BULLETIN 5604

GROUND-WATER RESOURCES OF THE CRANE SANDHILLS, CRANE COUNTY, TEXAS

By

George H. Shafer, Geologist

Texas Board of Water Engineers

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

March 1956

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ABSTRACT

The sandhills in Crane County, Tex., cover about 360 of the county's 796 square miles. The sand mantle is of Recent age and is underlain by undifferentiated Quaternary alluvium, which is the most important source of ground water in the county.

The quality of the water in the alluvium is far superior to that of the water contained in the underlying bedrock formations of the area. Relatively large quantities of the water are used to supply the city of Crane, oil-field-camp communities, oil-well drilling rigs, and plants engaged in the manufacture of gasoline. Smaller quantities are used on ranches for domestic and stock purposes. The yields of the individual wells vary throughout the area, but seldom exceed 100 gallons a minute. Although yields from the alluvium are not large, the chemical quality of the water is generally good and the alluvium is the best potential source of ground water. Perhaps the most promising location in the sandhills area is in the vicinity of the Byrd-Frost wells, about 16 miles north and slightly west of Crane. The area is about 2½ miles wide and 5 miles long. It includes four wells that formerly supplied water from the alluvium for the city of Imperial in Pecos County.

Older rock formations in the sandhills that are significant in relation to the occurrence of ground water include the Dockum group of Triassic age and rocks of Permian age.

In general, wells in sands of the Dockum group yield water that is unsatisfactory for domestic or municipal use, although in some parts of the sandhills potable supplies have been found. The city of Imperial derives its supply from sands in the Dockum group at a well field in western Crane County. Several other wells in the area yield water for domestic and stock supply, but most of the water from the Dockum group is used for industrial purposes and for drilling rigs used in putting down oil wells.

Rocks of Permian age beneath the sandhills have been penetrated mainly in drilling oil wells. Generally, the water contained in these rocks is highly mineralized. A few wells in the area yield from them water that is used for the production and manufacture of petroleum products and for stock, but none is known to yield potable water.

INTRODUCTION

LOCATION OF THE AREA

Crane County is in western Texas near the southeast corner of New Mexico. It is bounded on the north by Ector County, on the east by Upton County, on the south by Pecos and Crockett Counties, and on the west by Ward County (fig. 1). The population of the county in 1950 was 3,965. Crane, the county seat and the only city in the county, had a population of 2,154.

The area of the county is 796 square miles, consisting of rolling to hilly land, much of which is covered by sand dunes. The county is devoted largely to raising livestock. It also ranks high among the oil-producing counties of the State.

Sandhills cover about 360 square miles of the county and comprise the area with which this report is concerned (fig. 2). Most of the area lies north of State Highway 329. The sandhills occur in a belt that narrows to the east and ends near the Upton County line a few miles northeast of Crane. The belt is widest in the western and northwestern parts of the county.

The public water supply of the city of Crane and the private supplies for several oil-field camps are obtained from alluvial deposits that underlie the sandhills. The public supply of Imperial, in Pecos County, is obtained from wells tapping sands of the Dockum group in the sandhills area of Crane County.

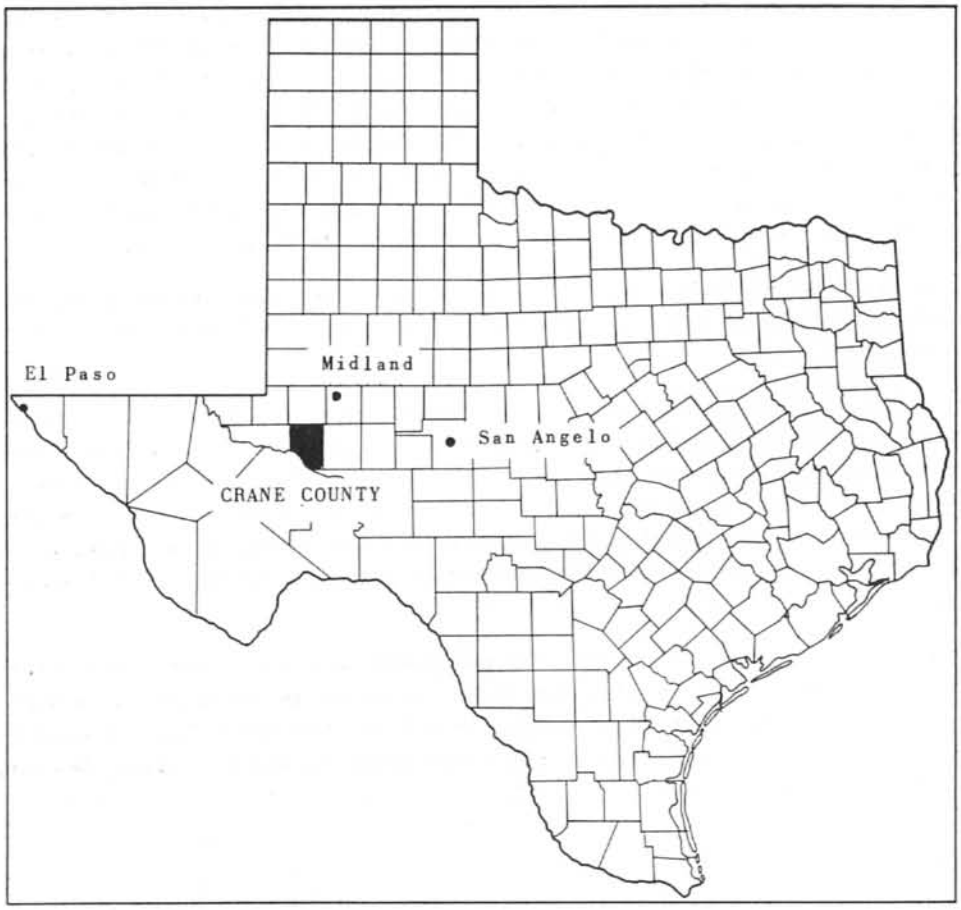

FIGURE 1.- Map of Texas showing location of Crane County.

PURPOSE AND SCOPE OF THE INVESTIGATION

The present investigation was started in the fall of 1954 for the purpose of obtaining basic data relating to the quantity and quality of the ground water available in the area covered by the sandhills. It was made by the United States Geological Survey and the Texas Board of Water Engineers in cooperation with the city of Crane as a part of a Statewide program of ground-water investigations in Texas. The work was done under the direct supervision of R. W. Sundstrom, District Engineer in charge of ground-water investigations in Texas, and under the general supervision of A. N. Sayre, Chief of the Ground Water Branch of the U. S. Geological Survey.

The fieldwork was done between September 15 and December 21, 1954. The report contains a brief description of the geology of the area and its relation to the occurrence of ground water, tabulated records of 333 wells, 48 chemical analyses of water from selected wells, and drillers' logs of 193 wells. Water-level measurements were made in 97 wells. The locations of all the wells are shown on plate 1. Surface altitudes of several hundred seismograph shotholes and a few oil tests were used in preparing the generalized topographic map of the sandhills area (fig. 2). The data and logs of the shotholes also were used in contouring the top of the red beds of Triassic age (fig. 5). A map (fig. 6) showing the approximate altitude of the water table was compiled from water-level measurements made in wells during the investigation and from land-surface contours.

PREVIOUS INVESTIGATION

No previous investigation of the ground-water resources of the Crane sandhills has been made. Records of the public-supply wells of the city of Crane were published in "Public water supplies in western Texas" (Broadhurst, Sundstrom, and Weaver, 1949, p. 48). Records of a few wells in the sandhills are contained in Part III of the Pecos River Joint Investigations, published by the Texas Board of Water Engineers in 1941.

ECONOMIC DEVELOPMENT

Crane County in recent years has become one of the leading oil-producing counties in Texas. In 1954, for example, the production was according to figures on record in the office of the Texas Comptroller of Public Accounts, 19,469,780 barrels. Agriculture is limited almost entirely to the raising of cattle and sheep. According to the Texas Almanac for 1954-55, the nonfarm rural population in 1950 was 97.9 percent of the total, and the farm population was 2.1 percent.

The production of natural gasoline is a major industry in the county. In past years, some salt was sold from Juan Cordona Lake in the south-central part of the county.

ACKNOWLEDGMENTS

Appreciation is expressed to the many persons who contributed information and assisted in the collection of field data. Oil companies furnished drillers' logs and surface altitudes of oil tests and seismograph shotholes, as well as logs of water wells and pumpage data from metered wells. Drillers' logs of water wells were supplied by local well-drilling contractors. City and county officials and members of the Crane Chamber of Commerce gave considerable assistance. Hawley Van Court, who maintains a rain gage on his ranch 2 miles west of Crane, furnished rainfall records, and City Manage J. K. Price of Crane made provisions for a "jeep" to be used in reaching areas

not accessible by ordinary cars. The geologic staff of the University Lands office in Midland furnished shothole data. Appreciation is expressed to the many owners of private wells for information and cooperation during the investigation.

TOPOGRAPHY

The land surface of the sandhills is gently rolling to hilly. The altitude ranges from about 2,450 feet in the southern part to about 2,800 feet in the northern part of the area (fig. 2). The eastern margin of the sandhill area reaches almost to the westward-facing escarpment of the High Plains, commonly referred to in this vicinity as Concho Bluff. In Crane County, the escarpment is present in the extreme northeast corner and is found also at several places along the Crane-Upton County line.

