LIVE OAK COUNTY, TEXAS

Records of wells, driller's logs, water analyses, and map showing location of wells.

TEXAS STATE BOARD OF WATER ENGINEERS

C. A. Clark, Chairman

A. H. Dunlap, Member

J. W. Pritchett, Member

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

LIVE OAK COUNTY, TEXAS

Introduction

Ву

Walter N. White Senior Hydraulic Engineer

This release contains records of wells in Live Oak County, and is illustrated by a map on which the wells listed are shown, each well being given a number on the map corresponding to the number assigned to it in the well tables. The records were obtained during the summer of 1934 by Walter A. Lynch, under an allocation of funds by the Federal Emergency Administration of Public Works, as a part of a statewide program of ground-water investigations by the Texas Board of Water Engineers in cooperation with the United States Department of the Interior, Geological Survey.

Altogether 69 wells are described in the tables. The records include the following: name of well owner and driller; size and depth of well; character of pumping equipment; depth to water in a part of the wells; use made of the water; and the mineral character of the water as shown by laboratory tests for chloride, hardness and bicarbonate. More complete laboratory analyses of water from selected wells are found in tables of chemical analyses.

Most of the wells recorded in the county are used for domestic purposes or stock, or both. A few wells at George West and Three Rivers are used for municipal supply.

The records given in this release serve as a guide to land owners and others who need information regarding wells in different parts of the area, and the quantity and quality of water yielded by the wells.

The publication was mimeographed by employees of the Work Projects Administration, Project No. 10443.

Records of wells in Live Oak County, Texas Height of Well Distance Driller measuring Owner Date Depth Diampoint No. from com- $\circ f$ eter Whitsett plewell of above ground (ft.) well ted (in.) ft.) <u>a</u>/ 6 miles Humble Pipe Line 400+ northeast Co. 2 miles B. E. Herring 50 48 Old southwest 4 miles O. M. Withers Cheatham Holmes 4등 1927 160 southwest 4등 miles U. S. I. Realty 3,557 southeast, Co. (Fant City) Height of Well Distance Owner Driller Date Depth | Diammeasuring eter point No. from comof ple-Three Rivers well ofabove (ft,) well ground ted (in.) 10 8 miles E. J. Albright Texas Well and 1915 3,558 northeast Prespecting Co. 3/4 mile west 86 City of Three 1927 50 Rivers 0 12 5층 miles George West 100 6 south Estate Height of Well Distance Driller Depth Diam-Owner Date measuring from eter point No. comofOakville plewell ofabove (ft.) | well ground ted (in.) (ft.) <u>a</u> l mile north J. M. Dullahan P. Watson 1900 82 -- Wilson Oakville 1857 83 48 0 Estate 1 mile south Eason Oil Co. 6 . 2 southeast I. Hinton l miles east -- Morris 1911 121 1.5 southeast 3등 miles east C. A. Goebel Edwards & Moore 112 1.0 1929 northeast W. Randolph 4= 1.5 65 miles east C. O. Lippard 1925 151 northeast

a/ Measuring point was usually top of casing, top of well curb or top of pipe clamp;
it was above ground level unless indicated by (-) sign for below ground level.
b/ H, hand pump; W, windmill; A, air lift; E, electric motor; G, gasoline engine.

All wells are drilled unless otherwise stated in remarks Water level Chemical tests d/ Well Depth | Date of Remarks Method Use Parts per million No. below | measure-Hard- Bicarof $\circ f$ Chlc-1 measurment lift water ride ness bonate <u>b</u>/ ling point <u>c/</u> <u>e/</u> (ft.) F Ind, 1.080 1.50 560 21 W D,S 227 200 256 Casing: 40 feet of corrugated galvanized iron pipe.
Estimated yield, Dug well. W D.S 450 139 500 20 gallons a minute. Reported salty water at 4 1,000 to 1,140, 1,559 to 1,583, 2,261 to 2,287, 3,262 to 3,279, and 3,492 to 3,517 feet. Chemical tests d/ Water level Well Depth , Date of Method Parts per million Remarks Use below measureof of Chlo-! Hard- Bicar-Nc . lift bonate measurwater ride ness ment ing point b/ c/ e/ (ft.); S Flow 3,160 25 1,558 10 E P Yield from two wells about 122 420 4.68 11 100,000 gallons a day. perature 73° F. Dug well. \overline{W} D,S 290 304 Temperature 76° F. 12 80 891 --1928 Water level Chemical tests d/ Depth Date of Method Parts per million Remarks Well Use ofChlo-Hard-Bicar-No. below measureoflift water bonate measurment ride ness ing point b/ c/ e/ (ft.) 450 232 Casing: 82 feet. D.S 165 63.40 Aug. --, 1934 W 65.1 P 52 260 270 1928 61.95 Aug. --, 1934 Ħ-D,S 245 250 220 50.3 Feb. --, 22 1928 51,0 Aug. --, 1934 V. D.S 580 464 Sulphur odor. 83,50 Aug. --, 140 1934 97,90 1 D.S 870 950 212 do, P Casing: 151 feet of $4\frac{1}{4}$ -inch. 25, 106, 30 378 460 256 do.

c/P, public supply; Ind, industrial; D, demestic; S, stock; N, not used.

d/ Made by Margaret D. Foster, Water Resource laboratory.

e/ Hardness as calcium carbonate by the soap method.

Records of wells in Live Oak County -- Continued . Height of Depth Diam-Well Distance Owner Driller Date measuring of eter point com-No. from above well of Oakville plewell (ft.) ground ted (ft.) <u>a</u>/ (in.) 2.€ 5 miles east 1907 176 J. C. Dunn E. L. Hemph, II southeast 3= 2.0 5 miles south-J. M. Tansy 01d 82 27 east 1.2 28 3号 miles I. Hinton 128 south 1.2 131 6 29 de, J. A. Hines -- Hoskins 1928 Mrs. 53 miles 56 4 1.0 30 south N. B. Smith 2.0 4금 6 miles south C. E. Kay 018 65 31 southeast 4-8 miles -- Hoskins 1926 32 Dr. 190 southeast D. E. Hawk 33 10g miles E. Harrison F. Weed 1929 60 35 1.2 south 6 .3 10를 miles 150 54 Mrs. southeast M. A. Goodwin 5-.7 A. M. Robinson 85 35 A. W. Toomey 1904 do. 3/16 J. S. Lewis 36 1916 5-0 8호 miles Dan Gaynes 3/16 southeast Height of Well Distance Owner Date Depth Diammeasuring Driller from $\circ f$ eter point No. com-George West plewell of above well (ft.) ground ted (in.) (ft.) <u>a</u>/ 50 S. W. Lewis 4 miles east Homer Valton 1927 southeast W. E. Chandler 1926 67 6 2층 miles east __ 0 51 2.0 Mrs. 52 3 miles south -- Gawlik 1925 80 southeast B. Katzfev George West 53 500 10 .3 a mile Utilities southwest 300+ 0 8 do. 54 do. 89 0 55 do. do. 47 3 miles S. E. Nerris Old 180 56 -southwest 57 5 miles west H. J. Hadamek 01d 240 southwest

