
Sand	3	15	Sand	1	77
Shale	26	41	Shale	2	79
Sand	2	43	Sand	5	84
Shale	26	69	Shale	1	85
Sand	2	71	Sand	8	93

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well F-34, partial log					
J. H. Rose, 10 miles northwest of Huntsville. Driller, J. E. Winans.					
Topsoil and sand	60	60	Shale	10	574
Water sand	36	96	Tough gumbo	6	580
Lignite	8	104	Shale	12	592
Sand rock; gas and oil showing	2	106	Lignite	6	598
Shale	34	140	Sandy shale	4	602
Hard sand	2	142	Hard sand	10	612
Lignite	12	154	Green sand	12	624
Black shale	30	184	Green sandy shale	22	646
Sand	14	198	Green shale	10	656
Sticky shale	11	209	Sand	10	666
Sand rock	1	210	Shale	8	674
Sandy shale	36	246	Sandy shale	14	688
Sticky shale	44	290	Shale and sand	22	710
Brown shale	20	310	Sandy shale	20	730
Shale, boulders, and lignite	24	334	Lignite and shale	10	740
Tough gumbo	22	356	Shale and sand	12	752
Gray packsand	18	374	Fine-grained sand and shale	22	774
Green shale	2	376	Black bituminous and shale	36	810
Lignite, oil show	12	388	Lignite and sandstone	8	818
Gumbo and green shale	4	392	Coal and sand	16	834
Green sticky shale	4	396	Boulders	1	835
Sand, gas show	24	420	Gumbo and green shale	6	841
Shale and lignite	22	442	Green sandy shale and lignite	12	853
Tough sticky shale	22	464	Green and black shale	7	860
Sticky shale	10	474	Blue gumbo	22	882
Lignite	6	480	Gumbo	8	890
Shale	6	486	Shale with streaks of sand	12	902
Dark shale	10	496	Dark sandy green shale	22	924
Gumbo and sticky shale	12	508	Green shale, gas and oil show	8	932
Sandy shale	22	530	Green sandy shale and shells	28	960
Shale and gumbo	12	542	Gumbo	24	984
Shale	6	548	Green shale	6	990
Sand	10	558	Blue tough gumbo	32	1,022
Green shale	6	564	TOTAL DEPTH		3,646
Well G-6					
Sam Houston State Teachers College No. 3, 10 miles northeast of Huntsville. Driller, The Layne-Texas Co.					
Surface soil	4	4	Hard shale	85	380
Sand	16	20	Blue shale	50	430
Shale	16	36	Sandy shale	24	454
Rock	4	40	Hard shale	96	550
Shale	225	265	Sandy shale	10	560
Sandy shale	10	275	Sand	30	590
Shale and boulders	10	285	Shale	41	631
Rock	10	295	Sand	31	662
Well G-13					
W. S. Gibbs, 1½ miles northeast of Huntsville. Driller, Gratehouse Bros.					
Surface clay	20	20	Shale	14	144
Sand	39	59	Sand	33	177
Shale	59	118	Blue shale	12	189
Fine-grained sand	12	130	Blue sand	47	236

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well G-14					
J. R. King, 1½ miles northeast of Huntsville. Driller, J. L. Dunnica.					
Red surface sand and clay	10	10	White and gray shale and lime	3	81
Reddish water sand	28	38	Hard sandstone	7	88
Yellow fuller's earth	13	51	Gray shale and sand	2	90
Gray sand and shale	16	67	Gray sand and gravel	5	95
Soft sandstone	3	70	Gray sand	11	106
Gray shale	2	72	Yellowish sandy shale	10	116
Soft sandstone	6	78			
Well G-15					
Mrs. J. D. Sapaugh, 2½ miles northeast of Huntsville. Driller, Neal Drilling Co.					
Sand and shale	18	18	Sand	1	152
Sand	20	38	Shale	6	158
Shale	44	82	Sand	1	159
Sand	10	92	Shale	1	160
Shale	57	149	Sand	2	162
Sand	1	150	Shale	1	163
Shale	1	151	Sand	23	186
Well G-16					
John Lade, 2 miles northeast of Huntsville. Driller, J. L. Dunnica.					
Red surface sand and clay	13	13	White and gray shaly water sand	20	118
Red sand	5	18	White and gray lime rock, sand, and shale	23	141
White clay	8	26	White and gray hard shale with lime streaks	18	159
White sand	5	31	Blue sand and shale	7	166
White clay	18	49	Hard blue shale	8	174
White sand with clay streaks	9	58	Gray water sand	25	199
White clay	9	67			
White sand and clay	9	76			
Gray shale	2	78			
White lime rock	1	79			
White and gray sand, shale and lime	19	98			
Well G-20					
C. A. Parkhill, 1 mile southwest of Huntsville. Driller, J. L. Dunnica.					
Red surface sand and clay	8	8	Yellow sand and clay	5	80
Red sand	6	14	Yellow fuller's earth	15	95
Brown gravel and sand	6	20	Lime rock	8	103
White sand and clay	14	34	Blue sand and shale	9	112
White clay	9	43	Hard broken rock	2	114
White sand and clay	2	45	Hard blue sand and shale	10	124
White rock	1	46	Gray sand	4	128
Gray sand, shale, and lime	20	66	Gray sand and shale	2	130
Gray sand and shale	5	71	Gray sand	2	132
Lime rock	1	72	Gray shale	1	133
Yellow fuller's earth	3	75	Gray sand	30	163

