

TEXAS BOARD OF WATER ENGINEERS

C. S. Clark, Chairman

A. H. Dunlap, Member

J. W. Pritchett, Member



CASS COUNTY, TEXAS

**PREPARED IN COOPERATION WITH THE UNITED STATES
DEPARTMENT OF THE INTERIOR, GEOLOGICAL SURVEY**

MARCH 1942

CASS COUNTY, TEXAS

Records of wells and springs, drillers' logs, water analyses,
and map showing locations of wells and springs

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By C. R. Follett in collaboration with W. N. White

Introduction

This report contains records of 231 wells and 7 springs, drillers' logs of 25 wells, summary descriptions of electrical logs of 7 wells, and results of chemical analyses of water from 198 wells and springs in Cass County, Texas. The records were obtained between October 25 and December 15, 1941 in connection with a state-wide program of ground-water investigations in Texas by the State Board of Water Engineers in cooperation with the United States Department of the Interior, Geological Survey.

Some of the analyses were made by W. W. Hastings, Assistant Chemist of the Quality of Water Division of the Federal Geological Survey. Most of them were made by chemists employed by the Work Projects Administration under the direction of Dr. E. P. Schoch, Director of the Bureau of Industrial Chemistry of The University of Texas, and Mr. Hastings.

According to the geologic map of Texas, compiled by the Federal Geological Survey, four formations of Eocene age crop out in Cass County, which in ascending and successively younger order are as follows: Wilcox group, Carrizo sand, Mt. Selman formation (Reklaw member, Queen City sand member, and Weches greensand member), and Sparta sand. The Wilcox group, Carrizo sand, and Reklaw member crop out in the northern part of the county on the north side of the East Texas syncline and on the south side of the syncline in Marion County. In the remainder of Cass County, which lies in or near the axis of the syncline, younger rocks appear at the surface, the Queen City sand cropping out in most of the area, while the Weches and Sparta cap the hills and ridges. A mantle of soil and recent alluvial deposits several feet thick covers most of the county.

Most of the wells of Cass County are dug, are less than 50 feet deep, and are used to furnish small supplies of water for domestic purposes and stock. Such supplies apparently can be obtained in shallow beds of Eocene sand or shallow alluvial deposits almost anywhere in the county. According to the table of analyses (pp. 31 to 39) the samples obtained from practically all the shallow wells were exceptionally soft and low in total dissolved solids. This may have been due in part to the unusually high rainfall in the area during the investigation and for several months preceding it. However, the analyses relate only to the mineral constituents in the water and not to its sanitary character. Shallow wells, especially dug wells, unless they are carefully located and protected, may be subject to bacterial contamination and, therefore, dangerous to health.

No very large supplies of ground water have been developed in Cass County. The largest withdrawals are made for the public supplies of Atlanta, Hughes Springs, Linden, and Avinger, and for industrial use in connection with the production of oil and gas in the Rodessa oil field and its vicinity in the southeastern part of the county. The wells that furnish these public and industrial supplies are from about 300 to about 900 feet in depth. Most of them draw from sands in the Wilcox group, but some doubtless draw also from the Carrizo sand. (In well logs in this area it is difficult to distinguish the Carrizo sand from sands in the Wilcox below and in the Reklaw above. In some places the Carrizo seems to be absent). A few of the wells undoubtedly draw from sands in the Queen City. The base of the sandy phase of the Wilcox, according to available logs, is underlain by 600 to 900 feet of clays, shales, and marls. Below this

clay section a sand of considerable thickness, presumably the Nacatoch sand of the Navarro group of Cretaceous age, is recorded in the logs of several of the oil tests. Available information indicates that no analyses of water from the Nacatoch sand have been made in Cass County, but the electrical logs of four wells and drillers' logs of one well indicate that the water may be salty. Moreover, the sand is known to contain brackish or salty water up the dip in Bowie County, which adjoins Cass County on the north. Therefore, in Cass County it seems useless to drill below the base of the Wilcox sands, which ranges from about 400 feet to about 900 feet below the land surface in the wells for which logs are available.

The position of the water-bearing sands and the development of ground water in different parts of the county are briefly described below:

Northwestern part of county in vicinity of Marietta and Douglassville.--

Nearly all the water wells recorded in this area are dug, and all are less than 50 feet in depth. Most of the wells yield water that is soft and fresh, but in a few, notably nos. 5, 10, 11, 23 and 29, near the northern boundary of the county, the water is hard and comparatively high in total dissolved solids. Partial drillers' logs of 3 oil tests in the area, wells 41, 68, and 80, are given on page 25. The log of well 41, $9\frac{3}{4}$ miles southeast of Marietta, shows sands from 310 to 470 feet, and from 500 to 550 feet, with "water" sand from 777 to 810 feet. In well 68, $2\frac{1}{4}$ miles southwest of Marietta, "water" sands were logged from 26 to 46 feet, 351 to 396 feet, and 679 to 716 feet. In well 80, about 4 miles north of Douglassville, fine sand was recorded from 308 to 350 feet, "water" sand from 350 to 405 feet, sand and lignite from 517 to 560, 650 to 690, and 700 to 750 feet. Salt water was reported in a sand from 1,295 to 1,395 feet.

Northeastern part of county.-- All the water wells recorded in this area, except wells 110 and 125, are less than 50 feet in depth. Well 110, near the Sulphur River about 9 miles northwest of Atlanta, a test well about 1,000 feet in depth, has a very small flow at ground level. Well 125, about 9 miles northeast of Atlanta, an oil test about 1,300 feet deep, has an estimated flow of 2 gallons a minute 2 feet above the ground. In the extreme northeastern part of the county the driller's log of well 118 (pp. 25 and 26) records 259 feet of "salt and pepper" sand and 102 feet of hard white sand between the surface and 650 feet in the same general area. The electrical logs of wells 116 and 120 show a considerably smaller total thickness of sands and indicate that the base of the sandy section is about 225 feet lower in altitude in well 116 than it is in well 120. The water in all the wells of this area for which analyses are available is low in dissolved solids, and is very soft.

Vicinity of Atlanta.-- The City of Atlanta is supplied with an average of about 160,000 gallons of water a day from 2 wells, nos. 191 and 192, respectively 844 and 842 feet in depth. Well 191 draws from sands between 738 and 843 feet and well 192 from sands between 470 and 512 feet and 814 and 842 feet. The drawdown in well 191 is reported to have been 78 feet after the well was pumped at the rate of 400 gallons a minute for 24 hours, or about 5 gallons a minute per foot of drawdown. Well 192 is said to have a drawdown of 32 feet while pumping 138 gallons a minute, or about $4\frac{1}{2}$ gallons a minute per foot of drawdown. The well of the Southern Gas and Electrical Company at Atlanta, no. 190, reported to be about 250 feet in depth, is used to make ice. A well at Bivins, no. 171, 455 feet in depth, supplies a sawmill. The well is reported to draw from sands between 375 and 455 feet. In Bloccsburg, about $6\frac{1}{2}$ miles northeast of Atlanta, well 140 supplies water to the Kansas City Railway Company. The well is 185 feet in depth. The water from all the wells in the area except wells 191 and 192 is low in dissolved solids. It is noted the water from well 191, which draws only from the deeper sands, is considerably more highly mineralized than the water from well 192, which draws from sands at about 500 feet as well as the deeper sands. Electrical logs are available for 3 wells in the area, nos. 142, 146, and 174. Well 142, 3 miles northeast of Atlanta, shows sands between 150 and 180 feet, 300 and 400 feet,

525 and 575, and 725 and 750 feet. Well 146, $3\frac{1}{2}$ miles southeast of Atlanta, shows thick sands between 250 and 400 feet and thin sands between 625 and 750 feet. Well 174, 7 miles southwest of Atlanta, shows sands between 250 and 325 feet, and between 460 and 500 feet.

Vicinity of Hughes Springs.- The City of Hughes Springs is supplied from a well (no. 250) 359 feet in depth that is screened from 284 to 307 and from 323 to 353 feet. This well is reported to have a drawdown of 93 feet while pumping at the rate of 94 gallons a minute. The public supply of Avinger is obtained from 2 wells, nos. 285 and 266, respectively 380 feet and 280 feet in depth. Each well is reported to yield 65 gallons a minute. The water from these wells and from the city well at Hughes Springs is low in dissolved solids. Well 231, an oil test 4 miles north of Hughes Springs, reports sand from 100 to 300 feet, sand and shale from 300 to 580 feet, and shale from 580 to 1,320 feet. Well 272, an oil test 7 miles south of Hughes Springs, logged "water" sand from 200 to 259, and from 700 to 875 feet. Well 261, an oil test $7\frac{3}{4}$ miles southeast of Hughes Springs, has a flow of about 1 gallon a minute, 1 foot above the ground.

Vicinity of Linden.- The public water supply of Linden is obtained from a city-owned well (no. 304) 843 feet in depth, which is screened from 642 to 658, 730 to 750, and from 802 to 823 feet. It was reported that in a test made soon after the well was drilled the well yielded 118 gallons a minute with a drawdown of 46 feet or about $\frac{2}{3}$ gallons a minute per foot of drawdown. The water from this well is somewhat high in total dissolved solids, predominantly sodium, bicarbonate and chloride. Well 315, 8 miles southeast of Linden, about 600 feet deep, is reported to have had a flow until 1916. This well has been destroyed. The log of well 335 (p. 27), an oil test $9\frac{1}{2}$ miles southeast of Linden, shows 480 feet of sand rock, sand, packsand, and "water" sand between the surface and 892 feet; shale, gravels, and boulders from 892 to 1,602 feet; and sand (probably Nacatoch) from 1,602 to 1,802 feet. Other wells in this area are shallow.

Southeastern part of county in vicinity of McLeod and Rodessa oil field.- Approximately 30 wells ranging in depth from about 250 to about 900 feet were recorded in this area, including five wells, nos. 410 to 414, which are located in Caddo Parish, Louisiana. These wells were put down to supply water for the drilling of oil wells and the operation of oil refineries and gas plants. The yield of the wells is reported as ranging from a few gallons a minute to 260 gallons a minute. The logs of 9 of the wells, given on pages 27 to 30, show a thickness of sands ranging from about 40 feet to more than 200 feet. The mineral character of the water from the different wells varies materially. In some of the wells the water is exceptionally low in dissolved solids. In others it is rather highly mineralized, containing chiefly sodium, bicarbonate and chloride. So far as can be seen there is no relation in this area between the depth of the wells and the chemical character of the water.

A limited number of copies of this release are available for free distribution. They may be obtained by addressing a request to Mr. C. S. Clark, Chairman Texas State Board of Water Engineers, 302 West 15th Street, Austin, Texas.

This release was mimeographed by employees of the Work Projects Administration Project No. 17276.

Records of wells and springs in Cass County, Texas
All wells are dug unless otherwise stated under Remarks

Well No.	Distance from Marietta	Owner	Date completed	Depth of well (ft.)	Diameter of well (in.)	Height of measuring point above ground (ft.)
1	6 miles northwest	L. P. Hicks	1901	16	24	2.9
2	6 $\frac{1}{2}$ miles northwest	H. B. Moore	1925?	22	36	2.8
3	5 miles northwest	Arthur Boyd	1928	24	36	2.9
4	do.	B. J. Floyd	--	30	6	1.0
5	3 $\frac{1}{2}$ miles northwest	Brock Bros.	1941	40	6	1.0
6	1 $\frac{1}{4}$ miles northwest	L. M. Smith	1890	15	42	0.0
7	do.	do.	1936	20	36	2.0
8	1 $\frac{3}{4}$ miles northeast	Mrs. Tim Brooks	--	11	36	3.1
9	3 $\frac{3}{4}$ miles northwest	--	--	19	48	3.4
10	4 $\frac{3}{4}$ miles north	C. S. Harkey	1940	57	6	0.0
11	6 $\frac{1}{2}$ miles north	H. H. Henson	1941	35	6	1.2
20	6 miles northeast	C. C. Stringer	Old	57	18	1.0
21	7 $\frac{1}{2}$ miles northeast	R. M. Abston	Old	26	42	3.3
22	6 miles northeast	Miss Bessie Stewart	--	38	42	2.7
23	5 miles northeast	Willie Harrison	Old	49	30	5.0
24	4 $\frac{1}{2}$ miles northeast	New Zion School	--	16	24	1.2
25	3 $\frac{3}{4}$ miles northeast	Mrs. A. J. Berry	1920?	33	42	5.0
26	5 $\frac{1}{2}$ miles northeast	D. H. Rainey	Old	60	6	1.5
27	7 $\frac{3}{4}$ miles east	J. B. Granberry	--	28	24	4.0
28	7 $\frac{3}{4}$ miles northeast	Ben Black	--	Spring	--	--
29	do.	Spring Hill School	--	34	24	3.0
30	8 $\frac{1}{4}$ miles northeast	William Childs	--	Spring	--	--
31	12 miles northeast	Riley Leonard	1906	19	36	3.8
32	11 $\frac{3}{4}$ miles northeast	Mrs. Maggie Jackson	Old	24	72	3.0

a/ Plus (+) indicates water level is above ground.

b/ T, turbine; A, air, natural gas or steam lift; C, cylinder; H, hand pump or bucket and rope; E, electric motor; G, gasoline; number indicates horsepower.