All wells are drilled unless otherwise stated in remarks

Mindalphia (apparent)			s are di	rilled				ated in remarks
	Water				Chemi	cal tes	sts d/	
Well	Depth	Date of	Method	Use	Parts	per mi	llien	Remarks
	below	measure-	of	cf	Chlo-i	Hard-	Bicar-	
	measur-		1	water	1	ness	bonate	
	ing poi		b/	c/		e/		
	(ft.)		22	=		<u>-7</u>		
26	139.40			D,S	535	480	280	Reported as good well.
n c	100.10	1934	**	2,0	000	100	2011	top 100 as good noil
27	71,50		<u> </u>	D,S	730	1.350	286	Casing: 82 feet of $3\frac{1}{4}$ -inch.
21	71,00	uo.	•	1,0	130	1,000	200	
28	07 7	Feb,	V.	D,S	ļ			Yield reported poor.
20	20.1		91	D,5				
	04.05	1928						
	24,85			ļ				
		1934		 				na managana managan menengi. Salah peru amendan bilang sari spendelah menindahan peruna sebi sebagai dan diberangan
29	39,85		W	D,S	1,100	160	544	
		1934						and the second of the second second of the second s
30	37,5	Feb,	Ţ,	D,S	100	280	316	
		1928		ļ				
	40.00	Aug,		į				
		1934						
31	55,60	Aug,	W	S	835	1,000	246	Original depth 600 feet.
		1934			i	_		-
32			T.	D,S	350	280	322	Reported as good well.
				- ,	!			
33	50.10	Aug,	V	D,S				Casing: 58 feet of 32-inch
		1934						stove pipe.
34	107.10	do.	<u> </u>	D,S	438	600	324	o covo papo.
01	107.10	φ.		, 2,0	100	000	021	
35	62.50	do.	w	D,S	1,120	900	272	Original depth 400 feet.
υυ	02.50	uo.	77	دولا . ا	1,120	300	616	Plugged below 85 feet on
							ļ ķ	
7.0	47 40	3 -	77	D.S	705	400	070	account of bad water.
36	43,40	do.	ļ ##	, D'9	385	480	272	
	*		,	i Tanzit ita			! =	
	Water					cal tes		
	Depth	Date of	Method	I		per m		Remarks
No.	below	measure-	of	of	Chlo-	Hard-	Bicar-	
	measur.		lift	water	ride	ness	bonate	
	ing poi		b/	c/		e/		
	(ft,)							
50	32.10	Aug,	W	D,S	700	95	452	
		1934						
51	43.55	do.	W.	S	1,950	1,000	316	Reported as good well.
			į			-		
52	58.40	do.	W	D,S	222	170	358	manyan manyangan na na madanandakapanda amindakan 1900 (1900) (1900) (1900) (1900)
-		-		'		· ·		
53	38.70	do.	Ē	P	258	230	362	Temperature 81° F.
			-] -		200		
54	42.8	Feb,	 	 	 			
01	15.0	1928		N				Not used on account of poor
	37.90		1	14				quality.
	07.00	1934	1	1				quarrey.
EF	F.C. 0			T 3	206	700	340	Tompore time 770 E
55	56.9	Feb,	E	Ind.	206	300	340	Temperature 770 F.
		1928	[}				
	59.75	, –	•	İ				
		1934	 	1 = =	<u> </u>			
56			W	D,S	158	150	352	
			ļ	<u> </u>			ļ	
57			W	D,S	505	470	246	Temperature 78° F.
	i i				1			t

Records of wells in Live Oak County -- Continued

Well Distance From George West Street	Kec	ords of wells in Li	ve Cak County -	-Conti	nuea		TT-3 mlot of	
	ר ר מזגו	T: -1	0	D. 211 -	D- 4-	T) a sadala	D:	Height of
George Wost		I	Owner	Driller	1	, -		
S	30.	1			1	į		-
Second		George West	į		1 '	L	2	
Secont Second S					ted	(IU.)	•	
10 miles	58	6 miles	S. Breiten		1919	80		
Southwest Sout		southwest			†			
12 miles Southwest J. O. Hendrick Bradshaw 1921 162 6 1.8	59	10 miles	W. R. Lyne		1904	140	4	.3
Southwest Sout		southwest						
15 miles	60	12 miles	R. C. Lyne			240	4	.2
Southwest Sout								
62 17 miles	61	1	J. O. Hendrick	Bradshaw	1921	162	6	1.3
Southwest Go John Dunn 1913 254 1.0		southwest						
Southwest Go John Dunn 1913 254 1.0							1	
GS	62	17 miles	H. Hyman	Ed Lindbloom	1925	300	6	-
19 miles		southwest						
Southwest Sout	63	do.	John Dunn		1913	254		1.0
Southwest Sout		30	7.	T. T	1.007	7.44		
Southwest	6 4	ļ.	Lee Moore	Ed Lindbloom	1927	144	34	
Southwest G. T. Roberts Old 188 4½ O	- OF	<u></u>	26 T TZ 2 2 2 2	<u> </u>	1,005	107	<u></u>	
66 17 miles south southwest 67 13½ miles south south southwest 68 16 miles south Charles McCaslin 69 13½ miles south Mrs. southeast M. A. Hinnant 70 9 miles south C. T. Holland southwest 71 8 miles south Hall Brothers 72 5₺ miles south A. Kubala 73 16 16 miles south Mrs. southwest 74 8 miles south Markubala 75 18 miles south Markubala 76 18 miles south Markubala 77 18 miles south Markubala 78 18 miles south Markubala 79 18 miles south Markubala 70 9 miles south Markubala 70 9 miles south Markubala 71 8 miles south Markubala 72 5₺ miles south Markubala 73 16 1.0 74 17 miles south Markubala 75 18 miles south Markubala 76 18 miles south Markubala 77 18 miles south Markubala 78 18 miles Mrs. 89 18 miles Mrs. 90 18 18 18 18 18 19 19 19 19 19 19 10 10 10 10 10 10 10 10 10 10 10 10 10	55	1	M. L. Kendall		1882	193		1.0
Southwest South South South South South South South South South Charles McCaslin Old 200 1.5	-00		G P D-1 - L	<u> </u>	107.1	700	3/10	
13½ miles T. J. Goodwin Jim Goodwin 1913 110 6 1.2	66	į.	G. T. Roberts		010	198	44	U
South Charles McCaslin Old 200 1.5	CIT		m 7 C 3	7: 0 3	3017	110		
68 16 miles south Charles McCaslin 01d 200 1.5 69 13½ miles south Southeast M. A. Hinnant Southeast M. A. Hinnant TO 9 miles south C. T. Holland 01d 235 5- 0 3/16 70 8 miles south Hall Brothers 250 52 3/16 71 8 miles south Hall Brothers 155 € 1.0 72 5½ miles south A. Kubala 155 € 1.0 Well Distance Owner Driller Date Depth Diam- of ster point well of shove ted (ft.) well of shove ted (ft.) well (in.) (ft.) a/ 80 2½ miles Jim Pugh 01d 240 4½ 0 81 Mikeska F. B. Frerich John Trumbla 1928 54 5½ .5 82 do. Albert Huegler A. P. Gaynes 1922 60 6 1.7 83 do. Mikeska Estate 1922 832 6- 5/8 84 3 miles Mrs 01d 150 4½	67	, ~	T. J. Gocawin	Jim Goodwin	1919	110	0	1.2
69 13½ miles south southeast M. A. Hinnant 70 9 miles south C. T. Holland 01d 235 5- 0 3/16 71 8 miles south Hall Brothers 250 52 3/16 72 5½ miles south A. Kubala 155 6 1.0 72 5½ miles south Mikeska Dimensional Plant Plan			03 - 3 - 3 - 3 - 3 - 3 - 3 - 3 - 3 - 3 -		07.7	200		
Southeast M. A. Hinnant	00	10 miles south	Charles McCaslin		010	200		1.0
Southeast M. A. Hinnant Old 235 5- O	69	13 miles south	Mrs.		Old	104	41/4	0
70 9 miles south C. T. Holland Old 235 5- O 3/16 71 8 miles south Hall Brothers 250 5- .2 72 5½ miles south A. Kubala 155 6 1.0			M. A. Hinnant				_	
71 8 miles south Hall Brothers 250 5- 3/16 72 5 miles south A. Kubala 155 6 1.0 Well Distance Owner Driller Date com- of eter point above ground (ft.) a/ 80 2 miles southwest 81 Mikeska F. B. Frerich John Trumbla 1928 54 5 1.0 82 do. Albert Huegler A. P. Gaynes 1922 60 6 1.7 83 do. Mikeska Estate 1922 832 6- 5/8 84 3 miles Mrs Old 150 4 1 1.0	70	9 miles south	C. T. Holland		Old	235	5-	0
The stance The		southwest	İ		1		3/16	
T2	71	8 miles south	Hall Brothers			250	5-	.2
Well Distance Owner Driller Date Depth Diam Height of measuring point above ground (in.) (ft.) a/	-						3/16	
Well No. Distance from from Mikeska Owner Driller com- of ple- well of ted (ft.) Diam- measuring point above well (ft.) Mikeska Mikeska Jim Pugh Old 240 $4\frac{1}{4}$ O 81 Mikeska F. B. Frerich John Trumbla 1928 54 $5\frac{1}{2}$.5 82 do. Albert Huegler A. P. Gaynes 1922 60 6 1.7 83 do. Mikeska Estate 1922 832 6- 84 3 miles Mrs. Old 150 $4\frac{1}{4}$	72	5층 miles south	A. Kubala			155	6	1.0
Well No. Distance from from Mikeska Owner Driller com- of ple- well of ted (ft.) Diam- measuring point above well (ft.) Mikeska Mikeska Jim Pugh Old 240 $4\frac{1}{4}$ O 81 Mikeska F. B. Frerich John Trumbla 1928 54 $5\frac{1}{2}$.5 82 do. Albert Huegler A. P. Gaynes 1922 60 6 1.7 83 do. Mikeska Estate 1922 832 6- 84 3 miles Mrs. Old 150 $4\frac{1}{4}$			1 		<u> </u>	<u> </u>	<u> </u>	
No. from Mikeska completed well of above well (ft.) eter pleted (ft.) point above well (in.) 80 2½ miles southwest Jim Pugh Old 240 4½ O southwest 81 Mikeska F. B. Frerich John Trumbla 1928 54 5½ .5 82 do. Albert Huegler A. P. Gaynes 1922 60 6 1.7 83 do. Mikeska Estate 1922 832 6 84 3 miles Mrs. Old 150 4½			!				1	Height of
Mikeska ple-ted well (ft.) of above ground (in.) 80 $2\frac{1}{2}$ miles southwest Jim Pugh Old 240 $4\frac{1}{4}$ Ossouthwest Old 240 $4\frac{1}{4}$ Ossouthwest 81 Mikeska F. B. Frerich John Trumbla 1928 54 $5\frac{1}{2}$.5 82 do. Albert Huegler A. P. Gaynes 1922 60 6 1.7 83 do. Mikeska Estate 1922 832 6 5/8 84 3 miles Mrs. Old 150 $4\frac{1}{4}$	Well	Distance	Owner	Driller	Date	Depth	Diam-	measuring
Ted (ft.) Well ground (ft.) a/	No.	from			com-	of	eter	point
80 $2\frac{1}{2}$ miles southwest Jim Pugh Old 240 $4\frac{1}{4}$ O 81 Mikeska F. B. Frerich John Trumbla 1928 54 $5\frac{1}{2}$.5 82 do. Albert Huegler A. P. Gaynes 1922 60 6 1.7 83 do. Mikeska Estate 1922 832 6- 84 3 miles Mrs. Old 150 $4\frac{1}{4}$		Mikeska			ple-	well	of	above
80 $2\frac{1}{2}$ miles southwest Jim Pugh Old 240 $4\frac{1}{4}$ O southwest 81 Mikeska F. B. Frerich John Trumbla 1928 54 $5\frac{1}{2}$.5 82 do. Albert Huegler A. P. Gaynes 1922 60 6 1.7 83 do. Mikeska Estate 1922 832 6- 84 3 miles Mrs. Old 150 $4\frac{1}{4}$		F			ted	(ft.)	well	ground
Southwest								(ft.) <u>a</u> /
81 Mikeska F. B. Frerich John Trumbla 1928 54 $5\frac{1}{2}$.5 82 do. Albert Huegler A. P. Gaynes 1922 60 6 1.7 83 do. Mikeska Estate 1922 832 6 - $5/8$ 84 3 miles Mrs. $01d$ 150 $4\frac{1}{4}$	80	$2\frac{1}{2}$ miles	Jim Pugh		Old	240	4출	0
82 do. Albert Huegler A. P. Gaynes 1922 60 6 1.7 83 do. Mikeska Estate 1922 832 6- 5/8 84 3 miles Mrs. 01d 150 4½								
83 do. Mikeska Estate 1922 832 6 5/8 84 3 miles Mrs Old 150 44	81	Mikeska	F. B. Frerich	John Trumbla	1928	54	5意	•5
83 do. Mikeska Estate 1922 832 6 5/8 84 3 miles Mrs Old 150 44	00	3.	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	D 0	1,000			7 7
$\frac{1}{84}$ 3 miles Mrs Old 150 $4\frac{1}{4}$	82	do.	Albert nuegier	A. P. Gaynes	1922	60		1.7
$\frac{1}{84}$ 3 miles Mrs Old 150 $4\frac{1}{4}$	83	do.	Mikeska Estate		1922	832	6-	
84 3 miles Mrs 01d 150 $4\frac{1}{4}$							5/8	
	84	3 miles	Mrs.		Old	150	41/4	
		southeast	P. O. Watson					