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

	Thickness (feet)	Depth (feet)
Well G-23		
City of Huntsville No. 8, in Huntsville. Driller, The Layne-Texas Co., Ltd.		
Filled in gravel, cinder, clay, and sand	15	15
Sand	16	31
White clay	25	56
Brown and white clay	27	83
Sandy clay	7	90
Clay	12	102
Clay and sandy clay	24	126
Sandy shale	16	142
Sand with shale	41	183
Sand and shale	18	201
Shale	18	219
Sand and shale	23	242
Shale	5	247
Sand	10	257
Shale	13	270
Sandy shale	5	275
Shale	5	280
Sand	8	288
Shale	10	298
Blue shale with layers of sand	24	322
Blue shale with hard layers	14	336
Shale	25	361
Shale with strips of sand	32	393
Shale	11	404
Shale with thin layers of sand	24	428
Hard shale	17	445
Shale with layers of sand	15	460
Hard shale	14	474
Sandy shale	5	479
Hard shale	13	492
Hard shale and sand	37	529
Shale and sand	38	567
Sand	29	596
Shale	5	601
Sand and shale	38	639
Sand	9	648
Shale with strips of sand	20	668
Shale and sand	37	705
Shale	7	712
Sand	5	717
Sandy shale	14	731
Shale	7	738
Sand and shale	10	748
Shale	8	756
Shale with thin layers of sand	31	787
Shale	15	802
Hard shale	20	822
Sandy shale	22	844
Hard sand	11	855
Sandy shale	51	906
Fine-grained sand	11	917
Sandy shale	12	929
Hard shale	5	934
Sandy shale	9	943
Sand	6	949
Shale	12	961
Sand	18	979
Rock	1	980
Hard shale	12	992
Hard sandy shale	24	1,016
Hard shale	8	1,024
Plugged back to 713 feet		

	Thickness (feet)	Depth (feet)
Well G-28		
Tom Campbell, 2 miles southeast of Huntsville. Driller, J. L. Dunnica.		
Red surface sand and clay	23	23
Red sand and clay	15	38
Red sand	10	48
Red clay	6	54
White sand	6	60
Red and gray clay	4	64
White sand	2	66
Red and green clay and conglomerate	35	101
Hard gray sand and shale	15	116
Gray sand and shale	9	125
Gray shaly sand	3	128
White lime rock	6	134
Red and white shale and lime	27	161
Sand and shale	3	164
White sand	28	192
Shale	4	196
Well G-42, partial log		
Eva Gohlman No. 1, 10 miles northeast of Huntsville. Driller, S. E. Gray.		
Surface material	145	145
Sand and shale	220	365
Sand rock	2	367
Green shale and sand	470	837
Hard shale	168	1,005
Green shale	51	1,056
Rock	3	1,059
Sand	9	1,068
Sticky shale	184	1,252
Rock	1	1,253
Sticky shale	22	1,275
Green shale	65	1,340
Sandy shale	30	1,370
Hard shale and shells	82	1,452
Hard shale	8	1,460
Green sticky shale and some shells	118	1,578
Sticky shale	10	1,588
Hard shale and lignite	10	1,598
Shale and lime	68	1,666
Lime water sand and coal	30	1,696
Hard shell	1	1,697
Shale, sand, and lime	34	1,731
Brown sticky shale with green streaks and shells	216	1,947
Rock	1	1,948
Gray sand, brown and green shale, and shells, and lignite	74	2,022