Although the sandhills are within the drainage basin of the Pecos River, rain falling on them rarely contributes to the river as surface runoff even after heavy rains, owing to the rapid rate at which the water is absorbed by the sandy material. Shallow, elongated, poorly drained depressions are present throughout parts of the sandhill area. A number of small gullies head along Concho Bluff and carry storm water after heavy rains, but the water is soon absorbed after reaching the sandhills or stands for short periods in shallow depressions.

Vegetation which serves as a protective shield against erosion in some parts of the sandhills consists mostly of mesquite, shinoak, greasewood, and sand sage. At many places plant life is sparse or absent.

PRECIPITATION

Crane County, in the semiarid part of the State, has no official precipitation station. Hawley Van Court made available a short record from the rain gage on his ranch about 2 miles west of Crane. The nearest U. S. Weather Bureau station having long records of rainfall is at McCamey in Upton County, about 20 miles southeast of Crane. The average annual precipitation at McCamey for the period 1932 to 1954 was 12.93 inches. The wettest year of record was 1941 with 28.98 inches of precipitation and the driest year of record was 1953 with 5.57 inches (table 1).

A total of 34 years of complete record during the 70-year period 1885 to 1954 is available from the U. S. Weather Bureau station at Midland, about 50 miles northeast of Crane. The average precipitation at Midland during this period was 15.63 inches, the maximum was 29.34 inches in 1920, and the minimum was 5.52 inches in 1917. It is estimated that the average annual precipitation in Crane County is about 14 or 15 inches. Most of this precipitation falls in showers during the growing season when evaporation and transpiration rates are high. At McCamey approximately one-sixth of the average annual precipitation falls in May. The monthly distribution of rainfall at McCamey is shown in figure 3.

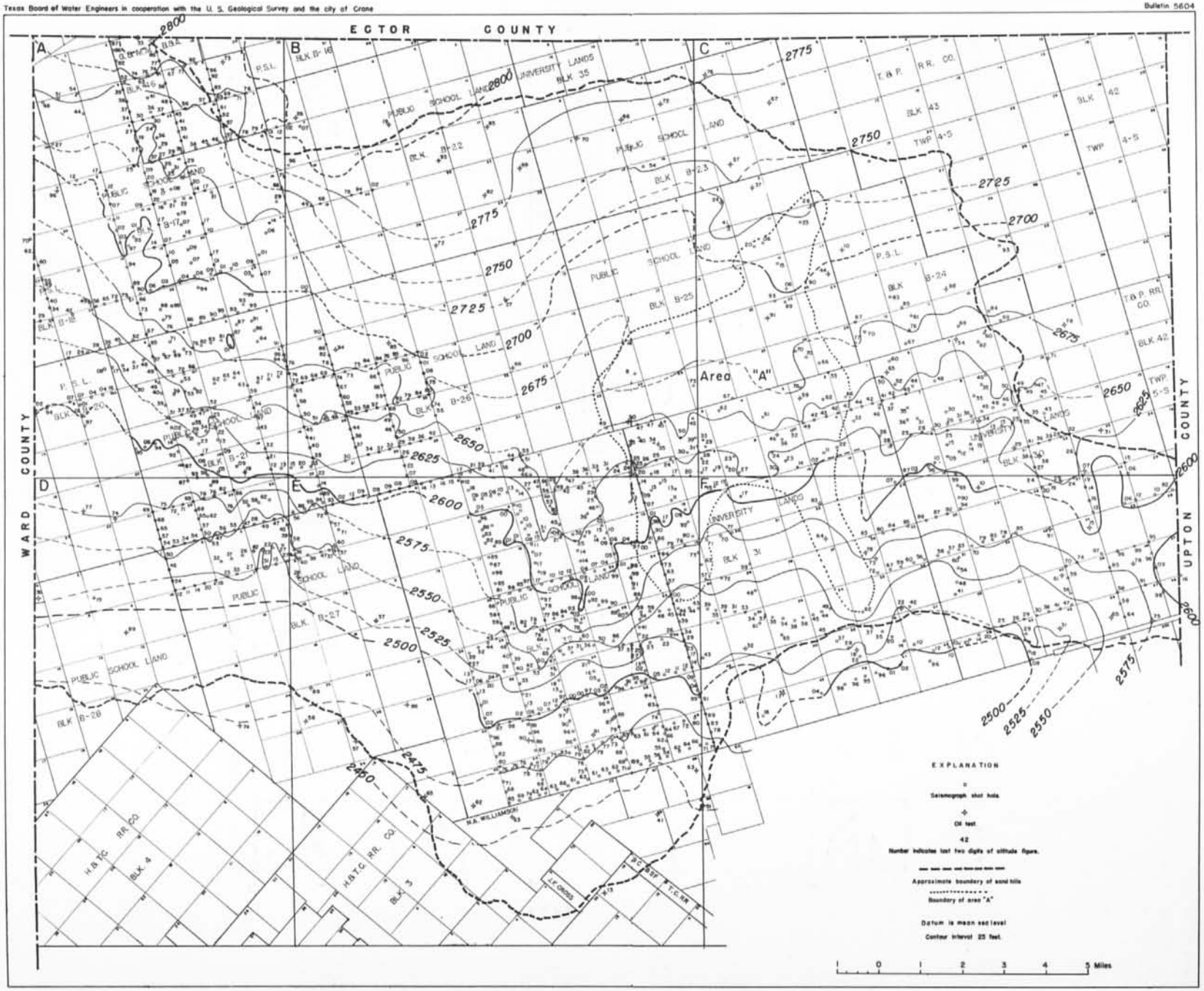

FIGURE 2.-Generalized topographic map of the sandhills area, Crane County, Tex.

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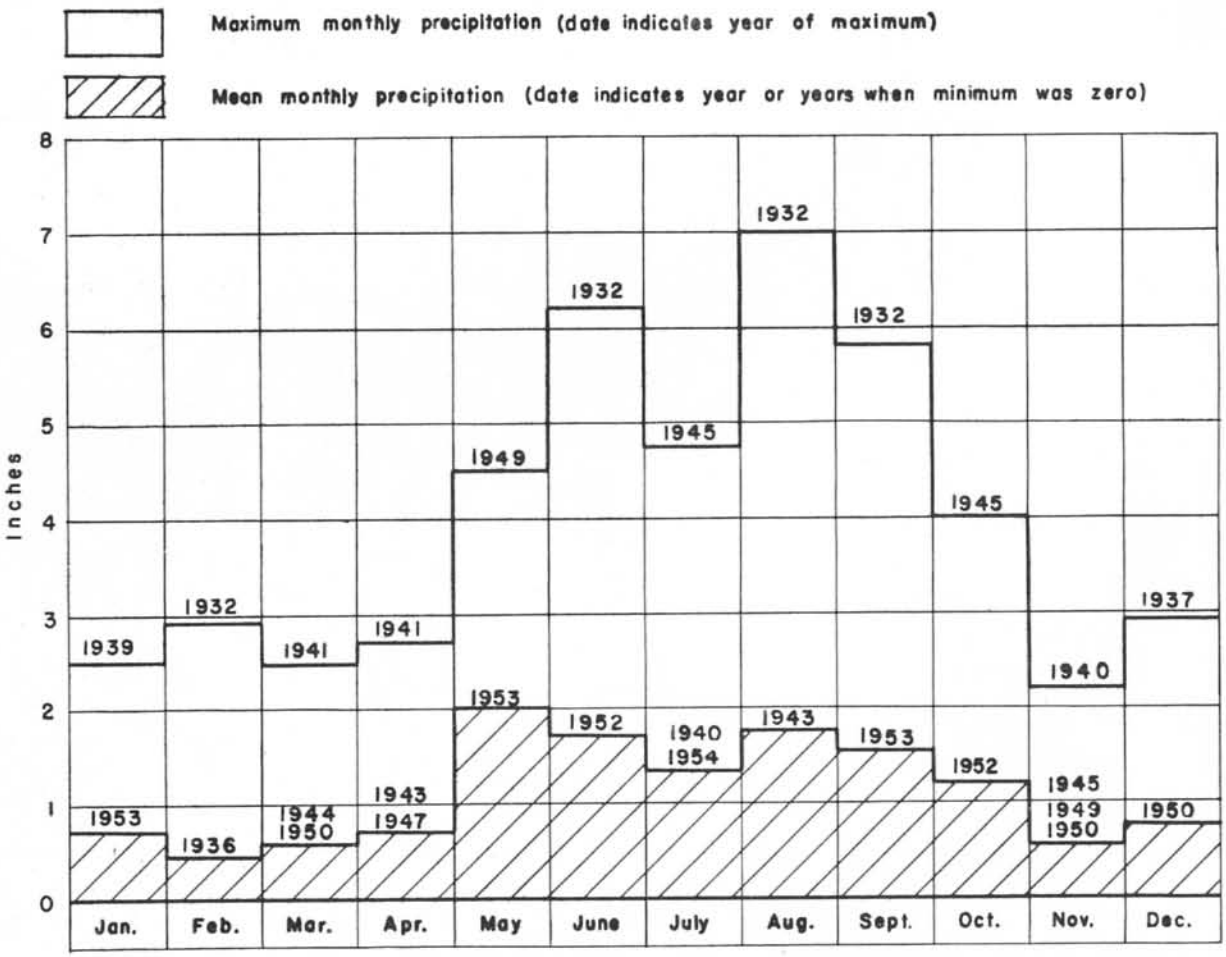

FIGURE 3.-Precipitation at McCamey, Upton County, Tex.