All wells are drilled unless otherwise stated in remarks Chemical tests d/ Water level Well Depth Date of Method Use Parts per million Remarks below measureofofChlc-Hard-Bicarmeasurment lift ness bons te water ride ing point b/ e/ c/ (ft.) W 58 71,80 S 860 1,200 3.58 Aug. --, 1934 W 59 125,10 D,S do. 145 100 418 Reported as good well. G 60 ___ D,S ___ 61 132.2 Feb. --, W 1928 D,S 930 700 192 Reported salty water at 40 147,00 Aug. --, feet. 1934 IJ 62 179,70 230 150 324 D.S Aug. --, 1934 W 63 57.40 D,S 560 170 202 đ⊕. W D,S 600 800 244 64 řř. DS 336 65 137,10 Aug. --, 252 160 1934 W Temperature 77° F. 66 128,95 do. D,S 11,075 1,100 232 W 67 117,10 DS 550 226 do. 418 68 135.80 do. W Ŝ 1,100 330 1,330 G 69 84.05 D.S 250 374 61 dc. क्र ŝ 70 990 750 258 71 217.90 W S 312 270 336 Aug. --, 1934 72 128.85 W ŝ 1,000 815 222 do. Water level Chemical tests d/ Well Depth Date of Method Parts per million Use Remarks Hard- Bicer-No. below | measureof ofChl^lift measurwater ride bonate ment ness <u>b</u>/ <u>e</u>/ ing point <u>c/</u> (ft.) W 80 188.80 Aug. --, D,S 295 220 272 1934 G 740 700 328 81 44,15 D,S do. W 82 50.85 D,S 610 650 312 do. 83 Flow N 2,100 400 236 ___ W \overline{S} 330 84 250 334 Reported as good well. ---

Records of wells in Live Oak County -- Continued

	Reco	ords of wells in	Live Oak County -	-Conti	nued		
Well	Distance	Owner	Driller	Date		Diam-	Height of measuring
No.	from			com-	of	eter	point
	Dinero			ple-	well	of	above
				ted	(ft.)	well	ground
90	4 miles north		177 - 3 4 73 4 3	1.000		(in.)	(ft.) <u>a/</u>
		Tom Poyner	Walton Brothers	1929	73	4幸	
91	5 miles east northeast	C. W. Dykes		Old	180	5	2.0
92	3 miles east northeast	S. J. Swinney	R. W. Lawson	1929	170	5	1.0
93	3g miles east	Hall Brothers	Tom Ramage	1931	121		100
94	Dinero	J. R. McGuffin			75	6	1,0
95	3층 miles southwest	Trinity Drillers, Inc.	A. C. White	1934	250	44	
96	8 miles southwest	Mrs. M. A. Hinnant		018	100	5 - 3/16	
97	11 miles south south	do.	oth acts	1893	202	5	-
							Height of
Well	Distance	Owner	Driller	Date	Depth	Diam-	measuring
No.	from			com-	of	eter	point
	Lagarto			ple-	well	of	above
				ted	(ft.)	well (in.)	ground (ft.) a/
100	Lagarto	Jack Goodwin	A. L. Gooley	1908	106	4	1.4
101	4 miles north	Houston Pipe Line Co.	E. M. Jenkins	1927	251	9	0
102	do.	do.	Quinn	1934	561	6 - 5/8	- sa - Sep
103	5호 miles northeast	Mrs. Tom Webb	The same	Old	124	4	0
104	8 miles northeast	Bob Elam	a MATATATA ANA AMIN'NY MATATATANA PARAMETRANA PARAMETRANA ANA AMIN'NY MANAGEMBER ANA AMIN'NY MANAGEMBER ANA AMIN'NY MANAGEMBER ANA AMIN'NY MANAGEMBER AND AMIN'N	1931	265	4출	1.3
105	7호 miles east northeast	J. E. Curlee		01d	150	$4\frac{1}{4}$	n
106	2½ miles east	D. B. Miller		1890	490	5	
107	3 miles southeast	H. D. Miller	a r b r	1932	200	4 1	0
108	do.	do.		1932	405	10	Name and
a / Mo	aguring point was	usually top of	casing top of we	11 0111	h or to	on of r	ine clemn.

a/ Measuring point was usually top of casing, top of well curb or top of pipe clamp; it was above ground level unless indicated by (-) sign for below ground level. b/ H, hand pump; W, windmill; A, air lift; E, electric motor; G, gasoline engine.

