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STATE BOARD OF WATER ENGINEERS

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STEPHENS COUNTY, TEXAS

Records of wells and drillers' logs;
water analyses from wells, streams, and tanks;
and map showing location of wells, streams, and tanks.

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WORKS PROGRESS ADMINISTRATION

GROUND-WATER SURVEY

PROJECT 6013-5361

J. Howard Samuel
Project Superintendent

* * *

Analyses made, map prepared, data
assembled, and report mimeographed by

WORKS PROGRESS ADMINISTRATION

PROJECT 6507-5112

* * *

Sponsored by the State Board of Water Engineers with
the Bureau of Industrial Chemistry of The University
of Texas and the U. S. Geological Survey cooperating.

* * *

Austin, Texas
June 15, 1937

STEPHENS COUNTY, TEXAS

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Introduction

by

Samuel F. Turner
Associate Hydraulic Engineer
U. S. Geological Survey

The purpose of this survey was to obtain information concerning existing wells and springs and the quantity and quality of water they yield, and to put down test holes where additional information was needed. Since the only water available in some parts of Stephens County is that collected in small artificial reservoirs (tanks) and in streams, water samples for chemical analysis were collected from typical tanks and streams.

This project was part of a statewide Works Progress Administration project known as a "Statewide Inventory of Water Wells", sponsored by the State Board of Water Engineers. The Division of Ground Water of the U. S. Geological Survey cooperated in the technical direction of the project and the Bureau of Industrial Chemistry of The University of Texas furnished laboratory space and equipment and supervised the chemical analyses. The Stephens County Commissioners' Court furnished truck transportation for the labor used in the field.

The analyses were made by chemists employed on Works Progress Administration Project 6507-5112 at Austin, Texas, sponsored by the State Board of Water Engineers. This release was typed and assembled by typists and draftsmen employed on this project.

Field work was started in Stephens County on January 27, and completed on March 20, 1937. This was Project 6013-5361 of District 13 of the Works Progress Administration, Abilene, Texas. J. Howard Samuell, a geologist, was project superintendent. Mr. Samuell deserves credit for his careful and accurate work. The Abilene office of the Works Progress Administration made the project possible by their constant help and cooperation.

This release contains the well and spring records, drillers' logs, logs of the test holes drilled by the W. P. A. labor, descriptions of the typical, small reservoirs (tanks) and streams that were sampled, and chemical analyses of water from the wells, springs, test holes, tanks, and streams. Locations of all wells, springs, test holes, and tanks, and of the places where the streams were sampled are shown on a map in the back of the release.

The test holes were drilled by W. P. A. labor using a soil auger, drop auger, churn drill, and a sand bucket. Samples were collected at one foot intervals by the well driller in charge of the party. The project superintendent studied these samples and compiled the logs.

Records of wells in Stephens County, Texas

(All wells are drilled unless otherwise noted in "Remarks" column.)

No.	Distance from Breckenridge	Section	Survey	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Height of measuring point above ground (ft.) ^{a/}
1	13 miles northwest	120, center	T.E.& L. Co.	D. G. Stover	D. G. Stover	1883	36	48	3.0
d/ 2	12 miles northwest	--	E. Allard	W. S. Tip-ton, et al.	Gulf Prod. Co.	1920	4,045	6-5/8	--
d/ 7	9 miles north	1152	T.E.& L. Co.	R. J. Robertson	do.	1921	3,283	5-3/16	--
d/ 10	12 $\frac{1}{2}$ miles northeast	1173, SW $\frac{1}{4}$	do.	L. A. Spain	Humble Oil Co.	1921	3,329	5-3/16	--
11	16 miles northeast	--	--	Masonic Lodge	--	--	30	45	2.9
12	18 $\frac{1}{2}$ miles northeast	17, NW $\frac{1}{4}$ E $\frac{1}{4}$	J. Tobin	E. C. Stovall	Stovall & Son	1929	4,250	6	--
15	15 miles northeast	1077, NE $\frac{1}{4}$ SW $\frac{1}{4}$	T.E.& L. Co.	E. F. Corbett	--	1920	167	5	0.8
16	19 $\frac{1}{2}$ miles northeast	--	R. S. Owings	Mrs. Willie Mae Crabtree	--	1915	127	6	0.5
17	do.	--	J. W. Hallett	J. F. Burgess	--	1934	148	5	0.2
18	20 miles northeast	--	do.	H. J. Wesley	Grover --	1915	166	--	0.9
d/ 19	22 miles northeast	--	Robt. S. R. B. Owings	Whittenburg	C. S. Thomas	1920	4,247	6 $\frac{1}{4}$	--
20	16 miles east	1093, SE $\frac{1}{4}$ SE $\frac{1}{4}$	T.E.& L. Co.	J. M. Copeland	--	1936	125	5	0.5
d/ 21	17 $\frac{1}{2}$ miles east	15, NW $\frac{1}{4}$	T. & P. Ry. Co. Blk. 4	R. Q. Lee	Texas Pacific Coal & Oil Co.	1935	2,100	6-5/8	--
22	13 miles east	18, NE $\frac{1}{4}$ SE $\frac{1}{4}$	T. & P. Ry. Co. Blk. 5	C. M. Caldwell	-- Fincher	1896	72	6	1.4
23	11 $\frac{1}{2}$ miles east	3, SW $\frac{1}{4}$ SW $\frac{1}{4}$	do.	D. W. Deaver	Bill Fincher	1906	56	8	0.8
27	3 $\frac{1}{2}$ miles east	2085, center	do.	Hale Henderson	Hale Henderson Est.	1934	96	5	0.5
28	4 $\frac{1}{2}$ miles east	2077, NW $\frac{1}{4}$ SW $\frac{1}{4}$	T.E.& L. Co.	J. R. Dozier	B. K. Richardson	1910	75	5	2.2
d/ 30	2 $\frac{1}{4}$ miles south	20, NW $\frac{1}{4}$ SW $\frac{1}{4}$	Lunatic Asylum	K. Stoker	Gulf Prod. Co.	1928	3,214	6-5/8	--
31	1 $\frac{3}{4}$ miles south	20, SE $\frac{1}{4}$ NW $\frac{1}{4}$	do.	Dwain Babbs	--	1918	138	6-5/8	0
54	6 miles west	80, SE $\frac{1}{4}$ NE $\frac{1}{4}$	do.	H. G. Dodd	Plateau Oil Co.	--	3,396	6-5/8	--
55	10 $\frac{1}{2}$ miles southwest	68, SE $\frac{1}{4}$ SW $\frac{1}{4}$	do.	P. B. Loving	P. B. Loving	1895	35	27 $\frac{1}{2}$	2.1
d/ 60	4 $\frac{1}{2}$ miles south	3386, SE $\frac{1}{4}$ NE $\frac{1}{4}$	T.E.& L. Co.	G. R. Davis	Gulf Prod. Co.	1919	3,300	5-3/16	--
63	8 $\frac{1}{2}$ miles southeast	9, NE $\frac{1}{4}$ NW $\frac{1}{4}$	T. & P. Ry. Co. Blk. 6	L. Williams	--	1918	200 $\frac{1}{2}$	6	0.6

a/ Measuring point was usually top of casing, top of pump base, or top of well curb.

b/ A, air lift; C, cylinder; B, bucket; E, electric; G, gasoline engine; W, windmill; H, hand; Cf, centrifugal; number indicates horsepower.

Records obtained by J. Howard Samuel, Project Superintendent
(Chemical analyses of water from these wells are in the table of analyses.)

No.	Water Level		Pump and power <u>b/</u>	Use of water <u>c/</u>	Topographic situation	Remarks
	Depth below measuring point (feet)	Date of measurement				
1	35.4	Feb. 9, 1937	B,H	N	Flat	Dug well. Concrete crib at top. Reported weak but unfailling supply. Located near river
2	--	--	None	N	--	Oil test. See log. <u>bank.</u>
7	--	--	None	N	--	Do.
10	--	--	None	N	--	Do.
11	28.9	Mar. 11, 1937	B,H	N	Flat	Dug well. Wood curb; cement casing, top to bottom. Reported weak supply. Located near Brazos River in Young County.
12	Flows	do.	None	P	do.	Known as Stovall Hot Water Well. Located in Young County. Estimated flow, 75 gallons a minute. Supplies bathing pool. 3 barrels of
15	65.0	Mar. 17, 1937	C,W	D,S	do.	Concrete slab curb; 5 inch galvanized iron casing. Reported strong
16	76.0	do.	C,W	D,S	do.	Wood block curb; 6 inch galvanized iron casing, top to bottom. Reported strong supply.
17	107.0	do.	C,W	D,S	do.	Rock curb; 6 inch galvanized iron casing. Reported strong supply.
18	83.0	do.	C,W	D,S	do.	Wood block curb; galvanized iron casing. Reported pumps dry in 1 hour.
19	--	--	None	N	--	Oil test. See log.
20	93.5	Mar. 18, 1937	C,W	D,S	Hill-side	Concrete curb; 20 feet 5-inch galvanized iron casing at top.
21	--	--	None	N	--	Oil test. See log.
22	39.5	Mar. 18, 1937	B,H	D,S	Flat	Wood curb; 10 feet galvanized casing at top. Reported weak but unfailling supply.
23	26.0	<u>e/</u>	C,W	D,S	do.	Wood curb; 10 feet 8-inch galvanized iron casing at top. Reported pumps dry in 1 hour.
27	50	<u>e/</u>	C,W	D,S	do.	Concrete slab curb; 96 feet galvanized iron casing, bottom joint perforated. Water reported
28	50.1	Feb. 10, 1937	B,H	D,S	do.	25 feet galvanized <u>in sand</u> from 94 to 99 feet. iron casing at top. Strong supply reported.
30	--	--	None	N	--	Oil test. See log.
31	Flows	Mar. 17, 1937	None	S	Flat	138 feet 6-5/8-inch steel casing at top. Measured flow, 1 gallon in 8 minutes from overflow
54	--	--	None	N	--	Oil test. See <u>pipe. 1.4 feet above ground.</u> log.
55	18.1	Feb. 16, 1937	B,H	S	Gentle slope	Dug well. Rock curb and casing. Strong supply reported.
60	--	--	None	N	--	Oil test. See log.
63	82.0	Feb. 10, 1937	None	N	Gentle slope	30 feet 6-inch steel casing at top. Strong supply reported.

c/ I, irrigation; Ind, industrial; P, public; D, domestic; S, stock; N, not used.

d/ No water sample collected for analysis.

e/ Water level reported.

Records of wells in Stephens County--Continued

No.	Distance from Breckenridge	Section	Survey	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Height of measuring point above ground (ft.) _{a/}
d/ 64	9 miles southeast	9, NW $\frac{1}{4}$ SE $\frac{1}{4}$	T. & P. Ry. Co. Blk. 6	R. S. Taylor	--	1917	200	6	0.6
65	10 miles southeast	7, NE $\frac{1}{4}$ NW $\frac{1}{4}$	do.	W. G. Cockrell	--	1901	110	6	0.2
66	9 miles southeast	3, NE $\frac{1}{4}$ NW $\frac{1}{4}$	Orphan Asylum	S. T. Swenson	Nel Swenson	--	100	24	1.8
67	do.	1, SW $\frac{1}{4}$ SW $\frac{1}{4}$	do.	do.	do.	1887	34	24	4
68	10 $\frac{1}{2}$ miles southeast	6, NW $\frac{1}{4}$ SE $\frac{1}{4}$	do.	do.	Ven -Mex. Oil Co.	1934	270	6-5/8	0.8
69	11 $\frac{1}{2}$ miles southeast	5, NW $\frac{1}{4}$ NW $\frac{1}{4}$	T. & P. Ry. Co. Blk. 6	R. A. Sorgee Est.	Humble Oil Co.	1920	340	6-5/8	0
70	12 miles east	48, NE $\frac{1}{4}$ SE $\frac{1}{4}$	do.	Mrs. B. F. Coody	J. R. Coody	1919	84	5 $\frac{1}{2}$	0.8
73	13 $\frac{1}{2}$ miles east	44, NW $\frac{1}{4}$ SW $\frac{1}{4}$	T. & P. Ry. Co. Blk. 5	Floyd Nixon	--	1910	24	204	3.4
74	14 $\frac{1}{2}$ miles east	44, SW $\frac{1}{4}$ SE $\frac{1}{4}$	do.	R. M. Rogers	--	--	89	5 $\frac{1}{2}$	0.4
75	do.	45, NW $\frac{1}{4}$ NE $\frac{1}{4}$	T. & P. Ry. Co. Blk 4	do.	--	--	135	6	2
77	16 $\frac{1}{2}$ miles east	41, NW $\frac{1}{4}$ NE $\frac{1}{4}$	do.	J. R. Coody	--	1901	82	6	0
78	17 miles east	40, NW $\frac{1}{4}$ NW $\frac{1}{4}$	do.	H. C. Thompson	John Lynn	1924	98	6	1
79	17 $\frac{1}{2}$ miles east	33, NE $\frac{1}{4}$ SE $\frac{1}{4}$	do.	J. W. Butler	--	1890	35	36	2.4
81	16 miles east	44, NW $\frac{1}{4}$ SW $\frac{1}{4}$	do.	Mrs. B. F. Coody	--	1935	176	5 $\frac{1}{2}$	0.6
82	19 miles east	64, NE $\frac{1}{4}$ SE $\frac{1}{4}$	do.	Lone Star Gas Co.	Lone Star Gas Co.	1919	365	6-5/8	0.2
83	18 $\frac{1}{2}$ miles southeast	68, SE $\frac{1}{4}$ SW $\frac{1}{4}$	do.	Mrs. T. F. Litton	T.P.C. & O. Co.	1920	200	10 $\frac{1}{2}$	3.6
d/ 84	20 miles southeast	81, SW $\frac{1}{4}$ SW $\frac{1}{4}$	do.	Mrs. Wm. Graham	--	1890	107	5	1
85	20 $\frac{1}{2}$ miles southeast	88, NW $\frac{1}{4}$ SW $\frac{1}{4}$	do.	do.	--	1902	23	30	2.1
86	18 $\frac{1}{2}$ miles southeast	79, NE $\frac{1}{4}$ SE $\frac{1}{4}$	do.	J. H. Sudderth	--	--	14	38	2.6
87	do.	79, SE $\frac{1}{4}$ SW $\frac{1}{4}$	do.	B. T. Satterwhite	--	1900	29	36	2.4
d/ 88	16 miles southeast	48, SW $\frac{1}{4}$ NE $\frac{1}{4}$	T. & P. Ry. Co. Blk. 6	Mrs. Ida Raney	Frank Sides	1907	256	6	0
d/ 89	17 miles southeast	69, NE $\frac{1}{4}$	do.	D. C. Pratt	Dean Bros.	1936	3,860	6-5/8	--
90	16 $\frac{1}{2}$ miles southeast	69, NW $\frac{1}{4}$ NW $\frac{1}{4}$	do.	do.	--	1920	79	6	1