Table 1.- Monthly and annual precipitation, in inches, at McCamey, Upton County, Tex., 1932-54

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
1932	-	2.93	0.06	0.55	4.46	6.24	T	7.06	5.83	0.35	T	1.81	-
1933	0.03	.11	.04	.03	.85	.38	1.33	1.61	2.19	.67	.43	T	7.67
1934	.41	.03	1.44	.29	1.89	1.32	.09	1.09	.26	T	.60	.27	7.69
1935	.28	1.08	T	.76	1.30	3.14	1.23	2.35	1.77	.51	1.02	.39	13.83
1936	.24	.00	1.60	.09	1.42	.11	.50	1.12	5.16	1.41	.52	.40	12.57
1937	T	.35	1.60	.70	2.20	2.41	1.40	1.37	2.83	1.07	1.49	2.91	18.33
1938	1.70	1.03	.18	.22	1.00	.86	2.30	.15	.65	1.35	.25	.50	10.19
1939	2.50	.02	.25	1.08	2.50	1.73	.91	1.57	.51	1.21	1.57	.73	14.58
1940	.34	1.30	.30	.48	3.68	2.30	.00	3.00	.43	3.01	2.21	.50	17.55
1941	2.10	.77	2.49	2.70	3.29	3.00	4.05	2.45	3.39	3.56	.05	1.13	28.98
1942	.25	.29	.02	1.00	.06	.24	1.53	6.78	.20	1.82	.10	.98	13.27
1943	.13	T	1.18	.00	2.50	4.42	.79	.00	2.12	.32	.58	1.20	13.24
1944	1.32	.34	.00	.65	.99	.89	1.20	2.48	2.38	.35	.87	1.42	12.89
1945	.23	.04	1.50	1.02	.06	1.47	4.76	.05	.72	4.06	.00	T	13.91
1946	1.73	.08	.03	1.13	.40	.61	.91	T	.64	2.27	.24	1.16	9.20
1947	1.04	.03	.35	.00	4.17	2.86	2.14	1.06	-	T	.97	.91	-
1948	.11	.65	.05	.22	1.98	1.36	.76	.44	.67	.40	.04	.76	7.44
1949	2.12	.32	.22	2.29	4.50	2.46	2.12	2.40	.30	1.43	.00	.10	19.13
1950	.71	.18	.00	.55	4.47	1.52	1.33	3.08	2.94	.30	.00	.00	15.08
1951	.05	.30	1.23	.42	1.24	1.16	2.24	1.65	.47	.70	.07	.62	9.68
1952	.56	.16	.07	.54	1.97	.00	1.16	T	.39	.00	1.78	1.18	7.81
1953	.00	.61	.60	.26	.00	.90	.58	.75	.00	1.62	T	.25	5.57
1954	.20	.04	.27	1.40	1.20	.41	.00	.26	.34	1.50	.15	-	-
Average	0.73	0.46	0.59	0.71	2.01	1.73	1.36	1.77	1.55	1.21	0.56	0.78	12.93
Years	22	23	23	23	23	23	23	23	22	23	23	22	20

T - trace.

GENERAL GEOLOGY

Dune sand and alluvial deposits lie at the surface in about 95 percent of Crane County; older rocks, of the Tertiary, Cretaceous, and Triassic systems, are exposed at the surface in about 5 percent of the county. The Ogallala formation of Pliocene age crops out east of Concho Bluff in the northeast corner of the county, except in a few places where the formation is obscured by alluvium. Cretaceous rocks of Trinity age are exposed along the edges of Concho Bluff and are overlain with apparent conformity by rocks of the Fredericksburg group, also of Cretaceous age, throughout the area east of Concho Bluff. Rocks of the Fredericksburg group are exposed at the surface in the southeastern part of the county also. At most places in the county, however, rocks of Cretaceous age have been removed by erosion and rocks of the Dockum group of Triassic age form the bedrock beneath the sandhills. They are exposed along the edges of Concho Bluff a few miles southeast of Crane, at the surface over a relatively small area about 2 miles south of Crane, and at a few places in bluffs along the Pecos River.

The formations pertinent to the report are listed in table 2.

Table 2.- Geologic formations in the sandhills, Crane County, Texas

System	Subdivision	Character of rocks	Thickness (feet)	Water supply	Remarks
Quaternary	Recent and Pleistocene (?) sediments undifferentiated	Caliche, sand, gravel, clay, and windblown sand	0-200	Generally yield moderate quantities of good water to wells.	Principal source of water in the sandhills area.
Triassic	Dockum group	Red and gray sandstone with interbedded red shale and conglomerate	900	Generally contains highly mineralized water. In places it yields small to moderate quantities of potable water to wells.	Commonly known as red beds. Constitutes the bedrock beneath the alluvium in the sandhills.
Permian	Undifferentiated	Red shale and sandstone	200-300	Probably yield small quantities of highly mineralized water	Commonly known as red beds.
	Rustler formation	Anhydrite, red and gray sandstone, clay, dolomitic limestone, and salt.	120-300	Yields small to moderate quantities of mineralized water to a few wells.	
	Undifferentiated	Salt, red shale sandstone, limestone, anhydrite, gypsum, and potash	5,000	No wells draw from these rocks; water in them probably is highly mineralized.	Commonly known as red beds.

GEOLOGIC STRUCTURE

Crane County lies in the southern part of the Permian Basin, a great structural feature which extends from the Pecos Valley region in Texas north-northeastward through Texas and the adjacent parts of eastern New Mexico, western Oklahoma, and central Kansas into Nebraska. In the southern part of the basin is an uplift to which Cartwright (1930) applied the name Central Basin Platform; its strike is approximately north-northwest. It is 30 to 35 miles wide and extends about 150 miles in a north-northwest direction in New Mexico and Texas. It divides the southern Permian Basin into two subbasins, the Delaware Basin to the west and the Midland Basin to the east. Many of the oil fields in western Texas and in New Mexico lie on the east and west margins of this platform (Sellards and Baker, 1934, p. 104-107.) Crane County lies in the extreme western part of the Midland Basin. The older rocks show complex structural features at depth.

The known ground-water reservoirs that contain usable water lie above the Permian rocks. Two geologic sections (fig. 4, A-A' and B-B') show the structure on the top of the salt of Permian age and the top of the Triassic rocks. The cross sections are based on drillers' logs of oil tests furnished by oil companies. Partial logs of the oil tests are given in table 4.

Some of the depressions in the Triassic surface shown in figure 5 may be the result of solution and removal of salt and gypsum from the underlying beds of Permian age.