All wells are drilled unless otherwise stated in remarks Water level |Chemical tests d/ Well Depth | Date of Method Parts per million Remarks Use below measure-Chlo- Hard- Bicar-No. of of measurment lift ness bonate water ride ing point <u>b/</u> е/ c/ (ft,) W 270 D.S 324 750 91 124,75 Aug. --, D.S 270 390 312 Reported as good well. 1934 92 148.15 198 W P 780 1,200 do. 93 ---W Ind, 440 600 262 Casing: 114 feet of 44-inch. \mathbb{D} 94 37.4 Feb. --. 1928 W D,S 375 500 258 33,20 Aug. --1934 234 Temperature 78° F. Used for 95 A ___ 535 650 drilling rig. 96 W 520 280 308 D,S ---97 W S 470 700 380 *** *** Water level Chemical tests d/ Well Depth Method Parts per million Date of Use Remarks No. below measureof \circ ofChlo-Hard- Bicarlift bonate measurment water ride ness ing point b/ e/ c/ (ft.) 100 Ā Casing: 106 feet of 3-inch. D.S 328 218 210 101 Ind. Yields gas, _ == ---D Yields some gas. Screens 102 Ind, 155 170 358 set at 186 to 210, 361 to D 382, 428 to 468, 542 to 562 feet. Yields 40 gallons a 35.80 352 103 Aug. --, W D,S 210 150 minute. 1934 W S 104 91.50 do. **...** _ _ 105 128,20 W D,S 134 220 328 do. ---178 110 434 Casing: 460 feet of 5-inch. 106 Flow Estimated flow, 10 gallons a 107 1.3 N Aug. --, ---___ minute. 1934 108 Ŝ Casing: 245 feet of 10-inch. --Flow 238 210 406

Temperature 76° F. Estimated flow, 75 gallons a minute.

c/P, public supply; Ind, industrial; D, domestic; S, stock; N, not used.
d/ Made by Margaret D. Foster, Water Resource laboratory.

e/ Hardness as calcium carbonate by the soap method.

Th	ickness (feet)	Depth (feet)	Thickness '(feet)	Depth (feet)
Log of wel	1 4	:	Log of well 4Cont	inued
Gray, slightly calcareou			Fragments of greenish-	
gritty plastic clay-	65	65	gray compact hard	1
Fragments of pinkish-			limestone; with thin	
gray limestone, 1/8-			streaks of calcite;	1
inch in diameter; sub-			also fragments of	İ
angular, little clay			dark-green coarse-	
in this sample	35	100	grained calcareous	
Green, slightly			sandstone (?) 40	660
calcareous, slightly			Green sandy calcareous	
sandy clay	40	140	clay 115	775
Green, gritty,			Blue calcareous	
slightly calcareous			plastic clay 145	920
clay, not very	7.5	7.55	Green gritty	0.770
plastic	15	155	calcareous clay 50	970
Green gritty,			Light-gray	
slightly plastic			calcareous sand,	
calcareous clay			chiefly quartz;	
with small			fragments angular to subangular 30	1000
segregations of	205	360	to subangular 30 Gray calcareous	1000
Green sandy clay;	200		quartzitic sand;	
one fragment of			composed chiefly of	
fairly hard lime -	21	381	subrounded quartz	
Green, slightly	 .	001	grains 140	1140
sandy marl with			Dark grayish-green	
lime nodules	39	420	compact nongritty	-
Fragments of hard			noncalcareous shale- 133	1273
green argilla-			Noncalcareous green	
ceous limestone;			sandy clay (sand?) - 17	1290
also fragments of			Dark-green compact shale	
hard green brittle			noncalcareous; very	
clay	44	464	little sand 21	1311
Fragments of green		1	Light-green sandy	
sandy argillaceous			clay, noncalcareous - 2	1313
limestone	26	490	Dark-green non-	
Fragments of green		1	calcareous shale;	
sandy limestone			very little	7700
mixed with green			grit 14 Fossiliforous marl - 5	1327
sandy clay. One			Green noncalcareous	1002
piece of lignite (?)	55	545	brittle clay 21	1353
Fragments of medium-	00	040	Calcareous greenish-	1000
hard light greenish-			gray sand with	
gray compact			fragments of fossils;	
argillaceous lime-		1	sand consists of	
stone; also frag-			fairly well rounded	
ments of green			quartz grains and	
gritty clay	75	620	other mineral	
			fragments 2	1355
			(Continued on next page.)
		1 1	1	1