J. Howard Samuel, Project Superintendent

No.	Water Level		Pump and power <u>b/</u>	Use of water <u>c/</u>	Topographic situation	Remarks
	Depth below measuring point (feet)	Date of measurement				
64	60.0	Feb. 10, 1937	C,W,&G, 1½	S	Gentle slope	6 inch galvanized iron casing, top to bottom. 2 joints perforated casing at bottom. Reported slight drawdown pumping 3 hours with gasoline engine.
65	98.0	do.	C,W	D,S	Hill-top	Concrete slab curb. 20 feet 6-inch steel casing at top. Strong supply reported.
66	28.1	Feb. 19, 1937	C,W	D,S	Flat	Dug well to 32 feet. Wood curb; rock casing. Drilled well, 32 -100 feet. 6-inch casing. Reported weak but unfailling supply.
67	9.8	do.	B,H	S	Creek bank	Dug well. Wood curb; rock casing. Reported strong supply.
68	56.5	do.	C,G, 25	S	Foot of Gentle slope	100 feet 6-5/8-inch steel casing. Strong supply reported.
69	118.0	do.	C,G, 25	S, Ind	Hill-side	304 feet 6-5/8-inch steel casing. Strong supply reported. See log.
70	41.0	do.	C,W	S	Creek bank	20 feet 5½-inch galvanized iron casing at top. Slight drawdown reported.
73	12.8	Feb. 15, 1937	None	N	do.	Dug well. Rock curb; no casing. Estimated capacity, 50 gallons a minute. Located on east bank of Caddo Creek. Formerly supplied gin.
74	53.5	do.	C,W	D,S	Hill-top	Rock curb; 20 feet 5½-inch galvanized iron casing at top. Reported 2 feet drawdown pumping 5 - 10 gallons a minute for 2 hours.
75	65.0	Feb. 17, 1937	B,H	D	do.	Wood curb; 140 feet 6-inch steel casing. 2 joints perforated casing at bottom. Strong supply reported.
77	39.4	do.	C,W	D,S	Gentle slope	Concrete slab curb; no casing. Reported 2 feet drawdown pumping 5 - 10 gallons a minute for 8 hours. Reported never fails in drought.
78	40.0	do.	B,H	D,S	--	Wood curb; 14 feet 8-inch steel casing at top. 6-inch galvanized iron casing, 14 - 98 feet. Reported weak but unfailling supply.
79	18.4	do.	B,H	D	Gentle slope	Dug well. Rock curb and casing. Estimated capacity, 2 - 5 gallons a minute. Reported never fails in drought.
81	116.0	Feb. 18, 1937	C,W	S	Hill-top	Steel tubing curb; 5½-inch galvanized iron casing. Reported strong supply.
82	--	--	C,G, 25	P, Ind	do.	6-5/8-inch steel casing to 350 feet. Strong supply reported. Supplies Lone Star Gas Co.
83	33.0	Feb. 18, 1937	None	N	Hill-side	10½-inch steel curb and casing. Strong supply reported. Originally oil test, later plugged back to water sand.
84	81.8	Feb. 17, 1937	None	N	do.	5-inch galvanized iron curb and casing. Reported strong supply when last used.
85	11.8	do.	B,H	D	Flat	Dug well. Wood curb; rock casing. Estimated capacity, 2 - 5 gallons a minute. Reported fails in drought.
86	5.2	Feb. 18, 1937	B,H	S	do.	Dug well. Rock curb and casing. Reported fails in drought.
87	10.0	Feb. 17, 1937	None	N	do.	Dug well. Wood curb; rock casing. Reported fails in drought.
88	100	e/	None	N	do.	100 feet 6-inch galvanized iron casing. Reported strong supply.
89	--	--	None	N	--	Oil test. See log.
90	22.0	Feb. 17, 1937	C,W	D,S	Flat	Wood clamp curb; 6-inch galvanized iron casing. Reported pumps dry in 2 hours.

Records of wells in Stephens County--Continued

No.	Distance from Breckenridge	Section	Survey	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Height of measuring point above ground(ft.) _{a/}
91	16½ miles southeast	68, SE¼ SW¼	T. & P. Ry. Co. Blk. 6	J. C. Bargsley	-- Hilliard	1906	100	8	1.2
92	16 miles southeast	68, center west line	do.	A. W. Sechrist	A. V. Sechrist	1921	19	30	1.6
93	15½ miles southeast	67, SE¼ NE¼	do.	Henry Bradford	Henry Bradford	1906	19	48	2.2
94	16 miles southeast	67, SW¼ SE¼	do.	M. H. Bobo	L. A. Sides	1930	104	6	0.6
95	13½ miles southeast	51, NE¼ NW¼	do.	Willis Knight	-- Jones	1933	12	40	1.6
96	do.	64, NE¼ NE¼	do.	Mrs. Kit Gardenheim	--	1880	11	48	0
97	10½ miles southeast	18, SW¼ SW¼	do.	C. McCauley	--	--	14	36	0.8
98	9½ miles southeast	10, SE¼ NE¼	Blind Asylum	Humble Pipeline Co.	Humble Oil Co.	1919	132	6	1.2
99	do.	10, SW¼	do.	T. C. Fambro	-- Miller	1919	75	5	0.5
100	10½ miles southeast	57, NW¼ NW¼	T. & P. Ry. Co. Blk. 7	J. W. Cooper	--	1885	185	6	0.5
101	do.	57, SW¼ NW¼	do.	R. O. Thompson	Witt Gray	--	180	6	2.3
102	do.	do.	do.	Wayland School	Charlie Smoot	1908	180	6	2.3
103	do.	58, SE¼ NE¼	T. & P. Ry. Co. Blk. 6	Mrs. Willie Sykes	Sam Miller	1920	20	7	0
104	do.	do.	do.	J. M. Brown	D. B. Hodges	1919	165	6	2
105	10 miles southeast	58, NE¼ NE¼	do.	W. N. Toland	--	1885	180	6	2.2
106	do.	do.	do.	N. A. Richardson	Will Gray	1918	165	6	2.5
107	do.	do.	do.	do.	--	1877	33	36	1

J. Howard Samuell, Project Superintendent

No.	Water Level		Pump and power b/	Use of water c/	Topographic situation	Remarks
	Depth below measuring point (feet)	Date of measurement				
91	21.0	Feb. 17, 1937	C,W	D,S	Hill-top	Concrete curb; no casing. Strong supply reported from sands at 15 and 85 feet. Reported 4 feet drawdown pumping 5 - 10 gallons a minute
92	10.8	do.	B,H,& C,G,5	D	Flat	Dug well. Wood curb; rock casing. <u>for 1 hour.</u> Reported 1 foot drawdown pumping 2 - 5 gallons a minute for 4 hours. Reported fails in
93	9.1	Feb. 12, 1937	B,H	D,S	Flat	Dug well. Galvanized iron curb; rock <u>drought</u> casing. Strong supply reported.
94	102	do.	C,E, $\frac{1}{2}$	D,S	do.	Milk can curb; 26 feet 3-inch steel casing at top. Reported 28 feet drawdown pumping 2 gallons a minute for 40 minutes. Surface water,
95	11.2	do.	B,H	D,S	do.	Dug well. Wood curb; no <u>15-19 feet</u> cased off. casing. Reported never fails in drought.
96	3.9	Feb. 10, 1937	None	N	do.	Dug well. No curb; rock casing. Estimated capacity, 2 - 5 gallons a minute.
97	11.0	do.	None	N	Hill-top	Dug well. Brick curb; no casing. Reported never fails in drought.
98	15.5	Feb. 6, 1937	A,E, 20	D,S, Ind	Flat	6-inch steel curb and casing. 2 joints perforated casing at bottom. Static water level, 22 feet. Reported pumping level, 50 feet after operating 1 hour pumping 30 gallons a minute. 16 wells nearby operating part time. All wells supply Humble Oil Co. Fambro Station.
99	25.0	Feb. 5, 1937	C,W	D,S	do.	5-inch steel curb and casing. Strong supply reported. Measured drawdown, 1 foot after 4 hours pumping 5 - 10 gallons a minute.
100	8.1	Mar. 9, 1937	B,H,& C,W	D,S	do.	Dug well to 30 feet. Concrete curb; rock casing. Drilled well, 30 - 185 feet. 6-inch galvanized iron casing. Estimated capacity; 5 -
101	8.2	do.	B,H	D,S	do.	Dug well to 20 feet. <u>10 gallons a minute.</u> Rock curb and casing. Drilled well, 20 - 180 feet. 6-inch steel casing. Estimated capacity,
102	6.7	do.	C,H	P	do.	Dug well to 20 feet. Rock <u>2 gallons a minute.</u> curb and casing. Drilled well, 20 - 180 feet. $1\frac{3}{4}$ inch galvanized iron tubing. Estimated cap-
103	Flows	Feb. 6 1937	None	N	do.	7-inch steel curb <u>capacity, 5-10 gallons a minute</u> and casing. Estimated flow, $\frac{1}{2}$ gallon a minute.
104	2.0	Feb. 5, 1937	Cf,G, $1\frac{1}{2}$	D,S	do.	Dug well to 20 feet. Concrete <u>Never fails.</u> curb; no casing. Drilled well, 20 - 165 feet. Reported 18 feet drawdown pumping 12 gallons a minute for 2 hours.
105	7.0	Mar. 9, 1937	B,H	D,S	do.	Dug well to 21 feet. Wood curb; rock casing. Drilled well, 21 - 180 feet. 6-inch steel casing. 2 joints perforated casing at bottom. Estimated capacity, 2 gallons a minute.
106	6.5	do.	B,H	D	do.	Dug well to 20 feet. Brick curb and casing. Drilled well 20 - 165 feet. 6-inch steel casing. Water reported in sand from 130 - 165 feet. Estimated capacity; 2 gallons a minute.
107	15.7	do.	C,H	S	do.	Dug well. Wood curb; rock casing. Reported never fails in drought. Estimated capacity, 2 <u>gallons a minute.</u>

Records of wells in Stephens County--Continued

No.	Distance from Breckenridge	Section	Survey	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Height of measuring point above ground (ft.) _{a/}
108	10 miles southeast	35, SE $\frac{1}{4}$ SE $\frac{1}{4}$	T. & P. Ry. Co. Blk. 6	W. D. Gray	--	1898	140	6	2
109	9 $\frac{1}{2}$ miles southeast	35, NW $\frac{1}{4}$ SE $\frac{1}{4}$	Elind Asylum	J. Hodges	--	--	131	8	0
110	10 miles south	15, SW $\frac{1}{4}$ NE $\frac{1}{4}$	T. & P. Ry. Co. Blk. 7	E. C. Head	Aubrey Ramshire	1933	135	6	0.5
112	do.	18, SW $\frac{1}{4}$ NE $\frac{1}{4}$	do.	Noble Robertson	Noble Robertson	1936	6	48	0
d/114	14 $\frac{1}{2}$ miles southwest	35, NE $\frac{1}{4}$	do.	Mr. & Mrs. Henry Compton	Belding & McKeelvain	1934	375	--	--
115	14 miles south	--	J. Stephenson	Joe W. Johnson	J. Caldwell	1915	135	6	1
116	do.	--	do.	Fate Johnson	Frank Turknette	1918	50	6	0.5
d/119	do.	445, SW $\frac{1}{4}$ NE $\frac{1}{4}$	S.P. Ry. Co.	J. A. Baggett	Bell & McDonald	1920	225	5- 3/16	1
120	13 $\frac{1}{2}$ miles south	445, SE $\frac{1}{4}$ NE $\frac{1}{4}$	do.	First Nat'l Bank, Cisco	Tex-O-Can Oil Co.	1921	72	5- 3/16	0.8
121a	15 $\frac{1}{2}$ miles south	456, SW $\frac{1}{4}$ NE $\frac{1}{4}$	do.	L. E. Turner	Aubry Ramshire	1925	180	6	0.6
d/122	do.	458, NW $\frac{1}{4}$	do.	W. N. Tolle	Southwestern Oil Dev. Co.	1920	3,633	8 $\frac{1}{4}$	--
123	13 miles south	45, NE $\frac{1}{4}$ SE $\frac{1}{4}$	T. & P. Ry. Co. Blk. 7	A. F. Billings	--	1915	158	6	1.2
124	11 miles south	26, NE $\frac{1}{4}$ SW $\frac{1}{4}$	do.	A. L. Wagley	Prairie Oil & Gas Co.	1920	192	4	0
125	12 $\frac{1}{2}$ miles south	82, SE $\frac{1}{4}$ SW $\frac{1}{4}$	T. & P. Ry. Co. Blk. 6	Mrs. C. R. Brown	Aubrey Ramshire	1936	149	6	0
126	13 miles south	82, SE $\frac{1}{4}$ SE $\frac{1}{4}$	do.	J. K. Pruitt Est.	--	--	77	5	2
127	13 miles southeast	81, NW $\frac{1}{4}$ SE $\frac{1}{4}$	do.	W. C. Ledbetter	--	1925	126	5 $\frac{1}{2}$	1.5
128	14 miles southeast	85, NE $\frac{1}{4}$ SE $\frac{1}{4}$	do.	J. C. Thompson	W. D. Gray	--	70	6	0
129	14 $\frac{1}{2}$ miles southeast	6, NE $\frac{1}{4}$ NW $\frac{1}{4}$	T. & N.O. Ry. Co.	C. W. Dooley	--	--	106	--	3
130	16 $\frac{1}{2}$ miles southeast	128, NW $\frac{1}{4}$ NW $\frac{1}{4}$	H.T. & B. Ry. Co.	M. A. Frost	--	1937	173	--	2.1
131	18 $\frac{1}{2}$ miles southeast	125, SE $\frac{1}{4}$ NE $\frac{1}{4}$	do.	Alvan Mayhall	--	1909	41	6	0.5
132	18 miles southeast	124, SE $\frac{1}{4}$ SE $\frac{1}{4}$	do.	G. Beane	-- Collins	--	19	36	2.2