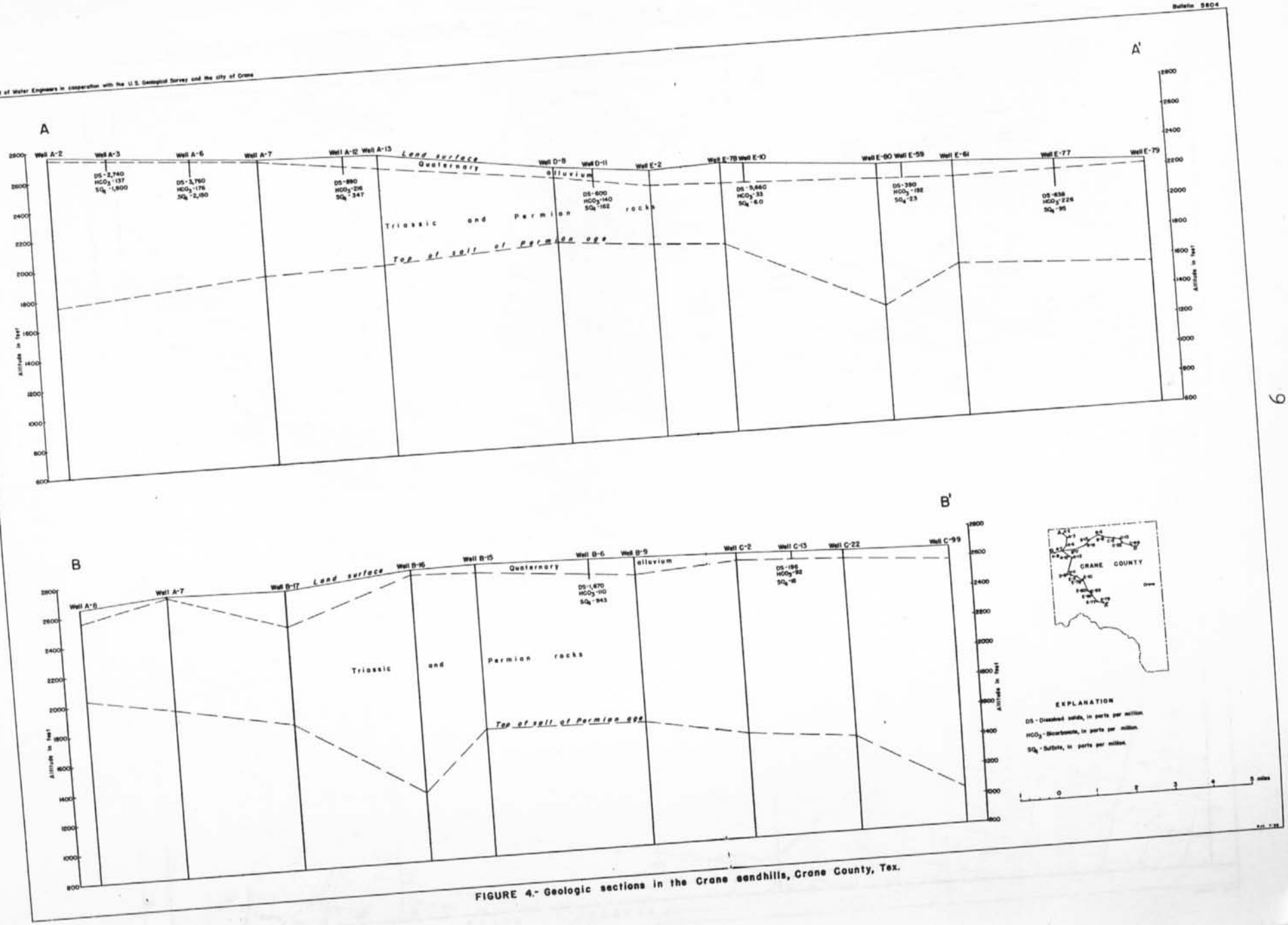

FIGURE 4.- Geologic sections in the Crane sandhills, Crane County, Tex.

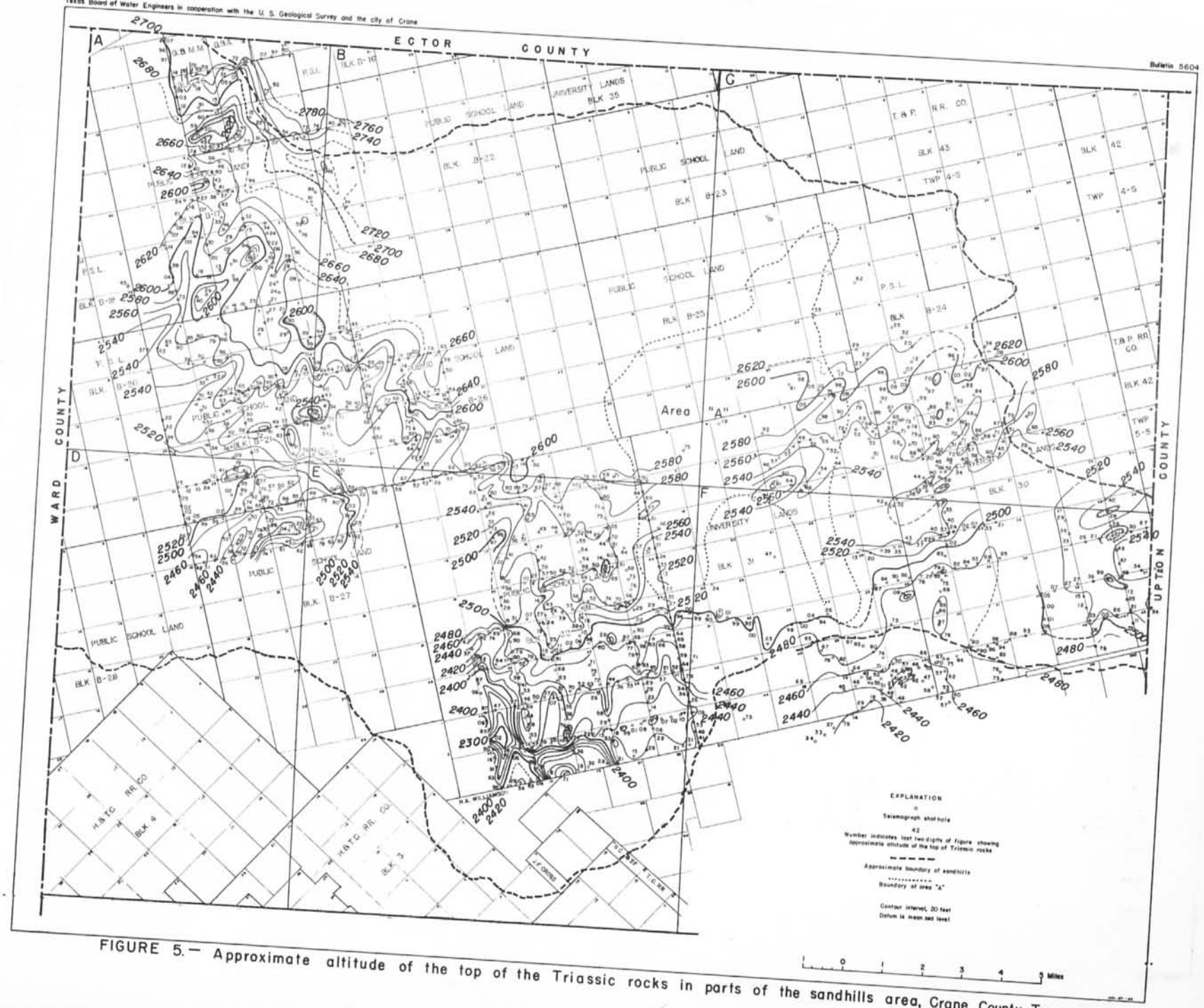

FIGURE 5.— Approximate altitude of the top of the Triassic rocks in parts of the sandhills area, Crane County, Tex.

GEOLOGIC FORMATIONS AND THEIR WATER-BEARING PROPERTIES

PERMIAN SYSTEM

Rocks of the Permian system are not exposed at the surface in Crane County, although they have been encountered beneath the sandhills in drilling for oil. They are several thousand feet thick and contain several oil-producing zones. Because of their predominantly red color, they are commonly called red beds. Logs of oil wells show that the rocks of permian age underlying the sandhills consist of shale, sandy shale, sandstone, gypsum, dolomite, limestone, anhydrite, salt, and potash. They resemble the overlying red beds of the Triassic system very closely, and in many places the contact between the two systems cannot be distinguished in drillers' logs. However, the presence of water-bearing sands and the deep maroon color of the shales are characteristics of the Triassic that are rare in the Permian.

Rustler formation.- The Rustler is the only formation of Permian age that yields water to wells in the sandhills of Crane County.

In Texas, the outcrop area of the Rustler formation extends in a southerly direction from the Texas-New Mexico State line, where it is exposed in the bed of the Pecos River, nearly to the Davis Mountains. The formation name is derived from the Rustler Hills of eastern Culberson County, Tex., the type locality, where it ranges in thickness from 200 to 375 feet (Sellards, Adkins, and Plummer, 1932, p. 161). It consists of anhydrite, dolomite, salt, red and gray clay, limestone, and sand. In some places the limestone is oolitic.

The Rustler dips eastward into the Permian Basin from its outcrop area. It becomes thinner across the Central Basin platform and wedges out to the east. The log of Moore Bros., Barnsley No. 1 oil test in section 43, block 32, about 15 miles west of Crane, shows the top of the Rustler at a depth of about 500 feet and a thickness of about 140 feet. A log of the Loffland Bros., Tubb No. 3 oil test in section 9, block 27, about 7 miles north-northwest of the Barnsley well, shows that the top of the Rustler is approximately 450 feet below the land surface and that the thickness is about 120 feet. The log of Waddell No. 1 oil test in section 4, block 27, about 2½ miles northwest of the Tubb well, shows that the top of the Rustler was encountered at a depth of about 320 feet and that the thickness was about 200 feet. Still farther north, in the McKnight No. 1 oil test in section 9, block 46, about 1½ miles south of the Crane-Ector County line, the top of the Rustler was encountered at about 920 feet and the log shows a thickness of about 160 feet. All these oil-test wells are in the western part of the sandhills. In the eastern part, the depth to the top of the Rustler formation normally is greater, but, because of the deep-lying complex structure and possible local slumping, contours cannot be drawn accurately on the top of the formation without closely spaced control points.

A few wells in or near the sandhills draw water from the Rustler formation. However, on the basis of analyses of water from these and from Permian rocks in other counties in Texas, and also from information reported by well drillers who have drilled many oil wells in the sandhills of Crane County, it is believed that the water contained in all formations of Permian age in Crane County is highly mineralized.

TRIASSIC SYSTEM

Dockum group.- Rocks of the Dockum group of the Triassic system compose the bedrock beneath the alluvium in the sandhills and are generally encountered at depths ranging from about 30 feet to 200 feet. Their thickness ranges from 690 feet in the eastern part of the county to 850 feet in the northern part (Sellards, Adkins, and Plummer, 1932). A section of the Dockum group about 95 feet thick is exposed along the edge of Concho Bluff a few miles

southeast of Crane. Here the rocks consist mostly of crossbedded sandstones which in part are micaceous, light-gray, red, and brown sandy clay with streaks of red and green sandy clay, and some conglomerate. Like the Permian rocks, they have a predominantly red color where penetrated beneath the sandhills and also are called red beds. They lie unconformably upon the uneven and eroded surface of Permian rocks.

