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BULLETIN 5210

GROUND-WATER RESOURCES OF ECTOR COUNTY, TEXAS

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ABSTRACT

The rock formations in Ector County that are of significance in relation to the occurrence of ground water include, from older to younger, those of the Permian system, the Dockum group of the Triassic system, the Trinity and Fredericksburg groups of the Cretaceous system, the Ogallala formation of the Tertiary system, and alluvium of the Quaternary system.

The Permian rocks generally contain only highly mineralized water. Sands and sandstones of Triassic age in general contain water of undesirable quality, although small quantities obtained from these rocks in the southwestern part of the county are used for domestic purposes. The sand of the Trinity group is the most important water-bearing formation in the county.

Water in the sand of the Trinity group occurs under water-table conditions in Ector County, and yields of wells are generally proportional to the thickness of the saturated sand. The saturated part of the sand is thin in the vicinity of Concho Bluff but thickens northeastward.

The City of Odessa operates two well fields containing a total of 72 wells that draw water from the sand of the Trinity group. The pumpage from these wells averaged 2,901,000 gallons a day in 1949. The wells are closely spaced, and, when heavily pumped, mutual interference among them results in considerable increase in the pumping lift and decrease in the yield.

The well field north of Odessa contains 66 wells. Near the center of the field the water level declined about 26 feet from September 1947 to December 1949. It is estimated that more than 14 percent of the saturated material in the well field was unwatered between the spring of 1944, when the first wells were drilled, and December 1949. The yields of some of the wells have decreased considerably.

It is believed that wells drilled in an area a few miles northeast of the Odessa well field might yield considerably more water than the present wells.

Most of the formations of the Fredericksburg group, and the Ogallala formation lie above the water table and, therefore, yield little or no water to wells. The Quaternary alluvium covers that part of the county southwest of Concho Bluff and lies directly on Triassic rocks. In the extreme northeastern part of Ector County and in northwestern Midland County, four irrigation wells that probably draw water from refilled channels of ancient Midland Draw have yields reported to range from 400 to 800 gallons a minute.

INTRODUCTION

LOCATION

Ector County is in the western part of the Midland Basin in west Texas near the southeast corner of New Mexico. It is bounded on the north by Andrews County, on the east by Midland County, on the south by Upton, Crane, and Ward Counties, and on the west by Winkler County. The intersection of longitude $102^{\circ}30'$ and latitude $31^{\circ}50'$ is near the middle of the county. The county has an area of 907 square miles. According to the United States Bureau of the Census, the population in 1950 was 42,102, of which 29,432 (70%) resided in Odessa, the county seat.

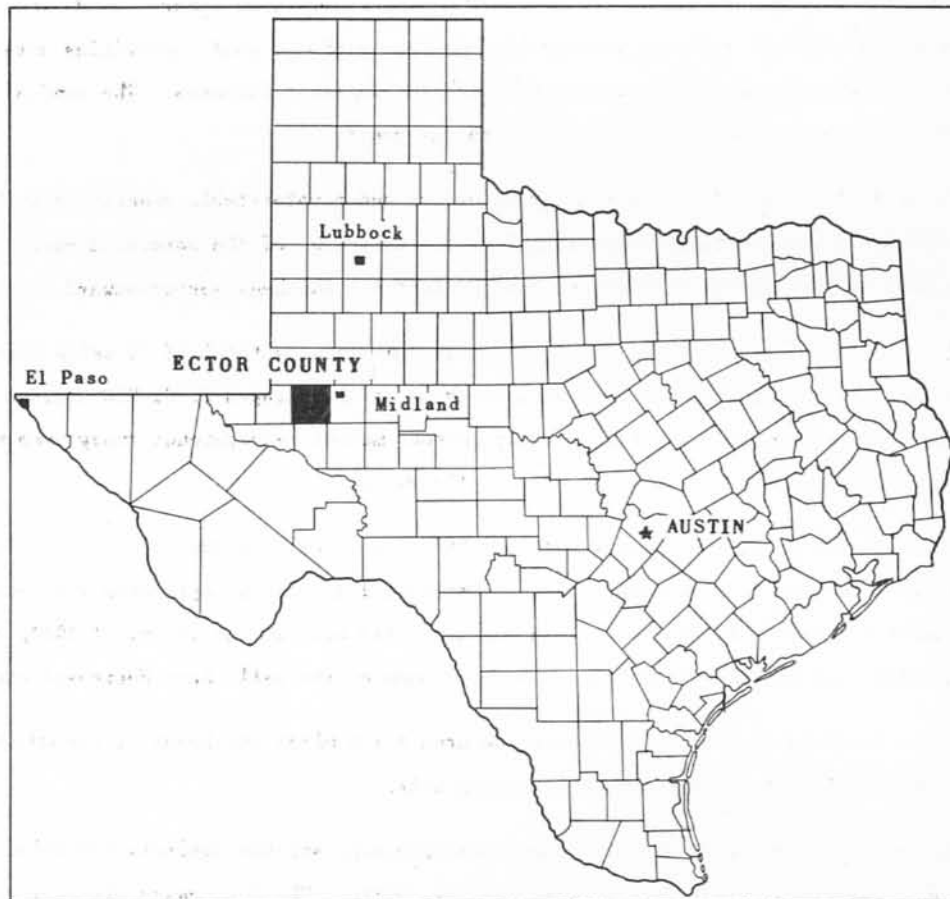


FIGURE 1.- Index map of Texas showing location of Ector County.

PREVIOUS INVESTIGATION

An inventory of water wells in Ector County was made in 1937 (Davis, 1937),^{1/} at which time the depths, diameters, depths to water, use of water, and other records were obtained. Samples of water were collected from many of the wells for chemical analysis.

PURPOSE AND SCOPE OF THIS INVESTIGATION

The investigation of the ground-water resources of Ector County was begun in the fall of 1947 as a part of the State-wide cooperative program by the Texas Board of Water Engineers and the United States Geological Survey. It was interrupted several times by work relating to other projects and was not completed until 1949. The purpose of the investigation was to obtain basic data relating to the quantity and quality of the ground water available in Ector County, with special reference to the availability of large supplies for municipal or other large-scale use.

The report includes a part of the records collected by Davis in 1937 and the data obtained during the present investigation. It includes records of 419 wells, drillers' logs of 188 wells, and chemical analyses of water from 171 wells. The locations of these wells are shown on plate 1. Logs and surface altitudes of several hundred seismograph shot holes and a few water wells were used to contour the surface of the redbeds of the Dockum group (pl. 2).

The work was done under the general direction of A. N. Sayre, chief of the Ground Water Branch, U. S. Geological Survey and under the supervision of W. L. Broadhurst, district geologist in charge of ground-water work in Texas.

AGRICULTURAL AND INDUSTRIAL DEVELOPMENT

Agriculture is limited primarily to the raising of cattle and sheep in Ector County. The U. S. Department of Agriculture reported that 13,304 cattle, 2,150 sheep, and small numbers of other livestock were raised in 1945. Only 1,410 acres of land, planted mostly in grain sorghum and truck crops, were tilled in 1944.

Ector County which produced 48,317,906 barrels of oil in 1949, ranked second in Texas oil production that year. The total produced in the county from 1926, when oil was discovered, through 1949 was 402,703,893 barrels. Other major industries include the production or manufacture of carbon black, gasoline, and oil-field supplies and equipment.

ACKNOWLEDGMENTS

The writer thanks the many persons who contributed information for this report. Representatives of oil companies furnished logs of the several hundred seismograph shot holes which were used in the preparation of plate 2. The City of Odessa determined altitudes of many water wells that were used in preparing figure 5 and assisted in other ways during the investigation. Special thanks are due A. L. Wright, municipal water superintendent, for his assistance and cordial cooperation during the investigation. The owners of private wells contributed much of the well information in this report.

^{1/} See list of references, page 22..

TOPOGRAPHY

Ector County lies at the southern end of the High Plains. The land surface is broken by a prominent westward-facing escarpment, known as Concho Bluff, which extends southeastward across the western part of the county. (See pl. 1.) Concho Bluff owes its prominence to the erosion-resistant caliche, limestone, and sandstone exposed along its face.

The eastern part of the county, which is on the Plains, is generally rolling. Many small depressions and some shallow draws are present. Midland Draw and Monahans Draw, which flow southeast are the most prominent drainageways but carry water only after heavy rains. Much of the storm runoff collects in the numerous depressions to form ponds, which range from 5 to 40 feet in depth, and from a few hundred feet up to about a mile in diameter.

An undulating alluvial plain lies west of Concho Bluff. It is broken by sand hills along the western county boundary, where dune topography is prevalent. Many small gullies head along Concho Bluff, but elsewhere in the area only a few shallow draws, which drain southwestward, are present. The loose material composing the plain absorbs most of the rain; therefore, it has not been extensively eroded by surface runoff.

PRECIPITATION

The average annual rainfall in Texas decreases from east to west. Ector County is in the semiarid part of the State. No precipitation station is maintained in the county, but the records from a U. S. Weather Bureau station at Midland, about 20 miles northeast of Odessa, show that the minimum yearly rainfall during the period of record was 5.52 inches in 1917 and the maximum was 29.34 inches in 1920. The average precipitation for 31 years of complete record during the period 1885-1950 was 16.35 inches. It is estimated that the average annual rainfall in Ector County is about 15 to 16 inches.

The available records of rainfall at Midland, compiled from reports of the U. S. Weather Bureau, are given in the following table.

Table 1.- Monthly precipitation, in inches, at Midland, Midland County, Tex., 1885-1950

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
1885	-	-	-	-	-	-	-	-	-	-	0.01	0.15	-
1886	0.02	0.33	0.43	0.29	0.10	1.42	0.43	2.02	1.47	0.76	.00	.00	7.27
1887	T	T	T	1.10	-	1.51	1.07	1.21	.25	2.15	.00	.90	-
1888	.47	-	-	-	-	-	-	-	-	-	-	-	-
1891	-	-	-	.22	2.52	-	-	3.00	6.20	-	-	-	-
1894	-	-	-	-	2.25	.85	.60	.97	1.40	.32	.00	.30	-
1895	.70	1.40	.00	.00	4.90	2.89	3.58	1.69	2.45	.60	1.70	1.00	20.91
1896	2.05	2.10	.00	.00	1.04	-	-	-	-	-	-	-	-
1897	-	-	-	.00	4.55	1.71	2.28	2.86	1.14	.04	.00	-	-
1898	.00	-	-	1.20	-	-	-	2.60	-	-	-	-	-
1904	.22	T	.00	.56	2.65	3.95	.25	.50	2.95	.62	1.90	.05	13.65
1909	-	-	-	-	-	-	1.25	.18	.18	.49	1.48	.32	-
1910	.00	.00	.00	.00	.60	.83	.73	.28	3.35	1.20	.08	.06	7.13
1911	.70	2.90	.40	3.67	6.00	.50	3.15	.32	1.25	.10	.06	3.06	22.11
1912	1.00	1.31	.10	.29	7.34	.79	.70	1.07	1.20	.89	.85	.85	16.39
1913	T	.23	1.00	2.07	.27	3.81	1.27	1.32	4.68	2.60	4.49	2.67	24.41
1914	.24	.10	.30	.29	2.72	6.68	3.71	3.39	2.16	3.71	1.58	1.40	26.28
1915	.26	.47	.46	5.20	.55	.23	3.51	1.62	3.08	.10	.00	.83	16.31
1916	.03	.00	.27	2.85	.36	.83	3.65	.05	2.42	2.45	.45	.05	13.41
1917	.18	.00	.00	.83	.20	1.32	.45	1.79	.60	.00	.15	.00	5.52
1918	.57	.92	.15	.00	1.78	2.86	.10	1.42	1.35	1.84	1.03	.63	12.65
1919	.45	.00	3.58	.92	.85	2.12	.10	2.05	5.79	4.39	.65	.00	20.90
1920	2.68	.18	T	.08	3.13	1.63	3.56	13.03	.70	1.70	2.50	.15	29.34
1921	.00	1.80	.44	.20	1.12	1.92	.00	1.41	2.51	.49	.00	.00	9.89
1922	.56	.10	.62	9.77	1.90	1.44	.00	.50	.00	1.16	.85	.00	16.90
1923	.39	4.19	2.33	.97	.15	.72	1.95	1.23	.82	3.04	.69	1.19	17.67
1924	T	.75	.64	.97	2.89	.00	.51	2.71	.48	.83	.00	.20	9.98
1925	.45	.00	T	3.17	3.16	.62	2.06	3.54	2.12	1.87	.00	.00	16.99
1926	.87	.22	2.49	4.20	1.33	3.04	1.84	.67	1.43	5.13	.04	1.95	23.21
1927	.16	.64	.57	T	.36	1.63	2.15	.82	2.41	.61	.00	.52	9.87
1928	.00	.24	.34	2.82	4.87	2.75	1.35	3.50	.82	2.38	.42	.45	19.94
1929	.13	1.39	2.40	.04	1.99	.75	1.90	.15	4.78	3.04	.35	.00	16.92
1930	.85	.00	.11	1.29	1.13	5.95	.06	4.24	.51	1.59	1.87	.78	18.38
1931	.89	1.32	.78	3.52	.58	.67	2.01	1.14	.02	4.78	1.65	2.41	19.77
1932	.61	3.71	.16	3.29	5.48	2.31	.41	1.61	7.26	.97	.00	3.51	29.32
1933	T	.88	.00	T	.06	.33	.96	1.59	1.74	.29	.51	.22	6.58
1935	-	-	.22	.54	2.62	2.39	2.63	.07	3.26	1.79	.94	.26	-
1936	.10	T	.40	.90	3.21	1.00	6.18	.00	6.47	1.14	.51	.52	20.43
1937	.30	.06	1.08	.60	-	-	-	-	-	-	-	1.09	-
1938	1.14	1.34	.14	.06	-	-	-	-	-	-	-	-	-
1944	.20	1.20	.00	.20	1.38	1.60	2.22	2.96	2.19	1.08	1.86	.89	15.78
1945	1.33	.11	1.00	.00	T	.42	5.30	.00	.50	-	.00	.33	-
1946	.97	.00	.00	T	.12	1.49	.00	1.81	1.96	1.43	.00	.56	8.34
1947	.51	.00	1.60	.00	1.85	1.09	.95	.50	.91	1.78	.93	.62	10.74
1948	-	-	-	-	-	2.00	3.41	.27	.83	1.68	T	.20	-
1949	-	-	-	1.90	3.12	-	1.11	2.68	1.44	1.61	T	.73	-
1950	.57	.20	.03	.79	3.35	1.30	1.84	.69	-	-	.00	T	-
Avg.	.50	.76	.58	1.30	2.11	1.77	1.73	1.75	2.13	1.60	.67	.70	16.35
Years of complete record	39	37	38	42	39	38	40	42	40	38	41	41	31

T, trace.

GENERAL GEOLOGY

The geologic formations that crop out in Ector County range in age from Cretaceous to Recent. The following table lists the principal subdivisions, their chief composition, and their water-bearing properties. Those listed below the Cretaceous do not crop out but are penetrated by some wells.

Table 2.- Water-bearing formations in Ector County, Tex.

System	Subdivision	Character of rocks	Thickness (feet)	Water supply	Remarks
Quaternary	Pleistocene and Recent	Caliche, sand, gravel, and clay	0-125	Yields only small quantities of water to wells except in Midland and Monahans Draws where valley fill of possible Pleistocene age yields large quantities of water to a few wells	Lies directly on Triassic rocks southwest of Concho Bluff
Tertiary	Pliocene (Ogallala formation)	Caliche, sandy clay, and sand	0-60	Yields meager quantities of water to wells	In general lies above the water table
Cretaceous	Fredericksburg group	Clay, limestone, and shell aggregate	0-75	Yields meager quantities of water to wells	In general lies above the water table
	Trinity group	Clay, fine-to medium-grained sand, and gravel	0-125	Generally yields moderate quantities of water to wells, except near Concho Bluff	Principal source of water in Ector County
Triassic	Dockum group	Red shale interbedded with sandstone and conglomerate	700-1,600	Generally contains highly mineralized water. In places in southwestern Ector County it yields small quantities of potable water to wells	Commonly known as redbeds
Permian	Undifferentiated	Rock salt, anhydrite, red shale, sandstone, limestone, and conglomerate	5,000+	No wells draw from these rocks; water in them probably is highly mineralized	

GEOLOGIC STRUCTURE

Ector County lies in the southern part of the large structural Permian Basin or geosyncline that covers much of western Texas, eastern New Mexico, and parts of Oklahoma and Kansas. A south-trending structural "high," to which Cartwright (1930, p. 970) applied the name Central Basin Platform, lies in the southern part of the basin. This platform, which has a width of 30 to 35 miles and a length of at least 150 miles, divides the southern Permian Basin into two sub-basins, the Delaware Basin to the west and the Midland Basin to the east. Ector County lies in the extreme western part of the Midland Basin. The rocks of Cretaceous age and younger are nearly flat, but the older rocks show complex structural features at depth.

The ground-water reservoirs that contain usable water lie above the Permian rocks. Two geologic sections (fig. 2, A-A', and B-B') show the structure on the top of the Permian salt and the top of the Triassic rocks. These cross sections are from sample logs of oil tests furnished by oil companies; the drillers' logs of these oil tests are given in table 5.

GEOLOGIC FORMATIONS AND THEIR WATER-BEARING PROPERTIES

PERMIAN SYSTEM

The rocks of the Permian system are not exposed in Ector County but have been encountered in drilling for oil. Oil is produced from several zones in the Permian rocks within the county. The total thickness of these rocks is more than 5,000 feet. The upper Permian rocks closely resemble the overlying Triassic rocks, and the contact between the two systems is not always distinguishable from drillers' logs. However, the deep maroon color characteristic of the Triassic shales is rare in the Permian.

No wells were found in the county that draw water from the Permian rocks, but on the basis of the water found in them in other counties, it is believed that the water contained in these rocks is highly mineralized.

TRIASSIC SYSTEM

DOCKUM GROUP

The Triassic system is represented by rocks of the Dockum group. According to the geologic map of Texas (U. S. Geol. Survey, 1937), rocks of the Dockum group are not exposed in Ector County, but they are generally encountered beneath the surface at depths of less than 200 feet. They lie unconformably upon the uneven and eroded surface of the Permian rocks and range in thickness from about 700 to 1,600 feet. The group consists chiefly of variegated shale interbedded with sandstone and conglomerate. The most persistent beds of sandstone and conglomerate occur near the base.

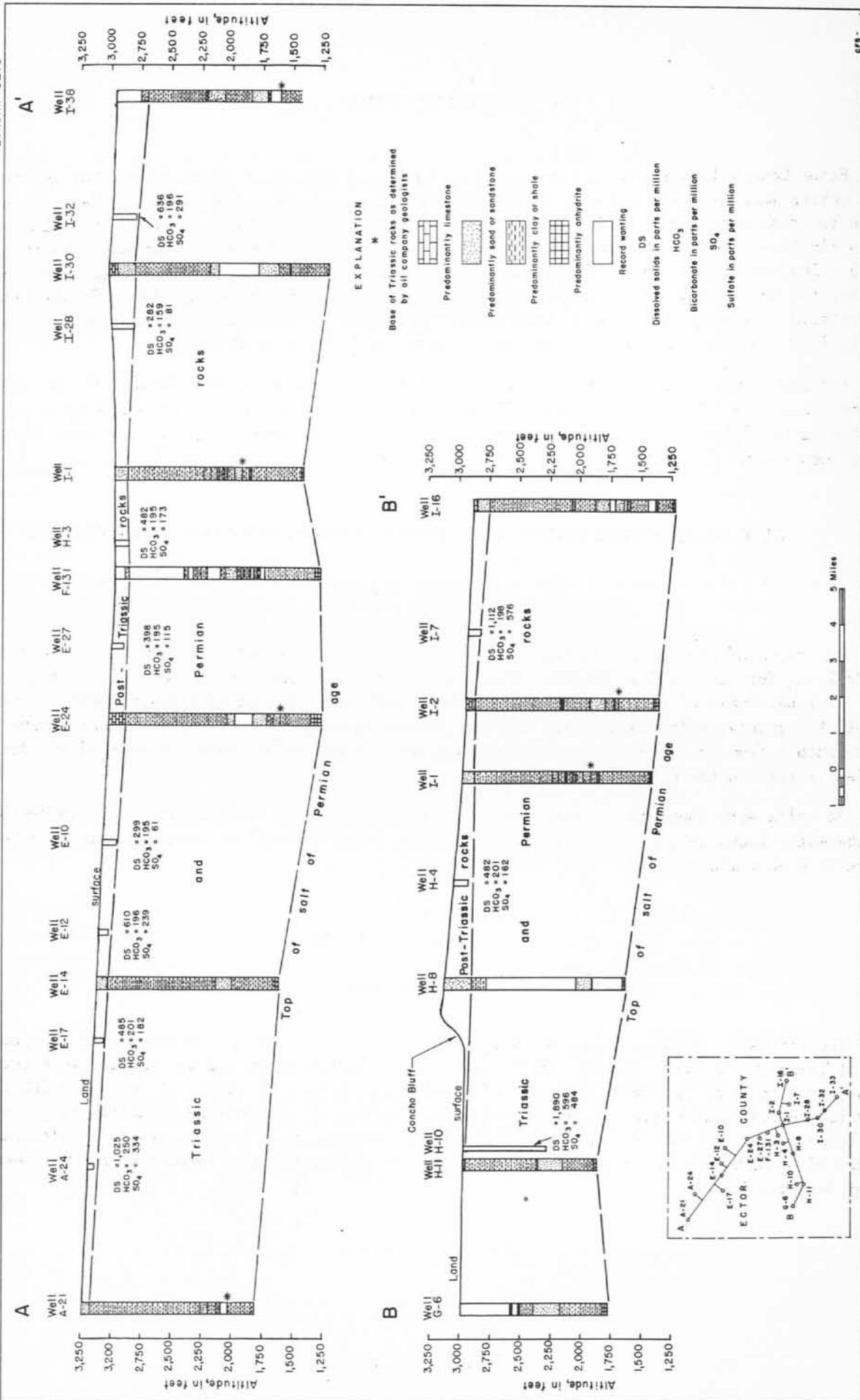


FIGURE 2.- Geologic sections in Ector County, Tex.

Study of the available data indicates that only small quantities of water are available from the Dockum group in the county and that the water is too highly mineralized for most uses. A few wells, which range in depth from 431 to 710 feet, obtain mineralized but usable water from these rocks in the southwestern part of the county.

CRETACEOUS SYSTEM

TRINITY GROUP

A sand and gravel was deposited on the eroded surface of older rocks as the sea advanced northward and northwestward across Texas in Cretaceous time. The sand has the appearance of a single stratigraphic unit, although it becomes progressively younger toward the northwest. Hill (1901) has discussed this subject at some length.

The Trinity group in Ector County lies unconformably on an eroded surface of Triassic rocks. It is exposed along the edge of Concho Bluff in the southwestern part of the county and in a narrow east-west belt a few miles north of Odessa. The exposed sediments along Concho Bluff average about 75 feet in thickness. They consist of a green clay, probably lying directly on the Triassic rocks, gray sand and gravel, and fine-grained yellow sand. In Ector County these deposits are the only representative of what is known farther east as the Trinity group and are probably equivalent to the Paluxy sand of that group. In some places the sand has the appearance of hard sandstone or quartzite and forms erosion-resistant ledges along Concho Bluff. The sand yields more water of acceptable quality than any other water-bearing formation in the county, but owing to the relatively thin saturated section and low permeability only moderate quantities of water are obtained from individual wells. The yields of individual wells range from a few gallons a minute near Concho Bluff to about 300 gallons a minute north and northeast of Odessa.

FREDERICKSBURG GROUP

The Fredericksburg group of central Texas has been divided into four formations which, in ascending order, are the Walnut clay, the Comanche Peak limestone, the Edwards limestone, and the Kiamichi formation. However, no effort will be made in this report to classify the rocks of the Fredericksburg group into formations, because they are not important sources of water.

The Fredericksburg group lies conformably on the Trinity group throughout the area east of Concho Bluff. The group, which consists mostly of yellow clay, white and yellow limestone, and shell aggregate is about 40 feet thick. The rocks are exposed in the north-central part of the county and along Concho Bluff, which owes much of its prominence to the hard, erosion-resistant limestone. Most of the rocks of the group lie above the water table; therefore, little ground water is to be found in them although the water that is present is of acceptable quality.

TERTIARY SYSTEM

OGALLALA FORMATION

The Tertiary system is represented in Ector County by remnants of the Ogallala formation which cover much of the county east of Concho Bluff. The Ogallala rests unconformably upon rocks of the Fredericksburg group and consists of caliche, sandy clay, and sand. It is probably not more than 60 feet thick throughout most of the county and in general lies above the water table. In local areas where the Ogallala lies below the water table, the water is of satisfactory quality, but the quantities that can be expected from wells are small.

QUATERNARY SYSTEM

The Quaternary rocks cover the older rocks in that part of the county southwest of Concho Bluff. They lie unconformably upon an eroded surface of Triassic rocks and form a rolling alluvial plain, except in the extreme western part of the county where sand hills are prevalent. The deposits consist mostly of sand, clay, and gravel which were derived partly from erosion along Concho Bluff, but the sand hills along the western county boundary probably migrated by wind action from the west.

The Quaternary sand and gravel generally contain only thin sections of saturated material and yield only small quantities of water to wells. Only a few wells in the county draw water from these rocks, and the analyses of samples from them show that the water is of poor quality.

In the northeastern part of the county, the valley fill in Midland Draw and Monahans Draw probably is of Pleistocene age and may be the source of relatively large quantities of water. For example, well C-32 was reported to yield about 500 gallons a minute in October 1948. Three other wells located in Midland County three-fourths of a mile to 4 miles east of well C-32, are reported to have yields ranging from 400 to 800 gallons a minute.

DEVELOPMENT OF WATER FROM WELLS

In many parts of western Texas, particularly in the High Plains, depressions in the surface of pre-Tertiary rocks have been filled with sand, thus locally providing thicker sands which yield proportionately greater quantities of water to wells. These depressions are in the form of buried stream channels or circular depressions known as sink holes. The more recent alluvium and windblown material have obscured the ancient topography so that the present relatively smooth surface presents little indication of the locations of the more favorable ground-water reservoirs.

Several oil companies have done seismograph exploration work in Ector County and have generously cooperated by furnishing logs of shot holes. It was hoped that a definite subsurface drainage pattern might be revealed by drawing contours on the surface of Triassic redbeds.

The attempt to contour the redbed surface was only partially successful and the contours shown on plate 2 are presented to show only in a general way where depressions may be found and thus to point out the areas that may be favorable for prospecting for water. The accuracy of the contours is limited by the accuracy of the logs of the shot holes. Because the character of the material above the redbeds is almost entirely unrelated to the occurrence of oil and because the recording of such data delays drilling operations, drillers are not generally required to record accurate logs of shot holes. Red clays or sands are generally logged as redbeds. Clay or shale beds of various shades of red are found in many of the formations ranging in age from Permian to Recent. In some places, the Triassic clays are blue or green and contain no fossils. Even where cuttings are available for study it is difficult for geologists to identify or classify the formations.

SOUTHWEST OF CONCHO BLUFF

The part of Ector County southwest of Concho Bluff includes grid-area G and the southwestern parts of areas D, H, and I, (shown in pl. 1). All the ground water is obtained from Quaternary alluvium or from sand of Triassic age. The water is used principally for stock and in drilling test wells for oil. The approximate altitude of the base of the Quaternary alluvium is shown in plate 2 and figure 3-A. The thickness of the alluvium varies considerably from well to well. For example, 49 feet of gravel was reported in the log of well G-1 but no sand or gravel in the log of well G-5. Meager data indicate that much of the permeable material penetrated by wells that draw from the alluvium probably lies above the water table. The map (pl. 2) also shows many depressions in the surface of the Triassic rocks. Larger quantities of water may be available in the depressions, owing to the increased thickness of saturated material. Few wells that draw water from the alluvium penetrate the entire saturated section, but an attempt was made to estimate the saturated thickness from available logs of seismograph shot holes close to water wells. It was found from this comparison that the saturated alluvium ranged from as little as 8 feet in well H-14 to as much as 41 feet in well H-30. Cross section C-C' in figure 3-A shows the apparent thickness of the alluvium in an east-west direction across this area.

The water from the alluvial sand is generally of poor chemical quality. The analyses of water from six wells show a range in dissolved solids from 1,180 to 3,440 parts per million and in sulfate from 646 to 1,970 parts per million. No water from wells in the alluvium is used for domestic supply.

Water is obtained from sands in the Dockum group by 10 wells in the area, which range in depth from 431 to 710 feet. Each well for which a record is available is reported to yield less than 20 gallons a minute. Only well H-18 is used for domestic purposes, and it supplies about 30 families in the vicinity of Penwell.

The water from wells drawing from the Triassic sands also is of poor chemical quality. The analyses of water from six wells show a range in dissolved solids from 1,890 to 7,190 parts per million, in sulfate from 484 to 2,440 parts per million, and in chloride from 240 to 2,710 parts per million.

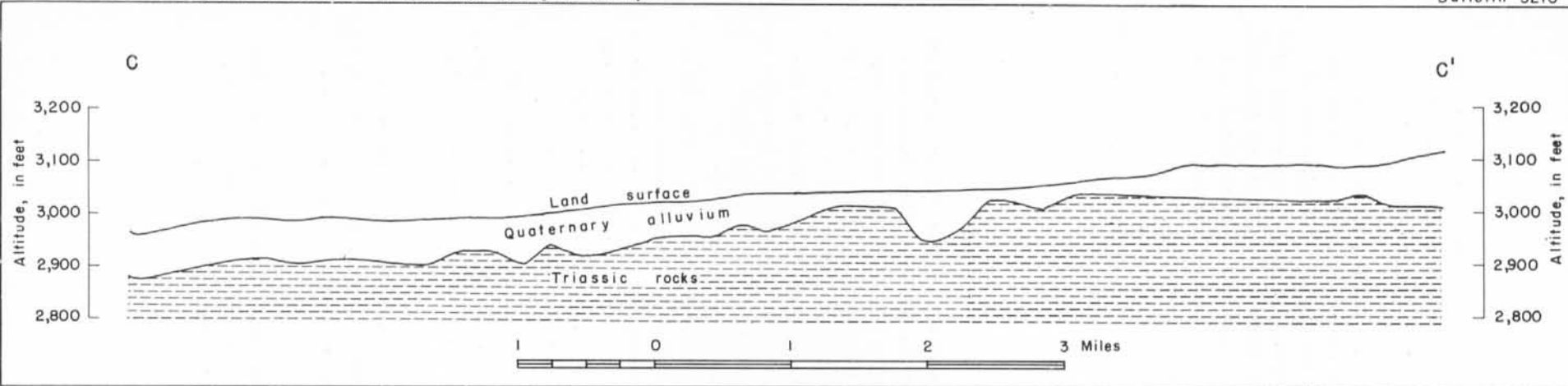


FIGURE 3A. - Cross section showing the Quaternary alluvium in western Ector County, Tex.
(See line C-C' on pl. 2)

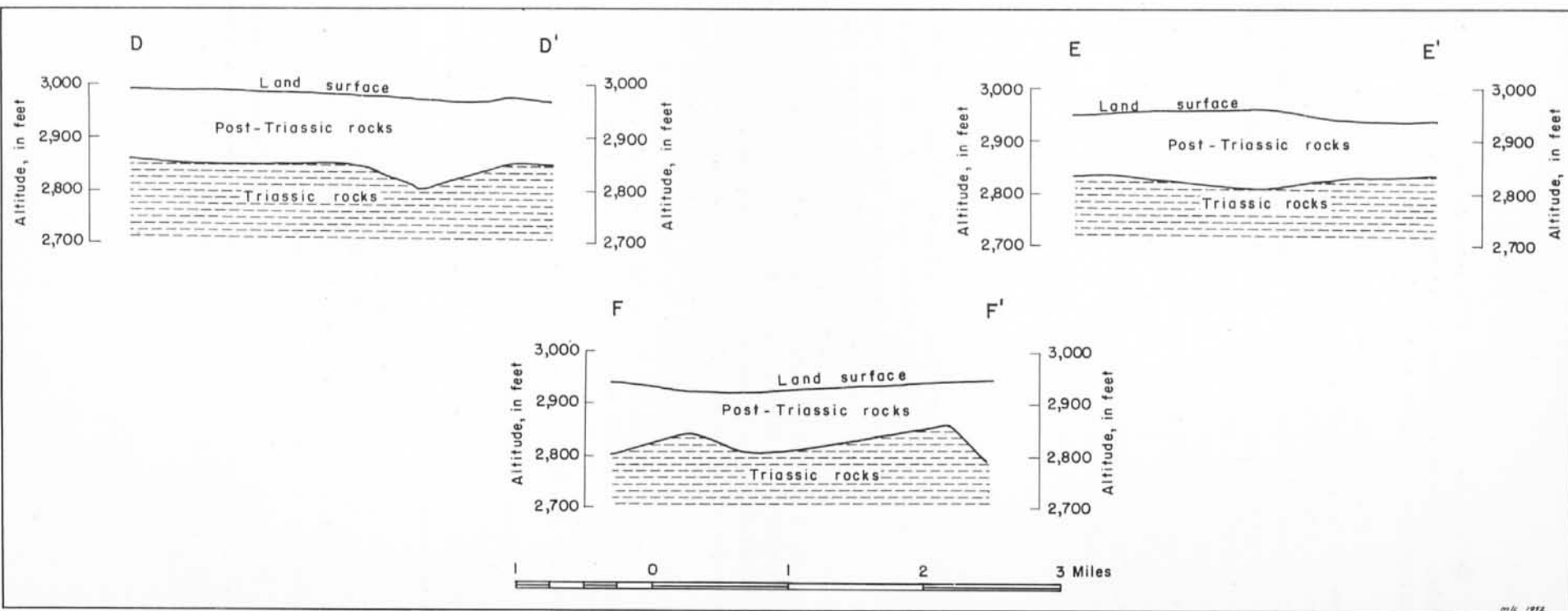


FIGURE 3B. - Cross section showing Triassic and post-Triassic rocks in northeastern Ector County, Tex.
(See lines D-D', E-E', and F-F' on pl. 2)

NORTHEAST OF CONCHO BLUFF

MUNICIPAL SUPPLY OF ODESSA

The population of Odessa increased from 9,573 in 1940 to 29,432 in 1950. Consequently the requirements for municipal water supply increased from 602,000 gallons a day in 1940 to 2,901,000 gallons a day in 1949. Prior to 1944 about 40 wells had been drilled within the city limits to depths ranging from 100 to 140 feet. Of these wells 29 were still in use in 1943. The wells were reported to have had initial yields that ranged from 100 to 125 gallons a minute. As pumping continued year after year, the yields decreased until at the end of 1943 none of the wells was yielding more than 30 gallons a minute. Some of the wells were abandoned in 1944 and by the end of 1949 none were in use.

