SABINE AND SAN AUGUSTINE COUNTIES, TEXAS

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

TEXAS STATE BOARD OF WATER ENGINEERS
C. S. Clark, Chairman
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Prepared in cooperation with the United States Department of the Interior, Geological Survey

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C O N T E N T S

I L L U S T R A T I O N

SABINE AND SAN AUGUSTINE COUNTIES, TEXAS

Introduction

By

C. R. Follett

This publication contains records of wells and springs in Sabine and San Augustine Counties as follows:

Sabine County: well records, 70; records of springs, 3; drillers' logs of 18 wells; electrical logs of 5 wells; water well analyses, 49.

San Augustine County: well records, 77; records of springs, 9; drillers' logs of 9 wells; electrical log of 1 well; water well analyses, 49.

It also includes a map, showing the location of the wells and springs listed in both counties, each well being given a number on the map corresponding to the number assigned to it in the records. The field data were obtained by the writer in May and June 1942, in connection with a state-wide program of ground-water investigations in Texas conducted by the State Board of Water Engineers in co-operation with the United States Department of the Interior, Geological Survey.

The water analyses were made by W. W. Hastings, Chemist of the Quality of Water Division of the Federal Geological Survey, and by chemists employed by the Work Projects Administration under the supervision of Mr. Hastings, and Dr. E. P. Schoch, Director of the Bureau of Industrial Chemistry of The University of Texas. The results of the analyses, which relate only to the mineral constituents in the water, and not to its sanitary character are tabulated in parts per million for Sabine County on pages 19 to 21 and for San Augustine County on pages 36 to 37. For the convenience of those who prefer a different form of expression the analyses of 15 samples from Sabine County and 20 samples from San Augustine County are given in milligram equivalents per liter on pages 22 and 38 respectively.

The records serve as a guide to land owners, officials of industrial plants, well drillers and others who need information regarding wells the depth to ground water in different parts of the county, and the quantity and chemical character of water yielded by the wells.

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.

SABINE COUNTY, TEXAS

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

Records of wells and springs in Sabine County, Texas

Well	Distance from Milam	Owner	Date completed	Type of well	Depth of well (ft.)	Diameter of well (in.)	Height of measuring point above ground (ft.)
1	9½ miles northwest	Sexton School	Old	Dug	28	22	3
2	10 miles northwest	J. W. Clifton	1925?	do.	65	36	--
3	7 miles northeast	R. E. Harris No. 1	1921	Dr.	4,029	10	--
4	5½ miles north	J. S. Cordray	1936	Dug	58	36	--
5	do.	J. H. Wells	1942	do.	13	36	2.5
6	5 miles northeast	Robert Ogdon	1885?	do.	17	30	4.0
7	5¼ miles northeast	Nona Mills Lumber Co. No. 1	1930	Dr.	4,803	12½	--
8	4¾ miles northeast	O. A. Vickers	Old	Dug	36	42	3.5
9	2¾ miles northeast	U. S. Forest Service	--	do.	37	36	1.5
10	6 miles northeast	Bud McGowan	--	Driven	20±	1¼	--
11	6 miles east	--	1923	Dr.	3,012	15	0.5
12	6¼ miles east	--	--	do.	--	14	0.0
13	6½ miles east	M. L. Morris	1941	do.	300±	--	0.0
14	5½ miles east	Lowe's Chapel School	--	Dug	--	42	--
15	4¼ miles southeast	A. J. Tucker No. 1	1936	Dr.	2,303	8	--
16	3¼ miles east	C. C. C. Camp F-18-T	1938?	do.	681	--	--
17	3 miles east	Texas Highway Dept.	--	--	Spring	--	--
18	In Milam	Kirby McGowan	Old	Dug	21	42	2.5
19	7½ miles northwest	D. B. Smith	1870?	do.	38	36	3.0
20	6½ miles northwest	J. W. Mennin	Old	do.	32	48	3.0
21	do.	J. W. Mennin et al.	--	--	Spring	--	--
22	7 miles northwest	County Line School	--	Dug	20	36	2.5
23	7½ miles northwest	Robert Dennis No. 1	1927	Dr.	3,531	10	--

a/ Plus (+) indicates water level is above ground.
b/ T, turbine; A, natural gas lift; J, jet pump; C, cylinder; H, hand pump or rope and bucket; G, gasoline; E, electric. Number indicates horsepower.

Chemical analyses of water from some of these wells and springs are shown in a table of analyses on pages 19 to 22.

Well	Water level: Below measuring point (ft.) a/	Water level: Date of measurement	Method of lift b/	Use of water c/	Remarks
1	11.78	May 25, 1942	H	P	
2	d/ 59	--	H	D,S	No curbing
3	--	--	None	N	Oil test. See driller's log.
4	--	--	None	N	No water encountered.
5	10.05	May 25, 1942	H	D,S	No curbing.
6	17.47	May 20, 1942	H	D,S	Rock curbing to bottom.
7	d/+	--	None	N	Oil test. Flowed until filled up in 1938. See driller's log.
8	34.58	May 25, 1942	H	D,S	
9	26.69	do.	C,G	D,S	Supplies forest ranger station.
10	--	--	C,H	D,S	Cased with sand point on bottom.
11	+	May 20, 1942	Flows	N	Oil test. Estimated flow 20 gallons a minute $\frac{1}{2}$ foot above surface. Temperature 81$\frac{1}{2}^{o}$ F. See driller's log.
12	+	do.	Flows	N	Oil test. Estimated flow 50 gallons a minute at surface.
13	+	do.	Flows	N	Seismograph test hole. No casing.
14	--	--	C,H	P	
15	--	--	None	N	Oil test. See driller's log.
16	d/ 17	--	T,E, 3	P	Supplies C. C. C. camp. Yield reported 37 gallons a minute. See driller's log.
17	+	May 9, 1942	Flows	P	On side of ridge. Supplies roadside park. Yield estimated 5 gallons a minute. Temperature 63^{o} F.
18	18.78	May 22, 1942	H	D,S	No curbing.
19	33.40	May 25, 1942	H	L,S	
20	26.10	do.	H	D,S	
21	+	June 8, 1942	Flows	D,S	At head of gulley. Estimated flow 30 gallons a minute from several openings. Formerly supplied sawmill. Known as Myrtle Spring. Temperature 65^{o} F.
22	19.22	May 22, 1942	H	P	No curbing.
23	--	--	None	N	Oil test. See driller's log.

c/ P, public supply; D, domestic; S, stock; Ind, industrial; N, not used.
d/ Water level reported by driller, owener or tenant.

Records of wells and springs in Sabine County---Continued

Well	Distance from Bronson	Owner	Date completed	Type of well	Depth of well (ft.)	Diameter of well (in.)	Height of measuring point above ground (ft.)
24	7½ miles north	E. C. Cobb	Old	Dug	26	36	3.0
25	5½ miles northeast	Bob Douglas	1925?	do.	28	48	1.5
26	6 miles northeast	Mrs. Lila Fullen	--	do.	32	42	3.5
27	2½ miles northeast	Charlie Conn	--	do.	23	36	3.0
28	¾ mile northeast	Texas Highway Dept.	1931	do.	15	36	3.5
29	In Bronson	Gulf, Colorado and Santa Fe Railway Co.	Old	Dr.	1,070	--	--
30	do.	R. I. Ingle	1936	Dug	30	24	4.0
31	2¼ miles southeast	M. C. Morris	1900?	do.	40	36	2.5

Well	Distance from Pineland	Owner	Date completed	Type of well	Depth of well (ft.)	Diameter of well (in.)	Height of measuring point above ground (ft.)
32	2 miles northwest	United Gas Pipe Line Co.	1924	Dr.	420	5	--
33	do.	do.	1924?	do.	280	6	--
34	1½ miles northwest	I. W. Wright, Sr.	--	Dug	20	30	3.0
35	In Pineland	Temple Lumber Co. No. 1	1918	Dr.	597	8	--
36	do.	Temple Lumber Co. No. 2	1927	do.	479	6	4.0
37	do.	Temple Lumber Co. No. 3	1933	do.	557	8	--
38	do.	C. C. C. Camp F-14-T	1934	do.	622	6	--
39	½ mile west	J. H. Keefe No. 1-A	1941	do.	6,928	10¾	--
40	3¼ miles southwest	Guy McDonald	1940	Dug	19	26	2.5
41	7½ miles southwest	Jasper State Bank No. 1	1938	Dr.	2,513	10	--

Well	Water level: Below measuring point (ft.) a/	Water level: Date of measurement	Method of lift b/	Use of water c/	Remarks
24	23.48	May 22, 1942	J,E, ½	D,S	
25	18.26	May 23, 1942	H	D,S	No curbing.
26	27.96	do.	H	D,S	
27	12.77	June 10, 1942	H	D,S	No curbing.
28	12.19	June 6, 1942	H	D	Concrete and brick curb to bottom.
29	--	--	None	N	Abandoned. Water not suitable for locomotives. See driller's log.
30	14.31	May 22, 1942	J,E, ½	D,S	Brick and tile curbing to bottom.
31	11.79	June 10, 1942	H	D,S	

Well	Water level: Below measuring point (ft.) a/	Water level: Date of measurement	Method of lift b/	Use of water c/	Remarks
32	d/ 80	--	A	D,S, Ind	Supplies gas compressor and pipe line stations and camp. Yield reported 50 gallons a minute.
33	d/ 82	--	None	N	Drilled to supply compressor station but never used. Temperature 74½° F.
34	10.28	June 10, 1942	H	D,S	Wood curb to bottom.
35	d/110	--	T,E, 15	P	Supplies city of Pineland in conjunction with well 37. Casing: 8-inch to 225 feet; 6 and 4½-inch from 225 to 552 feet; 4½-inch screen from 552 to 577 feet. Yield reported 200 gallons a minute. Drilled by J. D. Adams.
36	86.57	May 19, 1942	None	N	Formerly supplied city of Pineland in conjunction with well 35. Casing: 6-inch and 4½-inch to 439 feet. 4½-inch screen from 439 to 479 feet. Yield reported 150 gallons a minute. Drilled by J. D. Adams. See driller's log.
37	d/130	--	T,E, 15	P	Casing: 8-inch to 390 feet; 6-inch from 390 to 450 feet; 4½-inch at 497-505 and 535-557 feet; 6-inch screen from 450 to 492 feet; 4½-inch screen from 505 to 535 feet. Yield reported 125 gallons a minute. Drilled by F. R. Balcar. See driller's log.
38	--	--	None	N	Abandoned. Formerly supplied C. C. C. camp. See driller's log.
39	--	--	None	N	Oil test. Electrical log from 402 to 6,928 feet in files of Texas Board of Water Engineers
40	12.06	June 10, 1942	C,E	D,S	Brick curb to bottom.
41	--	--	None	N	Oil test. Electrical log from 138 to 2,513 feet in files of Texas Board of Water Engineers. See driller's log.

Records of wells and springs in Sabine County--Continued

Well	Distance from Pineland	Owner	Date completed	Type of well	Depth of well (ft.)	Diameter of well (in.)	Height of measuring point above ground (ft.)
42	9 miles southwest	L. S. Bell No. 1	1926	Dr.	2,500	10	--
43	7½ miles south	Brookeland School	1936	Dug	20	60	3.0

Well	Distance from Hemphill	Owner	Date completed	Type of well	Depth of well (ft.)	Diameter of well (in.)	Height of measuring point above ground (ft.)
44	6½ miles northwest	E. J. Smith	1935	Dug	40	48	4.0
45	4½ miles northwest	Catherine Conn	--	--	Spring	--	--
46	do.	H. S. Strickland	1930?	Dug	20	36	3.0
47	3¼ miles west	J. A. Watson	1917?	Dr.	160	6	--
48	1¼ miles west	Temple Lumber Co.	1922	do.	941	12	1.5
49	1 mile northwest	Community Public Service Co.	--	Dug	30	33	--
50	In Hemphill	City of Hemphill	1928	Dr.	631	8	2.5
51	do.	do.	1928	do.	631	8	1.5
52	3 miles northeast	J. N. Causey	--	--	Spring	--	--
53	3¼ miles northeast	Tom Speight Est.	1935	Dug	20	42	3.5
54	7 miles northeast	M. Barton	1941	Dr.	5,362	--	--
55	9 miles northeast	Sabine Oil and Mineral Co.	1903	do.	1,499	--	--
56	9½ miles northeast	B. F. Byerly	--	Dug	20	24	--
57	do.	J. Gomer	--	Dr.	--	2½	--
58	7 miles northeast	Mrs. J. Brooks, et al.	1936	do.	5,889	10	--
59	3 miles southeast	Warner Stave Co. No. 1	1926	do.	3,785	10	--
60	5½ miles southeast	C. P. Easley	1900	Dug	20	36	--
61	8 miles southeast	Temple Lumber Co.	1939	Dr.	197	2	0
62	12 miles southeast	Fred Smith	1941	Dug	14	27	3.0

Well	Water level: Below measuring point (ft.) a/	Water level: Date of measurement	Method of lift b/	Use of water c/	Remarks
42	--	--	None	N	Oil test. See driller's log.
43	d/ 14	--	C,E	P	Brick curb to bottom.