Many wells have penetrated rocks of the Dockum group beneath the sandhills after failing to obtain an adequate water supply in the overlying alluvial deposits. This practice has met with varying success, as the water supply in these water-bearing beds has varied considerably in both quality and quantity. In some places, wells yield as much as 30 or 40 gallons a minute; in others, where the water-bearing sands are less permeable, wells yield only 2 or 3 gallons a minute; and in still other places, wells yield no water at all.

In general, wells penetrating the Dockum yield water too highly mineralized for domestic use, but a number of wells, ranging in depth from about 120 to 800 feet, yield water for stock and for general oil-field use.

QUATERNARY SYSTEM

Alluvium.- Alluvial deposits of Quaternary age lie unconformably upon red beds of the Triassic system beneath the sandhills of Crane County. The surface of the alluvium forms a level to gently rolling plain. The material consists of intermixed sand, clay, caliche, and gravel. Most of the component particles were derived from the exposed edges of Concho Bluff in the eastern and northeastern parts of the county. During periods of heavy rainfall, the rock material was eroded and transported by streams heading along the bluff and then spread by stream action over the uneven surface of the red beds of Triassic age. Logs of oil wells, seismograph shotholes, and a few water wells show that the alluvial material ranges in thickness from a few feet to about 200 feet in the sandhills area. It is thickest in the depressions and thinnest over the red-bed highs.

Alluvium is the main source of ground water in the sandhills area of Crane County. It yields larger quantities of water of acceptable quality than any other aquifer in the area, but it is limited in its capacity because of poor sorting of the sand grains and because of cementation by calcareous material.

Windblown sand.- The sandhills of Crane County are of Recent age; they consist of wind-deposited sand that is undifferentiated from the underlying Quaternary alluvium. In Crane County, the sand covers an area of about 360 square miles. The sandhills form an almost continuous sand mantle that extends from the vicinity of Crane northwestward through parts of Ward, Winkler, Ector, and Andrews Counties into New Mexico near Fort Sumner. The western edge of the sandhills lies roughly parallel 6 to 12 miles east of the Pecos River (Dennis and Lang, 1941, p. 13). Darton (1928, p. 59) refers to the deposits as the Mescalero sands and states that they may represent deposits of an early stage of the Pecos River that have been more or less rearranged by the wind. In Crane County, the sand ranges in thickness from a few feet to about 30 feet, the average being about 12 feet.

In most places the windblown sand is above the water table (fig. 6), and therefore is of no importance as a water-bearing formation. The sand serves, however, to absorb rainfall, a part of which ultimately is transmitted to the ground-water reservoir.

DEVELOPMENT OF WATER FROM WELLS

Prospecting for ground water in the sandhills by oil companies and individuals has been partially successful in that relatively large quantities of potable water have been found in a few areas. The surface topography is of little value in determining the location of buried stream channels or depressions which are the most promising parts of the area for large supplies of ground water. Subsurface investigations are therefore necessary in prospecting for water.

Seismograph crews of various oil companies have done a considerable amount of exploratory work throughout the sandhills, and several companies have generously supplied logs and surface elevations of shotholes. By the use of these data, contours were drawn on the surface of the red beds of Triassic age as an aid in delineating areas believed to be most favorable for the occurrence of ground water. The contour map (fig. 5) serves its intended purpose only in a general way, the accuracy of the contours being limited by the accuracy of the shothole logs. The accurate logging of shotholes is not required by most oil companies because the material above the red beds is unrelated to the occurrence of oil. Color as a basis for determining the top of the red beds is deceptive, for in most places the overlying alluvial material also contains material of various shades of red; hence, it is often logged by drillers as red beds. Moreover, in some places the nonmarine clays of the Triassic system are blue or gray and contain no fossils, thus making it difficult for drillers or geologists to determine the contact between alluvium and bedrock.

AREA "A"

More wells have been drilled in University Lands, block 31, and Public School Land, block B-25, than in any other area of similar size in the sandhills. For convenience, the area of these blocks is referred to in this report as area "A" (pl. 1). It is estimated that about 70 or 80 percent of all ground water used in the sandhills is derived from wells in area "A." As a part of area "A," namely, block 31, is State-owned land belonging to the University of Texas, the water rights also belong to the State and water from wells on the land is purchased from the State.

A small part of the water from wells in area "A" is used for domestic and stock purposes; however, the principal use is for municipal supply. Included in area "A" are the Crane city wells and wells belonging to the Gulf Oil Corp., the Atlantic Oil & Refining Co., the Phillips Petroleum Co., the Lone Star Gas Co., and others. Relatively large quantities of water from these wells are used for supplying oil-field camps, for drilling oil wells, and by plants engaged in the production of gasoline.

Monthly records of pumpage from most wells operated by users of large quantities of water in area "A" were available. The average daily pumpage, by years, from 1950 to 1954 is shown graphically in figure 7.

Municipal supply of Crane.- The population of Crane in 1950 was 2,154; in 1954 it was estimated to be about 3,000. The average daily requirement for municipal water supply increased from 156,000 gallons in 1950 to 275,000 gallons in 1954. Table 3 gives the average daily pumpage, by months, for that 5-year period.

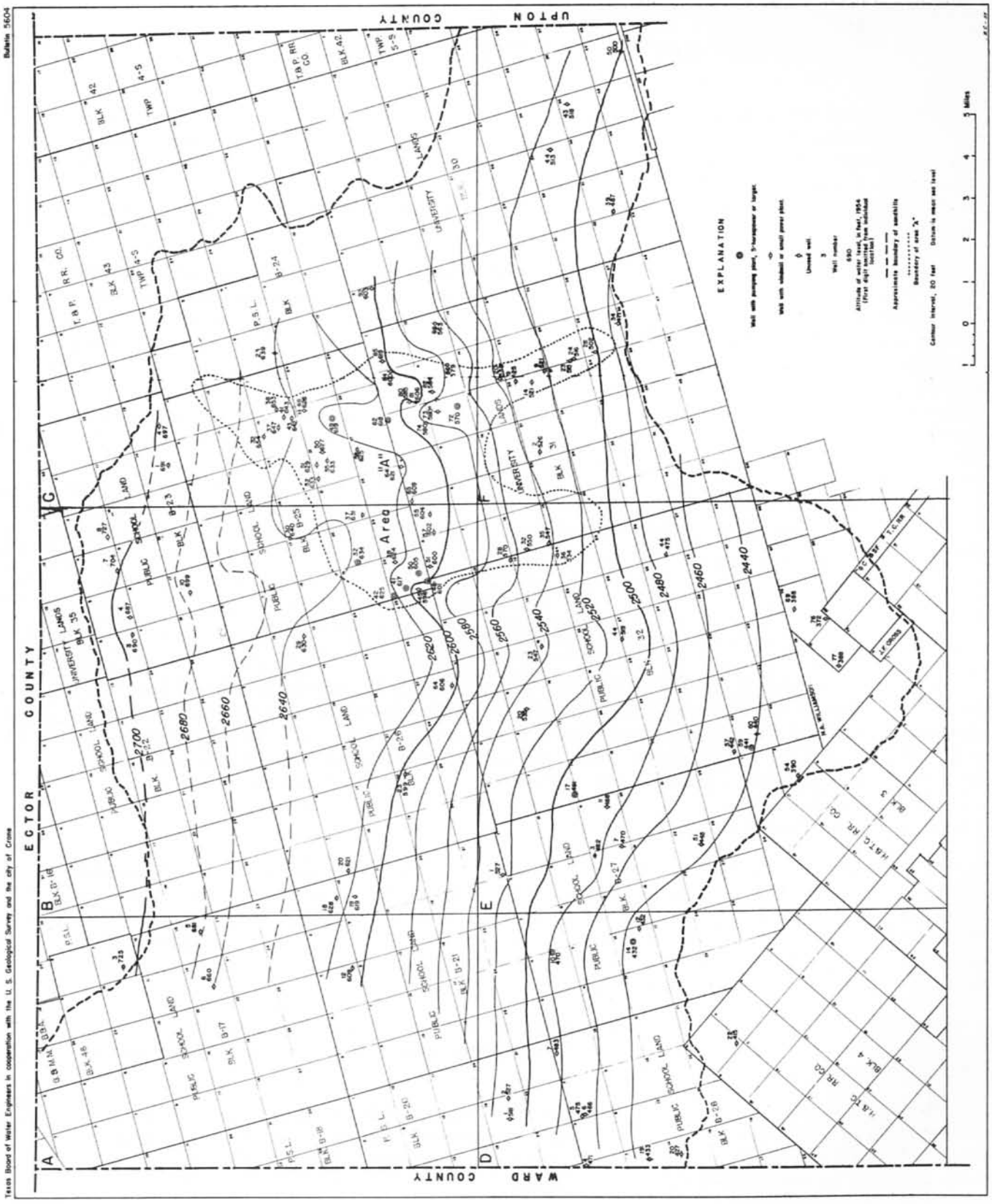

FIGURE 6.-Approximate altitude of the water table in the sandhills area, Crane County, Tex.