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

	Thickness (feet)	Depth (feet)
Well G-42, partial log--Continued		
Brown sticky shale and shells	196	2,218
Brown and blue shale with some shells	117	2,335
Hard sandy shale with iron pyrites and soft sand	56	2,391
Water sand	2	2,393
Green shale	11	2,404
Brown shale, lignite and lime	14	2,418
Hard lime	2	2,420
Soft water sand	17	2,437
Sand and shale	66	2,503
Sand rock	1	2,504
Gray sand, sandy shale, and shells	36	2,540
Hard lime	1	2,541
Sand	14	2,555
Shale	34	2,589
Hard lime, shale, and shells	10	2,599
Soft sand	2	2,601
Soft gray sand and brown sandy shale	9	2,610
Shale with streaks of lime	56	2,666
Brown shale with shells and streaks of brown lime	9	2,675
Brown shale, lime, shells, sticky shale, iron pyrites, and lignite	80	2,755
Hard sticky shale with lime streaks	109	2,864
Lime rock	1	2,865
Sticky shale	95	2,960
Hard sand with sticky shale on bottom	8	2,968
Shale	5	2,973
Sticky shale, iron pyrites, lime, and hard shale	72	3,045
Sticky shale	58	3,103
Green shale and shells	27	3,130
Sticky shale, lime, and iron pyrites	70	3,200
Sticky shale	34	3,234
Gray shale	5	3,239
Shale	11	3,250
Water sand	66	3,316
Sticky shale	10	3,326
Sand	3	3,429
Sand and shale	9	3,338
Sticky shale, pyrite, lime, green shale, and sand	33	3,371
Sticky shale	17	3,388
Sand rock	4	3,392
Sand rock, green shale, lignite lime, and brown shale	40	3,432
Sticky shale	71	3,503
TOTAL DEPTH		4,474

Well G-45

J. W. Beck No. 1, 4½ miles southeast of Huntsville. Driller, W. T. Moran, Jr.

Sand and clay	620	620
Sticky hard shale	444	1,064
Sandy shale	60	1,124
Hard sandy shale with lime streaks	342	1,466
Porous sand and sandy shale carrying fresh water	23	1,489
Sticky shale	71	1,560
Sticky shale	23	1,583
Porous sand carrying fresh water	27	1,610
Sticky hard shale with lime streaks	355	1,965
Porous sand carrying fresh water, slight gas odor	11	1,976
Sticky shale	4	1,980
Porous sand carrying fresh water	32	2,012
Hard cap lime	2	2,014
Shale	113	2,127
Porous sand carrying fresh water	48	2,175
Shale	5	2,180
Porous sand carrying fresh water	17	2,197
Shale	45	2,242
Porous sand carrying fresh water	16	2,258
Shale with lime streaks	185	2,443
Porous sand carrying fresh water; slight gas odor	17	2,460
Shale	107	2,567
Porous sand; slight gas odor; salt water	31	2,598
Shale	102	2,700
Shale	72	2,772
Porous sand carrying fresh water	5	2,777
Shale	72	2,849

Well H-10

M. R. Ellisor, 8½ miles southeast of Huntsville. Driller, J. L. Dunnica.

Red surface sand and clay	10	10
Red sandy clay	10	20
Red and white sand and clay	15	35
White clay	12	47
White sandy clay	2	49
White clay	8	57
White sand	10	67
White sand and shale	4	71
White lime rock	2	73
Red, brown, and white hard shale and clay	8	81
Sandy clay	9	90
Gray shale	10	100
Gray, white, and red sand and shale	8	108
Hard white shale	4	112
Hard white sand and shale	11	123
Sand	15	138