In the spring of 1944 the City began developing a new well field about 2 miles north of Odessa. The field was extended northward as the water requirements increased, and by December 1949 it had 66 wells.

The municipal wells north of Odessa penetrate the entire section of the Trinity group. Short production tests were made on most of the wells by the driller as the wells were completed. Data from the tests on 57 wells indicate initial yields ranging from 35 to 310 gallons a minute and averaging 167 gallons a minute. The specific capacities ranged from 1.0 to 8.6 gallons a minute per foot of drawdown and averaged 3.1 in 39 of the wells.

Chemical analyses of water from six representative wells (F-46, F-60, F-82, F-92, F-135, and F-141) show a range in dissolved solids from 342 to 877 parts per million, in sulfate from 44 to 255 parts per million, and in bicarbonate from 186 to 229 parts per million. The water is relatively hard; however, it is of satisfactory quality for nearly all uses. The water is chlorinated and delivered to the distribution system without further treatment.

In 1948 an additional well field containing six wells (I-10 to I-15) was developed at the southern edge of Odessa and adjacent to Monahans Draw. The driller's logs of these wells show depths ranging from 120 to 125 feet and sand or sand and gravel ranging in thickness from 77 to 87 feet and averaging about 82 feet. The water levels in wells I-10, I-11, and I-12 were reported to be 30, 22, and 29 feet below the land surface, respectively, in August 1948. Wells I-10 and I-11 yielded 164 and 243 gallons a minute, respectively during short production tests when they were completed. It is reported that in well I-9, about 1,300 feet north of well I-10, the drawdown was 46 feet after the well was pumped at 146 gallons a minute for 1 hour, indicating a specific capacity of about 3.2 gallons a minute per foot of drawdown.

In December 1948 the City drilled two test wells (F-117 and F-118) in sections 31 and 25, blocks 41 and 42, T. 2 S., 2 and 3 miles, respectively, east of Odessa. The test well in section 31 was drilled to a depth of 110 feet, but no important water sands were penetrated below 75 feet. The static water level was 26.7 feet below the land surface. The well yielded 50 gallons a minute with 38 feet of drawdown after pumping 1 hour. The test well in section 25 was drilled to a depth of 125 feet and penetrated water sands to a depth of 118 feet, at which depth shale, presumably of Triassic age was encountered. The water level was 56.0 feet below the land surface.

The well was pumped for 23 hours and yielded 56 gallons a minute with a drawdown of 41 feet. The water from well F-117 contained 482 parts per million of dissolved solids, 87 parts per million of sulfate, and 238 parts per million of bicarbonate. The water from well F-118 contained 377 parts per million of dissolved solids, 70 parts per million of sulfate, and 220 parts per million of bicarbonate. The logs of these wells are given in table 5.

The test wells in sections 25 and 31 showed lesser thicknesses of saturated material and smaller yields than the public-supply wells north of Odessa. As a result of those tests, the City did not attempt to develop a well field at those sites but extended the north well field farther north of the city. A study of available drillers' logs in the vicinity of the test wells confirms the decision that wells probably cannot be developed east of Odessa with yields comparable to those of the present public-supply wells.

PUMPING AND ITS EFFECT ON THE WATER TABLE

The average daily pumpage by the City of Odessa for the first 11 months of 1949 was more than six times that in 1938. Table 3 gives the average daily pumpage by months for the 12-year period 1938-49. The average daily pumpage by years is shown graphically in figure 4.

A map of the water table north of Odessa in parts of grid areas C and F is shown in figure 5. The map indicates that the slope of the water table in the unpumped areas is about 6 to 7 feet per mile to the southeast. A depression has developed in the water table in and adjacent to the city well field, owing to the heavy withdrawals there since 1944, showing that a considerable volume of formerly saturated material has been unwatered. Livingston and Lang (1943, p. 9) determined the specific yield of the sand of the Trinity group at the Army flying school, about 10 miles north-east of Odessa, to be about 15 percent. If this figure is applicable to the sand of the Trinity group in the Odessa well field, the volume of material unwatered during the year 1949 by the reported withdrawal of about 1 billion gallons of water would be about 20,000 acre-feet, assuming no recharge to the water-bearing sand.

Study of drillers' logs and reported water levels in 29 wells shows that the saturated thickness of the sand of the Trinity group in the well field north of Odessa ranged from 63 to 128 feet and averaged 97 feet when the wells were drilled. Water levels in 48 wells in 1949 show that the saturated thickness ranged from 56 to 114 feet and averaged 83 feet. This indicates an apparent reduction of about 14 percent in the amount of water in storage.

The unwatering of the sand is accompanied by an increase in the pumping lift and a decrease in yield. The city wells are closely spaced, which causes an additional increase in the pumping lift due to the merging of the cones of depression. Wells F-45, F-47, F-49, and F-50 were reported to have had yields of 167, 159, 230, and 150 gallons a minute, respectively, when they were drilled in the spring of 1944. The yields of these wells in October 1947 were 69, 75, 41, and 46 gallons a minute, respectively.

Table 3.- Pumpage by City of Odessa, 1938-49, in thousands of gallons a day

	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949
Jan.	324	378	455	374	423	552	519	611	806	1,219	1,229	1,667
Feb.	398	462	419	392	490	496	582	654	838	892	1,356	1,825
Mar.	359	456	460	403	490	504	555	774	873	854	1,484	2,515
Apr.	473	594	637	512	586	717	876	1,332	1,396	1,361	2,280	2,390
May	492	611	664	453	610	759	903	1,423	1,542	1,478	3,115	2,915
June	526	900	736	539	895	881	1,023	1,586	2,130	2,122	3,210	4,539
July	544	787	869	737	1,029	914	1,172	981	2,062	2,151	3,212	5,602
Aug.	561	859	839	857	950	1,020	1,390	1,545	2,127	2,350	3,382	5,112
Sept.	534	899	796	687	542	1,044	918	1,016	1,441	2,009	3,334	3,370
Oct.	471	667	600	495	460	640	707	792	1,035	1,540	2,231	2,575
Nov.	414	459	413	402	423	561	914	753	973	1,491	1,897	2,300
Dec.	340	391	339	381	374	409	548	741	807	1,061	1,819	-
Average	453	622	602	519	606	708	842	1,017	1,336	1,544	2,379	2,901 ^{a/}

^{a/} Based on pumpage for first 11 months of 1949.

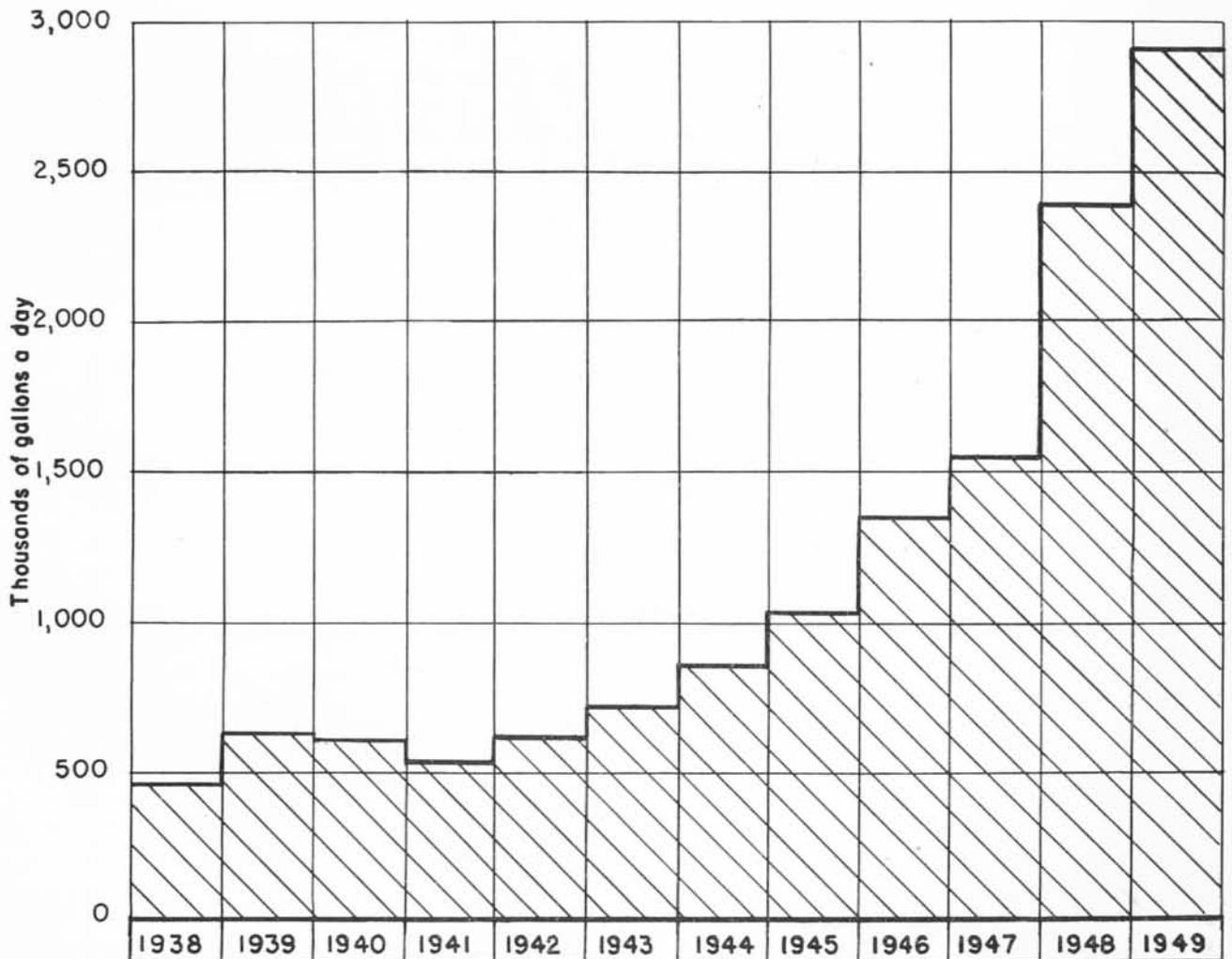
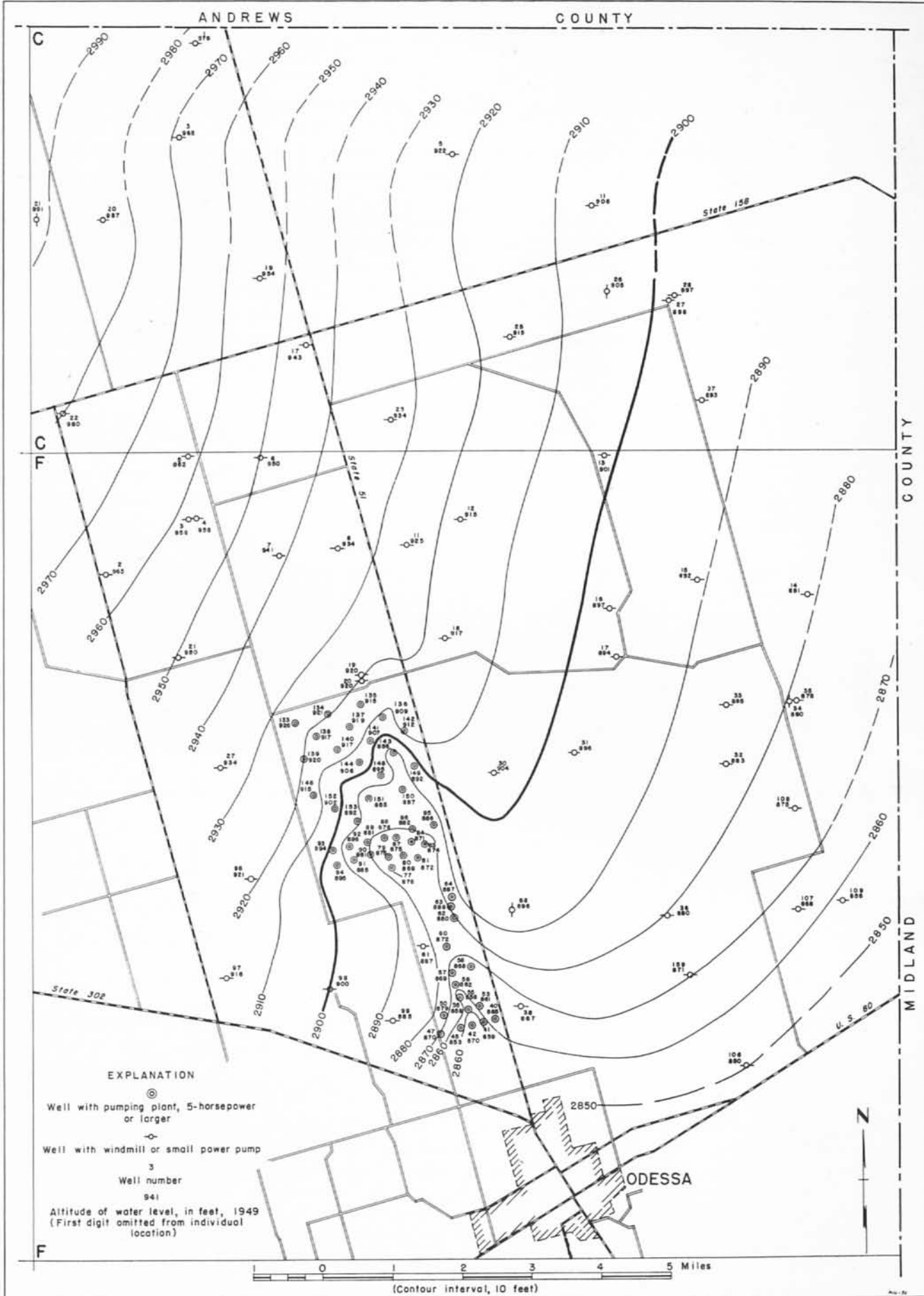


FIGURE 4. - Pumpage by City of Odessa, 1938-49.



Comparison of water-level measurements in the city well field north of Odessa made in September 1947 and December 1949 show a maximum rise of 5.1 feet in well F-47 in the extreme southwestern part of the well field and a maximum decline of 36.7 feet in well F-84 in the central part of the well field, where the wells are very closely spaced. The measurements are not strictly comparable, however, because more wells were idle for a longer period in December 1949 than in September 1947. After a well has been pumped for a long period and then shut down, the water level may continue to rise for several months. The declines would be larger, and the rises smaller, from 1947 to 1949 if the wells had been idle for comparable periods in the two years. The wells in the southern part of the well field in sections 4 and 9, block 42, T.2 S. showed rises or small declines from September 1947 to December 1949. These wells were among the first drilled and their yields have declined the most. As a result, they are pumped only when water requirements are large, and the present amount of pumping appears to be approximately balanced by lateral movement of water from adjacent areas.

A hydraulic gradient from all directions is established toward a well when pumping begins. Under water-table conditions, water is obtained for a short time by unwatering the saturated material around the well. As pumping continues, water moves toward the well from increasingly greater distances and the water level near the well declines at a much slower rate than when pumping began. However, so long as the amount of water percolating to a discharging well remains constant, the hydraulic gradient toward the well must be continuously steepened. The drawdown in the well must be increased if the hydraulic gradient is steepened. In order to obtain a moderately large yield from a well in the sand of the Trinity group in Ector County, it becomes necessary to steepen the hydraulic gradient so that the pumping level is near the bottom of the sand soon after pumping begins. After this pumping level has been reached it is not possible to steepen the hydraulic gradient, and the yield of the well must necessarily decrease.

OTHER DEVELOPMENT

Many of the wells in the area northeast of Concho Bluff supply water for domestic use and stock on the farms and ranches. They are equipped with windmills or small power pumps and yield only a few gallons a minute each. Most of these wells do not fully penetrate the water-bearing sand because only small yields are required. They produce from the sands of the Trinity group, but some of those adjacent to the draws may also obtain water from Quaternary rocks. The water, with some exceptions, is of satisfactory quality for most uses. It appears to be more highly mineralized, especially with respect to sulfate content, adjacent to the draws than elsewhere.

GOLDSMITH AREA

An oil camp, about a mile east of Goldsmith in the northwestern part of the county, is supplied by four wells in the sand of the Trinity group, E-3, E-4, E-5, and E-6. The water levels in wells E-4 and E-6 are reported to have been 100 and 97 feet below the land surface, respectively, in 1947. These wells were reported to yield about 60 gallons a minute each after a few hours of pumping. These data and the driller's logs of wells E-4 and E-6 indicate a thickness of saturated sand of 37 and 32 feet, respectively. The driller's logs show greater thicknesses of sand above the water table than below it. It is probable that wells with large yields cannot be developed in the immediate vicinity of these wells.

A rather large amount of water is pumped from wells, drawing from sands of the Trinity group, in an area extending about 3 to 6 miles north from Goldsmith. Wells are used to supply water for a gasoline plant, for the drilling of oil tests in the surrounding area, and for domestic use in the oil camps and the town of Goldsmith. The yields of seven of these wells (B-23, B-24, B-41, B-42, B-43, B-44, and B-45) are reported to range from 58 to 200 gallons a minute and to average about 115 gallons a minute. The drillers' logs and available water-level data indicates 59, 61, and 35 feet of saturated sand in wells B-41, B-42, and B-45, respectively. The water is moderately hard but is of satisfactory quality for most uses. Chemical analyses of water from wells B-17, B-21, B-22, B-28, B-35, B-43, and B-44 show a range in dissolved solids from 352 to 477 parts per million, in sulfate from 50 to 104 parts per million, and in bicarbonate from 152 to 206 parts per million.

NORTHEAST OF ODESSA

Plate 2 indicates an elongated trough or buried stream valley in the extreme northeastern part of the county. This stream valley has an eastward trend and is of varying width. Figure 3-B shows three cross sections (D-D', E-E', and F-F') constructed approximately at a right angle to the axis of the stream valley. Cross sections D-D' and F-F' show some expression of the stream valley at the surface and much greater relief at the base of the sands. It appears probable that coarser sediments were deposited in the buried stream channels than elsewhere. The water-bearing sands, therefore, may be more permeable than in the vicinity of the Odessa well field. Wells with larger yields than from the present city wells might be developed in this area if the thickness of the saturated material is comparable to that in the Odessa well field. The thickness of the saturated valley fill can be estimated only partly from existing well logs and water-level data. The data indicate that the saturated material is about 100 feet thick in the vicinity of well C-5 and about 80 to 90 feet thick in the vicinity of well C-11, which compares favorably with saturated thicknesses in the city well field north of Odessa. The data for the northeastern part of the county are inconclusive, but it appears that the area is promising for the development of additional ground-water supplies. A comprehensive test-drilling program would be necessary to define adequately the amount of saturated material in the buried stream channel. Such a program, if undertaken, should be carried on simultaneously with a series of interference tests to determine the coefficients of permeability ^{2/} and storage ^{3/} of the sands. Such tests would make it possible to determine the most desirable well spacing and to predict the approximate decline of the water table to be expected as a result of pumping a well in the area over a period of time.

^{2/} The coefficient of permeability may be defined as the rate of flow, in gallons a day, through a cross section 1 foot high and 1 mile wide under a hydraulic gradient of 1 foot per mile at 60° F.

^{3/} The coefficient of storage may be defined as the amount of water, expressed as a fraction of a cubic foot, discharged from each vertical column of the aquifer with a base of 1 square foot as the water level falls 1 foot; for water-table conditions, it is approximately equal to the specific yield.

The quality of the water in this northeastern part of the county is not as good, however, as it is a few miles to the west and south. Analyses of water from four wells (C-4, C-6, C-10, and C-13) show a range in dissolved solids from 414 to 938 parts per million, in sulfate from 74 to 312 parts per million, and in bicarbonate from 201 to 316 parts per million. The water of poorest quality is from shallow wells.

In the northeastern part of the county near the Ector-Midland County line and immediately south of the buried stream channel, well C-32 was drilled in October 1948, as a test well for irrigation. It was reported to yield about 500 gallons a minute. An irrigation well in Midland County, about three-fourths of a mile east of well C-32, is reported to be 138 feet deep and to have had a water level 28 feet below the land surface when drilled in 1948. This well was estimated to yield about 500 gallons a minute in September 1948. Analysis of the water shows 640 parts per million of dissolved solids, 151 parts per million of sulfate, and 228 parts per million of bicarbonate. Two other irrigation wells in Midland County, which are about $2\frac{1}{2}$ and 4 miles southeast of Ector County well C-32, are reported to yield 400 and 800 gallons a minute, respectively. It is believed that these four irrigation wells are in a part of the same buried drainage system that is found in the northeastern part of Ector County.

No drillers' logs are available for water wells north and east of the Odessa well field. The water wells are used for domestic purposes and stock and few, if any, of them fully penetrate the saturated sand of the Trinity group. It is possible, however, to give the minimum thicknesses of saturated material in a few parts of the area from the depths and water-level data of some of the deeper wells. The amount of saturated material in wells F-2, F-5, C-17, C-38, F-14, F-15, F-33, and F-109 is at least 70, 95, 90, 60, 55, 65, 100, and 65 feet, respectively. These thicknesses do not necessarily represent material that will yield water to wells. They represent the material, both clay and sand, penetrated in the wells that lies below the water table. The available drillers' logs in the county east of Concho Bluff indicate that the material below the water table is predominantly sand. It is believed the area north and east of the Odessa well field offers more promise for the development of moderate supplies of ground water than any other part of the county, except the extreme northeastern part of the grid-area C. The saturated material, if predominantly sand, is comparable in thickness to that found in the Odessa well field, and it is believed that wells might yield from 100 to 200 gallons a minute or more, especially in grid-area C and the northern part of grid-area F. Any development should be preceded by a test-drilling program. The chemical character of the water, with few exceptions, is satisfactory for most uses.

SOUTHWEST OF ODESSA

The contours (see pl. 2) on the approximate base of the sand of the Trinity group in the area west and south of Odessa show few irregularities. The thickness of the saturated material can be roughly estimated at a few locations from the seismograph shot-hole logs and water-level data. It is estimated that the thickness of saturated material in wells E-22, E-25, F-27, F-96, F-97, and F-99 is about 55, 50, 85, 80, 80, 70, and 65 feet, respectively. Wells E-22 and E-25 show less saturated material than the wells in grid-area F to the east and there are indications that the saturated material thins appreciably to the west near Concho Bluff.

Near Concho Bluff, well D-18 is reported to be 190 feet deep, and the water level was 169.8 feet below the land surface in 1937. Well H-25, also near Concho Bluff, is reported to be 192 feet deep, and the water level was 183.8 feet below the land surface in 1937. It is apparent that the water-bearing section of the sand of the Trinity group along Concho Bluff and probably for a few miles east is very thin.

QUALITY OF WATER

Chemical analyses of water from wells in Ector County are given in table 6. Ground water in Ector County is used primarily for public supply, industrial supplies, and for domestic and stock supplies on the farms and ranches.

It is not possible to define exact limits of mineralization beyond which water cannot be used for particular purposes. Water used for domestic and municipal supplies, wherever possible, should conform to the standards of the United States Public Health Service (1946) for use on interstate carriers. These standards place the following limits on the more important minerals ordinarily found in solution.

Iron (Fe) and manganese (Mn) together should not exceed 0.3 part per million.

Magnesium (Mg) should not exceed 125 parts per million.

Chloride (Cl) should not exceed 250 parts per million.

Sulfate (SO_4) should not exceed 250 parts per million.

Dissolved solids should not exceed 500 parts per million, for a water of good chemical quality. However, if such water is not available, a dissolved solids content of 1,000 parts per million may be permitted.

The wells west of Concho Bluff yield water that is somewhat highly mineralized. Wells that draw from Quaternary alluvium are used only for stock supplies. The analyses of water from six of these wells show a range in dissolved solids from 1,180 to 3,440 parts per million. One of the wells that draws from the deeper Triassic rocks is used for domestic supply. The analysis of the water from this well shows 1,940 parts per million of dissolved solids. The available analyses indicate that wells drawing from the Triassic rocks yield water that, in general, has a higher chloride content than wells drawing from the Quaternary alluvium.

The wells east of Concho Bluff, which include the well fields of the City of Odessa, draw principally from sands of the Trinity group. The water from most of the wells contains less than 1,000 parts per million dissolved solids. The water from the wells used by the City of Odessa generally conform to the standards of the United States Public Health Service. Many of the wells yield water containing less than 500 parts per million dissolved solids. The water is satisfactory for most purposes although it is somewhat hard. The chemical character of the waters from most of the wells east of Concho Bluff is very similar. It was not found feasible to differentiate the wells that draw from sands of the Trinity group from those that may possibly draw from younger rocks on the basis of the chemical character of the water.

The quality of water in different parts of Ector County is discussed briefly in the section "Development of water from wells".

SUMMARY AND CONCLUSIONS

West of Concho Bluff only meager supplies of ground water are available. The saturated part of the Quaternary alluvium is thin and small yields are to be expected from wells. The water in the alluvium is moderately to highly mineralized. Wells drawing from the underlying Triassic rocks range in depth from 431 to 710 feet. These rocks can be expected to yield only small quantities of water, because of the low permeability. The water in them is moderately to highly mineralized.

East of Concho Bluff the principal water-bearing formation is the sand of the Trinity group. The overlying limestone of the Fredericksburg group and the Ogallala formation of Tertiary age probably are not saturated except along the draws where the depth to water is slight. The underlying Triassic rocks offer no promise for the development of a ground-water supply. The base of the Trinity group is generally not more than 200 feet beneath the land surface. The saturated section of the sand is thin along Concho Bluff, but it thickens to the east and is believed to be thickest north and east of Odessa.

The saturated sand averaged 83 feet in thickness in the Odessa well field north of the City in 1949 and probably averaged about 100 feet prior to the heavy pumping in the well field. Because the wells were too closely spaced, the sand near them was unwatered rapidly, resulting in a decrease in the yield of the wells and an increase in the pumping lift.

The investigation revealed a buried stream channel having an eastward trend in the extreme northeastern part of the county. It is probable that the water-bearing material in the channel is coarser and may yield water to wells more readily than the sand of the Trinity group in the vicinity of Odessa. Near the Ector-Midland County line, immediately south of the buried stream channel, an irrigation well is reported to yield 500 gallons a minute. Three other irrigation wells a short distance to the southeast in Midland County are reported to yield 400 to 800 gallons a minute. The four irrigation wells are believed to be in a part of a buried drainage system that cannot be traced in detail at the surface. The area overlying the stream channel offers more promise for the development of relatively large ground-water supplies than any other part of the county. A comprehensive test-drilling program would be necessary to determine the location and saturated thickness of the deposits of sand, and their probable yield. Chemical analyses of water from wells east of Concho Bluff indicate that the water is of satisfactory quality for most purposes.

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Table 4.-Records of wells in Ector County,, Tex..

Method of lift: A, air lift; C, cylinder; E, electric; G, gasoline; J, jet; T, turbine; W, windmill. Number indicates horsepower.
 Use of water : D, domestic; Ind, industrial; Irr, irrigation; N, not used; P, public supply; RR, railroad; S, stock.

Well	Distance from Odessa	Land location			Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Water level		Method of lift	Use of water	Remarks
		Section	Block	Township or survey							Below land surface datum (ft.)	Date of measurement			
A-1	29 miles northwest	9	45	T. 2 N.	R. B. Cowden	--	104	6	--	94.3	Apr. 13, 1937	None	N	Casing: 6-inch to 20 feet.	
A-2	28 miles northwest	10	45	T. 2 N.	do.	Grisham & Hunter	--	4,657	--	--	--	None	N	Oil test. See log.	
A-3	27½ miles northwest	10	45	T. 2 N.	do.	--	--	110	--	94.0	Apr. 13, 1937	C,W	S	Temp. 68° F.	
A-4	26½ miles northwest	12	45	T. 2 N.	do.	--	--	89	--	69.7	do.	C,W	S		
A-5	26 miles northwest	1	45	T. 1 N.	do.	Hines Water Well Co.	1946	135	--	--	--	None	N	Formerly supplied water for oil-well drilling rig. See log.	
A-6	do.	1	45	T. 1 N.	--	--	1947	--	--	--	--	C,E	D,S	Supplies water for oil-field camp.	
A-7	do.	11	45	T. 1 N.	R. B. Cowden	Hines Water Well Co.	1946	130	7	--	--	None	N	Casing: 7-inch to 130 feet. Formerly supplied water for oil-well drilling rig. See log.	
A-8	25 miles northwest	12	45	T. 1 N.	H. E. Cummins	--	1892	74	--	39.5	Apr. 12, 1937	C,W	S		
A-9	do.	12	45	T. 1 N.	do.	C. F. Wheeler	1937	74	--	38.5	do.	None	N		
A-11	23 miles northwest	9	44	T. 1 N.	Frank Cowden	--	--	100	--	59.1	Apr. 14, 1937	C,W	S		
A-12	23½ miles northwest	18	44	T. 1 N.	Cowden Estate	Landreth Production Co.	--	4,470	--	--	--	None	N	Oil test. See log.	
A-13	24½ miles northwest	13	45	T. 1 N.	H. E. Cummins	C. F. Wheeler	1937	64	10	46.1	Apr. 15, 1937	None	N	Formerly supplied water for oil-well drilling rig.	
A-14	25 miles northwest	13	45	T. 1 N.	do.	do.	1937	69	10	48.8	do.	None	N	Do.	
A-15	do.	11	45	T. 1 N.	-- Cowden	Hines Water Well Co.	1946	145	--	--	--	None	N	Formerly supplied water for oil-well drilling rig. See log.	
A-16	do.	11	45	T. 1 N.	H. E. Cummins	C. F. Wheeler	1937	75	--	51.6	Apr. 15, 1937	None	N		
A-17	25½ miles northwest	11	45	T. 1 N.	-- Cowden	Hines Water Well Co.	1946	141	--	--	--	None	N	Formerly supplied water for oil-well drilling rig. See log.	