Log of well 4Continued Green noncalcarcous clay with fragments of blue argillaceous limestone; latter probably concretions 14 1569 Greenish-gray fosciliferous moncalcarcous clay - 2 1371 calcarcous clay - 2 1371 calcarcous clay - 2 1371 Some quartz 1389 Moncalcarcous clay; one fragment of light-gray noncalcarcous clay; one fragment of lightly calcarcous lay; one fragment of lightly calcarcous lay; one fragment of lightly calcarcous sand calcarcous sand calcarcous clay with sand may cone from stratum above - 77 1660 Sightly calcarcous sand cal		Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Creen nonealcareous clay with fragments of blue argillacecus limestone; latter probably concretions 14	Log of well 4		· ************************************	Log of well 4	```	
clay with fragments of blue argiliaceous limestone; latter probably concretions 14 1369 Greenfishgray fossiliferous noncalcareous clay - 2 1371 Green, slightly calcareous clay - 15 1384 Fragments of magnetite and sand; sand probably derived from calcareous clay; one fragment of light-gray noncalcareous clay; grains of quartz visible 34 1408 From lightics and sand; some clay forsiliferous marl with fragments of magnetite of some clay one fragment of black magnetite, probably foreign - 37 1528 Green nonealcareous clay; grains of quartz visible 34 1400 Frostiliferous marl with fragments of black magnetite, probably foreign - 37 1528 Green nonealcareous clay; grains of lighties 37 1528 Green slightly calcareous green clay and sand; sand magnetite and limonite 26 1554 Noncalcarous green sand; clay 5 1559 Gray sand; gas 24 1568 Fragments of green clay and sand; sand may ome from stratum abore - 77 1600 Green sand; clay 13 1667 Green, slightly calcareous sandy clay 16 1569 Fragments of green clay and sand; sand magnetite and silepting sand; clay 16 1569 Green, slightly calcareous sand; clay 19 1912 Green nonealcareous green sand; clay 17 1600 Fragments of foreign!) 26 1893 fluish-gray sand; gas 27 1600 Fragments of foreign!) 26 1893 fluish-gray sand; clay 19 1912 Green nonealcareous green sand; clay 19 1912 Green nonealcareous sandy clay 15 1927 Green nonealcareous sandy clay 15 1927 Green nonealcareous sandy clay 15 1927 Green nonealcareous sandy clay 15 1927 Green nonealcareous clay with small nodules of lime or forsil remains 11 1735 Fragment of limes or forsil remains 11 1735 Fragment of limes or forsil remains 12 1727 Green clay nonealcareous sandy clay 15 1927 Green nonealcareous clay with small fragment of limes or forsil remains 12 1727 Green clay nonealcareous sandy clay 15 1927 Green nonealcareous clay with small fragment of limes or forsil remains 12			<u> </u>			-
of blue argillaceous limestone; latter probably concretions — 14 1369 Greenish-gray fossiliferous non-calcareous clay — 2 1371 Green, slightly calcareous clay — 13 1384 Possiliferous narl; some quartz present — 5 1389 Romanisercus groon clay — - 5 1389 Romanisercus groon clay — - 14 1403 Greenish-gray non-calcareous clay; one fragment of light-gray non-calcareous clay; grains of quartz visible — - 3 1406 From lightly calcareous clay; grains of quartz visible — - 34 1440 Fragments of black magnetite, probably foreign— Green clay (?); one fragment of lightly calcareous clay (?); one fragment of lightly calcareous clay (?); one fragment of lightly calcareous clay (?); one fragment of lightly calcareous clay (?); one fragment of lightly calcareous clay (?); one fragment of lightly calcareous clay (?); one fragment of lightly calcareous clay independent of lightly calcareous clay independent of lightly calcareous clay independent of lightly sandy clay — - 13 1841 Green, slightly calcareous clay independent of lightly sandy clay — - 1600 Slightly calcareous clay with small nodules of lime or fossil romains — - 11 1728 Fragments of fossils and magnetite (foreign) — - 26 1893 Blush-gray calcareous sandy clay — - 15 1927 Green noncalcareous green sandy clay with small nodules of lime or fossil romains — - 11 1728 Fragment of lime clay — - 15 1927 Green slightly calcareous sandy clay with small nodules of lime or fossil romains — - 11 1728 Fragment of lime clay — - 15 1927 Green slightly calcareous clay with small nodules of lime or fossil romains — - 11 1728 Fragment of lime clay — - 15 1940 Bark-green cobspect non-calcareous clay — 44 1984				· ·		
limestone; latter probably conceretions	•					
magnetite 29 1767	-	នេ		•	1	
Screenish-gray Fossiliferous non-calcaroous clay- 2 1371 Screen, slightly calcarcous clay- 13 1384 Fossiliferous marl; Some quartz Freement 5 1389 Some quartz Some				· [—	29	1767
Greenish-gray fossiliferous non- calcareous clay- Careen, slightly calcareous clay- Cascareous clay- Cascare		_ 14	1360		20	1101
fossiliferous non- calcareous clay - 2 1371 Green, slightly calcareous olay - 13 1384 Possiliferous marl; some quartz present 5 1389 Noncalcareous green clay 14 1403 Greenish-gray non- calcareous clay; cone fragment of light-gray non- calcareous clay; grains of quartz yreshiferous marl with fragments of black magnetite, probably foreign - 31 1406 Fossiliferous marl with fragments of black magnetite and sand; sand pro- bably derived from the clay 18 1780 Bark-green non- calcareous clay - 17 1797 Fragments of growinish-white compact clay and derk-green clay, noncalcareous; fragments of fossils; some flakes of magnetite pro- bably derived from the clay 18 1797 Fragments of magnetite and sand; sand pro- bably derived from the clay 18 1797 Fragments of soils; some flakes of magnetite pro- bably derived from the clay 17 1797 Fragments of soils; some flakes of magnetite pro- bably derived from the clay 17 1797 Fragments of soils; some flakes of magnetite pro- bably derived from the clay 18 1797 Fragments of soils; some flakes of magnetite pro- bably derived from the clay 17 1797 Fragments of soils; some flakes of magnetite pro- bably derived from the clay 17 1797 Fragments of soils; some flakes of magnetite pro- bably derived from the clay 18 1797 Fragments of soils; some flakes of magnetite pro- bably derived from clay 31 1840 from casing; noted that these frag- ments of magnetite and sand; sand pro- bably derived from the clay 17 1797 Fragments of soils, noncalcareous clay, noncalcareous fragments of soils, noncalcareous fragments of fossils; some flakes of magnetite pro- bably derived from casing; noncalcareous fragments of fossils fragments of fossils some flakes of magnetite pro- bably derived from casing; noncalcareous fragments of soils fragments of fossils fragments of fossils sand magnetite sone slay: fragments of fossils fragments of fossils sand magnetite sone slay: fragments of magne	·- ·	_ 14	1303	.		
Green, slightly calcareous clay - 2 1371 fragments of magnetite and sand; sand probably derived from the clay 13 1384 Early Fossiliferous mark; some quartz present 5 1389 Sark-green non-calcareous clay; one fragment of light-gray non-calcareous clay; one fragment of light-gray non-calcareous clay; grains of quartz visible 34 1406 Fragments of green sandy clay 57 1528 Green noncalcareous clay (?); one fragment of black magnetite and and fragments of magnetite and sand; sand probably derived from the clay 13 1790 Eark-green clay and sand; green sand; gas - 24 1563 Eark-green clay 15 1828 Green, slightly calcareous and sand; gas - 24 1563 Eark-green clay and sand; gas					h	
Green, slightly calcarsous clay - 13 1384 Fossiliferous marl; some quartz present 5 1389 Noncalcarcous green clay 14 1403 Greenish-gray non- calcarcous clay; one fragment of light-gray non- calcarcous clay; grains of quartz visible 34 1406 Fossiliferous marl with fragments of black magnetite, probably foreign - 57 1528 Fossiliferous sand and fragments of magnetite and limonite 26 1554 Koncalcarcous green clay and sand; sand may ome from stratum above - 77 1600 Slightly calcarcous sandy clay with small nodules of lime or fossil remains 11 1738 and sand; sand pro- bably derived from the clay 13 1780 Bark-green non- calcarcous clay; oncalcarcous clay - 17 1797 Fragments of greenish-white compact clay and dark-green clay, noncalcarcous; fragments of fossils; some flakes of magnetite pro- bably derived from the clay 17 1797 Fragments of greenish-white compact clay and dark-green olay, noncalcarcous; fragments of fragments of fossil; some flakes of magnetite pro- bably derived from the clay 17 1797 Fragments of greenish-white compact clay and dark-green olay, noncalcarcous; fragments of fragments of fossil; some flakes of magnetite pro- bably derived from the clay 17 1797 Fragments of greenish-white compact clay and dark-green clay, noncalcarcous; fragments of fragments of magnetite arc always associated with frossil beds 31 1828 Green, slightly calcarcous end slightly sandy clay - 26 Green, slightly calcarcous clay with fragments of fossils and magnetite (foreign? 26 1897 Bluish-gray calcarcous sandy clay with a small fragment of lime- stone; probably concretionary - 15 1940 Dark-green compact non- calcarcous clay - 44 1984 Dark		- 2	1371		,	
Sesiliferous marl; some quartz present 5 1389	· ·	-		_		
Possiliferous marl;		- 13	1384	-		
Some quartz present 5 Noncalcarcous green clay 14 Greenish-gray non- calcarcous clay; one fragment of light-gray non- calcarcous sand- stone 3 From lightic sandy noncalcarcous clay; grains of quartz visible 34 Possiliferous marl with fragments of black magnetite, probably foreign- Green noncelcarcous clay (?); one frag- ment of lighitized wood (?) 57 Fossiliferous sand and fragments of magnetite and limonite 26 Singhtly celcarcous green sandy clay 5 Fragments of fossils fragments of magnetite and limonite 26 Singhtly celcarcous green sandy clay 5 Fragments of fossils and may come from stratum above - 77 Green noncalcarcous sandy clay with small nodules of lime or fossil remains 11 1738 Dark-green non- calcarcous clay - 17 Fragments of greenish-white compact clay and dark-green clay, noncalcarcous; fragments of greenish-white compact clay and dark-green lay, noncalcarcous; fragments of fossils; some flakes of magnetite pro- bably derived from casing; noted that these frag- ments of magnetite are always associated with fossil beds 31 Green, slightly celcarcous plastic clay 13 lease Green, slightly calcarcous clay with fragments of fossils and magnetite (foreign?) 26 lise7 Green noncalcarcous sandy clay 15 Green, slightly celcarcous sandy clay 19 light-green clay, noncalcarcous; fragments of fossils; some flakes of magnetite pro- bably derived from casing; noted that these frag- ments of magnetite are always associated with fossil beds 31 lease Green, slightly celcarcous plastic clay 13 lease Green, slightly celcarcous clay with fragments of fossils; and magnetite (foreign?) calcarcous sandy clay 19 light-green compact non- calcarcous clay - 44 light-green compact non- calcarcous clay - 44 light-green clay, noncalcarcous; fragments of fossils; fragments					13	1780
Noncalcarcous green clay 14 1403 Greenish-gray non- calcarcous clay; one fragment of light-gray non- calcarcous clay and dark-green clay, noncalcarcous; fragments of fossils; seme flakos of magnetite pro- bably derived from casing; noted that these frag- ments of magnetite are always associated with fossil beds 31 Green noncalcarcous clay (?); one frag- ment of lightized wood (?) 57 lossiliferous sand and fragments of magnetite and limonite 26 lightly calcarcous green clay and sand; sand may come from stream above - 77 loco Slightly calcarcous sandy clay 26 lightly calcarcous sandy clay 15 loco lightly calcarcous sandy clay 26 lightly calcarcous sandy clay 26 lightly calcarcous sandy clay 15 loco lightly calcarcous sandy clay 15 loco lightly calcarcous sandy clay 15 loco lightly calcarcous sandy clay 15 loco lightly calcarcous sandy clay 15 loco lightly calcarcous sandy clay 15 loco lightly calcarcous sandy clay 15 loco lightly calcarcous sandy clay 15 loco lightly calcarcous sandy clay 15 loco lightly calcarcous sandy clay 15 loco lightly calcarcous sandy clay 15 loco lightly sandy and slightly calcarcous clay with fragments of magnetite are always associated with fossil beds 31 local freen noncalcarcous sandy ally tly						
clay 14 1403 Greenish-gray non- calcarcous clay; one fragment of light-gray non- calcarcous sand- stone 3 1406 Brown lignitic sandy noncalcarcous; fragments of fossils; some flakes of magnetite pro- bably derived from casing; noted that these frag- ments of neglective, probably foreign- 31 1471 Green noncalcarcous clay (?); one frag- ment of lignitized wood (?) 57 Fossiliforous sand and fragments of magnetite and limonite 26 1554 Koncalcarcous green clay and sand; sand may come from stratum above 77 Slightly calcarcous sandy clay 5 Slightly calcarcous surgern sandy clay- 67 Green noncalcarcous sandy clay with small nodules of lime or fossil remains 11 1738 greenish-white compact clay and dark-green clay, noncalcarcous; fragments of fossils; some flakes of magnetite pro- bably derived from casing; noted that these frag- ments of magnetite are always associated with fossil beds 31 l828 Green, slightly calcarcous and slightly sandy clay- calcarcous clay with fragments of fossils and magnetite (foreign?) 26 l893 Bluish-gray calcarcous sandy clay with a small fragment of lime- stratum elove 77 l660 Sreen, slightly calcarcous sandy clay 16 Green, slightly calcarcous sandy clay 26 l893 Bluish-gray clay with a small fragment of lime- stone; probably concretionary - 13 Dark-green cimpact non- calcarcous clay - 44 l984	present	- 5	1389		17	1797
Greenish-gray non- oalcarcous clay; one fragment of light-gray non- oalcarcous sand- stone 3	Noncalcareous green			Fragments of		
calcareous clay; one fragment of light-gray non- calcareous sand- stone 3	,	- 14	1403	greenish-white		
one fragment of light-gray non- calcareous sand- stone 3	e v					
light-gray non- calcareous sand- stone 3)		
calcareous sand- stone 3 1406 Brown lignitic sandy noncalcareous clay; grains of quartz visible 34 1440 Fossiliferous marl with fragments of black magnetite, probably foreign - 31 1471 Green noncalcareous clay (?); one frag- mont of lignitized wood (?) 57 1528 Fossiliferous sand and fragments of magnetite and limonite 26 1554 Noncalcareous green sandy clay 5 1559 Gray sand; gas - 24 1583 Fragments of green clay and sand; sand may come from stratum above 77 1660 Slightly calcareous green noncalcareous green sandy clay - 67 1727 Green noncalcareous sandy clay with small nodules of lime or fossil remains 11 1738 fossils; some flakes of magnetite pro- bably derived from casing; noted that these frag- ments of magnetite are always associated with fossil beds 31 1828 Green, slightly calcareous plastic clay 13 1841 Green, slightly calcareous clay with fragments of fossils and magnetite (foreign?) 26 1893 Bluish-gray calcareous sandy clay 19 1912 Green calcareous sandy clay 15 1927 Green calcareous sandy clay 15 1927 Green, slightly calcareous sandy clay 19 1912 Green calcareous sandy clay 15 1927 Green, slightly calcareous sandy clay 19 1912 Green calcareous sandy clay 15 1927 Green, slightly calcareous sandy clay 19 1912 Green, slightly calcareous sandy clay 19 1912 Green calcareous sandy clay 15 1927 Green, slightly calcareous sandy clay 19 1912 Green calcareous sandy clay 15 1927 Green, slightly calcareous sandy clay 16 1893 Bluish-gray calcareous sandy clay with a small fragment of lime- stone; probably concretionary - 13 1940 Dark-green compact non- calcareous clay - 44 1984	9			1		
Stone 3				1		