J. Howard Samuel, Project Superintendent

No.	Water Level		Pump and power <u>b/</u>	Use of water <u>c/</u>	Topographic situation	Remarks
	Depth below measuring point (feet)	Date of measurement				
108	10.0	Feb. 5, 1937	B,H	D,S,P	Flat	Dug well to 20 feet. Concrete curb. Drilled well, 20 - 140. No casing. Estimated capacity, 5 - 10 gallons a minute.
109	Flows	Mar. 9, 1937	None	N	do.	8-inch steel casing. Estimated flow; 1 - 2 gallons a minute. Flowing from pipe, 1.8 feet above ground.
110	30.0	Feb. 8, 1937	C,W	D,S	do.	6-inch galvanized iron casing. 2 joints perforated casing at bottom. Reported 2 feet drawdown pumping 5 - 10 gallons a minute for 4 hours.
112	4.1	do.	B,H	D,S	do.	Dug well. Rock curb; no casing. Located in sandy field. Reported strong supply.
114	--	--	None	N	--	Oil test. Reported altitude, 1,300 feet. See log.
115	53.0	<u>e/</u>	C,W	S	Hill-top	130 feet of 6-inch galvanized iron casing. Supplies bath water. Strong supply reported.
116	12.0	<u>e/</u>	C,H	D,S	Flat	Concrete curb; 48 feet 6-inch galvanized iron casing. Reported slight drawdown pumping 2 - 5 gallons a minute for 24 hours. Reported strong supply.
119	80	<u>e/</u>	C,W	S	Hill-top	140 feet 5-3/16-inch galvanized iron casing. Reported 4 feet drawdown pumping 100 gallons a minute for 24 hours. Formerly supplied 3 drilling rigs.
120	0.8	Jan. 28, 1937	None	N	Flat	60 feet 5-3/16-inch steel casing. Water reported in 2 sands, 80 - 90 and 130 - 140 feet. Reported formerly flow-
121a	35.0	Feb. 8, 1937	C,W	D,S,I	Flat	180 feet 6-inch galvanized iron casing. 2 joints perforated casing at bottom. Irrigates small garden. Reported 2 feet drawdown pumping 5 - 10 gallons a minute for 4 hours.
122	--	--	None	N	--	Oil test. See log.
123	116.5	Feb. 8, 1937	C,W	D,S	Gentle slope	Wood curb; 20 feet 6-inch galvanized iron casing at top. Reported 3 feet drawdown pumping 5 - 10 gallons a minute for 8 hours.
124	Flows	do.	None	N	Creek bank	Estimated flow; 2 gallons a minute. Located near creek bank.
125	25.0	Feb. 6, 1937	C,W	D,S	Flat	Concrete base curb; 149 feet 6-inch steel casing. 2 joints perforated casing at bottom. Reported 4 feet drawdown pumping 5 - 10 gallons a minute for 6 hours.
126	19.5	do.	None	N	do.	40 feet 5-inch galvanized iron curb and casing. Estimated capacity, 5 - 10 gallons a minute.
127	68.0	Feb. 11, 1937	B,H	D,S	do.	40 feet galvanized iron curb and casing at top. Reported never fails in drought.
128	54.0	do.	C,W	S	Gentle slope	Concrete slab curb; 20 feet 6-inch casing at top. Reported strong supply. Estimated capacity, 5 - 10 gallons a minute.
129	54.6	do.	B,H	D,S	Hill-top	Wood crib curb. Reported never fails in drought.
130	143.0	do.	None	N	Flat	Steel curb and casing at top. Strong supply reported.
131	29.4	do.	C,H	D,S	do.	Concrete slab curb; 20 feet 6-inch galvanized iron casing at top. Estimated capacity; 5 - 10 gallons a minute.
132	17.0	do.	B,H	D,S	do.	Dug well. Wood curb. Strong supply reported. Estimated capacity, 5 - 10 gallons a minute.

Records of wells in Stephens County--Continued

No.	Distance from Breckenridge	Section	Survey	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Height of measuring point above ground(ft.) ^{a/}
133	17 $\frac{1}{2}$ miles southeast	124, SW $\frac{1}{4}$ NE $\frac{1}{4}$	H.T.& B. Ry. Co.	Edgar Huffman	-- Ford	1933	182	5- 3/16	0.5
134	do.	124, SE $\frac{1}{4}$ NW $\frac{1}{4}$	do.	H. C. Wilkenson	--	1918	153	5	0.2
135	17 miles southeast	2, center west line	T.& N.O.Ry. Co. Blk.B.	Claude Beardman	--	1921	75	22	2.3
d/136	15 $\frac{1}{2}$ miles southeast	3, NW $\frac{1}{4}$	do.	E. Y. Jennings	Barney Carter	1924	3,762	6-5/8	--
137	16 miles southeast	1, SW $\frac{1}{4}$ NE $\frac{1}{4}$	do.	C. C. Jackson	-- Brumbalo	1926	79	5	0.5
138	15 $\frac{1}{2}$ miles southeast	88, SE $\frac{1}{4}$ SE $\frac{1}{2}$	T.& P. Ry. Co. Blk. 6	H. A. Demic Est.	--	--	92	20	2.5
139	17 $\frac{1}{2}$ miles southeast	92, SW $\frac{1}{4}$ SW $\frac{1}{2}$	do.	Frank Sides	-- Mcfortin	1924	127	5 $\frac{3}{4}$	1.8
140	do.	116, SW $\frac{1}{4}$ NE $\frac{1}{4}$	J. R. Carter	Mrs. Sallie Lane	Frank Dupree	1903	69	3 $\frac{1}{2}$	0
141	do.	do.	do.	do.	Humble Oil Co.	1920	100	18	0.5
142	do.	116, SE $\frac{1}{2}$ NW $\frac{1}{4}$	do.	A. H. Boney	Jake Hamon R. R. Co.	1918	50	6	1.6
143	20 miles southeast	--	W. N. Nolan	Bullock School	-- Smith	--	19	36	2.2
d/144	22 miles southeast	--	I. & G.N. Ry. Co.	Satterfield heirs	Sinclair Oil & Gas Co.	--	3,410	--	--

^{a/} Measuring point was usually top of casing, top of pump base, or top of well curb.
^{b/} A, air lift; C, cylinder; B, bucket; E, electric; G, gasoline engine; W, windmill; H, hand; Cf, centrifugal; number indicates horsepower.

J. Howard Samuel, Project Superintendent

No.	Water Level		Pump and power <u>b/</u>	Use of water <u>c/</u>	Topographic situation	Remarks
	Depth below measuring point (feet)	Date of measurement				
133	25	<u>e/</u>	C,H	D	Flat	Steel curb; 182 feet 5-3/16-inch galvanized casing. 2 joints perforated casing at bottom.
134	78.6	Feb. 11, 1937	C,W	D,S	Gentle slope	Concrete slab curb. 40 feet 5-inch galvanized iron casing. Reported strong supply. Reported 2 feet drawdown pumping 5 - 10 gallons a minute for 4 hours.
135	64.1	do.	C,H	D,S	Flat	Dug well. Gasoline drum curb; rock casing. Strong supply reported.
136	--	--	None	N	--	Oil test. See log.
137	27.0	Feb. 11, 1937	C,W	D,S	Hill-top	Concrete slab curb; 65 feet 5-inch casing. Water reported cased off at 15 and 60 feet. Reported 1 foot drawdown pumping 5 - 10 gallons a minute for 4 hours.
138	58.2	do.	None	N	Flat	Dug well. 15 feet 20-inch galvanized iron curb and casing. Located in field 100 yards west of county road.
139	40.0	Feb. 12, 1937	C,H	D,S	Hill-top	Wood curb; 125 feet 5 1/4-inch galvanized iron casing. 2 joints perforated casing at bottom.
140	30.0	Feb. 24, 1937	C,G, 1 1/4	D,S	Gentle slope	65 feet 3 1/2-inch galvanized iron curb and casing. Water reported in sand 63-66 feet. Reported 30 feet drawdown pumping 2 - 5 gallons a minute for 1 hour.
141	20.0	do.	None	N	Flat	Wood curb; no casing. Estimated capacity, 5 - 10 gallons a minute. Water reported from sand, 55- 58 feet.
142	19.2	Feb. 12 1937	B,H	D,S	do.	Wood curb; no casing. Strong supply reported.
143	16.5	do.	B,H	N	Gentle slope	Dug well. Wood curb; no casing. Estimated capacity, 2 gallons a minute. Reported fails in drought. Formerly supplied school.
144	--	--	None	N	--	Oil test. See log.

c/ I, irrigation; Ind, industrial; P, public; D, domestic; S, stock; N, not used.

d/ No water sample collected for analysis.

e/ Water level reported.

Table of Drillers' Logs, Stephens County, Texas

Driller's log of well 2
Gulf Production Co., W. S. Tipton, et al.
12 miles northwest of Breckenridge.

	Thickness (feet)	Depth (feet)
Soft sand-	11	11
Yellow clay-	3	14
Red rock and mud-	41	55
Sand-	20	75
Red rock-	10	85
Hard white lime-	10	95
Red mud-	15	110
Yellow clay and lime shells-	15	125
Red rock-	15	140
Hard sand-	15	155
Hard lime-	5	160
Gray mud-	10	170
Red clay-	10	180
Yellow mud-	25	205
Blue shale-	20	225
Black shale-	10	235
Red rock-	5	240
Yellow clay-	50	290
Red rock-	10	300
White lime-	26	326
Coal-	1	327
Black slate-	3	330
Sandy slate-	35	365
Hard white lime-	10	375
White slate-	15	390
Blue shale-	10	400
Hard lime-	25	425
Blue shale, lime and shells-	45	470
Shale and lime shells-	35	505
Red rock-	45	550
Hard lime-	15	565
Black shale-	65	630
Lime-	40	670
Shale-	50	720
Soft shale	5	725
Shells	2	727
Sand and gravel shell-	35	762
Conglomerate-	6	768
Sticky blue shale-	38	806
Sand-	14	820
Hard blue shale-	10	830
Sand, flowing water-	30	860
Gumbo and shale-	20	880
Sticky shale-	15	895
Dry white sand-	5	900
Shale-	14	914
Sticky blue shale-	33	947
Hard shale-	5	952
Blue shale-	33	985
Hard shale-	15	1000
Blue shale-	137	1137
Lime-	33	1170
Shale-	30	1200

	Thickness (feet)	Depth (feet)
Water sand-	30	1230
Shale-	70	1300
Lime shale-	4	1304
Shale-	121	1425
Slate-	80	1505
Shale-	305	1810
Gray lime-	127	1937
Lime shell slate-	75	2012
Water sand-	28	2040
Slate-	45	2085
Shale-	55	2140
Sandy lime-	45	2185
Shale-	90	2275
Lime and shells-	80	2355
Shale-	25	2380
Lime-	10	2390
Shale-	20	2410
Shale and shells	105	2515
Shale-	35	2550
White shale-	50	2600
Lime-	50	2650
Slate lime-	45	2695
Sand-	5	2700
Slate-	5	2705
Lime-	30	2735
Lime shells-	70	2805
Shale-	45	2850
Lime-	25	2875
Shale	125	3000
TOTAL DEPTH		4045

Driller's Log of well 7
Gulf Production Co., R. J. Robertson lease.
9 miles north of Breckenridge.

Yellow clay-	60	60
Sandy lime-	28	88
Lime-	22	110
Shale-	95	205
Lime-	45	250
Shale-	90	340
Lime-	10	350
Shale-	30	380
Lime-	30	410
Shale-	30	440
Lime-	25	465
Shale-	60	525
Sandy lime-	130	655
Lime-	20	675
Shale-	10	685
Lime-	35	720
Shale-	155	875
Black shale-	25	900
Lime-	10	910
Sand-	50	960

(Continued on next page)

Table of Drillers' Logs, Stephens County--Continued

Driller's log of well 7--Continued

	Thickness (feet)	Depth (feet)
Shale-	30	990
Lime-	90	1080
Black shale-	10	1090
Water sand-	5	1095
Lime-	5	1100
Shale-	100	1200
Lime-	30	1230
Shale-	45	1275
Lime-	5	1280
Shale-	10	1290
Black lime-	30	1320
Shale-	20	1340
Lime-	135	1475
Shale-	55	1530
Water sand	65	1595
Sandy shale-	10	1695
Lime and shale-	130	1735
Shale-	75	1810
Lime	10	1820
Shale-	365	2185
Lime-	20	2205
Shale-	185	2390
Water sand-	15	2405
Shale	85	2490
Shale-	30	2520
Lime-	15	2535
Shale-	200	2735
Water sand	10	2745
Shale-	110	2855
Lime-	13	2868
Shale-	112	2980
Water sand-	45	3025
Sand-	5	3030
Shale-	15	3045
Lime-	18	3063
Shale-	77	3140
Water sand-	17	3157
Shale-	53	3210
Black shale-	6	3216
Gray lime-	52	3268
Lime-	12	3280
Water sand-	3	3283
TOTAL DEPTH-		3283

Driller's log of well 10--Continued

	Thickness (feet)	Depth (feet)
White shale-	30	230
Broken white lime-	30	260
Sticky white shale-	38	298
Blue shale-	22	320
White lime-	20	340
Blue shale-	60	400
White lime-	45	445
Blue shale-	40	485
White lime-	140	625
White sand, water-	10	635
Gray sand and lime-	15	650
White sand, 10 bailers water per hour-	30	680
Blue shale-	175	855
Gray sand	15	870
White lime-	225	1095
Blue shale-	155	1250
Broken gray lime-	30	1300
White lime-	65	1365
White sandy lime-	55	1420
White lime-	50	1470
Blue shale-	45	1515
White sand, hole full of water	25	1540
Blue shale-	5	1545
White lime-	5	1550
Blue shale-	110	1660
Gray lime shell-	20	1680
Blue shale-	8	1688
White lime-	34	1722
Blue shale-	4	1726
White sandy lime-	41	1767
Blue shale-	23	1790
White lime-	17	1807
White sandy lime-	13	1820
Blue shale-	65	1885
White lime-	27	1912
Blue shale-	68	1980
Broken gray lime	30	2010
Blue shale-	140	2150
White sand, water-	20	2170
Blue shale-	40	2210
Blue sandy shale	10	2220
Blue shale-	158	2378
Gray sand, sharp	22	2400
Blue shale-	120	2520
White sand, water-	80	2600
Blue shale-	40	2640
Blue lime-	5	2645
Sandy lime-	40	2685
Blue sandy lime, hard-	30	2715
Blue shale-	15	2730
Gray sand, hole full of water	35	2765
Blue shale-	30	2795

Driller's log of well 10

Humble Oil and Refining Co., L. A. Spain
lease. 12 $\frac{1}{2}$ miles northeast of Breckenridge

Surface-	12	12
Blue shale-	53	65
Brown sand, water-	15	80
Blue shale-	5	85
Blue lime-	10	95
Blue shale	95	190
Red rock-	10	200

(Continued on next page)

Table of Driller's Logs, Stephens County--Continued

Driller's log of well 10--Continued

	Thickness (feet)	Depth (feet)
Gray sandy lime-	26	2821
Blue shale-	63	2884
White lime-	1	2885
Blue shale-	55	2940
Blue lime-	15	2955
Sandy shale-	10	2965
Blue shale-	31	2996
Blue sandy shale-	54	3050
Blue shale-	-105	3155
White sand-	10	3165
Blue shale-	15	3180
White sand, 1½ bailers water per hour-	20	3200
Blue and white shale	78	3278
Brown lime-	6	3284
Black shale-	25	3309
Gray lime-	20	3329
TOTAL DEPTH-		3329
CASING RECORD: 298 feet of 15½ inch casing. 380 feet of 12½ inch casing. 1670 feet of 10 inch casing. 1780 feet of 8½ inch cas- ing. 2961 feet of 6-5/8 inch casing. 3295 feet of 5-3/16 inch casing.		