Table 4.- Records of wells in Ector County--Continued

Well	Distance from Odessa	Land location			Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Water level		Method of lift	Use of water	Remarks
		Section	Block	Township or survey							Below land surface datum (ft.)	Date of measurement			
A-18	25½ miles northwest	11	45	T. 1 N.	H. E. Cummins	Hines Water Well Co.	1945	100	7	--	--	--	None	N	Casing: 7-inch to 100 feet. Formerly supplied water for oil-well drilling rig. See log.
A-19	do.	11	45	T. 1 N.	do.	do.	1945	100	7	--	--	--	None	N	See log.
A-20	26 miles northwest	10	45	T. 1 N.	do.	--	--	69	8	--	60.3	Apr. 15, 1937	None	N	Formerly supplied water for oil-well drilling rig.
A-21	25½ miles northwest	10	45	T. 1 N.	do.	Empire Gas & Fuel Co.	1935	4,557	--	a/3,234	--	--	None	N	Oil test. See log.
A-22	do.	15	45	T. 1 N.	do.	--	--	75	--	--	63.6	Apr. 13, 1937	C,W	S	Temp. 66° F.
A-23	24½ miles northwest	23	45	T. 1 N.	--	--	--	200	--	a/3,225	--	--	None	N	Seismograph shot hole. See log.
A-24	21½ miles northwest	12	A	Public School Land	C. Scharbauer	--	--	56	--	--	41.1	Apr. 16, 1937	C,W	S	Temp. 68° F.
A-25	22½ miles northwest	10	A	do.	H. E. Cummins	--	--	57	8	--	42.1	do.	None	N	Formerly supplied water for oil-well drilling rig.
A-26	23 miles northwest	33	45	T. 1 N.	do.	-- Dunning et al.	--	--	--	--	--	--	None	N	Oil test. See log.
A-27	27 miles northwest	20	45	T. 1 N.	--	--	--	200	--	a/3,305	--	--	None	N	Seismograph shot hole. See log.
B-1	24 miles northwest	3	44	T. 1 N.	Cowden heirs	--	--	96	6	--	--	--	C,W	S	Temp. 68° F.
B-4	20 miles northwest	13	43	T. 1 N.	O. B. Holt, Jr.	--	--	48	--	--	31.8	Apr. 22, 1937	C,W	S	Do.
B-5	do.	12	43	T. 1 N.	do.	--	--	--	--	--	--	--	C,W	S	Do.
B-6	18½ miles northwest	--	--	--	--	Hines Water Well Co.	1947	180	5	--	b/70	May --, 1947	C,W	D	Casing: 5-inch to 85 feet.
B-7	do.	18	43	T. 1 N.	Mary Glass	do.	1942	145	8	--	--	--	None	N	Casing: 8-inch to 8 feet. Formerly supplied water for oil-well drilling rig. See log.
B-8	18 miles northwest	18	43	T. 1 N.	do.	--	--	--	--	--	56.0	Oct. 21, 1948	C,W	S	Not cased.
B-9	18½ miles northwest	17	43	T. 1 N.	O. B. Holt	Hines Water Well Co.	1941	120	8	--	--	--	None	N	Casing: 8-inch to 82 feet. Formerly supplied water for oil-well drilling rig. See log.

See footnotes at end of table.

Table 4.- Records of wells in Ector County--Continued

Well	Distance from Odessa	Land location		Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Water level		Method of lift	Use of water	Remarks
		Section	Block Township or survey							Below land surface datum (ft.)	Date of measurement			
B-10	18 miles northwest	16	43 T. 1 N.	O. B. Holt	Landreth Production Corp. & The Texas Co.	1933	4,450	--	<u>a</u> /3,090	--	None	N	Oil test. See log.	
B-11	17½ miles northwest	20	A Public School Land	do.	Hines Water Well Co.	1939	140	--	--	--	None	N	Formerly supplied water for oil-well drilling rig. See log.	
B-12	do.	20	A do.	do.	Landreth Production Corp. & Llano Oil Co.	1933	4,317	--	<u>a</u> /3,071	--	None	N	Oil test. See log.	
B-13	18 miles northwest	20	A do.	do.	--	--	50	6	--	35.7	C, W	S	Mar. 8, 1937	
B-14	18½ miles northwest	15	43 T. 1 N.	do.	Landreth Production Corp.	--	--	--	<u>a</u> /3,078	--	None	N	Oil test. See log.	
B-15	20 miles northwest	3	A Public School Land	B. H. Blakeney	--	--	--	--	--	--	C, W	D, S	--	
B-17	22 miles northwest	15	44 T. 1 N.	Ector Water Co.	Hines Water Well Co.	1947	135	12	--	--	T, G, 32	D, Ind	Casing: 12-inch to 20 feet.	
B-18	22½ miles northwest	15	44 T. 1 N.	W. F. Cowden	--	--	71	--	--	67.3	C, W	S	Apr. 14, 1937	
B-19	22 miles northwest	15	44 T. 1 N.	Ector Water Co.	Hines Water Well Co.	1947	135	12	--	87.2	T, G, 32	D, Ind	Casing: 12-inch to 20 feet.	
B-20	21½ miles northwest	15	44 T. 1 N.	do.	do.	1947	135	12	--	46.8	T, G, 32	D, Ind	Casing: 12-inch to 20 feet. Pumping level 109.5 feet below land surface on Oct. 14, 1949.	
B-21	22 miles northwest	6	A Public School Land	do.	do.	1945	165	--	--	--	T, G, 32	D, Ind	See log.	
B-22	21½ miles northwest	6	A do.	do.	--	--	165	12	--	--	T, G, 32	S	Casing: 12-inch to 18 feet. Pumping level measured 121.0 feet below land surface on Oct. 14, 1949.	

Table 4.- Records of wells in Ector County--Continued

Well	Distance from Odessa	Land location		Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface datum (ft.)	Water level		Method of lift	Use of water	Remarks
		Section	Block							Township or survey	Below land surface datum (ft.)			
B-23	21½ miles northwest	6	A	Public School Land	Hines Water Well Co.	1945	165	15	--	--	T, G, 32	D, Ind	Casing: 15-inch to 18 feet. Pumping level measured 120.9 feet below land surface while well was pumped at about 130 gpm on Oct. 14, 1949. See log.	
B-24	21 miles northwest	6	A	do.	--	--	105	15	--	b/53	T, G, 32	D, Ind	Casing: 15-inch to 15 feet. Yield reported to be about 70 gpm.	
B-25	do.	6	A	do.	Hines Water Well Co.	--	105	10	--	b/70	T, G, 32	D, Ind	Casing: 10-inch to 18 feet.	
B-26	21½ miles northwest	6	A	do.	--	1937	--	10	--	65.7	None	N	Stand-by well.	
B-27	do.	6	A	do.	--	1938	105	15	--	66.9	T, G, 165	D,		
B-28	21 miles northwest	13	A	do.	Flack Drilling Co.	1937	105	15	--	70.7	T, G, 32	D, Ind	Casing: 15-inch to 14 feet.	
B-29	do.	13	A	C. Scharbauer	Landreth Production Co.	--	4,380	--	--	--	None	N	Oil test. See log.	
B-30	do.	13	A	-- Scharbauer	Hines Water Well Co.	1943	80	7	--	--	None	N	Casing: 7-inch to 26 feet. Formerly supplied water for oil-well drilling rig. See log.	
B-31	20 miles northwest	14	A	B. H. Blakeney	Flack Drilling Co.	1937	100	10½	--	--	None	N	Casing: 10½-inch to 10 feet. See log.	
B-32	do.	14	A	do.	Sims & Webster	1937	102	10½	--	--	None	N	Do.	
B-33	do.	14	A	do.	do.	1937	102	10½	--	--	None	N	Do.	
B-34	do.	14	A	do.	--	--	65	--	--	48.8	C, W	S	Temp. 67° F.	
B-35	do.	14	A	do.	Sims & Webster	1937	106	8-5/8	--	--	T, E, 30	D,	Casing: 10½-inch to 10 feet; 8-5/8-inch from 0 to 104 feet; slotted from 44 to 104 feet. Yield reported to be 125 gpm in 1940. See log.	

Table 4.-Records of wells in Ector County--Continued

Well	Distance from Odessa	Land location		Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Water level		Method of lift	Use of water	Remarks
		Section	Block Township or survey							Below land surface datum (ft.)	Date of measurement			
B-36	20½ miles northwest	14	A	B. H. Blakeney	Sims & Webster	1937	111	8-5/8	--	--	T, G, 3	D, Ind	Casing: 10½-inch to 10 feet; 8 5/8-inch from 0 to 110 feet; slotted from 41 to 110 feet. Pump set at 95 feet. See log.	
B-37	do.	14	A	do.	--	1937	100	10½	--	--	T, G, --	Ind	Casing: 10½-inch to 10 feet. See log.	
B-38	do.	14	A	do.	Flack Drilling Co.	1938	117	8-5/8	--	--	T, G, --	Ind	Casing: 8 5/8-inch to 105 feet; slotted from 67 to 105 feet. Pump set at 97 feet. See log.	
B-39	do.	14	A	do.	Sims & Webster	1937	86	10	--	39.9	Apr. 20, 1947	N	Formerly supplied water for oil-well drilling rig.	
B-40	do.	5	A	Ector Water Co.	Hines Water Well Co.	1945	105	12	--	--	None	N	Casing: 12-inch to 7 feet. See log.	
B-41	20 miles northwest	15	A	do.	do.	1946	118	16	--	b/53	T, G, 225	D, Ind	Casing: 16-inch to 118 feet; slotted from 78 to 118 feet. Yield reported to be 200 gpm. See log.	
B-42	do.	15	A	do.	do.	1946	118	16	--	53.4	T, G, 165	D, Ind	Casing: 16-inch to 118 feet; slotted from 78 to 118 feet. Yield reported to be 150 gpm in 1948. See log.	
B-43	19½ miles northwest	15	A	do.	--	--	118	12	--	b/53	T, G, 32	D, Ind	Casing: 12-inch to 18 feet. Pumping level measured 85.2 feet below land surface on Oct. 13, 1948. Yield reported to be 110 gpm.	

Table 4.- Records of wells in Ector County--Continued

Well	Distance from Odessa	Land location			Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Water level		Method of lift	Use of water	Remarks
		Section	Block	Township or survey							Below land surface datum (ft.)	Date of measurement			
B-44	19½ miles northwest	15	A	Public School Land	Ector Water Co.	--	114	15	--	b/53	--	T, G, 32	D Ind	Casing: 15-inch to 18 feet. Pumping level measured 82 feet below land surface on Oct. 14, 1948. Yield reported to be 85 gpm. -	
B-45	18½ miles northwest	16	A	do.	B. H. Blakeney	Bower Water Well Co.	1947	105	10½	--	b/45	--	T, G, --	D, Ind	Yield reported to be 58 gpm. See log.
B-46	19 miles northwest	17	A	do.	do.	--	--	48	--	--	32.6	Apr. 17, 1937	C, W	S	
B-48	17½ miles northwest	22	43	T. 1 N.	do.	--	1900	74	--	--	51.6	Apr. 16, 1937	C, W	S	Temp. 68° F.
B-49	16 miles northwest	28	43	T. 1 N.	do.	Landreth Production Co.	1935	4,225	--	a/3,066	--	--	None	N	Oil test. See log.
B-50	15½ miles northwest	26	43	T. 1 N.	J. M. Cowden et al.	Southern Crude Oil Purchasing Co.	1930	4,244	--	a/3,053	--	--	None	N	Do.
B-51	do.	22	A	Public School Land	Mrs. T. B. Roberts	--	--	41	8	--	37.7	Mar. 8, 1937	C, W	D, S	
B-52	15 miles northwest	26	43	T. 1 N.	--	Hines Water Well Co.	1944	140	8-5/8	--	--	--	--	Ind	Casing: 8 5/8-inch to 85 feet. See log.
B-53	17 miles northwest	30	43	T. 1 N.	B. H. Blakeney	--	--	109	--	--	--	--	C, W	S	Temp. 68° F.
B-54	19½ miles northwest	22	44	T. 1 N.	do.	--	1937	110	12	--	91.0	Oct. 20, 1948	None	N	
B-55	18½ miles northwest	27	44	T. 1 N.	-- Goodman	Penn Oil Co.	--	--	--	a/3,183	--	--	None	N	Oil test. See log.
B-56	18 miles northwest	26	44	T. 1 N.	B. H. Blakeney	--	--	128	--	--	104.9	Apr. 17, 1937	C, W	S	Temp. 70° F.
B-57	15½ miles northwest	27	43	T. 1 N.	--	Layne-Texas Co.	1948	142	--	a/3,049	--	--	None	N	Water test well. See log.
B-58	do.	26	43	T. 1 N.	--	do.	1948	162	--	a/3,036	--	--	None	N	Do.
B-59	14½ miles northwest	34	43	T. 1 N.	--	do.	1948	162	--	a/3,069	--	--	None	N	Do.
C-1	17½ miles northwest	28	42	T. 1 N.	--	--	--	113	6	3,048.2	72.4	Nov. 3, 1947	C, W	S	Pumping level measured 78.8 feet below land surface on Nov. 3, 1947.

Table 4.- Records of wells in Ector County--Continued

Well	Distance from Odessa	Land location			Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Water level		Method of lift	Use of water	Remarks
		Section	Block	Township or survey							Below land surface datum (ft.)	Date of measurement			
C-2	16½ miles northwest	36	42	T. 1 N.	Midland Farms Co.	--	124	6	--	77.0	Mar. 6, 1937	None	N	Located about 75 feet west of well C-3. Pumping level measured 96.1 feet below land surface on June 26, 1937.	
C-3	do.	36	42	T. 1 N.	do.	--	134	6	3,049.2	78.8	Mar. 6, 1937 78.8 Nov. 1, 1947	C, W	S	Pumping level measured 84.6 feet below land surface while well was pumped at 4 gpm on June 26, 1937.	
C-4	do.	20	42	T. 1 N.	do.	--	102	6	3,025.4	77.7	Mar. 6, 1937	C, W	S		
C-5	15 miles north	2	42	T. 1 N.	--	--	139	6	3,013.9	91.8	Dec. 13, 1949	C, W	S		
C-6	15½ miles north	31	41	T. 1 N.	--	--	47	--	--	--	--	C, W	S	Yield estimated to be 3 gpm on Jan. 9, 1948.	
C-7	17 miles north	30	41	T. 1 N.	--	--	145	--	a/2,942	--	--	None	N	Seismograph shot hole. See log.	
C-8	15½ miles northeast	1	41	T. 1 N.	Midland Farms Co.	Frank Gallion	1944	48	6	--	41.9	Dec. 12, 1947	C, W	D, S	Casing: 6-inch to 8 feet. Pumping level measured 50.4 feet below land surface on Dec. 12, 1947.
C-9	15 miles northeast	16	41	T. 1 N.	--	--	120	--	a/2,910	--	--	None	N	Seismograph shot hole. See log.	
C-10	15½ miles north	17	41	T. 1 N.	Midland Farms Co.	--	48	6	--	38.2	Feb. 25, 1937	C, W	S		
C-11	14½ miles north	33	41	T. 1 N.	--	--	80	--	2,960.8	53.7	Jan. 8, 1948 54.4 Dec. 13, 1949	C, W	S		
C-12	14 miles north	48	41	T. 1 N.	--	--	155	--	a/2,953	--	--	None	N	Seismograph shot hole. See log.	

Table 4.- Records of wells in Ector County--Continued

Well	Distance from Odessa	Land location		Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Water level		Method of lift	Use of water	Remarks
		Section	Block Township or survey							Below land surface datum (ft.)	Date of measurement			
C-13	14 miles north	1	42 T. 1 N.	Midland Farms Co.	--	--	138	6	--	90.6	Mar. 6, 1937	C, W	S	Pumping level measured 94.8 feet below land surface on Dec. 8, 1947.
C-14	13½ miles north	1	42 T. 1 N.	--	--	--	136	--	<u>a/2,972</u>	--	--	None	N	Seismograph shot hole. See log.
C-15	13½ miles northwest	32	42 T. 1 N.	Midland Farms Co.	--	--	92	6	2,990.2	46.4	Mar. 6, 1937 June 26, 1937	C, W	S	Pumping level 49.1 feet below land surface on Nov. 6, 1947.
C-16	13 miles northwest	3	42 T. 1 S.	Fred Corbett	--	--	142	6	2,989.7	--	--	C, W	S	Casing: 6-inch to 60 feet. Pumping level measured 48.6 feet below land surface on Nov. 6, 1947.
C-17	do.	4	42 T. 1 S.	do.	--	--	137	6	2,991.7	49.1	Nov. 6, 1947	C, W	D	Casing: 6-inch to 4 feet.
C-18	do.	--	--	--	--	--	142	--	<u>a/3,000</u>	--	--	None	N	Seismograph shot hole. See log.
C-19	14 miles northwest	32	42 T. 1 N.	Midland Farms Co.	--	--	66	6	3,005.3	48.4	Mar. 6, 1937 Dec. 13, 1949	C, W	S	
C-20	15½ miles northwest	46	42 T. 1 N.	--	--	--	124	6	3,036.4	49.3	Apr. 12, 1948	C, W	S	
C-21	15 miles northwest	22	A Public School Land	--	--	--	110	--	3,035.9	44.5	Apr. 13, 1948	C, W	N	
C-22	13½ miles northwest	1	43 T. 1 S.	Missionary Baptist Church	--	--	119	10	3,062.4	82.4	Apr. 8, 1948 Dec. 13, 1949	C, W	D	
C-23	11½ miles northwest	10	42 T. 1 S.	H. S. Ratliff	--	--	89	6	2,991.4	57.4	Dec. 13, 1949	C, W	S	
C-24	12½ miles north	2	42 T. 1 S.	do.	--	--	79	6	2,972.7	47.5	Mar. 8, 1937	C, W	S	Pumping level measured 49.8 feet below land surface on Jan. 8, 1948.

Table 4.- Records of wells in Ector County--Continued

Well	Distance from Odessa	Land location			Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Water level		Method of lift	Use of water	Remarks
		Section	Block	Township or survey							Below land surface datum (ft.)	Date of measurement			
C-25	12½ miles north	1	42	T. 1 S.	E. J. Neathery	--	60	--	2,963.5	48.7	Mar. 31, 1948	C,W	S		
C-26	13 miles northwest	5	41	T. 1 S.	do.	--	65	6	2,964.9	48.9	Dec. 13, 1949	C,W	N	Not cased.	
C-27	13 miles north	4	41	T. 1 S.	Mrs. M. C. Whittenburgh	--	100	--	2,945.4	59.2	Apr. 5, 1948	C,W	S		
C-28	do.	4	41	T. 1 S.	E. J. Neathery	--	85	--	2,945.5	47.6	Dec. 13, 1949	C,W	S		
C-29	14 miles north	3	41	T. 1 S.	do.	--	70	--	--	46.8	Mar. 8, 1937	C,W	S		
C-30	14½ miles northeast	3	41	T. 1 S.	Merwin Haag	--	1938	84	6	48.1	Dec. 13, 1949	C,W	N		
C-31	do.	2	41	T. 1 S.	W. L. Sanders	--	--	87	--	59.4	Dec. 10, 1947	None	N		
C-32	do.	1	41	T. 1 S.	Merwin Haag	-- Wheeler	1948	--	--	65.0	Jan. 6, 1948	C,W	D,S	Casing: 6-inch to 84 feet.	
C-33	14 miles northeast	12	41	T. 1 S.	do.	--	--	48	--	51.4	do.	C,W	D,S		
C-34	do.	11	41	T. 1 S.	--	--	--	58	--	39.4	Oct. 13, 1948	--	Irr	Yield reported to be 500 gpm in October 1948. Pump not installed on Oct. 13, 1948.	
C-35	13½ miles northeast	14	41	T. 1 S.	J. O. Nobles, Jr.	--	--	59	--	41.0	Jan. 6, 1948	C,W	S		
C-36	13 miles northeast	10	41	T. 1 S.	E. J. Neathery	--	--	68	--	46.0	do.	C,W	S		
C-37	11½ miles north	16	41	T. 1 S.	Sam Hurt & H. S. Ratliff	--	--	39	6	36.4	do.	C,W	S		
C-38	12 miles northeast	15	41	T. 1 S.	--	--	--	100	--	53.3	Jan. 8, 1948	C,W	S	Pumping level measured 55.9 feet below land surface on Jan. 7, 1948	
										37.8	Mar. 10, 1937	C,W	S		
										37.8	Dec. 13, 1949	C,W	S		
										38.6	Jan. 7, 1948	C,W	S		

Table 4.- Records of wells in Ector County--Continued

Well	Distance from Odessa	Land location			Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Water level		Method of lift	Use of water	Remarks
		Section	Block	Township or survey							Below land surface datum (ft.)	Date of measurement			
C-39	11½ miles northeast	22	41	T. 1 S.	Mrs. M. C. Whittenburgh	--	66	--	--	49.3	Mar. 11, 1937	C, W	S	Pumping level measured 51.9 feet below land surface while well was pumped at 4 gpm on Jan. 7, 1948.	
D-1	25 miles northwest	30	45	T. 1 N.	H. E. Cummins	--	174	--	--	--	--	C, W	S	Pumping level measured 103.5 feet below land surface on Apr. 24, 1937.	
D-2	do.	30	45	T. 1 N.	do.	--	105	--	--	102.7	Apr. 24, 1937	None	N		
D-3	23½ miles northwest	6	45	T. 1 S.	E. R. Thomas Estate	--	127	6	--	104.4	do.	None	N		
D-5	21½ miles northwest	10	45	T. 1 S.	Paul Slator	--	1890	170	6	--	--	C, W	S	Temp. 68° F.	
D-6	21 miles northwest	10	45	T. 1 S.	J. D. Slator, Jr.	Exploration Co.	--	4,437	--	--	--	None	N	Oil test. See log.	
D-7	20½ miles northwest	10	45	T. 1 S.	--	--	205	--	a/3,250	--	--	None	N	Seismograph shot hole. See log.	
D-8	19½ miles northwest	26	45	T. 1 S.	Paul Slator	--	--	174	6	--	161.7	Apr. 9, 1937	None	N	Casing: 6-inch to 20 feet. Formerly supplied water for oil-well drilling rig.
D-10	22½ miles west	19	45	T. 1 S.	--	--	175	--	a/3,309	--	--	None	N	Seismograph shot hole. See log.	
D-11	24½ miles west	16	46	T. 1 S.	--	--	135	--	a/3,062	--	--	None	N	Do.	
D-12	22 miles west	31	45	T. 1 S.	--	--	105	--	a/3,107	--	--	None	N	Do.	
D-14	19½ miles west	34	45	T. 1 S.	J. E. Parker	--	--	168	6	--	157.7	Apr. 26, 1937	C, W	D, S	
D-15	18½ miles west	34	45	T. 1 S.	--	--	200	--	a/3,225	--	--	None	N	Seismograph shot hole. See log.	
D-16	do.	39	45	T. 1 S.	A. Kloh, et al.	Exploration Co.	1926	4,045	--	a/3,225	--	--	None	N	Oil test. See log.
D-17	18 miles west	46	45	T. 1 S.	--	--	195	--	a/3,234	--	--	None	N	Seismograph shot hole. See log.	
D-18	do.	47	45	T. 1 S.	J. E. Parker	--	--	190	6	--	169.8	Apr. 26, 1937	C, G	N	Formerly supplied water for oil company pump station.

Table 4.- Records of wells in Ector County--Continued

Well	Distance from Odessa	Land location		Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Water level		Method of lift	Use of water	Remarks
		Section	Block Township or survey							Below land surface datum (ft.)	Date of measurement			
E-1	19½ miles northwest	28	44 T. 1 N.	C. Scharbauer	--	122	--	--	95.0	Apr. 23, 1937	C, W	S	Oil test. See log.	
E-2	18 miles northwest	35	44 T. 1 N.	do.	W. H. Dunning, Jr.	4,175	--	<u>A/3,159</u>	--	--	None	N	Casing: 10½-inch to 10 feet; 8 5/8-inch to 126 feet.	
E-3	16½ miles northwest	36	44 T. 1 N.	B. H. Blakeney	Bower Water Well Co.	150	10½, 8-5/8	--	--	--	T, --	Ind	Casing: 10½-inch to 20 feet; 8 5/8-inch to 135 feet. Yield reported to be 60 gpm after 4½ hours pumping. See log.	
E-4	do.	36	44 T. 1 N.	do.	do.	145	10½, 8-5/8	--	<u>B/100</u>	1947	T, --	D	Casing: 10½-inch to 20 feet; 8 5/8-inch to 134 feet.	
E-5	do.	36	44 T. 1 N.	do.	do.	145	10½, 8-5/8	--	<u>B/102</u>	1947	T, --	D	Casing: 10½-inch to 20 feet; 8 5/8-inch to 134 feet.	
E-6	do.	36	44 T. 1 N.	do.	do.	140	10½, 8-5/8	--	<u>B/97</u>	1947	T, G, --	D	Casing: 10½-inch to 20 feet; 8 5/8-inch to 132 feet. Yield reported to be 60 gpm after 11 hours, pumping. See log.	
E-7	16 miles northwest	1	44 T. 1 S.	Clyde Cowden	--	120	--	--	104.1	Apr. 23, 1937	None	N	Not cased.	
E-8	15½ miles northwest	1	44 T. 1 S.	do.	--	104	--	--	82.3	do.	None	N	Do.	
E-9	13 miles northwest	17	43 T. 1 S.	Mrs. A. W. Wright	--	105	--	--	78.2	do.	C, W	S	Temp. 68° F.	
E-10	do.	17	43 T. 1 S.	do.	--	119	6	--	84.5	do.	C, W	S	Temp. 66° F.	
E-11	12 miles northwest	29	43 T. 1 S.	--	--	200	--	<u>A/3,039</u>	--	--	None	N	Seismograph shot hole. See log.	
E-12	15½ miles northwest	12	44 T. 1 S.	Clyde Cowden	--	85	6	--	73.4	Apr. 23, 1937	C, W	S	Temp. 67° F.	
E-13	16 miles northwest	11	44 T. 1 S.	C. Scharbauer	--	91	--	--	--	--	C, W	S	Temp. 66° F.	
E-14	16½ miles northwest	10	44 T. 1 S.	C. A. Goldsmith et al.	Gulf Production Co.	4,177	--	<u>A/3,112</u>	--	--	None	N	Oil test. See log.	
E-15	do.	16	44 T. 1 S.	C. Scharbauer	--	172	6	--	146.5	Apr. 12, 1937	C, W	S	Temp. 67° F.	
E-16	18 miles northwest	8	44 T. 1 S.	do.	--	69	--	--	54.6	Apr. 10, 1937	C, W	S	Temp. 66° F.	

Table 4.- Records of wells in Ector County--Continued

Well	Distance from Odessa	Land location			Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Water level		Method of lift	Use of water	Remarks
		Section	Block	Township or survey							Below land surface datum (ft.)	Date of measurement			
E-17	18½ miles northwest	6	44	T. 1 S.	C. Scharbauer	--	89	6	--	68.7	Apr. 10, 1937	C,W	S	Temp. 68° F.	
E-18	17½ miles northwest	17	44	T. 1 S.	do.	--	100	--	--	71.4	do.	C,W	S		
E-19	17 miles northwest	30	44	T. 1 S.	do.	--	64	6	--	40.5	do.	C,W	S	Temp. 66° F.	
E-20	15½ miles northwest	28	44	T. 1 S.	do.	--	162	--	--	--	--	C,W	S	Temp. 68° F.	
E-21	13 miles northwest	35	44	T. 1 S.	do.	--	185	--	--	--	--	C,W	S		
E-22	11 miles northwest	43	43	T. 1 S.	J. L. Johnson	--	115	--	--	80.1	Mar. 17, 1937	C,W	S		
E-23	do.	42	43	T. 1 S.	do.	-- Zweifel et al.	3,605	--	--	--	--	None	N	Oil test. See log.	
E-24	9½ miles northwest	41	43	T. 1 S.	do.	A. W. Cherry et al.	1933	4,465	--	a/3,019	--	None	N	Do.	
E-25	9 miles northwest	44	43	T. 1 S.	do.	--	--	109	6	--	--	C,W	S	Pumping level measured 84.7 feet below land surface on Apr. 11, 1937.	
E-26	8½ miles northwest	44	43	T. 1 S.	--	--	--	200	--	a/3,012	--	None	N	Seismograph shot hole. See log.	
E-27	8½ miles west	5	43	T. 2 S.	Elliott Cowden	--	--	87	--	--	66.9	Mar. 17, 1937	C,W	S	
E-28	10½ miles west	12	44	T. 2 S.	do.	--	--	99	--	--	--	C,W	S	Pumping level measured 95.9 feet below land surface on Apr. 30, 1937. Temp. 68° F.	
E-29	10 miles west	12	44	T. 2 S.	do.	Penn Oil Co.	1931	4,439	--	a/3,047	--	None	N	Oil test. See log.	
E-30	13½ miles west	4	44	T. 2 S.	J. E. Parker	--	--	181	--	--	163.9	Apr. 9, 1937	C,W	S	Temp. 68° F.
E-31	15 miles west	44	44	T. 1 S.	H. C. Barrow Estate	--	--	182	--	--	--	C,W	D,S		
E-32	do.	7	44	T. 2 S.	J. E. Parker	--	--	189	6	--	179.7	Apr. 27, 1937	C,W	S	Temp. 70° F.
E-33	13 miles west	9	44	T. 2 S.	do.	--	--	181	--	--	174.4	Apr. 9, 1937	C,W	S	Temp. 66° F.

Table 4.- Records of wells in Ector County--Continued

Well	Distance from Odessa	Land location			Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Water level		Method of lift	Use of water	Remarks
		Section	Block	Township or survey							Below land surface datum (ft.)	Date of measurement			
F-1	12½ miles northwest	12	43	T. 1 S.	R. W. Smith	Moran Co., et al.	1933	4,425	--	a/3,063	--	--	None	N	Oil test. See log.
F-2	11 miles northwest	13	43	T. 1 S.	do.	--	--	142	8	3,039.1	74.0	Apr. 13, 1948	C,W	D	
F-3	11½ miles northwest	18	42	T. 1 S.	do.	--	--	93	--	3,018.8	60.6	Mar. 9, 1937	C,W	S	
											60.9	Dec. 12, 1949			
F-4	do.	18	42	T. 1 S.	do.	--	1902	93	--	3,017.8	59.2	Apr. 8, 1948	C,W	D	
											59.4	Dec. 12, 1949			
F-5	12 miles northwest	7	42	T. 1 S.	--	--	--	152	9	3,019.7	57.4	Jan. 13, 1948	--	D,S	
											58.0	Dec. 12, 1949			
F-6	11½ miles northwest	8	42	T. 1 S.	H. S. Ratliff	--	--	96	6	3,004.2	53.5	Mar. 9, 1937	C,W	S	Pumping level measured 57.4 feet below land surface on Nov. 7, 1947.
											54.5	Dec. 13, 1949			
F-7	10 miles northwest	17	42	T. 1 S.	Hence Barrow	--	--	113	--	3,012.1	71.1	Mar. 31, 1948	C,W	S	Pumping level measured 88.7 feet below land surface while well was pumped at 2 gpm on Mar. 31, 1948.
											71.3	Dec. 12, 1949			
F-8	do.	21	42	T. 1 S.	do.	--	--	111	--	3,010.3	76.3	Mar. 31, 1948	C,W	S	
											76.4	Dec. 12, 1949			
F-9	10½ miles northwest	15	42	T. 1 S.	H. C. Barrow Estate	--	1937	128	--	--	75.0	Aug. 3, 1937	None	N	Seismograph shot hole.
											72.9	Dec. 16, 1941			
F-10	do.	15	42	T. 1 S.	do.	--	--	87	--	--	81.5	Mar. 5, 1937	None	N	
											79.8	Jan. 16, 1940			
F-11	9½ miles northwest	22	42	T. 1 S.	Hence Barrow	--	--	104	8	3,008.0	81.9	Apr. 5, 1948	C,W	S	
											82.6	Dec. 12, 1949			
F-12	10 miles north	23	42	T. 1 S.	do.	--	--	110	8	3,007.4	92.5	Apr. 5, 1948	C,W	S	
											92.0	Dec. 12, 1949			

Table 4.-- Records of wells in Ector County--Continued

Well	Distance from Odessa	Land location		Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Water level		Method of lift	Use of water	Remarks
		Section	Block							Township or survey	Below land surface datum (ft.)			
F-13	11 miles north	18	41	T. 1 S.	Sam Hurt	--	74	6	2,948.6	47.5	Mar. 10, 1937	C, W	S	
F-14	9½ miles northeast	33	41	T. 1 S.	Roy Parks, Jr.	--	156	6	2,981.6	101.5	Apr. 1, 1948	C, W	S	
F-15	9 miles north	29	41	T. 1 S.	Sam Hurt	--	165	--	2,991.0	199.5	Dec. 13, 1949	C, W	S	Not cased.
F-16	8½ miles north	30	41	T. 1 S.	do.	--	138	--	3,003.7	107.2	Apr. 5, 1948	C, W	S	
F-17	8 miles north	31	41	T. 1 S.	do.	--	138	--	3,000.0	106.0	Apr. 6, 1948	C, W	D	Pumping level measured 109.6 feet below land surface on Apr. 6, 1948.
F-18	8½ miles northwest	27	42	T. 1 S.	Hence Barrow	--	89	6	2,985.9	69.1	Apr. 7, 1948	C, W	S	Pumping level measured 74.7 feet below land surface while well was pumped at 1½ gpm on Apr. 7, 1948.
F-19	8 miles northwest	28	42	T. 1 S.	do.	--	98	6	2,996.5	73.6	Apr. 7, 1948	C, W	S	
F-20	do.	28	42	T. 1 S.	do.	--	99	6	2,996.6	76.2	Dec. 12, 1949	C, W	D, S	
F-21	9½ miles northwest	24	43	T. 1 S.	Cal Smith	--	122	--	3,028.4	74.0	Apr. 7, 1948	C, W	S	
F-22	9 miles northwest	35	43	T. 1 S.	J. L. Johnson	--	109	--	--	78.5	Apr. 9, 1948	C, W	S	
F-23	8 miles northwest	38	43	T. 1 S.	do.	--	73	--	--	78.6	Dec. 13, 1949	C, W	S	
F-24	do.	38	43	T. 1 S.	do.	--	--	8	--	72.8	Mar. 13, 1937	C, W	S	
										60.8	do.	C, W	S	
										69.3	Oct. 1, 1948	None	N	Located about 18 feet west of well F-25.