Brown lignitic sandy noncalcareous clay; grains of quartz visible— 34 1440 Fossiliferous marl with fragments of black magnetite, probably foreign— 31 1471 Green noncalcareous clay(?); one fragment of lignitized wood(?) 57 1528 Fossiliferous sand and fragments of magnetite and limonite 26 1554 Noncelcareous green sandy clay 5 1559 Gray sand; gas 24 1583 Fragments of green clay and sand; sand may come from stratum above 77 1660 Slightly calcareous green sandy clay - 67 1727 Green noncalcareous green sandy clay interest of fragments of foreign?) 26 1893 Ruish-gray calcareous sandy clay 15 1927 Green noncalcareous green sandy clay 15 1927 Green noncalcareous green clay and sand; sand magnetite (foreign?) 26 1893 Ruish-gray calcareous sandy clay 15 1927 Green noncalcareous green sandy clay interest of fragment of lime-stone; probably concretionary - 13 1940 Dark-green compact non—calcareous clay - 44 1984						
noncalcareous clay; grains of quartz visible 34 1440 Fossiliferous marl with fragments of black magnetite, probably foreign- 31 1471 Green noncalcareous clay (?); one fragment of lightized wood (?) 57 1528 Fossiliferous sand and fragments of magnetite are always associated with fossil beds 31 1828 Green, slightly calcareous plastic clay 13 1841 Green, slightly calcareous and slightly sandy clay- 26 1867 Gray sand; gas 24 1583 Fragments of green clay and sand; sand may come from stratum above 77 1660 Slightly calcareous green sandy clay- 67 Green noncalcareous green sandy clay- 67 Green noncalcareous green sandy clay with small nodules of lime or fossil remains 11 1738 Tremains 11 1738 Bably derived from casing; noted that these frag-ments of magnetite are always associated with fossil beds 31 1828 Green, slightly calcareous and slightly calcareous clay with fragments of fossils and magnetite (foreign?) 26 1867 Green, slightly calcareous sandy clay 15 1927 Green calcareous sandy clay 15 1927 Green noncalcareous sandy clay 15 1927 Green slightly calcareous sandy clay 15 1927 Green sandy clay 15 1927 Green, slightly calcareous sandy clay 15 1927 Green calcareous sandy clay 15 1927 Green sightly calcareous sandy clay 15 1927 Green calcareous clay with small fragment of lime-stone; probably concretionary 13 1940 Dark-green compact non-calcareous clay - 44 1984		- 3	1406	† <u>\$</u>		
grains of quartz visible 34 Visible 31 Visible						
Fossiliferous marl with fragments of black magnetite, probably foreign - 31 1471 Green noncalcareous clay (?); one frag- ment of lignitized wood (?) 57 1528 Fossiliferous sand and fragments of magnetite and limonite 26 1554 Noncalcareous green sandy clay 5 1559 Gray sand; gas - 24 1583 Fragments of green clay and sand; sand may come from stratum above 77 1660 Slightly calcareous sandy clay with small nodules of lime or fossil remains 11 1738 That these frag- ments of magnetite are always associated with fossil beds 31 1828 Green, slightly calcareous plastic clay 13 1841 Green, slightly calcareous and slightly sandy clay- calcareous clay with fragments of fossils and magnetite (foreign') - 26 1893 Bluish-gray calcareous sandy clay 19 1912 Green noncalcareous sandy clay with small nodules of lime or fossil remains 11 1738 Dark-green compact non- calcareous clay - 44 1984	v			· •		
Fossiliferous marl with fragments of black magnetite, probably foreign - 31 1471 Green noncalcareous clay (?); one frag- ment of lignitized wood (?) 57 1528 Fossiliferous sand and fragments of magnetite and limonite 26 1554 Noncalcareous green sandy clay 5 1559 Gray sand; gas 24 1583 Gray and sand; sand may come from stratum above 77 1660 Slightly calcareous green sandy clay - 67 Green noncalcareous green sandy clay with small nodules of lime or fossil remains 11 1738 ments of magnetite are always associated with fossil beds 31 1828 Green, slightly calcareous plastic clay 13 1841 Green, slightly calcareous and slightly sandy clay- green, slightly calcareous and slightly sandy clay- sandy and slightly calcareous clay with fragments of fossils and magnetite are always associated with fossil beds 31 1828 Green, slightly calcareous and slightly sandy clay- calcareous clay with fragments of fossils and magnetite are always associated with fossil beds 31 1841 Green, slightly calcareous and slightly sandy clay- calcareous clay with fragments of fossils and magnetite (foreign?) 26 1893 Bluish-gray calcareous sandy clay 19 1912 Green calcareous sandy clay 15 1927 Green, slightly calcareous and slightly sandy clay- calcareous clay with fragments of fossils and magnetite (foreign?) 26 1893 Bluish-gray calcareous sandy clay 13 1940 Dark-green compact non- calcareous clay - 44 1984	-	77 A	3.40			
with fragments of black magnetite, probably foreign - 31 1471 Green noncalcareous clay (?); one fragment of lignitized wood (?) 57 1528 Fossiliferous sand and fragments of magnetite and limonite 26 1554 Noncalcareous green sandy clay 5 1559 Gray sand; gas 24 1583 Fragments of green clay and sand; sand may come from stratum above 77 1660 Slightly calcareous green sandy clay - 67 1727 Green noncalcareous sandy clay with small nodules of lime or foscil remains 11 1738 are always associated with fossil beds 31 1828 Green, slightly calcareous plastic clay 13 1841 Green, slightly calcareous and slightly sandy clay - 26 1867 Green, slightly sandy clay - 26 1867 Green, slightly calcareous clay with fragments of fossils and magnetite (foreign?) 26 1893 Bluish-gray calcareous sandy clay 19 1912 Green calcareous sandy clay 15 1927 Green noncalcareous sandy clay 15 1927 Green, slightly calcareous sandy calcareous sandy clay 19 1912 Green slightly calcareous sandy clay 15 1927 Green, slightly calcareous clay 15 1927 Green, slightly calcareous clay 15 1927 Green, slightly calcareous clay 15 1927 Green, slightly calcareous clay 15 1927 Green, slightly calcareous clay 15 1927 Green, slightly calcareous clay 15 1927 Green, slightly calcareous clay 15 1927 Green, slightly calcareous clay 15 1927 Green, slightly calcareous clay 15 1927 Green, slightly calcareous clay 15 1927 Green, slightly calcareous clay 15 1927 Green, slightly calcareous clay 15 1927 Green, slightly calcareous clay 15 1927		- 34	1440			
black magnetite, probably foreign - 31 1471 Green noncalcareous clay (?); one fragment of lignitized wood (?) 57 1528 Fossiliferous sand and fragments of magnetite and limonite 26 1554 Noncalcareous green sandy clay 5 1559 Gray sand; gas 24 1585 Fragments of green clay and sand; sand may come from stratum above 77 1660 Slightly calcareous sandy clay - 67 Green noncalcareous green sandy clay - 67 Green noncalcareous sandy clay 15 Green slightly calcareous clay with fragments of fossils and magnetite (foreign?) 26 1893 Bluish-gray calcareous sandy clay 19 1912 Green calcareous sandy clay 15 Green, slightly calcareous clay with fragment of lime-stone; probably concretionary - 13 1940 Dark-green compact non-calcareous clay - 44 1984				• •		
probably foreign - 31 1471 Green noncalcareous clay (?); one fragment of lignitized wood (?) 57 1528 Fossiliferous sand and fragments of magnetite and limonite 26 1554 Noncalcareous green sandy clay 5 1559 Gray sand; gas - 24 1583 Fragments of green clay and sand; sand may come from stratum above 77 1660 Slightly calcareous green sandy clay with small nodules of lime or fossil remains 11 1738 Fossilibeds 31 1828 Green, slightly calcareous and slightly calcareous and slightly sandy clay - 26 1867 Green, slightly calcareous clay with fragments of fossils and magnetite (foreign?) 26 1893 Bluish-gray calcareous sandy clay 19 1912 Green noncalcareous sandy clay 15 1927 Green noncalcareous clay with small nodules of lime or fossil remains 11 1738 Tragment of lime stone; probably concretionary - 13 1940 Dark-green compact non-calcareous clay - 44 1984	9					
Green noncalcareous clay (?); one frag- ment of lignitized wood (?) 57 Fossiliferous sand and fragments of magnetite and limonite 26 Noncalcareous green sandy clay 5 Gray sand; gas 24 Fragments of green clay and sand; sand may come from stratum above 77 Slightly calcareous green sandy clay 67 Green noncalcareous green sandy clay - 67 Green noncalcareous sandy clay with small nodules of lime or fossil remains 11 1738 Green, slightly calcareous and slightly sandy clay - 26 Green, slightly calcareous clay with fragments of fossils and magnetite (foreign!) 26 I893 Bluish-gray calcareous sandy clay 19 Green calcareous sandy clay 15 Green, slightly calcareous clay with calcareous sandy clay 19 Green calcareous sandy clay 15 Green, slightly calcareous sandy clay with a small fragment of lime- stone; probably concretionary 13 I940 Dark-green compact non- calcareous clay - 44 I984		- 31	1471		31	1828
clay (?); one fragment of lignitized wood (?) 57		01	1 111		01	1000
ment of lignitized wood (?) 57 Fossiliferous sand and fragments of magnetite and limonite 26 Noncalcareous green sandy clay 5 Gray sand; gas 24 Fragments of green clay and sand; sand may come from stratum above 77 Slightly calcareous sandy clay 67 Green noncalcareous green sandy clay - 67 Green noncalcareous sandy clay with small nodules of lime or fossil remains 11 1738 Clay 13 Clay 13 Creen, slightly calcareous and slightly calcareous clay with fragments of fossils and magnetite (foreign?) 26 Is93 Bluish-gray calcareous sandy clay 19 Green calcareous sandy clay 19 Green calcareous sandy clay 15 Green, slightly calcareous sandy clay 15 Green, slightly calcareous sandy clay with a small fragment of lime-stone; probably concretionary 13 Dark-green compact non-calcareous clay - 44 1984						
Fossiliferous sand and fragments of magnetite and limonite 26 Sandy clay 5 Gray sand; gas 24 Fragments of green clay and sand; sand may come from stratum above 77 Slightly calcareous green sandy clay - 67 Green noncalcareous sandy clay with small nodules of lime or fossil remains 11 1738 Green, slightly calcareous and slightly sandy clay - 26 Green, slightly calcareous clay with fragments of fossils and magnetite (foreign?) 26 Bluish-gray calcareous sandy clay 19 Green calcareous sandy clay 15 Green, slightly calcareous sandy clay 15 Green, slightly calcareous sandy clay 15 Green, slightly calcareous sandy clay 15 Green, slightly calcareous sandy clay 15 Green, slightly calcareous sandy clay 15 Green, slightly calcareous sandy clay 15 Green, slightly calcareous sandy clay 15 Green, slightly calcareous sandy clay 15 Green, slightly calcareous sandy clay 15 Green, slightly calcareous sandy clay 15 Green, slightly calcareous sandy clay 15 Green, slightly calcareous sandy clay 19 Green, slightly sandy and slightly sandy and slightly sandy and slightly sandy and slightly sandy and slightly sandy and slightly sandy and slightly sandy and slightly calcareous clay with fragments of fossils and magnetite (foreign?) 26 Bluish-gray calcareous sandy clay 19 Green, slightly calcareous sandy clay 19 Green, slightly sandy and slightly calcareous clay with fragments of fossils and magnetite (foreign?) 26 Bluish-gray calcareous sandy clay 19 Green, slightly sandy and self shill shill shill					13	1841
Fossiliferous sand and fragments of magnetite and limonite 26		- 57	1528			
magnetite and limonite 26	· · ·					
magnetite and limonite 26 l554 Noncalcareous green sandy clay 5 l559 Gray sand; gas 24 l583 Fragments of green clay and sand; sand may come from stratum above 77 l660 Slightly calcareous green sandy clay - 67 l727 Green noncalcareous sandy clay with small nodules of lime or fossil remains 11 l738 Green, slightly sandy and slightly calcareous clay with fragments of fossils and magnetite (foreign?) 26 l893 Bluish-gray calcareous sandy clay 19 l912 Green calcareous sandy clay 15 l927 Green, slightly calcareous sandy clay 15 l927 Green, slightly calcareous sandy clay with a small fragment of lime- stone; probably concretionary 13 l940 Dark-green compact non- calcareous clay - 44 l984	and fragments of			slightly sandy clay-	26	1867
Noncalcareous green sandy clay 5 Gray sand; gas 24 Fragments of green clay and sand; sand may come from stratum above 77 Slightly calcareous green sandy clay - 67 Green noncalcareous sandy clay with small nodules of lime or fossil remains 11 1738 calcareous clay with fragments of fossils and magnetite (foreign?) 26 1893 Bluish-gray calcareous sandy clay 19 Green calcareous sandy clay 15 Green, slightly calcareous sandy clay with a small fragment of lime- stone; probably concretionary 13 Dark-green compact non- calcareous clay - 44				Green, slightly		
sandy clay 5 Gray sand; gas 24 Fragments of green clay and sand; sand may come from stratum above 77 Slightly calcareous green sandy clay 67 Green noncalcareous sandy clay with small nodules of lime or fossil remains 11 1738 fragments of fossils and magnetite (foreign?) 26 Bluish-gray calcareous sandy clay 19 Green calcareous sandy clay 15 Green, slightly calcareous sandy clay with a small fragment of lime- stone; probably concretionary 13 Dark-green compact non- calcareous clay - 44 1984	limonite	- 26	1554			
Gray sand; gas 24 1583 and magnetite (foreign?) 26 1893 Slightly calcareous green sandy clay 67 1660 Green calcareous sandy clay 15 1927 Green noncalcareous sandy clay with small nodules of lime or fossil remains 11 1738 Stone; probably concretionary 13 1940 Dark-green compact non-calcareous clay - 44 1984	_				,	
Fragments of green clay and sand; sand may come from stratum above 77 1660 Slightly calcareous green sandy clay 67 1727 Green noncalcareous sandy clay with small nodules of lime or fossil remains 11 1738 Fragments of green (foreign?) 26 1893 Rluish-gray calcareous sandy clay 19 1912 Green calcareous sandy clay 15 1927 Green, slightly calcareous sandy clay with a small fragment of lime- stone; probably concretionary 13 1940 Dark-green compact non- calcareous clay - 44 1984	· ·		1	Û		
clay and sand; sand may come from stratum above 77		- 24	1583			
may come from stratum above 77 1660 calcareous sandy clay 19 1912 Slightly calcareous green sandy clay 67 1727 Green noncalcareous sandy clay with small nodules of lime or fossil remains 11 1738 1738 Tagment of lime- stone; probably concretionary 13 1940 Dark-green compact non- calcareous clay - 44 1984					26	1893
stratum above 77 1660 clay 19 1912 Slightly calcareous green sandy clay 67 1727 Green noncalcareous sandy clay with small nodules of lime or fossil remains 11 1738						
Slightly calcareous green sandy clay 67 Green noncalcareous sandy clay with small nodules of lime or fossil remains 11 1738 Green calcareous sandy clay 15 Green, slightly calcareous sandy clay with a small fragment of lime- stone; probably concretionary 13 Dark-green compact non- calcareous clay - 44 1984	-		3 000		30	7070
green sandy clay 67 Green noncalcareous sandy clay with small nodules of lime or fossil remains 11 1738 sandy clay 15 Green, slightly calcareous sandy clay with a small fragment of lime- stone; probably concretionary 13 Dark-green compact non- calcareous clay - 44 1984		- 77	1 660		19	1912
Green noncalcareous sandy clay with small nodules of lime or fossil remains 11 1738 Green, slightly calcareous sandy clay with a small fragment of lime- stone; probably concretionary 13 Dark-green compact non- calcareous clay - 44 1984	= '	OP.	3505	1 2	7.5	1007
sandy clay with small nodules of lime or fossil remains 11 1738 calcareous sandy clay with a small fragment of lime- stone; probably concretionary 13 Dark-green compact non- calcareous clay - 44 1984		- 67	1727		10	1361
small nodules of lime or fossil remains 11 1738 clay with a small fragment of lime- stone; probably concretionary 13 1940 Dark-green compact non- calcareous clay - 44 1984						
lime or fossil remains 11 1738 fragment of lime- stone; probably concretionary 13 Dark-green compact non- calcareous clay - 44 1984						
remains 11 1738 stone; probably concretionary 13 1940 Dark-green compact non-calcareous clay - 44 1984				· •		
concretionary 13 1940 Dark-green compact non- calcareous clay - 44 1984		_ 17	1772		-	
Dark-green compact non- calcareous clay - 44 1984	remains	- 11	T190		1.3	1940
calcareous clay - 44 1984				ľ	1	20,10
						1984
(a stranger and Transfer to the stranger to t			! '	,	xt page)	