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well H-12, partial log					
Carey Land Co. No. 1, 12½ miles east of Huntsville. Driller, Hartman and Page.					
Surface	173	173	Broken sand and shale	28	1,116
Gray shale	107	280	Dark green shale	6	1,122
Hard lime and gray shale	76	356	Water sand and shale	23	1,145
Broken sand and shale	7	363	Dark-green hard sandy shale	67	1,212
Hard shale	92	455	Hard sticky shale	103	1,315
Hard sandy shale	80	535	Hard shale	29	1,344
Sticky shale	55	590	Brown sticky shale	23	1,367
Hard shale and lime	140	730	Light-blue water sand	4	1,371
Shale, sand, and lime	20	750	Hard sticky shale	11	1,382
Hard sand	6	756	Blue and brown shale	81	1,463
Shale and sand	21	777	TOTAL DEPTH		5,156
Shale and lime	10	787			
Sand and shale	147	934			
Rock	1	935			
Hard sandy shale	10	945			
Hard green shale	50	995			
Sticky shale	85	1,080			
Blue water sand	8	1,088			
Well J-5					
Gibbs Bros., 8 miles southwest of Huntsville. Driller, J. L. Dunnica.					
Brown surface sand and clay	3	3	Hard blue sand, shale and lime	8½	126
Gray clay	9	12	Blue sand and shale	6	132
Brown sand and clay	8	20	Hard lime rock	1	133
Water sand	6	26	Blue sand and shale	2½	135½
Gray sand and shale	4	30	Lime rock	½	136
Brown water sand	8	38	Blue shaly sand	4	140
Yellow sand and shale	6	44	Blue sand	26	166
Blue shale and sand	10	54	Hard blue shale and lime	6	172
Blue shale and hard lime	14	68	Hard blue-gray shale, and lime sand streaks	11	183
Gray shale and lime	4	72	Hard gray water sand	3	186
Blue shale	6	78	Blue-white shale and lime with sand streaks	2	188
Blue shaly sand	3	81	Blue sand and shale	8	196
Blue shale	2	83			
Blue shaly sand	10	93			
Blue sand	7	100			
Blue shale and hard lime	16	116			
Lime rock	1½	117½			
Well J-21, partial log					
Gabe Smither Estate No. 1, 7 miles southwest of Huntsville. Driller, Moran Oil Co.					
Set surface casing	756	756	Sandy shale	15	1,815
Shale	182	938	Sand	30	1,845
Sand with shale streaks	207	1,145	Sand streaks and shale	63	1,908
Shale and sandy shale	214	1,359	Shale	1	1,909
Sand	2	1,361	Shale and sandy shale	73	1,982
Shale with sand streaks	179	1,540	Sandy shale with sand streaks	40	2,022
Shale with sand streaks	155	1,695	TOTAL DEPTH		7,240
Sandy shale and sand	105	1,800			

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well K-14					
Mrs. Annie Campbell, 12 miles southeast of Huntsville. Driller, Taylor and Roberts.					
Surface material	100	100	Sand	40	235
Clay	30	130	Clay	135	370
Fine-grained white sand	35	165	Water sand	55	425
Clay with streaks of soft rock	30	195			
Well K-20, partial log					
T. S. Foster Estate No. 1, 7½ miles south of Huntsville. Driller, Moran Oil Co. and Gar-Flo Oil Co.					
Surface clay and sand	45	45	Hard sand	46	2,007
Sand and gravel	285	330	Shale with streaks of hard sand	45	2,052
Sand and clay	320	650	Sand rock	6	2,058
Shale	60	710	Hard shale	14	2,072
Sandy shale	150	860	Sandy shale and shale	10	2,082
Sand and shale	52	912	Shale	36	2,118
Shale	20	932	Sticky shale and sandy shale streaks of hard sand	132	2,250
Sand	78	1,010	Hard shale with streaks of sand	75	2,325
Sand	96	1,106	Hard shale	18	2,343
Sand with streaks of sandy shale	376	1,482	Sandy shale and shale	10	2,353
Sand and sandy shale	307	1,789	Sandy shale	72	2,425
Shale and sandy shale	149	1,938	TOTAL DEPTH		6,758
Sandy shale	3	1,941			
Water sand	10	1,951			
Sand with streaks of shale	10	1,961			
Well K-22, partial log					
Central Coal and Coke Co. No. 1, 11 miles south of Huntsville. Driller, W. E. Allaun and J. C. Cook.					
Clay	20	20	Sand and gravel	108	720
Clay and sand	80	100	Sandy shale	370	1,090
Sand, clay, and rock	125	225	Sand, shale and gravel	312	1,402
Sand	75	300	Sandy shale and shale	598	2,000
Sandy shale	250	550	Hard sand	300	2,300
Shale	41	591	Hard sandy shale	969	3,269
Water sand	21	612	TOTAL DEPTH		7,042
Well K-24, partial log					
G. P. Thompson No. 1, 15 miles southeast of Huntsville. Driller, G. W. Strake.					
Clay and sand	110	110	Shale	260	1,700
Sand	32	142	Shale and boulders	30	1,730
Rock	1	143	Shale	35	1,765
Sand	77	220	Shale with lime streaks	85	1,850
Clay	80	300	Tough shale and lime	55	1,905
Shale	104	404	Shale	40	1,945
Sand	54	458	Broken lime and shale	48	1,993
Sand and boulders	74	532	Sticky shale and lime	44	2,037
Rock	3	535	Shale	85	2,122
Sand	29	564	Sand	27	2,149
Rock	3	567	Shale with lime streaks	20	2,169
Sand and gravel	133	700	Shale and sandy shale	16	2,185
Sandy shale	40	740	Shale with streaks of sticky shale	142	2,327
Shale	80	820	Shale	64	2,391
Soft sandy shale	140	960	Sand and shale	18	2,409
Shale	260	1,220	Sand	31	2,440
Shale and sandy shale	85	1,305	Sand and shale	25	2,465
Tough sticky shale	20	1,325	Shale with streaks of sandy shale	35	2,500
Shale and boulders	60	1,385	Brown shale	18	2,518
Sandy shale	55	1,440	TOTAL DEPTH		4,390