Table 4.- Records of wells in Ector County--Continued

Well	Distance from Odessa	Land location		Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Water level		Method of lift	Use of water	Remarks
		Section	Block							Township or survey	Below land surface datum (ft.)			
F-25	8 miles northwest	38	43	T. 1 S.	J. L. Johnson	Bethel & Matthews	1941	130	--	--	--	C, W	--	Formerly supplied water for oil-well drilling rig. Yield reported to be 150 gpm in 1941.
F-26	7½ miles northwest	42	42	T. 1 S.	do.	--	--	145	--	71.7	Mar. 12, 1937	None	N	Formerly supplied water for oil-well drilling rig.
F-27	8 miles northwest	31	42	T. 1 S.	do.	--	--	112	2,997.9	63.9	Dec. 12, 1949	C, W	S	Pumping level measured 59.2 feet below land surface on Dec. 18, 1947.
F-28	7 miles northwest	40	42	T. 1 S.	Hence Barrow	--	--	100	2,973.2	--	--	C, W	S	Seismograph shot hole.
F-29	7½ miles northwest	33	42	T. 1 S.	--	--	1936	161	--	72.3	June 28, 1937	None	N	Seismograph shot hole.
F-30	6 miles north	39	42	T. 1 S.	Hence Barrow	--	--	124	3,000.2	95.0	Apr. 6, 1948	C, W	S	
F-31	6½ miles north	37	42	T. 1 S.	Sam Hurt	--	--	111	2,982.9	86.6	Apr. 6, 1948	C, W	S	
F-32	6½ miles northeast	44	41	T. 1 S.	--	--	--	105	2,974.3	92.0	Apr. 1, 1948	C, W	S	Pumping level measured 96.2 feet below land surface while well was pumped at 3 gpm on Apr. 1, 1948.
F-33	7½ miles northeast	41	41	T. 1 S.	Roy Parks, Jr.	--	--	177	2,991.4	106.6	Apr. 1, 1948	C, W	S	
F-34	8 miles northeast	40	41	T. 1 S.	do.	--	--	87	2,961.7	82.0	Apr. 6, 1948	None	N	Located about 50 feet west of well F-35.
F-35	do.	40	41	T. 1 S.	do.	--	--	123	2,961.2	82.8	do.	C, W	S	
F-36	4½ miles northeast	12	42	T. 2 S.	J. M. Gist	--	--	69	2,931.7	51.4	Dec. 10, 1949	C, G, 1½	S	Pumping level measured 63.4 feet below land surface on Mar. 19, 1937.

Table 4.- Records of wells in Ector County--Continued

Well	Distance from Odessa	Land location			Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Water level		Method of lift	Use of water	Remarks
		Section	Block	Township or survey							Below land surface (ft.)	Date of measurement			
F-37	3¼ miles northeast	14	42	T. 2 S.	Ewell McKnight	--	--	88	--	2,942.5	--	--	C, W	S	Pumping level measured 71.9 feet below land surface while well was pumped at 2 gpm on Apr. 7, 1948.
F-38	2¼ miles northwest	10	42	T. 2 S.	do.	--	--	112	9	2,944.4	72.4	Apr. 7, 1948	C, W	S	
F-39	do.	10	42	T. 2 S.	J. M. Gist	--	--	118	6	--	62.5	Dec. 12, 1949	C, W	N	
F-40	do.	9	42	T. 2 S.	City of Odessa	Hines Water Well Co.	1944	155	10	2,936.8	62.6	Mar. 19, 1937	T, E, 5	P	Casing: 10-inch to 69 feet. See log.
F-41	do.	9	42	T. 2 S.	do.	do.	1944	150	10½	2,935.5	70.3	July 31, 1940	T, E, 5	P	Casing: 10½-inch to 60 feet. Pumping level measured 102.1 feet below land surface on Sept. 29, 1947, after 27 hours' pumping. Yield reported to be 110 gpm in Aug. 1944. See log.
F-42	do.	9	42	T. 2 S.	do.	do.	1944	148	10	2,933.5	71.9	Sept. 26, 1947	T, E, 3	P	Casing: 10-inch to 69 feet. Pump set at 137 feet. Pumping level measured 112.0 feet below land surface after 27 hours pumping on Sept. 29, 1947. Yield reported to be 130 gpm after 24 hours' pumping in Mar. 1944. See log.
											76.8	Dec. 9, 1949			
											77.1				
											63.0	Dec. 9, 1949			

Table 4.-- Records of wells in Ector County--Continued

Well	Distance from Odessa	Land location		Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface datum (ft.)	Water level		Method of lift	Use of water	Remarks	
		Section	Block							Township or survey	Below land surface datum (ft.)				Date of measurement
F-43	2½ miles northwest	16	42	T. 2 S.	City of Odessa	Hines Water Well Co.	1945	135	--	2,935.1	81.8	Sept. 30, 1947	T, E, 5	P	Pumping level measured 102.5 feet below land surface after 26 hours' pumping on Sept. 29, 1947. Yield reported to be 35 gpm in Mar. 1945. See log.
F-44	do.	16	42	T. 2 S.	do.	do.	1945	135	--	2,937.4	--	--	T, E, 7½	P	Yield reported to be 38 gpm in Mar. 1945. See log.
F-45	3 miles northwest	9	42	T. 2 S.	do.	do.	1944	156	10	2,936.4	85.1	Sept. 30, 1947 Dec. 9, 1949	T, E, 5	P	Casing: 10-inch to 69 feet. Pump set at 147 feet. Drawdown measured 42 feet after well was pumped at 69 gpm for 15 hours' on Oct. 18, 1947. See log.
F-46	do.	9	42	T. 2 S.	do.	do.	1944	150	7	2,937.7	78.9	Sept. 26, 1947	T, E, 5	P	Casing: 10-inch to 69 feet; 7-inch from 0 to 150 feet. Gravel-walled well. Pump set at 145 feet. See log.
F-47	do.	9	42	T. 2 S.	do.	do.	1944	145	10	2,936.0	70.8	Sept. 26, 1947 Dec. 9, 1949	T, E, 5	P	Casing: 10-inch to 68 feet. Pump set at 122 feet. Drawdown 23.7 feet after well was pumped at 75 gpm for 15 hours on Oct. 18, 1947. See log.
F-48	3¼ miles northwest	8	42	T. 2 S.	do.	Bethel & Matthews	1948	150	16	--	--	--	None	N	Casing: 16-inch to 5 feet. Yield reported to be 30-gallons an hour in June 1948. See log.

Table 4.- Records of wells in Ector County--Continued

Well	Distance from Odessa	Section	Block	Township or survey	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Water level Below land surface datum (ft.)	Date of measurement	Method of lift	Use of water	Remarks
F-49	3½ miles northwest	9	42	T. 2 S.	City of Odessa	Hines Water Well Co.	1944	139	10	2,939.2	--	--	T, E, 10	P	Casing: 10-inch to 64 feet. Pump set at 140 feet. Yield measured 41 gpm after 15 hours' pumping on Oct. 18, 1947. See log.
F-50	do.	9	42	T. 2 S.	do.	do.	1944	140	10	2,936.7	57.6	Dec. 9, 1949	T, E, 5	P	Casing: 10-inch to 69 feet. Pump set at 140 feet. Drawdown measured 32.1 feet after pumping 46 gpm for 16 hours on Oct. 18, 1947. See log.
F-51	3½ miles northwest	9	42	T. 2 S.	do.	do.	1944	148	10	2,936.4	--	--	T, E, 5	P	Casing: 10-inch to 70 feet. Pump set at 140 feet. Yield measured 74 gpm after 16 hours' pumping on Oct. 18, 1947. See log.
F-52	do.	9	42	T. 2 S.	do.	do.	1944	156	7	2,939.6	86.6	Sept. 26, 1947	T, E, 5	P	Casing: 10-inch to 60 feet; 7-inch from 0 to 156 feet, slotted from 56 to 156 feet. Gravel-walled. Pump set at 145 feet. Pumping level measured 106.1 feet below land surface after 26 hours' pumping on Sept. 29, 1947. See log.
F-53	do.	9	42	T. 2 S.	do.	do.	1945	150	10½	2,939.0	81.0	Sept. 26, 1947	T, E, 5	P	Casing: 10½-inch to 68 feet. Pump set at 145 feet. Pumping level measured 107.6 feet below land surface after 27 hours' pumping on Sept. 29, 1947. See log.
F-54	3 miles northwest	9	42	T. 2 S.	do.	do.	1944	155	7	2,941.5	--	--	T, E, 5	P	Steel casing. Gravel-walled. Pump set at 145 feet. See log.

Table 4.- Records of wells in Ector County - -Continued

Well	Distance from Odessa	Land location		Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Water level		Method of lift	Use of water	Remarks
		Section	Block							Township or survey	Below land surface datum (ft.)			
F-55	3 1/4 miles northwest	9	42	T. 2 S.	City of Odessa	Hines Water Well Co.	1945	180	2,939.4	85.9	Sept. 26, 1947 Dec. 9, 1949	T, E, 5	P	Casing: 15-inch to 40 feet; 10-inch from 9 to 180 feet; slotted from 90 to 180 feet. Gravel-walled. Pumping level measured 131.5 feet below land surface on Sept. 29, 1947, after 27 hours' pumping. See log.
F-56	do.	9	42	T. 2 S.	do.	do.	1945	150	2,944.0	87.0 82.1	Sept. 26, 1947 Dec. 9, 1949	T, E, 15	P	Casing: 15-inch to 32 feet; 10-inch from 0 to 150 feet. Gravel-walled. Pump set at 135 feet. Draw-down measured 56.0 feet after 17 hours' pumping at 95 gpm on Oct. 18, 1947. See log.
F-57	3 3/4 miles northwest	9	42	T. 2 S.	do.	do.	1945	165	2,946.5	77.1 77.1	Sept. 26, 1947 Dec. 9, 1949	T, E, 5	P	Casing: 10-inch to 40 feet. Gravel-walled. Pump set at 140 feet. Pumping level measured 101.7 feet below land surface after 27 hours' pumping on Sept. 29, 1947. See log.
F-58	do.	9	42	T. 2 S.	do.	do.	1945	155	2,948.8	79.3 80.3	Sept. 26, 1947 Dec. 9, 1949	T, E, 7 1/2	P	Casing: 10-inch to 155 feet; slotted from 65 to 155 feet. Gravel-walled. Pumping level measured 136.8 feet below land surface after 27 hours' pumping on Sept. 29, 1947. See log.
F-59	4 miles northwest	4	42	T. 2 S.	do.	do.	1945	175	2,947.4	--	--	T, E, 10	P	Casing: 15-inch to 30 feet; 10-inch from 0 to 175 feet. Gravel-walled. Pump set at 160 feet. See log.

Table 4.- Records of wells in Ector County--Continued

Well	Distance from Odessa	Land location		Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Water level		Method of lift	Use of water	Remarks
		Section	Block							Township or survey	Below land surface datum (ft.)			
F-60	4 miles northwest	4	42	T. 2 S.	City of Odessa	Bethel & Matthews	1946	150	2,948.2	78.0	Sept. 26, 1947 Dec. 9, 1949	T, E, 10	P	Casing: 15-inch to 19 feet; 10-inch from 0 to 150 feet; slotted from 70" to 150 feet. Gravel-walled. Pump set at 137 feet. Pumping level measured 119.8 feet below land surface after 27 hours' pumping on Sept. 29, 1947. See log.
F-61	4 1/4 miles northwest	4	42	T. 2 S.	--	--	1948	102	2,954.9	63.8	Apr. 13, 1948 Dec. 13, 1949	C, W	D	
F-62	4 1/4 miles northwest	4	42	T. 2 S.	City of Odessa	Hines Water Well Co.	1946	160	2,937.4	60.3	Sept. 26, 1947 Dec. 9, 1949	T, E, 10	P	Casing: 15-inch to 30 feet; 10-inch from 0 to 160 feet; slotted from 100 to 160 feet. Gravel-walled. See log.
F-63	do.	4	42	T. 2 S.	do.	Bethel & Matthews	1946	150	2,937.4	46.0	Sept. 29, 1947 Dec. 9, 1949	T, E, 7 1/2	P	Casing: 16-inch to 20 feet; 10-inch from 0 to 150 feet; slotted from 70 to 150 feet. Gravel-walled. Pumping level measured 67.6 feet below land surface after 7 hours' pumping on Sept. 29, 1947. See log.
F-64	4 1/4 miles northwest	4	42	T. 2 S.	do.	Hines Water Well Co.	1945	175	2,941.0	45.2	Sept. 26, 1947 Dec. 9, 1949	T, E, 10	P	Casing: 10-inch to 175 feet; slotted from 83 to 175 feet. Gravel-walled. Pump set at 140 feet. Pumping level measured 93.8 feet below land surface after 7 hours' pumping on Sept. 29, 1947. See log.

Table 4.- Records of wells in Ector County--Continued

Well	Distance from Odessa	Land location			Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Water level		Method of lift	Use of water	Remarks
		Section	Block	Township or survey							Below land surface datum (ft.)	Date of measurement			
F-65	4½ miles northwest	46	42	T. 1 S.	City of Odessa	Bethel & Matthews	1947	158	10½	--	46.8	Sept. 26, 1947	T, E, 7½	D	Casing: 15-inch to 20 feet; 10½-inch from 0 to 158 feet; slotted from 58 to 158 feet. Gravel-walled. Pump set at 145 feet. Supplies water for municipal airport. See log.
F-66	do.	46	42	T. 1 S.	do.	do.	1947	163	10½	2,950.1	49.7	do.	T, E, 7½	D	Casing: 15-inch to 16 feet; 10½-inch from 0 to 163 feet; slotted from 63 to 163 feet. Gravel-walled. Pump set at 145 feet. Supplies water for municipal airport. See log.
F-67	4½ miles northwest	3	42	T. 2 S.	A. G. Stevenson	Cy Clifford	1948	115	8	--	--	--	T, E, 3	D, Irr	Casing: 8-inch to 18 feet. Irrigates nursery.
F-68	4½ miles northwest	3	42	T. 2 S.	do.	--	--	83	7	2,941.3	41.3	Apr. 13, 1948 Dec. 12, 1949	C, W	N	
F-69	4½ miles north	2	42	T. 2 S.	J. M. Gist	--	--	105	8	--	95.1	Mar. 19, 1937	None	N	
F-70	5 miles northwest	46	42	T. 1 S.	do.	--	--	88	--	--	62.9	Mar. 12, 1937	C, W	S	
F-71	do.	45	42	T. 1 S.	City of Odessa	Bethel & Matthews	1948	130	10½	--	--	--	T, E, 15	P	Casing: 16-inch to 20 feet; 10½-inch from 0 to 130 feet; slotted from 60 to 130 feet. Gravel-walled. Pump set at 115 feet. See log.
F-72	do.	45	42	T. 1 S.	do.	do.	1948	170	10½	--	74.2	Dec. 11, 1949	T, E, 25	P	Casing: 16-inch to 20 feet; 10½-inch from 0 to 170 feet; slotted from 70 to 170 feet. Gravel-walled. Pump set at 150 feet. Draw-down reported to be about 65 feet after 4½ hours' pumping at 223 gpm on May. 7, 1948. See log.

Table 4.- Records of wells in Ector County--Continued

Well	Distance from Odessa	Land location		Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Below land surface datum (ft.)	Water level		Method of lift	Use of water	Remarks
		Section	Block Township or survey								Date of measurement	Level			
F-73	4 1/4 miles northwest	45	42 T. 1 S.	City of Odessa	Bethel & Matthews	1948	170	10 1/2	--	78.0	Dec. 11, 1949	T, E, 20	P	Casing: 15-inch to 20 feet; 10 1/2-inch from 0 to 170 feet; slotted from 70 to 170 feet. Gravel-walled. Pump set at 145 feet. See log.	
F-74	do.	4	42 T. 2 S.	J. P. Bageley	--	--	97	--	--	61.0	May 14, 1937	C, W	D, S		
F-75	5 miles northwest	44	42 T. 1 S.	--	--	--	135	10	2,961.3	59.3	Apr. 12, 1948	C, W	Ind		
F-76	5 1/2 miles northwest	44	42 T. 1 S.	J. M. Gist	--	--	51	--	--	44.9	Mar. 18, 1937	C, W	S		
F-77	do.	45	42 T. 1 S.	City of Odessa	Bethel & Matthews	1946	156	10	2,951.5	53.8	Sept. 29, 1947	T, E, 15	P	Casing: 16-inch to 21 feet; 10-inch from 0 to 156 feet; slotted from 76 to 156 feet. Gravel-walled. Pumping level measured 98.5 feet below land surface after 6 hours' pumping on Sept. 29, 1947. See log.	
F-78	do.	44	42 T. 1 S.	--	--	--	82	--	2,953.0	54.1	Dec. 17, 1947	C, G, --	N		
F-79	do.	45	42 T. 1 S.	City of Odessa	Bethel & Matthews	1946	158	10 1/2	2,951.8	57.8	Sept. 29, 1947	T, E, 10	P	Casing: 16-inch to 12 feet; 10 1/2-inch from 0 to 158 feet; slotted from 58 to 158 feet. Gravel-walled. Pump set at 147 feet. See log.	
F-80	do.	45	42 T. 1 S.	do.	do.	1946	156	10	2,949.3	53.4	Sept. 29, 1947	T, E, 10	P	Casing: 16-inch to 15 feet; 10-inch from 0 to 156 feet; slotted from 86 to 156 feet. Gravel-walled. Pumping level measured 97.0 feet below land surface after 6 hours' pumping on Sept. 29, 1947. See log.	
										79.8	Dec. 11, 1949				

Table 4.- Records of wells in Ector County--Continued

Well	Distance from Odessa	Land location		Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface datum (ft.)	Water level		Method of lift	Use of water	Remarks
		Section	Block Township or survey							Below land surface datum (ft.)	Date of measurement			
F-81	5½ miles northwest	45	42 T. 1 S.	City of Odessa	Bethel & Matthews	1946	164	10	2,948.2	53.4	Sept. 26, 1949 Dec. 11, 1949	T, E, 15	P	Casing: 16-inch surface casing; 10-inch from 0 to 164 feet; slotted from 64 to 164 feet. Gravel-walled. See log.
F-82	5 miles northwest	45	42 T. 1 S.	do.	do.	1948	175	10½	--	--	--	T, E, 15	P	Casing: 16-inch to 12 feet; 10½-inch from 0 to 175 feet; slotted from 75 to 175 feet. Gravel-walled. Pump set at 147 feet. Yield reported to be 150 gpm in June 1948. See log.
F-83	5½ miles northwest	45	42 T. 1 S.	do.	do.	1948	180	10½	2,958.2	84.2	Dec. 11, 1949	T, E, 25	P	Casing: 16-inch to 20 feet; 10½-inch from 0 to 180 feet; slotted from 80 to 180 feet. Gravel-walled. Pump set at 140 feet. See log.
F-84	do.	45	42 T. 1 S.	do.	do.	1946	174	10½	2,952.0	54.6 81.3	Sept. 29, 1947 Dec. 11, 1949	T, E, 15	P	Casing: 16-inch to 8 feet; 10½-inch from 0 to 174 feet; slotted from 74 to 174 feet. Gravel-walled. Pumping level measured 91.8 feet below land surface after 6 hours pumping on Sept. 29, 1947. See log.
F-85	do.	45	42 T. 1 S.	do.	do.	1948	180	10½	2,958.1	72.1	Dec. 11, 1949	T, E, 25	P	Casing: 16-inch to 10 feet; 10½-inch from 0 to 180 feet; slotted from 80 to 180 feet. Gravel-walled. Pump set at 150 feet. Yield reported to be 125 gpm in June 1948. See log.

Table 4.- Records of wells in Ector County--Continued

Well	Distance from Odessa	Land location		Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Water level		Method of lift	Use of water	Remarks
		Section	Block							Township or survey	Below land surface datum (ft.)			
F-86	6 miles northwest	45	42	T. 1 S.	City of Odessa	Bethel & Matthews	1947	180	2,955.8	54.0	Sept. 26, 1947 Dec. 11, 1949	T, E, 25	P	Casing: 1 1/2-inch to 17 feet; 10 1/2-inch from 0 to 180 feet; slotted from 80 to 180 feet. Gravel-walled. Pump set at 150 feet. See log.
F-87	do.	45	42	T. 1 S.	do.	do.	1947	166	2,953.4	55.9	Sept. 29, 1947 Dec. 11, 1949	T, E, 25	P	Casing: 1 1/2-inch to 17 feet; 10 1/2-inch from 0 to 166 feet; slotted from 66 to 166 feet. Gravel-walled. Pump set at 140 feet. Pumping level measured 119.0 feet below land surface after 6 hours pumping on Sept. 29, 1947. See log.
F-88	do.	45	42	T. 1 S.	do.	do.	1945	164	2,955.1	55.6	Sept. 29, 1947 Dec. 11, 1949	T, E, 25	P	Casing: 16-inch to 24 feet; 10-inch from 0 to 164 feet; slotted from 64 to 164 feet. Gravel-walled. Pump set at 150 feet. Pumping level measured 118.6 feet below land surface after 6 hours pumping on Sept. 29, 1947. See log.
F-89	do.	44	42	T. 1 S.	do.	do.	1946	169	2,957.1	59.6	Sept. 29, 1947 Dec. 9, 1949	T, E, 15	P	Casing: Surface casing to 18 feet; 10 1/2-inch to 160 feet. Gravel-walled. Pump set at 148 feet. Pumping level measured 94.4 feet below land surface after 6 hours pumping on Sept. 29, 1947. See log.
F-90	5 1/2 miles northwest	44	42	T. 1 S.	do.	do.	1946	160	2,954.3	54.3	Sept. 29, 1947 Dec. 9, 1949	T, E, 15	P	Casing: Surface casing to 20 feet; 10 1/2-inch from 0 to 160 feet. Gravel-walled. Pump set at 150 feet. Pumping level measured 88.7 feet below land surface after 5 hours pumping on Sept. 29, 1947.

Table 4.- Records of wells in Ector County--Continued

Well	Distance from Odessa	Land location			Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Water level		Method of lift	Use of water	Remarks
		Section	Block	Township or survey							Below land surface datum (ft.)	Date of measurement			
F-91	6 miles northwest	44	42	T. 1 S.	City of Odessa	Bethel & Matthews	1946	147	10½	2,956.0	53.6 71.2	Sept. 29, 1947 Dec. 9, 1949	T, E, 15	P	Casing: 15½-inch to 20 feet; 10½-inch from 0 to 147 feet; slotted from 67 to 147 feet. Gravel-walled. Pump set at 140 feet. Pumping level measured 101.7 feet below land surface after 5 hours pumping on Sept. 29, 1947. See log.
F-92	do.	44	42	T. 1 S.	do.	do.	1946	160	10½	2,962.2	64.7 76.6	Sept. 29, 1947 Dec. 9, 1949	T, E, 25	P	Casing: Surface casing to 21 feet; 10½-inch from 0 to 160 feet. Gravel-walled. Pump set at 140 feet. Pumping level measured 107.0 feet below land surface after 5 hours pumping on Sept. 29, 1947. See log.
F-93	do.	44	42	T. 1 S.	do.	do.	1947	150	10½	2,964.3	58.3 70.0	Sept. 29, 1947 Dec. 9, 1949	T, E, 25	P	Casing: 15½-inch to 17 feet; 10½-inch from 0 to 150 feet; slotted from 70 to 150 feet. Gravel-walled. Pump set at 140 feet. Pumping level measured 99.6 feet below land surface after 5 hours pumping on Sept. 29, 1947. See log.
F-94	do.	44	42	T. 1 S.	do.	do.	1947	140	10½	2,959.3	57.5 64.3	Sept. 29, 1947 Dec. 9, 1949	T, E, --	P	Casing: 15½-inch to 19 feet; 10½-inch from 0 to 140 feet; slotted from 60 to 140 feet. Gravel-walled. Pump set at 128 feet. See log.
F-95	do.	44	42	T. 1 S.	do.	do.	1948	140	--	--	b/60	Apr. 1948	None	N	Insufficient water for public supply. See log.
F-96	6½ miles northwest	43	42	T. 1 S.	J. L. Johnson Estate	--	--	99	--	2,976.8	56.2	Apr. 12, 1948	C, W	S	Yield estimated to be 4 gpm.
F-97	6 miles northwest	1	43	T. 2 S.	do.	--	--	93	--	2,969.6	53.3	do.	C, W	S	Not cased.

Table 4.- Records of wells in Ector County--Continued

Well	Distance from Odessa	Land location		Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Water level		Method of lift	Use of water	Remarks
		Section	Block							Township or survey	Below land surface datum (ft.)			
F-98	4½ miles northwest	6	42	T. 2 S.	J. L. Johnson Estate	--	72	6	2,953.9	53.1	Apr. 12, 1948 Dec. 13, 1949	C, W	D	
F-99	3¾ miles northwest	8	42	T. 2 S.	do.	--	72	9	2,951.8	64.9	Apr. 12, 1948 Dec. 13, 1949	C, W	S	
F-100	3 miles northwest	17	42	T. 2 S.	J. E. Bagley	1946	120	--	--	--	--	None	N	Yield reported to be 100 gpm in 1946. See log.
F-101	2½ miles northwest	17	42	T. 2 S.	do.	1946	118	--	--	--	--	None	N	See log.
F-102	3 miles northwest	17	42	T. 2 S.	do.	--	72	--	--	--	--	C, W	D, S	Pumping level measured 50.9 feet below land surface on May 14, 1937. Temp. 68° F.
F-103	2½ miles northwest	17	42	T. 2 S.	do.	1942	120	--	--	--	--	None	N	See log.
F-104	In Odessa	21	42	T. 2 S.	Odessa Public Schools	1948	142	10	--	--	--	T, E, 7½	Irr	Gravel-walled. Irrigates grass at football stadium.
F-105	1½ miles northeast	23	42	T. 2 S.	Andy Newnham	--	1,096	--	--	--	--	None	N	Oil test. See log.
F-106	3¾ miles northeast	19	41	T. 2 S.	Ewell McKnight	--	66	--	2,895.9	45.0	Apr. 7, 1948 Dec. 14, 1949	C, W	S	
F-107	5½ miles northeast	8	41	T. 2 S.	Dr. E. V. Hedley	--	83	--	2,906.2	38.5	Apr. 1, 1948 Dec. 10, 1949	C, W	S	
F-108	6½ miles northeast	5	41	T. 2 S.	do.	--	90	8	2,933.3	58.4	Mar. 31, 1948 Dec. 10, 1949	C, W	S	
F-109	6 miles northeast	6	41	T. 2 S.	Roy Parks, Jr.	--	108	9	2,898.8	40.9	Apr. 6, 1948 Dec. 10, 1949	C, W	S	
F-110	5½ miles northeast	16	41	T. 2 S.	Odessa Country Club	1942	115	--	--	--	--	T, E, --	Irr	Irrigates golf course.
F-111	do.	21	41	T. 2 S.	do.	1947	115	--	--	--	--	T, E, --	Irr	Irrigates golf course. See log.

Table 4.- Records of wells in Ector County--Continued

Well	Distance from Odessa	Land location		Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Water level		Method of lift	Use of water	Remarks
		Section	Block							Township or survey	Below land surface datum (ft.)			
F-112	5½ miles northeast	21	41	T. 2 S.	Odessa Country Club	1938	115	--	--	--	T, E, --	D		
F-113	do.	21	41	T. 2 S.	do.	1938	115	--	--	Dec. 13, 1947	T, E, --	Irr	Irrigates golf course.	
F-114	do.	21	41	T. 2 S.	do.	1946	115	--	--	do.	T, E, --	D, Irr	Do.	
F-115	do.	21	41	T. 2 S.	do.	1946	115	--	--	do.	T, E, --	Irr	Do.	
F-116	3¾ miles northeast	30	41	T. 2 S.	-- Smith	--	55	--	--	June 22, 1937	C, W	--	Not cased.	
F-117	3¾ miles east	31	41	T. 2 S.	-- Pool	1948	110	--	--	Dec. 8, 1948	None	N	City of Odessa test well. Not cased. Drawdown 38 feet on Dec. 8, 1948, after 1 hour's pumping at 50 gpm insufficient water for public supply. See log.	
F-118	2¾ miles northeast	25	42	T. 2 S.	do.	1948	125	--	--	Dec. 6, 1948	None	N	City of Odessa test well. Not cased. Drawdown 41 feet on Dec. 7, 1948, after 23 hours pumping at 56 gpm. Insufficient water for public supply. See log.	
F-119	1¾ miles northeast	25	42	T. 2 S.	Sivalls Tank, Inc.	1947	150	10	--	--	T, E, 5	Ind	Casing: 10-inch to 11 feet. See log.	
F-120	¾ mile east	27	42	T. 2 S.	City of Odessa	--	87	6	--	Dec. 16, 1941	None	N	Well in cemetery.	
F-121	In Odessa	34	42	T. 2 S.	--	1937	87	--	--	--	C, W	D	See log.	
F-122	¾ mile northeast	27	42	T. 2 S.	Sun Oil Co.	1948	134	6-5/8	--	--	T, E, --	D	Casing: 6 5/8-inch to 134 feet. Gravel-walled.	
F-123	In Odessa	21	42	T. 2 S.	City of Odessa	1937	144	12	--	Mar. 22, 1937	None	N	Unused city well. See log.	
F-124	1 mile west	28	42	T. 2 S.	Humble Pipe Line Co.	1939	124	10¾, 8-5/8	--	--	T, --	--	Casing: 10¾-inch to about 66 feet, 8 5/8-inch liner from 58 to 124 feet; slotted from about 82 to 124 feet. Gravel-walled. Pump set at 111 feet. See log.	

Table 4.- Records of wells in Ector County--Continued

Well	Distance from Odessa	Land location			Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Water level		Method of lift	Use of water	Remarks
		Section	Block	Township or survey							Below land surface datum (ft.)	Date of measurement			
F-125	1 mile west	28	42	T. 2 S.	Humble Pipe Line Co.	Hines Water Well Co.	1945	125	10½	--	--	--	--	--	Casing: 10½-inch to 86 feet. See log.
F-126	3½ miles southwest	30	42	T. 2 S.	--	do.	1941	105	10	--	--	--	None	N	Casing: 10-inch to 19 feet. Formerly used to supply water for oil-well drilling rig. See log.
F-127	3¾ miles southwest	25	43	T. 2 S.	May Witcher	--	--	54	6	--	37.9	May 7, 1937	C, W	S	Temp. 69° F.
F-128	3¾ miles west	24	43	T. 2 S.	do.	Hines Water Well Co.	1939	193	12½	--	--	--	None	N	Casing: 12½-inch to 180 feet. Formerly used to supply water for oil-well drilling rig. See log.
F-129	4¾ miles west	24	43	T. 2 S.	Wanda Hinkle	--	--	--	--	--	--	--	C, W	S	
F-130	6 miles northwest	10	43	T. 2 S.	Elliott Cowden	--	--	72	--	--	--	--	C, W	D, S	Pumping level, measured, 57.9 feet below land surface on Apr. 17, 1937. Temp. 68° F.
F-131	7 miles west	16	43	T. 2 S.	do.	Broderick & Calvert et al.	1934	4,504	--	a/2,960	--	--	None	N	Oil test. See log.
F-132	5½ miles west	23	43	T. 2 S.	do.	--	--	48	10	--	23.9	Mar. 18, 1937	C, W	S	
F-133	8 miles northwest	32	42	T. 1 S.	City of Odessa	Bethel & Matthews	1949	185	10½	3,000.7	74.9	Dec. 9, 1949	--	P	Casing: 16-inch to 20 feet; 10½-inch from 0 to 185 feet. See log.
F-134	do.	32	42	T. 1 S.	do.	do.	1949	191	16	2,996.0	74.8	do.	--	P	Casing: 16-inch to 20 feet. See log.
F-135	7½ miles northwest	33	42	T. 1 S.	do.	do.	1949	205	16	2,992.7	77.4	Dec. 11, 1949	T, E, 15	P	Casing: 16-inch to 20 feet. Pump set at 175 feet. See log.
F-136	do.	33	42	T. 1 S.	do.	do.	1949	195	10½	2,985.8	76.8	do.	T, E, 25	P	Casing: 10½-inch to 195 feet. Gravel-walled. Pump set at 178 feet. See log.
F-137	do.	--	42	T. 1 S.	do.	do.	1949	200	10½	2,997.3	78.1	Dec. 9, 1949	--	P	Casing: 16-inch to 20 feet. 10½-inch from 0 to 200 feet. Gravel-walled. See log.