	Thickness (feet)	Depth (feet)	I .	kness 'eet)	Depth (feet)
Log of well 4	continued	_	Log of well 4Co	ntinued	1
Greenish-gray non-			Slightly calcareous dark-green sandy	!	
calcareous sandy clay; sand			clay	29	2506
fine-grained - Dark-green non-	- 29	2013	Green noncalcareous sandy clay with		
calcareous hard	- 15	2028	probably a little glauconite	35	2541
Green calcareous; slightly sandy			Noncalcareous green glauconitic, very		
clay, specks of limonite and		•	sandy clay Green compact non-	29	2570
magnetite; frag- ments of fossils-	- 42	2070	calcareous clay Dark-green non-	27	2 59 7
Hard green non-			calcareous, slightly	6	2603
calcareous clay - Dark-green non- calcareous clay wit	- 56 h	2126	sandy clay Green noncalcareous glauconitic sandy	D	2003
some glauconite (?) Green calcareous		2213	clay Compact green non-	25	2628
friable fossili-	- 48	2261	calcareous clay - Green glauconitic	25	2653
ferous clay Gray calcareous fossiliferous sand,	- 40	2201	sandy clay with fragments of	77	0.60.4
fragments of limonite, pro-	0.4	800	lignite (?) Green noncalcareous slightly sandy	31	2684
bably foreign - Green plastic non- calcareous clay,	- 26	2 287	plastic clay Green sandy clay	10	2694
fossiliferous - Light-green sandy	- 34	2321	flecked with lime - Green compact non-	15	2709
calcarecus clay- Dark-green non- calcareous compact	- 36	2357	calcareous clay with one nodule of pyrite- Green glausonitic	8	2717
clay; breaks with hackly fracture- Dark-green non-	- 32	2389	fossiliferous slightly calcareous clay	167	2884
calcareous clay; breaks with sub- conchoidal			Green, slightly calcaroous glauconitic		
fracture Green fossiliferous	- 22	2411	fossiliferous clay - Green noncalcareous	9	2893
calcareous sand and sandy clay- Green noncalcareous	- 38	2449	sandy clay Green, slightly calcareous, slightly	87	2980
sandy clay with som	e - 28	2477	sandy clay (Continued on next	127 page)	3107
9	~ 0				1