Chemical analyses of water from most of these wells are in the table of analyses.

Well No.	Water level		Method of lift	Use of water	Remarks
	Below measuring point (ft.) _{a/}	Date of measurement			
1	7.61	Dec. 9, 1941	H	D,S	Tile curbing.
2	17.23	do.	H	D,S	
3	22.54	do.	H	D,S	
4	21.74	do.	H	D,S	Bored. Tile casing.
5	27.55	Oct. 28, 1941	H	D,S	Do.
6	12.30	Dec. 10, 1941	H	D,S	Rock curbing to 6 feet.
7	11.13	do.	H	D,S	No curbing.
8	7.72	do.	H	D,S	Do.
9	17.29	Dec. 9, 1941	H	D,S	Do.
10	46.09	do.	H	D,S	Bored. Tile casing.
11	26.17	do.	H	D,S	Do.
20	47.30	do.	H	D,S	
21	22.94	do.	H	D,S	Wood curbing from 0 to 4 feet and from 18 to 26 feet.
22	33.46	Dec. 10, 1941	H	D,S	No curbing.
23	44.29	do.	H	D,S	Brick curbing.
24	16.30	do.	H	P	Do.
25	32.89	do.	H	D,S	Wood curbing from 0 to 3 feet and from 25 to 33 feet.
26	29.49	do.	H	D,S	Bored. Tile casing.
27	21.61	do.	H	D,S	Tile curbing.
28	+	do.	Flows	D,S	In bank of creek. Small flow from sandy clay.
29	22.47	do.	H	P	Tile curbing.
30	+	do.	Flows	D,S	At head of creek. Estimated flow 1 gallon a minute.
31	16.27	Dec. 15, 1941	H	D,S	
32	22.87	do.	H	D,S	

c/ P, public supply; Ind, industrial; D, domestic; RR, railroad; S, stock; N, none.
d/ Water level reported by driller or owner.

Records of wells and springs in Cass County--Continued

Well No.	Distance from Marietta	Owner	Date completed	Depth of well (ft.)	Diameter of well (in.)	Height of measuring point above ground (ft.)
33	10 miles east	Mrs. Dollie Snipe	--	Spring	--	--
40	10 $\frac{1}{2}$ miles east	Mrs. Bertha Haskin	--	20	42	3.1
41	9 $\frac{1}{2}$ miles southeast	E. H. Pigg	1929	4,101	--	--
42	8 $\frac{1}{2}$ miles southeast	Mrs. Sarah Here	--	35	42	3.0
43	8 miles southeast	Noah Williams	Old	28	42	3.3
44	5 $\frac{1}{2}$ miles southeast	L. V. Cameron	1889	43	43	3.0
45	3 $\frac{1}{2}$ miles southeast	E. H. Westbrooks	--	24	36	3.0
46	4 $\frac{1}{2}$ miles southeast	-- Trindle	1927	28	36	3.0
47	2 $\frac{1}{2}$ miles southeast	Bob Fickleberry	--	16	42	2.8
48	3 $\frac{1}{2}$ miles south	R. G. McMichael	1931	59	36	3.3
60	5 miles southwest	Quinn Patterson	--	25	42	2.6
61	5 $\frac{1}{2}$ miles southwest	--	Old	19	6	0.3
63	6 $\frac{1}{2}$ miles southwest	T. C. Lyster	1930?	1,200+	10	--
64	6 $\frac{1}{2}$ miles southwest	do.	Old	25	36	1.7
65	do.	Tom Franklin	1931?	50 $\frac{1}{2}$	36	2.2
66	5 $\frac{1}{2}$ miles southwest	--	Old	38	42	3.1
67	3 miles southwest	E. H. Hampton	1931?	25	42	3.7
68	2 $\frac{1}{2}$ miles southwest	United Forts and South Development Co.	1931	4,141	12 $\frac{1}{2}$	--
69	4 $\frac{1}{2}$ miles west	Hosie Johnson	Old	23	42	5.0
70	do.	Ethel Cannon	1900?	18	42	3.3

Well No.	Distance from Atlanta	Owner	Date completed	Depth of well (ft.)	Diameter of well (in.)	Height of measuring point above ground (ft.)
80	14 miles northwest	George J. Moore	1903	3,202	12 $\frac{1}{2}$	--
81	11 $\frac{1}{2}$ miles northwest	Dan Green	--	36	42	2.9
82	11 $\frac{1}{2}$ miles northwest	Douglassville School	Old	30	22	--

Well No.	Water level		Method of lift	Use of water	Remarks
	Below measuring point (ft.) a/	Date of measurement			
33	+	Dec. 12, 1941	Flows	D,S	In bank of small creek. Estimated flow 1 gallon a minute.
40	19.97	Dec. 15, 1941	H	D,S	No curbing.
41	--	--	None	N	Drilled; oil test, Ed Lambert lease. See partial driller's log.
42	31.91	Dec. 10, 1941	H	D,S	
43	26.29	do.	H	D,S	
44	40.66	do.	H	D,S	
45	24.80	Dec. 15, 1941	H	D,S	No curbing.
46	18.97	do.	H	D,S	
47	15.49	Dec. 10, 1941	H	D,S	
48	37.99	Dec. 9, 1941	H	D,S	Wood curbing from 26 to 39 feet.
60	24.23	Dec. 8, 1941	H	D,S	
61	13.72	do.	H	N	Bored. Tile curbing.
63	*	do.	Flows	S	Drilled; oil test. Very small flow 1 foot above ground.
64	24.74	do.	H	D	No curbing.
65	51.05	do.	H	D,S	Do.
66	38.91	do.	H	D,S	
67	23.44	Dec. 9, 1941	H	D,S	No curbing.
68	--	--	None	F	Drilled; oil test. Abe Nickleberry lease. See partial driller's log.
69	23.05	Dec. 9, 1941	H	D,S	Wood curbing from 20 to 28 feet.
70	11.43	do.	H	D,S	

Well No.	Water level		Method of lift	Use of water	Remarks
	Below measuring point (ft.) a/	Date of measurement			
80	--	--	None	N	Drilled; oil test, W. E. Kennedy lease. See partial driller's log.
81	32.47	Dec. 15, 1941	H	D,S	
82	--	--	E	P	

Records of wells and springs in Cass County -- Continued

Well No.	Distance from Atlanta	Owner	Date completed	Depth of well (ft.)	Diameter of well (in.)	Height of measuring point above ground (ft.)
83	10 miles northwest	Oscar Webster	1941	20	42	3.3
84	9 $\frac{3}{4}$ miles northwest	B. F. Ellington	--	27	36	4.0
85	do.	do.	Old	33	42	2.9
86	8 $\frac{1}{4}$ miles northwest	W. F. Turner	--	33	48	3.0
87	10 miles northwest	Mrs. Mollie Bergt	Old	57	48	2.6
88	do.	do.	1940	30	36	--
89	8 $\frac{1}{2}$ miles northwest	W. R. Bobo	1898	22	36	2.8
90	6 $\frac{3}{4}$ miles northwest	Mrs. Jennie Patterson	Old	22	36	2.0
91	4 $\frac{3}{4}$ miles northwest	Tom Huff	1930?	21	36	2.5
92	4 $\frac{1}{2}$ miles north	Mrs. Mattie Campbell	1917?	47	8	2.9
93	6 miles northeast	Mrs. Della Green	1930	14	36	3.0
110	9 miles northwest	E. E. Brewer	1940	1,000+	4	--
111	9 $\frac{1}{2}$ miles northwest	Chapel Heath	1895?	40+	24	--
112	do.	do.	--	17	24	2.7
113	8 $\frac{3}{4}$ miles north	J. W. Williams	1917	25	42	3.5
114	8 $\frac{1}{4}$ miles north	S. J. Baker	1929?	19	36	3.0
115	9 $\frac{1}{2}$ miles north	Will Gray	1937	11	42	2.4
116	11 $\frac{1}{4}$ miles north	J. K. Wadley et. al.	1940	3,406+	--	--
117	12 $\frac{1}{2}$ miles north	Mrs. V. D. Glass	Old	28	42	3.0
118	11 $\frac{3}{4}$ miles north	Queen City Oil and Gas Co.	1923	3,208	12 $\frac{1}{2}$	--
119	11 miles northeast	Trula Kinread	--	17	42	2.7
120	12 miles northeast	Henry A. King et. al.	1940	4,202	10 $\frac{3}{4}$	--
121	10 miles northeast	Alamo School	--	39	36	0.5
122	9 miles northeast	John Blake	1908?	28	42	3.0

Well No.	Water level		Method of lift	Use of water	Remarks
	Below measuring point (ft.) _{a/}	Date of measurement			
83	21.05	Dec. 15, 1941	H	D,S	
84	29.22	do.	H	S	
85	29.14	do.	H	D,S	
86	30.85	Dec. 5, 1941	H	D,S	No curbing.
87	54.59	do.	H	D,S	Do.
88	--	--	H	D,S	Concrete curbing.
89	21.45	Dec. 5, 1941	H	D,S	No curbing.
90	18.21	do.	H	D,S	Do.
91	18.76	do.	H	D,S	Do.
92	36.90	do.	H	D,S	Bored, tile casing.
93	13.52	Dec. 13, 1941	H	D,S	
110	+	Dec. 5, 1941	Flows	N	Drilled; seismograph test hole. Cased to 60 feet. Very small flow at ground level.
111	--	--	A	D,S	Tile curbing. Supplies dairy.
112	11.47	Dec. 5, 1941	H	D	Tile curbing.
113	23.29	do.	H	D,S	No curbing.
114	17.08	Oct. 27, 1941	H	D,S	Do.
115	8.48	Dec. 13, 1941	H	D,S	
116	--	--	None	N	Drilled; oil test, V.D.Glass No.1. Electrical log in files of Texas Board of Water Engineers shows sands between 65 and 150, 500 and 550, and 650 and 700 feet.
117	22.05	Oct. 27, 1941	H	D,S	No curbing.
118	--	--	None	N	Drilled; oil test, R.D.Jones lease. See partial driller's log.
119	14.52	Dec. 13, 1941	H	D,S	
120	+	1941	Flows	S	Drilled; oil test, H.A.King et.al. No.1. Electrical log in files of Texas Board of Water Engineers shows sands between 325 and 375 feet. Estimated flow 50 gallons a
121	28.60	Dec. 13, 1941	H	D,P	minute. See partial driller's log.
122	22.33	do.	H	D,S	No curbing.

Records of wells and springs in Cass County--Continued

Well No.	Distance from Atlanta	Owner	Date completed	Depth of well (ft.)	Diameter of well (in.)	Height of measuring point above ground (ft.)
123	9 $\frac{1}{2}$ miles northeast	Jack Willis	Old	28	42	3.2
124	9 miles northeast	T. P. Wall	--	17	48	4.4
125	9 $\frac{1}{2}$ miles northeast	P. H. Phillipott	1927?	1,300 $\frac{1}{2}$	8	--
126	8 miles northeast	Cass Springs School	1910?	24	30	2.5
140	In Bloomburg	Kansas City Southern Ry.	1920?	185?	300	0.5
141	3 $\frac{1}{2}$ miles northeast	H. O. Washington	--	14	36	3.0
142	3 miles northeast	J. S. Griffin	1940	4,272 $\frac{1}{2}$	--	--
143	2 $\frac{1}{2}$ miles east	Charlie Cates	--	23	24	4.0
144	6 miles east	J. A. Cantrell	1933	19	24	2.5
145	5 $\frac{1}{2}$ miles southeast	Dean Yates	1934	24	42	2.9
146	3 $\frac{1}{2}$ miles southeast	Henry A. King	1939	1,850 $\frac{1}{2}$	--	--
147	3 $\frac{3}{4}$ miles southeast	Andy Whitehorn	--	14	36	4.0
148	4 $\frac{1}{4}$ miles southeast	T. H. McConnell	1935?	19	42	3.0
149	7 $\frac{1}{2}$ miles southeast	Mrs. Beulah White	1890?	32	30	3.0
150	8 $\frac{1}{2}$ miles southeast	A. D. Glass	1935?	38	3	--
151	9 $\frac{1}{2}$ miles southeast	Erwin Lynch	1930	6	1 $\frac{1}{2}$	--
152	7 $\frac{1}{2}$ miles southeast	C. H. Venable	Old	24	24	3.6
153	8 miles southeast	Huffines School	--	24	24	2.0
154	5 $\frac{1}{2}$ miles south	E. V. Waites	1921	21	42	2.7
170	8 miles south	John Hanna	Old	27	42	2.9
171	In Bivins	Walker and White	1937	455	4?	--
172	do.	Bivins Consolidated School	--	4	48	4.0
173	8 miles southwest	Jack Jones	Old	15	42	3.2