Well	Water level: Below measuring point (ft.) a/	Water level: Date of measurement	Method of lift b/	Use of water c/	Remarks
44	35.24	May 23, 1942	J,E, $\frac{1}{2}$	D,S	Concrete curb to bottom.
45	+	do.	Flows	D,S	On side of ridge. Estimated flow 5 gallons a minute. Temperature 66° F.
46	19.23	June 10, 1942	H	D,S	
47	d/+	1917?	None	N	Formerly supplied sawmill. Reported to have flowed 2 gallons a minute.
48	25.84	May 8, 1942	None	N	Drawdown reported 20 feet while pumping 200 gallons a minute. Casing: 12-inch to 134 feet; 8-inch from 134 to 517 feet; 6-inch from 475 to 838 feet; screens from 517 to 578 and
49	--	--	C,E, 5	Ind	Supplies 838 to 941 feet. See driller's log. cooling water for power plant. Concrete and
50	38.90	May 8, 1942	None	N	Drilled to supply city brick curb to bottom. but never used. Cased to bottom; screen from 595 to 631 feet. Sand reported from 148 feet to 167 feet and sand and gravel from 589 to
51	101.54	May 9, 1942	T,E, $7\frac{1}{2}$	P	Supplies city of Hemphill. Screen 631 feet. from 595 to 631 feet. Yield reported 40 gal-
52	+	May 22, 1942	Flows	D	lons a minute with 17 feet drawdown. Tempera- In bank of creek. Flow estimated ture 80° F. 1 gallon a minute.
53	18.22	June 8, 1942	H	D,S	No curbing.
54	--	--	None	N	Oil test. Electrical log from 250 to 5,362 feet in files of Texas Board of Water Engineers.
55	--	--	None	N	Oil test. Flowed from sands at 241-290; 638-690 and 1,391-1,414 feet. See driller's log.
56	--	--	H	D,S	Tile curb to bottom.
57	+	May 20, 1942	Flows	N	In bed of creek. Estimated flow $\frac{1}{4}$ gallon a minute 10 feet below normal ground level. Tem-
58	--	--	None	N	Oil test. Electrical log perature 66° F. from 488 to 5,876 feet in files of Texas Board
59	--	--	None	N	Oil test. See driller's of Water Engineers. log.
60	d/ 10	--	H	D,S	
61	+	May 9, 1942	Flows	D,S	Seismograph test hole. Estimated flow 5 gallons a minute at ground level. Temperature
62	13.83	June 8, 1942	H	D,S	Plaster curb to bottom. 68° F.

Records of wells and springs in Sabine County---Continued

Well	Distance from Hemphill	Owner	Date completed	Type of well	Depth of well (ft.)	Diameter of well (in.)	Height of measuring point above ground (ft.)
63	11 miles southeast	Oba Smith	--	Dug	20	30	--
64	8½ miles southeast	Bayou School	---	do.	12	18	2.5
65	11 miles southeast	H. W. Smith	1940	do.	12	36	3.0
66	14 miles southeast	East Texas Timber and Oil Co.	1903	Dr.	1,975	--	--
67	13 miles southeast	W. L. McDaniel	1910?	Dug	17	60	3.0
68	15 miles southeast	William Love	Old	do.	30	42	3.0
69	17 miles southeast	Wier Longleaf Lumber Co. No. 1	1926	Dr.	2,963	12½	--
70	do.	Stark and Brown No. 1	1942	do.	4,532	10¾	--

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

b/ T, turbine; A, natural gas lift; J, jet pump; C, cylinder; H, hand pump or rope and bucket; G, gasoline; E, electric. Number indicates horsepower.

Well	Water level: Below measuring point (ft.) a/	Water level: Date of measurement	Method of lift b/	Use of water c/	Remarks
63	d/ 16	--	H	D,S	
64	9.25	May 22, 1942	H	P	Tile curb to bottom.
65	9.88	June 8, 1942	C,E	D,S	Plaster curb to bottom.
66	d/+	1903	None	N	Oil test. Formerly flowed from sands at 1,010-1,030 and at 1,800 feet. See driller's log.
67	13.85	June 8, 1942	H	D,S	
68	26.42	do.	H	D,S	No curbing. Dug to 71 feet and filled back.
69	--	--	None	N	Oil test. See driller's log.
70	--	--	None	N	Oil test. Electrical log from 189 to 4,532 feet in files of Texas Board of Water Engineers. See driller's log.

c/ P, public supply; D, domestic; S, stock; Ind, industrial; N, not used.
d/ Water level reported by driller, owner or tenant.

Table of Drillers' Logs, Sabine County, Texas

Well 3, partial log

R. E. Harris No. 1, 7 miles northeast of Milam.

	Thickness (feet)	Depth (feet)
Surface sand, soapstone	50	50
Gumbo	13	63
Rock	3	66
Sand, boulders	36	102
Sand, boulders	15	117
Rock	2	119
Gumbo	119	238
Shale, gumbo	38	276
Gumbo	62	338
Shale, sand	20	358
Rock	2	360
Shale, streaks of gumbo, sand	82	442
Rock	2	444
Gumbo	41	485
Shale, sand	64	549
Gumbo	27	576
Rock	3	579
Shale, streaks of sand	35	614
Sand	22	636
Sand, shale	20	656
Sticky brown shale	30	686
Sandy shale	14	700
Sand, shale, water	30	730
Gumbo, boulders	26	756
Pink gumbo	14	770
Rock	1	771
Pink gumbo	27	798
Gumbo	49	844
Sand and gravel	30	874
Sticky shale	22	896
Shale, streaks of sand	65	961
Shale, streaks of sand	56	1017
Gumbo	20	1037
Gumbo, boulders	5	1086
Water sand	44	1086
Shale, sand	64	1150
Rock	1	1151
Shale, sand	41	1192
Shale, boulders	83	1275
Shale, sand	31	1306
Rock	2	1308
Shale, sand	72	1380
Rock	3	1383
Brown shale	37	1420
Rock	1	1421
Brown shale	23	1444
Sand, shale	27	1471
Hard rock	3	1474
Rock	6	1480
Shale	3	1483
Rock	3	1486

Well 3, partial log--Continued

	Thickness (feet)	Depth (feet)
Sand, shale	30	1516
Rock	1	1517
Shale, sand	42	1559
Rock	4	1563
Shale, sand	49	1612
Rock	3	1615
Shale	11	1626
Rock	1	1627
Black shale	25	1652
Blue shale, sand	26	1678
Sandy shale	89	1767
Sand	30	1797
Rock	7	1804
Shale	3	1807
Sand, shale	27	1834
Rock	1	1835
Hard sand	12	1847
Rock	7	1854
Shale, sand	48	1902
Rock	2	1904
Black sticky shale	37	1941
Rock	2	1943
Rock, sticky shale, gumbo	58	2001
TOTAL DEPTH		4029

Well 7, partial log

Nona Mills Lumber Co. No. 1. $5\frac{1}{4}$ miles northeast of Milam.

Surface clay	35	35
Shale and boulders	55	90
Shale	52	142
Rock	1	143
Gummy shale	47	190
Sandy shale	47	237
Rock	2	239
Shale and boulders	51	290
Rock	1	291
Gummy shale	74	365
Sandy shale	24	389
Gummy shale	24	413
Shale and boulders	39	452
Rock	1	453
Sandy shale and boulders	17	470
Rock	2	472
Sandy shale	108	580
Rock	2	582
Sandy shale	138	720
Gummy shale	20	740
Sandy shale	5	745
Sand and sandy shale	54	799
Sandy shale	73	872
Sand and shale	36	908

(Continued on next page)

Table of Drillers' Logs, Sabine County--Continued

	Thickness (feet)	Depth (feet)
Well 7, partial log--Continued		
Gummy shale	46	954
Sandy shale	73	1027
Water sand	18	1045
Sandy shale	18	1063
Soft sand, streaks of lignite	18	1081
Sandy shale, lignite	36	1117
Sandy shale and boulders	37	1154
Sandy shale	113	1267
Sandy shale and boulders	113	1380
Rock	4	1384
Sandy shale	87	1471
Sandy shale and boulders	80	1551
Gummy shale	16	1567
Sandy shale	25	1592
Hard gummy shale	40	1632
Rock	1	1633
Sandy shale	10	1643
Rock	2	1645
Sandy shale and boulders	74	1719
Sandy shale	19	1738
Gummy shale	11	1749
Sandy shale	70	1819
Hard sand	11	1830
Hard sand rock	2	1832
Sand	9	1841
Rock and sand	2	1843
Sand	11	1854
Sand and lignite	18	1872
Sandy shale	19	1891
Sand	12	1903
Hard sand rock	4	1907
Hard sandy shale and lignite	40	1947
Hard sand rock	3	1950
Soft sand	16	1966
Sandy shale	25	1991
Shale and sand	2	1993
Shale	9	2002
Rock	2	2004
TOTAL DEPTH		4803

Well 11, partial log

Owner unknown. 6 miles east of Milam.

Surface sand, soil	14	14
Black gumbo	9	23
Sand	15	38
Sandy shale	49	87
Rock	2	89
Black gummy shale	13	102
Rock	2	104
Black sticky shale	26	130
Sand rock	2	132

	Thickness (feet)	Depth (feet)
Well 11, partial log--Continued		
Rock	3	135
Brown shale	10	145
Rock	4	149
Brown gummy shale	35	184
Brown shale	24	208
Hard rock	2	210
Brown sand	11	221
Sand rock	4	225
Brown shale	117	342
Hard rock	4	346
Gray gumbo	40	386
Hard rock	3	389
Sand, water	12	401
Gumbo, last 18 inches are stiff gray	44	445
Gumbo	19	464
Soft rock	5	469
Gumbo, very stiff gray gypsum	15	484
Gumbo	7	491
Lignite	4	495
Gray sandy shale	42	537
Sand rock	3	540
Sandy shale	48	588
Gumbo	19	607
Sandy shale	29	636
Brown gumbo	82	718
Sand	18	736
Brown and black gumbo	52	788
Soft sand	1	789
Soft fine-grained sand	23	812
Gray water sand	56	868
Hard rock	3	871
Gray gumbo	14	885
Water sand	8	893
Shale	41	934
Brown shale	8	942
Hard rock	2	944
Brown shale	15	959
Hard rock	3	962
Brown shale	164	1126
Rock	1	1127
Sandy shale	7	1134
Rock	1	1135
Sandy shale, gray	29	1168
Rock	1	1169
Sandy shale	9	1178
Hard rock	1	1179
Lime rock	4	1183
Gray gummy shale, boulders	49	1232
Sand rock	21	1253
Shale	83	1336

(Continued on next page)

Table of Drillers' Logs, Sabine County--Continued

	Thickness (feet)	Depth (feet)
Well 11, partial log--Continued		
Gray sandy shale, boulders	41	1377
Brown sand, shale, boulders	133	1510
Sandy shale	169	1679
TOTAL DEPTH		3012

Well 15, partial log

A. J. Tucker No. 1. 4¼ miles southeast of Milam.

Surface	9	9
Red clay	1	10
Clay	20	30
Clay and black sand	7	37
Rock	8	45
Sand	2	47
Hard sand	9	56
Rock	3	59
Hard sand	13	72
Sand and streaks of rock	6	78
Hard sand	31	109
Water sand	14	123
Sand, hard streaks	22	145
Hard sand and rock	87	232
Hard sand and gravel	2	234
Hard sand	18	252
Rock	10	262
Packsand	17	279
Hard sand	98	377
Water sand	70	447
Rock	4	451
Hard sand	99	550
Sticky shale	2	552
Hard sand	3	555
Hard sand and shale	41	596
Packsand	10	606
Sand and shale	12	618
Sandy shale	6	624
Rock	2	626
Hard rock	3	629
Hard shale	6	635
Sand	7	642
Shale	22	664
Rock	1	665
Hard sand and shale	18	683
Shale	34	717
Sand	7	724
Rock	1	725
Sandy shale	10	735
Sticky shale	20	755
Sand and shale	14	769
Rock	3	772
Hard sand	1	773

	Thickness (feet)	Depth (feet)
Well 15, partial log--Continued		
Packsand	20	793
Sticky shale	24	817
Sand, salt water	3	820
Lignite, salt water	9	829
TOTAL DEPTH		2303

Well 16

C. C. C. Camp F-18-T. 3¼ miles east of Milam.

Red clay	60	60
Shale	55	115
Sandy shale and limy shale	13	128
Shale	117	245
Sandy shale, shells	71	316
Sand	59	375
Sticky shale	75	450
Sand, shale, shells	15	465
Hard sandy shale	19	484
Shale	85	569
Sand and sandy lime	7	576
Sandy shale and sand	105	681

Well 23, partial log

Robert Dennis No. 1. 7½ miles northwest of Milam.