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well L-5					
A. J. Murdock, 14 miles southeast of Huntsville. Driller, Neal Drilling Co.					
Shale	82	82	Sand	1	151
Rock	1	83	Shale	7	158
Shale	27	110	Sand	1	159
Sand	2	112	Shale	12	171
Shale	5	117	Sand	10	181
Sand	3	120	Shale	49	230
Rock	1	121	Sand	5	235
Sand	1	122	Shale	7	242
Shale	1	123	Sand	2	244
Rock	1	124	Rock	1	245
Shale	2	126	Shale	5	250
Rock and shale	4	130	Rock and sand	5	255
Shale	10	140	Shale	5	260
Sand	2	142	Sand and rock	5	265
Shale	8	150	Sand	35	300

Table 8.- Analyses of water from wells and springs in Walker County, Tex.

Well	Owner	Depth of well (ft.)	Date of collection	Silica (SiO_2)	Calcium (Ca)	Magnesium (Mg)	Sodium and potassium ($Na + K$)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Dissolved solids	Total hardness as $CaCO_3$
B-1	J. W. Langley	26	Sept. 8, 1948	106	25	3.8	79	48	47	75	70	455	78
C-1	Texas State Forest Service	56	Sept. 16, 1948	52	174	83	471	-	555	940	1.8	2,280	776
C-2	D. B. Dewalt	38	do.	90	50	15	72	5	61	76	209	590	186
C-4	H. Thompson	2,800	Oct. 15, 1948	42	17	1.8	470	550	1.2	435	7.5	1,250	50
C-6	John Smither	60	Sept. 10, 1948	70	20	5.6	100	64	65	121	.0	421	73
C-7	Gabe Smither	183	Sept. 15, 1948	42	15	2.8	141	268	25	78	.0	442	49
D-1	The Milwhite Co.	395	Sept. 14, 1948	46	77	7.1	327	164	293	348	2.2	1,180	221
D-2	Riverside School	135	Sept. 10, 1948	72	268	32	376	66	996	372	3.5	2,150	800
D-3	The Texas Co.	65	Sept. 14, 1948	91	22	3.1	66	62	50	76	.2	352	68
E-2	C. V. Crowson	358	Sept. 3, 1948	34	3.7	.9	246	364	124	85	.8	664	13
E-6	G. W. Woods	19	Aug. 27, 1948	42	644	286	969	160	940	2,680	-	5,640	2,780
E-8	Gibbs Bros.	-	Aug. 26, 1948	46	4.1	2.1	16	20	5.3	21	2.2	109	19
E-9	E. J. Sims	204	Aug. 31, 1948	102	62	9.8	109	98	135	149	.2	622	195
E-12	F. L. Morgan	243	July 29, 1948	74	84	6.6	118	316	111	84	.8	534	236
F-2	P. D. Donovan	182	Sept. 3, 1948	96	7.6	2.4	44	109	11	30	.0	264	47
F-3	J. H. Rose	714	do.	48	10	1.4	296	476	2.3	200	.5	809	31