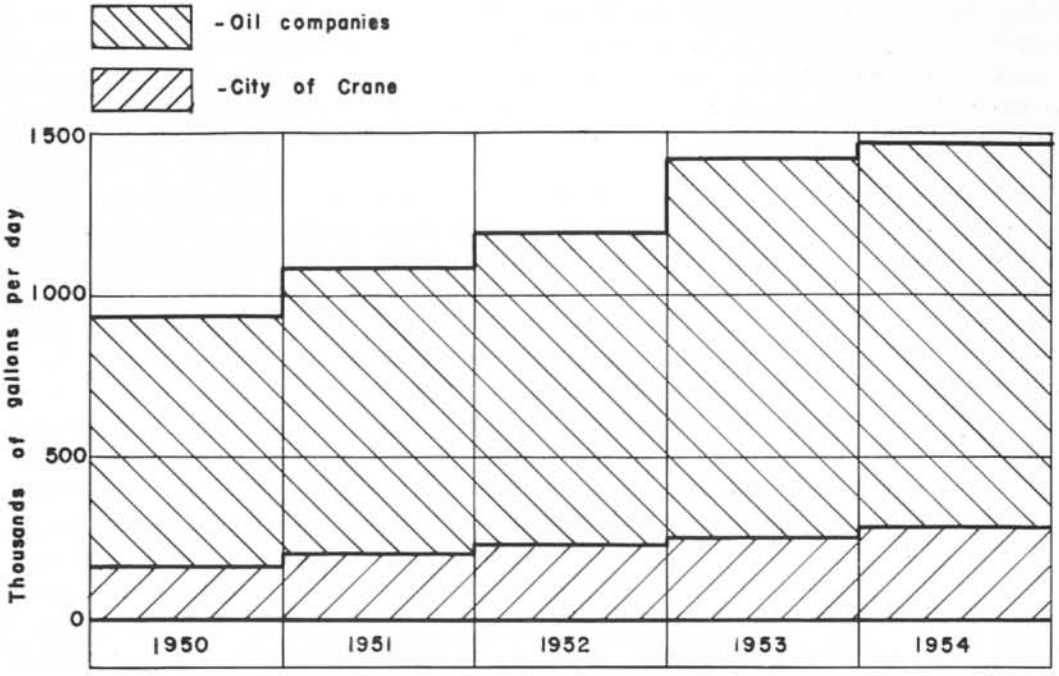

FIGURE 7.- Pumpage from area "A", 1950-54.

Table 3.- Pumpage by city of Crane, 1950-54, in thousands of gallons a day [1/]

	1950	1951	1952	1953	1954
January	115	119	148	169	183
February	120	179	163	195	195
March	146	209	181	216	222
April	160	199	198	251	236
May	201	218	289	294	270
June	217	278	364	333	354
July	195	344	347	343	442
August	200	295	341	385	338
September	159	231	223	348	365
October	144	243	225	194	219
November	114	179	178	175	199
December	106	141	168	165	-
Average	156	219	235	256	275 [2/]

1/ All pumpage from area "A".

2/ Based on first 11 months of 1954.

In 1946 the city had five wells 79 to 92 feet deep in a field about 6 miles northwest of Crane. When in use by the city, these wells furnished water at a combined rate of 75,000 gallons a day (Broadhurst, Sundstrom, and Weaver, 1949, p. 48). Use of the wells was discontinued by the city, owing to a decrease in yield of the individual wells, and the wells are reported to have been released to an oil company about 1947. The municipal supply of Crane from about 1947 to the spring of 1949 was furnished by the Phillips Petroleum Co. from a field about 13 miles north-northwest of Crane.

In the spring of 1949 the city started developing a new well field about 2 miles north of the well field that had been released in 1947 and 8 miles northwest of Crane. As the water requirements increased, two newer well fields were developed still farther north. In 1954, three well fields were in operation at distances of 8 to 12 miles northwest of the town. In the fall of 1954 the three fields contained a total of 20 wells, all of which yielded water from the alluvial deposits above the red beds of the Dockum group. The wells in the three fields range in depth from 70 to 106 feet and their reported initial yields ranged from about 70 to 120 gallons a minute. The wells are equipped with small turbine-type pumps which are driven by electric motors. The individual wells are pumped at sustained rates of about 50 gallons a minute each. Short pumping tests made on 4 city wells during the investigation indicated specific capacities ranging from 1.2 to 7 gallons a minute per foot of drawdown and averaging 3.8 gallons. Measurements in the nonpumping (static) water level made in 9 of the wells ranged from 40 to 49.8 feet below the land surface in 1954. Saturated thicknesses of sand, determined by subtracting the depths to water from the total depths of wells C-65, C-66, C-71, F-9, F-10, F-14, and F-19, ranged from 25 to 43 feet and averaged 36 feet.

Chemical analyses of a composite water sample from the 20 city wells and of a sample from well C-71 show that the water is hard and has a moderate fluoride content but otherwise meets the usual standards for public supplies.

Industrial development.- Wells C-32, C-37, C-38, C-41, C-43, C-45, C-52, and C-53, which yield water from alluvial deposits, are among a large group owned by the Phillips Petroleum Co. Some of these wells, ranging in depth from 105 to 168 feet, were drilled about 1929 to supply water for the McCamey oil field in Upton County. The wells are pumped by airlift. They penetrate the entire thickness of the alluvium and terminate in the red beds of Triassic age. They are cased to the base of the alluvium with 10-inch casing having perforations opposite the water-bearing material. From the base of the alluvium to their respective bottoms, the wells are cased with blank 6 5/8-inch casing. The measured depths to water in the 8 wells in 1954 ranged from 54 to 63 feet below the land surface and averaged 59 feet. The reported yields of the wells in the same year ranged from about 10 to 50 gallons a minute. Water pumped from the wells enters a system of distribution pipes and is delivered to a large storage tank having a capacity of about 11,000 barrels (462,000 gals.). Chemical analysis of a composite sample of water from the 8 wells shows that it is softer and less mineralized than water from wells in the alluvium in most other parts of the sandhills area.

Wells B-39, B-41, B-42, B-43, B-45, B-46, and B-48 are several of a larger number of wells in area "A" owned and operated by the Gulf Oil Corp. These wells yield water from alluvial deposits; they range in depth from 80 to 92 feet and average 87 feet. Their reported yields when drilled ranged from 40 to 114 gallons a minute and averaged 84 gallons. The depth to water below the land surface in 5 of the wells, according to reported measurements and to measurements made in 1954, ranged from 42 to 49 feet and averaged 47 feet. Drillers' logs of the wells showed thicknesses of alluvium ranging from 60 to 79 feet and averaging 67 feet. By subtraction of the water levels from the depths of wells B-41, B-42, B-45, B-46, and B-48, the

computed saturated thicknesses were 37, 49, 33, 42, and 35 feet, respectively, in 1949. Most of the Gulf Oil Corp. wells in area "A" that yield relatively large quantities of water are gravel walled and are equipped with turbine pumps with 7½-horsepower electric motors. Water from the wells is used principally for supplying oil-field camps, for drilling oil wells, and for the production of gasoline.

Chemical analysis of a composite water sample (B-43) from the Gulf gasoline plant in section 25, block B-26, shows that the water is of about the same quality as that from the Crane city wells.

The Lone Star Gas Co. drilled about 19 test holes in sections 6, 7, 18, and 19 in block 31 of area "A" about 1952, in an effort to locate a suitable water supply for its Upton County gas plant. Wells E-26, E-27, E-28, E-29, E-30, E-31, E-32, E-34, and E-35 are among the group. The wells yield water from the alluvium and range in depth from 70 to 80 feet, averaging 73 feet. Logs of the wells are not available, and therefore the exact thickness of the alluvium in the individual wells cannot be determined. However, by assuming that the wells were drilled to the top of the red beds of Triassic age, the range in thickness would conform to the total depths of the wells shown above. Short production tests made at the time the wells were drilled indicated yields ranging from 3 to 163 gallons a minute and averaging 72 gallons. The water-level measurements made in wells E-28, E-32, and E-35, were 39.7, 43.2, and 38.6 feet below the land surface, respectively, in the fall of 1954; the computed saturated thicknesses were 28, 28, and 41 feet, respectively. At the time of the investigation only wells E-27, E-30, and E-34 were in use. Water from these wells was used mainly for supplying the Lone Star Gas Plant in Upton County; however, a small quantity was used for stock. The water is considerably harder and contains considerably more sulfate than that used by the city of Crane.

Wells owned by the Atlantic Oil & Refining Co. are in sections 22, 26, 27, and 35, block 31. They include 14 wells, 5 of which formerly belonged to the city of Crane. Only wells F-8, F-11, F-30, F-31, F-32, and F-33 were in operation in the fall of 1954. All the wells yield water from the alluvium, with the possible exception of well F-11 which was drilled through the alluvium and into the red beds to a depth of 230 feet. The driller's log shows that the alluvium in this well is 60 feet thick. Ten of the wells have depths that range from 62 to 115 feet and average 80 feet. Water-level measurements made in eight of the wells in 1954 ranged from 49.3 to 66.4 feet below the land surface and averaged 57 feet. The reported yields of wells F-11, F-30, and F-33 in October 1954 ranged from 15 to 18 gallons a minute each, well F-29 was reported to yield only a small quantity of water. Well F-28 had a saturated thickness of only 7 feet, which suggests that other wells in this locality that are not in use may have penetrated an inadequate thickness of saturated sand.