Sand	15	15
Clay	10	25
Water sand	45	70
Hard rock	8	78
Gumbo	5	83
Hard rock	1	84
Gumbo	6	90
Rock	1	91
Tough gumbo	5	96
Hard packsand	52	148
Rock	6	154
Water sand	31	185
Hard rock	5	190
Sand	15	205
Gravel	25	230
Gumbo	27	257
Rock	2	259
Sand, gumbo streaks	141	400
Sand	25	425
Rock	1	426
Sand, gumbo streaks	75	501
Rock	1	502
Sand, gumbo	33	535
Rock	1	536
Sand	33	569

(Continued on next page)

Table of Drillers' Logs, Sabine County--Continued

	Thickness (feet)	Depth (feet)
Well 23, partial log--Continued		
Rock	2	571
Sand	9	580
Hard sandy lime	1	581
Hard lime rock	2	583
Sand, boulders	267	850
Sandy gumbo	150	1000
Rock	1	1001
Sand, boulders	139	1140
Sand, gumbo, boulders	84	1224
Hard lime, rock	6	1230
Sand	90	1320
Sandy gumbo	15	1335
Hard packsand	18	1353
Hard lime rock	3	1356
Sand	79	1435
Rock	1	1436
Sand	29	1465
Rock	2	1467
Sand, boulders	63	1530
Rock	2	1532
Sand	23	1555
Sand rock	7	1562
Sandy gumbo	33	1595
Rock	1	1596
Sand, boulders	38	1634
Rock	1	1635
Gummy sand	55	1690
Sand	13	1703
Sand with hard streaks	89	1792
Hard sand	88	1880
Hard sand rock	5	1885
Hard sand	10	1895
Hard shale	18	1913
Hard sand	20	1933
Hard sand rock	9	1942
Hard sand	133	2075
Tough gumbo	5	2080
Shale	20	2100
Shale, sand	42	2142
Hard sandy lime rock	4	2146
Broken sand, lime	4	2150
Sand	9	2159
Hard sand	75	2234
Hard lime rock	3	2237
Hard sand	59	2296
Gumbo	3	2299
Hard lime rock	3	2302
Gumbo	8	2310
TOTAL DEPTH		3531

Well 29 1/

Gulf, Colorado and Santa Fe Railway Co.
In Bronson.

Yellow clay	30	30
Blue clay	30	60
Brown shale	43	103
Sand	12	115
Brown shale	30	145
Sand	10	155
Blue clay	8	163
Limestone, rock	1	164
Blue clay	94	258
Sand	14	272
Blue clay	50	322
Brown shale	30	352
Blue clay	22	374
Blue clay and "shell"	6	380
Blue clay	106	486
Sand rock	3	489
Blue clay	89	578
Blue clay and boulders (concretions)	8	586
Blue clay	88	674
Wilcox formation:		
Water sand	55	729
Blue clay	81	810
Dark sand	8	818
Blue clay	74	892
Blue shale and "shell"	36	928
Dark shale	90	1018
Water sand	50	1068
Dark clay	2	1070

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. 335-336, 1914.

Well 36

Temple Lumber Co. No. 2. In Pineland.

Surface material and clay	40	40
Hard sand	10	50
Shale, clay	30	80
Gumbo	40	120
Hard gumbo	10	130
Hard sand	30	160
Gumbo	52	212
Fine-grained dry sand	8	220
Gumbo	60	280
Hard shale	20	300
Shale	10	310
Lignite	25	335
Gumbo	75	410
Hard gumbo	11	421
Gumbo	18	439
Water sand	40	479

Table of Drillers' Logs, Sabine County--Continued

	Thickness (feet)	Depth (feet)
Well 37		
Temple Lumber Co. No. 3. In Pineland.		
Clay	51	51
Rock	2	53
Gray gumbo	27	80
Chocolate-colored shale	73	153
Fine-grained blue sand	4	157
Coarse-grained gravel	2	159
Gumbo	120	279
Rock	2	281
Gumbo	14	295
Rock	2	297
Shale and gumbo	138	435
Rock	11	446
Hard shale and sand	12	458
Sand	13	471
Rock	1	472
Sand	20	492
Gumbo	38	530
Sand	27	557
Well 38		
C. C. C. Camp F-14-T. In Pineland.		
Surface sand	30	30
Sticky shale	190	220
Shale and shells	135	355
Lime	2	357
Shale	30	387
Sand	6	393
Shale	34	427
Broken sand and shale	11	438
Sandy shale	22	460
Lime	2	462
Gumbo	9	471
Shale	47	518
Sand	9	527
Shale	7	534
Lime	3	537
Shale	12	549
Sandy shale	12	561
Gumbo	2	563
Broken sand and shale	34	597
Gumbo	5	602
Sandy shale	9	611
Shale	11	622
Well 41		
Jasper State Bank No. 1. 7½ miles southwest of Pineland.		
Surface clay	10	10
Loose sand	55	65
White sand and gravel	22	87
Blue gumbo	8	95
Surface rock	1	96
Gummy shale	54	150
Gumbo and gravel	20	170
Shale, boulders	60	230
Gumbo	12	242
Rock	1	243
Sandy shale	81	324
Rock	1	325
Sticky shale	50	375
Rock	2	377
Gummy shale, boulders	223	600
Gummy shale	50	650
Hard sandy shale	130	780
Gummy shale, shells	30	810
Shale, shells, boulders	110	920
Gummy shale and sand rock	63	983
Sand rock	3	986
Hard sandy shale	104	1090
Gray sandy shale	160	1250
Rock	2	1252
Brown gummy shale	38	1290
Brown shale, boulders	270	1560
Hard shale, shells	75	1635
Gummy shale	15	1650
Gumbo	97	1747
Gumbo, boulders	58	1805
Sandy shale, shells	52	1857
Gumbo, boulders	81	1938
Shale, boulders, shells	135	2073
Hard sandy shale, shells	109	2182
Sandy shale, shells	50	2232
Lignite and shells	5	2237
Broken lime	20	2257
Sandy shale	35	2292
Black shale	63	2355
Black sand, shale	5	2360
Brown sand	21	2381
Hard gray sand	13	2394
Gray sand, soft	86	2480
Gray and brown hard sand	33	2513
Well 42		
L. S. Bell No. 1. 9 miles southwest of Pineland.		
Surface sand	32	32
Sand and gravel	189	221
Gumbo	43	264
Shale and gumbo	39	303
Rock	1	304
Gumbo	234	538
Gumbo, shale and boulders	168	706

(Continued on next page)

Table of Drillers' Logs, Sabine County--Continued

	Thickness (feet)	Depth (feet)
Well 42--Continued		
Rock	2	708
Shale and boulders	60	768
Sand	30	798
Tough gumbo	30	828
Shale and boulders	15	843
Gumbo and rock	102	945
Sand and gumbo	30	975
Gumbo	35	1010
Rock	3	1013
Tough gumbo	122	1135
Sand	23	1158
Hard sand rock	10	1168
Sand	7	1175
Sandy shale and gumbo	53	1228
Sand	35	1263
Gumbo and shale	37	1300
Gumbo	35	1335
Sandy shale and gumbo	15	1350
Sand	15	1365
Tough gumbo	10	1375
Sand	20	1395
Sandy shale	40	1435
Sand	28	1463
Sandy shale	20	1483
Hard sand	42	1525
Sand	30	1555
Gummy shale	30	1585
Gumbo	85	1670
Sticky shale and boulders	15	1685
Gumbo and boulders	35	1720
Sticky shale	12	1732
Rock	1	1733
Sandy shale and gumbo	17	1750
Gumbo	30	1780
Sandy gumbo	35	1815
Sandy shale	10	1825
Sandy gumbo	22	1847
Shale, gumbo and boulders	35	1882
Sticky shale and boulders	38	1920
Sticky shale	35	1955
Hard shale	15	1970
Shale	15	1985
Sand	13	1998
Rock	1	1999
Hard rock	8	2007
Sandy shale	6	2013
Gumbo	23	2036
Shale, gumbo and boulders	39	2075
Sticky shale and boulders	20	2095
Hard sandy shale	40	2135
Gumbo	10	2145
Gumbo and boulders	45	2190
Sandy shale	17	2207
Rock	11	2218
Gumbo	67	2285
Sandy shale and lignite	35	2320
Sandy gumbo	19	2339
Sandy shale and shells	6	2345
Hard sand and shale	5	2350
Shale, sand	10	2360
Green sand, gumbo and shells	10	2370
Brown sand and lignite	10	2380
Brown sand	8	2388
Hard sand	2	2390
Gray and brown sand	12	2402
Gray sand	18	2420
Sand and fossils	13	2433
Sand and shells	9	2442
Sand and lignite	10	2452
Gray sand, soft lime	22	2474
Hard brown sand	6	2480
Hard brown sand	20	2500
Well 48		
Temple Lumber Co. 1¼ miles west of Hemphill.		
Soil	8	8
Red clay	10	18
Sand	32	50
Yellow clay	20	70
Blue clay	189	259
Hard lime rock	2	261
Shale and layers of rock	127	388
Shale and shells	51	439
Shale and layers of lignite	39	478
Hard shale	47	525
Sand	58	583
Gumbo	17	600
Sandy shale	86	686
Rock	3	689
Shale	10	699
Shale, sand and shells	47	746
Soft shale	60	806
Black sand	23	829
Gray sand	112	941
Well 55 2/		
Sabine Oil and Mineral Co. 9 miles north east of Hemphill.		
Red and blue clay	30	30
White sand	10	40
Soft red rock	10	50
Shells, rock	2	52
Sand rock with 1 foot of hard pyrites at bottom	7	59

(Continued on next page)

Table of Drillers' Logs, Sabine County--Continued

	Thickness (feet)	Depth (feet)
Well 55--Continued 2/		
Blue marl and shells	21	80
Wilcox formation:		
Lignite (first gas)	15	95
Soft green sand rock with 1 foot of hard pyrites at bottom	146	241
Soft shale (?) with flow of water	59	300
Blue shale and sand	79	379
Caving blue sand capped by 1½ feet hard pyrites	149	528
Blue sand capped by hard rock	6.5	534.5
13½ feet sand underlain by ½ foot of shells and rock	13.5	548
Sand	52	600
Shells and rock	4	604
Sand rock; 1 foot of very hard rock at bottom	41	645
Shales and sand rock	29	674
Very hard rock	6	680
Gumbo	10	690
Soft sand rock	38	728
Soft gray sand rock	72	800
Gravel and pyrites	4	804
Soft sand rock	56	850
Shale and sand mixed	15	875
Soft sand rock and 1 foot of very hard rock at bottom	32	907
Soft sand rock and 2 feet of hard rock at bottom	89	996
Medium hard sand rock underlain by 2 feet hard pyrites	39	1035
First showing strong sulphur gas	2	1037
Soft sand rock	28	1065
Midway formation:		
Mixed streaks shale, sand and gumbo	200	1265
Brown shale	28	1293
Very hard rock with pyrites	6	1299
Hard rock, showing oil and gas	7	1306
Cretaceous (?):		
Soft sand rock (salt water)	23	1329
Soft sand rock capped by shells and rock	12	1341
Soft sand rock and gas underneath	3	1344
Hard rock	3	1347
Soft sand rock with 1 foot hard rock, 1383-1384, and 2 feet hard shell at bottom	59	1406
Soft sand rock or hard packsand	83	1489
Clay and sand mixed	10	1499

2/ Deussen, Alexander, op. cit. pp. 334-335.