Well No.	Water level		Method of lift	Use of water	Remarks
	Below measuring point (ft.)	Date of measurement			
123	24.76	Dec. 13, 1941	H	D,S	Tile curbing.
124	16.85	do.	H	D,S	
125	+	Oct. 27, 1941	Flows	S	Drilled; oil test. Estimated flow 2 gallons a minute 2 feet above ground.
126	16.46	do.	H	P	Tile casing. Formerly used by sawmill.
140	25.76	do.	T,E	RR	Curbed with S by 16-inch timbers. Drilled well about 150 feet deep with small flow reported in bottom of shaft.
141	9.68	Dec. 13, 1941	H	D,S	
142	--	--	None	N	Drilled; oil test, W. H. Daniel No. 1. Electrical log in files of Texas Board of Water Engineers shows sands between 150 and 180, 300 and 400, 525 and 575, and 725 and 750 feet.
143	28.44	Dec. 13, 1941	H	D,S	Tile curbing.
144	9.81	do.	H	D,S	
145	14.87	do.	H	D,S	
146	--	--	None	F	Drilled; oil test, Spearman No. 1. Electrical log in files of Texas Board of Water Engineers shows thick sands between 250 and 400 feet and thin sands between 625 and 750 feet.
147	14.36	Dec. 13, 1941	H	D,S	Wood curbing to bottom.
148	15.20	do.	H	D,S	No curbing.
149	32.75	do.	H	D,S	Brick curbing to bottom.
150	+	Nov. 5, 1941	Flows	D	Bored. Estimated flow 5 gallons a minute. Water has been sold for medicinal purposes.
151	d/s	1941	H	D,S	Driven.
152	25.73	Nov. 4, 1941	H	D,S	Tile curbing.
153	16.31	Oct. 31, 1941	E	D,P,S	Do.
154	16.13	Dec. 13, 1941	H	D,S	No curbing.
170	19.46	Dec. 3, 1941	H	D,S	Do.
171	d/s	--	A	Ind	Drilled. Cased to bottom; lowermost 80 feet perforated. supplies a sawmill.
172	20.05	Nov. 3, 1941	E	P	
173	15.62	Nov. 4, 1941	H	D,S	

Records of wells and springs in Cass County--Continued

Well No.	Distance from Atlanta	Owner	Date completed	Depth of well (ft.)	Diameter of well (in.)	Height of measuring point above ground (ft.)
174	7 miles southwest	British American Oil Producing Co.	1941	4,115+	--	--
175	4 $\frac{1}{2}$ miles southwest	Dr. -- Decker	Old	18	42	1.7
176	3 $\frac{1}{2}$ miles southwest	Lupton Willis	--	18	24	3.6
177	2 $\frac{1}{2}$ miles southwest	J. S. Thomas	1919	30	21	2.5
178	2 $\frac{1}{2}$ miles south	Laura Haddock	--	Spring	--	--
179	In Atlanta	Southwestern Gas and Electric Co.	--	230	10?	1.5
180	do.	City of Atlanta No. 2	1936	844	13- 3/8	--
192	do.	City of Atlanta No. 1	1909?	842	10	--
193	1 $\frac{1}{2}$ miles northwest	Queen City Oil and Gas Co.	1924	5,131	12 $\frac{1}{2}$	--
194	3 $\frac{1}{2}$ miles north	Allen Simms	1930?	26	36	5.0
195	3 $\frac{1}{2}$ miles northwest	Raymond Watt	Old	16	42	3.0
196	4 $\frac{1}{2}$ miles northwest	Beulah School	1932?	27	36	--
197	6 $\frac{1}{2}$ miles northwest	E. E. Watkins	--	28	42	2.2
198	4 $\frac{3}{4}$ miles northwest	Louis Richardson	1939	33	36	2.6
199	3 miles northwest	David Davis	1941	65	3	0.4
200	2 miles west	do.	1940	20	30	3.7
201	7 miles southwest	Bailey Cates	Old	28	42	2.3
202	9 $\frac{1}{2}$ miles west	Mrs. Ira Lumbers	Old	16	48	2.5
203	12 $\frac{1}{2}$ miles west	W. C. Echols	1940	30	42	3.0
204	11 $\frac{1}{4}$ miles west	J. L. Lambert	1930?	18	60	2.4

Well No.	Water level		Method of lift	Use of water	Remarks
	Below measuring point (ft.) <u>a/</u>	Date of measurement			
174	--	--	None	N	Drilled; oil test, East Texas Iron Co. No. 1. Electrical log in files of Texas Board of Water Engineers shows sands between 250 and 325 and 460 and 500 feet.
175	10.87	Nov. 4, 1941	H	D,S	
176	13.83	Dec. 15, 1941	H	D,S	Tile curbing.
177	23.57	Nov. 4, 1941	H	D,S	Do.
178	+	Dec. 13, 1941	Flows	D,S	On hillside. Estimated flow $\frac{1}{2}$ gallon a minute.
190	d/32	Apr. 25, 1935	E	Ind	Drilled, converted oil test. Water used to make ice.
	d/36	June 12, 1935			
	d/81	Apr. 7, 1941			
	d/90	Sept. ---, 1941			
191	d/54	Feb. ---, 1936	T,E, 30	P	Drilled; Layne-Texas Co.; screen from 737 to 836 feet. Underreamed to diameter of 30-inches and gravel-packed from 703 to 836 feet. Drawdown reported 78 feet after pumping 400 gallons a minute for 24 hours.
192	d/58	Feb. 12, 1936	T,E	P	Drilled; screen from 709 to 838 feet. Deepened from 814 to 842 feet in 1936. Drawdown reported 32 feet while pumping 138 gallons a minute. See partial log.
193	--	--	None	N	Drilled; oil test, W.A. Howe No. 1. See partial driller's log.
194	14.75	Dec. 5, 1941	H	D,S	Tile curbing from 19 to 26 feet.
195	14.83	do.	H	D,S	
196	---	--	H	P	
197	23.94	Dec. 15, 1941	H	D,S	Tile curbing from 18 to 28 feet.
198	28.67	do.	H	D,S	Wood curbing from 9 to 33 feet.
199	21.66	Nov. 4, 1941	None	N	Drilled. Cased to bottom.
200	19.51	do.	H	D,S	Concrete curbing to bottom.
201	24.35	Dec. 15, 1941	H	D,S	
202	13.75	Dec. 5, 1941	H	D,S	
203	26.04	Dec. 15, 1941	H	D,S	
204	15.67	Oct. 27, 1941	H	D,S	

Records of wells and springs in Cass County--Continued

Well No.	Distance from Atlanta	Owner	Date completed	Depth of well (ft.)	Diameter of well (in.)	Height of measuring point above ground (ft.)
205	9 miles west	O'Farrell School	Old	30	24	--
206	8 miles northwest	Midway School	Old	20	36	3.0
Well No.	Distance from Hughes Springs	Owner	Date completed	Depth of well (ft.)	Diameter of well (in.)	Height of measuring point above ground (ft.)
230	5 $\frac{1}{2}$ miles north	Irvin Bros.	1925?	20	42	2.7
231	4 miles north	R. G. Baker	1931	3,738	10	--
232	3 $\frac{1}{2}$ miles north	J. C. Hall	Old	25	42	3.0
233	5 $\frac{1}{4}$ miles northeast	Crossroads School	Old	45	36	2.3
234	3 miles northeast	W. L. Tomberlin	1912	30	42	2.5
235	5 miles northeast	R. J. Hankin	1941	44	42	5.0
236	7 $\frac{1}{4}$ miles northeast	Wylie Wommack	Old	49	42	2.9
237	9 $\frac{1}{2}$ miles northeast	Mrs. W. S. Burleson	--	20	36	3.2
238	8 $\frac{1}{2}$ miles northeast	Mrs. Lillie Moulton	1926?	15	48	2.6
239	6 $\frac{1}{2}$ miles northeast	A. H. Milner	1933	11	42	2.9
240	6 $\frac{1}{2}$ miles east	L. Pruitt	Old	22	42	2.7
250	In Hughes Springs	City of Hughes Springs	1935	359	13- 3/8	--
251	do.	Dr. H. L. D. Jenkins	1917?	227	--	--
252	8 $\frac{1}{4}$ mile southwest	Sam Hull	Old	23	42	3.2
253	2 $\frac{1}{2}$ miles southwest	R. M. Kasling	Old	30	42	2.5
254	3 $\frac{1}{2}$ miles southeast	F. R. Amox	1925?	90	36	3.0
255	5 $\frac{1}{2}$ miles southeast	Dr. H. L. D. Jenkins	Old	24	42	5.0
256	3 $\frac{3}{4}$ miles southeast	do.	--	30	4	1.5
257	2 $\frac{1}{2}$ miles southeast	B. B. Pruitt	Old	25	42	2.7
258	4 $\frac{1}{8}$ miles southeast	Connor Bros.	Old	36	36	2.8
259	do.	do.	--	18	36	2.7

Well No.	Water level		Method of lift	Use of water	Remarks
	Below measuring point (ft.) a/	Date of measurement			
205	--	--	H	D,P	Tile casing.
206	19.56	Oct. 27, 1941	H	F	
Well No.	Water level		Method of lift	Use of water	Remarks
	Below measuring point (ft.) a/	Date of measurement			
230	19.49	Dec. 8, 1941	H	D,S	
231	--	--	None	N	Drilled; oil test, C. Irvin No. 1. See partial driller's log.
232	17.88	Dec. 8, 1941	H	D,S	
233	42.15	Oct. 28, 1941	H	P	
234	22.49	Dec. 8, 1941	H	D,S	
235	36.94	do.	H	D,S	
236	37.18	Dec. 9, 1941	H	D,S	
237	17.43	Dec. 15, 1941	H	D,S	
238	11.97	Dec. 9, 1941	H	D,S	
239	6.94	Dec. 8, 1941	H	D,S	
240	22.60	do.	H	D,S	
250	d/162	Aug. 21, 1935	T,E	P	Drilled; Layne-Texas Co. Screen from 284 to 307 and 323 to 353 feet. Drawdown reported 93 feet while pumping 94 gallons a minute.
251	d/10	1917	None	N	Drilled. Screen from 209 to 227 feet. Abandoned. See log.
252	23.21	Dec. 6, 1941	H	D,S	
253	26.20	do.	H	D,S	
254	73.97	Oct. 28, 1941	H	D	
255	25.46	Dec. 6, 1941	H,E	D,S	
256	19.91	do.	H	D,S	Bored.
257	24.40	Dec. 8, 1941	H	D,S	
258	25.59	do.	H	D,S	
259	17.42	do.	H	D,S	

Records of wells and springs in Cass County--Continued

Well No.	Distance from Hughes Springs	Owner	Date completed	Depth of well (ft.)	Diameter of well (in.)	Height of measuring point above ground (ft.)
260	7 $\frac{1}{2}$ miles southeast	Art Rhyne	--	28	42	2.3
261	8 $\frac{1}{2}$ miles southeast	Marshall Felker	--	--	12	--
262	10 miles southeast	Munn Linwood	Old	34	42	2.7
263	do.	Mrs. Lula Stevenson	Old	19	42	2.7
264	8 $\frac{1}{2}$ miles southeast	D. R. Colter	--	32	42	2.6
265	In Avinger	Thomas and Ware	1938	390	10	--
266	do.	do.	1930?	290	12	0.4
267	7 miles southeast	F. A. Sturdivant	1920?	22	42	3.0
268	6 $\frac{1}{2}$ miles southeast	Marshall Felker	Old	29	36	2.5
269	7 $\frac{3}{4}$ miles southeast	-- Harrison	--	3,000+	--	--
270	7 $\frac{1}{2}$ miles southeast	A. M. Wright	Old	49	36	3.0
271	6 $\frac{1}{4}$ miles south	Violet Hill School	--	51	42	3.7
272	7 miles south	Stanley A. Thompson	1935	4,039	10	--
273	5 miles south	Mrs. Koy Dunbar	1930	20	42	3.0

Well No.	Distance from Linden	Owner	Date completed	Depth of well (ft.)	Diameter of well (in.)	Height of measuring point above ground (ft.)
300	5 $\frac{1}{2}$ miles northwest	R. A. Swenson	--	16	24	1.3
301	6 $\frac{1}{2}$ miles northwest	A. C. Penny	1911	21	42	2.0
302	5 miles northwest	Jim Sheffield	--	23	24	2.5
303	1 $\frac{1}{2}$ miles west	Wess Moss	--	erring	--	--
304	In Linden	City of Linden	1934	343	8	--
305	3 $\frac{1}{2}$ miles northwest	-- School	--	20	42	3.0
306	3 $\frac{3}{4}$ miles north	Warren Springs School	--	23	36	0.5