Driller's log of well 19
C. S. Thomas Co., R. B. Whittenburg, et al.
22 miles northeast of Breckenridge.

	Thickness (feet)	Depth (feet)
Surface-	2	2
Sandstone-	8	10
Blue shale-	22	32
White lime-	28	60
Sandstone-	10	70
White lime-	5	75
Blue clay-	5	80
White lime-	5	85
Sandy blue shale-	20	105
Sandstone-	41	146
Blue shale-	14	160
Sandstone and lime	45	205
Blue clay-	20	225
Sandy blue shale-	5	230
Blue clay-	6	236
Sticky black clay-	9	245
Lime shell-	2	247
White shale-	8	255
Hard gray lime-	30	285
Blue shale-	6	291
White lime-	20	311
Water sand-	25	336
Blue shale-	5	341
Water sand-	24	365
Blue shale	-100	465
Sand and shell-	3	468
Blue shale-	-117	585
White lime-	-141	726

Driller's log of well 19--Continued

	Thickness (feet)	Depth (feet)
Hard gray lime-	-109	835
Sticky blue clay-	37	872
Gray lime-	3	375
Blue clay-	-170	1045
Blue lime-	10	1055
Black shale-	5	1060
Blue lime-	10	1070
Blue shale-	15	1085
Gray lime-	90	1175
White lime-	60	1235
Sandy blue shale-	20	1255
Water sand-	15	1270
Blue shale-	5	1275
Water sand-	30	1305
Hard white lime-	5	1310
Sandy blue shale-	10	1320
White lime-	50	1370
Dry sand-	10	1380
White lime-	25	1405
Blue shale-	10	1415
White lime-	45	1460
Black shale-	20	1480
White lime-	4	1484
Black shale-	11	1495
Hard blue lime	10	1505
Blue clay-	5	1510
Gray lime-	71	1581
Black shale-	9	1590
Blue shale-	5	1595
Black shale-	7	1602
Water sand-	-102	1704
Blue shale-	15	1719
Black lime-	7	1726
Blue shale-	-169	1895
Gray lime	-120	2015
Blue shale-	64	2079
Gray lime-	16	2095
Blue shale and shells	25	2120
White sand-	30	2150
Black sandy shale	55	2205
Water sand-	30	2235
Blue sandy shale-	-128	2363
Gray sand-	12	2375
Black slate-	-180	2555
Hard sand shell-	6	2561
Blue slate and sand-	19	2580
Blue sandy shale-	20	2600
Hard gray sandy lime-	10	2610
Sandy blacky shale-	70	2680
Blue shale-	20	2700
TOTAL DEPTH		4247

Table of Drillers' Logs, Stephens County--Continued

Driller's log of well 21
Texas Pacific Coal and Oil Co., R. Q. Lee
lease. 17½ miles east of Breckenridge.

	Thickness (feet)	Depth (feet)
Soil-	5	5
Lime-	45	50
Shale	30	80
Blue mud-	20	100
Blue shale-	65	165
Lime-	20	185
Blue mud-	5	190
Lime-	95	285
Blue shale-	10	295
Lime-	50	345
Blue shale-	25	370
Shale-	180	550
Blue shale	20	570
Lime-	30	600
Shale-	5	605
Lime-	20	625
Blue shale-	15	640
lime	40	680
Shale-	20	700
Lime-	60	760
Blue shale-	35	795
Shale-	25	820
Sand, hole full of water-	15	835
Sandy shale-	25	860
Blue shale-	5	865
Shale-	25	890
Blue shale-	55	945
Shale-	25	970
Blue shale-	55	1025
Lime-	5	1030
Shale-	15	1045
Blue shale-	20	1065
Lime-	35	1100
Shale-	5	1105
Lime-	10	1115
Shale-	15	1130
Lime-	15	1145
Shale-	5	1150
Blue shale-	20	1170
Lime-	35	1205
Blue shale-	15	1220
Shale-	25	1245
Lime-	5	1250
Shale-	5	1255
Blue shale-	60	1315
Lime shells and shale-	55	1370
Water sand-	20	1390
Blue shale-	20	1410
Red shale-	3	1413
Lime-	5	1418
Blue shale-	2	1420
Red shale-	10	1430

Driller's log of well 21--Continued
Thickness Depth
(feet) (feet)

Lime-	5	1435
Shale-	40	1475
Light shale-	30	1505
Lime-	5	1510
Light shale-	5	1515
Blue shale-	25	1540
Lime-	25	1565
Light shale-	35	1600
Blue shale-	20	1620
Light shale-	35	1655
Blue shale-	40	1695
Hard sandy lime	17	1712
Broken lime-	3	1715
Water sand-	10	1725
Hard sandy lime-	8	1733
Shale-	3	1736
Blue shale-	14	1750
Light shale-	50	1800
Shale-	50	1850
Light shale-	40	1890
Light blue shale-	50	1940
Light shale-	55	1995
Lime-	15	2010
Blue shale-	5	2015
Light blue shale-	14	2029
Sandy shale-	6	2035
Water sand-	19	2054
Hard sand-	6	2066
Water sand-	15	2075
Hard sand-	17	2092
Blue shale-	8	2100
TOTAL DEPTH-		2100

Driller's log of well 30
Gulf Production Co., K. Stoker lease. 2¼
miles south of Breckenridge.

Yellow clay-	30	30
Lime-	70	100
Blue shale-	105	205
Gray shale-	30	235
Blue shale-	20	255
Lime-	5	260
Blue shale-	45	305
Lime-	15	320
Blue shale-	50	370
Water sand-	20	390
Blue shale-	15	405
Lime-	10	415
Blue shale-	45	460
Lime-	5	465
Blue shale-	115	580
Black shale-	25	605
Lime-	30	635
Blue slate-	5	640

(Continued on next page)

Table of Drillers' Logs, Stephens County--Continued

Driller's log of well 30--Continued			Driller's log of well 54		
	Thickness (feet)	Depth (feet)	Plateau Oil Co., H. D. Dodd lease. 6 miles west of Breckenridge.	Thickness (feet)	Depth (feet)
White lime-	25	665	Soil-	5	5
Blue shale-	45	710	White lime-	5	10
White slate-	27	737	Blue slate-	205	215
White lime-	363	1100	White lime-	5	220
Blue slate-	175	1275	Blue slate-	25	245
Shale-	5	1280	White lime-	5	250
Lime-	23	1303	Blue slate-	75	325
Shale-	2	1305	Sand, light-	35	360
Lime-	55	1360	2 bailers water at 335 feet; 8 bailers at 340 feet in 34 hours		
Sand-	20	1380	Blue slate-	90	450
Lime-	20	1400	Red rock-	5	455
Sand-	10	1410	Dark slate-	30	485
Shale-	10	1420	Light lime-	15	500
Lime-	15	1435	Dark slate-	60	560
Shale-	45	1480	White lime-	15	575
Lime-	55	1535	White sand-	30	605
Shale-	80	1615	Gray sand-	18	623
Lime-	15	1630	Hole full of water at 610 feet		
Shale-	5	1635	Red rock-	2	625
Lime-	15	1650	Blue slate-	40	665
Shale-	30	1680	White lime-	50	715
Lime-	7	1687	Slate and shale-	150	865
Shale-	12	1699	Blue lime-	5	870
Lime-	8	1707	White lime-	25	895
Shale-	53	1760	Blue slate-	20	915
Lime-	15	1775	Light sand-	15	930
Shale-	125	1900	Dark slate-	35	965
Lime-	10	1910	Dark sand-	5	970
Shale-	66	1976	1 1/2 bailers water per hour		
Sandy shale-	29	2005	Dark slate-	40	1010
Shale-	35	2040	Lime-	255	1265
Gray lime-	10	2050	Sandy lime-	10	1275
Shale-	10	2060	White lime-	25	1300
Sand-	10	2070	Blue slate-	195	1495
Brown sand, hole full of water	30	2100	White lime-	105	1600
Water sand-	25	2125	Dark slate-	25	1625
Blue shale-	7	2132	Light sand-	13	1638
Lime-	8	2140	Hole full of water		
Shale-	5	2145	Dark slate-	7	1645
Lime-	5	2150	Gray sand-	135	1780
Water sand-	30	2180	Dark lime-	10	1790
Lime-	15	2195	Dark slate-	25	1815
Shale-	80	2275	White lime-	10	1825
Lime-	10	2285	Dark slate-	45	1870
Shale-	20	2305	White lime-	10	1880
Lime-	35	2340	Dark slate-	30	1910
Shale-	120	2460	Dark lime-	5	1915
Lime-	10	2470	Blue slate-	15	1930
Water sand-	80	2550	Blue shale-	30	1960
TOTAL DEPTH		3214	White lime-	40	2000
CASING RECORD: 648 feet of 12 1/2 inch casing			(Continued on next page)		
1081 feet of 10 inch casing. 2260 feet of					
8 1/4 inch casing. 2670 feet of 6-5/8 inch					
casing.					

Table of Drillers' Logs, Stephens County--Continued

Driller's log of well 54--Continued	
Thickness (feet)	Depth (feet)
Dark slate	115 2115
White lime	10 2125
White slate	10 2135
Light shale	20 2155
Light dry sand	20 2175
Dark slate	30 2205
Light dry sand	10 2215
Dark slate	25 2240
White lime	35 2275
Dark sand	10 2285
7 bailers water per hour, bad cave,	
Dark sand	30 2315
Dark shale, water	15 2330
Light sand	25 2355
Blue slate	35 2390
Blue shale	15 2405
Lime shell, dark	5 2410
Dark slate	55 2465
Sandy shale, dark	80 2545
Blue slate	110 2655
Light sand, hole full of water	35 2690
Light sand	30 2720
Dark shale	10 2730
Light lime	5 2735
Dark slate	110 2845
Red rock	5 2850
White lime	10 2860
Dark slate	30 2890
Light lime	5 2895
Dark slate	75 2970
Light lime	20 2990
Dark slate	165 3155
Light lime	5 3160
Slate and shale	90 3250
Gray lime	20 3270
White lime	20 3290
White sandy lime	20 3310
1 bailer water per hour.	
Gray lime	20 3330
TOTAL DEPTH	3396

Driller's log of well 60
Gulf Production Co., G. R. Davis lease.
4 1/4 miles south of Breckenridge.

Surface slate	150 150
Lime	10 160
Slate	8 168
Lime	84 252
Slate	26 278
Sand, hole full of water	42 320
Sharp sand	40 360
Lime	10 370
Slate	20 390
Lime	5 395

Driller's log of well 60--Continued	
Thickness (feet)	Depth (feet)
Slate	115 510
Black shale	4 514
Lime	3 517
Slate	151 668
Lime	268 936
Slate	14 950
Sand	20 970
Shells	10 980
Slate	193 1173
Sandy lime, hole full of water 7	
Lime	40 1220
Slate	4 1224
Lime	12 1236
Slate	37 1273
Water sand	2 1275
Shale	10 1285
Lime	26 1311
Shale	5 1316
Lime	20 1336
Shale	14 1350
Lime	10 1360
Black shale	20 1380
White shale	225 1605
White lime	35 1640
Red shale	30 1670
White shale	160 1830
White water sand	13 1843
Blue shale	17 1860
Lime	15 1875
White lime	20 1895
Slate	13 1908
Lime	12 1920
Shale	100 2020
Sand	55 2075
Slate	320 2395
Sand	60 2455
Slate	75 2530
Lime	7 2537
TOTAL DEPTH	3300

CASING RECORD: 691 feet of 12 1/2 inch casing.
1289 feet of 10 inch casing. 2046 feet of
8 1/4 inch casing. 2489 feet of 6-5/8 inch
casing. 3082 feet of 5-3/16 inch casing.

Driller's log of well 69
Humble Oil Co., R. A. Sorensen lease. 11 1/2
miles southeast of Breckenridge.

Surface	4 4
Limestone	3 7
Yellow clay	8 15
White slate	42 57
Blue slate	33 90
White limestone	7 97

(Continued on next page)

Table of Drillers' Logs, Stephens County--Continued

Driller's log of well 69--Continued

	Thickness (feet)	Depth (feet)
Blue slate-	78	175
White slate	27	202
Blue slate-	23	225
White slate-	52	277
Blue slate-	13	290
White limestone	14	304
Water sand-	36	340
TOTAL DEPTH		340

Driller's log of well 89

Dean Bros., D. C. Pratt lease. 17 miles southeast of Breckenridge.

	Thickness (feet)	Depth (feet)
Surface soil	7	7
Lime-	28	35
Shale-	100	135
Lime-	80	215
Shale-	65	280
Lime-	10	290
Shale-	55	345
Lime-	80	425
Shale-	60	485
Water sand-	40	525
Shale-	200	725
Lime-	7	732
Shale-	15	747
Lime-	10	757
Shale-	8	765
Lime-	10	775
Shale-	30	805
Broken lime-	35	840
Shale-	63	903
Lime	27	930
Shale-	60	990
Lime-	40	1030
Shale-	65	1095
Broken lime-	50	1145
Shale-	45	1190
Red rock-	3	1193
Lime-	17	1210
Red rock-	10	1220
Broken shale and lime-	712	1932
Lime shells and shale-	5	1937
Sand-	28	1965
Broken sand-	28	1993
Shale-	107	2100
Broken lime-	17	2117
Shale-	9	2126
Sand and lime, 200 feet of water-	49	2175
Shale-	272	2447
Sand-	13	2460
Shale-	85	2545
TOTAL DEPTH-		3860

Driller's log of well 114

Belding and McKeelvain Co., Henry Compton lease. 14 1/2 miles southwest of Breckenridge.

	Thickness (feet)	Depth (feet)
Yellow shale-	5	5
Sandstone-	7	12
Brown shale-	8	20
Blue shale-	14	34
Hard lime-	16	50
Gray shale-	30	80
Blue shale-	25	105
Red bed-	5	110
Sandy lime-	10	120
Sandy shale-	70	190
Red bed-	10	200
Water sand-	16	216
10 bailers of water in 12 hours.		
Gray shale-	19	235
Lime-	16	251
Partings of hard iron.		
Blue shale-	29	280
Brown shale-	20	300
Lime-	10	310
Sandy shale-	39	349
Red bed-	9	358
White lime-	12	370
Gray shale-	5	375
TOTAL DEPTH		375

Driller's log of well 122

Southwestern Oil Dev. Co., W. N. Tolle lease. 15 1/2 miles south of Breckenridge.