Well 59, partial log

Warner Stave Co. No. 1. 3 miles southeast of Hemphill.		
Soil	2	2
Clay	8	10
Sand, gravel	23	33
Sand, gumbo	25	58
Rock	2	60
Sand, gravel	80	140
Sand, gumbo	50	190
Rock	1	191
Sand, shale, gumbo	59	250
Rock	1	251
Shale, gumbo	45	296
Gumbo, shale	24	320
Rock	1	321
Gumbo, shale, streaks of sand	59	380
Hard packsand	10	390
Shale, gumbo	50	440
Sandy gumbo	40	480
Hard shale	30	510
Sand, boulders	80	590
Sandy gumbo	15	605
Hard shale, streaks of gumbo	45	650
Gumbo, shale	65	715
Sand	60	775
Tough gumbo	15	790
Gumbo	20	810
Green chalk, boulders, hard gray sand	80	890
Shale, boulders	150	1040
Shale	10	1050
Soft gumbo	20	1070
Sandy gumbo	8	1078

(Continued on next page)

Table of Drillers' Logs, Sabine County--Continued

	Thickness (feet)	Depth (feet)
Well 59, partial log--Continued		
Hard rock	1	1079
Green sand	5	1084
Gumbo	10	1094
Sandy shale	46	1140
Sand	50	1190
Gumbo	20	1210
Soft sand	5	1215
Sand, sandy shale	35	1250
Gumbo	3	1253
Lignite, coal, sand 50,000 bbl. fresh water	56	1309
Gumbo	49	1358
Sand, shale	38	1396
Sand, lignite	18	1414
Rock, sand, lignite	2	1416
Sand, gumbo	90	1506
Sand	19	1525
Gumbo	9	1534
Rock, sand, shale	1	1535
Tough gumbo	69	1604
Sand	4	1608
Sand, streaks of gumbo	76	1684
Hard sand rock	4	1688
Hard sand	5	1693
Hard sand rock	1	1694
Sand	26	1720
Sandy gumbo	10	1730
Sand	30	1760
Shale, sand	13	1773
Rock	2	1775
Soft sand	8	1783
Hard packsand	15	1798
Soft sand, salt water	44	1842
Sand	30	1872
Sandy shale	52	1924
Rock	5	1929
Sand	10	1939
Sandy gumbo	153	2092
TOTAL DEPTH		3785

Well 66, partial log 3/

East Texas Timber and Oil Co. 14 miles southeast of Hemphill.		
Soil	2	2
Yellow sand	33	35
Blue clay	20	55
Hard blue clay	40	95
Rock with fossil shells	3	98
Blue shale	22	120
Hard blue clay	60	180
Rock with fossil shells	5	185
Stiff blue clay ("gumbo")	45	230
Sand	8	238
Gumbo (stiff blue clay)	48	286
Soft sand	4	290

	Thickness (feet)	Depth (feet)
Well 66, partial log--Continued 3/		
Gumbo	31	321
Sand	6	327
Rock	4	331
Lignite	4	335
Sand	25	360
Dark-brown clay	15	375
"Coal" (lignite)	5	380
Blue gumbo	62	442
Sandstone	18	460
Limestone	8	468
Blue gumbo	30	498
Sandstone	18	516
Very dark gumbo	34	550
Soft clay	30	580
Hard clay	60	640
Fossiliferous marl	9	649
Hard clay	1½	650½
Fossiliferous sandstone	14½	665
Rock	1½	666½
Hard clay	17½	684
Flint rock, very hard	1½	685½
Dark-colored shale	40½	726
Soft sandstone	15	741
Gumbo	26	767
Soft sandstone	12	779
Shale	5	784
Soft sandstone with shells	16	800
No record	210	1010
Sand, with pleasant-tasting artesian water	20	1030
Clays, mostly dark-colored, containing fossil shells of the Claiborne group (Eocene) below 1215 feet	320	1350
Hard rock	75	1425
Artesian salt water	375	1800
TOTAL DEPTH		1975

3/ Deussen, Alexander, op. cit. pp. 333-334.

Well 69, partial log

Wier Longleaf Lumber Co. No. 1. 17 miles southeast of Hemphill.		
Surface sand, clay	16	16
Surface sand rock	27	43
Soft quicksand	27	70
Water sand	51	121
Hard sand	29	150
Soft sand	20	170
Hard sand	10	180
Soft lignite	2	182

(Continued on next page)

Table of Drillers' Logs, Sabine County--Continued

	Thickness (feet)	Depth (feet)
Well 69, partial log--Continued		
Sandy gumbo	6	188
Sand	12	200
Sand rock	42	242
Sand	24	266
Hard sand	2	268
Sand, shale	22	290
Water sand	20	310
Lignite	0.5	310.5
Sand, shale	56.5	367
Green sandy shale	219	586
Gumbo	54	640
Soft shale	6	646
Gumbo	54	700
Soft shale	10	710
Gumbo, shale	46	756
Gumbo	64	820
Soft sandy shale, fossils	10	830
Gumbo, shale, boulders	198	1028
Hard sand, shale	8	1036
Gummy shale	65	1101
Brown sand, lignite	8	1109
Gummy shale, boulders, lignite	174	1283
Soft sandy shale	32	1315
Gummy shale	140	1455
Rock	0.5	1455.5
Sand	14.5	1470
Sandy shale	60	1530
Brown sandy shale	10	1540
TOTAL DEPTH		2963

	Thickness (feet)	Depth (feet)
Well 70, partial log		
Stark and Brown No. 1, 17 miles southeast of Hemphill.		
Surface clay	30	30
Clay, hard sand	8	38
Shale	12	50
Sand	10	60
Shale, sand, rock and gravel	153	213
Sand and shale	64	277
Shale	651	928
Shale and boulders	127	1055
Shale	114	1169
Sand	10	1179
Sandy shale, boulders	243	1422
Rock	3	1425
Sandy shale and shale	193	1618
Rock	1	1619
Shale with streaks of rock	240	1859
Sand	18	1877
Sandy shale, boulders	41	1918
Rock	3	1921
Shale, boulders	39	1960
Sandy shale	153	2113
Sand	10	2123
TOTAL DEPTH		4532

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

Analyzed at The University of Texas under the direction of W. W. Hastings, Chemist, U. S. Department of the Interior, Geological Survey, and Dr. E. 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	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na + K) (calc.)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Total hardness as $CaCO_3$ (calc.)
1	Sexton School	28	May 25, 1942	127	56	0.2	23	24	12	22	0.4	1.0	15
a/ 2	J. W. Clifton	65	May 20, 1942	161	6.4	3.9	47	49	52	27	0.1	1.0	32
5	J. H. Wells	13	May 25, 1942	913	36	36	221	6	425	188	0.6	3.0	237
6	Robert Ogdon	17	May 20, 1942	412	17	5.1	130	98	20	147	-	45	63
8	O. A. Vickers	36	May 25, 1942	363	13	12	106	37	3	184	-	27	83
a/ 9	U. S. Forest Service	37	do.	62	20	2.7	b/	55	2	9.5	0.1	1.0	62
10	Bud McGowan	20±	May 20, 1942	15	2.0	1.5	1.4	12	2	0.5	-	2.0	11
11	-	3,012	do.	25,342	230	77	9,626	720	2	15,050	1.2	-	893
12	-	-	do.	14,305	146	27	5,464	1,049	2	8,150	-	-	477
a/13	M. L. Morris	300±	do.	2,411	4.4	1.2	947	201	5	1,350	0.8	-	16
14	Lowe's Chapel School	-	do.	83	18	1.2	14	85	2	6.0	0.2	0	51
a/16	C.C.C.Camp F-18-T	681	May 9, 1942	556	1.4	0.5	226	522	0.3	22	0.6	0	6
17	Texas Highway Dept.	Spring	May 11, 1942	16	2.8	0.7	2.1	6	2	5.0	0.2	0	10
18	Kirby McGowan	21	May 22, 1942	183	26	10	17	6	3	56	-	68	106
19	D. B. Smith	38	May 25, 1942	113	4.4	3.9	25	12	8	16	-	50	27
20	J. W. Mennin	32	do.	83	1.2	4.9	20	12	12	19	-	20	23
21	J. W. Mennin et al.	Spring	June 8, 1942	16	2.0	1.5	1.8	12	2	1.0	0.2	1.0	11
a/22	County Line School	20	May 22, 1942	59	4.4	2.7	12	12	26	7.0	0.3	1.0	22
24	F. C. Cobb	26	do.	169	12	1.5	48	12	10	75	-	16	36
25	Bob Douglas	28	May 23, 1942	72	4.4	2.7	16	6	2	23	-	21	22
26	Mrs. Lila Fullen	32	do.	157	15	12	14	12	2	33	-	75	88
27	Charlie Conn	23	June 10, 1942	68	4.8	5.1	11	6	7	22	0.2	15	33
a/28	Texas Highway Dept.	15	June 6, 1942	93	14	0.2	23	49	3	29	-	0	35

a/ Analyses of water from selected wells and one spring are given in milligram equivalents per liter on page 22.
b/ Less than 5 parts per million.
c/ From Water-Supply Paper 335, page 110.

Partial analyses of water from wells and springs in Sabine County--Continued
Results are in parts per million.

Well	Owner	Depth of well (ft.)	Date of collection	Total dissolved solids	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na + K) (calc.)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Total hardness as $CaCO_3$ (calc.)
c/29	Gulf, Colorado and Santa Fe Railway Co.	1,070	- - 1908?	-	4.1	-	370	850	14	57	-	-	-
30	R. I. Ingle	30	May 22, 1942	91	11	7.8	6.0	18	18	26	-	3.5	60
31	M. C. Morris	40	June 10, 1942	207	10	2.9	57	6	96	38	0.5	0	37
a/32	United Gas Pipe Line Co.	420	May 21, 1942	466	2.5	1.1	165	220	107	54	0.2	0.2	10
34	I. W. Wright, Sr.	20	June 10, 1942	667	70	30	130	6	11	368	-	55	298
a/35	Temple Lumber Co. No. 1	597	May 19, 1942	752	5.4	1.8	248	256	202	98	0.1	1.0	21
a/37	Temple Lumber Co. No. 3	557	do.	800	3.0	1.0	292	360	207	71	0.6	0.0	12
40	Guy McDonald	19	June 10, 1942	107	10	3.9	23	37	30	19	-	3.5	42
43	Brookeland School	20	May 19, 1942	86	2.4	2.7	26	49	23	4.0	0.2	3.5	17
a/44	E. J. Smith	40	May 23, 1942	308	46	8.8	48	73	122	47	0.3	0	150
a/45	Catherine Conn	Spring	do.	38	0.4	3.9	8.5	24	2	5.5	0.3	5.5	17
46	H. S. Strickland	20	June 10, 1942	62	6.0	1.5	14	12	6	22	-	6.0	21
49	Community Public Service Co.	30	May 21, 1942	54	6.0	1.5	12	12	11	16	0.3	1.0	21
a/51	City of Hemphill	631	May 22, 1942	1,261	2.0	1.0	514	984	3	191	-	0.5	9
52	J. N. Causey	Spring	do.	47	10	1.5	4.1	18	3	10	0.2	9.0	31
53	Tom Speight Est.	20	June 8, 1942	42	4.8	3.6	3.9	18	2	5.0	-	14	27
56	B. F. Byerly	20	May 20, 1942	195	11	12	29	18	4	30	-	100	78
57	J. Gomer	-	do.	1,500	2.0	1.5	623	1,074	5	340	0	-	11
60	C. P. Easley	20	May 21, 1942	61	8.4	2.7	9.7	12	4	24	-	6.5	32
a/61	Temple Lumber Co.	197	May 9, 1942	940	41	15	270	293	407	62	0.1	0	164
62	Fred Smith	14	June 8, 1942	17	0.8	2.2	2.5	12	2.5	2.5	-	1.0	11
63	Oba Smith	20	May 21, 1942	368	19	15	96	49	2	174	-	38	109
a/64	Bayou School	12	May 22, 1942	46	10	1.5	4.8	18	5	15	0.2	0	31

a/Analyses of water from selected wells and one spring are given in milligram equivalents per liter on page 22.
b/Less than 5 parts per million.
c/From Water-Supply Paper 335, page 110.