Well No.	Water level		Method of lift	Use of water	Remarks
	Below measuring point (ft.) a/	Date of measurement			
260	26.01	Dec. 4, 1941	H	D,S	
261	+	Oct. 28, 1941	Flows	S	Drilled; oil test. Estimated flow 1 gallon a minute 1 foot above ground.
262	24.67	Dec. 4, 1941	H	D,S	
263	17.75	Dec. 6, 1941	H	D,S	
264	21.63	Dec. 4, 1941	H	D,S	
265	d/100	1938	T,E, 5	P	Drilled. Casing: 200 feet of 10-inch and 160 feet of 8-inch; bottom 20 feet perforated. Gravel-packed from 200 to 330 feet. Reported yield 65 gal a minute. Supplies City of Avinger.
266	55.45	Oct. 28, 1941	None	N	Drilled. Avinger. Drilled by J. C. Belling. Casing to bottom with 12 and 6-inch casing. Yielded 65 gallons a minute when used to
267	20.11	Dec. 4, 1941	H,G, 1½	D,S	[supply City of Avinger.]
268	28.93	Dec. 6, 1941	H	D,S	
269	--	--	--	--	Drilling not completed when visited. Fresh water sands reported to 400 feet.
270	47.47	Dec. 6, 1941	H	D,S	Tile curbing from 37 to 49 feet.
271	47.88	do.	H	P	
272	--	--	None	N	Drilled; oil test, W. A. Heaton No. 1. See partial driller's log.
273	19.37	Dec. 6, 1941	H	D,S	

Well No.	Water level		Method of lift	Use of water	Remarks
	Below measuring point (ft.) a/	Date of measurement			
300	4.24	Dec. 15, 1941	H	D,S	
301	14.21	do.	H	D,S	
302	10.19	do.	H	D,S	
303	+	Dec. 2, 1941	Flows	D,S	In creek bottoms. Estimated flow 5 gallons a minute. Known as Mineral Spring.
304	d/135	1934	T,E	P	Drilled; Layne-Texas Co. Screens from 642 to 685, 730 to 750, and 802 to 323 feet. Drawdown reported when drilled 46 feet while pumping 118 gallons a minute. Supplies City
305	13.53	Dec. 10, 1941	H	F	of Linden. See log.
306	19.52	Oct. 27, 1941	H	P	

Records of wells and springs in Cass County--Continued

Well No.	Distance from Linden	Owner	Date completed	Depth of well (ft.)	Diameter of well (in.)	Height of measuring point above ground (ft.)
307	3 $\frac{3}{4}$ miles northeast	D. H. Hamilton	Old	35	36	3.5
308	7 $\frac{1}{2}$ miles northeast	H. O. Teale	--	22	36	2.6
309	5 miles northeast	Mrs. Dora Blizzard	Old	37	36	3.0
310	3 $\frac{1}{2}$ miles northeast	New Colony School	Old	30+	30	--
311	2 $\frac{1}{2}$ miles east	E. R. Castner	Old	19	42	2.2
312	4 miles east	Henry A. King	1941	--	--	--
313	6 $\frac{1}{2}$ miles southeast	T. A. Washington	1928	27	36	5.4
314	8 miles southeast	Mrs. I. D. Spear	1907	22	42	2.9
315	do.	do.	1909	600+	--	--
330	9 miles southeast	Kildare School	1937	28	36	0.5
331	10 miles southeast	--	--	10	36	2.8
332	13 $\frac{3}{4}$ miles southeast	T. M. Purdy Estate	1926	40+	36	--
333	10 miles southeast	Eliza Johnson	1938	23	36	2.5
334	9 $\frac{1}{2}$ miles southeast	Ebernezzer School	1933?	67	36	2.6
335	do.	Daniel and Daniel	1925	3,337	10	--
336	8 $\frac{3}{4}$ miles southeast	-- Davidson	--	--	6	--
337	do.	G. A. Powell	1933	14	36	2.7
338	8 miles southeast	J. E. Snolton	1930	18	24	3.5
339	7 $\frac{1}{2}$ miles southeast	Cass County	1937?	200+	4	--
340	8 $\frac{1}{2}$ miles southeast	P. H. Lemmon	1905	27	42	3.0
341	7 miles southeast	L. W. Kay	Old	26	36	3.6
342	4 $\frac{3}{4}$ miles southeast	Hardy Dooley	--	Spring	--	--
343	4 miles southeast	T. Livingston	1910	20	42	0.0
344	2 $\frac{1}{2}$ miles south	R. H. Harvey	1925?	11	36	5.0
345	2 miles southwest	Calvin Whitfield	1939	17	42	2.3
346	4 miles southwest	C. W. Wells	Old	49	42	6.0

Well No.	Water level		Method of lift	Use of water	Remarks
	Below measuring point (ft.) a/	Date of measurement			
307	32.08	Dec. 5, 1941	H	D,S	
308	15.04	Dec. 15, 1941	H	D,S	
309	35.03	Oct. 28, 1941	H	D,S	
310	--	--	C, G, I	P	
311	15.06	Dec. 3, 1941	H	D,S	
312	--	--	None	N	Drilled; oil test. Mrs. Sloan Taylor lease.
313	26.30	Dec. 3, 1941	H	D,S	
314	19.37	do.	H,C,E	D,S	
315	d/+	1909	None	N	Drilled. Flowed until 1916, when casing was pulled. Water reported unfit for boilers. Abandoned.
330	13.35	Oct. 25, 1941	E	P	Brick curbing.
331	9.50	Dec. 3, 1941	H	D,S	
332	--	--	C,G, I	D,S	
335	18.82	Dec. 3, 1941	H	D,S	
334	64.40	Dec. 2, 1941	H	P	
335	--	--	None	N	Drilled; oil test, Lanier lease. See partial driller's log.
336	--	--	None	N	Drilled; oil test. Flowed until about 1939 when well was plugged.
337	7.30	Dec. 3, 1941	H	D,S	
338	12.99	Dec. 2, 1941	H	D,S	
339	d/+	1941	Flows	N	Drilled; seismograph test hole.
340	27.57	Dec. 2, 1941	H	D,S	Wood curbing from 16 to 27 feet.
341	19.26	do.	H	D,S	No curbing.
342	+	Dec. 3, 1941	Flows	D,S	In bank of gully. Estimated flow, 20 gallons a minute.
343	7.09	do.	H	D,S	
344	12.81	Dec. 2, 1941	H	D	
345	11.64	Dec. 4, 1941	H	D,S	No curbing.
346	45.88	do.	H	D,S	

Records of wells and springs in Cass County--Continued

Well No.	Distance from Linden	Owner	Date completed	Depth of well (ft.)	Diameter of well (in.)	Height of measuring point above ground (ft.)
347	5 miles southwest	Mrs. Hester Simonton	Old	26	42	3.0
348	5 $\frac{1}{2}$ miles south	R. E. L. Fant	1935?	7	36	2.5
349	9 $\frac{1}{2}$ miles south	Shiloh School	Old	21	42	3.3
350	9 miles south	D. L. Hatcher	1900?	40	42	3.0
360	10 miles southwest	T. E. Hollis	1941	21	42	4.0
361	6 $\frac{1}{2}$ miles southwest	Joe Hedges	--	29	42	2.9
362	7 miles southwest	Mrs. Zulme Williams	1922	44	24	0.5
363	3 $\frac{3}{4}$ miles southwest	C. C. Grubbs	1936	17	42	3.5
364	do.	do.	1929?	25	48	2.9
365	6 $\frac{1}{2}$ miles southwest	S. S. O'Rand	1928	36	36	3.1
366	6 $\frac{1}{2}$ miles west	J. E. Morgan	--	36	42	5.0

Well No.	Distance from McLeod	Owner	Date completed	Depth of well (ft.)	Diameter of well (in.)	Height of measuring point above ground (ft.)
400	6 miles west	Tommy Hanks	Old	23	42	2.8
401	4 miles northwest	Eddie White	Old	60	42	2.9
402	2 $\frac{1}{2}$ miles northwest	J. L. Wiggins	Old	32	21	3.4
403	4 $\frac{1}{2}$ miles northeast	Bay Oil Corp.	1936	600+	6	--
404	4 $\frac{1}{2}$ miles northeast	Magnolia Petroleum Corp.	1936	600+	6- 5/8	--
405	do.	T. G. Ray Drilling Co.	1936?	600+	4	--
406	2 miles northeast	American Liberty Oil Co.	--	500-	4	4.0
407	2 $\frac{1}{2}$ miles northeast	Magnolia Petroleum Corp. No. 2	1936	807+	2- 5/8	3.0
408	do.	Magnolia Petroleum Corp. No. 1	1936	800+	8- 5/8	--
409	2 $\frac{1}{2}$ miles northeast	United Gas Co. No. 1	1936	636	12	--

Well No.	Water level		Method of lift	Use of water	Remarks
	Below measuring point (ft.) <u>a/</u>	Date of measurement			
347	22.13	Dec. 4, 1941	H	D,S	No curbing.
348	3.75	Dec. 2, 1941	H	D	
349	19.25	Dec. 4, 1941	H	D,P	
350	37.64	do.	H	D,S	No curbing.
360	22.92	do.	H	D,S	Do.
361	27.14	do.	H	D,S	Do.
362	38.10	do.	H	D,S	Tile curbing.
363	15.24	do.	H	D,S	
364	21.90	do.	H	D	
365	35.99	do.	H	D,S	
366	31.96	Dec. 8, 1941	H	D,S	

Well No.	Water level		Method of lift	Use of water	Remarks
	Below measuring point (ft.) <u>a/</u>	Date of measurement			
400	19.44	Dec. 3, 1941	H	D,S	
401	46.90	do.	H	D,S	No curbing.
402	30.07	Nov. 3, 1941	H	D,S	Curbed to bottom.
403	--	--	A	Ind	Drilled; George Parker lease. Estimated yield 50 gallons a minute.
404	--	--	A	Ind	Drilled; Feazel-Parker lease.
405	--	--	A	D,Ind	Drilled; Parker "A" lease.
406	5.55	Nov. 1, 1941	A	N	Drilled; D. A. Maxie lease. W. A. Keller driller.
407	84.26	Oct. 31, 1941	A	N	Drilled; Mary Rives lease. C. G. Vaught, driller.
408	--	--	A	N	Drilled; Mary Rives lease. Norton, driller.
409 <u>d/132</u>		June 10, 1936	A	Ind	In Caddo Parish, Louisiana. Drilled; Layne-Louisiana Co. Screen from 593 to 636 feet. Reported yield 160 gallons a minute. Supplies compressor station. See log.

Records of wells and springs in Cass County--Continued

Well No.	Distance from McLeod	Owner	Date completed	Depth of well (ft.)	Diameter of well (in.)	Height of measuring point above ground (ft.)
410	2 $\frac{1}{2}$ miles northeast	United Gas Co. No. 2	1936	674	12	0.5
411	do.	United Gas Co. No. 3	1936	324	12	--
412	do.	United Gas Co. No. 4	1936	623	12	0.5
413	5 miles east	Texarkla Oil Co.	1937	576	4	--
414	do.	United Gas Co.	1936	1,009	--	--
415	2 $\frac{1}{2}$ miles southeast	J. D. Fate	1940	3,493+	--	--
416	1 $\frac{1}{2}$ miles southeast	N. C. Land	--	Spring	--	--
417	1 $\frac{1}{2}$ miles east	Mid-Kansas Oil and Gas Co.	1927	2,828	10	--
418	1 mile north	United Gas Co.	1937	611	12	--
430	In McLeod	McLeod School	1936	800+	6	--
431	do.	The Texas Co.	1936	800+	6	--
432	1 $\frac{1}{2}$ miles southwest	American Liberty Oil Co.	1936	800+	6	--
433	2 $\frac{1}{2}$ miles southwest	Phillips Petroleum Co.	1936?	700+	6	--
434	2 $\frac{1}{2}$ miles southwest	Showers-Moncrief-McGlothlin Oil Co.	1936	790+	6	--
435	do.	do.	1936	700+	6	--
436	do.	do.	1936	390+	6	--
437	3 miles southwest	Rambo School	1939	30	72	--
438	3 $\frac{1}{2}$ miles southwest	Gulf Production Co.	1936?	--	6- 5/8	4.7
439	do.	American Liberty Oil Co.	1936	800+	6	--
440	3 miles southwest	Hunt Oil Co.	1936?	800+	--	--
441	3 $\frac{1}{2}$ miles southwest	The Superior Oil Co.	1936	996	6	--
442	4 miles southwest	The Ohio Oil Co.	1936	640	6	4.4

Well No.	Water level		Method of lift	Use of water	Remarks
	Below measuring point (ft.) a/	Date of measurement			
410	175.44	Oct. 31, 1941	A	Ind	In Caddo Parish, Louisiana. Driller; Layne-Louisiana Co. Screen from 613 to 654 feet. Auxiliary to well 409. See log.
411	3/85	1936	A	N	In Caddo Parish, Louisiana. Drilled; Layne-Louisiana Co. Screen from 89 to 129 feet. Reported drawdown 125 feet, jetting 45 gallons a minute. See log.
412	169.21	Oct. 31, 1941	A	Ind	In Caddo Parish, Louisiana. Drilled; Layne-Louisiana Co. Screen from 578 to 618 feet. Auxiliary to well 409. See log.
413	--	--	C,E	D,Ind	In Caddo Parish, Louisiana. Drilled; C. G. Vaught, driller. Casing perforated from 200 to 360 feet. See log.
414	--	--	--	D,Ind	In Caddo Parish, Louisiana. Drilled; Layne-Louisiana Co. See log.
415	--	--	None	N	Drilled; oil test, W. D. Chew No. 1. Electrical log in files of Texas Board of Water Engineers shows sands between 110 and 140, 190 and 210, and 270 and 310 feet.
416	+	Nov. 4, 1941	Flows	D,S	In valley near creek. Estimated flow 5 gallons a minute. Known as Rogers Spring.
417	--	--	None	N	Drilled; oil test, T. G. Roberts lease. See partial driller's log.
418	--	--	A	D,Ind	Drilled; F. L. Simpson lease. Reported yield 33 gallons a minute.
430	--	--	A	P	Drilled; F. L. Simpson lease. W. A. Meller, driller. Reported yield 40,000 gallons a day. Supplies school and town of McLeod.
431	--	--	None	N	Drilled; McLeod lease. Formerly supplied oil camp.
432	--	--	A	Ind	Drilled; E. T. Tyson lease.
433	--	--	A	Ind	Drilled; T. H. Stallcup lease, C. G. Vaught, driller. Reported yield 280 gallons a minute.
434	--	--	A	Ind	Drilled; T. H. and Sallie Stallcup lease, W. A. Meller, driller.
435	--	--	A	N	Do.
436	--	--	A	N	Do.
437	--	--	C,E, l	P	Concrete curbing from 60 to 80 feet.
438	95.26	Nov. 3, 1941	A	N	Drilled.
439	--	--	A	Ind	Drilled; Baugus "A" lease, Walter A. Meller, driller. Estimated yield 50 gallons a minute.
440	--	--	A	Ind	Drilled; Shelton lease.
441	--	--	A	D,Ind	Drilled; W. D. Chew "A" lease. Reported yield 2,000 gallons an hour.
442	24.71	Oct. 29, 1941	A	N	Drilled; R. P. Willis lease, W. A. Meller, driller. Cased to 64 feet, bottom 125 feet perforated.