Table 4.- Records of wells in Ector County--Continued

Well	Distance from Odessa	Land location		Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Water level		Method of lift	Use of water	Remarks
		Section	Block							Township or survey	Below land surface datum (ft.)			
F-138	7½ miles northwest	32	42	T. 1 S.	City of Odessa	Bethel & Matthews	1949	180	2,993.7	76.5	Dec. 9, 1949	--	P	Casing: 16-inch to 20 feet; 10½-inch from 0 to 180 feet. Gravel-walled. See log.
F-139	do.	32	42	T. 1 S.	do.	do.	1949	168	2,996.3	75.8	do.	T, E, 7½	P	Casing: 16-inch to 20 feet; 10½-inch from 0 to 168 feet. Gravel-walled. Pump set at 158 feet. See log.
F-140	do.	32	42	T. 1 S.	do.	do.	1949	180	2,999.3	82.1	do.	--	P	Casing: 16-inch to 20 feet; 10½-inch from 0 to 180 feet. Gravel-walled. See log.
F-141	7 miles northwest	33	42	T. 1 S.	do.	do.	1949	196	2,987.3	80.1	Dec. 11, 1949	T, E, 15	P	Casing: 16-inch to 20 feet; 10½-inch from 0 to 196 feet. Gravel-walled. Pump set at 178 feet. See log.
F-142	do.	33	42	T. 1 S.	do.	do.	1949	192	2,982.3	70.2	do.	T, E, 15	P	Casing: 16-inch to 20 feet; 10½-inch from 0 to 192 feet. Gravel-walled. Pump set at 178 feet. See log.
F-143	do.	--	42	T. 1 S.	do.	do.	1949	190	2,973.2	87.1	do.	T, E, 25	P	Casing: 16-inch to 20 feet; 10½-inch from 0 to 190 feet. Gravel-walled. Pump set at 178 feet. See log.
F-144	do.	--	42	T. 1 S.	do.	do.	1949	182	2,979.3	73.3	do.	T, E, 10	P	Casing: 16-inch to 20 feet; 10½-inch from 0 to 182 feet. Gravel-walled. Pump set at 168 feet. See log.
F-145	do.	--	42	T. 1 S.	do.	do.	1949	170	--	--	--	T, E, 10	P	Casing: 16-inch to 20 feet; 10½-inch from 0 to 170 feet. Gravel-walled. Pump set at 158 feet. See log.

Table 4.- Records of wells in Ector County--Continued

Well	Distance from Odessa	Land location		Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Water level		Method of lift	Use of water	Remarks	
		Section	Block							Township or survey	Below land surface datum (ft.)				Date of measurement
F-146	7 miles northwest	41	42	T. 1 S.	City of Odessa	Bethel & Matthews	1949	165	16	2,984.1	69.2	Dec. 9, 1949	T, E, 20	P	Casing: 16-inch to 20 feet. Pump set at 158 feet. See log.
F-147	do.	41	42	T. 1 S.	do.	do.	1949	170	10½	--	--	--	T, E, 15	P	Casing: 16-inch to 20 feet; 10½-inch from 0 to 170 feet. Gravel-walled. Pump set at 158 feet. See log.
F-148	6½ miles northwest	40	42	T. 1 S.	do.	do.	1949	187	16	2,971.4	76.8	Dec. 11, 1949	T, E, 25	P	Casing: 16-inch to 20 feet. Pump set at 155 feet. See log.
F-149	do.	40	42	T. 1 S.	do.	do.	1949	195	10½	2,975.8	83.7	do.	T, E, 20	P	Casing: 16-inch to 20 feet; 10½-inch from 0 to 195 feet. Gravel-walled. Pump set at 178 feet. See log.
F-150	do.	40	42	T. 1 S.	do.	do.	1949	185	16	2,967.6	80.6	do.	T, E, 20	P	Casing: 16-inch to 20 feet. Pump set at 168 feet. See log.
F-151	do.	--	42	T. 1 S.	do.	do.	1949	182	16	2,966.9	82.3	Dec. 4, 1949	T, E, 25	P	Casing: 16-inch to 20 feet. Pump set at 168 feet. See log.
F-152	do.	41	42	T. 1 S.	do.	do.	1949	165	10½	2,973.3	71.1	do.	T, E, 20	P	Casing: 16-inch to 20 feet; 10½-inch from 0 to 165 feet. Gravel-walled. Pump set at 158 feet. See log.
F-153	6 miles northwest	41	42	T. 1 S.	do.	do.	1949	164	10½	2,965.9	73.4	do.	T, E, 10	P	Casing: 16-inch to 20 feet; 10½-inch from 0 to 164 feet. Gravel-walled. Pump set at 158 feet. See log.
F-154	do.	40	42	T. 1 S.	do.	do.	1949	175	16	--	--	--	T, E, 25	P	Casing: 16-inch to 20 feet. See log.
F-155	do.	40	42	T. 1 S.	do.	do.	1949	189	16	--	--	--	T, E, 15	P	Casing: 16-inch to 20 feet. Pump set at 168 feet. See log.

Table 4.- Records of wells in Ector County--Continued

Well	Distance from Odessa	Land location			Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Water level		Method of lift	Use of water	Remarks
		Section	Block	Township or survey							Below land surface datum (ft.)	Date of measurement			
F-156	In Odessa	27	42	T. 2 S.	Texas & Pacific Railway Co.	Layne-Texas Co.	1946	121	10%	--	--	--	--	Ind	Casing: 18-inch to 52 feet; 10 $\frac{1}{2}$ -inch from 0 to 121 feet; slotted from 76 to 117 feet. Gravel-walled. See log.
F-157	do.	27	42	T. 2 S.	do.	do.	1946	122	10%	--	b/61	Sept. 1946	T, E, 7 $\frac{1}{2}$	Ind	Casing: 18-inch to 59 feet; 10 $\frac{1}{2}$ -inch from 0 to 122 feet; slotted from 80 to 120 feet. Gravel-walled. Pump set at 110 feet. Draw-down reported 35 feet on Sept. 4, 1946 after 24 hours pumping at 108 gpm. See log.
F-158	1 mile northeast	27	42	T. 2 S.	City of Odessa	do.	1945	141	--	--	--	--	None	N	Water test well for Texas & Pacific Railway Co. See log.
F-159	3 $\frac{1}{2}$ miles northeast	13	42	T. 2 S.	do.	--	--	--	--	2,912.6	41.1	Dec. 10, 1949	C, W	S	
G-1	24 $\frac{1}{2}$ miles west	22	46	T. 1 S.	--	--	--	105	--	a/3,002	--	--	None	N	Seismograph shot hole. See log.
G-2	23 $\frac{1}{2}$ miles west	2	B-8	Public School Land	--	--	--	130	--	a/3,031	--	--	None	N	Do.
G-3	24 $\frac{1}{2}$ miles west	3	B-8	do.	Miller Eidson	--	--	75	6	--	--	--	C, W	S	Water reported highly mineralized.
G-4	20 $\frac{1}{2}$ miles west	6	45	T. 2 S.	--	--	--	135	--	a/3,094	--	--	None	N	Seismograph shot hole. See log.
G-5	19 $\frac{1}{2}$ miles west	16	45	T. 2 S.	--	--	--	130	--	a/3,025	--	--	None	N	Do.
G-6	20 $\frac{1}{2}$ miles southwest	4	B-15	Public School Land	J. Scharbauer	Gibson & Johnson, Inc.	1930	4,012	--	a/2,989	--	--	None	N	Oil test. See log.
G-7	21 miles southwest	4	B-15	do.	Miller Eidson	-- Wheeler	1940	640	6	--	--	--	C, W	S	Casing: 6-inch to 640 feet. Water from Triassic sandstone.
G-8	24 $\frac{1}{2}$ miles southwest	14	B-8	do.	--	--	--	110	--	a/2,950	--	--	None	N	Seismograph shot hole. See log.
G-9	26 miles southwest	5	B-14	do.	-- Cowden	Llano Oil Co.	--	4,008	--	--	--	--	None	N	Oil test. See log.
G-10	24 miles southwest	13	B-14	do.	-- Anderson	Lasseter Drilling Co.	--	650	--	--	--	--	C, G, 10	Ind	Water from Triassic sandstone.
G-11	do.	13	B-14	do.	do.	-- Moore	1947	650	--	--	--	--	C, G, 12	Ind	Do.

Table 4.- Records of wells in Ector County--Continued

Well	Distance from Odessa	Land location			Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Water level		Method of lift	Use of water	Remarks
		Section	Block	Township or survey							Below land surface datum (ft.)	Date of measurement			
G-12	24 miles southwest	18	B-14	Public School Land	Yarborough & Allen	G. S. Taylor	1947	650	8½	--	--	--	C, G, 18	Ind	Water from Triassic sandstone.
G-13	do.	18	B-14	do.	do.	do.	1947	650	--	--	--	--	C, G, 18	Ind	Do.
G-14	26 miles southwest	16	B-14	do.	-- Allen	--	--	65	--	--	44.1	Sept. 24, 1948	C, W	S	Pumping level measured 46.2 feet below land surface on Sept. 24, 1948 while well was pumped at an estimated 4 to 5 gpm.
G-15	do.	16	B-14	do.	do.	--	--	63	6	--	43.8	do.	C, W	S	Located about 100 feet south of well G-14.
G-16	25½ miles southwest	24	B-14	do.	--	--	--	120	--	a/2,848	--	--	None	N	Seismograph shot hole. See log.
G-17	do.	31	B-14	do.	-- Allen	--	--	82	6	--	64.6	Sept. 23, 1948	C, W	S	
H-1	16 miles west	11	45	T. 2 S.	Paul Slator	--	--	68	--	--	52.1	Apr. 27, 1937	None	N	
H-2	9½ miles west	13	44	T. 2 S.	Elliott Cowden	--	--	95	--	--	--	--	C, W	S	Temp. 68° F.
H-3	8½ miles west	20	43	T. 2 S.	do.	--	--	107	8	--	86.5	Mar. 18, 1937	C, W	S	
H-4	9½ miles southwest	25	44	T. 2 S.	do.	--	--	126	--	--	--	--	C, W	S	Pumping level measured 123.8 feet below land surface on Mar. 29, 1937. Temp. 68° F.
H-5	do.	25	44	T. 2 S.	do.	--	--	161	--	--	126.3	Mar. 26, 1937	C, W	S	
H-6	10 miles southwest	25	44	T. 2 S.	E. F. Cowden	Broderick & Calvert	1933	4,338	--	a/3,033	--	--	None	N	Oil test. See log.
H-7	11 miles southwest	38	44	T. 2 S.	W. F. Bates Estate	--	--	--	--	--	--	--	C, W	S	
H-8	12½ miles southwest	33	44	T. 2 S.	Alphonse Kloh	Honolulu Oil Co.	1934	4,259	--	a/3,109	--	--	None	N	Oil test. See log.
H-9	16 miles west	20	45	T. 2 S.	J. W. Buchanan	-- Skinner et al.	--	3,523	--	a/3,046	--	--	None	N	Do.
H-10	17 miles southwest	22	45	T. 2 S.	Miller Eidson	-- Wheeler	--	700	6	--	--	--	C, W	S	Water from Triassic sandstone; reported highly mineralized.
H-11	17½ miles southwest	7	B-15	Public School Land	W. J. Rutledge	Skelly & Duffy	1932	4,250	--	--	--	--	None	N	Oil test. See log.
H-12	18 miles southwest	14	B-15	do.	Miller Eidson	-- Wheeler	--	710	6	--	--	--	C, W	S	Water from Triassic sandstone; reported highly mineralized.

Table 4.- Records of wells in Ector County--Continued

Well	Distance from Odessa	Land location			Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Water level		Method of lift	Use of water	Remarks
		Section	Block	Township or survey							Below land surface datum (ft.)	Date of measurement			
H-13	18 miles southwest	27	B-15	Public School Land	Scharbauer & Eidson	--	80	--	--	--	--	C, W	S	Driven. Temp. 68° F.	
H-14	do.	4	B-16	do.	W. E. Connell	--	77	--	--	69.0	Apr. 28, 1937	C, W	S	Seismograph shot hole. See log.	
H-15	18½ miles southwest	4	B-16	do.	--	--	120	--	2,894	--	--	None	N	Oil test. See log.	
H-16	18 miles southwest	10	B-16	do.	W. E. Connell	--	3,860	--	--	--	--	None	N	Dug. Pumping level measured 72.0 feet below land surface on Apr. 30, 1937.	
H-17	15½ miles southwest	6	44	T. 3 S.	Scharbauer & Eidson	--	77	--	--	--	--	C, W	S	Casing: 8 5/8-inch to 447 feet; 7-inch liner from about 439 to 552 feet. Cylinder set at 522 feet. Water from Triassic sandstone at reported depth of 535 to 548 feet below land surface. Yield reported to be about 10 gpm.	
H-18	do.	6	44	T. 3 S.	Rhodes, Inc.	Walter Molt	1947	552	8-5/8	--	Sept. 27, 1948	C, G, 2	D	Oil test. See log.	
H-19	15 miles southwest	7	44	T. 3 S.	A. Klob, et al.	Penn Oil Co.	1929	3,744	--	2,925	--	None	N	Pumping level measured 182.6 feet below land surface on May 1, 1937. Supplies water for oil lease.	
H-20	14 miles southwest	8	44	T. 3 S.	R. L. York	--	--	10	--	--	--	C, G, --	Ind	Pumping level measured 182.7 feet below land surface on May 1, 1937. Supplies water for oil lease.	
H-21	do.	8	44	T. 3 S.	do.	--	--	10	--	--	--	C, G, --	Ind	Pumping level measured 182.9 feet below land surface on May 1, 1937. Supplies water for oil lease.	
H-22	do.	8	44	T. 3 S.	do.	--	188	10	--	--	--	C, G, --	Ind	Pumping level measured 182.9 feet below land surface on May 1, 1937. Supplies water for oil lease.	

Table 4.- Records of wells in Ector County--Continued

Well	Distance from Odessa	Land location		Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Water level	Method of lift	Use of water	Remarks
		Section	Block										
H-23	13 miles southwest	4	44	T. 3 S.	Alphonse Kloh	--	168	--	--	--	C, W	D, S	
H-24	11 miles southwest	10	44	T. 3 S.	R. L. York	--	192	--	--	--	C, W	S	Pumping level measured 178.6 feet below land surface on Apr. 29, 1937. Oil test; plugged back to 192 feet.
H-25	12½ miles southwest	13	44	T. 3 S.	do.	--	192	6	--	183.8	C, G, --	Ind	
H-26	13½ miles southwest	19	44	T. 3 S.	Alphonse Kloh, et al.	--	150	6	--	146.6	C, W	S	Oil test. Drilled to 2,575 feet; plugged back to 150 feet. See log.
H-27	14½ miles southwest	18	44	T. 3 S.	-- Hogan	--	--	--	a/2,914	--	None	N	Oil test. See log.
H-28	16 miles southwest	3	25	Univ. land	The University of Texas	--	3,612	--	--	--	None	TN	Do.
H-29	17 miles southwest	26	B-16	Public School Land	W. E. Connell	1948	462	8-5/8, 7.	--	b/125	C, G, --	Ind	Casing: 8 5/8-inch to 17 feet; 7-inch to 44½ feet. Water from Triassic sandstone. Supplies water for oil-well drilling rigs. Yield reported to be about 10 gpm. See log.
H-30	17½ miles southwest	12	B-16	do.	do.	--	125	--	--	84.0	C, W	S	
H-31	18 miles southwest	13	B-16	do.	J. S. Cosden	--	4,002	--	a/2,847	--	None	N	Oil test. See log.
H-32	19 miles southwest	25	B-16	do.	do.	--	431	8	--	--	C, G, --	Ind	Water from Triassic sandstone.
H-33	do.	24	B-16	do.	The Texas Co. et al.	--	4,013	--	--	--	None	N	Oil test. See log.
H-34	14 miles southwest	23	44	T. 3 S.	W. P. Edwards	--	75	--	--	66.4	C, W	S	
I-1	7 miles southwest	33	43	T. 2 S.	Elliott Cowden	1932	4,375	--	a/2,971	--	None	N	Oil test. See log.
I-2	5 miles southwest	35	43	T. 2 S.	F. V. Addis	1932	3,927	--	a/2,943	--	None	N	Do.
I-3	4½ miles southwest	35	43	T. 2 S.	-- Addis	1941	90	8	--	--	None	N	Casing: 8-inch to 8 feet. Formerly supplied water for oil-well drilling rig. See log.

Table 4.- Records of wells in Ector County--Continued

Well	Distance from Odessa	Land location		Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Water level		Method of lift	Use of water	Remarks
		Section	Block							Township of survey	Below land surface datum (ft.)			
I-4	4½ miles southwest	35	43	T. 2 S.	C. O. Addis Estate	Fred Turner, Jr.	1933	4,067	--	2,945	--	None	N	Oil test. See log.
I-5	4½ miles southwest	36	43	T. 2 S.	L. E. Brock	The Atlantic Refining Co.	1940	4,129	--	2,933	--	None	N	Do.
I-6	3½ miles southwest	36	43	T. 2 S.	May Witcher	--	--	68	--	--	54.5	C, W	S	Temp. 68° F.
I-7	4½ miles southwest	48	43	T. 2 S.	T. G. Hendricks	--	--	100	--	--	69.4	C, W	S	
I-8	2 miles southwest	32	42	T. 2 S.	Texas & Pacific Railway Co.	Texas & Pacific Railway Co.	--	26	--	--	24.8	None	N	Dug. Formerly supplied water for railroad.
I-9	½ mile south	34	42	T. 2 S.	City of Odessa	Bethel & Matthews	1948	130	10%	--	--	T, E, --	Irr	Casing: 15-inch to 15 feet; 10½-inch from 0 to 130 feet; slotted from 60 to 130 feet. Gravel-walled. Pump set at 115 feet. Draw-down reported to be 46 feet after well was pumped at 146 gpm for 1 hour in July 1948. Irrigated county park. See log.
I-10	1 mile south	34	42	T. 2 S.	do.	do.	1948	125	10%	--	b/30	T, E, 15	P	Casing: 16-inch to 20 feet; 10½-inch from 0 to 125 feet; slotted from 45 to 125 feet. Gravel-walled. Pump set at 105 feet. See log.
I-11	1½ miles south	34	42	T. 2 S.	do.	do.	1948	120	10%	--	b/22	T, E, 15	P	Casing: 16-inch to 20 feet; 10½-inch from 0 to 120 feet; slotted from 40 to 120 feet. Gravel-walled. Pump set at 105 feet. See log.
I-12	do.	34	42	T. 2 S.	do.	do.	1948	120	10%	--	b/29	T, E, 15	P	Casing: 16-inch to 20 feet; 10½-inch from 0 to 120 feet; slotted from 40 to 120 feet. Gravel-walled. Pump set at 107 feet. See log.

Table 4.- Records of wells in Ector County--Continued

Well	Distance from Odessa	Land location			Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Water level		Method of lift	Use of water	Remarks
		Section	Block	Township or survey							Below land surface datum (ft.)	Date of measurement			
I-13	1 mile south	34	42	T. 2 S.	City of Odessa	Bethel & Matthews	1948	128	10%	--	--	--	T, E, --	P	Casing: 16-inch to 20 feet; 10% inch from 0 to 128 feet; slotted from 48 to 128 feet. Gravel-walled. Pump set at 105 feet. See log.
I-14	1 mile southeast	34	42	T. 2 S.	do.	do.	1948	120	10%	--	--	--	T, E, 15	P	Casing: 16-inch to 20 feet; 10% inch from 0 to 120 feet; slotted from 40 to 120 feet. Gravel-walled. Pump set at 105 feet. See log.
I-15	1 1/4 miles southwest	34	42	T. 2 S.	do.	do.	1948	125	10%	--	--	--	T, E, 15	P	Casing: 16-inch to 20 feet; 10% inch from 0 to 125 feet; slotted from 45 to 125 feet. Gravel-walled. Pump set at 105 feet. See log.
I-16	3 miles southeast	46	42	T. 2 S.	T. G. Hendricks	C. P. Davis et al.	1930	4,850	--	a/2,878	--	--	None	N	Oil test. See log.
I-17	do.	47	42	T. 2 S.	do.	--	--	48	--	--	21.6	Mar. 23, 1937	C, W	S	
I-18	3 1/4 miles southeast	42	41	T. 2 S.	W. C. Sublett	--	--	94	--	--	37.5	Mar. 22, 1937	C, W	S	
I-19	5 miles southeast	6	41	T. 3 S.	Dora Roberts	--	--	52	--	--	35.3	Apr. 8, 1937	C, W	S	Temp. 70° F.
I-20	do.	6	41	T. 3 S.	do.	--	--	31	6	--	12.9	do.	None	N	
I-21	5 1/2 miles southeast	14	42	T. 3 S.	T. G. Hendricks	--	--	51	12	--	42.3	Mar. 23, 1937	C, W	S	
I-22	do.	16	42	T. 3 S.	-- Davis	V. R. Shoup	--	1,755	--	--	--	--	None	N	Oil test. See log.
I-23	4 1/4 miles south	8	42	T. 3 S.	J. H. Emmons	H. H. Emmons	1930	96	--	--	55.8	Mar. 27, 1937	C, W	S	Not cased.
I-24	5 1/2 miles southwest	7	42	T. 3 S.	G. T. Sandridge	--	--	79	6	--	68.2	Mar. 29, 1937	C, W	S	
I-25	6 miles southwest	11	43	T. 3 S.	H. R. Henderson	--	--	138	--	--	101.7	Mar. 27, 1937	C, W	S	
I-26	do.	2	43	T. 3 S.	T. G. Hendricks	--	--	108	7	--	98.0	Mar. 24, 1937	None	N	Not cased.

Table 4.- Records of wells in Ector County--Continued

Well	Distance from Odessa	Land location			Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Water level		Method of lift	Use of water	Remarks
		Section	Block	Township or survey							Below land surface datum (ft.)	Date of measurement			
I-27	7 miles southwest	3	43	T. 3 S.	H. R. Henderson	Wentz Oil Corp.	--	3,408	--	^a /2,973	--	--	None	N	Oil test. See log.
I-28	9 miles southwest	8	43	T. 3 S.	do.	--	--	200	--	--	--	--	C, W	S	
I-29	10 miles southwest	18	43	T. 3 S.	R. L. York	--	--	157	6	--	133.9	Apr. 1, 1937	C, W	S	
I-30	do.	20	43	T. 3 S.	W. P. Edwards	Sun Oil Co.	1935	4,189	--	^a /3,035	--	--	None	N	Oil test. See log.
I-31	do.	28	43	T. 3 S.	do.	--	--	--	4	--	161.4	Oct. 13, 1948	None	N	
I-32	do.	28	43	T. 3 S.	do.	--	--	212	10	--	--	--	C, W	S	Pumping level measured 161.8 feet below land surface while well was pumped at 5 gpm on Oct. 13, 1948.
I-33	7 miles south	21	42	T. 3 S.	McElroy Ranch Co.	--	--	93	--	--	72.0	Apr. 3, 1937	C, W	S	
I-34	7 miles southeast	24	42	T. 3 S.	Dora Roberts	--	--	108	--	--	77.9	Apr. 7, 1937	C, W	S	
I-35	8 miles southeast	25	42	T. 3 S.	Alphonse Kloh et al.	--	--	119	--	--	103.0	do.	C, W	S	
I-36	do.	27	42	T. 3 S.	do.	--	--	125	--	--	90.2	do.	C, W	S	
I-37	12 miles south	6	42	T. 4 S.	Pauline Slater	--	--	158	6	--	145.7	Apr. 2, 1937	None	N	
I-38	11½ miles south	38	43	T. 3 S.	W. P. Edwards	R. L. York	1933	3,227	--	^a /2,964	--	--	None	N	Oil test. See log.
I-39	12 miles south	46	43	T. 3 S.	do.	--	--	119	--	--	107.0	Apr. 7, 1937	C, W	S	
I-40	12 miles southwest	32	43	T. 3 S.	do.	--	--	137	--	--	--	--	C, W	S	
I-41	13½ miles southwest	44	43	T. 3 S.	do.	Sims Oil Co.	--	3,732	--	^a /2,838	--	--	None	N	Oil test. See log.

^a/ Altitude from record of driller's log.^b/ Water level reported.

Table 5.- Drillers' logs of wells in Ector County, Tex.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well A-2, partial log					
R. B. Cowden, 28 miles northwest of Odessa.					
Caliche	35	35	Clay, red	514	660
Sand	111	146	Total depth		4,657
Well A-5					
R. B. Cowden, 26 miles northwest of Odessa.					
Caliche	20	20	Sand, white	20	80
Sand, yellow	10	30	Sand, brown	43	123
Sand, brown	20	50	Redbeds	12	135
Sand, pink	10	60			
Well A-7					
R. B. Cowden, 26 miles northwest of Odessa.					
Lime	25	25	Sand, brown	73	118
Sand, yellow	5	30	Clay, yellow	2	120
Sand, red	5	35	Redbeds	10	130
Sand, pink	10	45			
Well A-12, partial log					
Cowden Estate, 23½ miles northwest of Odessa.					
Caliche	50	50	Clay, red	665	740
Sand	20	70	Total depth		4,470
Sand and gravel	5	75			
Well A-15					
-- Cowden, 25 miles northwest of Odessa.					
Clay	2	2	Gravel	15	105
Caliche	23	25	Sand	25	130
Sand rock	25	50	Clay, yellow	2	132
Sand, red	5	55	Redbeds	13	145
Sand	35	90			

Table 5.- Drillers' logs of wells in Ector County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well A-17					
-- Cowden, 25½ miles northwest of Odessa.					
Soil	5	5	Gravel	5	95
Caliche	13	18	Sand and gravel	37	132
Sand rock	12	30	Sand, yellow and clay	4	136
Sand, red	20	50	Redbeds	5	141
Sand	40	90			
Well A-18					
H. E. Cummins, 25½ miles northwest of Odessa.					
Soil	2	2	Sand, water	23	78
Caliche	28	30	Redbeds	22	100
Sand, hard	25	55			
Well A-19					
H. E. Cummins, 25½ miles northwest of Odessa.					
Soil	2	2	Sand, water	48	83
Caliche	33	35	Redbeds	17	100
Well A-21, partial log					
H. E. Cummins, 25½ miles northwest of Odessa.					
Sand, yellow	40	40	Lime, gray	10	995
Sand	40	80	Lime, sandy	16	1,011
Rock, red	670	750	Sand, water	14	1,025
Sand	12	762	Shale, sandy	15	1,040
Rock, red	48	810	Sand	5	1,045
Shale, brown	20	830	Shale, red sandy	40	1,085
Lime, brown sandy	10	840	Rock, red	30	1,115
Lime, gray	10	850	Shale, red	50	1,165
Rock, red	45	895	Sand, red	20	1,185
Shale, red	25	920	Rock, red	25	1,210
Rock, red	40	960	Shale, red	187	1,397
Sand	5	965	Anhydrite	53	1,450
Rock, red	20	985	Salt	44	1,494
			Total depth		4,557

Table 5.- Drillers' logs of wells in Ector County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well A-23					
Owner unknown, 24½ miles northwest of Odessa.					
Caliche and boulders	20	20	Gravel	5	100
Limestone with streaks of sand	75	95	Redbeds	100	200
Well A-26, partial log					
H. E. Cummins, 23 miles northwest of Odessa.					
Caliche	50	50	Clay, red	700	800
Sand and gravel	50	100	Total depth	Unknown	
Well A-27					
Owner unknown, 27 miles northwest of Odessa.					
Soil and caliche	6	6	Anhydrite	22	70
Conglomerate	8	14	Sandstone	72	142
Sandstone	34	48	Redbeds	58	200
Well B-7					
Mary Glass, 18½ miles northwest of Odessa.					
Soil	4	4	Sand	70	140
Caliche	36	40	Shale, blue	3	143
Sand, dry	10	50	Redbeds	2	145
Caliche and sand, dry	20	70			
Well B-9					
O. B. Holt, 18½ miles northwest of Odessa.					
Soil, sandy	9	9	Sand, dry	10	95
Caliche	44	53	Sand, water	17	112
Sand, hard	7	60	Shale, blue	6	118
Sand, dry	20	80	Redbeds	2	120
Sand, water	5	85			

Table 5.- Drillers' logs of wells in Ector County--Continued

Thickness (feet)		Depth (feet)		Thickness (feet)		Depth (feet)	
Well B-10, partial log							
O. B. Holt, 18 miles northwest of Odessa.							
Caliche	40	40	Sand, water	10	1,280		
Sand, broken	85	125	Sand, broken	10	1,290		
Sand	25	150	Sand	20	1,310		
Redbeds	5	155	Sand, broken	40	1,350		
Sand	5	160	Rock, red	5	1,355		
Rock, red	845	1,005	Sand	25	1,380		
Sand, gray	22	1,027	Sand, broken	30	1,410		
Rock, red	18	1,045	Rock, red	130	1,540		
Sand, broken	50	1,095	Shale, red sandy	75	1,615		
Sand, water	15	1,110	Shale, red	100	1,715		
Rock, red	85	1,195	Anhydrite	20	1,735		
Sand, broken	25	1,220	Salt and anhydrite	20	1,755		
Sand, water	32	1,252	Total depth		4,450		
Shale, blue broken	18	1,270					
Well B-11							
O. B. Holt, 17½ miles northwest of Odessa.							
Sand	10	10	Sand, water	20	90		
Caliche	38	48	Clay, yellow	5	95		
Sandstone	7	55	Sand, water	43	138		
Sand, dry	15	70	Shale, blue	2	140		
Well B-12, partial log							
O. B. Holt, 17½ miles northwest of Odessa.							
Soil	10	10	Rock, red sandy	40	1,275		
Gypsum	55	65	Sand, broken	20	1,295		
Sand	55	120	Rock, red	25	1,320		
Rock, red	830	950	Sand	20	1,340		
Shale, blue	10	960	Rock, red	10	1,350		
Sand, water	15	975	Sand	10	1,360		
Rock, red	45	1,020	Shale, sandy	25	1,385		
Sand, blue and mud	40	1,060	Rock, red	110	1,495		
Rock, red sandy	70	1,130	Shale, red sandy	60	1,555		
Sand	5	1,135	Shale, red	45	1,600		
Rock, red sandy	25	1,160	Lime	3	1,603		
Sand, broken	10	1,170	Shale, red	42	1,645		
Sand, water	50	1,220	Anhydrite	12	1,657		
Rock, red	5	1,225	Salt	55	1,712		
Sand, broken	10	1,235	Total depth		4,317		

Figure 5.- Drillers' logs of wells in Ector County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well B-14, partial log					
O. B. Holt, 18½ miles northwest of Odessa.					
No record	20	20	Rock, red, some sand, water ...	160	1,240
Sand	70	90	Rock, red	70	1,310
Sand and gravel	40	130	Sand	30	1,340
Rock, red	815	945	Rock, red and sand	30	1,370
Rock, red sandy	55	1,000	Rock, red	30	1,400
Rock, red	35	1,035	Sand and rock, red, water	20	1,420
Rock, red sandy	15	1,050	Rock, red	180	1,600
Rock, red	10	1,060	Anhydrite at 1,600 feet. Total depth unknown.		
Rock, red sandy	15	1,075			
Rock, red	5	1,080			
Well B-21					
Ector Water Co., 22 miles northwest of Odessa.					
Soil	2	2	Sand, hard	15	80
Caliche	38	40	Sand, water	80	160
Rock, hard	25	65	Redbeds	5	165
Well B-23					
-- Scharbauer, 21½ miles northwest of Odessa.					
Sand	2	2	Sand, hard	15	80
Caliche	38	40	Sand, water	80	160
Rock, blue hard	25	65	Redbeds	5	165
Well B-29, partial log					
C. Scharbauer, 21 miles northwest of Odessa.					
Caliche	40	40	Clay, red	735	810
Clay, yellow	25	65	Total depth		4,380
Sand	10	75			