Partial analyses of water from wells and springs in Sabine County—Continued
Results are in parts per million.

Well	Owner	Depth of well (ft.)	Date of collection	Total dissolved solids	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na + K) (calc.)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Total hardness as $CaCO_3$ (calc.)
65	H. W. Smith	12	June 8, 1942	81	6.4	13	4.4	31	18	24	-	0	68
67	W. L. McDaniel	17	do.	35	2.4	2.7	6.2	18	3	5.0	-	7.0	17
a/68	William Love	30	do.	43	7.6	0.2	7.8	12	3	16	-	2.0	20

a/Analyses of water from selected wells and one spring are given in milligram equivalents per liter on page 22.
b/Less than 5 parts per million.
c/From Water-Supply Paper 335, page 110.

Chemical analyses--continued

Results are in milligram equivalents per liter

Well	Owner	Depth of well (ft.)	Date of collection	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na + K) (calc.)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Total hardness as $CaCO_3$ (calc.)
2	J. W. Clifton	65	May 20, 1942	0.32	0.32	2.03	0.80	1.08	0.76	0.01	0.02	0.64
9	U. S. Forest Service	37	May 25, 1942	1.02	0.22	-	0.90	0.04	0.27	0.01	0.02	0.24
13	M. L. Morris	300±	May 20, 1942	0.22	0.10	41.19	3.30	0.10	38.07	0.04	-	0.32
16	C.C.C.Camp F-18-T	681	May 9, 1942	0.07	0.04	9.84	8.56	0.01	0.62	0.03	0.00	0.11
22	County Line School	20	May 22, 1942	0.22	0.22	0.54	0.20	0.54	0.20	0.02	0.02	0.44
28	Texas Highway Dept.	15	June 6, 1942	0.68	0.02	0.98	0.80	0.06	0.82	-	0	0.70
32	United Gas Pipe Line Co.	420	May 21, 1942	0.12	0.09	7.16	3.61	2.23	1.52	0.01	0.00	0.21
35	Temple Lumber Co. No. 1	597	May 14, 1942	0.27	0.15	10.78	4.20	4.21	2.76	0.01	0.02	0.42
37	Temple Lumber Co. No. 3	557	May 19, 1942	0.15	0.08	12.68	5.90	4.31	2.00	0.03	0.00	0.23
44	E. J. Smith	40	May 23, 1942	2.28	0.72	2.09	1.20	2.54	1.33	0.02	0	3.00
45	Catherine Conn	Spring	do.	0.02	0.32	0.37	0.40	0.04	0.16	0.02	0.09	0.34
51	City of Hemphill	631	May 22, 1942	0.10	0.08	22.34	16.13	0.06	5.39	-	0.01	0.18
61	Temple Lumber Co.	197	May 9, 1942	2.04	1.24	11.75	4.80	8.47	1.75	0.01	0	3.28
64	Bayou School	12	May 22, 1942	0.50	0.12	0.21	0.30	0.10	0.42	0.01	0	0.62
68	William Love	30	June 8, 1942	0.38	0.02	0.34	0.20	0.06	0.45	-	0.03	0.40

SAN AUGUSTINE COUNTY, TEXAS

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

Records of wells and springs in San Augustine County, Texas

Well	Distance from San Augustine	Owner	Date completed	Type of well	Depth of well (ft.)	Diameter of well (in.)	Height of measuring point above ground (ft.)
1	14 miles northwest	Mrs. Avie Brown	1915?	Dug	27	36	3.0
2	11 miles northwest	C. A. Watson	--	do.	18	36	2.5
3	do.	Frost Industries, Inc.	Old	do.	18	48	3.5
4	9½ miles west	T. E. Mitchell	1928	do.	25	36	--
5	9½ miles northwest	San Augustine County	--	--	Spring	--	--
6	8 miles northwest	Giles Anders	1924?	Br.	16	8	--
7	7 miles northwest	M. C. Perry	1890?	do.	25	7	2.5
8	6½ miles northwest	Mrs. Nannie Whitton	Old	Dug	12	30	3.5
9	6 miles northwest	Santa Fe Railway Co.	Old	Dr.	595	--	--
10	5 miles west	A. P. Davis No. 1	1932	do.	3,026	12½	--
11	In San Augustine	City of San Augustine	1925	do.	560	6	3.0
12	do.	do.	1911	do.	600+	4	6.0
13	½ mile south	Mrs. Mary C. Bewley	1924?	do.	220+	6	8.0
14	¾ mile east	W. G. Sharp	1924?	do.	200+	6	1.0
15	1¾ miles east	Deep East Texas Electric Cooperative, Inc.	1941	do.	300	4	0.5
16	¾ mile east	Dr. C. R. Haley	1923?	do.	168	6	0.5
17	1¾ miles northeast	Magnolia Pipe Line Co.	1930?	do.	200	6	4.0
18	do.	do.	1927	do.	200	6	--
19	4¼ miles northwest	W. E. Johnson	Old	Dug	25	42	3.0
20	4½ miles north	Robbie Richards	1910?	do.	28	30	5.0
21	6 miles north	San Augustine County	--	--	Spring	--	--
22	do.	W. O. Peavy	--	Dug	85	36	--
23	4¾ miles northeast	Chester Newton	--	--	Spring	--	--

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

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

Chemical analyses of water from some of these wells and springs are shown in a table of analyses on pages 36 to 38.

Well	Water level: Below measuring point (ft.) a/	Water level: Date of measurement	Method of lift b/	Use of water c/	Remarks
1	17.78	May 26, 1942	H	D,S	Supply reported to fail during droughts.
2	14.61	do.	H	D,S	No curbing.
3	15.93	do.	H	D,S	Wood curbing to bottom.
4	d/ 15	--	H	D,S	
5	+	May 26, 1942	Flows	D,S	Near creek. Estimated flow 1 gallon a minute from sand.
6	d/ 7	--	C,H	D,S	Wood casing to bottom.
7	19.18	May 26, 1942	H	D,S	Do.
8	11.44	do.	H	D,S	
9	--	--	None	N	Oil test. Formerly flowed. Sands at 139-173, 198-208 and 240-250 feet. See log.
10	--	--	None	N	Oil test. See log.
11	102.37	May 6, 1942	T,F, 20	P	Supplies city of San Augustine. Drilled to 625 feet and plugged back. Casing: 6-inch from surface to 560 feet with screen from 479 to 520 feet. Yield reported 145 gallons a minute. Drilled by W. K. Ranker. Temperature 75° F.
12	108.69	do.	A,E, 20	P	Auxiliary to well 11. Originally drilled to 900 feet; later deepened to 1,200 feet; and still later plugged back to 600 feet. Yield reported 75 gallons a minute. Temperature 75° F. See log.
13	118.3	do.	None	N	Oil test. Drilled by Jack Haynes.
14	34.3	May 28, 1942	H	D,S	Do.
15	119.95	May 6, 1942	C,E, 1	D	Screen from 290 to 300 feet. Measured yield 3 gallons a minute. Drilled by -- Mettauer. Temperature 70½° F. See log.
16	71.95	do.	None	N	
17	30.51	do.	A,G, 5	D	Drawdown 79.5 feet after pumping 14 gallons a minute for 20 minutes. Temperature 69° F.
18	--	--	None	N	
19	18.79	May 26, 1942	H	D,S	No curbing.
20	27.89	do.	H	D,S	
21	+	do.	Flows	D,S	On side of hill. Estimated flow 7 gallons a minute from sand. Temperature 66½° F.
22	d/ 80	--	C,E	D,S	
23	+	May 12, 1942	Flows	D,S	At head of gulley. Estimated flow 40 gallons a minute from sand. Temperature 67½° F.

c/ P, public supply; D, domestic; S, stock; Ind, industrial; N, not used.
d/ Water level reported by driller, owner or tenant.

Records of wells and springs in San Augustine County--Continued

Well	Distance from San Augustine	Owner	Date completed	Type of well	Depth of well (ft.)	Diameter of well (in.)	Height of measuring point above ground (ft.)
24	4¼ miles northeast	W. H. Richards	1900?	Dug	40	42	--
25	5½ miles northeast	Tinsley School	--	do.	16	30	3.0
26	3 miles northeast	San Augustine County	--	--	Spring	--	--
27	4½ miles north	White Rock School	--	Dug	22	36	2.5
28	6 miles east	San Augustine County	--	--	Spring	--	--
29	5 miles southeast	Ben W. Noble	Old	Dug	35	42	--
30	7 miles southeast	Mrs. J. A. Ford	--	do.	27	36	2.5
31	5½ miles southeast	R. R. Hardy	--	do.	19	36	2.5
32	do.	--	Old	Dr.	300±	--	--
33	2 miles southeast	Texas Pipe Line Co.	1918?	do.	512	6	--
34	2½ miles south	F. K. Parker	Old	Dug	35	24	--
35	5 miles southwest	Andrew Phillips	1900	Dr.	415	6	--
36	9½ miles southwest	D. L. Kennedy	1925	Dug	20	48	3.0
37	8½ miles southwest	R. V. Steptoe	--	do.	22	36	2.5
38	6½ miles southwest	Long Bell Lumber Sales Corp. No. 1	1939	Dr.	5,723	10¾	--
39	8 miles southwest	R. W. Lacy	1939	Dug	19	30	3.0
40	5½ miles west	Texas Highway Dept.	--	--	Spring	--	--
41	7½ miles west	Mrs. L. Watson	1922	Dug	10	24	--
42	10½ miles west	Mrs. W. K. Freeman	1921	Dr.	600±	12	3.0
43	11 miles west	Whitton Est.	1929	do.	2,822	10	--
44	do.	do.	1906?	do.	2,200	10	--
45	do.	do.	--	--	Spring	--	--
46	10½ miles southwest	Tom Quinn	1920?	Dug	30	36	3.0
47	12 miles southwest	W. B. Evett	1915?	do.	25	42	3.5
48	13 miles southwest	S. B. Eberlan	--	do.	15	36	3.5

Well	Water level: Below measuring point (ft.) a/	Water level: Date of measurement	Method of lift b/	Use of water c/	Remarks
24	d/ 37	--	H	D,S	
25	11.00	May 28, 1942	H	D,P	Brick curbing to bottom.
26	+	do.	Flows	N	On side of ridge. Estimated flow 10 gallons a minute.
27	20.94	do.	H	P	No curbing.
28	+	May 25, 1942	Flows	D,S	On side of ridge. Estimated flow 3 gallons a minute from sand. Temperature 62½° F.
29	--	--	H	D,S	No curbing.
30	19.75	June 10, 1942	H	D,S	Do.
31	16.61	June 5, 1942	H	D,S	
32	--	--	None	N	Drilled to supply sawmill. Abandoned, filled up.
33	--	--	A	D,S, Ind	Cased; 51 feet of 6-inch screen. Supplies pipe line pump station.
34	d/ 20	--	H	D,S	
35	d/ +40	1907	Flows	S	Oil test. Estimated flow 40 gallons a minute from sand at 395-415 feet. Temperature 71° F.
36	14.98	May 11, 1942	H	D,S	
37	19.76	June 5, 1942	H	D,S	Wood curbing to bottom.
38	--	--	None	N	Oil test. See partial log.
39	12.72	May 27, 1942	H	D,S	No curbing.
40	+	May 12, 1942	Flows	P	On side of ridge. Flow very small.
41	d/ 5	--	H	D,S	Tile curbing to bottom.
42	31.67	May 12, 1942	H	D,S	Converted oil test. Drilled by Foster, et al.
43	+	Sept. 15, 1936	Flows	S	Oil test. Estimated flow 40 gallons a minute. Drilled by Thompson Bros. Temperature 72° F.
44	+	do.	Flows	D,S	Oil test. Estimated flow 10 gallons a minute. Drilled by Thompson Bros. Temperature 71° F.
45	+	do.	Flows	N	In flat valley. Estimated flow 1 gallon a minute.
46	29.45	June 5, 1942	H	D,S	No curbing.
47	13.43	do.	H	D,S	
48	10.55	May 27, 1942	H	D,S	Wood and tile curbing to bottom.