F-6	J. W. Cook	42	Sept. 2, 1948	60	9.0	2.1	27	50	15	23	.0	163	31
F-7	J. W. Aden	100	do.	57	8.2	1.5	30	49	16	25	.0	161	27
F-10	C. L. Robinson	120	do.	70	290	44	257	178	39	890	28	1,710	904
F-11	Ruby Stampley	83	Aug. 27, 1948	85	50	9.4	80	75	19	180	1.2	462	164
F-14	W. S. Gibbs	396	Aug. 26, 1948	86	34	2.4	96	146	47	96	.5	435	95
F-15	S. M. Fraser	34	do.	104	766	80	425	378	86	1,960	.5	3,610	2,240
F-17	W. C. Robbins	243	Aug. 27, 1948	91	58	7.9	116	106	133	144	.0	610	177
F-20	B. V. Conner	23	do.	63	134	43	256	61	311	390	178	1,400	512
F-21	Nathan Hall, Sr., et al.	2,174	Sept. 1, 1948	86	45	4.1	62	101	76	72	1.2	414	130
F-24	W. S. Gibbs	205	July 29, 1948	48	77	4.6	91	242	42	117	.5	515	211
F-28	H. F. Lindley	92	July 20, 1948	62	56	3.3	42	154	4.9	79	1.8	356	153
F-31	J. W. Oliphint	93	do.	61	124	9.2	41	272	3.0	150	.0	522	348
F-34	J. H. Rose	3,646	Nov. 17, 1948	84	54	5.8	70	91	162	48	.8	487	159
G-2	F. E. Turner	80	Sept. 9, 1948	71	124	21	227	153	188	402	2.2	1,110	396
G-7	Sam Houston State Teachers College No. 2	1,634	Aug. 7, 1942	-	5.1	1.4	115	157	3.0	85	.0	378	18
G-7	do.	634	Sept. 10, 1948	77	2.2	.6	118	157	1.2	87	.2	374	8
G-8	Sam Houston State Teachers College No. 1	618	Nov. 18, 1942	-	2.0	-	-	168	1.0	81	-	363	18
G-11	State of Texas	837	Aug. 26, 1948	70	60	3.7	99	212	74	91	1.0	492	164
G-12	W. Y. Allen	25	Aug. 27, 1948	82	318	34	321	398	230	755	.8	1,940	934
G-13	W. S. Gibbs	236	Sept. 9, 1948	63	53	3.5	34	183	9.5	43	.0	296	147
G-16	John Lade	199	Sept. 10, 1948	69	98	4.4	37	352	3.0	37	.5	427	262
G-17	D. Hunt	39	Sept. 9, 1948	47	81	14	87	196	31	179	3.0	592	260
G-19	L. H. Sandel	52	July 20, 1948	30	97	5.9	60	100	10	206	12	470	266
G-20	C. A. Parkhill	163	Oct. 18, 1948	44	152	6.1	42	259	12	192	.0	605	404
G-22	City of Huntsville No. 7	673	Sept. 22, 1941	57	96	3.0	52	317	14	63	.5	476	253
G-22	do.	673	Feb. 27, 1941	-	90	6.0	57	-	27	-	-	422	249
G-22	do.	673	Mar. 3, 1948	-	86	3.2	71	314	20	73	.0	480	228