	Thickness (feet)	Depth (feet)
Yellow clay-	30	30
Lime-	4	34
Slate-	16	50
Lime-	10	60
Slate-	65	125
Lime-	5	130
Slate-	160	290
Lime-	2	292
Slate-	13	305
Lime-	25	330
Shale-	80	410
Water sand-	15	425
Shale-	105	530
Lime-	15	545
Slate-	20	565
Lime-	30	595
Slate-	30	625
Lime-	85	710
Sandy shale-	20	730
Slate-	30	760
Water sand-	45	805
Slate-	135	940

(Continued on next page)

Table of Drillers' Logs, Stephens County--Continued

Driller's log of well 122--Continued

	Thickness (feet)	Depth (feet)
Line	30	970
Shale	80	1050
Water sand	10	1060
Slate	115	1175
Lime	5	1180
Slate	30	1200
Lime	15	1215
Slate	50	1265
Lime	5	1270
Red rock	15	1285
Slate	65	1350
Lime and slate	35	1385
Lime	5	1390
Slate	30	1420
Lime	30	1450
Slate	390	1840
Lime	5	1845
Shale	55	1900
Sand	25	1925
Slate	40	1965
Water sand	95	2060
Slate	8	2068
Lime	5	2073
Slate	257	2330
Water sand	40	2370
Slate	140	2510
TOTAL DEPTH		3333

Driller's log of well 136

Barney Carter Co., E. Y. Jennings lease.
15 1/2 miles southeast of Breckenridge.

Lime	13	13
Sandy shale	67	80
Water sand	10	90
Blue clay	140	230
Lime	32	262
Gray shale	8	270
Lime	40	310
Blue shale	80	390
Lime	7	397
Gray shale	43	440
Lime	30	470
Blue shale	20	490
Lime	22	512
Gray shale	43	555
Lime	27	582
Gray shale	23	605
Lime	45	650
Slate	30	680
Sandy shale, water	110	790
Slate	90	880
Gray shale	10	890
Lime	25	915
Red rock	4	919
Gray shale	101	1020

Driller's log of well 136--Continued

	Thickness (feet)	Depth (feet)
Water sand	10	1030
Blue shale	45	1075
Water sand	15	1090
Blue shale	10	1100
Slate	20	1120
Gray shale	210	1330
Red rock	3	1333
Rotten shale	22	1355
Cave		
Red rock	5	1360
Gray shale	40	1400
Lime and sandy shale	35	1435
Water		
Slate	65	1500
Gray shale	80	1580
Slate	20	1600
Gray shale	65	1665
Blue shale	20	1685
Lime and shale	45	1730
Slate	65	1795
Gray shale	55	1850
Slate	30	1880
Lime shell	3	1883
Sandy shale	57	1940
Blue shale	40	1980
Gray shale	34	2014
Lime shell	4	2018
Water sand	7	2025
Show of water		
Lime shell, hard	8	2033
Blue shale	7	2040
Sand	10	2050
Gray shale	18	2068
Sand	7	2075
Water		
Gray shale	15	2090
Lime	5	2095
Blue shale	17	2112
Lime	8	2120
Water sand	13	2133
Lime and shale	29	2162
Gray shale	38	2200
Slate	60	2260
Sandy lime	20	2280
Gray shale	120	2400
TOTAL DEPTH		3762

Driller's log of well 144

Sinclair Oil and Gas Co., Satterfield heirs lease. 22 miles southeast of Breckenridge.

Brown shale	30	30
Blue slate	65	95
Blue clay	36	131

(Continued on next page)

Table of Drillers' Logs, Stephens County--Continued

Driller's log of well 144--Continued

Thickness Depth		Thickness Depth			
(feet)	(feet)	(feet)	(feet)		
Gray slate- - - - -	-64	195	Blue shale- - - - -	- 35	1390
White sand- - - - -	-75	270	Blue slate- - - - -	- 45	1435
Water in hole			Brown shale- - - - -	- 30	1465
White slate- - - - -	-15	785	Brown slate- - - - -	- 20	1485
Blue shale- - - - -	- 8	293	Blue shale- - - - -	- 15	1500
Blue slate- - - - -	-32	325	Gray shale- - - - -	- 25	1525
White lime- - - - -	-58	383	Blue shale- - - - -	- 75	1600
White slate- - - - -	-38	481	Blue slate- - - - -	- 15	1615
White lime- - - - -	-107	588	Blue shale- - - - -	-120	1735
White slate- - - - -	- 27	615	Water in hole at 1400 feet		
White lime- - - - -	- 77	692	Gray shale- - - - -	-200	1935
Blue slate- - - - -	-118	810	Blue and white shale- - - -	-135	2070
Blue shale- - - - -	-110	920	White lime- - - - -	-100	2170
Soft shale- - - - -	-105	1025	White sand- - - - -	- 30	2200
White lime- - - - -	- 60	1085	Gray shale- - - - -	- 30	2230
White shale- - - - -	- 50	1135	Gray sand- - - - -	- 35	2265
White slate- - - - -	-110	1245	White sand- - - - -	- 55	2320
Gray sand- - - - -	- 75	1320	Gray sand- - - - -	- 35	2355
Blue shale- - - - -	- 25	1345	White sand- - - - -	- 70	2425
Water in hole at 500 feet			Blue shale- - - - -	-115	2540
Set 1288 feet of 10 inch casing			TOTAL DEPTH - - - - -		3410
Blue slate- - - - -	- 10	1355			

Logs of test wells drilled by W. P. A. labor in Stephens County, Texas.
 Samples examined and classified by J. Howard Samuel, Project Superintendent.

Well 3

Flat, east side of State Highway 157, 100 yards south of Brazos river, 12 $\frac{1}{2}$ miles northwest of Breckenridge.

	Thickness (feet)	Depth (feet)
Red sandy shale	3	3
Red sand	18	21

Struck water at 20.3 feet.
 Quicksand at 21 feet.
 No water sample collected. Feb. 25, 1937.

Well 4

Dry creek bottom, west side of State Highway 157, $\frac{1}{2}$ mile northwest of Snake Den School, 10 $\frac{1}{2}$ miles northwest of Breckenridge.

Yellow clay	3	3
Blue clay	2 $\frac{1}{2}$	5 $\frac{1}{2}$
Sandstone	2 $\frac{1}{2}$	8
Blue shale	3	11

No water sample collected. Feb. 25, 1937.

Well 5

Flat, east side of county road on north bank of Hubbard Creek, 8 $\frac{1}{2}$ miles north of Breckenridge.

Red sandy soil	3	3
Dry and black sandy shale	16	19

No water sample collected. Mar. 8, 1937.

Well 6

Flat, east side of county road on north bank of Brazos River $\frac{1}{2}$ mile north of Crystal Falls, 10 miles north of Breckenridge.

Red clay	1 $\frac{1}{2}$	1 $\frac{1}{2}$
Red sandy clay	2 $\frac{1}{2}$	4
Sandy gravel	10	14

No water sample collected. Mar. 8, 1937.

Well 8

Valley, east side of U. S. Highway 80A, 11 miles northeast of Breckenridge.

Red clay	3 $\frac{1}{2}$	3 $\frac{1}{2}$
Green clay	7 $\frac{1}{2}$	11

Struck water at 8 feet.
 Struck limestone at 11 feet.
 Water level, 8 feet below top of ground, $\frac{1}{4}$ hour after hole completed.
 Water sample collected. Mar. 1, 1937.

Well 9

Flat, west side of State Highway 67, $\frac{1}{4}$ mile south of Ivan, 12 $\frac{1}{2}$ miles northeast of Breckenridge.

Red sand	3 $\frac{1}{2}$	3 $\frac{1}{2}$
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Well 9--Continued

	Thickness (feet)	Depth (feet)
Sand	2	5 $\frac{1}{2}$
Rock	$\frac{1}{2}$	6

Struck water at 5.5 feet.
 Struck rock at 6 feet.
 Water level, 5.5 feet below top of ground, 4 hours after hole completed.
 Water sample collected. Mar. 2, 1937.

Well 13

Flat, east side of State Highway 67 near Young County line, 18 $\frac{1}{2}$ miles northeast of Breckenridge.

Red surface soil	1	1
Green clay	8	9

Struck limestone at 9 feet.
 No water sample collected. Mar. 2, 1937.

Well 14

Flat, east side of State Highway 67 south of dry creek, 17 $\frac{1}{2}$ miles northeast of Breckenridge.

Red clay and gravel	2	2
Yellow clay	1	3 $\frac{1}{2}$
Yellow sandstone	3 $\frac{1}{2}$	7
Yellow clay	1	8
Rock	4	12

Struck limestone at 12 feet.
 No water sample collected. Mar. 3, 1937.

Well 24

Edge of small draw, south side of U. S. Highway 80A, 9 $\frac{1}{2}$ miles east of Breckenridge.

Yellow sandy clay	5 $\frac{1}{2}$	5 $\frac{1}{2}$
Hard limestone	5 $\frac{1}{2}$	11

No water sample collected. Feb. 5, 1937.

Well 25

Dry creek bank, east side of State Highway 67, 7 $\frac{1}{2}$ miles northeast of Breckenridge.

Gray shale	1 $\frac{1}{2}$	1 $\frac{1}{2}$
Clay and gravel	2 $\frac{1}{2}$	3 $\frac{1}{2}$
Limestone	$\frac{1}{2}$	4

Struck rock at 4 feet.
 No water sample collected. Mar. 1, 1937.

Well 26

Creek bank, east side of State Highway 67, 5 miles northeast of Breckenridge.

Yellow clay	2	2
Red clay	1	3

Struck limestone at 3 feet.
 No water sample collected. Mar. 1, 1937.

Logs of W. P. A. test wells in Stephens County--Continued

Well 29

Flat, south side of U. S. Highway 80A, 1/2 miles east of Breckenridge.

	Thickness (feet)	Depth (feet)
Black sandy soil- - - - -	2	2
Green clay- - - - -	1	3
Sandy clay- - - - -	2 1/2	5 1/2
Hard limestone- - - - -	16 1/2	22

Struck water at 5.1 feet.

Water level, 2.0 feet below top of ground, 4 hours after hole completed.

Water sample collected. Feb. 4, 1937.

Well 32

Flat, west side of State Highway 67, 1/4 miles south of Breckenridge.

	Thickness (feet)	Depth (feet)
Black sandy surface soil- -	1/2	1/2
Sandy gravel- - - - -	4	4 1/2
Sandy clay- - - - -	1 1/2	6 1/2
Yellow sand- - - - -	1 1/2	8 1/2
Yellow hard sandstone- - -	10 1/2	16 1/2

No water sample collected. Feb. 3, 1937.

Well 33

Flat, William Harper tract 1,000 feet south of Burch Hotel in Breckenridge.

	Thickness (feet)	Depth (feet)
Black and yellow sandy soil	10	10
Blue shale - - - - -	9 1/2	19 1/2

No water sample collected. Feb. 15, 1937.

Well 34

Creek bank, William Harper tract 1,000 feet south of Burch Hotel, in Breckenridge.

	Thickness (feet)	Depth (feet)
Surface soil- - - - -	1	1
Black sandy shale- - - - -	1 1/2	1 1/2
White sand- - - - -	1 3/4	3
Gravel sand- - - - -	2	5

Struck water at 13 feet.

Water sample collected. Feb. 17, 1937.

Well 35

Flat, county warehouse yard near creek bank, in Breckenridge.

	Thickness (feet)	Depth (feet)
Caliche- - - - -	1 1/2	1 1/2
Red clay- - - - -	4 1/2	6

Struck limestone-at 6 feet.

No water sample collected. Mar. 4, 1937.

Well 36

Flat, county warehouse yard near creek bank, in Breckenridge.

	Thickness (feet)	Depth (feet)
Red clay and gravel- - -	2	2
Rock- - - - -	1 1/2	3 1/2

Struck rock at 3 1/2 feet.

No water sample collected. Mar. 4, 1937.

Well 37

Flat, county warehouse yard near creek bank, in Breckenridge.

	Thickness (feet)	Depth (feet)
Sandy soil- - - - -	2	2
Clay and gravel- - - - -	2 1/2	4 1/2
Water gravel- - - - -	1	5 1/2
Limestone- - - - -	1 1/2	7

Struck limestone at 7 feet.

Water level, 5.5 feet below top of ground, 4 hours after hole completed,

Water sample collected. Mar. 4, 1937.

Well 38

Flat, county warehouse yard near creek bank, in Breckenridge.

	Thickness (feet)	Depth (feet)
Clay and gravel- - - - -	2	2
Sand and gravel- - - - -	7	9
Limestone and gravel- - -	5	14

Struck rock at 14 feet.

No water sample collected. Mar. 5, 1937.

Well 39

Creek bank, east side of State Highway 67, at 602 South Rose Street, in Breckenridge.

	Thickness (feet)	Depth (feet)
Red surface soil- - - - -	6 1/2	6 1/2
Red sandy clay- - - - -	5	11 1/2
Sandstone- - - - -	1/2	12

Struck sandstone at 12 feet.

No water sample collected. Mar. 5, 1937.

Well 40

Creek bank, east side of State Highway 67 at 602 South Rose Street, in Breckenridge.

	Thickness (feet)	Depth (feet)
Sandy surface soil- - - - -	3	3
Gravel and sand- - - - -	6 1/2	9 1/2
Limestone- - - - -	1 1/2	10

Struck limestone at 10 feet.

No water sample collected. Mar. 5, 1937.

Well 41

Creek bank, 4 blocks south of Courthouse on east side of road, in Breckenridge.

	Thickness (feet)	Depth (feet)
Red sandy shale- - - - -	4	4
Black sandy clay- - - - -	5	9
Limestone- - - - -	5	14
Water sand and gravel- - -	3	17
Blue shale- - - - -	1	18

Struck blue shale at 18 feet.

Water level, 12 feet below top of ground, 8 hours after hole completed.

Water sample collected. Mar. 13, 1937.

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Logs of W. P. A. test wells in Stephens County--Continued

Well 42

Near creek bank, City Park, in Breckenridge.

	Thickness (feet)	Depth (feet)
Red clay-	3	3
Black shale	7	10
Dark sand-	3	13
No water sample collected. Feb. 27, 1937.		

Well 43

Flat, in City Park $\frac{1}{2}$ mile east of Courthouse, in Breckenridge.

Black soil-	3	3
Red soil-	4	7
Yellow sand and gravel-	4	11
Struck water at 7 feet.		

Water level, 7 feet below top of ground, 4 hours after hole completed.

Water sample collected. Mar. 22, 1937.

Well 44

Flat, in City Park $\frac{1}{2}$ mile east of Courthouse, in Breckenridge.

Dark sandy clay-	$3\frac{1}{2}$	$3\frac{1}{2}$
Red sand-	$4\frac{1}{2}$	8
Yellow sand and gravel-	10	18
Struck water at 14 feet.		

Caving- 18

Water level, 13 feet below top of ground, 4 hours after hole completed.

Water sample collected. Mar. 22, 1937.

Well 45

Dry creek bottom, in City Park $\frac{1}{2}$ mile east of Courthouse, in Breckenridge.

Red clay and gravel-	$3\frac{1}{2}$	$3\frac{1}{2}$
Red sand-	$4\frac{1}{2}$	8
Yellow sand and gravel-	10	18
Struck water at 16 feet.		

Water level, $12\frac{1}{2}$ feet below top of ground, 1 hour after hole completed.

Water sample collected. Feb. 27, 1937.