Records of wells and springs in San Augustine County--Continued

Well	Distance from Broaddus	Owner	Date completed	Type of well	Depth of well (ft.)	Diameter of well (in.)	Height of measuring point above ground (ft.)
49	3¼ miles northwest	A. M. Lowery	1923?	Dr.	826±	6	1.0
50	1½ miles north	U. S. Forest Service	1942	do.	70	4	1.5
51	do.	do.	--	--	Spring	--	--
52	2 miles northwest	M. C. Flournoy	1899	Dug	36	36	--
53	3 miles northwest	Flournoy and Bryan No. 1	1934	Dr.	1,994	--	--
54	do.	Flournoy and Bryan No. 2	1935	do.	2,040	12½	--
55	4¾ miles northeast	C. C. C. Camp F-22-T	1934?	do.	625	6	0.5
56	8 miles northeast	Norwood School	1887	Dug	27	27	2.5
57	8½ miles northeast	T. M. Wade	Old	do.	26	42	3.0
58	13 miles northeast	Mrs. L. P. Wright	1910?	do.	32	42	5.0
59	14 miles northeast	Herman Clark	Old	Dr.	300±	10	--
60	do.	do.	--	Dug	27	22	3.0
61	12 miles northeast	W. M. Crocker	--	do.	15	30	2.5
62	do.	do.	Old	do.	26	30	3.0
63	11 miles east	H. F. Frazier	--	do.	17	30	3.0
64	8 miles east	Pazga School	--	do.	20	42	0.0
65	9 miles southeast	Temple Lumber Co.	--	do.	24	36	3.0
66	6 miles southeast	Long Bell Lumber Sales Corp. No. 2	1935	Dr.	2,550	10	--
67	5½ miles southeast	J. H. Gulley	--	Dug	20	36	3.0
68	do.	Boynton Bros.	1920?	Dr.	400±	--	--
69	do.	do.	1920?	do.	160±	--	--
70	In Broaddus	J. M. Langston	1919	do.	370	4	1.0
71	2¼ miles south	A. Murphy	--	do.	387	2½?	3.0
72	5 miles southwest	W. R. Cousin	--	--	Spring	--	--
73	6 miles southwest	U. S. Forest Service	--	Dug	18	30	1.5

Well	Water level: Below measuring point (ft.) a/	Water level: Date of measurement	Method of lift b/	Use of water c/	Remarks
49	+	May 11, 1942	Flows	S	Oil test. Cased to about 600 feet. Estimated flow 10 gallons a minute. Temperature 68° F.
50	+	do.	Flows	S	Converted seismograph test hole. Estimated flow 5 gallons a minute. Temperature 65½° F.
51	+	do.	Flows	D,S	In creek valley. Estimated flow 1 gallon a minute. Known as Sulphur Spring. Temperature 62° F.
52	d/ 31	--	H	D,S	Wood curbing to bottom.
53	--	--	None	N	Oil test. See log.
54	--	--	None	N	Do.
55	123.82	May 11, 1942	None	N	Formerly supplied C. C. C. Camp. See log.
56	9.43	May 27, 1942	H,C,E	P	Brick curbing to bottom.
57	21.72	May 13, 1942	H	D,S	
58	15.61	do.	H	D,S	No curbing.
59	--	--	None	N	Abandoned; filled up. Drilled to supply sawmill.
60	9.39	June 5, 1942	H	S	
61	12.96	May 27, 1942	H	D,S	
62	24.61	do.	H	D,S	Brick curbing to bottom.
63	12.87	June 5, 1942	H	D,S	
64	8.58	do.	H	D,P	
65	20.36	May 27, 1942	H	D,S	Wood curbing to bottom.
66	--	--	None	N	Oil test. See log.
67	8.45	May 27, 1942	H	D,S	Wood curbing to bottom.
68	--	--	None	N	Water reported unfit for boiler use. Drilled by --Giles. Abandoned; filled up.
69	--	--	None	N	Drilled to supply sawmill camp houses. Abandoned; filled up.
70	11.81	May 11, 1942	None	N	Cased to bottom. Drilled to supply gin. Water reported unfit for boiler use and drinking.
71	+	do.	Flows	D,S	Converted oil test. Drilled by Will Sheffield. Estimated flow 15 gallons a minute 3 feet above ground. Temperature 68½° F.
72	+	June 4, 1942	Flows	D,S	On side of ridge. Estimated flow 1 gallon a minute. Temperature 69° F.
73	16.36	do.	H	D,S	Wood and concrete curbing to bottom.

Records of wells and springs in San Augustine County--Continued

Well	Distance from Broaddus	Owner	Date completed	Type of well	Depth of well (ft.)	Diameter of well (in.)	Height of measuring point above ground (ft.)
74	7 miles southeast	U. S. Forest Service	--	Dug	23	30	--
75	7½ miles southeast	J. W. Loftin	--	--	Spring	--	--
76	13 miles southeast	Long Bell Lumber Sales Corp.	1941	Dr.	5,063	--	--
77	16 miles southeast	Western Naval Stores	Old	do.	385+	--	--

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

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

Well	Water level: Below measuring point (ft.) a/	Water level: Date of measurement	Method of lift b/	Use of water c/	Remarks
74	d/ 10	--	H	D,S	Wood curbing to bottom.
75	+	June 4, 1942	Flows	D,S	On bank of gulley. Flow rather small.
76	--	--	None	N	Oil test. Electrical log from 150 to 3,023 feet in files of Texas State Board of Water Engineers.
77	--	--	None	N	Flowed until casing was pulled in 1941. Drilled to supply turpentine plant. Water reported unfit for drinking.

c/ P, public supply; D, domestic; S, stock; Ind, industrial; N, not used.
d/ Water level reported by driller, owner or tenant.

Table of Drillers' Logs San Augustine County, Texas

	Thickness (feet)	Depth (feet)
Well 9 1/		
Santa Fe Railway Co. 6 miles northwest of San Augustine.		
Cook Mountain and Mount Selman (?) formations:		
Red clay	15	15
Yellow clay and marl	5	20
Blue marl	14	34
Blue marl, black as coal when wet	10	44
Blue marl, streaks of harder marl	8	52
Blue marl	5	57
Blue clay	12	69
Brown shale	3.5	72.5
Brown soapy shale, with boulder (concretion of hematite at 75 and 78 feet	9.5	82
Brown soapy shale	7	89
Brown soapstone and thin layers of limestone	7	96
Blue marl	18.5	114.5
Blue clay	1.0	115.5
Blue and brown shale with hard streaks	17.0	132.5
Blue limestone and marl with pyrite, very hard	6.5	139
Wilcox formation:		
Hard gray water sand	2	141
Gray water sand, a little pyrite and very small trace of oil and gas	26	167
Blue-gray water sand	6	173
Brown clay with sand	14	187
Brown sand with streaks of clay	11	198
Brown water sand	10	208
White clay	1	209
Brown gumbo and clay	29	238
Pyrite	2	240
Water sand	10	250
Water clay	10	260
Black rock and pyrite	1	261
Brown clay	6	267
Boulder (concretion) of lime with little oil	1	268
Brown clay	2	270
Brown clay with layers of sand	4	274
Fine sand	1	275
Brown clay	2	277

	Thickness (feet)	Depth (feet)
Well 9--Continued 1/		
Fine-grained sand	1	278
Brown clay	5	283
Boulder of lime	2	285
Brown clay	5	290
Brown sand	4	294
Brown clay with layers of sand	10	304
Not reported	24	328
Brown clay; little oil	14	342
Fine-grained sand	18	360
Fine-grained sand or clay	8	368
Not reported	36	404
Clay and shells	19	423
Clay or fine-grained sand	11	434
Shale with layers of lignite	26	460
Clay or fine-grained sand	23	483
Fine-grained sand	2	485
Clay and little lignite	3	488
Clay	15	503
Shale	5	508
Shale with little lignite	6	514
Shale and few shells	4	518
Shale	12	530
Lignite	0.5	530.5
Shale, thin lignite layers	57.5	588
Lignite	2	590
Shale	1	591
Lignite	4	595

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. 338-339, 1914.

Well 10, partial log

A. P. Davis No. 1, 5 miles west of San Augustine.

Clay	15	15
Sandy clay, gravel	10	25
Gummy clay	25	50
Sand, gravel	19	69
Sand	20	89
Rock	1	90
Sandy shale	18	108

(Continued on next page)

Table of Drillers' Logs, San Augustine County--Continued

	Thickness (feet)	Depth (feet)
Well 10, partial log--Continued		
Rock, sand	41	149
Packsand	57	206
Sand, streaks of lignite	22	228
Sand	218	446
Sand, streaks of lignite	15	461
Rock	1	462
Lignite, sand	4	466
Sand	100	566
Sand, gravel streaks, shale	40	606
Shale streaks	112	718
Sand	20	738
Sandy shale	190	928
Lime rock	3	931
Sandy shale	24	955
Rock	1	956
Shale, boulders	127	1083
Lime rock	3	1086
Sandy shale, boulders	188	1274
Rock	1	1275
Sandy lime rock	1	1276
Lime rock	3	1279
Sand	21	1300
Sandy shale	65	1365
Lime rock	2	1367
Shale	11	1378
Rock	3	1381
Sandy shale, boulders	264	1645
TOTAL DEPTH		3026

Well 11

City of San Augustine. In San Augustine.		
Surface clay	18	18
Soft lime rock	13	31
Green shale	4	35
Lime rock	8	43
Shale, showing of oil	4	47
Mixed green sand and shale	30	77
Hard lime rock	4	81
Artesian water strata, flowed small stream	8	89
Brown shale	22	111
Lime rock, pretty hard	2	113
Brown shale	57	170
Gumbo	12	182
Brown muck, soft formation	108	290
Soapstone	9	299
Blue gypsum	8	307
Shale	7	314
Gumbo with boulders	34	348
Lignite	5	353
Brown gumbo	57	410
Brown soapstone	7	417
Brown gumbo	60	477
Water sand and gravel This is where screen is set.	45	522
Very hard blue gumbo	24	546
Soft lime rock	3	549
Tough gumbo	11	560
Very hard rock--10-inch hole to this rock, then reduced to 5-7/8-inch	2½	562½
Tough gumbo	3½	566
Shale, showing of oil	9	575
Gumbo	50	625

Well 15

Deep East Texas Electric Cooperative, Inc. 1¾ miles east of San Augustine.		
Surface material	8	8
Blue marl	100	108
Sandy green shale	50	158
Sand, oil bearing	2	160
Rock	1½	161½
Soapstone	118½	280
Sand	20	300

Well 38, partial log

Long Bell Lumber Sales Corp. No. 1. 6½ miles southwest of San Augustine.		
Sand, shale, gravel	314	314
Hard sand, boulders	48	362
Sand, shale, hard streaks	38	400
Sand, boulders	30	430
Sandy shale	39	469
Sand, shale	66	535
Shale, streaks of sand	150	685
Shale, hard lime, shells	71	756
Hard sand, pyrites	1	757
Hard sand	13	770
Black shale	177	947
Shale, hard streaks of sand	406	1353
Hard sand	1	1354
Soft sand	3	1357
Sandy shale	18	1375
Shale to sandy shale	10	1385
Sandy soft shale	10	1395
Shale with sandy streaks	10	1405
Lignite, shale, small sand streaks	15	1420

(Continued on next page)

