

TEXAS BOARD OF WATER ENGINEERS

E. V. Spence, Chairman
John W. Pritchett, Member
H. A. Beckwith, Member

**GROUND WATER IN NORTHWESTERN
NOLAN COUNTY, TEXAS**

Records of wells, driller's log, water analyses,
and map showing locations of wells

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

June 1947

Reprinted August 1953

Ground water in northwestern Nolan County, Texas

By

Doyle B. Knowles

June 1947

During the summer of 1946 a reconnaissance investigation of ground-water development was made by the writer in the northwestern part of Nolan County as part of the State-wide investigations of the ground-water resources of Texas.

A thin mantle of the Ogallala formation of Tertiary age covers most of the area. These deposits are only a few feet thick and most of the wells obtain water from underlying sands and sandstone of Cretaceous and Triassic age. The Triassic rocks are underlain by shales and clays of Permian age, which crop out in the vicinity of Sweetwater, and as a rule yield meager supplies of highly mineralized water.

This report includes records of 29 wells, the driller's log of well 13, and preliminary chemical analyses of water from 18 wells in the northwestern part of the county. Figure 1 shows the approximate locations of all these wells, together with the unused well fields of the city of Sweetwater and the Gulf Refining Company.

For some time prior to the construction of the reservoir known as Lake Sweetwater, the city of Sweetwater operated 13 wells about $4\frac{1}{2}$ miles south of Roscoe to supplement its supply from Lake Trammel. It is reported that these wells had an average depth of about 167 feet, an average static water level of about 120 feet below the land surface, and a yield of about 100 gallons a minute each.

The Gulf Refining Company formerly obtained water for its Sweetwater refinery from 10 wells about 3 miles south of Roscoe. It is reported that these wells ranged in depth from 225 to 250 feet, and that they had an average yield of about 85 gallons a minute each when first put in operation but less than 50 gallons a minute when they were abandoned.

Wells 16 and 17, from which the city of Roscoe obtains its water supply, are about 170 feet deep. The wells are said to yield about 20 gallons a minute and 135 gallons a minute, respectively.

Records of wells in northwestern Nolan County, Texas
 All wells are drilled unless noted in remarks column

Well	Distance from Roscoe	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)
1	7½ miles northwest	J. C. Hardin	W. A. Webb	1942	55	5½
2	6½ miles northwest	Pete Ethridge	--	Old	170	5
3	4½ miles north	Leon Davis	--	--	220	6
4	4 miles northwest	Joe Hendricks	--	Old	139	--
5	6 miles west	E. W. Wiman	Olin House	1945	220	6
6	3 miles northwest	B. O. Wilkins	--	Old	131	6
7	2 miles north	P. A. Smith	--	Old	152	6
8	2½ miles northeast	Albert Monroe	Grady Hudson	1944	336	5
9	4 miles west	Mrs. Annie Jobe	--	--	170	--
10	6 miles west	T. J. Rannefeld	--	Old	218	6
11	4 miles west	Jess L. Smith	--	1925	150	5
12	In Roscoe	R.S. & P. R. R.	Nix and Nordyke	1926	143	5-5/8
13	do.	City of Roscoe	Olin House	1946	180	8
14	do.	do.	--	--	182	10
15	do.	do.	--	--	145	8
16	do.	do.	Jack Stewart	1944	170	8
17	do.	do.	--Nix	1930	172	10
18	4 miles west	R. E. Sauer	--	--	200	6
19	7 miles west	Laura Altof	Bill Wilkerson	1935	253	5
20	2½ miles southwest	O. J. Blocker, Sr.	-- Tyler	1909	160	6
21	4 miles southwest	Gulf Refining Company, Pipeline Division	--	1927	254	8
22	do.	do.	--	1927	254	8
23	6½ miles southwest	S. H. Garrett	--	--	100	5

a/ C, cylinder; T, turbine; W, windmill, E, electric; G, gasoline. Number indicates horsepower.