Table 8.--Analyses of water from wells and springs in Walker County--Continued

Well	Owner	Depth of well (ft.)	Date of collection	Silica (SiO_2)	Calcium (Ca)	Magnesium (Mg)	Sodium and potassium ($Na + K$)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Nitrate (NO_3)	Dissolved solids	Total hardness as $CaCO_3$
G-23	City of Huntsville No. 8	713	Sept. 22, 1941	52	90	2.7	51	287	20	60	0.2	440	231
G-23	do.	713	Feb. 27, 1947	47	116	14	25	342	19	-	-	443	347
G-23	do.	713	Mar. 3, 1948	-	78	2.6	78	289	34	73	.0	482	205
G-24	City of Huntsville No. 9	779	Aug. 18, 1948	64	110	5.9	37	330	13	68	.2	468	299
G-27	James Gordon	56	Sept. 9, 1948	29	1.1	.7	19	28	7.8	11	.2	83	6
G-29	W. R. Bines	62	July 15, 1948	68	2.8	3.5	45	8	8.0	70	7.0	222	21
G-30	R. Katoaka	110	do.	29	26	3.8	30	44	9.4	69	3.2	194	80
G-31	Minor Bradshaw Lumber Co.	375	May 14, 1948	57	115	5.9	32	256	17	108	.0	452	312
G-33	L. S. Hobby	147	July 15, 1948	44	51	4.0	44	116	11	93	2.5	316	144
G-34	M. B. Pursley Lumber Co.	386	May 13, 1948	32	80	3.8	34	204	13	77	.2	360	215
G-35	M. B.Cauthen	105	do.	19	180	26	93	58	13	495	.0	855	556
G-36	V. Bartee	24	do.	108	17	2.4	39	58	38	34	2.2	275	52
G-37	Austin Davidson	21	May 14, 1948	58	8.0	.9	10	44	2.0	4.0	2.0	110	24
G-40	Texas State Prison System	290	July 15, 1948	43	56	3.1	34	142	8.6	71	2.5	298	152
H-1	A. R. Engler	200	Nov. 2, 1948	65	165	3.4	228	265	5.6	315	4.2	815	176
H-2	C. Y. Townsley	214	Sept. 15, 1948	67	105	8.3	67	254	22	149	.0	592	296
H-4	Jim Roberts	140	May 10, 1948	52	120	7.9	52	326	11	118	.2	535	332
H-9	Tom Mann	Spring	Nov. 1, 1948	28	5.2	2.0	16	19	11	20	.8	95	21
I-1	P. B. Parten	86	July 29, 1948	94	70	11	68	324	23	55	.0	491	220
I-2	Jessie Harman	43	July 20, 1948	102	724	68	417	480	286	1,600	57	3,490	2,090
I-4	W. M. Pool	31	July 29, 1948	23	18	6.9	23	24	18	19	72	206	73
J-1	Gibbs Bros.	42	July 22, 1948	68	54	4.4	20	160	12	37	.2	289	153
J-2	do.	-	July 21, 1948	68	88	4.4	27	284	10	37	.0	385	238
J-3	do.	-	do.	62	62	5.2	38	216	11	50	.0	339	176
J-5	do.	296	Oct. 18, 1948	64	86	5.5	33	296	13	37	.2	398	237
J-6	A. L. Cunningham	15	July 20, 1948	76	11	3.1	50	76	11	53	1.8	280	40
J-7	B. Powells	115	July 16, 1948	35	228	8.1	62	364	28	290	2.0	835	602
J-8	J. J. Walker	53	July 27, 1948	42	13	5.8	29	34	8.7	40	33	203	56
J-14	M. B Pegoda	15	July 22, 1948	20	34	5.9	90	112	42	117	4.8	390	110
J-15	Mrs. Wince Smith	-	July 21, 1948	45	101	5.0	28	280	20	59	.2	440	272
J-16	S. P. Sandel	-	do.	44	98	5.0	26	296	9.1	50	.0	400	265
J-18	U. S. Forest Service	14	do.	46	90	8.1	33	226	37	77	.0	453	258
J-19	Gus Randall	30	May 13, 1948	18	93	12	53	70	26	108	198	580	282
J-20	R. L. Farris	54	July 22, 1948	50	45	17	46	50	6.7	117	86	432	182
K-1	J. A. Elkins	160	July 27, 1948	50	57	3.8	23	178	4.6	40	.5	269	158
K-4	Roland M. Lucas	65	May 14, 1948	62	8.4	1.4	17	36	4.0	19	3.2	139	27
K-6	G. G. Buchanan	20	July 15, 1948	85	2.8	1.9	39	22	2.0	43	22	211	15
K-8	U. S. Forest Service	19	July 21, 1948	57	90	5.5	29	284	7.8	49	.2	396	247
K-11	R. D. Hardy	190	May 7, 1948	44	67	2.8	36	180	16	66	.2	346	178
K-14	Mrs. Annie Campbell	425	Oct. 1941	35	88	6.1	27	238	3	73	.0	363	244
K-18	Fred Nelson	180	May 7, 1948	39	66	6.2	36	160	19	83	.2	330	190
L-1	C. W. Ellisor	27	May 10, 1948	52	28	6.0	39	90	2.0	65	14	266	95
L-3	D. R. Hardy	37	May 7, 1948	32	318	39	150	56	9.7	865	4.6	1,450	945
L-4	E. L. Hardy	250	do.	32	58	9.9	41	170	14	85	.5	335	185
L-5	A. J. Murdock	300	do.	36	106	6.6	25	230	-	-	-	409	292
L-6	W. G. Ellisor	30	do.	9.2	3.2	3.9	9.7	20	3.0	9.0	16	73	24