Records of wells and springs in Cass County--Continued

Well No.	Distance from McLeod	Owner	Date completed	Depth of well (ft.)	Diameter of well (in.)	Height of measuring point above ground (ft.)
443	4 miles southwest	G. H. Vaughn Oil Co.	1936	189	8 ⁺	--
444	4 $\frac{1}{2}$ miles southwest	Phillips Petroleum Co.	1936	330	8	--
445	4 $\frac{1}{2}$ miles southwest	Texarkla Oil Corp.	--	522	6	--
446	4 $\frac{1}{2}$ miles southwest	Phillips Petroleum Co.	1937	250	20	--
447	do.	do.	1937	300 ⁺	--	--
448	do.	do.	1937	250	20	--
449	5 miles southwest	C. H. Chamblee Oil Corp.	1936	300 ⁺	4	--
450	5 $\frac{1}{2}$ miles southwest	Texarkla Oil Corp.	--	90 ⁺	6	2.1
451	do.	do.	1937	367	8	1.6
452	do.	P. L. Hoffman Oil Co.	1935	409	6	1.2
453	6 $\frac{1}{2}$ miles southwest	L. A. McDonald	1939	33	36	--

a/ Plus (+) indicates water level is above ground.

b/ T, turbine; A, air, natural gas or steam lift; C, cylinder; H, hand pump or bucket and rope; E, electric motor; G, gasoline; number indicates horsepower.

Well No.	Water level		Method of lift	Use of water	Remarks
	Below measuring point (ft.) a/	Date of measurement			
443	--	--	A	D,Ind	Drilled; Willis lease. Cased to 189 feet; bottom 60 feet perforated. Flowed when
444	--	--	A	Ind	Drilled; Alline Skinner lease, C. G. Vaught, driller. See log. <u>drilled.</u>
445	--	--	A	Ind	Drilled; J. T. Moore lease, C. G. Vaught, driller. See log.
446	--	--	A	Ind	Drilled. Reported yield, in conjunction with well 443, 15,000 gallons a day. Supplies
447	--	--	None	N	Drilled. Water reported unfit for use in refinery. Abandoned. <u>refinery.</u>
448	--	--	A	D,Ind	Drilled.
449	--	--	A	D,Ind	Drilled; W. B. Collette lease. Estimated yield 30 gallons a minute.
450	65.25	Oct. 29, 1941	A	N	Bored; J. F. Davis lease.
451	104.03	do.	A	Ind	Drilled; J. F. Davis lease, C. G. Vaught, driller. See log.
452	15.96	do.	A	D,Ind	Drilled; Davis-Collette lease. Reported yield 100 gallons a minute.
453	d/29	--	H	E	

c/ P, public supply; Ind, industrial; D, domestic; RR, railroad; S, stock; N, none.
d/ Water level reported by driller or owner.

Table of Drillers' Logs, Cass County, Texas

		Thickness (feet)	Depth (feet)			Thickness (feet)	Depth (feet)
<u>Well 41, partial log</u>				<u>Well 80, partial log</u>			
E. H. Pigg, Ed Lambert lease, 9 $\frac{3}{4}$ miles southeast of Marietta.				George G. Moore, W. E. Kennedy lease, 14 miles northwest of Atlanta.			
Surface sand	310	310	Surface sand	20	20		
Sand	160	470	Sand	30	50		
Gumbo	30	500	Sand, boulders	257	307		
Sand	50	550	Sand	1	308		
Sandy shale	50	600	Brown sand	42	350		
Blue shale	25	625	White sand, water	55	405		
Shale, shells	50	675	Gumbo, lignite	20	425		
Sandy shale	37	712	Brown gumbo,				
Hard sand	2	714	lignite	90	515		
Shale	28	742	Hard brown rock,				
Broken lime	33	775	some lignite	2	517		
Hard sandy lime	2	777	Sand, lignite	43	560		
Water sand	35	810	Clay	90	650		
Sand, shale	20	830	Gray sand, lignite	40	690		
Shale	18	848	Clay, boulders	10	700		
Shale, shells	194	1042	Gray sand, lignite	50	750		
Shale	118	1160	Blue gumbo	25	775		
Shale, shells	78	1238	Rock	3	778		
Shale	51	1289	Sandy shale	12	790		
Lime	10	1299	Rock	3	793		
Gumbo, shale			Shale, boulders	197	990		
and lime shell	551	1850	Gumbo	46	1036		
TOTAL DEPTH		4101	Gummy shale	34	1070		
			Gumbo	40	1110		
			TOTAL DEPTH		3202		
<u>Well 68, partial log</u>				<u>Well 118, partial log</u>			
United North and South Development Co., Abe Nickleberry lease, 2 $\frac{1}{4}$ miles southwest of Marietta.				Queen City Oil and Gas Co., R. D. Jones lease, 11 $\frac{3}{4}$ miles north of Atlanta.			
Sand, clay	8	8	Sand	3	3		
Sand, shale	13	26	Red clay	6	9		
Water sand	20	46	White sand, water	1	10		
Sand, boulders	65	111	Red iron, ore, sand	6	16		
Sandy shale	111	222	Lignite	2	18		
Rock	3	225	"Salt and pepper"				
Shale	126	351	sand	126	144		
Water sand	45	396	Gumbo	3	147		
Shale	180	576	Gumbo, boulders	34	181		
Shale, boulders	100	676	Lignite	4	185		
Rock	3	679	Gumbo, boulders	108	293		
Water sand	37	716	Lignite	3	296		
Rock	5	721	Gummy shale	10	306		
Sand, boulders	39	760	Gumbo, boulders	19	325		
Sandy shale	264	1024	Hard shell, rock	1	326		
Shale	1294	2318	Blue gumbo	14	340		
TOTAL DEPTH		4141					

(Continued on next page)

Table of Drillers' Logs, Cass County--Continued

Well 118, partial log--Continued			Well 191--Continued		
	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
"Salt and pepper" sand	110	450	Shale	54	583
Slate	4	454	Lignite	10	593
Lignite	6	460	Sandy shale	56	649
Blue gumbo	21	481	Sand and shale layers	37	686
Hard "salt and pepper" sand	23	504	Hard rock	1	687
Gumbo	20	524	Sand	8	695
Gummy lignite	2	526	Rock, boulders	10	705
Hard white sand	23	549	Fine-grained sand	33	738
Hard sandy gumbo	22	571	Boulders	1	739
Hard white sand	79	650	Fine-grained sand	28	767
Rock	1	651	Rock	2	769
Gumbo	24	675	Good sand	32	801
Shale, lime, gumbo	620	1295	Hard layers of shale	7	808
Hard packsand, bailed salt water	30	1325	Good sand	35	843
TOTAL DEPTH		3208	Rock	1	844

Well 120, partial log

Henry A. King, Heilborn and Kay lease,
12 miles northeast of Atlanta.

Surface sand, clay	330	330
Fresh water sand, strong flow of fresh water	70	400
Sandy shale, shell	175	575
Shale	505	1080
Marl, shale	170	1250
TOTAL DEPTH		4202

Well 191

City of Atlanta No. 2, at Atlanta.

Soil	1	1
Sandy clay	27	28
Sand	1	29
Muddy sand, lignite	65	94
Sand, lignite	74	168
Green sand	29	197
Sand, boulders	4	201
Sand, lignite	77	278
Hard rock	0.5	278.5
Sandy shale, lignite	54.5	333
Soft rock	2	335
Sandy shale	40	375
Fine-grained muddy sand, shale	63	438
Shale	12	450
Sandy shale	20	470
Fine-grained sand	42	512
Shale	16	528
Rock	1	529

Well 192, partial log

City of Atlanta No. 1, at Atlanta.

Not known	814	814
Sand	28	842
TOTAL DEPTH		842

Well 193, partial log

Queen City Oil and Gas Co., W. A. Howe
No. 1, $1\frac{1}{2}$ miles northwest of Atlanta.

Red iron ore, clay	25	25
Water sand	17	42
Rock	2	44
Clay, boulders	61	105
Water sand	42	147
Lignite, gummy shale	4	151
Gummy shale	149	300
Water sand	100	400
Lignite	4	404
Water sand	45	447
Gummy shale	41	488
"Salt and pepper" sand	61	549
Gummy shale	161	710
Gypsum	5	715
Hard gumbo	31	746
Rock	1	747
"Salt and pepper" sand	9	756
Hard sand rock	1	757
Hard white sand	81	838
Soft gumbo	23	861
Blue shale	9	870
Sand rock	3	873
Hard sandy shale	8	881
Water sand	101	982
Gummy shale	42	1024
Soft gumbo	216	1240
TOTAL DEPTH		3131

Table of Drillers' Logs, Cass County--Continued

Well 231, partial log		Well 304--Continued	
Thickness (feet)	Depth (feet)	Thickness (feet)	Depth (feet)
R. G. Baker, C. Irvin No. 1, 4 miles north of Hughes Springs.		Sand 21 343	
Sand, clay 75	75	Sand rock 2	345
Shale 25	100	Sand 32	377
Sand 200	300	Shale 20	397
Sand, shale 280	580	Rock 1	398
Shale 570	1150	Sticky shale 56	454
Sticky shale 170	1320	Hard packsand 13	467
Shale, sand 100	1420	Hard shale 29	496
Sticky shale 250	1670	Rock 3	499
TOTAL DEPTH	3736	Hard shale 37	536
Well 250		Sandy shale 118	654
City of Hughes Springs at Hughes Springs.		Hard packsand 24	678
Sandy shale 10	10	Sand, shale 44	722
Shale 15	25	Hard sand 22	744
Sandy shale 93	118	Shale 38	782
Shale, lignite 106	224	Sandy shale 18	800
Sand, shale 57	281	Sand 25	825
Good sand 32	313	Sandy shale 18	843
Rock 1	314	Well 335, partial log	
Sand 39	353	Daniel and Daniel, Lanier lease, 9 $\frac{1}{2}$ miles southeast of Linden.	
Sandy shale 6	359	Clay 20	20
Well 272, partial log		Sand, sand rock 158	178
Stanley A. Thompson, W. A. Hooton No. 1, 7 miles south of Hughes Springs.		Shale 106	284
Clay, gravel 105	105	Sand 88	372
Shale, gravel 95	200	Shale, gumbo 30	402
Water sand 50	250	Sand 33	490
Shale, shells 460	710	Shale, gumbo 77	567
Water sand 165	875	Hard "flinty" rock 2	569
Shale, shells 602	1537	Sandy shale 43	612
TOTAL DEPTH	4039	Blue gumbo, shale 82	694
Well 304		Water sand 81	775
City of Linden, at Linden.		Shale, gumbo 52	827
Soil 1	1	Packsand 65	892
Clay 24	25	Shale, gumbo, boulders 710	1602
Rock 3	28	Sand 200	1802
Shale 37	65	Sandy shale 15	1817
Muddy sand, lignite 50	115	Shale and gumbo 187	2004
Hard shale 32	147	Chalk, with gumbo and shale streaks 521	2525
Hard rock 2	149	TOTAL DEPTH	3337
Shale 111	260	Well 409	
Rock 1	261	United Gas Co., No. 1, Caddo Parish, Louisiana, 2 $\frac{3}{4}$ miles northeast of McLeod.	
Muddy sand 18	280	Sandy red clay 20	20
Shale, boulders 24	304	Fine-grained brown sand 10	30
Hard sand 16	320	Blue clay 50	80
Hard rock 2	322	(Continued on next page)	