Well	WATER LEVEL		Method of lift a/	Use of water b/	Remarks
	Below land surface (ft.)	Date of measurement			
1	46.00	July 2, 1946	C,W	N	Casing: 5½-inch. Water reported unfit for domestic use.
2	144.01	do.	C,W	D,S	
3	166.42	July 5, 1946	C,W	S	Casing: 6-inch.
4	120.28	July 2, 1946	C,W,	D,S	
5	177.84	July 1, 1946	C,W	D,S	Casing: 6-inch.
6	49.31	July 2, 1946	C,W	D,S	
7	130.63	July 5, 1946	C,W,	D,S	
8	270	Reported 1944	C,W	D,S	
9	140.51	July 1, 1946	C,W	D,S	
10	201.64	do.	C,W	D,S	
11	118.81	do.	C,W,	D,S	Casing: 5-inch.
12	94.32	July 2, 1946	C,E, ¾	Ind.	Casing: 5-5/8-Inch. Well used in emergencies.
13	88.38	June 25, 1946	None	N	Casing: 8-inch. Well not developed in June 1946. See log.
14	93.55	July 5, 1946	None	N	Casing: 10-inch.
15	--	--	None	N	Casing: 8-inch to 30 feet. Ten feet south from well 14.
16	--	--	T,E, 5	P	Casing: 8-inch to 30 feet. Pump set at 140 feet, 4-inch column. Reported yield, 15 to 20 gallons a minute in June 1946.
17	125	Reported 1930	T,E,	P	Casing: 10-inch to 60 feet. Pump set at 140 feet, 4-inch column. Reported yield, 135 gallons a minute in June 1946.
18	162.19	July 1, 1946	C,W	D,S	
19	156.22	do.	C,W	D,S	Casing: 5-inch.
20	139.55	do.	C,W,E 1	D,S	Casing: 6-inch.
21	--	--	C,E, 5	D,Ind	Casing: 8-inch to 215 feet. Estimated yield, 15 gallons a minute in July 1946.
22	--	--	C,E 5	D,Ind	Casing: 8 inch to 215 feet. About 150 feet east from well 21.
23	40	June 1946	C,E, ½	D,S	Reported yield, about 3 gallons a minute in July 1946.

b/ D, domestic; S, stock, P, public supply; Ind, industrial; Irr, irrigation; N, not used.

Records of wells in northwestern Nolan County--Continued

Well	Distance from Roscoe	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)
24	4 miles south	Miss Maurine Horton	---	1941	145	6
25	6 $\frac{1}{2}$ miles southwest	J. R. Hawkins	--	1944	114	5
26	8 miles southwest	E. O. Mahon	--	--	100	4
27	9 miles southwest	do.	--Nordyke	1923	90	5
28	8 miles southwest	E. A. Cothephens	E. A. Cothephens	1944	110	8
29	6 miles south	Lewis Graham	Arthur Nix	1925	111	5

a/ C, cylinder; T, turbine; W, windmill; E, electric; G, gasoline. Number indicates horsepower.

Well	WATER LEVEL		Method of lift <u>a/</u>	Use of water <u>b/</u>	Remarks
	Below land surface (ft.)	Date of measurement			
24	120.39	July 1, 1946	C,W	D,S	
25	47.71	July 28, 1946	C,W	D,S	Casing: 5-inch. Reported first water at 19 feet. cased off; second water
26	61.72	do.	C,W	D,	Casing: 4-inch. at 90 feet.
27	66.06	do.	C,W	D,S	Casing: 5-inch.
28	22.07	July 5, 1946	C,W,G, --	Irr	Casing: 8-inch. Reported yield, 50 gallons a minute in 1944. Irrigates 2
29	76.26	July 1, 1946	C,W	D,S	Casing: 5-inch. acres.

b/ D, domestic; S, stock; P, public supply; Ind, industrial; Irr, irrigation; N, not used.

Driller's log

Well 13

City of Roscoe

	Thickness (feet)	Depth (feet)
Top soil	2	2
Caliche	10	12
Sandstone	8	20
Red sandy clay	24	44
Sandstone	51	95
Water sand and gravel	6	101
Sandstone	27	128
Sand and gravel (water?)	5	133
Sandstone	33	166
Red shale	14	180

Preliminary analyses of water from wells in northwestern Nolan County, Texas

(Results are in parts per million)

Well	Owner	Depth of well (ft.)	Date of collection	Bicar-bonate (HCO ₃)	Sul-fate (SO ₄)	Chlo-ride (Cl)	Ni-trate (NO ₃)	Total hardness as CaCO ₃ (calc.)
4	Joe Hendricks	139	July 2, 1946	284	65	52	5.5	285
5	E. W. Wiman	220	July 1, 1946	194	120	37	-	285
6	B. O. Wilkins	131	July 2, 1946	288	120	526	39	968
9	Mrs. Annie Jobe	170	July 1, 1946	322	46	36	-	300
10	T. J. Rannefeld	218	July 1, 1946	196	130	28	-	315
11	Jess L. Smith	150	July 1, 1946	200	60	34	2.0	285
12	R. S. & P.R.R.Co.	143	July 2, 1946	242	120	101	0.0	248
16	City of Roscoe	170	June 20, 1946	230	55	60	16	248
18	R. E. Sauer	200	July 1, 1946	308	50	26	-	225
19	Laura Altof	253	July 1, 1946	163	45	46	-	210
20	O. J. Blocker, Sr.	160	July 1, 1946	138	25	35	-	210
21	Gulf Refining Co. Pipe Line Division	254	July 1, 1946	164	22	26	8.0	180
23	S. H. Garrett	100	July 1, 1946	206	24	50	9.8	308
24	Miss Maurine Horton	145	July 1, 1946	238	25	31	8.0	225
25	J. R. Hawkins	114	June 28, 1946	405	85	137	96	652
26	E. O. Mahon	100	June 28, 1946	154	36	105	1.5	292
28	E. A. Cothephens	110	July 5, 1946	292	120	328	84	675
29	Lewis Graham	111	July 1, 1946	270	24	29	9.4	240