OTHER AREAS OF DEVELOPMENT

Byrd-Frost wells.- Wells E-15, E-16, E-17, and E-18, which are 172, 220, 154, and 220 feet deep, respectively, are commonly referred to as the Byrd-Frost wells. These wells, located in sections 7 and 18, block 32, about 16 miles northwest of Crane, formerly furnished water for the town of Imperial in Pecos County. The logs of these wells were not available, but, if they were drilled to the top of the red beds, which is common practice, each well penetrated a thickness of alluvium corresponding to its total depth. The measured depths to water below the land surface in wells E-15 and E-17 on December 7, 1954, were 72 and 69 feet, respectively. By subtracting these water levels from their total depths, on the assumption that they were drilled to the top of the red beds, well E-15 penetrated a saturated thickness of 100 feet and

well E-17 a saturated thickness of 85 feet. Logs of nearby wells E-12 and E-13 show thicknesses of alluvium of 148 and 135 feet, respectively. On September 27, 1954, well E-17 had a drawdown of 31 feet after being pumped at about 60 gallons a minute for 1 hour, indicating a specific capacity of about 2. Wells E-16 and E-18 had reported yields of about 32 gallons a minute each in the fall of 1954. Well E-15 was not in use at the time of the investigation. Water from the remainder of the wells was purchased by oil companies for use in drilling oil wells and for camp supplies.

Water from well E-17 is softer than that now used by the city and is of satisfactory quality for nearly all purposes (table 6).

Gulf sandhills camp.- Wells D-13, D-14, and D-15 supply water for the sandhills camp of the Gulf Oil Corp. The wells are in section 42, block B-27, about 20 miles northwest of Crane. They were drilled in 1946 to a depth of 130 feet each and spaced 200 to 300 feet apart. Logs of wells D-13 and D-14 are not available, but the log of well D-15 is believed to be fairly representative of all three wells. It shows 130 feet of alluvium, although it does not indicate that the entire alluvial thickness was penetrated or that the well was drilled to the top of the red beds of Triassic age. The three wells are equipped with turbine pumps and 7½-horsepower electric motors. Well D-15 had a reported yield of 42 gallons a minute in 1946. In July 1949 the water level in well D-14 was reported to have been 59.7 feet below the land surface, which indicates that the saturated thickness was approximately 70 feet.

Well D-12, owned by the Crane County Commissioners Court, is about 800 feet southeast of the Gulf sandhills wells. It was drilled in 1953 to a depth of 165 feet. A test to determine its specific capacity was made on December 7, 1954. It had a drawdown of 43 feet after being pumped at 55 gallons a minute for 1 hour with a turbine pump driven by a 5-horsepower electric motor. The specific capacity thus was about 1.3 gallons a minute per foot of drawdown. The measured water level prior to pumping of the well was 56 feet below land surface, indicating a saturated thickness of about 109 feet. Analyses of water from D-12 and D-14 indicate that the quality of water from these wells is better than that of water now in use by the city of Crane.

City of Imperial.- In 1950, several wells were drilled for the city of Imperial on the K. P. Looney ranch, about 12 miles west of Crane and about 12 miles northeast of Imperial in Pecos County. The yields of the wells are reported to have decreased to such proportions as to require the drilling of additional wells. By 1954 a total of 10 wells had been drilled, numbered in this report E-68 through E-77. All but E-77 are in section 70, block X. The wells range in depth from 164 to 225 feet and yield water from sands of Triassic age. Logs are available for 6 of the wells, in which the thicknesses of the alluvium range from 20 to 45 feet and average 33 feet. The water level in well E-70 is reported to have been 64 feet below the land surface in December 1950, indicating a saturated thickness of about 21 feet. The measured depths to water in wells E-76 and E-77 in October 1954 were 75.1 and 60.4 feet below the land surface, respectively. Logs of the wells indicate that the alluvium was unwatered and that the wells were supplied with water from only the sands of Triassic age. Only five of the wells, E-69, E-72, E-73, E-74, and E-75, were in operation in the fall of 1954. The reported yields of the five wells ranged from about 9 to 35 gallons a minute and averaged about 19 gallons a minute. Total pumpage amounted to about 30,000 gallons of water a day. The water is delivered from the wells to Imperial by gravity flow through a 6-inch asbestos-cement pipe.

Chemical analysis of a composite sample of water from the wells shows that the water being pumped meets the usual municipal requirements except in hardness and fluoride content. Water from the sand of Triassic age in well E-76 was more highly mineralized than the composite sample, whereas the water in well E-77, also from the sand of Triassic age was of about the same quality.

QUALITY OF GROUND WATER

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 specified by 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:

	Parts per million
Iron and manganese (Fe + Mn)	0.3
Magnesium (Mg)	125
Chloride (Cl)	250
Fluoride (F)	1.5
Sulfate (SO_4)	250

Dissolved solids should not exceed 500 ppm in water of good chemical quality. However, if such water is not available, a dissolved-solids content of 1,000 ppm may be permitted.

Water containing large quantities of magnesium sulfate in solution (Epsom salt) has cathartic properties.

Calcium and magnesium are the principal constituents causing hardness in water.

Water having chloride in concentrations above a few hundred parts per million is salty to the taste.

Fluoride in concentrations exceeding 1.0 ppm may cause mottling of tooth enamel if used continuously by children during the period of formation of the permanent teeth. (Dean, 1936.) Because the incidence of mottling at 1.0 ppm is slight, the Public Health Service has set a limit of 1.5 ppm for water used on interstate carriers. Concentrations up to 1.0 ppm tend to inhibit tooth decay in children (Dean, 1938).

The presence of nitrate may indicate pollution from sewage, but high nitrate may also occur under harmless natural conditions, particularly in shallow wells. It is reported that nitrate in excess of about 45 ppm may cause cyanosis in infants (Maxcy in George and Hastings, 1951, p. 2).

Chemical analyses of water from selected wells are given in table 6. They show a wide range in the quality of the water; the hardness ranges from 100 to 3,180 ppm, the sulfate from 6 to 2,410 ppm, and the chloride from 4 to 3,450 ppm. Nitrate ranges from less than 0.2 to 104 ppm but is generally less than 5 ppm. Thirty of the 48 analyses showed concentrations of fluoride in excess of 1.5 ppm.

ALLUVIUM

Water from sand and gravel in the alluvium throughout the sandhills is generally suitable for domestic and municipal use. Chemical analyses of 17 samples contained sulfate that ranged from 12 to 556 ppm and averaged 217; chloride ranged from 6 to 120 ppm and averaged 63; and dissolved solids ranged from 224 to 1,100 ppm and averaged 626. Although the content of sulfate is somewhat greater than suggested in the standards of quality, it is less than the amount

present in several public water supplies in Texas. A composite water sample from the Crane city water system had a hardness of 332 ppm and a sulfate content of 205 ppm, chloride of 56 ppm, and dissolved solids of 606 ppm. Wells owned by the Phillips Petroleum Corp. yielded water of excellent quality. An analysis of a composite sample from the Phillips Petroleum Corp.'s "East line" of wells shows 15 ppm of sulfate, 4 ppm of chloride, and 196 ppm of dissolved solids, and a hardness of 100 ppm. This is softer than most well water in west Texas.

WATER FROM ROCKS OF TRIASSIC AGE

Chemical analyses of water from wells in the sands of Triassic age show that the water contains more calcium and sodium sulfate than that from the alluvium, and that the quality varies considerably. A composite sample from the K. P. Looney, or Imperial city wells contained 229 ppm of sulfate, 135 ppm of chloride, and 779 ppm of dissolved solids and had a hardness of 273 ppm, whereas water from well E-69, of the group supplying the city of Imperial, was reported to be highly mineralized and was used only in emergencies. Test wells E-76 and E-77 were drilled during the investigation and are about 1 to 2 miles southwest of the original wells. An analysis of water from well E-76 shows that the water is not suitable for domestic use. (See table 6.) Analyses of water from six other wells, B-6, B-47, E-25, E-66, E-76, and E-77, yielding water from sands of Triassic age show that the sulfate content ranges from 48 to 960 ppm and averages 563, chloride ranges from 51 to 610 ppm and averages 326, and dissolved solids ranges from 277 to 2,710 ppm and average 1,778.

WATER FROM ROCKS OF PERMIAN AGE

Wells D-24 and E-53 were reported to yield water from the Rustler formation of Permian age. Analyses of water from these two wells suggest a considerable variation in the chemical character of water from the Rustler formation (see table 6), as has been observed elsewhere in the Pecos Valley. The Rustler is not known to yield potable water to wells in the sandhills or in the closely adjacent areas; however, in northern Pecos County and nearby areas, water of moderately satisfactory quality for stock and for irrigation has been encountered in or near the top of a brown dolomite in the formation, which commonly yields flows of "sulfur" (hydrogen sulfide) water. A few wells have penetrated the formation without encountering water-bearing beds (Dennis and Lang, 1941, p. 66).