Well 46

Flat, east side of State Highway 157, near south bank of creek, $2\frac{1}{2}$ miles north of Breckenridge.

Sandy surface soil-	1	1
Green shale-	$2\frac{1}{2}$	$3\frac{1}{2}$
Greenish-red shale-	$3\frac{1}{2}$	7
Green shale-	$5\frac{1}{2}$	$12\frac{1}{2}$
No water sample collected. Feb. 8, 1937.		

Well 47

Near creek bank, east side of State Highway 157, 5 miles north of Breckenridge.

Yellow sandy soil-	6	6
Sand-	6	12

Well 47--Continued

	Thickness (feet)	Depth (feet)
Gray shale-	10	22
Green shale-	12	34
Struck water at 7 feet.		
Water sample collected. Feb. 8, 1937.		

Well 48

North side of State Highway 157, $5\frac{1}{2}$ miles north of Breckenridge.

Black surface soil-	4	4
Green clay-	$4\frac{1}{2}$	$8\frac{1}{2}$
Blue shale-	$3\frac{1}{2}$	12
No water sample collected. Feb. 8, 1937.		

Well 49

Hilltop, south side of State Highway 157, T. E. & L. Company Survey, northwest corner of section 256, $6\frac{1}{2}$ miles northwest of Breckenridge.

Black sandy soil-	1	1
Red sandy clay-	17	18
Gravel-	$1\frac{1}{2}$	$19\frac{1}{2}$
Green sandy clay-	3	$22\frac{1}{2}$
Red shale and gravel-	$2\frac{1}{2}$	25
Joint clay-	$\frac{1}{2}$	$25\frac{1}{2}$
Black coal-	1	$26\frac{1}{2}$
Gray shale-		$26\frac{1}{2}$
No water sample collected. Feb. 9, 1937.		

Well 50

Flat, T. E. & L. Survey, northwest corner of section 1256, $6\frac{1}{2}$ miles northwest of Breckenridge.

Black soil-	2	2
Red sticky clay-	$10\frac{1}{2}$	$12\frac{1}{2}$
No water sample collected. Feb. 9, 1937.		

Well 51

Near dry creek, south side of U. S. Highway 80A, $3\frac{1}{2}$ miles west of Breckenridge.

Red surface soil-	6	6
Gravel and clay-	1	7
Sandstone-	1	8
Yellow clay-	$\frac{1}{2}$	$8\frac{1}{2}$
Blue joint clay-	$2\frac{1}{2}$	11
Dark shale-	$\frac{1}{2}$	$11\frac{1}{2}$
Hard limestone-	$\frac{1}{2}$	12
No water sample collected. Feb. 2, 1937.		

Well 52

Near creek bottoms, north side of U. S. Highway 80A, 6 miles west of Breckenridge.

White sand-	$4\frac{1}{2}$	$4\frac{1}{2}$
Sand and gravel-	2	$6\frac{1}{2}$
Sand-	$1\frac{1}{2}$	8
Sand and gravel-		8

(Continued on next page)

Logs of W. P. A. test wells in Stephens County--Continued

Well 52--Continued

	Thickness (feet)	Depth (feet)
Struck water at 7 feet.		
Water level, $5\frac{1}{2}$ feet below top of ground, 1 hour after hole completed.		
Water sample collected. Feb. 26, 1937.		

Well 53

Creek bottoms, north side of U. S. Highway 80A, $10\frac{1}{2}$ miles west of Breckenridge.

Red clay-	2	2
Red sandy shale-	15	17
Hard limestone-	$1\frac{1}{2}$	$18\frac{1}{2}$

No water sample collected. Feb. 26, 1937.

Well 56

Dry creek bottom, Lunatic Asylum Survey, north of center section 26, $4\frac{1}{4}$ miles southwest of Breckenridge.

Blue and yellow clay-	$1\frac{1}{2}$	$11\frac{1}{2}$
Black shale-	$4\frac{1}{2}$	6
Yellow clay and soapstone-	2	8
Limestone-	$1\frac{1}{2}$	$9\frac{1}{2}$

Struck limestone at $9\frac{1}{2}$ feet.
No water sample collected. Mar. 3, 1937.

Well 57

Flat, Lunatic Asylum Survey, northeast $\frac{1}{4}$ section 26, 4 miles southwest of Breckenridge.

Red sandy shale-	2	2
Black clay-	1	3
Yellow clay-	1	4
Gray shale-	$1\frac{1}{2}$	$5\frac{1}{2}$
Red gravel-	1	$6\frac{1}{2}$
Blue shale-	6	$13\frac{1}{2}$
Yellow clay-	$2\frac{1}{2}$	16
Calcite vein-	1	17

Struck calcite at 17 feet.
No water sample collected. Mar. 3, 1937.

Well 58

Hillside, Lunatic Asylum Survey, southeast corner section 26, $4\frac{1}{4}$ miles southwest of Breckenridge.

Red shale-	$5\frac{1}{2}$	$5\frac{1}{2}$
Yellow clay-	$1\frac{1}{2}$	7

Struck limestone at 7 feet.
No water sample collected. Mar. 3, 1937.

Well 59

Creek bank, west side of State Highway 67, 3 miles south of Breckenridge.

Surface soil-	2	2
Black clay-	1	3
Blue clay-	4	7
Red clay-	3	10
Yellow clay-	8	18

No water sample collected. Feb. 3, 1937.

Well 61

Flat, west side of State Highway 67, $4\frac{1}{2}$ miles south of Breckenridge.

	Thickness (feet)	Depth (feet)
Black surface soil-	$1\frac{1}{2}$	$1\frac{1}{2}$
Sandy clay-	6	7 $\frac{1}{2}$
Sandstone-	$\frac{1}{2}$	8
Yellow clay-	2	10

Struck water at $6\frac{1}{2}$ feet.
Water level, 6.3 feet below top of ground, 12 hours after hole completed.
Water sample collected. Feb. 2, 1937.

Well 62

Gently sloping hillside, west side of State Highway 67, 6 miles south of Breckenridge.

Black soil-	$2\frac{1}{2}$	$2\frac{1}{2}$
Yellow clay-	$1\frac{1}{2}$	3
Limestone-	$1\frac{1}{2}$	$3\frac{1}{2}$
White clay-	6	4
Hard gray limestone-	$10\frac{1}{2}$	$14\frac{1}{2}$

No water sample collected. Feb. 2, 1937.

Well 71

Near small creek, south side of U. S. Highway 80A, 13 miles east of Breckenridge.

Red clay and gravel-	$2\frac{1}{2}$	$2\frac{1}{2}$
Yellow clay and gravel-	4	$6\frac{1}{2}$
Blue joint clay-	8	$14\frac{1}{2}$
Gray slate, shale-	$5\frac{1}{2}$	20

Water sample collected. Feb. 5, 1937.

Well 72

Flat, south side of U. S. Highway 80A, in Caddo, $13\frac{1}{2}$ miles east of Breckenridge.

Reddish black soil-	$2\frac{1}{2}$	$2\frac{1}{2}$
Yellow clay-	$1\frac{1}{2}$	4
Sandy clay-	1	5
Hard limestone-	6	11

Struck water at 4 feet.
Water level, 3.6 feet below top of ground, 2 hours after hole completed.
Water sample collected. Feb. 6, 1937.

Well 76

Flat, south side of U. S. Highway 80A, $15\frac{1}{2}$ miles east of Breckenridge.

Black surface soil-	$1\frac{1}{2}$	$1\frac{1}{2}$
Hard white limestone-	$6\frac{1}{2}$	8

No water sample collected. Feb. 6, 1937.

Well 80

Flat, south side of U. S. Highway 80A, 19 miles east of Breckenridge.

Sandy yellow clay-	4	4
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Logs of W. P. A. test wells in Stephens County--Continued

Well 80--Continued

	Thickness (feet)	Depth (feet)
Sand- - - - -	4 $\frac{1}{2}$	8 $\frac{1}{2}$
Yellow shale- - - - -	7 $\frac{1}{2}$	16
Struck water at 3 $\frac{1}{2}$ feet.		
Water level, 3 feet below top of ground, 2 hours after hole completed.		
Water sample collected. Feb. 6, 1937.		

Well 111

Gently sloping hillside, west side of State Highway 67, 10 $\frac{1}{2}$ miles south of Breckenridge.

Red sandy soil- - - - -	3 $\frac{1}{2}$	3 $\frac{1}{2}$
Yellow clay- - - - -	9 $\frac{1}{2}$	13
Blue shale- - - - -	2	15
Red shale- - - - -	2 $\frac{1}{2}$	17 $\frac{1}{2}$
Green shale- - - - -	1	18 $\frac{1}{2}$
Sandstone- - - - -	$\frac{1}{2}$	19
Red shale- - - - -	6	25
No water sample collected. Jan. 30, 1937.		

Well 113

Flat, west side of State Highway 67, 9 $\frac{1}{2}$ miles south of Breckenridge.

Black sandy soil- - - - -	1	1
Yellow sand and gravel- - - - -	$\frac{1}{2}$	1 $\frac{1}{2}$
Yellow clay- - - - -	$\frac{1}{2}$	2
Red clay- - - - -	7	9
Yellow clay- - - - -	5 $\frac{1}{2}$	14 $\frac{1}{2}$
No water sample collected. Jan. 30, 1937.		

Well 117

Flat, west side of State Highway 67, 12 miles south of Breckenridge.

Black sandy clay- - - - -	3 $\frac{1}{2}$	3 $\frac{1}{2}$
Gray clay- - - - -	3 $\frac{1}{2}$	7
Yellow clay- - - - -	3	10
Yellow sandy clay- - - - -	$\frac{1}{2}$	10 $\frac{1}{2}$
Clay- - - - -	$\frac{1}{2}$	11
Water level, 6.5 feet below top of ground, 10 hours after hole completed.		
No water sample collected. Jan. 28, 1937.		

Well 118

Creek bottoms, west side of State Highway 67, 13 $\frac{1}{2}$ miles south of Breckenridge.

Dark red sandy clay- - - - -	4	4
Yellow sandy clay- - - - -	1 $\frac{1}{2}$	5 $\frac{1}{2}$
Caliche- - - - -	11	16 $\frac{1}{2}$
Gray shale- - - - -	$\frac{1}{2}$	17
Hard blue shale- - - - -	2 $\frac{1}{2}$	19 $\frac{1}{2}$
No water sample collected. Jan. 28, 1937.		

Well 121

Gently sloping hillside, west side of State Highway 67, 15 $\frac{1}{2}$ miles south of Breckenridge.

	Thickness (feet)	Depth (feet)
Red clay- - - - -	2	2
Sandstone- - - - -	1	3
Hard gray limestone- - - - -	12	15
No water sample collected. Jan. 27, 1937.		

Samples collected from streams in Stephens County, Texas

No.	Name of stream	Distance from Brecken-ridge	Location	Estimated flow in seconds-feet
201	Clear Fork of Brazos	13 miles northwest	Center east line sec. 663, T.E. & L. Co. Sur.	50
202	do.	12½ miles northwest	North line E.A. Jeter tract A.118, M.E.R.R. Co. Sur.	50
203	Hubbard Creek	6½ miles northwest	Center sec. 1256, T.E. & L. Co. Sur.	50
204	do.	8½ miles north	SW corner sec. 1158, T.E. & L. Co. Sur.	30
205	Clear Fork of Brazos	10 miles north	NW corner sec. 1154, T.E. & L. Co. Sur.	50
206	do.	14 miles northeast	Center east line sec. 1122, T.E. & L. Co. Sur.	50
207	do.	15½ miles northeast	At Eliasville Stephens-Young County line	50
208	North fork of Cedar Creek	13 miles northeast	¼ mile south of Ivan	2-5
209	Cedar Creek	15½ miles northeast	NE corner sec. 1078, T.E. & L. Co. Sur.	20
210	do.	11½ miles northeast	NW¼ sec. 1336, T.E. & L. Co. Sur.	--
211	Little Cedar Creek	9 miles east	NW¼ sec. 1416, T.E. & L. Co. Sur.	10
212	Branch of Cedar Creek	8½ miles east	SW corner sec. 7, Orphan Asylum Sur.	10
213	Big Cedar Creek	5½ miles east	NW corner sec. 2061, T.E. & L. Co. Sur.	10
214	East fork of Hubbard Creek	6 miles west	NE corner sec. 5, T. & P. Ry. Co. Sur. blk. 8	15
215	West fork of Hubbard Creek	9½ miles west	NW corner sec. 1536, T.E. & L. Co. Sur.	20
216	do.	11 miles west	NE corner sec. 1542, T.E. & L. Co. Sur.	25
217	Big Sandy Creek	7½ miles southwest	NW corner sec. 87, Lunatic Asylum Sur.	10
218	Sour Creek	12 miles east	Center north line sec. 53, T. & P. Ry. Co. Sur. blk. 6	10
219	Caddo Creek	13½ miles east	At Caddo	20
220	Tributary of Big Caddo Creek	15 miles east	NW¼ sec. 43, T. & P. Ry. Co. Sur. blk. 4	15
221	Iona Creek	18 miles southeast	NW¼ sec. 68, T. & P. Ry. Co. Sur. blk. 4	10
222	Caddo Creek	15½ miles southeast	SE¼ sec. 44, T. & P. Ry. Co. Sur. blk. 6	5
223	do.	do.	NE¼ sec. 67, T. & P. Ry. Co. Sur. blk. 6	10
224	Hubbard Creek	16 miles southwest	NW¼ sec. 37, Orphan Asylum Sur.	20
225	Big Sandy Creek	11½ miles south	SW¼ sec. 2952, T.E. & L. Co. Sur.	50
226	do.	12½ miles south	Center sec. 30 A. Marshall Sur.	30

Partial chemical analyses.

No.	Date of collection	Total dissolved solids (calculated)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na + K) (calculated)	Bicarbonate (HCO ₃)	Sulphate (SO ₄)	Chloride (Cl)	Total hardness as CaCO ₃ (calculated)
201	Feb. 22, 1937	1,849	226	82	278	195	807	300	900
202	do.	1,995	--	--	--	183	850	410	--
203	Feb. 9, 1937	386	57	13	68	171	70	94	197
204	Feb. 22, 1937	632	--	--	--	183	31	230	--
205	do.	1,697	206	71	267	207	726	325	804
206	Mar. 12, 1937	3,072	--	--	--	146	373	1,550	--
207	Mar. 11, 1937	3,597	--	--	--	177	505	1,750	--
208	Mar. 1, 1937	37,049	2,854	990	9,900	43	334	22,950	11,200
209	Mar. 17, 1937	321	--	--	--	98	16	140	--
210	Mar. 2, 1937	420	44	9	106	140	27	165	145
211	Feb. 15, 1937	837	90	18	205	134	23	435	301
212	Feb. 19, 1937	357	--	--	--	185	12	122	--
213	Feb. 15, 1937	515	--	--	--	146	35	220	--
214	Feb. 26, 1937	1,321	--	--	--	214	257	500	--
215	Mar. 16, 1937	476	64	18	91	134	31	206	236
216	Feb. 26, 1937	655	--	--	--	153	43	300	--
217	Feb. 16, 1937	1,597	--	--	--	128	93	870	--
218	Feb. 19, 1937	6,348	818	113	1,435	146	a/	3,910	2,510
219	Feb. 15, 1937	1,695	215	21	407	207	a/	950	623
220	Feb. 18, 1937	365	86	10	43	244	a/	106	256
221	do.	265	--	--	--	128	58	50	--
222	Feb. 17, 1937	3,312	--	--	--	85	214	1,880	--
223	Feb. 12, 1937	1,694	--	--	--	49	174	900	--
224	Feb. 16, 1937	231	--	--	--	177	31	27	--
225	do.	394	58	15	69	183	66	96	204
226	Mar. 3, 1937	376	--	--	--	159	70	94	--

a/ Sulphate less than 10 parts per million.