Table of Drillers' Logs, Cass County--Continued

Well 409--Continued			Well 411--Continued		
	Thickness (f. et)	Depth (feet)		Thickness (feet)	Depth (feet)
Fine-grained gray water sand	50	130	Sandy red clay	20	20
Sandy shale	80	210	Fine-grained red sand	10	30
Gummy shale, boulders	36	246	Sandy shale	50	80
Packsand	9	255	Fine-grained green sand	52	132
Sand rock	5	260	Gummy shale	78	210
Gumbo, shale, boulders	14	274	Gummy shale, boulders	36	246
Fine-grained gray water sand	20	294	Sandy shale	9	255
Sandy shale	14	308	Sand rock	5	260
Gummy shale	5	313	Gummy shale	25	285
Sandy shale with streaks of sand	31	344	Fine-grained green sand	19	304
Gummy shale	34	378	Gummy shale	20	324
Sand rock	15	393			
Hard shale, boulders	50	443	<u>Well 412</u>		
Gummy shale	8	451	United Gas Co. No. 4, in Caddo Parish, Louisiana, 2 $\frac{1}{4}$ miles northeast of McLeod.		
Dirty sand, shale	52	503	Sandy red clay	20	20
Gummy shale, boulders	49	552	Fine-grained brown sand	10	30
Sandy shale with streaks of sand	33	585	Black shale	50	80
Hard gumbo	12	597	Fine-grained green sand	50	130
Fine-grained gray water sand	39	636	Sandy shale	80	210
			Gummy shale, boulders	36	246
<u>Well 410</u>			Packsand	9	255
United Gas Co. No. 2, in Caddo Parish, Louisiana, 2 $\frac{3}{4}$ miles northeast of McLeod.			Sand rock	5	260
Sandy clay	10	10	Gumbo, shale, boulders	14	274
Red sand	10	20	Fine-grained gray sand	20	294
Sandy shale, boulders	75	95	Sandy shale	14	308
Fine-grained gray water sand	38	133	Gumbo, shale	5	313
Gumbo, shale, boulders	63	196	Sandy shale	138	451
Sandy shale	34	230	Dirty sandy shale	52	503
Gummy shale	45	275	Hard shale	82	585
Fine-grained green water sand	21	296	Fine-grained water sand	38	623
Sandy shale	39	335			
Gummy shale, boulders	70	405	<u>Well 413</u>		
Hard shale	93	498	Texarkla Oil Co., 1 $\frac{1}{2}$ miles south of Rodessa in Caddo Parish, Louisiana, 5 miles east of McLeod.		
Sandy shale	13	511	Surface material	24	24
Hard gummy shale	67	578	Sand	23	47
Packsand, water	25	603	Clay	46	93
Hard gumbo	3	606	Sand	23	116
Fine-grained gray water sand	68	674	Clay, boulders	93	209
			Sand	11	220
<u>Well 411</u>			Shale	89	309
United Gas Co. No. 3, in Caddo Parish, Louisiana, 2 $\frac{1}{4}$ miles northeast of McLeod.			Sand	12	321
			Shale, boulders	21	342
			Sand	36	368
			Shale	8	376

Partial analyses of water from wells and springs in Cass County, Texas

Analyzed at The University of Texas under the direction of W. W. Hastings, U. S. Department of the Interior, Geological Survey, and Dr. F. P. Schoch, Director of the Bureau of Industrial Chemistry. Results are in parts per million. Well numbers correspond to numbers in table of well records.

Well	Owner	Depth of well (ft.)	Date of collection	Total dissolved solids (calc.)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na + K) (calc.)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Nitrate (NO ₃)	Fluoride (F)	Total hardness as CaCO ₃ (calc.)
1	L. F. Hicks	16	Dec. 9, 1941	63	a/	7.5	14	31	20	10	1.0	-	31
2	H. B. Moore	22	do.	45	0.4	3.9	3.0	0	7	18	13	0.1	17
3	Arthur Boyd	24	do.	30	2.4	2.7	3.7	6	2	9.0	7.0	-	17
4	B. J. Floyd	36	do.	107	5.6	8.8	25	92	7	15	0.5	-	50
c/5	Brock Bros.	40	Oct. 28, 1941	2,159	235	272	108	843	929	193	b/	0	1,703
6	L. W. Smith	15	Dec. 10, 1941	30.0	a/	3.9	a/	0	18	6.0	2.0	0.2	16
7	do.	20	do.	53	a/	6.1	1.3	0	41	4.0	0.5	-	25
8	Mrs. Tim Brooks	11	do.	45	1.2	6.3	3.7	0	13	9.5	6.5	-	29
c/9	-	19	Dec. 9, 1941	330	40	23	53	133	41	82	1.0	-	194
10	C. S. Harvey	57	do.	1,228	99	148	118	641	462	35	21	0.1	353
c/11	H. H. Henson	35	do.	1,556	159	99	261	226	124	632	120	0.1	806
c/20	C.C. Stringer	57	do.	702	50	49	148	214	49	298	3.0	-	326
21	R. M. Abston	26	do.	96	6.4	11	7.6	6	5	29	34	-	62
22	Miss Bessie Stewart	38	Dec. 10, 1941	40	1.2	6.3	2.8	18	2	4.5	14	0.2	29
23	Willie Harrison	19	do.	911	123	118	46	317	23	438	2.0	0.4	303
24	New Union School	16	do.	679	46	61	65	31	300	120	2.0	0.3	368
25	Mrs. A.J. Berry	33	do.	196	6.8	14	34	0	3	52	36	-	73
26	D. H. Rainey	60	do.	25	2.0	1.5	3.5	0	8	3.5	6.0	-	11
27	J.B. Granberry	28	do.	41	2.0	1.5	9.7	12	2	6.0	14	-	11
28	Ben Black	Spring	do.	54	2.8	3.6	12	12	22	3.0	3.0	0.1	22
29	Spring Hill School	34	do.	882	30	52	212	55	236	323	1.5	0.1	287
c/30	William Childs Spring		do.	52	a/	1.5	17	6	12	17	1.0	-	6
31	Riley Leonard	19	Dec. 15, 1941	165	19	25	98	6	128	117	75	-	150
32	Mrs. Maggie Jackson	24	do.	29	2	2.7	2.5	0	3	6.5	12	-	16
33	Mrs. Dollie Snipe	Spring	Dec. 10, 1941	11	1.6	0.2	1.8	0	2	3.5	2.0	0.3	5
40	Mrs. Bertha Waskin	20	Dec. 15, 1941	21	a/	3.6	2.3	6	2	7.5	3.0	-	15

a/ Less than 5 parts per million.

b/ Less than 20 parts per million.

c/ analyses of water from selected wells are given in milligram equivalents per liter on page 29.

Partial analyses of water from wells and springs in Cass County--Continued

Results are in parts per million

Well No.	Owner	Depth of well (ft.)	Date of collection	Total dissolved solids (calc.)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na + K) (calc.)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Nitrate (NO ₃)	Fluoride (F)	Total hardness as CaCO ₃ (calc.)
42	Mrs. Sarah Hare	35	Dec. 10, 1941	22	a/	1.2	4.6	0	2	3.0	11	-	5
c/ 43	Noah Williams	28	do.	222	0.4	3.9	65	6	2	54	94	0.2	17
44	M. W. Cameron	43	do.	143	10	18	3.7	0	6	39	66	-	101
45	E. H. Westbrooks	24	Dec. 15, 1941	31	4.4	2.7	1.6	12	2	4.0	10	-	22
46	-- Trindle	28	do.	352	26	28	35	0	2	92	169	-	182
47	Bob Nickleberry	16	Dec. 10, 1941	98	2.4	11	15	0	2	44	24	-	52
48	R. G. McMichael	39	Dec. 9, 1941	31	2.8	5.1	a/	12	2	4.5	11	-	28
60	Quinn Patterson	25	Dec. 9, 1941	43	2.8	5.1	4.4	6	2	16	10	-	23
61	-	19	do.	30	6.8	5.1	0.5	13	8	0.5	0	-	38
63	T. C. Lyster	3,200+	do.	60,364	1,298	214	22,015	275	2	36,700	0	0.1	4,122
64	do.	25	do.	92	4.8	12	3.7	6	2	18	48	-	63
c/ 65	Tom Franklin	50 $\frac{1}{2}$	do.	31	4.4	3.9	0.2	12	5	6.0	5.0	-	27
66	-	38	do.	45	2.0	1.5	12	24	2	3.5	12	-	11
67	F. H. Hampton	25	Dec. 9, 1941	36	0.4	3.9	5.3	6	12	2.5	9.0	-	17
69	Hosie Johnson	28	do.	83	2.0	10	12	6	7	34	15	-	46
70	Ethel Cannon	13	do.	143	1.2	12	28	6	8	44	47	-	53
81	Dan Green	36	Dec. 15, 1941	55	2.0	1.5	15	0	7	20	9.0	-	11
82	Douglassville School	60	Oct. 27, 1941	91	5.6	6.1	16	12	10	21	25.0	1.6	39
83	Oscar Webster	20	Dec. 15, 1941	19	2.4	2.7	a/	6	2	4.0	5.0	-	17
84	B. F. Ellington	27	do.	300	28	16	25	0	2	62	156	0.2	160
85	do.	33	do.	46	0.4	5.1	5.8	6	2	5.5	24	-	22
86	W. F. Turner	33	Dec. 5, 1941	169	23	12	5.8	12	2	20	100	-	108
87	Mrs. Lollie Bergt	57	do.	53	a/	8.8	4.8	12	20	7.5	6.0	-	36
88	do.	30	do.	65	6.0	1.5	14	6	15	16	9.0	-	21
89	W. R. Bobo	22	do.	39	4.0	1.5	5.5	6	2	4.5	18	-	16
c/ 90	Mrs. Jennie Patterson	22	do.	63	4.8	5.1	8.6	12	8	15	15	-	33
91	Tom Huff	21	do.	105	a/	12	20	6	3	52	15	-	50
92	Mrs. Mattie Campbell	47	do.	53	1.2	6.3	6.0	6	18	6.5	12	-	29

a/ Less than 5 parts per million.

b/ Less than 20 parts per million.

c/ Analyses of water from selected wells are given in milligram equivalents per liter on page 19.

Partial analyses of water from wells and springs in Cass County--Continued

Results are in parts per million

Well	Owner	Depth	Date of collection	Total dissolved solids (calc.)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na + K) (calc.)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Nitrate (NO ₃)	Fluoride (F)	Total hardness as CaCO ₃ (calc.)
93	Mrs. Della Green	14	Dec. 13, 1941	21	0.4	2.7	3.2	12	2	3.0	3.5	-	12
110	E. E. Brewer	1,000+	Dec. 5, 1941	113	2.8	5.1	35	93	15	4.0	3.0	0.2	28
111	Chapel Heath	40+	do.	62	4.4	2.7	15	31	5	14	6.0	-	22
c/112	do.	17	do.	37	2.4	3.9	6.2	31	3	3.5	3.0	-	-
113	J.A. Williams	25	do.	29	1.6	0.2	8.5	12	2	4.5	6.0	-	5
114	S. J. Baker	19	Oct. 27, 1941	26	1.2	4.9	2.1	24	2	4.0	b/	-	23
115	Bill Gray	11	Dec. 13, 1941	52	0.4	2.7	11	3	2	3.5	29	-	12
117	Mrs. V.D. Glass	28	Oct. 27, 1941	37	1.2	4.9	5.5	6	2	20	b/	-	23
119	Trula Kinread	17	Dec. 13, 1941	56	6.4	2.7	3.3	12	20	6.0	7.0	-	27
121	Alamo School	39	do.	24	2.4	2.7	2.8	12	2	7.0	1.0	0.2	17
122	John Blake	28	do.	62	10	2.7	3.9	6	3	10	29	-	37
123	Jack Willis	28	do.	34	2.0	1.5	6.7	6	2	5.0	14	-	11
124	T. P. Wall	17	do.	38	5.4	3.9	a/	12	2	7.5	12	-	3
125	P.H. Phillpott	1,300+	Oct. 27, 1941	131	2.8	3.6	69	177	2	17	b/	-	22
126	Cass Springs School	24	do.	29	2.3	2.4	4.4	6	3	13	b/	0.2	17
140	Kansas City Southern Ry.	185	do.	133	5.2	13	20	12	15	44	30	-	68
141	H.O. Washington	14	Dec. 13, 1941	27	2.4	3.9	1.2	12	8	3.0	2.5	-	22
143	Charlie Coates	29	do.	40	1.2	5.1	4.4	12	2	7.0	14	-	24
144	J.A. Cantrell	19	do.	95	10	2.7	22	61	20	9.0	1.0	-	37
145	Dean Yates	24	do.	65	0.4	3.9	16	6	3	20	19	-	17
147	Andy Whitehorn	14	do.	47	4.8	5.1	1.6	6	2	9.0	21	-	33
148	T.H. McConnell	19	do.	190	21	15	14	0	8	50	82	-	114
149	Mrs. Beulah White	32	do.	26	2.4	2.7	3.0	18	2	2.5	4.0	-	17
150	A. D. Glass	8	Nov. 5, 1941	15	3.2	0.5	1.6	9	2	3.0	b/	0.1	10
151	Erwin Lynch	8	Nov. 4, 1941	58	4.4	4.1	7.6	6	12	9.0	18	-	28
152	C.H. Venable	24	do.	345	30	10	62	6	8	82	150	-	116
153	Huffines School	24	Oct. 31, 1941	14	1.6	1.7	1.4	12	2	1.5	b/	-	11
154	F.V. Yates	21	Dec. 13, 1941	21	4.0	1.5	1.6	12	3	4.0	1.0	-	16
170	John Hanna	27	Dec. 3, 1941	69	2.0	1.5	20	6	12	22	8.0	-	11
c/171	Walker and White	455	Nov. 4, 1941	130	19	7.8	21	116	15	10	b/	0.4	80

a/ Less than 5 parts per million.

b/ Less than 20 parts per million.

c/ Analyses of water from selected wells are given in milligram equivalents per liter on page 39.