Table 5.- Drillers' logs of wells in Ector County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well B-30					
-- Scharbauer, 21 miles northwest of Odessa.					
Soil	4	4	Sand	20	65
Caliche	21	25	Shale, blue	5	70
Shale, yellow	15	40	Redbeds	10	80
Sand, water	5	45			
Well B-31					
B. H. Blakeney, 20 miles northwest of Odessa.					
Soil	5	5	Sand, water	30	80
Caliche	25	30	Rock, red	20	100
Clay, sandy	20	50			
Well B-32					
B. H. Blakeney, 20 miles northwest of Odessa.					
Soil	10	10	Sand, water	40	90
Caliche	20	30	Rock, red	12	102
Rock, red	20	50			
Well B-33					
B. H. Blakeney, 20 miles northwest of Odessa.					
Soil	10	10	Sand, water	40	90
Caliche	20	30	Rock, red	12	102
Rock, red	20	50			
Well B-35					
B. H. Blakeney, 20 miles northwest of Odessa.					
Sand, red	26	26	Sand, water	63	96
Limestone	7	33	Redbeds	10	106
Well B-36					
B. H. Blakeney, 20 $\frac{1}{2}$ miles northwest of Odessa.					
Sand, red	26	26	Sand, water	67	100
Limestone	7	33	Redbeds	11	111

Table 5.- Drillers' logs of wells in Ector County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well B-37					
B. H. Blakeney, 20½ miles northwest of Odessa.					
Surface sand	5	5	Sand, water	45	95
Caliche	15	20	Clay	5	100
Clay, sandy	30	50			
Well B-38					
B. H. Blakeney, 20½ miles northwest of Odessa.					
Caliche	20	20	Gravel	5	85
Sandstone	5	25	Sand and gravel	20	105
Sand	20	45	Clay	12	117
Sand, water	35	80			
Well B-40					
-- Scharbauer, 20½ miles northwest of Odessa.					
Surface sand	5	5	Caliche, sandy	25	60
Caliche	20	25	Sand, water	35	95
Sand, hard	5	30	Redbeds	10	105
Caliche, hard	5	35			
Well B-41					
-- Blakeney, 20 miles northwest of Odessa.					
Soil	5	5	Sand and gravel, water	21	106
Caliche	23	28	Sand, yellow	6	112
Limestone, hard	3	31	Redbeds	6	118
Sand, water	54	85			
Well B-42					
-- Blakeney, 20 miles northwest of Odessa.					
Soil	5	5	Sand, soft	53	103
Caliche	23	28	Gravel	7	110
Limestone, hard	5	33	Sand, yellow	4	114
Sand, water	17	50	Redbeds	4	118

Table 5.- Drillers' logs of wells in Ector County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well B-45					
B. H. Blakeney, 18½ miles northwest of Odessa.					
Soil	3	3	Boulders	6	58
Caliche	23	26	Sand	22	80
Sand	26	52	Rock, red	25	105
Well B-49, partial log					
B. H. Blakeney, 16 miles northwest of Odessa.					
Soil and caliche	75	75	Rock, red	140	1,340
Sand, water	20	95	Shale, red sandy	45	1,385
Clay	30	125	Rock, red, and shale	290	1,675
Rock, red	1,000	1,125	Anhydrite	165	1,840
Sand, broken	65	1,190	Total depth		4,225
Sand, water	10	1,200			
Well B-50, partial log					
J. M. Cowden et al., 15½ miles northwest of Odessa.					
Lime and sand, surface	25	25	Sand	20	1,390
Sand	10	35	Rock, red sandy	28	1,418
Redbeds, broken	32	67	Sand, red, and shale	9	1,427
Redbeds	65	132	Shale, sandy	3	1,430
Sandstone	116	248	Sand, red	20	1,450
Shale, red	372	620	Sand	20	1,470
Rock, red	140	760	Sand, water	45	1,515
Shale, red	20	780	Rock, red	5	1,520
Mud, red	70	850	Shale, red sandy	15	1,535
Rock, red	70	920	Rock, red	28	1,563
Rock, red sandy	15	935	Shale, red sandy	19	1,582
Shale, red	20	955	Rock, red	18	1,600
Rock, red	50	1,105	Shale, red sandy	55	1,655
Shale, red	20	1,125	Shale, red	65	1,720
Sand, water	5	1,130	Shale, red sandy	25	1,745
Rock, red	25	1,155	Shale, sandy	25	1,770
Sand	5	1,160	Shale, red sandy	15	1,785
Rock, red	95	1,255	Anhydrite	12	1,797
Lime	5	1,260	Rock, red, and gypsum	18	1,815
Rock, red	15	1,275	Anhydrite and salt	5	1,820
Sand, water	15	1,290	Salt	5	1,825
Sand	50	1,340	Rock, red	25	1,850
Lime and sand	10	1,350	Salt, hard	90	1,940
Lime, sandy	10	1,360	Total depth		4,244
Sand, water	10	1,370			

Table 5.- Drillers' logs of wells in Ector County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well B-52					
Owner unknown, 15 miles northwest of Odessa.					
Soil	2	2	Sand, yellow, and shale	35	90
Caliche	18	20	Sand, water	35	125
Caliche, hard	5	25	Shale, pink	5	130
Gravel	5	30	Sand, yellow	5	135
Sand, yellow, and shale	10	40	Redbeds	5	140
Sand, water	15	55			
Well B-55, partial log					
--- Goodman, 18½ miles northwest of Odessa.					
Sand	150	150	Rock, red, lime and sand	20	1,355
Redbeds	860	1,010	Rock, red	35	1,390
Sand	30	1,040	Rock, red, and sand	30	1,420
Rock, red	120	1,160	Rock, red, and lime	30	1,450
Rock, red, and sand	20	1,180	Sand	20	1,470
Sand	40	1,220	Rock, red	195	1,665
Rock, red, and sand	20	1,240	Sand and anhydrite	10	1,675
Rock, red	35	1,275	Anhydrite	15	1,690
Sand	45	1,320	Salt	50	1,740
Rock, red	15	1,335	Total depth	Unknown	
Owner unknown, 15½ miles northwest of Odessa.					
Caliche and shale	20	20	Sand, red, and thin shale layers	14	98
Sand, hard and caliche	20	40	Sand, brown, white and gray	16	114
Shale, white hard, sand and caliche	28	68	Shale, gray soft, and gravel	6	120
Shale, soft white and yellow	6	74	Shale, red	22	142
Sand and gravel, white, and soft shale	10	84			
Well B-58					
Owner unknown, 15½ miles northwest of Odessa.					
Shale, caliche, and rock	20	20	Shale, soft, sand and gravel	20	118
Shale and caliche	12	32	Sand, gravel, and hard yellow		
Shale, and hard sand	13	45	shale	27	145
Sand, dark-brown	5	50	Shale, red	17	162
Shale, hard, and caliche	24	74			
Sand and shale	24	98			

Table 5.- Drillers' logs of wells in Ector County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well B-59					
Owner unknown, 14½ miles northwest of Odessa.					
Caliche and shale	10	10	Sand, hard coarse-grained, and		
Shale, yellow, and rock	24	34	shale	11	90
Caliche	8	42	Sand, white	12	102
Shale	10	52	Sand, yellow and shale breaks....	18	120
Sand, hard, gravel and shale	6	58	Sand and shale	20	140
Sand, coarse-grained, dry	9	67	Shale, hard	8	148
Sand and shale	12	79	Shale, soft white	3	151
			Shale, red	11	162
Well C-7					
Owner unknown, 17 miles north of Odessa.					
Caliche	25	25	Sandstone and clay	54	134
Caliche and shale	5	30	Clay, red	11	145
Sandstone, hard, with clay breaks ...	50	80			
Well C-9					
Owner unknown, 15 miles northeast of Odessa.					
Soil	10	10	Rock, hard	6	59
Caliche	14	24	Sand and gravel	4	63
Limestone	11	35	Redbeds	12	75
Rock, hard	6	41	Sand	25	100
Limestone	12	53	Redbeds	20	120
Well C-12					
Owner unknown, 14 miles north of Odessa.					
Soil	4	4	Sandstone, hard, with clay breaks	28	105
Caliche	22	26	Sand and gravel	35	140
Sand	14	40	Redbeds	15	155
Sandstone	37	77			

Table 5.- Drillers' logs of wells in Ector County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well C-14					
Owner unknown, 13½ miles north of Odessa.					
Soil	4	4	Limestone	11	60
Caliche	20	24	Sand and sandstone	12	72
Sandstone	2	26	Clay and gravel	13	85
Caliche	10	36	Clay	13	98
Sandstone	2	38	Gravel	12	110
Sandstone, hard	4	42	Sand and gravel	12	122
Sandstone	7	49	Redbeds	14	136
Well C-18					
Owner unknown, 13 miles northwest of Odessa.					
Soil	8	8	Sand and gravel	13	85
Caliche	9	17	Clay, yellow and gravel	20	105
Sandstone, brown	13	30	Sand and gravel	11	116
Caliche	6	36	Clay, blue and gravel	20	136
Sandstone	25	61	Redbeds	6	142
Caliche and clay	11	72			
Well D-6, partial log					
J. D. Slator, Jr., 21 miles northwest of Odessa.					
Lime, white	40	40	Rock, red	15	820
Lime, blue	15	55	Sand, water	5	825
Shale, blue	20	75	Shale, sandy	75	900
Sand, yellow	25	100	Shale, red sandy	40	940
Sand	65	165	Mud, red	35	975
Lime	5	170	Shale, red sandy	75	1,050
Gravel, water	10	180	Shale, sandy	25	1,075
Lime	5	185	Sand, water	30	1,105
Shale, red	95	280	Shale, sandy	75	1,180
Shale	50	330	Sand, water	15	1,195
Shale, red	260	590	Shale, red	20	1,215
Rock, caving red	70	660	Shale, sandy	10	1,225
Redbeds	40	700	Rock, red	40	1,265
Shale, red	75	775	Total depth		4,437
Sand, red	30	805			

Table 5.- Drillers' logs of wells in Ector County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well D-7					
Owner unknown, 20½ miles northwest of Odessa.					
Sand	4	4	Sand, hard	15	170
Caliche	16	20	Gravel	10	180
Shale, blue, and limestone	45	65	Clay, yellow	8	188
Clay, yellow	26	91	Sandstone	5	193
Sand, hard	14	105	Clay, blue	2	195
Sandstone	3	108	Redbeds	10	205
Sand and gravel	47	155			
Well D-10					
Owner unknown, 22½ miles west of Odessa.					
Soil	7	7	Clay, gray	10	140
Limestone	58	65	Sand	20	160
Sand	40	105	Clay, blue	5	165
Sandstone	20	125	Redbeds	10	175
Sand	5	130			
Well D-11					
Owner unknown, 24½ miles west of Odessa.					
Soil	2	2	Gravel	5	77
Caliche and gravel	43	45	Redbeds	33	110
Sand	18	63	Shale, hard	20	130
Gravel	2	65	Redbeds	5	135
Clay, sandy	7	72			
Well D-12					
Owner unknown, 22 miles west of Odessa.					
Soil	2	2	Gravel	2	40
Limestone	10	12	Redbeds	27	67
Gravel	3	15	Shale, hard	14	81
Clay, sandy	23	38	Redbeds	24	105

Table 5.- Drillers' logs of wells in Ector County--Continued

Thickness (feet)		Depth (feet)		Thickness (feet)		Depth (feet)	
Well D-15							
Owner unknown, 18½ miles west of Odessa.							
Soil	2	2	Gravel	7	112		
Caliche	12	14	Sand and shale	18	130		
Lime, gray	18	32	Sand	30	160		
Lime, yellow	26	58	Sand, water	13	173		
Sand	2	60	Quicksand	7	180		
Sandstone	13	73	Shale, blue	5	185		
Sand	32	105	Redbeds	15	200		
Well D-16, partial log							
A. Kloh et al., 18½ miles west of Odessa.							
Lime, white	40	40	Lime	2	1,072		
Lime, brown	35	75	Sand	3	1,075		
Sand, brown	80	155	Sand, red	10	1,085		
Gravel	2	157	Shale, red sandy	50	1,135		
Shale, gray	22	179	Sand, water	95	1,230		
Shale, red; water at 250 feet	91	270	Shale, red sticky; water	8	1,238		
Shale, red sticky	30	300	Shale, red	2	1,240		
Shale, red muddy	10	310	Shale, red sticky	50	1,290		
Shale, red	155	465	Shale, muddy	50	1,340		
Sand, green	15	480	Shale, sandy; water at 1,360 feet	95	1,435		
Shale, red	360	840	Shale, red	50	1,485		
Sand, brown	20	860	Shale and anhydrite	20	1,505		
Shale, red sandy	25	885	Anhydrite	23	1,528		
Shale, red	120	1,005	Salt	67	1,595		
Sand, red	45	1,050	Total depth		4,045		
Sand, hard; water	5	1,055					
Shale, sandy; water	15	1,070					
Well D-17							
Owner unknown, 18 miles west of Odessa.							
Soil	2	2	Sand and gravel, yellow	15	125		
Caliche	10	12	Rock, gray, sand and shale	33	158		
Lime	18	30	Clay, blue	12	170		
Lime, yellow	30	60	Sand and gravel; water	10	180		
Lime, blue	15	75	Redbeds	15	195		
Packsand, gray	35	110					

Well 5.- Drillers' logs of wells in Ector County--Continued

Thickness (feet)		Depth (feet)		Thickness (feet)		Depth (feet)	
Well E-2, partial log							
Clarence Scharbauer, 18 miles northwest of Odessa.							
Rock, white gyp	25	25	Sand, water	10	1,010		
Sand, yellow	35	55	Lime, sandy	40	1,050		
Sand, white	35	90	Shale, gray	25	1,075		
Rock, red	59	149	Rock, red	10	1,085		
Rock, red soft	6	155	Sand, gray	15	1,100		
Rock, red	175	330	Sand, red, and shale	50	1,150		
Lime	10	340	Rock, red	125	1,275		
Rock, red	50	390	Shale, red	40	1,315		
Redbeds	5	395	Rock, red	20	1,335		
Sand, red	10	405	Shale, red	10	1,345		
Rock, red	395	800	Rock, red	5	1,350		
Rock, red, soft and muddy	35	835	Shale, red	45	1,395		
Rock, red	15	850	Rock, red	15	1,410		
Sand and shale	50	900	Shale, red	40	1,450		
Rock, red	20	920	Rock, red	35	1,485		
Mud, red	20	940	Anhydrite, gray	35	1,520		
Shale, red sandy	35	975	Salt and anhydrite	5	1,525		
Sand, water	20	995	Total depth		4,175		
Sand	5	1,000					
Well E-4							
B. H. Blakeney, 16½ miles northwest of Odessa.							
Caliche	29	29	Sand	5	109		
Clay	2	31	Sand and gravel	21	130		
Lime	3	34	Sand	7	137		
Shale	8	42	Shale	5	142		
Sand	58	100	Rock, red	3	145		
Sand and gravel; water	4	104					
Well E-6							
B. H. Blakeney, 16½ miles northwest of Odessa.							
Caliche	30	30	Sand, water	20	129		
Clay	3	33	Shale	6	135		
Lime	4	37	Shale, red	1	136		
Shale	5	42	Rock, red ..	4	140		
Sand; water at 97 feet	67	109					

Table 5.- Drillers' logs of wells in Ector County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well E-11					
Owner unknown, 12 miles northwest of Odessa.					
Limestone	28	28	Sand, and gravel	9	130
Sand, hard	80	108	Clay, light-blue	4	134
Clay, light-blue	13	121	Redbeds	66	200
Well E-14, partial log					
C. A. Goldsmith et al., 16½ miles northwest of Odessa.					
Rock, gyp	45	45	Shale, red	5	1,030
Sand, yellow	38	83	Rock, red sandy	20	1,050
Shale	152	235	Sand, red	40	1,090
Rock, red	60	295	Redbeds	3	1,093
Shale, red	65	360	Sand, red	5	1,098
Rock, red	35	395	Redbeds	12	1,110
Mud, red	20	415	Shale, sandy	20	1,130
Rock, red	15	430	Shale	15	1,145
Shale, red	90	520	Rock, red	20	1,165
Rock, red	20	540	Sand	5	1,170
Shells, hard sandy, and redbeds	10	550	Rock, red	30	1,200
Rock, red	10	560	Mud, red	30	1,230
Shale, red	35	595	Rock, red	45	1,275
Rock, red	30	625	Redbeds	22	1,297
Redbeds	39	664	Anhydrite	10	1,307
Rock, red	166	830	Redbeds	153	1,460
Shale, sandy	20	850	Rock, red	10	1,470
Sand, water	20	870	Redbeds	12	1,482
Rock, red sandy	55	925	Anhydrite	4	1,486
Rock, red	12	937	Lime and anhydrite	14	1,500
Shale, red	33	970	Anhydrite	18	1,518
Shale, red sandy	15	985	Salt	2	1,520
Sand, water	40	1,025	Total depth		4,177

Table 5.- Drillers' logs of wells in Ector County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well E-23, partial log					
J. L. Johnson, 11 miles northwest of Odessa.					
Gypsum	10	10	Sand, water	135	1,075
Sand	65	75	Rock, red	15	1,090
Sand, water	30	105	Sand, red; water	15	1,105
Sand, red	10	115	Rock, red	50	1,155
Sand, white	25	140	Sand	5	1,160
Rock, red	345	485	Sand, water	45	1,205
Lime	15	500	Mud, red	10	1,215
Rock, red	80	580	Sand, water	70	1,285
Rock, caving red	200	780	Mud, red	15	1,300
Rock, red	160	940	Total depth		3,605
Well E-24, partial log					
J. L. Johnson, 9½ miles northwest of Odessa.					
Caliche	50	50	Sand, water	5	1,015
Sand, water	80	130	Shale, red	5	1,020
Shale, gray	5	135	Lime, sandy	10	1,030
Rock, red	40	175	Shale, gray	55	1,085
Rock, gyp	10	185	Rock, red	98	1,183
Rock, red	285	470	Sand, brown	20	1,203
Rock, gyp	105	575	Shale, sandy	57	1,260
Rock, red	65	640	Sand, hard	5	1,265
Shale, red	10	650	Shale, sandy	135	1,400
Rock, red	150	800	Rock, gyp	100	1,500
Shale, red	40	840	Shale, and rock, red	125	1,625
Rock, gyp	70	910	Anhydrite and shells	75	1,700
Lime, sandy	35	945	Rock, red	60	1,760
Shale, red	25	970	Salt, anydrite and potash	1,130	2,890
Shale, brown	10	980	Total depth		4,465
Shale, sandy and sand	30	1,010			
Well E-26					
Owner unknown, 8½ miles northwest of Odessa.					
Limestone	21	21	Sand, hard	92	136
Sand, hard	18	39	Clay, red	64	200
Clay, yellow sandy	5	44			

Table 5.- Drillers' logs of wells in Ector County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well E-29, partial log					
Elliott Cowden, 10 miles west of Odessa.					
Gypsum	140	140	Sand	18	1,073
Redbeds	15	155	Rock, red	11	1,084
Sand, water	10	165	Sand, red	6	1,090
Redbeds	585	750	Shale, red sandy	13	1,103
Sand, red	10	760	Sand	40	1,143
Shale, red sandy	50	810	Mud, red sticky	7	1,150
Gypsum	10	820	Sand, red	17	1,167
Rock, red	30	850	Shale, brown	8	1,175
Sand, gray	20	870	Shale, red	70	1,245
Rock, red	15	885	Sand and gypsum	5	1,250
Shale, brown	35	920	Redbeds	226	1,476
Redbeds	85	1,005	Sand, red	14	1,490
Sand, gray; water	15	1,020	Shale, red	35	1,525
Shale, red	10	1,030	Anhydrite	10	1,535
Sand, water	10	1,040	Salt	50	1,585
Redbeds	15	1,055	Total depth		4,439
Well F-1, partial log					
R. W. Smith, 12½ miles northwest of Odessa.					
Caliche	45	45	Sand, brown	15	1,390
Lime	10	55	Sand, broken	5	1,395
Mud, red	5	60	Sand	35	1,430
Clay, sandy	10	70	Rock, red	15	1,445
Sand	100	170	Shale, red sandy	35	1,480
Rock, red	155	325	Rock, red, and sand	20	1,500
Shale, sandy	20	345	Shale, red sandy	25	1,525
Rock, red	770	1,115	Rock, red	190	1,715
Shale, red sandy	70	1,185	Shale, red sandy	50	1,765
Shale, blue	10	1,195	Rock, red, and anhydrite	10	1,775
Shale, red sandy	5	1,200	Anhydrite	20	1,795
Rock, red	85	1,285	Shale, red	10	1,805
Sand	55	1,340	Anhydrite	20	1,825
Rock, red	10	1,350	Salt	20	1,845
Sand	10	1,360	Total depth		4,425
Shale, sandy	15	1,375			

Table 5.- Drillers' logs of wells in Ector County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well F-40					
City of Odessa, 2½ miles northwest of Odessa.					
Soil	5	5	Sand, water	70	140
Caliche	45	50	Sand, brown; water	10	150
Sand, brown	20	70	Redbeds	5	155
Well F-41					
City of Odessa, 2½ miles northwest of Odessa.					
Soil	10	10	Sand, yellow	19	90
Caliche	25	35	Sand, water	55	145
Sand	25	60	Redbeds	5	150
Sand, yellow; little water	11	71			
Well F-42					
City of Odessa, 2½ miles northwest of Odessa.					
Soil	5	5	Sand, hard	8	82
Caliche	37	42	Sand, water	58	140
Sand, hard	6	48	Shale, blue	3	143
Sand, dry	22	70	Redbeds	5	143
Sand, water	4	74			
Well F-43					
City of Odessa, 2½ miles northwest of Odessa.					
Sand	15	15	Sand, water	45	120
Caliche	25	40	Shale, blue	10	130
Clay	35	75	Redbeds	5	135
Well F-44					
City of Odessa, 2½ miles northwest of Odessa.					
Soil	2	2	Shale, blue	5	100
Caliche	33	35	Sand, water	26	126
Clay	10	45	Shale, blue	4	130
Sand, dry	20	65	Redbeds	5	135
Sand, water	30	95			

Table 5.- Drillers' logs of wells in Ector County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well F-45					
City of Odessa, 3 miles northwest of Odessa.					
Soil	10	10	Sand, water	72	148
Caliche	35	45	Shale, blue	3	151
Sand, brown; dry	25	70	Redbeds	5	156
Sand, hard	6	76			
Well F-46					
City of Odessa, 3 miles northwest of Odessa.					
Soil	4	4	Sand, coarse-grained, and gravel	17	135
Caliche	36	40	Sand, white	5	140
Sand, brown; water	25	65	Shale, blue, and redbeds	10	150
Sand and gravel; water	53	118			
Well F-47					
City of Odessa, 3 miles northwest of Odessa.					
Soil	4	4	Sand, white	17	127
Caliche	41	45	Sand, brown	7	134
Sand, brown	20	65	Sand	3	137
Sand and gravel	10	75	Shale, blue, and redbeds	8	145
Sand, brown	35	110			
Well F-48					
City of Odessa, 3¼ miles northwest of Odessa.					
Soil	4	4	Shale, blue	15	125
Caliche	12	16	Sand, brown	15	140
Sand, white	29	45	Shale, blue	5	145
Rock	10	55	Redbeds	5	150
Sand, brown	55	110			
Well F-50					
City of Odessa, 3½ miles northwest of Odessa.					
Soil	9	9	Sand	32	130
Caliche	54	63	Shale, blue	4	134
Sand, water	5	68	Redbeds	6	140
Sand and gravel	30	98			

Table 5.- Drillers' logs of wells in Ector County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well F-51					
City of Odessa, 3¼ miles northwest of Odessa.					
Soil	4	4	Sand, hard	12	72
Caliche	36	40	Sand, water	66	138
Sand, hard	10	50	Shale, blue	7	145
Sand, brown; dry	10	60	Redbeds	3	148
Well F-52					
City of Odessa, 3¼ miles northwest of Odessa.					
Soil	6	6	Sand, white; water	25	95
Caliche	34	40	Sand, yellow	50	145
Sand, hard	25	65	Shale, blue	6	151
Sand, water	5	70	Redbeds	5	156
Well F-53					
City of Odessa, 3¼ miles northwest of Odessa.					
Soil	5	5	Shale, blue	5	145
Caliche	60	65	Redbeds	5	150
Sand, water	75	140			
Well F-54					
City of Odessa, 3 miles northwest of Odessa.					
Soil	5	5	Sand, white	12	80
Caliche	35	40	Gravel and sand	5	85
Sand, brown	20	60	Sand, water	64	149
Sand, water	8	68	Redbeds	6	155
Well F-55, partial log					
City of Odessa, 3¼ miles northwest of Odessa.					
Soil	4	4	Sand, water	70	145
Caliche	41	45	Redbeds	10	155
Sand, dry	30	75	Total depth		180
Well F-56					
City of Odessa, 3¼ miles northwest of Odessa.					
Soil	5	5	Sand, white	20	85
Caliche	35	40	Sand, brown	35	120
Sand, red	20	60	Sand and gravel	18	138
Sand, yellow	5	65	Shale, blue, and red beds	12	150

Table 5.- Drillers' logs of wells in Ector County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well F-57					
City of Odessa, 3¼ miles northwest of Odessa.					
Soil	3	3	Clay, yellow	5	130
Caliche	42	45	Sand	20	150
Clay	15	60	Gravel	3	153
Sand	60	120	Shale, blue	3	156
Shale, blue	5	125	Redbeds	9	165
Well F-58					
City of Odessa, 3¼ miles northwest of Odessa.					
Soil	3	3	Sand	25	100
Caliche	32	35	Shale, blue	15	115
Clay	5	40	Sand, hard	10	125
Shale, brown	10	50	Sand and gravel	22	147
Sand, brown	15	65	Redbeds	8	155
Sand and gravel	10	75			
Well F-59, partial log					
City of Odessa, 4 miles northwest of Odessa.					
Soil	3	3	Shale, blue	5	100
Caliche	32	35	Sand, water	48	148
Shale	15	50	Redbeds	7	155
Sand, brown	20	70	Total depth		175
Sand and gravel	25	95			
Well F-60					
City of Odessa, 4 miles northwest of Odessa.					
Caliche	28	28	Sand and gravel	15	90
Rock	17	45	Gravel	55	145
Caliche	25	70	Shale, blue	1	146
Rock	5	75	Redbeds	4	150

Table 5.- Drillers' logs of wells in Ector County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well F-62					
City of Odessa, 4½ miles northwest of Odessa.					
Soil	4	4	Shale, blue	5	115
Caliche	41	45	Sand and gravel	30	145
Shale, brown	15	60	Shale, blue	5	150
Sand and gravel	40	100	Redbeds	10	160
Sand	10	110			
Well F-63					
City of Odessa, 4½ miles northwest of Odessa.					
Soil	15	15	Clay, yellow	8	58
Caliche, hard	15	30	Sand, water	72	130
Caliche	15	45	Shale, blue	18	148
Gravel, water	5	50	Redbeds	2	150
Well F-64, partial log					
City of Odessa, 4¼ miles northwest of Odessa.					
Soil	3	3	Shale, blue	5	125
Caliche	42	45	Sand, water	25	150
Clay	15	60	Gravel	3	153
Sand, brown	30	90	Redbeds	12	165
Shale, blue	5	95	Total depth		175
Sand, water	25	120			
Well F-65					
City of Odessa, 4¼ miles northwest of Odessa.					
Caliche	25	25	Sand and gravel	25	105
Sand, yellow	30	55	Sand	20	125
Sand, water	10	65	Shale, blue	25	150
Sand	10	75	Redbeds	8	158
Shale, blue	5	80			

Table 5.- Drillers' logs of wells in Ector County--Continued

Thickness (feet)		Depth (feet)		Thickness (feet)		Depth (feet)	
Well F-66							
City of Odessa, 4¼ miles northwest of Odessa.							
Caliche	10	10	Redbeds	10	130		
Rock, hard	15	25	Shale, blue	18	148		
Sand and gravel	35	80	Sand	10	158		
Shale, blue	10	90	Redbeds	5	163		
Lime, brown	30	120					
Well F-71							
City of Odessa, 5 miles northwest of Odessa.							
Caliche	55	55	Sand	15	115		
Sand, yellow, and gravel	25	80	Shale, blue	10	125		
Sand, hard white	20	100	Redbeds	5	130		
Well F-72							
City of Odessa, 5 miles northwest of Odessa.							
Soil	3	3	Sand and gravel	85	155		
Caliche	37	40	Shale, blue	10	165		
Sand, yellow	30	70	Redbeds	5	170		
Well F-73							
City of Odessa, 4¼ miles northwest of Odessa.							
Soil	5	5	Lime, hard	10	80		
Sand	15	20	Sand and gravel; water	45	125		
Caliche	30	50	Shale, blue	5	130		
Sand, brown	15	65	Sand and gravel	35	165		
Lime hard sandy	5	70	Redbeds	5	170		
Well F-77							
City of Odessa, 5¼ miles northwest of Odessa.							
Soil	4	4	Sand, water	5	120		
Caliche	31	35	Sand and gravel	20	140		
Sand, dry	8	43	Sand	11	151		
Sand, hard; dry	7	50	Shale, blue	3	154		
Sand and gravel, water	65	115	Rock, red	2	156		

Table 5.- Drillers' logs of wells in Ector County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well F-79					
City of Odessa, 5½ miles northwest of Odessa.					
Soil	3	3	Sand and gravel	102	152
Caliche	37	40	Shale, blue	4	156
Sand, white	10	50	Redbeds	2	158
Well F-80					
City of Odessa, 5½ miles northwest of Odessa.					
Soil	3	3	Shale, blue	14	147
Caliche	47	50	Gravel	7	154
Sand	15	65	Redbeds	2	156
Sand and gravel	68	133			
Well F-81					
City of Odessa, 5½ miles northwest of Odessa.					
Soil	3	3	Sand, brown	8	158
Caliche	52	55	Shale, blue	4	162
Sand and gravel	95	150	Rock, red	2	164
Well F-82					
City of Odessa, 5 miles northwest of Odessa.					
Soil	5	5	Sand and gravel	45	135
Caliche	35	40	Shale, blue	10	145
Sand, hard	20	60	Gravel	20	165
Gravel, water	15	75	Shale, blue	5	170
Sand, hard red	15	90	Redbeds	5	175
Well F-83					
City of Odessa, 5½ miles northwest of Odessa.					
Soil	4	4	Sand, hard	20	110
Caliche, hard	56	60	Gravel, water	65	175
Sand, hard	15	75	Redbeds	5	180
Gravel, water	15	90			

Table 5.- Drillers' logs of wells in Ector County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well F-84					
City of Odessa, 5½ miles northwest of Odessa.					
Soil	3	3	Sand and gravel	80	140
Caliche	37	40	Sand, brown	28	168
Sand, white	10	50	Shale, blue	2	170
Sand, red	10	60	Redbeds	4	174
Well F-85					
City of Odessa, 5½ miles northwest of Odessa.					
Soil	2	2	Sand and gravel	30	155
Caliche, hard	48	50	Shale, blue	10	165
Sand, yellow	25	75	Gravel	10	175
Gravel, water	50	125	Redbeds	5	180
Well F-86					
City of Odessa, 6 miles northwest of Odessa.					
Caliche	35	35	Shale, blue	15	175
Sand, hard	20	55	Redbeds	5	180
Sand and gravel, water	105	160			
Well F-87					
City of Odessa, 6 miles northwest of Odessa.					
Soil	4	4	Sand	3	83
Caliche	11	15	Lime, hard brown	15	98
Rock, hard	20	35	Sand and gravel	58	156
Sand, yellow	20	55	Shale, blue	5	161
Sand and gravel	25	80	Redbeds	5	166
Well F-88					
City of Odessa, 6 miles northwest of Odessa.					
Caliche	50	50	Sand and gravel	90	160
Sand, hard	5	55	Shale, blue	3	163
Gravel, water	10	65	Redbeds	1	164
Sand, hard	5	70			