Representative tanks in Stephens County, Texas

No.	Distance from Breckenridge	Section	Survey and block	Owner	Topographic situation of tank	Estimated catchment area in acres	Topographic situation of catchment area
301	10 $\frac{1}{2}$ miles northwest	13, SE $\frac{1}{4}$	Jas. Conner	W. H. Green	Small draw	640	Flat, bottom lands
b/302	10 miles northwest	do.	do.	do.	do.	10	Gently sloping terrace
303	11 miles north	--	T. V. Baker	E. A. Jeter	Steep hillside	320	Steep hillside
304	13 miles northeast	1029, SE $\frac{1}{4}$	T.E.& L.Co.	V. R. Martin	do.	5	do.
305	11 $\frac{1}{2}$ miles east	1333, NE $\frac{1}{4}$	S.P.Ry.Co. blk. 4	O. S. Martin	Gently sloping hillside	3	Gently sloping terrace
306	do.	19, W $\frac{1}{2}$	T.& P.Ry. Co. blk. 5	Ohio Oil Co.	Bottom of small draw	3,200	Steep hill-sides
307	8 miles east	1410, NE $\frac{1}{4}$	T.E.& L.Co.	W. T. Yandell	Flat	3	Flat
308	8 miles northeast	1347, SE $\frac{1}{4}$	do.	L. Sexton	Bottom of small draw	640	do.
309	5 miles northeast	24, NE $\frac{1}{4}$	W. Derossett	H. Hibbert	Below steep hillside	10	Below steep hillside
310	4 miles east	2079, SW $\frac{1}{4}$	T.E.& L.Co.	O. L. Moon	Gently sloping hillside	3	Gently sloping hillside
311	2 $\frac{1}{2}$ miles northeast	8 & 9	T.& P.Ry. Co.	Community Pub. Service Company	Branch of Gonzales Creek	3,840	Gently sloping hill-sides
312	2 $\frac{1}{2}$ miles southwest	19, center	Blind Asylum	Pat Frazier	Head of small draw	1,280	Gently sloping creek bottom
313	2 miles west	7, NE $\frac{1}{4}$	Lunatic Asylum	B. Searcy	Steep hillside	640	Steep hillside
314	2 $\frac{1}{2}$ miles west	6, SW $\frac{1}{4}$	do.	R. G. Camp	Gently sloping hillside	5	Gently sloping hillside
315	do.	7, NW $\frac{1}{4}$	do.	Breckenridge Country Club	Near small draw	--	do.
316	9 miles west	1536, SW $\frac{1}{4}$	T.E.& L.Co.	Claude Squires	Gently sloping hillside	5	do.
317	11 miles west	1547, center	do.	George De Lafosse	Bottom of branch	4,480	Gently sloping hill-sides
318	12 miles southwest	56, NE $\frac{1}{4}$	Blind Asylum	D. P. George	Flat	3-5	Flat
319	4 $\frac{1}{2}$ miles southwest	26, SE $\frac{1}{4}$	Lunatic Asylum	T. R. Culver	Gently sloping hillside	5	Gently sloping hillside
320	do.	34, NW $\frac{1}{4}$	do.	J. C. Caldwell	Steep hillside	640	Steep hillside
321	3 $\frac{1}{2}$ miles southwest	25, NE $\frac{1}{4}$	do.	Mrs. W. J. Connor	Creek bottoms	3,200	Gentle slope
322	5 miles south	3385, SE $\frac{1}{4}$	do.	G. B. Phillips	Below top of escarpment	80	Steep hillside
323	5 $\frac{1}{2}$ miles south	3378, NW $\frac{1}{4}$	T.E.& L.Co.	C. Branch	Head of small draw	160	do.

a/ S, stock; D, domestic; P, public; I, irrigation; Ind, industrial.

J. Howard Samuell, Project Superintendent

No.	Dam			Use	Remarks
	Length (feet)	Height (feet)	Material		
501	300	10	Earth	S	Shale bottom and sides. Water turbid. Vegetation: mesquite, and post oak.
502	300	10	do.	S	Shale bottom and sides. Water turbid. Vegetation: mesquite.
503	300	15	do.	S	Sandstone outcrops on sides; shale bottom. Slightly turbid. Reported dry in 1935, only failure since constructed in 1886. Vegetation; post oak.
504	200	15	do.	D,P	Shale bottom and sides. Water clear. Reported dry twice since constructed in 1927. Vegetation; wil-
505	100	15	do.	D,S	Shale bottom and sides. Water low, and mesquite. clear. Vegetation; mesquite, and oak.
506	5,000	30	do.	D,S, Ind	Shale bottom. Water clear. Vegetation; mesquite and oak.
507	150	4	do.	D,S	Shale bottom. Reported nearly goes dry in drought.
508	100	10	do.	S	Shale bottom and sides. Water clear. Vegetation; mesquite.
509	300	10	do.	D,S	Do.
510	200	15	do.	D,S	Shale bottom and sides. Water clear. Reported has not gone dry since constructed in 1934.
511	7,920	40	do.	N	Limestone outcrops on sides; shale bottom. Water clear. Formerly supplied City of Breckenridge until nearby oil wells caused salt-water contamination. Vegetation; mesquite, and oak.
512	1,000	20	do.	D,S	Sandstone outcrops on sides; shale bottom. Water turbid. Reported has not gone dry since constructed in 1906. Vegetation; oak, and willow.
513	300	20	do.	D,S	Shale bottom and sides. Water clear. Reported never dry since constructed. Vegetation: mesquite.
514	300	8	do.	D,S	Shale bottom and sides. Water clear. Vegetation: mesquite.
515	600	18	do.	D,S	Shale bottom and sides. Water clear. Reported never dry since constructed. Vegetation; willow
516	100	6	do.	D	Shale bottom. Water turbid. Re- and mesquite. ported dry in drought. Vegetation; mesquite.
517	1,500	25	Earth and rock	D,S, Ind	Limestone outcrops on sides; shale bottom. Reported has not gone dry since constructed in 1922. Vegetation; oak and willow. 3 gas engines supply gasoline plant at Ibox. Located in Shackelford County
518	200	10	Earth	D,S	Shale bottom and sides. near Stephens County line. Water clear.
519	100	10	do.	D,S	Shale bottom and sides. Water clear. Vegetation: mesquite.
520	100	15	do.	D,S	Shale bottom and sides. Water clear. Reported dry once since constructed in 1932.
521	720	24	Earth and limestone	D	Shale bottom and sides. Water clear. Reported has never gone dry since constructed in 1929. Vegetation; oak. and mesquite.
522	200	6	Earth	D,S	Sandstone outcrops at back; shale bottom. Water clear. Reported has never gone dry since constructed in 1918. Vegetation; mesquite.
523	1,000	15	do.	S	Shale bottom; limestone sides. Water clear. Reported has never gone dry since constructed in 1915. Vegetation; mesquite.

b/ No water sample collected for analysis.

Representative tanks in Stephens County, Texas

No.	Distance from Breckenridge	Section	Survey and block	Owner	Topographic situation of tank	Estimated catchment area in acres	Topographic situation of catchment area
324	7 miles southeast	2096, NW $\frac{1}{4}$	T.E. & L. Co.	H. J. Lane	Below hill-top	320	Gently sloping hillside
325	11 miles east	54, NE $\frac{1}{4}$	T. & P. Ry. Co. blk. 6	H. J. Rosenquest	Bottom of small branch	3	Gently sloping hillside
326	13 miles east	43, NE $\frac{1}{4}$	T. & P. Ry. Co. blk. 5	City of Caddo	Steep hillside	10	Steep hillside
327	20 miles east	62, NW $\frac{1}{4}$	T. & P. Ry. Co. blk. 4	T. & P. C. & O. Co.	Bottoms of small creek	3,200	do.
328	19 miles southeast	90, NW $\frac{1}{4}$	do.	A. B. Gardenhire	Excavated reservoir	5	Gently sloping hillside
329	14 miles southeast	51, SE $\frac{1}{4}$	T. & P. Ry. Co. blk. 6	J. W. Harman	Flat, bed of small draw	6	Gently sloping terrace
330	11 $\frac{1}{2}$ miles southeast	31, SW $\frac{1}{4}$	do.	Wichita Valley	Flat	1,280	do.
331	8 $\frac{1}{2}$ miles south	2023, NW $\frac{1}{4}$	T.E. & L. Co.	E. S. Curry	Flat, bottoms of small draw	160	Flat
332	11 miles south	24, SW $\frac{1}{4}$	T. & P. Ry. Co. blk. 7	E. B. Blackburn	Bottom of small draw	1,920	Steep hillside
333	12 miles south	30, south of center	do.	J. H. Dye	Head of creek	2,560	Gentle slope

a/ S, stock; D, domestic; P, public; I, irrigation; Ind, industrial.

J. Howard Samuell, Project Superintendent

No.	Dam			Use	Remarks
	Length (feet)	Height (feet)	Material		
324	150	6	Earth	D,S	Sandstone outcrops at back; shale bottom. Water turbid. Reported goes dry in drought. Vegetation:
325	300	8	do.	S	Shale bottom and sides. Water clear. No oak. vegetation.
326	300	10	do.	S,P	Shale outcrops at sides. Water turbid. Reported nearly goes dry in drought. Supplies Town of Caddo. Vegetation; few willows.
327	2,000	20	do.	P, Ind	Shale bottom and sides. Water clear. Reported has never gone dry since 1919. Vegetation: mesquite. Located in Palo Pinto County.
328	400	5	do.	S	Shale bottom; shale and limestone sides. Water clear. Reported goes dry in drought. Vegetation: mesquite and post oak.
329	--	--	--	S, Ind	Shale outcrops at sides. Water clear. Supplies Phillips Petroleum Co. Gasoline Plant. Located $\frac{1}{2}$ mile southwest of Frankell.
330	2,640	25	Earth	D,S, Ind	Sandstone outcrops at sides; shale bottom. Water clear. Reported never dry. Vegetation; cedar, oak,
331	--	--	do.	D,S	Shale bottom and sides. Water clear. and mesquite. Reported has never gone dry. Vegetation; mesquite.
332	2,000	25	do.	D,S	Shale bottom and sides. Water clear. Reported has never gone dry. Vegetation; post oak, willow, and
333	3,000	30	do.	D,S, Ind,I	Shale and limestone outcrops at sides; mesquite. shale bottom. Water clear. Reported has not gone dry since constructed in 1903. Vegetation; cedar, oak, willow, and mesquite.

b/ No water sample collected for analysis.

Partial analyses of water from wells in Stephens County, Texas

(Analyzed at The University of Texas under the direction of Dr. E. P. Schoch, Director of the Bureau of Industrial Chemistry, by J. E. Stullken, C. R. Stewart, D. F. Riddell, and Alfred J. Kelly, Chemists, and J. A. Harmaza, Martin Wieland and Jack Ramsey, Assistant Chemists. Results are in parts per million. Well numbers correspond to numbers in table of well records.)

Well No.	Owner	Depth of well (feet)	Date of collection	Total dissolved solids (calculated)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na + K) (calculated)	Bicarbonate (HCO ₃)	Sulphate (SO ₄)	Chloride (Cl)	Total hardness as CaCO ₃ (calculated)
1	D.G. Stover	36	Feb. -- 1937	2,389	-	-	-	439	814	560	-
8	W.P.A. test well	11	Mar. 1, 1937	23,655	977	962	6,320	451	4,374	10,800	6,392
9	do.	6	Feb. 9, 1937	26,974	-	-	-	226	39	17,100	-
11	Masonic Lodge	30	Mar. 11, 1937	1,983	-	-	-	336	389	740	-
12	E.C. Stovall	4,250	do.	95,406	-	-	-	207	1,011	60,000	-
12a	do.	4,250	July 27, 1933	91,572	3,748	703	30,717	268	1,125	55,100	-
15	E.F. Corbett	167	Mar. 17, 1937	3,374	-	-	-	445	226	1,720	-
16	Mrs. Willie May Crabtree	127	do.	966	28	32	287	281	226	255	200
17	J.F. Burgess	148	do.	761	-	-	-	348	179	142	-
18	H.J. Wesley	166	do.	559	-	-	-	250	58	174	-
20	J.M. Copeland	125	Mar. 18, 1937	2,084	-	-	-	439	124	990	-
22	C.M. Caldwell	72	do.	476	138	33	-	122	b/	246	480
23	D.W. Deaver	56	do.	417	-	-	-	281	39	84	-
27	Hale Henderson Est.	96	Feb. 12, 1937	725	31	19	230	488	77	128	157
28	J.R. Dozier	75	Feb. 10, 1937	511	16	31	142	329	50	110	169
29	W.P.A. test well	22	Feb. 4, 1937	3,362	144	9	1,050	549	1,189	700	395
31	Dwain Babbs	138	Mar. 17, 1937	2,923	74	26	1,040	512	81	1,450	291
34	W.P.A. test well	15	Feb. 17, 1937	16,694	-	-	-	482	812	9,690	-
37	do.	7	Mar. 4, 1937	6,725	732	186	1,488	500	913	3,160	2,595
41	do.	18	Mar. 13, 1937	1,010	127	27	232	580	54	285	427
43	do.	11	Mar. 22, 1937	659	-	-	-	494	89	82	-
44	do.	18	do.	1,221	-	-	-	708	39	375	-
45	do.	18	Feb. 27, 1937	838	-	-	-	512	70	204	-
47	do.	34	Feb. 8, 1937	6,824	-	-	-	244	482	3,800	-
52	do.	8	Feb. 26, 1937	507	-	-	-	488	50	23	-
55	P.B. Loving	35	Feb. 16, 1937	3,254	302	114	706	415	808	1,120	1,226
61	W.P.A. test well	10	Feb. 2, 1937	567	-	-	-	451	b/	126	-
63	L. Williams	200 1/2	Feb. 10, 1937	3,905	85	29	1,336	476	751	1,470	333

a/ Analysis by The Fort Worth Laboratory.

b/ Sulphate less than 10 parts per million.