-14Log of well in Live Cak County --Continued

	Thickness (feet)	Depth (feet)	Thickness (feet)	Dapth (feet)
Log of well 4	Continued		Log of well 4Continue	ed
Green sandy clay,			Fossiliferous dark-	
calcareous in spots	- 12	3119	green clay; con-	
Green sandy clay; some			tains Foraminifera,	
fragments are			Turbinolia pharetra,	
highly calcareous	- 13	3132	Marginella some-	
Dark-green, flaky			noides, Neverita	
noncalcareous clay	- 35	3167	arata, Corbula	
Dark-green non-			gregorioi,	
calcareous tough,			Venericardia sp.,	•
plastic clay	- 48	3215	(typical lower	
Fossiliferous dark-			Claiborne fauna) 181	3460
green clay; breaks			Dark slate-colored	
into small fragments	- 47	3262	clay with pieces of	
Gray, very slightly			dark-green clay;	
calcareous sand, con	-		brittle and breaks	7.100
sisting chiefly of			into small fragments- 32	3492
subangular quartz			Noncalcareous gray	2515
grains; some pieces	3.6	5 650	quartzitic sand 25	3517
of magnetite	- 17	3279	Slightly calcareous	255
			dark-green clay 40	3557
			TOTAL DEPTH	1 3557

Analyses of water from wells in Live Oak County, Texas

Analyzed by E. W. Lohr, United States Department of the Interior, Geological Survey. (Parts per million. Well numbers correspond to numbers in tables of well records.)

	(Pa	arts p	er million. W	ell numbers	corres	pona c	O HOMBE	rs in var	77 03 O1 1	VOLL I	000200		T	
		Depth	Date	Total		Cal-	Magne-	Sodium	Bicar-			Fluor-	Ni-	Total
No.	Owner	$\circ \mathbf{f}$	of	dissolved	Iron	cium	sium	(Na)	bonate			ide	trate	hardness
		well	collection	solids	(ppt.)	(Ca)	(Mg)	(calc.)	(HCO ₃)	(SO ₄)	(Cl)	(F)	(NO_3)	as CaCO3
		(ft.)							_					(calc.)
11	City of Three	50	Aug. 16, 1940	714		154	12	86	480	47	127	.2	.0	434
	Rivers													
21	Wilson Estate	83	do.	435	***	82	8.6	57	206	105	59	•5	.0	340
34	Mrs. M. A.	150	do .	1,261	***	172	47	180	336	115	435	• 4	6.0	623
	Goodwin													
53	George West	500	do.	1,219	~-	69	20	349	356	326	268	•9	.0	254
	Uti liti es			•										
55	do.	89	do.	908	•••	72	26	209	320	86	270	. 3	9.0	287
56	S.E.Norris	185	do,	701	***	46	11	201	340	75	168	.5	2.0	160
59	W.R.Lyne	140	do.	690	,34	31	11	218	396	64	145	•3	.0	123
61	J.O.Hendrick	162	do.	1,980	6.5	194	50	404	188	97	930	•6	~ ~	690
63	John Dunn	254	do.	1,342	-	50	14	426	192	154	560	. 4	-	182
65	M. L. Kendall	193	do.	777	2.5	46	13	241	326	48	260	.8	8.4	168
71	Hall Brothers	250	do.	912	1.1	69	23	231	322	50	320	1.0		267
94	J.R.McGuffin	75	do.	1,052	.73	148	40	150	276	86	385	.7		534
105	J. E. Curlee	150	do.	596		73	16	113	330	31	130	1.2	6.2	248

-15-