Table 5.- Drillers' logs of wells in Ector County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well F-89					
City of Odessa, 6 miles northwest of Odessa.					
Soil	5	5	Sand and gravel, water	97	152
Caliche, hard	20	25	Shale, blue	4	156
Sand, dry	30	55	Redbeds	4	160
Well F-91					
City of Odessa, 6 miles northwest of Odessa.					
Caliche	15	15	Shale, blue	2	142
Sand, hard	40	55	Redbeds	5	147
Sand and gravel, water	85	140			
Well F-92					
City of Odessa, 6 miles northwest of Odessa.					
Soil	5	5	Sand and gravel, water	82	147
Caliche, hard	20	25	Shale, blue	8	155
Sand, dry	40	65	Redbeds	5	160
Well F-93					
City of Odessa, 6 miles northwest of Odessa.					
Caliche	35	35	Shale, blue	6	145
Sand	25	60	Redbeds	5	150
Sand and gravel, water	79	139			
Well F-94					
City of Odessa, 6 miles northwest of Odessa.					
Caliche	30	30	Shale, blue	5	135
Sand, yellow	25	55	Redbeds	5	140
Sand and gravel, water	75	130			

Table 5.- Drillers' logs of wells in Ector County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well F-95					
City of Odessa, 6 miles northwest of Odessa.					
Soil	5	5	Sand, hard brown	10	100
Caliche	11	16	Rock, hard	10	110
Rock, hard	4	20	Shale, blue	10	120
Sand, hard yellow	30	50	Sand, hard brown	10	130
Sand, hard brown	10	60	Redbeds	10	140
Sand, white; water	30	90			
Well F-100					
J. E. Bagley, 3 miles northwest of Odessa.					
Caliche	25	25	Sand, brown; water	57	112
Sand and gravel	7	32	Shale, blue	6	118
Sand, yellow; water ...	23	55	Redbeds	2	120
Well F-101					
J. E. Bagley, 2 $\frac{3}{4}$ miles northwest of Odessa.					
Caliche	25	25	Sand	67	114
Sand, yellow	20	45	Shale, blue	2	116
Sand, brown	2	47	Redbeds	2	118
Well F-103					
J. E. Bagley, 2 $\frac{3}{4}$ miles northwest of Odessa.					
Soil	5	5	Sand, water	60	115
Caliche	35	40	Shale, blue	3	118
Lime, hard	15	55	Redbeds	2	120

Table 5.- Drillers' logs of wells in Ector County--Continued

		Thickness (feet)	Depth (feet)			Thickness (feet)	Depth (feet)
Well F-105, partial log							
Andy Newnham, 1¼ miles northeast of Odessa.							
Lime	17	17	Clay, red, and sandstone	56	765		
Sand; water at 93 feet	117	134	Clay, limy red	23	788		
Clay, and sand, white	17	151	Clay, red, and sandstone	44	832		
Clay, ferruginous, red	122	273	Clay, and shale, red	61	893		
Clay, red	48	321	Clay, shale, and sand, red	48	941		
Clay, ferruginous, red	7	328	Sandstone	27	968		
Clay, red	285	613	Total depth		1,096		
Clay, red, and sand	69	682					
Clay, red, and shale, sandy	27	709					
Well F-111							
Odessa Country Club, 5¼ miles northeast of Odessa.							
Soil	10	10	Sand, dry	15	70		
Caliche	10	20	Rock, red	8	78		
Sand, hard; little water	25	45	Sand, water	32	110		
Redbeds	10	55	Redbeds	5	115		
Well F-117							
-- Pool, 3½ miles east of Odessa.							
Sand	5	5	Shale, sandy red	5	60		
Caliche and chert	10	15	Sand, coarse-grained, with quartz pebbles, some red shale	10	70		
Caliche and sand	5	20	Sand, red shaly, some gray shale	5	75		
Sand, white, slightly calcareous and iron-stained	10	30	Shale, maroon	5	80		
Sand, buff	5	35	Shale, red and gray sandy, calcareous	2	82		
Sand, white	5	40	Shale, and sand, some red and gray	13	95		
Sand, buff	5	45	Shale, sandy red	15	110		
Sand, white	5	50					
Sand, red, slightly shaly	5	55					

Table 5.- Drillers' logs of wells in Ector County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well F-118					
-- Pool, 2¼ miles northeast of Odessa.					
Caliche, chert and limestone pebbles ..	15	15	Sand, and gravel, shaly, much		
Sand containing 80 to 100 percent sub- rounded quartz grains and 5 to 20 percent lime or caliche. Increasingly pure quartz sand toward base	65	80	sub-rounded chert and quartz ..	5	115
Sand, quartz, slightly calcareous	25	105	Sand, chert and quartz, slightly calcareous	3	118
Shale, sandy, and gravel containing chert and quartz, iron-stained, about 75 percent gray shale	5	110	Shale, gray	4	122
			Shale, red, some gray shale, slightly calcareous	3	125
Well F-119					
Sivalls Tank Inc., 1¼ miles northeast of Odessa.					
Soil	4	4	Sand, hard yellow	10	75
Caliche	26	30	Sand and gravel; water	60	135
Sand and gravel; dry	15	45	Shale, blue	10	145
Sand, hard	20	65	Redbeds	5	150
Well F-121					
Owner unknown, in Odessa.					
Soil	2	2	Sand and silt, white; water	5	47
Sand and caliche	1	3	Sand, water	10	57
Caliche, yellow	15	18	Sandstone, soft red and blue ...	8	65
Lime, hard yellow	17	35	Sand and gravel; water	22	87
Lime, soft, gumbo and pebbles	7	42			
Well F-123					
City of Odessa, in Odessa.					
Soil, sandy	3	3	Sand, fine-grained, yellow; water	15	80
Clay, sandy yellow and caliche	23	26	Sand, hard yellow	10	90
Lime, hard, and shells	6	32	Sand, gray; water	35	125
Clay, and lime, hard yellow	3	35	Sand, gray, and gravel; water ...	5	130
Lime, clay, and sand, hard	3	38	Sand and gravel, coarse-grained gray; water	8	138
Lime clay, yellow, and sand	2	40	Clay, pale-green	5	143
Clay, yellow	3	43	Clay, red	1	144
Clay, and lime, yellow	6	49			
Lime, hard sandy	6	55			
Clay, yellow, and sand	10	65			

Table 5.- Drillers' logs of wells in Ector County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well F-124					
Humble Pipe Line Co., 1 mile west of Odessa.					
Sand	5	5	Sand, water	7	75
Caliche	3	8	Lime	5	80
Clay, sandy	22	30	Sand, water	25	105
Caliche	5	35	Lime, hard	5	110
Clay	20	55	Sand, water	10	120
Sand, water	5	60	Clay	4	124
Lime	8	68			
Well F-125					
Humble Pipe Line Co., 1 mile west of Odessa.					
Soil	6	6	Sand, water	5	65
Caliche	14	20	Sand	22	87
Caliche, hard	10	30	Sand, water	24	111
Caliche	30	60	Redbeds	14	125
Well F-126					
Owner unknown, 3½ miles southwest of Odessa.					
Soil	5	5	Sand, water	43	98
Caliche	50	55	Shale, blue, and redbeds	7	105
Well F-128					
May Witcher, 3¼ miles west of Odessa.					
Soil	8	8	Sand, water	20	75
Caliche	27	35	Shale, blue	10	85
Sand, yellow; dry	20	55	Redbeds	108	193

Table 5.- Drillers' logs of wells in Ector County--Continued

		Thickness (feet)	Depth (feet)			Thickness (feet)	Depth (feet)
Well F-131, partial log							
Elliott Cowden, 7 miles west of Odessa.							
Surface	70	70	Rock, red, and shale, blue ...	3	1,339		
Sand, water	30	100	Rock, red	26	1,365		
Rock, red	135	235	Shale, red	35	1,400		
Redbeds	55	290	Shale, sandy, and sand	7	1,407		
Mud, red	60	350	Shale, sandy	8	1,415		
Rock, red	105	455	Rock, red	45	1,460		
Redbeds	393	848	Shale, brown, and rock, red ..	40	1,500		
Rock, red	32	880	Shale, red	70	1,570		
Shale, blue	37	917	Rock, red	13	1,583		
Shale, sandy	3	920	Anhydrite	7	1,590		
Sand, water	30	950	Anhydrite and shell, red rock	15	1,605		
Rock, red	90	1,040	Rock, red	15	1,620		
Shale, red sandy	7	1,047	Shale, brown, and anhydrite				
Shale, and rock, red	23	1,070	shell	5	1,625		
Shale, red sandy	30	1,100	Mud, red	15	1,640		
Sand, water	4	1,104	Anhydrite	20	1,660		
Shale, sandy	18	1,122	Shale, red	10	1,670		
Shale, red sandy	106	1,228	Salt	10	1,680		
Shale, red	33	1,261	Total depth		4,504		
Rock, red	22	1,283					
Shale, red sandy	37	1,320					
Shale, red	5	1,325					
Rock, and mud, red	11	1,336					
Well F-133							
City of Odessa, 8 miles northwest of Odessa.							
Caliche	45	45	Shale, blue	3	178		
Sand	50	95	Redbeds	7	185		
Sand, water	80	175					
Well F-134							
City of Odessa, 8 miles northwest of Odessa.							
Soil	3	3	Sand and gravel, water	73	183		
Caliche	77	80	Shale, blue	3	186		
Sand, white	30	110	Redbeds	5	191		

Table 5.- Drillers' logs of wells in Ector County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well F-135					
City of Odessa, 7½ miles northwest of Odessa.					
Soil	3	3	Sand	40	190
Caliche	82	85	Shale, blue	10	200
Sand, hard	30	115	Redbeds	5	205
Sand and gravel	35	150			
Well F-136					
City of Odessa, 7½ miles northwest of Odessa.					
Soil	2	2	Sand and gravel; water	70	180
Caliche	43	45	Shale, blue	5	185
Lime, blue	20	65	Redbeds	10	195
Sand, dry	45	110			
Well F-137					
City of Odessa, 7½ miles northwest of Odessa.					
Soil	4	4	Sand and gravel; water	107	192
Caliche	71	75	Shale, blue	3	195
Sand, dry	10	85	Redbeds	5	200
Well F-138					
City of Odessa, 7½ miles northwest of Odessa.					
Caliche	76	76	Sand and gravel; water	79	174
Sand, dry	19	95	Redbeds	6	180
Well F-139					
City of Odessa, 7½ miles northwest of Odessa.					
Soil	2	2	Gravel, water	55	160
Caliche	78	80	Shale, blue	3	163
Sand, white	25	105	Redbeds	5	168
Well F-140					
City of Odessa, 7½ miles northwest of Odessa.					
Soil	2	2	Sand and gravel	91	176
Caliche	63	65	Redbeds	4	180
Sand, white	20	85			

Table 5.- Drillers' logs of wells in Ector County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well F-141					
City of Odessa, 7 miles northwest of Odessa.					
Soil	3	3	Shale, blue	2	192
Caliche	87	90	Redbeds	4	196
Sand and gravel; water	100	190			
Well F-142					
City of Odessa, 7 miles northwest of Odessa.					
Soil	3	3	Sand and gravel	49	173
Caliche	67	70	Shale, blue	11	184
Sand, hard	54	124	Redbeds	8	192
Well F-143					
City of Odessa, 7 miles northwest of Odessa.					
Soil	5	5	Sand and gravel; water	83	183
Caliche	45	50	Shale, blue	2	185
Sand, hard	50	100	Redbeds	5	190
Well F-144					
City of Odessa, 7 miles northwest of Odessa.					
Soil	2	2	Sand and gravel	91	176
Caliche	63	65	Redbeds	6	182
Sand, white	20	85			
Well F-145					
City of Odessa, 7 miles northwest of Odessa.					
Soil	3	3	Shale, blue	10	165
Caliche	87	90	Redbeds	5	170
Sand, water	65	155			
Well F-146					
City of Odessa, 7 miles northwest of Odessa.					
Soil	2	2	Sand, water	75	160
Caliche	53	55	Redbeds	5	165
Sand, gray	30	85			

Table 5.- Drillers' logs of wells in Ector County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well F-147					
City of Odessa, 7 miles northwest of Odessa.					
Soil	3	3	Sand and gravel	76	151
Caliche	62	65	Shale, blue	14	165
Sand, brown	10	75	Redbeds	5	170
Well F-148					
City of Odessa, 6½ miles northwest of Odessa.					
Soil	3	3	Shale, blue	5	182
Caliche	67	70	Redbeds	5	187
Sand and gravel; water	107	177			
Well F-149					
City of Odessa, 6½ miles northwest of Odessa.					
Soil	2	2	Sand and gravel; water	83	188
Caliche	53	55	Shale, blue	2	190
Sand, hard	50	105	Redbeds	5	195
Well F-150					
City of Odessa, 6½ miles northwest of Odessa.					
Soil	15	15	Sand, water	82	172
Caliche	40	55	Shale, blue	8	180
Sand, hard	35	90			
Well F-151					
City of Odessa, 6½ miles northwest of Odessa.					
Caliche	15	15	Sand	20	70
Rock, hard	15	30	Sand and gravel	107	177
Sand, hard	10	40	Redbeds	5	182
Sand, gray	10	50			
Well F-152					
City of Odessa, 6½ miles northwest of Odessa.					
Soil	3	3	Sand and gravel	73	153
Caliche	67	70	Shale, blue	6	159
Sand, white	10	80	Redbeds	6	165

Table 5.- Drillers' logs of wells in Ector County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well F-153					
City of Odessa, 6 miles northwest of Odessa.					
Soil	3	3	Sand and gravel	73	153
Caliche	67	70	Shale, blue	6	159
Sand, white	10	80	Redbeds	5	164
Well F-154					
City of Odessa, 6 miles northwest of Odessa.					
Soil	4	4	Sand	30	70
Caliche	16	20	Sand and gravel; water	97	167
Rock, hard	20	40	Redbeds	8	175
Well F-155					
City of Odessa, 6 miles northwest of Odessa.					
Soil	3	3	Sand and gravel; water	95	180
Caliche	52	55	Shale, blue	4	184
Sand, yellow	30	85	Redbeds	5	189
Well F-156					
Texas & Pacific Railway Co., in Odessa.					
Surface sand	4	4	Sand, coarse-grained yellow and red	12	77
Caliche, sandy and clay	7	11	Sandstone, hard	3	80
Rock, hard, and caliche	5	16	Sand, soft	3	83
Clay, sandy and caliche	7	23	Sand, hard coarse-grained with		
Caliche, hard, and rock	3	26	layers of yellow rock and lime ..	28	111
Sand, red coarse-grained, and gravel	6	32	Sand, coarse-grained with streaks		
Sand with streaks of clay, yellow ..	17	49	of shale, blue	6	117
Sand, coarse-grained, gravel, and			Shale, hard dark-red	4	121
rock, hard	16	65			

Table 5.- Drillers' logs of wells in Ector County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well F-157					
Texas & Pacific Railway Co., in Odessa.					
Sand, surface	4	4	Sand, hard coarse-grained, gravel, and boulders	8	91
Caliche and rock	13	17	Sand, hard, and layers of clay and lime	10	101
Rock and streaks of sand	12	29	Clay and sand, sandy	7	108
Clay, sandy, and rock	6	35	Sand, hard, and streaks of clay	9	117
Rock and lime, clay, sandy	13	48	Clay, yellow	2	119
Sand, coarse-grained, and layers of rock	10	58	Clay, red	3	122
Clay, red and yellow	4	62			
Sand, hard coarse-grained with layers of clay and rock	21	83			
Well F-158					
City of Odessa, 1 mile northeast of Odessa.					
Surface, rocky	1	1	Sand, hard	16	99
Caliche, hard with soft layers	13	14	Sandstone, hard	2	101
Sand and caliche	4	18	Clay, hard sandy, and gravel .	3	104
Clay, and sandy clay	6	24	Shale, hard bluish-gray	12	116
Sandstone and clay layers	5	29	Sand, hard	6	122
Rock, hard, and lime, sandy	3	32	Sand and shale breaks	7	129
Sand, hard, and sandy clay	12	44	Shale, bluish-gray, and shale, sandy	6	135
Clay, hard sandy	13	57	Shale, dark-red	6	141
Sand	10	67			
Clay, hard sandy	5	72			
Sand, hard, and sandstone	11	83			
Well G-1					
Owner unknown, 24½ miles west of Odessa.					
Soil	4	4	Clay	17	79
Caliche	20	24	Gravel	11	90
Gravel	38	62	Clay	15	105
Well G-2					
Owner unknown, 23½ miles west of Odessa.					
Soil	5	5	Gravel	10	90
Caliche	35	40	Shale	40	130
Clay, sandy	40	80			

Table 5.- Drillers' logs of wells in Ector County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well G-4					
Owner unknown, 20½ miles west of Odessa.					
Soil	4	4	Redbeds	42	102
Caliche and gravel	33	37	Sandstone	16	118
Sand	23	60	Redbeds	17	135
Well G-5					
Owner unknown, 19½ miles west of Odessa.					
Soil	10	10	Clay, blue and gray	26	120
Caliche	5	15	Clay, red	10	130
Clay, red	79	94			
Well G-6, partial log					
J. Scharbauer, 20½ miles southwest of Odessa.					
Sand	4	4	Shale, red	5	750
Caliche	6	10	Sand, red	65	815
Shale, red	400	410	Shale, red	5	820
Lime, sandy; water	20	430	Sand, red	25	845
Rock, red	55	485	Shale, red	5	850
Sand, water	15	500	Sand, red	30	880
Shale, red	60	560	Shale, red	160	1,040
Shale, red, and shells	15	575	Shale, red, and shells	110	1,150
Shale, red	50	625	Shale, red	25	1,175
Shale, sandy	40	665	Anhydrite	45	1,220
Sand, red; water	50	715	Salt	135	1,355
Shale, sandy; water	30	745	Total depth		4,012
Well G-8					
Owner unknown, 24½ miles southwest of Odessa.					
Sand	30	30	Sand and clay	34	74
Caliche	5	35	Redbeds	36	110
Sand	5	40			

Table 5.- Drillers' logs of wells in Ector County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well G-9, partial log					
-- Cowden, 26 miles southwest of Odessa.					
Surface materials	40	40	Rock, red	15	555
Gypsum	10	50	Sand, water	20	575
Sand; water at 95 feet	63	113	Rock, red	5	580
Sand, red	6	119	Sand	20	600
Shale, red	31	150	Rock, red	10	610
Rock, red	65	215	Sand	80	690
Sand, water	305	520	Rock, red	170	860
Rock, red	15	535	Total depth		4,008
Sand, water	5	540			
Well G-16					
Owner unknown, 25½ miles southwest of Odessa.					
Sand	30	30	Sandstone, red	13	75
Sandstone, soft	25	55	Clay, red sandy	5	80
Caliche, soft	5	60	Shale, red	40	120
Sandstone, gray	2	62			
Well H-6, partial log					
E. F. Cowden, 10 miles southwest of Odessa.					
Caliche	40	40	Shale, sandy	40	1,250
Sand, soft	70	110	Rock, red	25	1,275
Sand	48	158	Mud, red	10	1,285
Rock, red; water from 160 to 165 feet .	902	1,060	Shale, sandy	10	1,295
Sand, red; water	23	1,083	Rock, red	100	1,395
Sand, gray; water	17	1,100	Shale, sandy red	160	1,555
Sand, hard	20	1,120	Shale, red	20	1,575
Sand, red	20	1,140	Anhydrite and shale	5	1,580
Rock, red	10	1,150	Anhydrite	35	1,615
Sand	7	1,157	Salt and shale	10	1,625
Rock, red	8	1,165	Anhydrite	10	1,635
Shale, sandy	20	1,185	Salt	30	1,665
Rock, sandy red	25	1,210	Total depth		4,338

Table 5.- Drillers' logs of wells in Ector County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well H-8, partial log					
Alphonse Kloh, 12½ miles southwest of Odessa.					
Caliche	90	90	Shale, red	30	1,175
Rock, red	10	100	Rock, red	20	1,195
Quicksand	20	120	Shale, red	15	1,210
Sand, yellow	60	180	Rock, red	35	1,245
Sand and gravel	25	205	Sand, water	5	1,250
Rock, red	535	740	Rock, red	50	1,300
Rock, sandy red	120	860	Shale, sandy red	50	1,350
Shale, red	65	925	Rock, sandy red	50	1,400
Rock, red	60	985	Shale, red	35	1,435
Sand, water	10	995	Shale, red, and anhydrite shells	8	1,443
Rock, sandy red	20	1,015	Anhydrite	22	1,465
Rock, red	10	1,025	Salt	75	1,540
Shale, sandy red	45	1,070	Total depth		4,259
Rock, sandy red	25	1,095			
Shale, sandy	50	1,145			
Well H-9, partial log					
J. W. Buchanan, 16 miles west of Odessa.					
Cap rock	40	40	Redbeds, sandy	75	1,185
Rock, red	710	750	Sand, red	15	1,200
Sand, water	320	1,070	Total depth		3,523
Sand, red	40	1,110			
Well H-11, partial log					
W. J. Rutledge, 17½ miles southwest of Odessa.					
Caliche	40	40	Shale, red	30	815
Redbeds	290	330	Shale, sandy	10	825
Shale, red	315	645	Shale, red	251	1,076
Sand, red	7	652	Anhydrite	6	1,082
Shale, red	13	665	Anhydrite, white	18	1,100
Sand, red	60	725	Salt	100	1,200
Rock, red	5	730	Total depth		4,250
Sand, red	55	785			
Well H-15					
Owner unknown, 18½ miles southwest of Odessa.					
Soil	5	5	Gravel	10	60
Caliche	15	20	Redbeds	60	120
Clay, sandy	30	50			

Table 5.- Drillers' logs of wells in Ector County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well H-16, partial log					
W. E. Connell, 18 miles southwest of Odessa.					
Caliche, soft	45	45	Sand, water	18	501
Sand, red	40	85	Rock, red	44	545
Rock, red	190	275	Mud, red	210	755
Redbeds	208	483	Total depth		3,860
Well H-19, partial log					
A. Kloh et al., 15 miles southwest of Odessa.					
Soil and caliche	10	10	Sand, gray; water at 795 feet .	20	805
Caliche and sand	30	40	Shale, red	20	825
Caliche and shale	10	50	Shale, red sandy	20	845
Shale, yellow	10	60	Sand, red; water	20	865
Sand and shale, yellow	40	100	Rock, red	25	890
Rock, red	350	450	Shale, red sandy	125	1,015
Shale, red sandy	100	550	Redbeds	25	1,040
Shale, red sandy, hard sharp	50	600	Rock, red	160	1,200
Shale, gray sandy	10	610	Anhydrite	15	1,215
Shale, red sandy	30	640	Shale, hard red	15	1,230
Sand, gray sharp	15	655	Salt and anhydrite; water	15	1,245
Rock, red	95	750	Shale, red, and salt	55	1,300
Shale, red sandy	20	770	Total depth		3,744
Sand, brownish-gray	5	775			
Sand, brownish-gray, and gravel	10	785			
Well H-26, partial log					
Alphonse Kloh et al., 13½ miles southwest of Odessa.					
Rock	5	5	Rock, red	150	1,070
Sand	95	100	Sand, water	5	1,075
Sand, water	60	160	Sand	72	1,147
Rock, red	525	685	Sand, broken, and rock, red ..	13	1,160
Sand	10	695	Sand, white; water	45	1,205
Redbeds, water	70	765	Rock, red	20	1,225
Sand	25	790	Sand, brown	15	1,240
Rock, red	5	795	Sand, water	60	1,300
Rock, sandy red	50	845	Mud, red	50	1,350
Rock, red	40	885	Total depth		2,575
Gypsum	35	920			

Table 5.- Drillers' logs of wells in Ector County--Continued

Thickness (feet)		Depth (feet)		Thickness (feet)		Depth (feet)		
Well H-27, partial log								
-- Hogan, 14½ miles southwest of Odessa.								
Caliche	40	40	Anhydrite	30	1,350			
Shale, red	250	290	Anhydrite, shale, and sand, red	10	1,360			
Lime	10	300	Sand fine-grained, shaly; water	15	1,375			
Shale, red	550	850	Shale, red	15	1,390			
Sand, red; water	30	880	Salt at 1,390 feet.					
Shale, red sandy	95	975	Total depth	Unknown				
Sand, red	40	1,015						
Shale, red	305	1,320						
Well H-28, partial log								
University of Texas, 16 miles southwest of Odessa.								
Gypsum and sand	45	45	Shale, red	35	530			
Rock, red, and sand	40	85	Redbeds	345	875			
Rock, red	285	370	Gypsum and lime	20	895			
Redbeds	95	465	Salt	95	990			
Rock, red	15	480	Total depth	3,612				
Lime, broken; water	15	495						
Well H-29								
W. E. Connell, 17 miles southwest of Odessa.								
Sand	9	9	Rock, sandy red	25	265			
Caliche	19	28	Sandstone	7	272			
Sand	44	72	Rock, red	48	320			
Sand, red	13	85	Rock, sandy red	20	340			
Rock, red	4	89	Rock, red	58	398			
Rock, sandy red	16	105	Sand, water	10	408			
Sand, water	9	114	Sand	32	440			
Sand and rock, red	26	140	Rock, red and sand	6	446			
Rock, red	25	165	Rock, sandy red	9	455			
Rock, sandy red	15	180	Sand, water	4	459			
Rock, red	60	240	Rock, red	3	462			

Table 5.- Drillers' logs of wells in Ector County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well H-31, partial log					
W. E. Connell, 18 miles southwest of Odessa.					
Sand, red	5	5	Lime, gray	10	430
Sand, white	25	30	Sand, water	25	455
Sand, red	80	110	Rock, red	5	460
Rock, caving red	175	285	Sand, red	15	475
Shale, gray	10	295	Rock, red	370	845
Rock, red	125	420	Total depth		4,002
Well H-33, partial log					
W. E. Connell, 19 miles southwest of Odessa.					
Surface materials	10	10	Shale, red sandy	140	685
Sand	28	38	Sand, red	15	700
Rock, red	287	325	Shale, red	30	730
Shale, brown	20	345	Shale, red sandy	125	855
Rock, red	107	452	Sand, red, and shells	55	910
Sand, water	18	470	Anhydrite, hard white	40	950
Rock, red	25	495	Salt	35	985
Sand, red	20	515	Total depth		4,013
Shale, red	20	535			
Rock, red	10	545			
Well I-1, partial log					
Elliott Cowden, 7 miles southwest of Odessa.					
Caliche	60	60	Rock, red	10	1,050
Sand	25	85	Shale, red sandy	50	1,100
Sand, water	20	105	Sand, red	15	1,115
Mud, blue	5	110	Rock, red	85	1,200
Rock, red	245	355	Sand, red	50	1,250
Mud, red and blue	55	410	Rock, red	235	1,485
Rock, red	325	735	Shale, brown	50	1,535
Sand, red; water	50	785	Anhydrite and potash	10	1,545
Rock, red	45	830	Salt	30	1,575
Sand, red; water	40	870	Total depth		4,375
Sand, water	155	1,025			
Sand	15	1,040			

Table 5.- Drillers' logs of wells in Ector County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well I-2, partial log					
F. V. Addis, 5 miles southwest of Odessa.					
Lime shells	35	35	Shale	5	1,180
Boulders	5	40	Sand, water	10	1,190
Lime, sandy	20	60	Shale, brown	25	1,215
Sand, water	20	80	Sand, water	25	1,240
Rock, red, and shale	700	780	Shale, sandy	6	1,246
Sand, red; water	15	795	Shale, red	129	1,375
Shale, brown	35	830	Shale, blue and rock, red	10	1,385
Shale, blue	5	835	Rock, red	90	1,475
Rock, red, and shale, brown	105	940	Shale, brown	25	1,500
Rock, red, and shale	69	1,009	Rock, red, and shale, broken ...	50	1,550
Sand, water	12	1,021	Anhydrite	5	1,555
Shale, red	9	1,030	Rock, red	10	1,565
Sand, water	30	1,060	Anhydrite and shale, red	5	1,570
Shale, red sandy	25	1,085	Anhydrite	5	1,575
Shale, red	36	1,121	Anhydrite and salt	25	1,600
Sand, water	11	1,132	Total depth		3,927
Shale, sandy	11	1,143			
Rock, red	32	1,175			
Well I-3					
Addis, 4½ miles southwest of Odessa.					
Soil	6	6	Clay, blue	3	70
Caliche	29	35	Sand, water	14	84
Sand, hard	10	45	Shale, blue	5	89
Caliche, hard	5	50	Redbeds	1	90
Sand	17	67			
Well I-4, partial log					
C. O. Addis Estate, 4½ miles southwest of Odessa.					
Surface	35	35	Sand; water	15	1,005
Caliche	45	80	Redbeds	5	1,010
Sand	23	103	Sand	30	1,040
Rock, red	612	715	Rock, red	15	1,055
Sand, water	10	725	Sand	12	1,067
Rock, red	62	787	Sand and rock, red	118	1,185
Sand	3	790	Sand, red	25	1,210
Sand, broken	25	815	Sand; water	15	1,225
Mud, blue	5	820	Rock, red	300	1,525
Redbeds	45	865	Anhydrite, shale, and salt ...	30	1,555
Sand	5	870	Redbeds and salt	30	1,585
Sand and shale	25	895	Salt	20	1,605
Sand	20	915	Total depth		4,067
Redbeds	75	990			

Table 5.- Drillers' logs of wells in Ector County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well I-5, partial log					
L. E. Brock, 4¼ miles southwest of Odessa.					
Caliche and sand	92	92	Sand, water	50	1,100
Redbeds	673	765	Rock, red, and shale	495	1,595
Rock, red, and sand; water at 790 feet	135	900	Anhydrite	15	1,610
Rock, red and shale	150	1,050	Anhydrite and salt	440	2,050
			Total depth		4,129
Well I-9					
City of Odessa, ¾ mile south of Odessa.					
Soil	2	2	Sand, white	20	95
Caliche	18	20	Sand, brown	25	120
Rock, hard	35	55	Shale, blue	5	125
Sand and gravel; water	10	65	Redbeds	5	130
Sand, water	10	75			
Well I-10					
City of Odessa, 1 mile south of Odessa.					
Surface	5	5	Sand, water	66	110
Caliche	25	30	Shale, blue	11	121
Sand, brown	14	44	Redbeds	4	125
Well I-11					
City of Odessa, 1¼ miles south of Odessa.					
Surface	5	5	Sand, water	72	108
Caliche	21	26	Shale, blue	8	116
Sand, brown	10	36	Redbeds	4	120
Well I-12					
City of Odessa, 1¼ miles south of Odessa.					
Surface	5	5	Sand, water	70	112
Caliche	30	35	Shale, blue	8	120
Sand, brown	7	42			

Table 5.- Drillers' logs of wells in Ector County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well I-13					
City of Odessa, 1 mile south of Odessa.					
Surface	5	5	Sand, water	77	118
Caliche	30	35	Shale, blue	7	125
Sand, red	6	41	Redbeds	3	128
Well I-14					
City of Odessa, 1 mile southeast of Odessa.					
Caliche	25	25	Shale, blue	3	115
Sand, red	15	40	Redbeds	5	120
Sand and gravel; water	72	112			
Well I-15					
City of Odessa, 1¼ miles southeast of Odessa.					
Caliche and sand, red	25	25	Sand and gravel; water	70	115
Caliche, hard	5	30	Shale, blue	6	121
Sand, hard	5	35	Redbeds	4	125
Sand, white	10	45			
Well I-16, partial log					
T. G. Hendricks, 3 miles southeast of Odessa.					
Caliche, hard	20	20	Lime shells	7	1,125
Sand, yellow	45	65	Rock, red	15	1,140
Sand, water	65	130	Shale, sandy	70	1,210
Slate, white	5	135	Sand, hard	10	1,220
Rock, red	670	805	Rock, red	30	1,250
Sand, water	20	825	Shale, sandy	10	1,260
Rock, red	75	900	Lime	5	1,265
Shale, sandy	10	910	Shale, sandy	10	1,275
Slate and rock, red	20	930	Sand, water	10	1,285
Rock, red	85	1,015	Rock, red	76	1,361
Lime shells	8	1,023	Sand	3	1,364
Rock, red	17	1,040	Rock, red	101	1,465
Sand, little water	5	1,045	Shale, brown	155	1,620
Sand	25	1,070	Lime	5	1,625
Lime shells	18	1,088	Salt	55	1,680
Sand and lime shells	30	1,118	Total depth		4,850