Table of Drillers' Logs, San Augustine County--Continued

	Thickness (feet)	Depth (feet)
Well 38, partial log--Continued		
Shale to hard lignitic shale	40	1460
Shale, sand	28	1488
Shale, hard streaks of sand	12	1500
Sand streaks	20	1520
Hard shale, sand	4	1524
Shale streaked with lignite	250	1774
Hard sand, water	5	1779
Lignite, hard shale	21	1800
Shale, sand streaks	185	1985
Sand	25	2010
Shale, sandy shale	140	2150
Shale, hard streaks of sand	20	2170
Hard shale, some lignite	80	2250
Shale and sand	70	2320
Water sand	89	2409
Sand, boulders	174	2583
Sand, hard streaks of lime, shells	112	2695
TOTAL DEPTH		5723
Well 53		
Flournoy and Bryan No. 1, 3 miles northwest of Broaddus.		
Clay	10	10
Sand	8	18
Shale	22	40
Sand, shale	50	90
Buckshot shale	67	157
Ground rock	1	158
Sticky shale	63	221
Rock	1	222
Sticky shale	90	312
Rock	2	314
Sticky shale	85	399
Sand, shale	6	405
Hard rock	2	407
Sand, shale	5	412
Water sand, dry	3	415
Brown shale	288	703
Rock	2	705
Green shale	106	811
Sticky shale	16	827
Lime, shells	2	829
Sticky shale	11	840
Sand, shale	5	845
Sticky shale	34	879
Brown shale	1	880
Brown sand	4	884
Shale	17	901
Hard rock	1	902
Sand, shale	16	918
Hard lime	2	920
Sand, shells, pyrites of iron	8	928
Sand, shells	6	934
Hard shells	2	936
Shale, shells	29	965
Sand, shale	21	986
Shale	74	1060
Rock	3	1063
Sticky shale	43	1106
Sand, shale	30	1136
Shale	15	1151
Soft shale	68	1219
Sticky shale	6	1225
Hard sand, lime	1	1226
Shale, sand, lime	5	1231
Broken shale	30	1261
Broken sand, shale, lignite	20	1281
Sandstone	6	1287
Lime	3	1290
Brown sandy shale, lime	4	1294
Sand, shale	8	1302
Shale, lignite	59	1361
Sticky shale, gumbo	20	1381
Shale and sandy shale	25	1406
Shale and sticky shale	76	1482
Lime rock	1	1483
Lime, sand	6	1489
Shale, sticky shale, gumbo	81	1570
Sticky shale, shells	45	1615
Blue shale	12	1627
Gumbo, shale, shells	70	1697
Shale, lime, shells	57	1754
Brown sandy shale	2	1756
Sand, shale	5	1761
Blue shale	15	1776
Sticky shale	19	1795
Shale, chalk	2	1797
Shale, sticky	24	1821
Hard rock	4	1825
Shale, lime	35	1860
Rock	6	1866
Sandy shale	32	1898
Shale, lime, hard	4	1902
Hard sandy lime	5	1907
Sandy shale	82	1989
Hard rock	5	1994

Table of Drillers' Logs, San Augustine County--Continued

	Thickness (feet)	Depth (feet)
Well 54		
Flournoy and Bryan No. 2. 3 miles northwest of Broaddus.		
Surface clay	16	16
Sand	22	38
Shale	22	60
Sandy shale	35	95
Sand	23	118
Shale, boulders	37	155
Sand, shells	60	215
Sand, shale	85	300
Sticky shale	200	500
Sand, shale	55	555
Shale, boulders	57	612
Loose shale	64	676
Shale, lime, shells	241	917
Sandy shale	18	935
Sand, shale	13	948
Sand, shell beds	106	1054
Shale	7	1061
Sand	4	1065
Sand, shale	40	1105
Shale	45	1150
Sticky shale	15	1165
Sand	5	1170
Green sandy shale	30	1200
Sticky shale	25	1225
Sand, shale	35	1260
Shale, lime	29	1289
Sandy shale	36	1325
Shale, sticky streaks	20	1345
Sand, shale, lignite	15	1360
Sand, shale	10	1370
Sticky shale	95	1465
Sand, 4 feet of hard lime	9	1474
Shale, lime	63	1537
Lime rock	4	1541
Sand	4	1545
Gumbo	2	1547
Shale	14	1561
Lime rock	1	1562
Sand	3	1565
Sandy shale	298	1863
Packsand	87	1950
Sandy shale	30	1980
Gumbo, boulders	26	2006
Shale, boulders	34	2040
Well 55		
C. C. C. Camp F-22-T, 4¾ miles northeast of Broaddus.		
Surface soil	70	70
Sandy shale	43	113
Shale and shells	12	125
Sticky shale	53	178
Hard sandy shale	46	224
Shale and shells	40	264
Sticky shale	30	294
Sticky shale, lime and shells	35	329
Sticky shale	54	383
Sandy shale and shells	90	473
Sand, water	15	488
Hard sandy shale	4	492
Hard shale	25	517
Sticky shale	23	540
Sandy shale and shells	20	560
Water sand	65	625
Well 66		
Long Bell Lumber Sales Corp. No. 2. 6 miles southeast of Broaddus.		
Sandy clay	17	17
Sand and gravel	34	51
Gravel	5	56
Rock	1	57
Sand, gravel and gumbo	43	100
Sticky shale and sand	211	311
Rock	1	312
Sticky shale	31	343
Sticky shale, streaks of sand	316	659
Sticky shale and boulders	261	920
Sticky shale and sand	33	953
Marl	90	1043
Sticky shale, streaks of rock and marl	277	1320
Sticky shale, streaks of hard sand and marl	30	1350
Sandy shale, hard sand, and lignite	18	1368
Sandy shale and boulders	119	1487
Sticky shale, boulders and hard sand	41	1528
Hard marl	1	1529
Marl (green)	71	1600
Marl, hard streaks	16	1616
Green marl, streaks of shale and sandy streaks	18	1634
Marl and sandy shale	18	1652
Green marl and shale	17	1669
Shale, hard streaks of sand and boulders	36	1705
Marl	30	1735

(Continued on next page)

Table of Drillers' Logs, San Augustine County--Continued

	Thickness (feet)	Depth (feet)
Well 66--Continued		
Gray and brown shandy shale	36	1771
Very soft sandy shale	36	1807
Soft sand and streaks of shale	18	1825
Shale, streaks of soft sand	8	1833
Water sand	23	1856
Shale, boulders, streaks of sand	155	2011
Hard green sand and shells	31	2042
Rock	2	2044
Hard green sand and shells	12	2056
Sticky gray sand	25	2081
Sand and sticky shale	21	2102
Sticky shale	98	2200
Shale and boulders	83	2283
Rock	2	2285
Shale and boulders	86	2371
Hard rock	2	2373
Shale and boulders	147	2520
Hard sand and shells	8	2528
Sand and shells, hard streaks	22	2550

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

Analyzed at The University of Texas under the direction of W. W. Hastings, Chemist, U. S. Department of the Interior, Geological Survey, and Dr E. 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	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na + K) (calc.)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Total hardness as $CaCO_3$ (calc.)
b/ 1	Mrs. Avie Brown	27	May 26, 1942	44	6.0	-	9.2	12	8	7.0	-	8.0	15
2	C. A. Watson	18	do.	90	2.4	1.2	26	6	33	16	-	8.0	11
b/ 3	Frost Industries Inc.	18	do.	31	4.4	1.2	4.4	12	3	5.0	-	7.0	16
4	T. E. Mitchell	25	do.	184	14	7.3	32	12	7	35	0.2	82	65
b/ 5	San Augustine County	Spring	do.	15	2.4	1.2	1.4	12	3	0.5	0.1	0	11
6	Giles Anders	16	do.	65	0.4	1.2	17	6	7	0.5	-	36	6
b/ 7	M. C. Perry	25	do.	180	6.0	7.3	40	12	2	39	-	80	45
8	Mrs. Nannie Whitton	12	do.	61	6.8	3.6	9.0	12	11	16	-	9.0	32
b/ 14	W. G. Sharp	200±	May 28, 1942	217	49	4.9	26	171	3	26	0.1	24	143
19	W. E. Johnson	25	May 26, 1942	52	4.8	2.4	8.7	6	2	15	-	16	22
b/ 20	Bobbie Richards	28	do.	199	6.8	2.4	64	6	7	100	-	16	27
b/ 21	San Augustine County	Spring	do.	29	2.8	2.4	3.5	18	2	0.5	0.1	8.0	17
22	W. O. Peavy	85	May 28, 1942	80	13	4.9	5.5	24	2	13	0.1	30	53
b/ 23	Chester Newton	Spring	May 12, 1942	16	2.8	0.7	2.3	12	2	1.0	0.1	1.0	10
b/ 24	W. H. Richards	40	do.	45	1.6	3.2	9.4	6	2	16	-	10	17
25	Tinsley School	16	May 28, 1942	28	0.4	1.2	8.5	12	4	6.0	0.2	2.0	6
26	San Augustine County	Spring	do.	51	4.8	2.4	12	49	5	3.0	-	0	22
b/ 27	White Rock School	22	do.	18	2.8	2.4	0.7	18	2	0.5	0.2	0.5	17
28	San Augustine County	Spring	May 25, 1942	30	0.8	2.4	6.7	18	2	3.0	0.2	6.0	12
b/ 29	Ben W. Noble	35	May 12, 1942	60	3.2	1.9	18	55	2	2.0	-	6.0	16
b/ 30	Mrs. J.A. Ford	27	June 10, 1942	41	4.8	3.6	2.8	12	3	5.0	-	16	27

a/ Less than 3 parts per million.

b/ Analyses of water from selected wells and springs are given in milligram equivalent per liter on page 38 .

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

Results are in parts per million.

Well	Owner	Depth of well (ft.)	Date of collection	Total dissolved solids	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na + K) (calc.)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Total hardness as $CaCO_3$ (calc.)
31	R. R. Hardy	19	June 5, 1942	33	6.4	1.2	2.5	12	2	5.0	-	9.4	21
b/ 35	Andrew Phillips	415	May 13, 1942	446	36	15	98	171	200	12	0.5	0	154
36	D. L. Kennedy	20	May 11, 1942	35	4.0	1.5	8.1	31	2	4.5	-	0	16
b/ 37	R. V. Steptoe	22	June 5, 1942	120	9.2	4.9	30	61	2	34	-	10	43
39	R. W. Lacy	19	May 27, 1942	42	4.8	3.6	2.8	6	2	8.0	-	18	27
40	Texas Highway Dept.	Spring	May 12, 1942	79	18	1.7	12	85	3	1.5	0.3	0	51
41	Mrs. L. Watson	10	do.	72	4.0	5.6	14	24	3	21	0.2	12	33
b/ 42	Mrs. W. K. Freeman	600±	do.	651	6.8	a/	272	671	3	39	-	0	17
b/ 46	Tom Quinn	30	June 5, 1942	36	2.8	1.0	7.6	6	5	6.0	-	11	11
b/ 47	W. B. Evett	25	do.	39	5.2	4.9	0.7	12	5	9.0	-	3.4	33
48	S. B. Eberlan	15	May 27, 1942	93	17	2.4	11	12	33	18	-	6.0	52
50	U. S. Forest Service	70	May 11, 1942	296	46	14	33	98	100	44	0.2	0	174
51	do.	Spring	do.	272	26	15	53	146	67	39	0.1	0	129
b/ 52	M. C. Flournoy	36	do.	93	3.6	3.2	25	37	3	30	-	0	22
56	Norwood School	27	May 27, 1942	53	9.2	4.9	0.9	12	4	13	0.2	15	43
57	T. M. Wade	26	May 13, 1942	30	1.6	3.2	4.1	12	4	4.5	0.1	6.5	17
58	Mrs. L. P. Wright	32	do.	129	10	4.4	27	12	2	42	-	38	43
b/ 60	Herman Clark	27	June 5, 1942	999	95	27	270	641	7	285	-	0	347
61	W. M. Crocker	15	May 27, 1942	1,120	221	51	72	61	4	442	-	300	762
62	do.	26	do.	1,878	268	128	244	116	111	1,070	0	-	1,194
63	H. F. Frazier	17	June 5, 1942	219	16	9.7	44	24	103	34	0.5	0	81
64	Pazga School	20	do.	64	8.3	2.4	12	31	11	15	0.1	0	32
b/ 65	Temple Lbr. Co.	24	May 27, 1942	84	4.8	2.2	26	49	2	25	-	0	21
67	J. H. Gulley	20	do.	286	11	3.6	94	61	33	114	-	0	42
72	W. R Cousin	Spring	June 4, 1942	46	4.8	2.4	8.3	24	15	3.0	0.2	0	22
73	U. S. Forest Service	18	do.	528	76	17	69	61	10	146	-	180	261
74	do.	23	do.	33	4.8	2.4	3.7	12	2	11	-	3.0	22
75	J. W. Loftin	Spring	do.	46	6.4	1.2	8.3	12	12	11	-	1.0	21