Partial analyses of water from wells in Stephens County--Continued

Results are in parts per million.

Well No.	Owner	Depth of well (feet)	Date of collection	Total dissolved solids (calculated)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na / K) (calculated)	Bicarbonate (HCO ₃)	Sulphate (SO ₄)	Chloride (Cl)	Total hardness as CaCO ₃ (calculated)
65	W.G. Cockrell	110	Feb.10,1937	942	-	-	-	464	220	160	-
66	S.T. Swenson	100	Feb.19,1937	1,185	2	1	459	647	245	160	11
67	do.	34	do.	433	21	11	125	146	104	100	97
68	do.	270	do.	1,282	-	-	-	226	151	565	-
69	R.A. Sorgee Est.	300	do.	2,723	18	9	1,023	616	350	1,020	80
70	Mrs.B.F. Coody	84	do.	964	-	-	-	439	123	275	-
71	W.P.A. test well	20	Feb. 5,1937	5,513	-	-	-	92	3,442	360	-
72	do.	11	Feb. 6,1937	12,463	-	-	-	171	1,669	6,370	-
73	Floyd Nixon	24	Feb.15,1937	1,089	-	-	-	110	27	615	-
74	R.M. Rogers	89	do.	847	3	2	343	628	54	136	17
75	do.	135	Feb.17,1937	3,210	29	11	1,250	976	a/	1,440	117
77	J.R. Coody	82	do.	486	17	11	164	378	54	54	87
78	H.C. Thompson	98	do.	469	74	41	61	427	33	50	356
79	J.V. Butler	35	do.	872	-	-	-	183	85	385	-
80	W.P.A. test well	16	Feb. 6,1937	2,388	-	-	-	122	1,052	510	-
81	Mrs. B.F. Coody	176	Feb.18,1937	291	-	-	-	336	a/	10	-
82	Lone Star Gas Co.	365	do.	803	2	6	319	573	58	136	29
83	Mrs. T.F. Litton	200	do.	250	21	11	61	201	46	12	97
85	Mrs. Wm. Graham	23	Feb.17,1937	350	-	-	-	146	139	21	-
86	J.H. Sudderth	14	Feb.18,1937	738	-	-	-	244	179	182	-
87	B.T. Satterwhite	29	Feb.17,1937	1,096	114	136	99	543	170	310	844
90	D.C. Pratt	79	do.	485	-	-	-	464	50	22	-
91	J.C. Bargsley	100	do.	492	-	-	-	256	38	146	-
92	A.W. Sechrist	19	do.	1,082	194	15	190	275	108	440	544
93	Henry Bradford	19	Feb.12,1937	548	-	-	-	311	46	146	-
94	M.H. Bobo	104	do.	552	7	11	206	512	46	30	62
95	Willis Knight	12	do.	342	-	-	-	134	62	92	-
96	Mrs. Kitt Gardenheim	11	Feb.10,1937	2,190	-	-	-	268	376	920	-
97	C. McCauley	14	do.	212	-	-	-	232	a/	14	-
98	Humble Pipe Line Co.	132	Feb.6,1937	534	45	19	135	354	85	76	192
99	T.C. Fambro	75	Feb. 5,1937	626	52	26	150	342	116	114	235
100	J.W. Cooper	185	Mar. 9,1937	886	206	72	-	85	226	340	809
101	R.O. Thompson	180	do.	601	-	-	-	336	144	78	-
102	Wayland School	180	do.	477	54	24	79	165	175	64	235

a/ Sulphate less than 10 parts per million.

Partial analyses of water from wells in Stephens County--Continued

Results are in parts per million.

Well No.	Owner	Depth of well (feet)	Date of collection	Total dissolved solids (calculated)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na / K) (calculated)	Bicarbonate (HCO ₃)	Sulphate (SO ₄)	Chloride (Cl)	Total hardness as CaCO ₃ (calculated)
103	Mrs. Willie Sykes	20	Feb. 6, 1937	481	-	-	-	281	100	70	-
104	J.M. Brown	165	Feb. 5, 1937	507	72	22	86	299	116	64	269
105	W.N. Toland	180	Mar. 9, 1937	601	56	23	140	366	128	74	234
106	N.A. Richardson	165	do.	522	84	23	82	354	85	74	304
107	do.	33	do.	646	100	22	100	189	179	152	339
108	W.D. Gray	140	Feb. 5, 1937	477	60	23	89	305	85	70	244
109	J. Hodges	131	Mar. 9, 1937	880	21	12	310	427	97	230	103
110	E.C. Head	135	Feb. 8, 1937	2,212	18	10	845	512	77	1,010	86
112	Noble Robertson	6	do.	261	-	-	-	220	31	24	-
115	Joe W. Johnson	135	Mar. 3, 1937	15,606	515	148	5,330	61	183	9,400	1,897
116	Fate Johnson	50	do.	617	106	40	79	390	a/	200	430
120	First National Bank of Cisco	72	Jan. 28, 1937	931	3	4	374	549	20	260	22
121a	L.E. Turner	180	Feb. 8, 1937	782	-	-	-	372	193	130	-
123	A.F. Billings	158	do.	1,341	9	2	530	671	70	400	32
124	A.L. Wagley	192	do.	2,191	16	6	854	549	15	1,030	61
125	Mrs. C.R. Brown	149	Feb. 6, 1937	1,941	11	4	765	531	a/	900	42
126	J.K. Pruitt Est.	77	do.	1,383	44	10	493	561	70	490	151
127	W.C. Ledbetter	126	Feb. 11, 1937	895	-	-	-	220	392	102	-
128	J.C. Thompson	70	do.	544	-	-	-	201	220	43	-
129	C.W. Dooley	106	do.	971	-	-	-	104	282	310	-
130	M.A. Frost	173	do.	924	-	-	-	6	69	525	-
131	Alvan Mayhall	41	do.	482	119	13	52	464	38	32	353
132	G. Beene	19	do.	223	-	-	-	256	a/	8	-
133	Edgar Huffman	182	Mar. 2, 1937	1,775	13	8	670	665	252	505	65
134	H.C. Wilkinson	153	Feb. 11, 1937	1,657	20	9	616	665	230	455	85
135	Claude Beardman	75	do.	307	79	12	28	336	a/	23	247
137	C.C. Jackson	79	do.	561	97	29	75	372	77	100	363
138	H.A. Demic Estate	92	do.	745	-	-	-	104	254	192	-
139	Frank Sides	127	Feb. 12, 1937	703	163	19	77	482	85	122	487
140	Mrs. Sallie Lane	69	Feb. 24, 1937	1,126	29	13	402	561	81	325	128
141	do.	100	do.	5,957	540	96	1,618	342	15	3,520	1,744
142	A.H. Boney	50	Feb. 12, 1937	1,074	-	6	418	476	116	300	25
143	Bullock School	19	do.	548	-	-	-	366	69	96	-

a/ Sulphate less than 10 parts per million.

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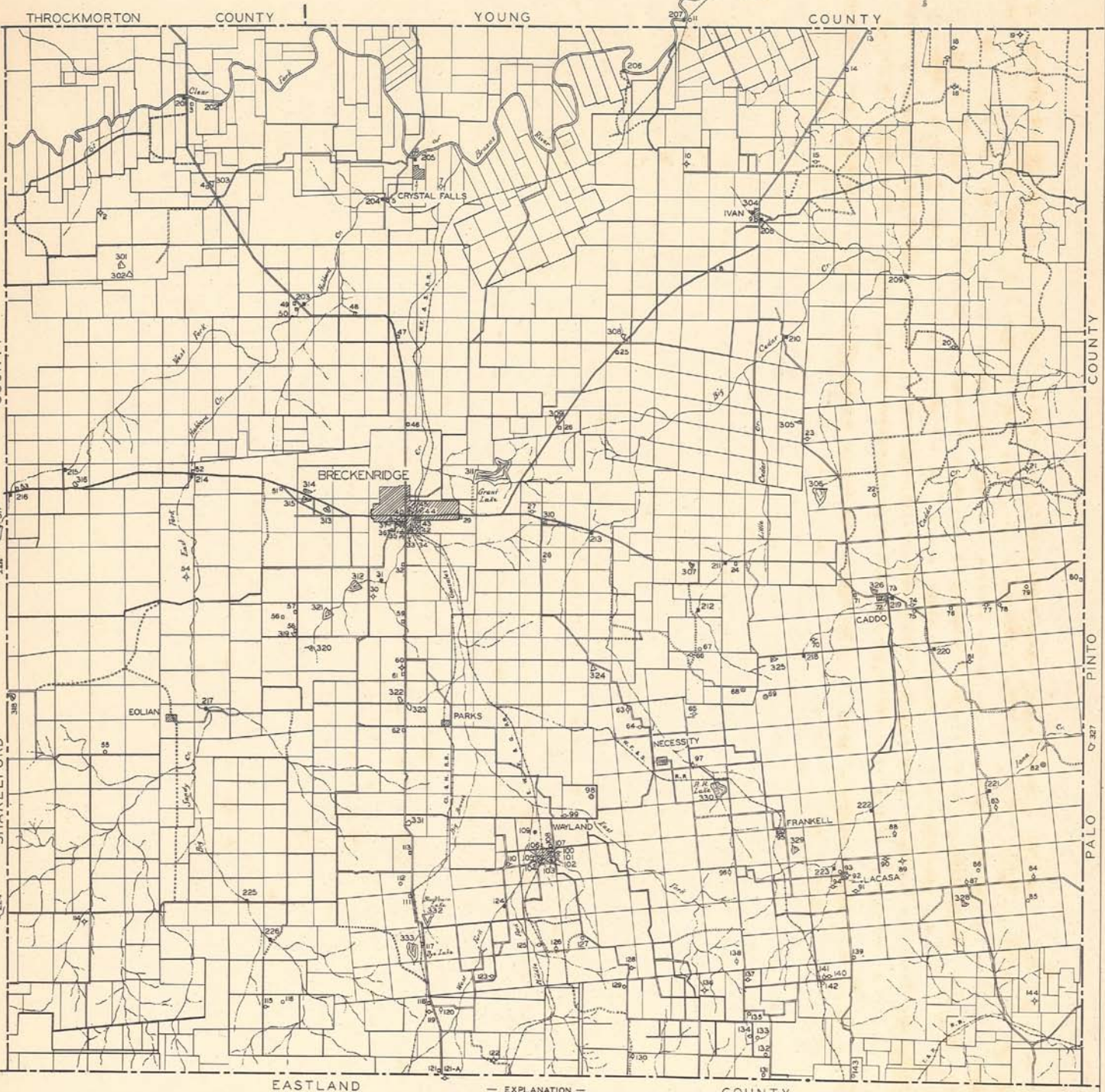
Partial analyses of water from tanks in Stephens County, Texas
Results are in parts per million.

Tank No.	Owner	Date of collection	Total dissolved solids (calculated)	Calcium (Ca)	Magnesium (Mg)	Sodium and Potassium (Na / K) (calculated)	Bicarbonate (HCO ₃)	Sulphate (SO ₄)	Chloride (Cl)	Total hardness as CaCO ₃ (calculated)
301	W.H. Green	Mar.22,1937	104	-	-	-	116	a/	6	-
303	E.A. Jeter	Feb. 9,1937	179	-	-	-	177	15	8	-
304	V.R. Martin	Mar. 1,1937	177	38	9	17	146	31	10	130
305	O.S. Martin	Mar. 2,1937	136	-	-	-	159	a/	4	-
306	Ohio Oil Co.	do.	142	39	5	11	153	a/	12	118
307	W.T. Yandell	Feb.15,1937	161	-	-	-	189	a/	4	-
308	L. Sexton	Mar.12,1937	116	-	-	-	134	a/	4	-
309	H. Hibbert	do.	695	142	15	59	122	404	15	414
310	O.L. Moon	Feb.19,1937	256	-	-	-	183	54	19	-
311	Community Public Service Company	Feb.17,1937	72,031	5,230	2,080	19,400	104	70	45,200	21,646
312	Pat Frazier	Feb.16,1937	180	-	-	-	73	46	35	-
313	B. Searcy	Mar.16,1937	172	-	-	-	110	47	10	-
314	R.G. Camp	do.	194	-	-	-	122	47	18	-
315	Breckenridge Country Club	do.	321	14	10	93	128	70	71	76
316	Claude Squires	do.	39	2	1	12	24	a/	12	11
317	George DeLafosse	Feb.22,1937	169	28	7	29	128	a/	42	100
318	D.P. George	Feb.16,1937	162	38	9	14	146	a/	29	130
319	T.R. Culver	Mar. 3,1937	184	34	6	25	122	54	5	109
320	J.C. Caldwell	do.	137	28	9	15	140	a/	16	105
321	Mrs.W.V. Connor	do.	152	-	-	-	146	16	6	-
322	G.B. Phillips	Feb.16,1937	84	10	6	15	79	12	2	48
323	C. Branch	do.	121	-	-	-	134	a/	7	-
324	H.J. Lane	Feb.10,1937	126	-	-	-	128	12	3	-
325	H.J. Rosenquest	Feb.19,1937	588	-	-	-	110	305	42	-
326	City of Caddo	Feb.15,1937	114	-	-	-	98	23	1	-
327	T. & P. C. & O. Co.	Feb.18,1937	110	-	-	-	128	a/	3	-
328	H.B. Gardenhire	do.	275	-	-	-	153	15	82	-
329	J.W. Harman	Feb.12,1937	125	-	-	-	146	a/	3	-
330	Wichita Valley R.R. Co.	Feb.10,1937	125	34	7	6	153	a/	3	115
331	E.S. Curry	Feb.16,1937	138	-	-	-	165	a/	2	-
332	E.B. Blackburn	do.	242	-	-	-	159	40	36	-
333	J.H. Dye	do.	125	38	6	4	153	a/	2	119

a/ Sulphate less than 10 parts per million.

MAP OF STEPHENS COUNTY, TEXAS SHOWING LOCATIONS OF WATER WELLS LISTED

SCALE
0 1 2 3 4 5 6 7 8 MILES



FIELD WORK BY
J. HOWARD SAMUELL
PROJECT SUPERINTENDENT
W.P.A. PROJECT 6013-5361

BASE COMPILED FROM
LAND OWNERSHIP MAP
AND FIELD NOTES

— EXPLANATION —

- ◊ WELL WITH WINDMILL OR SMALL POWER PUMP
- ◊ WELL WITH HAND PUMP, BUCKET OR BAILER
- ◊ WELL WITH PUMPING PLANT—5 HORSEPOWER OR LARGER
- FLOWING WELL
- ◊ WELL DRILLED TO TEST FOR OIL OR GAS
- ◊ TEST WELL DRILLED BY W.P.A. LABOR
- ◊ UNUSED WELL
- LOCATION WHERE STREAM WAS SAMPLED
- ◊ EARTHEN TANK OR RESERVOIR

TEXAS BOARD OF
WATER ENGINEERS
ASSISTED BY
U. S. GEOLOGICAL SURVEY