Table 5.- Drillers' logs of wells in Ector County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well I-22, partial log					
-- Davis, 5½ miles southeast of Odessa.					
Surface materials	7	7	Shale, sandy	2	360
Lime	6	13	Shale, brown	25	385
Sand, water	10	23	Sand, red and brown	3	388
Sand, red	17	40	Shale	2	390
Sand	8	48	Shale, brown	65	455
Sand, water	75	123	Sand	35	490
Clay, blue	3	126	Clay, red	60	550
Clay, red	199	325	Lime, brown sandy	193	743
Sand, red	2	327	Total depth		1,755
Clay, red	31	358			
Well I-27, partial log					
H. R. Henderson, 7 miles southwest of Odessa.					
Lime	50	50	Sand	10	895
Sand	10	60	Shale, sandy	80	975
Lime	15	75	Redbeds	65	1,040
Sand	65	140	Sand, water	20	1,060
Lime	10	150	Sand, hard	5	1,065
Gumbo	5	155	Redbeds	5	1,070
Redbeds	45	200	Sand, hard	15	1,085
Rock, red	30	230	Rock, red	20	1,105
Shale, blue	110	340	Sand	20	1,125
Rock, red	350	690	Sand, hard	5	1,130
Sand, red; water	90	780	Rock, red	40	1,170
Sand	20	800	Sand, water	10	1,180
Redbeds	10	810	Sand	40	1,220
Sand, white	8	818	Redbeds and shells	15	1,235
Redbeds	27	845	Sand, water	47	1,282
Sand, broken	20	865	Redbeds	28	1,310
Shale, sandy	20	885	Total depth		3,408
Well I-30, partial log					
W. P. Edwards, 10 miles southwest of Odessa.					
Lime	85	85	Redbeds	95	625
Shale, red sandy	10	95	Rock, red	25	650
Sand	80	175	Redbeds	165	815
Shale, yellow	10	185	Shale, red	20	835
Shale, white	10	195	Shale, red sandy	8	843
Sand, white	5	200	Sand, water	4	847
Redbeds	40	240	Redbeds	43	890
Rock, red	40	280	Sand, red; water	10	900
Redbeds	235	515	Redbeds	10	910
Shale, sandy	15	530	Shale, blue	10	920

(Continued on next page)

Table 5.- Drillers' logs of wells in Ector County--Continued

		Thickness (feet)	Depth (feet)			Thickness (feet)	Depth (feet)
Well I-30, partial log--Continued							
Shale, red	5	925	Shale, red sandy	10	1,360		
Shale, brown	28	953	Sand, water	20	1,380		
Shale, blue	37	990	Shale, red	10	1,390		
Shale, red	35	1,025	Redbeds	10	1,400		
Shale, red sandy	30	1,055	Shale, red	6	1,406		
Shale, sandy	55	1,110	Redbeds	34	1,440		
Shale, red sandy	45	1,155	Shale, red	70	1,510		
Shale, red	10	1,165	Shale, sandy	5	1,515		
Sand, gray; water	25	1,190	Sand, water	10	1,525		
Redbeds	8	1,198	Redbeds	2	1,527		
Shale, red	7	1,205	Sand	5	1,532		
Shale, sandy	5	1,210	Sand, red; water	5	1,537		
Shale, red	10	1,220	Shale, red	113	1,650		
Sand, red; water	25	1,245	Shale, and anhydrite, red	40	1,690		
Shale, red sandy	20	1,265	Shale, red sandy	20	1,710		
Sand, red	13	1,278	Anhydrite and shale, red	60	1,770		
Shale, red	12	1,290	Anhydrite, white	5	1,775		
Sand, red; water	20	1,310	Salt	13	1,788		
Shale, red sandy	10	1,320	Total depth		4,189		
Sand	30	1,350					
Well I-38, partial log							
W. P. Edwards, 11½ miles south of Odessa.							
Chalk, white	55	55	Rock, red	20	875		
Lime	15	70	Sand	13	888		
Clay, yellow	5	75	Rock, red	5	893		
Mud, yellow	10	85	Sand, gray	7	900		
Sand	11	96	Rock, red	10	910		
Mud, blue	69	165	Shale, gray	15	925		
Sand, water	45	210	Shale, pink	20	945		
Mud, blue	5	215	Shale, red sandy	5	950		
Sand, water	15	230	Rock, red	5	955		
Redbeds	420	650	Shale, gray	20	975		
Rock, red	85	735	Rock, red	125	1,100		
Redbeds	15	750	Sand, gray; water	30	1,130		
Sand and shale	10	760	Shale, sandy	10	1,140		
Rock, red	20	780	Sand, brown	5	1,145		
Shale, red sandy	15	795	Shale, red	10	1,155		
Rock, red	50	845	Total depth		3,227		
Sand and shale	10	855					

Table 5.- Drillers' logs of wells in Ector County--Continued

		Thickness (feet)	Depth (feet)			Thickness (feet)	Depth (feet)
Well I-41, partial log							
W. P. Edwards, 13¼ miles southwest of Odessa.							
Chalk	25	25	Rock, red	48	870		
Chalk, pink	5	30	Sand, red	20	890		
Rock, red	90	120	Sand and rock, red	10	900		
Sand, dry	20	140	Sand, gray	31	931		
Rock, red	30	170	Rock, white	14	945		
Sand	120	290	Sand, red	20	965		
Rock, red	5	295	Rock, red	45	1,010		
Sand, caving red	155	450	Lime and shells	2	1,012		
Sand, dry	240	690	Rock, red	15	1,027		
Rock, red	80	770	Sand, red; water	38	1,065		
Sand, gray; water	15	785	Lime, gray	3	1,068		
Rock, red	1	786	Rock, red	7	1,075		
Sand, gray	24	810	Sand, water	15	1,090		
Shale, sandy	5	815	Sand, hard	12	1,102		
Shale and sand	7	822	Total depth		3,732		

Table 6.- Analyses of water from wells in Ector County, Tex.
Results are in parts per million

Well	Owner	Depth of well (ft.)	Date of collection	Silica (SiO ₂)	Calcium (Ca)	Magnesium (Mg)	Sodium and potassium (Na + K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Nitrate (NO ₃)	Dissolved solids	Total hardness as CaCO ₃
A-1	R. B. Cowden	104	Apr. 13, 1937	-	-	-	-	189	76	66	-	366	--
A-3	do.	110	do.	-	-	-	-	122	152	34	-	368	-
A-4	do.	89	do.	-	-	-	-	177	114	53	-	389	-
A-6	-	-	Oct. 19, 1948	42	74	9.6	35	207	59	44	7.7	378	224
A-8	H. E. Cummins	74	Apr. 12, 1937	-	-	-	-	268	91	98	-	502	-
A-9	do.	74	do.	-	-	-	-	153	61	66	-	314	-
A-11	Frank Cowden	100	Apr. 14, 1937	-	-	-	-	220	72	56	-	370	-
A-22	H. E. Cummins	75	Apr. 13, 1937	-	-	-	-	128	118	67	-	377	-
A-24	C. Scharbauer	56	Apr. 16, 1937	-	-	-	-	250	334	222	-	1,030	-
B-1	Cowden Heirs	96	Apr. 14, 1937	-	-	-	-	128	65	40	-	259	-
B-4	O. B. Holt, Jr.	48	Apr. 22, 1937	-	-	-	-	268	80	53	-	416	-
B-5	do.	-	do.	-	94	49	245	439	231	260	-	1,070	435
B-6	-	180	Apr. 12, 1948	55	60	26	82	228	142	64	12	578	256
B-8	Mary Glass	-	Oct. 21, 1948	74	78	70	83	180	286	148	12	863	482
B-13	O. B. Holt	50	Mar. 8, 1937	-	111	61	141	317	281	200	-	950	528
B-15	B. H. Blakeney	-	Apr. 22, 1937	-	-	-	-	250	273	265	-	1,010	-
B-17	Ector Water Co.	135	Oct. 14, 1948	46	68	15	27	206	58	39	6.5	380	231
B-18	W. F. Cowden	71	Apr. 14, 1937	-	-	-	-	171	83	43	-	325	-
B-21	Ector Water Co.	165	Oct. 14, 1948	44	56	11	47	152	88	46	7.0	392	185
B-22	do.	165	do.	42	66	10	27	184	50	36	12	352	206
B-28	do.	105	do.	42	72	12	44	206	76	49	9.2	418	229
B-34	B. H. Blakeney	65	Apr. 20, 1937	-	124	19	70	256	239	56	-	634	387
B-35	do.	106	Oct. 20, 1948	47	72	15	30	192	81	40	9.8	413	241
B-39	do.	86	Apr. 20, 1937	-	-	-	-	73	68	32	-	206	-
B-43	Ector Water Co.	118	Oct. 14, 1948	42	80	16	42	200	97	59	11	467	266
B-44	do.	114	do.	42	83	16	41	200	104	58	10	477	273
B-46	B. H. Blakeney	48	Apr. 17, 1937	-	-	-	-	299	110	64	-	501	-
B-48	do.	74	Apr. 16, 1937	-	-	-	-	275	102	58	-	460	-
B-51	Mrs. T. B. Roberts	41	Mar. 8, 1937	-	295	77	366	153	1,250	300	-	2,360	1,050
B-53	B. H. Blakeney	109	Apr. 16, 1937	-	-	-	-	110	87	56	-	301	-
B-56	do.	128	Apr. 17, 1937	-	-	-	-	195	292	80	-	699	-
C-1	---	113	Nov. 3, 1947	-	78	16	54	266	68	48	11	457	248
C-2	Midland Farms Co.	124	Mar. 6, 1937	-	69	38	95	360	113	86	-	578	328
C-3	do.	134	do.	-	72	47	74	323	121	102	-	575	374
C-3	do.	134	Nov. 3, 1947	-	73	45	93	300	154	98	30	703	367
C-4	do.	102	Mar. 6, 1937	-	73	51	80	201	195	140	-	638	392
C-4	do.	102	Jan. 8, 1948	-	79	51	118	280	212	138	24	852	406
C-6	---	47	Jan. 9, 1948	-	100	40	151	284	308	130	6.5	938	414

Table 6.- Analyses of water from wells in Ector County--Continued

Well	Owner	Depth of well (ft.)	Date of collection	Silica (SiO ₂)	Calcium (Ca)	Magnesium (Mg)	Sodium and potassium (Na + K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Nitrate (NO ₃)	Dissolved solids	Total hardness as CaCO ₃
C-10	Midland Farms Co.	48	Feb. 25, 1937	--	101	44	162	316	312	142	--	916	432
C-13	do.	138	Mar. 6, 1937	--	42	39	59	268	74	68	--	414	264
C-17	Fred Corbett	137	Nov. 3, 1947	--	108	15	76	202	196	68	42	631	331
C-20	--	124	Apr. 12, 1948	56	86	49	111	209	263	143	13	920	416
C-22	Missionary Baptist Church	119	Apr. 8, 1948	17	60	8.4	53	188	83	42	.5	366	184
C-23	H. S. Ratliff	89	Apr. 6, 1937	--	--	--	--	116	100	66	--	340	--
C-24	do.	79	Mar. 8, 1937	--	317	148	155	116	1,380	146	--	2,200	1,400
C-25	E. J. Neathery	60	Mar. 31, 1948	56	252	82	140	192	852	140	35	1,800	966
C-26	do.	65	Mar. 8, 1937	--	312	162	375	171	1,330	525	--	2,780	1,450
C-33	Merwin Haag	48	do.	--	80	47	92	220	254	106	--	687	394
C-37	Sam Hurt & H. S. Ratliff	39	Mar. 10, 1937	--	144	40	136	277	265	225	--	946	525
C-37	do.	39	Apr. 5, 1948	68	88	27	121	285	153	133	15	750	330
C-39	Mrs. M. C. Whittenburgh	66	Mar. 11, 1937	--	71	21	58	240	77	80	--	425	263
D-1	H. E. Cummins	174	Apr. 24, 1937	--	--	--	--	159	375	66	--	765	--
D-3	E. R. Thomas Estate	127	do.	--	--	--	--	195	190	54	--	513	--
D-5	Paul Slator	170	do.	--	--	--	--	116	83	38	--	272	--
D-8	do.	174	Apr. 9, 1937	--	--	--	--	159	125	36	--	363	--
D-14	J. E. Parker	168	Apr. 26, 1937	--	--	--	--	85	285	74	--	589	--
E-9	Mrs. A. W. Wright	105	Apr. 23, 1937	--	--	--	--	201	243	66	--	612	--
E-10	do.	119	do.	--	--	--	--	195	61	34	--	299	--
E-12	Clyde Cowden	85	do.	--	96	15	94	195	239	70	--	610	304
E-13	C. Scharbauer	91	Apr. 21, 1937	--	--	--	--	317	80	68	--	480	--
E-15	do.	172	Apr. 12, 1937	--	--	--	--	250	87	28	--	372	--
E-16	do.	69	Apr. 10, 1937	--	--	--	--	122	258	82	--	594	--
E-17	do.	89	do.	--	--	--	--	201	182	40	--	485	--
E-18	do.	100	do.	--	--	--	--	244	102	28	--	388	--
E-19	do.	64	do.	--	--	--	--	61	948	20	--	1,420	--
E-20	do.	162	Apr. 9, 1937	--	--	--	--	232	121	40	--	424	--
E-21	do.	185	Oct. 18, 1948	18	76	19	53	230	130	32	16	464	368
E-22	J. L. Johnson	115	Mar. 17, 1937	--	54	17	39	116	131	43	--	341	206
E-25	do.	109	do.	--	112	24	53	301	161	57	--	555	381
E-27	Elliott Cowden	87	do.	--	70	16	51	195	115	50	--	398	240
E-28	do.	99	Apr. 39, 1937	--	--	--	--	159	357	138	--	851	--
E-30	J. E. Parker	181	Apr. 9, 1937	--	--	--	--	226	163	56	--	504	--
E-31	H. C. Barrow Estate	182	Apr. 26, 1937	--	--	--	--	268	140	56	--	506	--
E-32	J. E. Parker	189	Apr. 27, 1937	--	185	38	106	189	526	104	--	1,050	618
E-33	do.	181	Apr. 9, 1937	--	--	--	--	214	121	48	--	422	--

Table 6. - Analyses of water from wells in Ector County--Continued

Well	Owner	Depth of well (ft.)	Date of collection	Silica (SiO ₂)	Calcium (Ca)	Magnesium (Mg)	Sodium and potassium (Na + K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Nitrate (NO ₃)	Dissolved solids	Total hardness as CaCO ₃
F-2	R. W. Smith	142	Apr. 13, 1948	42	69	9.4	43	223	55	37	15	382	210
F-4	do.	93	Apr. 8, 1948	41	80	9.6	34	213	54	55	7.0	420	239
F-6	H. S. Ratliff	96	Mar. 9, 1937	-	86	17	29	234	78	53	-	378	285
F-7	Hence Barrow	113	do.	-	77	19	43	269	70	50	-	392	272
F-7	do.	113	Mar. 31, 1948	46	90	19	58	286	105	55	10	534	302
F-8	do.	111	do.	46	79	15	43	242	72	50	7.8	448	258
F-10	H. C. Barrow Estate	87	Mar. 9, 1937	-	150	10	17	403	55	54	-	488	426
F-11	Hence Barrow	104	Apr. 5, 1948	34	80	13	41	251	65	42	13	430	253
F-12	do.	110	do.	38	75	14	41	230	76	42	8.5	430	244
F-13	Sam Hurt	74	Mar. 10, 1937	-	126	17	152	250	288	150	-	856	386
F-14	Roy Parks, Jr.	156	Apr. 1, 1948	36	91	7.2	22	285	31	23	7.8	370	256
F-15	Sam Hurt	165	Apr. 6, 1937	-	-	-	-	262	85	50	-	413	-
F-15	do.	165	Apr. 5, 1948	36	82	15	37	233	74	48	13	464	266
F-16	do.	138	Apr. 6, 1937	-	-	-	-	232	73	52	-	375	-
F-16	do.	138	Apr. 5, 1948	27	76	11	35	233	61	36	6.2	392	234
F-17	do.	138	Apr. 6, 1948	32	86	12	35	277	40	34	29	412	264
F-18	Hence Barrow	89	Mar. 12, 1937	-	68	14	38	250	54	36	-	-	229
F-18	do.	89	Apr. 7, 1948	38	76	11	44	265	53	36	8.5	408	234
F-20	do.	99	do.	53	76	14	36	224	70	41	13	454	247
F-21	Cal Smith	122	Apr. 9, 1948	25	120	26	231	183	85	470	8.2	1,060	406
F-22	J. L. Johnson	109	Mar. 13, 1937	-	-	-	-	195	92	48	-	365	-
F-23	do.	73	do.	-	126	67	119	372	296	168	-	959	591
F-25	do.	130	Oct. 1, 1948	41	92	16	61	220	135	64	22	563	296
F-27	do.	112	Apr. 9, 1948	31	84	11	32	223	66	34	13	426	254
F-28	Hence Barrow	100	May 14, 1937	-	-	-	-	244	46	36	-	321	-
F-28	do.	100	Dec. 17, 1947	-	105	11	33	272	72	36	36	467	307
F-30	do.	124	May 14, 1937	-	-	-	-	226	83	48	-	378	-
F-30	do.	124	Apr. 6, 1948	44	77	14	39	218	75	47	13	458	250
F-31	Sam Hurt	111	do.	37	88	12	34	230	74	47	15	465	269
F-32	--	105	Apr. 1, 1948	36	79	13	35	232	61	42	18	410	250
F-33	Roy Parks, Jr.	177	do.	6.6	62	11	34	200	52	35	7.2	310	200
F-34	do.	87	Mar. 11, 1937	-	75	11	31	244	46	37	-	320	232
F-35	do.	123	Apr. 6, 1948	27	80	15	39	238	69	48	13	442	261
F-36	J. M. Gist	69	Mar. 19, 1937	-	109	13	43	268	84	80	-	461	328
F-37	Ewell McKnight	88	Apr. 17, 1937	-	80	15	57	232	92	72	-	430	264
F-37	do.	88	Apr. 7, 1948	36	82	14	43	224	75	58	15	469	262
F-38	do.	112	do.	48	77	20	37	244	86	42	7.2	480	274

Table 6.- Analyses of water from wells in Ector County--Continued

Well	Owner	Depth of well (ft.)	Date of collection	Silica (SiO ₂)	Calcium (Ca)	Magnesium (Mg)	Sodium and potassium (Na + K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Nitrate (NO ₃)	Dissolved solids	Total hardness as CaCO ₃
*F-46	City of Odessa	150	Sept. 22, 1948	38	132	34	86	186	255	155	14	877	470
*F-60	do.	150	do.	32	72	17	39	214	72	42	17	406	250
F-67	A. G. Stevenson	115	Sept. 30, 1948	50	44	12	13	150	26	19	13	264	159
F-70	J. M. Gist	88	Mar. 12, 1937	-	68	15	41	220	46	64	-	342	229
F-74	J. P. Bageley	97	May 14, 1937	-	-	-	-	110	212	134	-	600	-
F-76	J. M. Gist	51	Mar. 18, 1937	-	95	10	113	234	169	110	-	612	277
F-78	--	82	Dec. 17, 1947	-	72	12	52	208	86	50	14	440	229
*F-82	City of Odessa	175	Sept. 22, 1948	44	66	14	29	220	44	26	12	364	222
*F-92	do.	160	do.	32	74	15	33	214	66	39	16	402	246
F-96	J. L. Johnson Estate	99	Mar. 12, 1937	-	165	38	113	244	392	146	-	99	568
F-96	do.	99	Apr. 12, 1948	44	146	36	116	250	338	137	18	958	512
F-97	do.	93	do.	48	176	64	106	200	577	112	13	1,190	702
F-98	do.	72	May 19, 1937	-	-	-	-	275	280	150	-	856	-
F-98	do.	72	Apr. 12, 1948	55	106	35	87	213	248	102	25	808	408
F-99	do.	72	do.	42	91	28	66	198	179	86	20	666	342
F-102	J. E. Bageley	72	May 14, 1937	-	-	-	-	268	269	72	-	714	-
F-104	Odessa Public Schools	142	Sept. 30, 1948	34	68	20	56	208	112	50	19	469	252
F-106	Ewell McKnight	66	Apr. 7, 1948	45	178	42	199	344	310	263	91	1,300	616
F-109	Roy Parks, Jr.	108	Mar. 20, 1937	-	118	14	11	262	77	58	-	407	354
F-109	do.	108	Apr. 6, 1948	14	54	16	78	233	94	57	1.2	435	201
F-110	Odessa Country Club	115	Sept. 7, 1948	22	62	16	61	244	84	38	16	419	220
F-112	do.	115	do.	42	86	16	48	244	85	60	15	486	280
F-114	do.	115	do.	46	75	14	45	240	71	43	14	417	244
F-115	do.	115	do.	65	100	19	68	248	128	92	11	608	328
F-117	-- Pool	110	Dec. 8, 1948	38	76	15	58	238	87	55	18	482	251
F-118	do.	125	Dec. 7, 1948	26	66	16	35	220	70	28	18	377	230
F-119	Sivalls Tanks, Inc.	150	Sept. 28, 1948	34	70	16	26	224	57	29	15	374	240
F-120	City of Odessa	87	Feb. 16, 1937	-	-	-	-	128	127	92	-	429	-
F-122	Sun Oil Co.	134	Sept. 30, 1948	29	71	14	36	221	66	39	11	377	234
F-127	May Witcher	54	May 7, 1937	-	-	-	-	195	357	96	-	816	-
F-129	Wanda Hinkle	-	do.	-	-	-	-	159	595	280	-	1,410	-
F-130	Elliott Cowden	72	May 17, 1937	-	-	-	-	268	296	128	-	839	-
F-132	do.	48	Mar. 18, 1937	-	222	55	133	122	776	114	-	1,360	779
F-135	City of Odessa	205	July 8, 1949	32	70	14	42	215	80	39	12	398	232
F-141	do.	196	July 28, 1949	37	68	13	27	229	46	24	14	342	223

*F-46 Iron (Fe) 0.10; fluoride (F) 1.4.

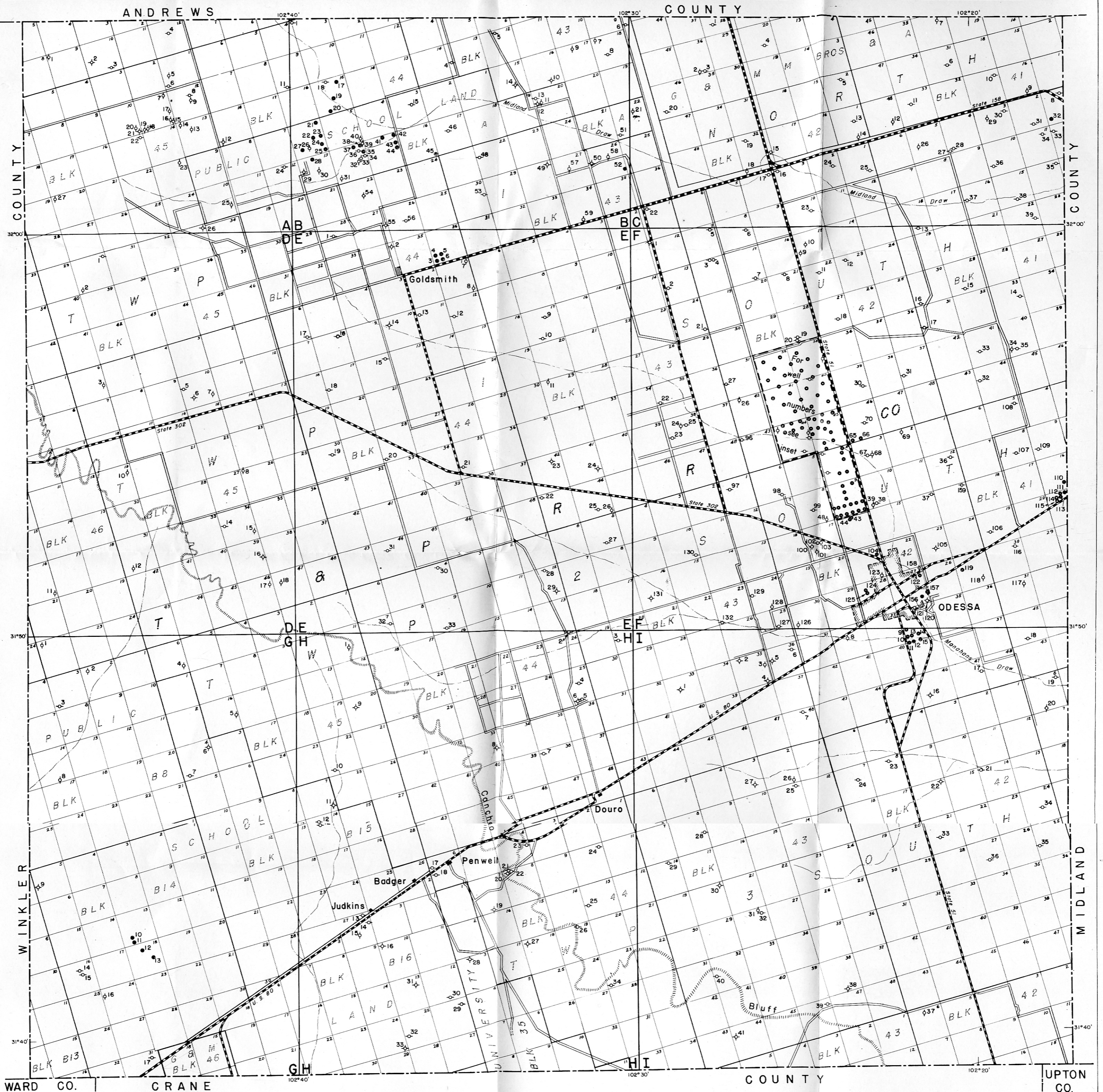
*F-60 Iron (Fe) 0.15; fluoride (F) 1.8.

*F-82 Iron (Fe) 0.05; fluoride (F) 2.0

*F-92 Iron (Fe) 0.05; fluoride (F) 1.0

Table 6.- Analyses of water from wells in Ector County--Continued

Well	Owner	Depth of well (ft.)	Date of collection	Silica (SiO ₂)	Calcium (Ca)	Magnesium (Mg)	Sodium and potassium (Na + K)	Bicarbonate (HCO ₃)	Sulfate (SO ₄)	Chloride (Cl)	Nitrate (NO ₃)	Dissolved solids	Total hardness as CaCO ₃
G-7	Miller Eidson	640	Oct. 12, 1948	8.5	170	90	2,280	348	1,580	2,710	-	7,010	794
G-10	-- Anderson	650	Sept. 29, 1948	5.5	210	134	2,150	228	2,440	2,140	-	7,190	1,080
H-1	Paul Slator	68	Apr. 27, 1937	-	-	-	-	189	646	72	-	1,180	-
H-2	Elliott Cowden	95	Apr. 29, 1937	-	-	-	-	275	270	82	-	736	-
H-3	do.	107	Mar. 18, 1937	-	88	16	58	195	173	51	-	482	285
H-4	do.	126	Apr. 29, 1937	-	-	-	-	201	162	56	-	482	-
H-7	W. F. Bates Estate	-	Apr. 30, 1937	-	-	-	-	220	443	80	-	933	-
H-10	Miller Eidson	700	Oct. 12, 1948	8.0	9.7	6.2	692	596	484	395	4.2	1,890	50
H-12	do.	710	do.	13	21	15	1,140	544	716	990	4.2	3,170	114
H-13	Scharbauer & Eidson	80	Apr. 28, 1937	-	629	107	304	110	1,970	376	-	3,440	2,010
H-14	W. E. Connell	77	do.	-	-	-	-	79	1,970	280	-	3,300	-
H-17	Scharbauer & Eidson	77	Apr. 30, 1937	-	-	-	-	110	1,180	80	-	1,890	-
H-18	Rhodes Inc.	552	Sept. 29, 1948	10	18	14	678	640	617	240	1.2	1,940	102
H-20	R. L. York	-	May 1, 1937	-	-	-	-	79	128	36	-	302	-
H-23	Alphonse Kloh	168	Apr. 30, 1937	-	-	-	-	226	263	60	-	651	-
H-24	R. L. York	192	Apr. 29, 1937	-	-	-	-	195	405	48	-	809	-
H-25	do.	192	Mar. 12, 1937	-	-	-	-	195	252	50	-	753	-
H-26	Alphonse Kloh	150	Mar. 31, 1937	-	-	-	-	110	252	58	-	-	-
H-29	W. E. Connell	462	Oct. 19, 1948	9.5	16	11	752	662	716	305	2.0	2,140	85
H-30	do.	125	Oct. 18, 1948	28	568	100	247	80	1,530	460	73	3,050	1,830
H-34	W. P. Edwards	75	Mar. 31, 1937	-	-	-	-	214	657	144	-	1,330	-
I-6	May Witcher	68	May 7, 1937	-	-	-	-	201	760	200	-	1,550	-
I-7	T. G. Hendricks	100	Mar. 29, 1937	-	-	-	-	98	576	138	-	1,110	-
I-17	do.	48	Mar. 23, 1937	-	206	56	132	189	707	100	-	1,290	745
I-18	W. C. Sublett	94	Mar. 22, 1937	-	140	32	87	262	315	90	-	793	480
I-19	Dora Roberts	52	Apr. 8, 1937	-	-	-	-	244	165	80	-	559	-
I-20	do.	31	do.	-	-	-	-	293	3,490	960	-	6,690	-
I-24	G. T. Sandridge	79	Mar. 29, 1937	-	128	7	25	293	77	60	-	441	350
I-25	H. R. Henderson	138	Mar. 27, 1937	-	-	-	-	220	169	64	-	519	-
I-26	T. G. Hendricks	108	Mar. 24, 1937	-	-	-	-	195	968	570	-	2,420	-
I-28	H. R. Henderson	200	May 11, 1937	-	-	-	-	159	81	24	-	282	-
I-29	R. L. York	157	Apr. 1, 1937	-	-	-	-	128	27	30	-	190	-
I-32	W. P. Edwards	212	Oct. 13, 1948	16	157	13	24	196	291	16	14	636	446
I-34	Dora Roberts	108	Apr. 7, 1937	-	-	-	-	110	204	52	-	460	-
I-35	Alphonse Kloh et al.	119	do.	-	-	-	-	159	204	44	-	488	-
I-36	do.	125	do.	-	-	-	-	67	518	88	-	927	-
I-40	W. P. Edwards	137	Apr. 1, 1937	-	-	-	-	140	240	56	-	543	-



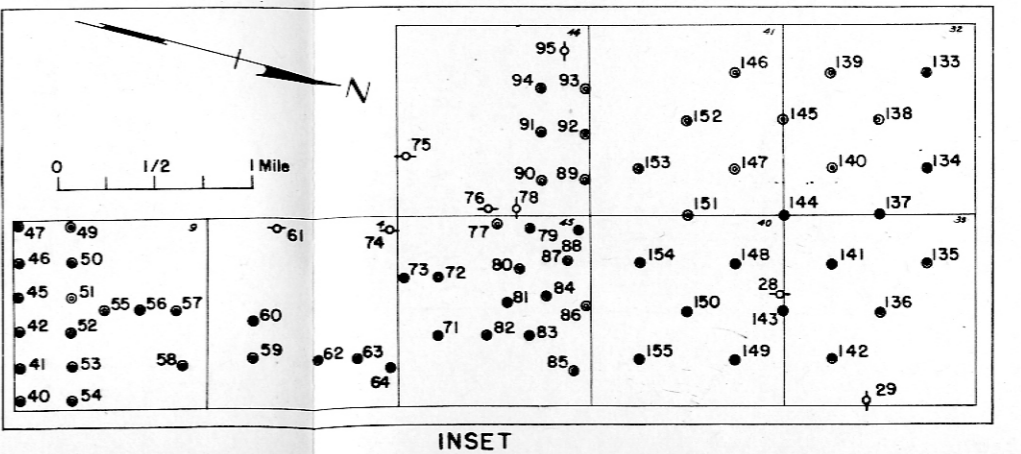
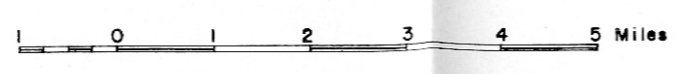
EXPLANATION

- Well with pumping plant, 5-horsepower or larger
- Well with windmill or small power pump
- ⊗ Unused well or seismograph shot hole
- ⊙ Oil test

Base compiled from maps of the Texas Highway Department and the General Land Office, and field notes.

1949

MAP SHOWING WELLS IN ECTOR COUNTY, TEXAS





APPROXIMATE ALTITUDE OF THE TOP OF THE TRIASSIC ROCKS IN PARTS OF ECTOR COUNTY, TEXAS

EXPLANATION

● Well with pumping plant, 5-horsepower or larger

○ Seismograph shot hole

Number indicates last two digits of figure showing approximate altitude of the top of Triassic rocks

Contour interval, 20 feet

UPTON CO.