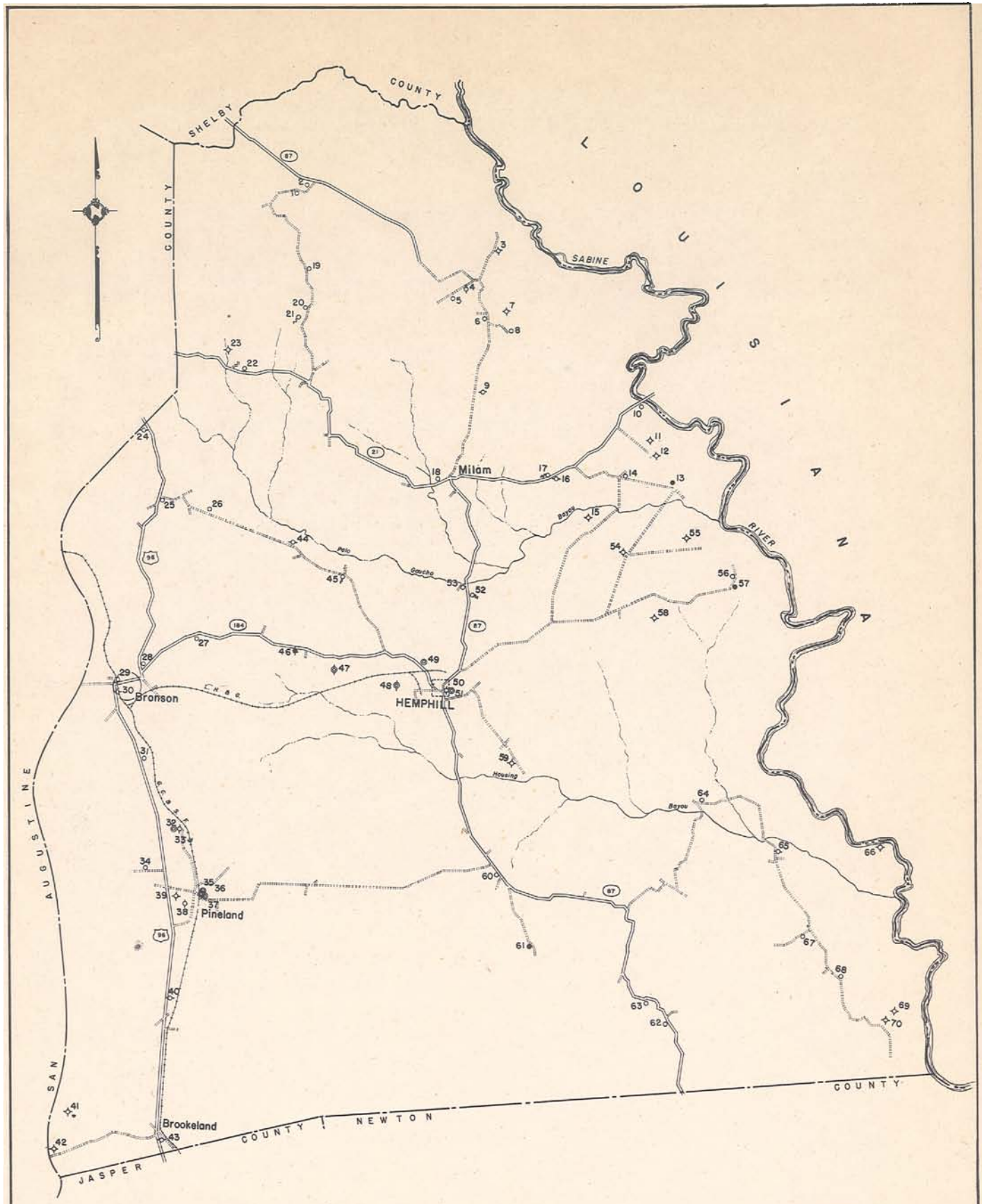
a/ Less than 3 parts per million.

b/ Analyses of water from selected wells and springs are given in milligram equivalent per liter on page 38.

Chemical Analyses--Continued

Results are in milligram equivalents per liter.

Well	Owner	Depth of well (ft.)	Date of collection	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na + K) (calc.)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Total hardness as $CaCO_3$ (calc.)
1	Mrs. Avie Brown	27	May 26, 1942	0.30	-	0.40	0.20	0.17	0.20	-	0.13	0.30
3	Frost Industries, Inc.	18	do.	0.22	0.10	0.19	0.20	0.06	0.14	-	0.11	0.32
5	San Augustine County	Spring	do.	0.12	0.10	0.06	0.20	0.06	0.01	0.01	0	0.22
7	M. C. Perry	25	do.	0.30	0.60	1.73	0.20	0.04	1.10	-	1.29	0.90
14	W. G. Sharp	200±	May 28, 1942	2.46	0.40	1.13	2.80	0.06	0.73	0.01	0.39	2.86
20	Bobbie Richards	23	May 26, 1942	0.34	0.20	2.79	0.10	0.15	2.82	-	0.26	0.54
21	San Augustine County	Spring	do.	0.14	0.20	0.15	0.30	0.04	0.01	0.01	0.13	0.34
23	Chester Newton	Spring	May 12, 1942	0.14	0.06	0.10	0.20	0.04	0.03	0.01	0.02	0.20
24	W. H. Richards	40	do.	0.08	0.26	0.41	0.10	0.04	0.45	-	0.16	0.34
27	White Rock School	22	May 28, 1942	0.14	0.20	0.03	0.30	0.04	0.01	0.01	0.01	0.34
29	Ben W. Noble	35	May 12, 1942	0.16	0.16	0.78	0.90	0.04	0.06	-	0.10	0.32
30	Mrs. J. A. Ford	27	June 10, 1942	0.24	0.30	0.12	0.20	0.06	0.14	-	0.26	0.54
35	Andrew Phillips	415	May 13, 1942	1.82	1.26	4.25	2.80	4.158	0.34	0.03	0	3.08
37	R. V. Steptoe	22	June 5, 1942	0.46	0.40	1.30	1.00	0.04	0.96	-	0.16	0.86
42	Mrs. W. K. Freeman	600±	May 12, 1942	0.34	-	11.82	11.00	0.06	1.10	-	0	0.34
46	Tom Quinn	30	June 5, 1942	0.14	0.08	0.33	0.10	0.10	0.17	-	0.18	0.22
47	W. B. Fvett	25	do.	0.26	0.40	0.03	0.20	0.10	0.25	-	0.14	0.66
52	M. C. Flournoy	36	May 11, 1942	0.18	0.26	1.07	0.60	0.06	0.85	-	0	0.44
60	Herman Clark	27	June 5, 1942	4.74	2.20	11.75	10.50	0.15	8.04	-	0	6.94
65	Temple Lumber Co.	24	May 27, 1942	0.24	0.18	1.13	0.80	0.04	0.71	-	0	0.42



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

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

MAP OF SABINE COUNTY, TEXAS

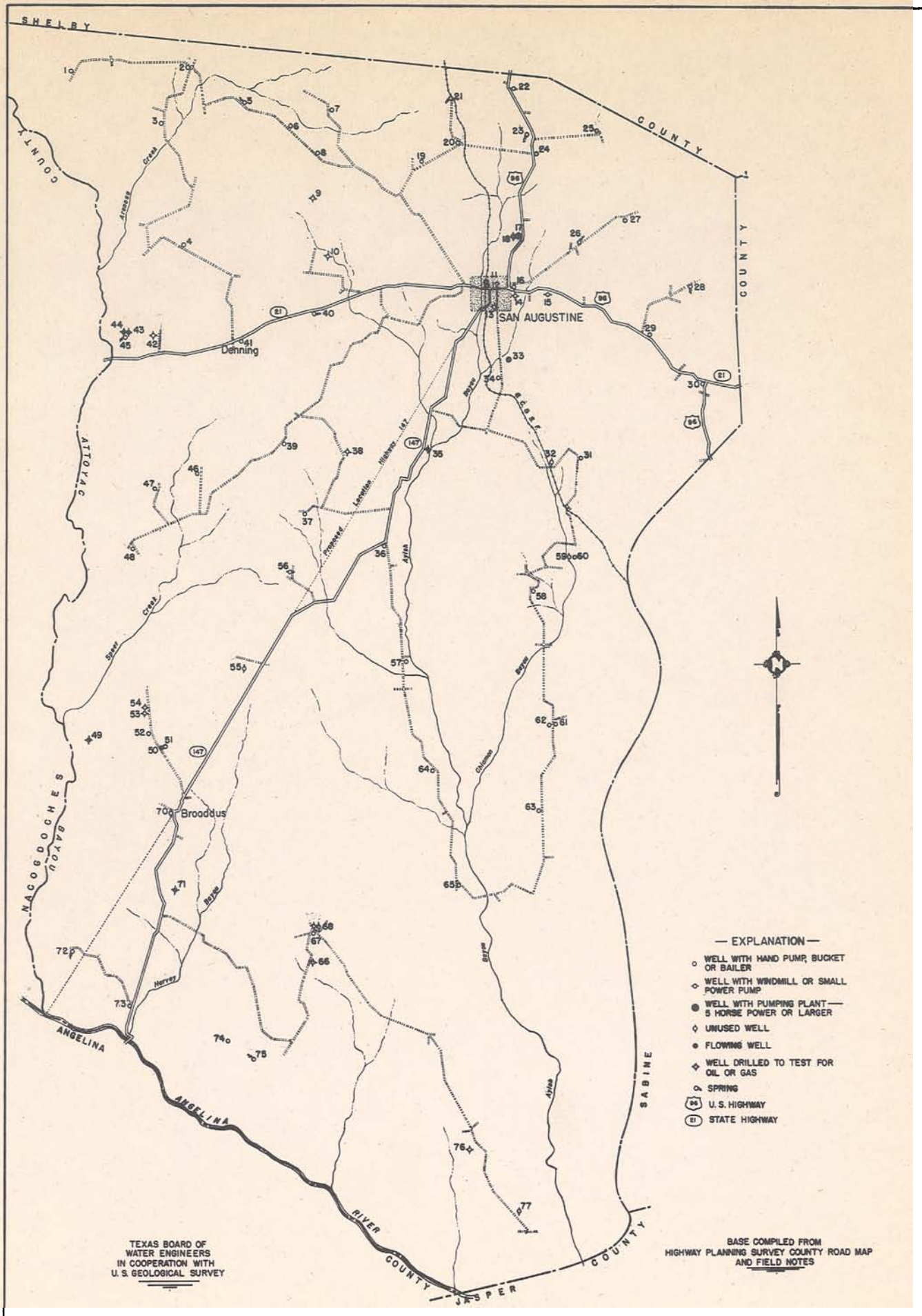
SHOWING WATER WELLS AND SPRINGS

SCALE
1 0 1 2 3 4 MILES

—EXPLANATION—

- ○ WELL WITH HAND PUMP, BUCKET OR BAILER
- ◇ WELL WITH WINDMILL OR SMALL POWER PUMP
- ◎ WELL WITH PUMPING PLANT— 5 HORSE POWER OR LARGER
- ◇ UNUSED WELL
- • FLOWING WELL
- SPRING
- WELL DRILLED TO TEST FOR OIL OR GAS
- (96) U. S. HIGHWAY
- (21) STATE HIGHWAY

—K—
11-2-42.



MAP OF SAN AUGUSTINE COUNTY, TEXAS

SHOWING WATER WELLS AND SPRINGS

SCALE
1 0 1 2 3 4 MILES

11-8-42