Partial analyses of water from wells and springs in Cass County--Continued

Results are in parts per million

Well	Owner	Depth of well (ft.)	Date of collection	Total dissolved solids (calc.)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na + K) (calc.)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Nitrate (NO ₃)	Fluoride (F)	Total hardness as CaCO ₃ (calc.)
172	Bivins Consolidated School	34	Nov. 3, 1941	33	a/	4.1	4.8	6	18	3.0	b/	0.2	17
173	Jack Jones	15	Nov. 4, 1941	39	0.4	5.4	0.7	24	2	12	b/	0.2	38
175	Dr. -- Decker	12	do.	72	0.4	4.1	19	15	8	20	12	0.3	18
176	Lapson Willis	16	Dec. 15, 1941	50	a/	1.5	14	12	5	4.0	19	-	6
177	J.S.Thomas	30	Nov. 4, 1941	25	a/	1.7	7.1	5	2	11	b/	-	7
178	Laura Haddock	Spring	Dec. 13, 1941	38	2.0	1.5	9.0	12	3	6.5	10	0.2	11
190	Southwestern Gas and Electric Co.	250	Oct. 24, 1941	207	4.8	2.4	73	207	15	5.0	b/	0.2	22
c/191	City of Atlanta No. 2	844	do.	520	4.3	2.4	203	366	4	118	1.5	0.6	22
192	City of Atlanta No. 1	842	Jan. 3, 1941	225	1.9	.7	81	200	12	5.0	.16	-	7.6
194	Allen Simms	26	Dec. 5, 1941	41	a/	1.5	11	0	5	9.0	14	-	6
195	Raymond Watt	16	do.	38	a/	2.7	28	6	20	29	5.5	-	11
196	Beulah School	27	do.	29	1.2	6.3	a/	12	2	7.5	6.0	0.1	29
c/197	F.E. Watkins	28	Dec. 15, 1941	49	3.4	3.9	1.6	12	8	9.0	12	-	37
198	Louis Richardson	23	do.	549	37	49	49	0	2	112	300	0.3	295
200	David Davis	20	Nov. 4, 1941	123	9.2	7.8	20	27	3	23	41	-	55
201	Bailey Joates	22	Dec. 15, 1941	43	5.6	0.2	9.4	18	3	7.0	9.0	-	15
202	Mrs. Ira Lumbers	16	Dec. 5, 1941	24	0.4	3.9	2.3	6	7	6.0	1.0	-	17
203	J. C. Penols	30	Dec. 15, 1941	16	0.4	3.6	a/	6	2	5.5	1.0	-	16
204	J.L. Lambert	18	Oct. 27, 1941	74	23	3.6	0.5	61	2	15	b/	-	72
205	O'Farrell School	30+	Oct. 5, 1941	60	4.4	3.9	11	24	5	9.5	14	0.1	27
206	Midway School	20	Oct. 27, 1941	12	2.4	1.2	0.2	6	2	3.0	b/	0.2	11
230	Irvin Bros.	20	Dec. 8, 1941	124	3.8	14	11	6	3	44	40	-	73
232	J. C. Hall	25	do.	260	39	21	13	0	36	92	3.5	-	183
233	Cross Roads School	45	Oct. 23, 1941	20	2.8	2.4	0.5	6	8	3.0	b/	0.2	17
234	W.L.Tomberlin	10	Dec. 3, 1941	59	1.2	4.9	11	0	2	22	13	-	23
235	R. J. Rankin	44	do.	21	2.4	2.7	0.9	6	5	4.5	2.0	-	16
236	Thyllie Tomack	49	Dec. 9, 1941	47	1.6	3.8	0.9	6	25	7.0	1.0	0.2	40

a/ Less than 5 parts per million.

b/ Less than 20 parts per million.

c/ Analyses of water from selected wells are given in milligram equivalents per liter on page 39.

Partial analyses of water from wells and springs in Cass County--Continued

Results are in parts per million

Well	Owner	Depth of well (ft.)	Date of collection	Total dissolved solids (calc.)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na + K) (calc.)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Nitrate (NO ₃)	Fluoride (F)	Total hardness as CaCO ₃ (calc.)
237	Mrs. W. S. Burleson	20	Dec. 15, 1941	287	8.0	16	58	12	17	62	120	0.2	85
238	Mrs. Lillie Moulton	15	Dec. 9, 1941	39	a/	6.3	1.6	0	2	7.0	22	-	26
239	A. H. Milner	11	Dec. 8, 1941	16	0.4	3.9	a/	12	2	2.5	1.0	-	17
240	L. Pruitt	22	do.	31	6.4	2.7	7.9	18	4	6.5	1.5	-	27
c/250	City of Hughes Springs	359	Oct. 14, 1941	116	14	5.6	18	86	17	6.0	.5	-	58
252	Sam Hill	28	Dec. 6, 1941	60	1.2	6.3	9.0	6	2	18	20	-	29
253	R. M. Kacinar	30	do.	204	15	22	25	6	2	110	27	-	129
254	F. R. Amox	90	Oct. 28, 1941	19	2.4	1.2	2.5	6	7	3.0	b/	-	11
255	Dr. H. L. D. Jenkins	24	Dec. 6, 1941	44	4.4	3.9	4.4	12	3	10	12	-	27
256	do.	30	do.	28	0.4	2.7	5.1	6	11	3.5	2.0	-	12
257	B. B. Pruitt	25	Dec. 8, 1941	51	1.6	7.5	5.3	6	12	20	1.4	-	35
258	Connor Bros.	26	Dec. 9, 1941	411	25	24	69	18	16	103	165	-	160
259	do.	18	Dec. 8, 1941	93	4.0	8.5	7.3	6	8	11	41	-	45
260	Art Rhyne	28	Dec. 1, 1941	16	a/	2.7	1.6	6	2	3.5	3.0	-	11
261	Marshall Felker	-	Oct. 23, 1941	135	1.2	3.4	71	177	18	4.5	b/	0.1	17
262	Munn Linwood	24	Dec. 4, 1941	200	6.4	3.9	53	6	2	57	75	-	32
263	Mrs. Lula Stevenson	19	Dec. 6, 1941	178	2.8	12	42	6	6	80	32	-	58
264	D. R. Colter	32	Dec. 4, 1941	447	5.6	16	125	6	2	175	120	0.6	80
c/265	Thomas and Ware	330	Oct. 28, 1941	115	6.4	1.2	38	98	15	6.0	b/	0.3	22
267	F.A. Sturdivant	22	Dec. 4, 1941	36	0.4	2.7	4.6	6	3	10	9.0	-	12
268	Marshall Felker	29	Dec. 6, 1941	94	2.4	9.7	12	6	2	20	45	-	46
270	A. M. Wright	49	do.	26	4.4	2.7	0.5	12	3	3.5	6.0	-	22
271	Violet Hill School	51	do.	46	a/	3.9	11	24	5	6.5	8.0	0.1	16
273	Mrs. Kay Dunbar	20	do.	73	a/	3.9	18	6	2	19	27	-	16
300	R.K. Swenson	16	Dec. 15, 1941	23	2.4	3.9	a/	6	2	8.5	3.0	-	22
301	A. C. Penny	21	do.	83	16	7.5	10	0	25	19	5.0	-	35
302	Jim Sheffield	23	do.	73	6.0	8.5	0.2	0	2	14	42	-	50

a/ Less than 5 parts per million.

b/ Less than 20 parts per million.

c/ Analyses of water from selected wells are given in milligram equivalents per liter on page 39.

Partial analyses of water from wells and springs in Cass County--Continued

Results are in parts per million

Well	Owner	Depth of well (ft.)	Date of collection	Total dissolved solids (calc.)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na + K) (calc.)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Nitrate (NO ₃)	Fluoride (F)	Total hardness as CaCO ₃ (calc.)
c/303	Wess Moss	Spring	Dec. 2, 1941	35	0.8	2.4	9.2	18	8	6.0	0	0.1	12
c/304	City of Linden	43	Oct. 13, 1941	698	3.0	1.2	274	440	3	174	0	-	12
305	-- School	20	Dec. 10, 1941	28	0	1.5	7.8	12	3	3.5	6.0	0.1	6
306	Warren Springs School	23	Oct. 27, 1941	16	0.8	2.4	1.8	12	2	2.5	b/	0.2	12
307	D.H.Hamilton	35	Dec. 5, 1941	69	a/	2.4	22	6	3	32	7.0	-	10
308	H. O. Teale	22	Dec. 15, 1941	94	10	11	2.3	6	2	28	38	-	72
309	Mrs.Dora Blizzard	37	Oct. 23, 1941	68	7.6	6.1	9.4	49	12	8.5	b/	-	44
310	New Colony School	30+	do.	21	0.8	2.4	4.4	18	2	2.5	b/	0.3	12
311	E.R.Castner	19	Dec. 3, 1941	49	0.4	3.9	9.7	12	2	7.0	20	-	17
313	T.A.Washington	27	do.	59	6.0	1.5	14	37	3	10	6.0	-	21
314	Mrs.I.D.Speer	22	do.	63	a/	1.5	18	6	3	12	25	-	6
330	Kildare School	28	Oct. 25, 1941	15	0.4	1.2	3.2	6	4	3.0	b/	0.1	6
331	-	10	Dec. 3, 1941	411	24	18	95	5	4	197	70	-	136
332	T.M.Purdy Est.	40+	Nov. 3, 1941	353	a/	38	56	0	7	108	144	-	155
333	Eliza Johnson	23	Dec. 3, 1941	33	2.0	1.5	6.9	12	3	3.0	11	-	11
334	Ebermezzzer School	67	Dec. 2, 1941	42	3.2	0.5	12	18	7	8.0	2.0	0.2	10
337	G. A. Powell	14	Dec. 3, 1941	151	6.0	8.5	31	12	17	38	44	-	50
c/338	J.F.Shelton	18	Dec. 2, 1941	27	2.0	1.5	4.6	6	3	4.5	8.0	-	11
340	P.H.Lemmon	27	do.	58	8.0	1.5	8.7	12	5	10	19	0.2	26
341	L. W. Kay	26	do.	31	4.0	1.5	5.3	18	7	3.0	1.5	-	16
342	Hardy Dopley	Spring	Dec. 3, 1941	24	a/	0.2	10.0	12	2	6.0	3.0	-	1
343	T.Livingston	20	do.	44	4.4	2.7	6.4	12	3	10	11	-	22
c/344	R. H. Harvey	11	Dec. 2, 1941	57	0.4	2.7	16	18	3	9.5	16	-	12
345	Calvin Whitfield	17	Dec. 4, 1941	22	a/	1.5	6.4	12	2	5.0	1.0	-	6
346	C. W. Wells	49	do.	134	4.0	10	4.4	18	2	31	54	-	51
347	Mrs. Hester Simonton	26	do.	63	6.4	3.9	9.2	12	2	19	16	-	32
348	R.E.L. Fant	7	Dec. 2, 1941	112	6.0	6.2	26	24	17	29	18	-	41
349	Shiloh School	21	Dec. 4, 1941	33	4.0	1.5	5.3	18	2	3.0	8.0	0.1	16
350	D.L.Hatcher	40	do.	69	4.4	3.9	12	12	2	17	24	-	27
360	T.E.Hollis	21	do.	35	2.0	1.5	7.1	6	5	6.0	10	-	11

a/ Less than 5 parts per million.

b/ Less than 20 parts per million.

c/ Analyses of water from selected wells are given in milligram equivalents per liter on page 39.

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Partial analyses of water from wells and springs in Jass County--Continued

Results are in parts per million

Well	Owner	Depth of well (ft.)	Date of collection	Total dissolved solids (calc.)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na + K) (calc.)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Nitrate (NO ₃)	Fluoride (F)	Total hardness as CaCO ₃ (calc.)
361	Joe Hedges	29	Dec. 4, 1941	25	a/	1.5	7.4	6	2	10	1.0	-	6
362	Mrs. Zulme Williams	44	do.	38	2.0	1.5	3.0	12	3	2.5	15	-	11
363	C.C. Grubbs	17	do.	908	56	114	12	0	2	94	630	1.0	610
364	do.	25	do.	100	2.4	3.9	21	6	4	22	34	-	22
365	S.S.O'Rand	36	do.	52	a/	4.9	7.4	0	3	22	15	-	20
366	J. F. Morgan	36	Dec. 8, 1941	76	15	5.1	0.2	0	41	14	1.0	0.1	58
c/400	Tommy Hanks	23	Dec. 3, 1941	52	a/	2.7	14	6	10	12	10	-	11
401	Eddie White	60	do.	38	a/	1.5	11	6	3	9.0	10	0.2	6
402	J. L. Wiggins	32	Nov. 3, 1941	21	0.4	4.1	1.8	18	2	3.5	b/	-	18
403	Bar Oil Corp.	600+	Nov. 1, 1941	356	9.6	1.7	132	348	12	24	b/	-	31
405	W. G. Ray Drilling Co.	600+	do.	299	20	13	79	92	2	140	b/	-	103
409	United Gas Co. No. 1	636	Oct. 30, 1941	797	4.4	4.1	316	403	2	272	b/	-	28
416	N. C. Land	Spring	Nov. 4, 1941	27	2.8	2.4	4.4	18	2	6.5	b/	0.2	17
418	United Gas Co.	611	Oct. 31, 1941	771	3.6	1.7	312	427	2	242	b/	-	16
430	McLeod School	800+	Nov. 4, 1941	907	a/	1.7	370	451	2	310	b/	1.2	7
433	Phillips Petroleum Co.	700+	Oct. 31, 1941	151	1.2	4.9	56	159	3	7.5	b/	0.3	23
434	Showers-Moncrief-McGlothlin Oil Co.	390+	Nov. 3, 1941	306	3.6	1.7	121	226	7	62	b/	-	16
437	Bambo School	80	do.	23	a/	6.6	a/	12	5	5.0	b/	0.4	27
439	American Liberty Oil Co.	800+	do.	465	4.0	2.9	185	336	8	100	b/	-	22
440	Hunt Oil Co.	800+	Oct. 31, 1941	250	a/	0.5	106	244	3	20	b/	0.6	2
441	The Superior Oil Co.	996	Oct. 29, 1941	427	1.6	1.7	176	360	2	68	b/	0.6	11
c/443	G.H. Vaughn Oil Co.	189	do.	633	0.8	2.4	265	586	2	75	b/	-	12
c/444	Phillips Petroleum Co.	339	Oct. 25, 1941	1,213	10	1.2	484	561	2	438	b/	1.7	31

a/ Less than 5 parts per million.

b/ Less than 20 parts per million.

c/ Analyses of water from selected wells are given in milligram equivalents per liter on page 19.

Partial analyses of water from wells and springs in Cass County--Continued

Results are in parts per million

Well	Owner	Depth of well (ft.)	Date of collection	Total dissolved solids (calc.)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na + K) (calc.)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Nitrate (NO ₃)	Fluoride (F)	Total hardness as CaCO ₃ (calc.)
c/445	Texarkla Oil Corp.	522	Oct. 29, 1941	1,024	2.0	2.9	415	549	2	332	b/	-	17
446	Phillips Petroleum Co.	250	Oct. 25, 1941	622	6.0	0	258	555	2	81	b/	1.8	15
448	do.	250	do.	579	7.2	3.4	233	531	2	71	1.5	-	32
449	C.H. Chamblee Oil Corp.	500+	Oct. 29, 1941	27	5.6	1.7	2.1	18	5	4.0	b/	-	21
451	Texarkla Oil Corp.	867	do.	986	2.0	4.1	394	415	2	380	b/	-	22
c/452	P.L. Hoffman Oil Co.	499	do.	27	0.4	1.2	8.5	18	4	4.0	b/	0.2	6
453	L.A. McDonald	33	Dec. 3, 1941	57	a/	1.5	16	12	2	6.0	25	-	6

a/ Less than 5 parts per million.

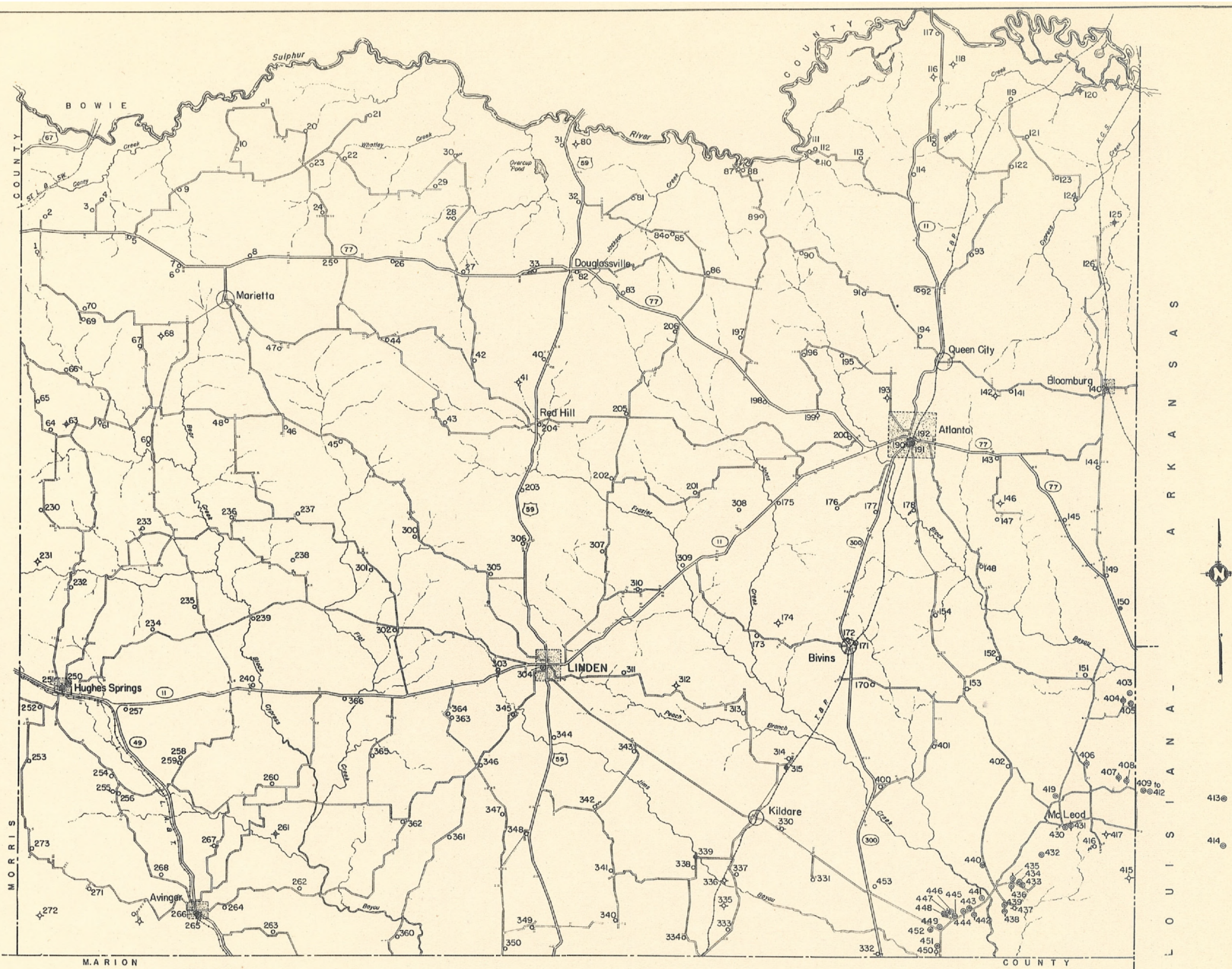
b/ Less than 20 parts per million.

c/ Analyses of water from selected wells are given in milligram equivalents per liter on page 39.

Chemical Analyses--Continued
 results are in milligram equivalents per liter

Well	Owner	Depth of well (ft.)	Date of collection	Total hardness as CaCO ₃ (calc.)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na + K) (calc.)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Fluoride (F)	Nitrate (NO ₃)	Total dissolved solids (calc.)
5	Brock Bros.	40	Oct. 28, 1941	34.16	11.76	22.40	4.68	13.91	19.36	5.58	0	-	77.68
9	-	19	Dec. 9, 1941	3.88	1.98	1.90	2.31	3.00	0.86	2.31	-	0.02	12.38
11	H.H.Henson	35	do.	16.12	7.96	3.16	11.33	3.70	2.53	19.23	0.01	1.94	54.90
20	C.C.Stringer	57	do.	6.52	2.48	4.04	6.45	3.50	1.02	8.40	-	0.05	25.94
30	William C lds Spring	10	Dec. 10, 1941	0.12	0.00	0.12	0.73	0.10	0.25	0.48	-	0.02	1.70
43	Noah Williams	28	do.	0.34	0.02	0.32	2.84	0.10	0.04	1.52	0.01	1.52	6.36
65	Tom Franklin	50 ¹	Dec. 8, 1941	0.54	0.22	0.32	0.01	0.20	0.10	0.17	-	0.08	1.10
90	Mrs. Jennie Patterson	22	Dec. 5, 1941	0.66	0.24	0.42	0.37	0.20	0.17	0.42	-	0.24	2.06
112	Chapel Heath	17	do.	0.44	0.12	0.32	0.27	0.50	0.06	0.10	-	0.05	1.42
171	Walker and White	455	Nov. 4, 1941	1.60	0.96	0.64	0.91	1.90	0.31	0.28	0.02	-	5.02
191	City of Atlanta No. 2	344	Oct. 24, 1941	0.44	0.24	0.20	9.02	6.00	0.03	3.33	0.03	0.02	13.92
197	F.E.Watkins	23	Dec. 15, 1941	0.74	0.42	0.32	0.07	0.20	0.17	0.25	-	0.19	1.62
250	City Hughes Sps.	259	Oct. 14, 1941	1.16	0.70	0.46	0.78	1.41	0.35	0.17	-	0.01	3.80
265	Thomas and Ware	320	Oct. 28, 1941	0.44	0.32	0.10	1.64	1.60	0.31	0.17	0.02	-	4.16
303	Wess Moss Spring	10	Dec. 2, 1941	0.24	0.04	0.20	0.40	0.30	0.17	0.17	0.01	0	1.28
304	City of Linden	843	Oct. 13, 1941	0.25	0.15	0.10	11.93	7.21	0.06	4.91	-	0.0	24.36
338	J.E.Shelton	18	Dec. 2, 1941	0.22	0.10	0.12	0.20	0.10	0.06	0.13	-	0.13	0.84
344	R.H. Harvey	11	do.	0.24	0.02	0.22	0.65	0.30	0.06	0.27	-	0.26	1.70
400	Tommy Hanks	23	Dec. 3, 1941	0.22	0	0.22	0.59	0.10	0.21	0.34	-	0.16	1.62
443	C.H.Vaughn Oil Co.	189	Oct. 29, 1941	0.24	0.04	0.20	11.52	9.60	0.04	2.12	-	-	23.52
444	Phillips Petroleum Co.	339	Oct. 25, 1941	0.62	0.52	0.10	21.06	9.20	0.04	12.35	0.09	-	43.36
445	Texarkla Oil Corp.	522	Oct. 29, 1941	0.34	0.10	0.24	18.06	9.00	0.04	9.36	-	-	36.80
446	Phillips Petroleum Co.	250	Oct. 26, 1941	0.30	0.30	0	11.21	9.10	0.04	2.28	0.09	-	23.02
452	W. L. Hoffman Oil Co.	499	Oct. 29, 1941	0.12	0.02	0.10	0.37	0.30	0.08	0.11	0.01	-	0.98

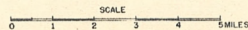
100



— EXPLANATION —

- WELL WITH HAND PUMP, BUCKET OR BAILER
- ◐ WELL WITH WINDMILL OR SMALL POWER PUMP
- ◆ FLOWING WELL
- ◇ UNUSED WELL
- ✦ WELL DRILLED TO TEST FOR OIL OR GAS
- ⊙ WELL WITH PUMPING PLANT — 5 HORSE POWER OR LARGER
- SPRING

MAP OF CASS COUNTY, TEXAS
SHOWING WATER WELLS AND SPRINGS



BASE COMPILED FROM
STATE HIGHWAY PLANNING SURVEY COUNTY ROAD MAP
AND FIELD NOTES

TEXAS BOARD OF
WATER ENGINEERS
IN COOPERATION WITH
U. S. GEOLOGICAL SURVEY

GEOLOGIC MAP OF EIGHT COUNTIES IN NORTHEAST TEXAS

— LEGEND —

- Q Alluvium
 - Es Sparta sand
 - Ew Weches greensand member
 - Eqc Queen City sand member
 - Er Reklaw member
 - Ec Carrizo sand
 - Ewi Wilcox group undifferentiated
 - Ewp Midway group
- } Mt. Selman formation



From geologic map of Texas, U.S. Geological Survey, 1937.

-K- 9-16-42.