CONCLUSIONS

The data obtained as a result of the ground-water investigation in the sandhills of Crane County during the latter part of 1954 indicate that the alluvial deposits are capable of yielding more water of potable quality than any other ground-water reservoir in the area. However, individual wells, even where spaced adequately from other wells, probably cannot yield more than 100 gallons per minute over long periods. Most of the wells now in use are being pumped at sustained rates of less than 100 gallons a minute. The practice of drilling additional wells to meet increasing demand has been followed by the city of Crane, and this procedure apparently is the most logical. Pumpage from wells in the alluvium has been heaviest in area "A", which comprises some 30 sections, or about 19,000 acres. Although some irregularities in the water table in and near area "A", which probably are due to heavy pumping, are shown on the contour map (fig. 6), there are no indications of overdevelopment.

Other data accumulated during the investigation indicate that the best potential source of supplemental supplies may be in the general vicinity of the Byrd-Frost wells about 16 miles west of Crane. However, a test-drilling program would be advisable for the selection of final locations, to be based on saturated thicknesses of the sand and the performance of test wells.

Wells that draw water from the underlying rocks of Triassic age generally can be expected to yield only small quantities of water because of the low permeability. The water is moderately to highly mineralized. Drillers' logs of oil wells and water wells throughout the area reveal the presence of water sands in the Triassic rocks at relatively shallow depths below the base of the alluvium, and many of the wells that draw from these sands have been deepened because of inadequate supplies in the alluvium above.

The water supply of the city of Imperial, in Pecos County, is obtained from sands of Triassic age beneath the sandhills in Crane County. This source, however, has not proved satisfactory. Although the quality of the water is relatively good, the yields are reported to have dropped off considerably since the wells were completed, about 1950. Replacement wells have been needed to meet the demand. During the investigation two test wells were drilled about 1 or 2 miles southwest of the well field in an attempt to expand the field. Both wells proved incapable of yielding adequate quantities of water, and the quality of water from one of the wells was not suitable for municipal use. On the basis of performance of the Imperial wells, and from data accumulated relative to the quality and quantity of water yielded to wells from sands of Triassic age in other parts of the sandhills, it seems rather conclusive that this source is not promising for water supplies suitable for municipal use; however, these rocks are important as a source of water for stock and industrial use.

The Rustler formation is not known to yield potable water to wells in the Crane sandhills or in the closely adjacent areas. Only a few wells in the sandhills yield water from this formation, and the quality of the water from 3 or 4 of the wells varies considerably. Although the water is rather high in calcium sulfate, the chloride generally is relatively low. In parts of nearby Pecos County, water from the Rustler has been used for stock and to some extent for irrigation. In parts of both Ward and Pecos Counties, adjacent to Crane County on the west and south, respectively, the Rustler is reported to be a probable source of water for irrigation. However, the occurrence of water in the formation has proved rather erratic, and predictions as to the quantity or quality of water at a given site are not possible.

In the sandhills of Crane County no wells were found that draw water from the Permian rocks underlying the Rustler formation. These rocks have been encountered in drilling for oil throughout the area, and well drillers almost invariably report only small yields, of highly mineralized water, from them.

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Table 4.- Records of wells in Crane County, Texas

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

Well	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water-bearing formation	Water level		Method of lift	Use of water	Remarks
							Below land-surface datum (ft.)	Date of measurement			
A-1	--	--	--	148	--	--	--	--	None	N	Seismograph shothole. See log.
A-2	Wilcox Oil & Gas Co.	--	--	7,221	--	--	--	--	None	N	Oil test. See log.
*A-3	McKnight Bros.	--	--	94	8	--	41.5	Nov. 17, 1954	C,W	S	
A-4	--	--	--	105	--	--	--	--	None	N	Seismograph shothole. See log.
*A-5	McKnight Bros.	Carl Hammett	--	120	7	--	46.0	Dec. 13, 1954	C,W	S	
*A-6	do.	--	Old	120	10	--	59.8	do.	C,W	S	
A-7	Gulf Oil Corp.	--	--	2,583	--	--	--	--	None	N	Oil test. See log.
A-8	Charles Edwards	--	1933	120	8	--	--	--	None	N	Casing: 10¾-in. to 12 ft; 8 5/8-in. to 40 ft. See log.
A-9	--	--	--	100	--	--	--	--	None	N	Seismograph shothole. See log.
A-10	--	--	--	100	--	--	--	--	None	N	Do.
A-11	--	--	--	220	--	--	--	--	None	N	Do.
*A-12	McKnight Bros.	Carl Hammett	--	120	--	--	66.7	Dec. 20, 1954	C,W	S	
A-13	Gulf Oil Corp.	--	--	6,258	--	--	--	--	None	N	Oil test. See log.
B-1	Kewanee Oil Co.	--	--	7,164	--	--	--	--	None	N	Do.
B-2	do.	--	--	--	--	--	--	--	None	N	Do.
B-3	M. F. Henderson	--	--	107	--	Rocks of Triassic age	83.4	Oct. 29, 1954	C,W	S	
B-4	Gulf Oil Corp.	Wayne Bower	1948	126	7	do.	82.6	do.	None	N	Reported yield, 30 gpm when drilled. Formerly supplied water for oil-well drilling rigs. See log.
B-5	Jay McGee	do.	1950	116	7	do.	--	--	C,W	S	Reported yield, 25 gpm when drilled. Reported water level, 80 ft below land surface when drilled. Pump set at 90 ft. See log.

a/ Water level reported by owner or driller.
* For chemical analyses, see table 6.

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

Well	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water-bearing formation	Water level		Method of lift	Use of water	Remarks
							Below land surface datum (ft.)	Date of measurement			
*B-6	Gulf Oil Corp.	C & M Drilling Co.	1954	132	7	Rocks of Triassic age	--	--	T,G	Ind	Casing: 10¾-in. to 20 ft; 7-in. from 0 to 132 ft; slotted from 92 to 122 ft. Pumping level measured 85.8 ft below land surface on Sept. 22, 1954. See log.
B-7	M. R. Henderson et al	--	--	73	6	Alluvium	65.8	Sept. 22, 1954	C,W	S	
B-8	do.	--	--	--	6	--	45.7	do.	C,W	S	
B-9	Gulf Oil Corp.	--	--	3,551	--	--	--	--	None	N	Oil test. See log.
B-10	Jay McGee	--	--	--	--	--	70.9	Sept. 30, 1954	C,W	S	
B-11	Gulf Oil Corp.	Wayne Bower	1948	136	9-5/8	Rocks of Triassic age	a/64	--	None	N	Casing: 13 5/8 in. to 20 ft; 9 5/8-in. to 136 ft; slotted 57 to 109 ft. Reported drawdown, 36 ft after bailing 4 hrs at approximately 72 gpm. See log.
B-12	do.	do.	1948	140	9-5/8	--	--	--	None	N	Casing: 13 5/8-in. to 20 ft; 9 5/8-in. from 0 to 139 ft; slotted 50 to 100 ft, 109 to 124 ft, 135 to 137 ft. Reported yield, 40 gpm when drilled. Formerly supplied water for oil-well drilling rigs. See log.
B-13	do.	do.	1945	200	--	Rocks of Triassic age	--	--	None	N	Casing: 13 5/8-in. to 20 ft. Reported yield, 5 gpm when drilled. See log.
B-14	do.	do.	1948	150	--	do.	--	--	None	N	Casing: 13 5/8-in. to 20 ft. Reported yield, 10 gpm when drilled. Hope plugged back from 150 ft to 87 ft. No increase in yield after shooting with dynamite at 62 ft. See log.
B-15	do.	--	--	3,665	--	--	--	--	None	N	Oil test. See log.
B-16	do.	--	--	9,925	--	--	--	--	None	N	Do.
B-17	do.	--	--	8,845	--	--	--	--	None	N	Do.
B-18	do.	C & M Drilling Co.	1953	120	7	Alluvium	61.6	Oct. 5, 1954	C,G	Ind	Casing: 12¾-in. to 20 ft; 7-in. from 0 to 120 ft. Reported yield, 48 gpm when drilled. Supplies water for oil-well drilling rigs. See log.

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

Well	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water-bearing formation	Water level		Method of lift	Use of water	Remarks
							Below land surface datum (ft.)	Date of measurement			
B-19	R. F. Windfohr	--	--	105	8	--	58.6	Nov. 4, 1954	None	N	Standby well. Formerly supplied water for oil-well drilling rigs.
*B-20	Ewell McKnight	Carl Hammett	--	95	7	Alluvium	64.0	do.	C,W	S	
B-21	R. F. Windfohr	--	--	70	6	do.	57.3	do.	None	N	Standby well. Formerly supplied water for oil-well drilling rigs.
B-22	Gulf Oil Corp.	Wayne Bower	1947	352	13-5/8	--	--	--	None	N	Casing: 13 5/8-in. to 39 ft. Weak supply reported from 75 to 81 ft. See log.
B-23	do.	Damron Drilling Co.	1943	150	--	Rocks of Triassic age	76.0	Dec. 20, 1954	C,G	Ind	Supplies water for oil-well drilling rigs. See log.
B-24	do.	do.	1944	145	--	do.	--	--	C,G	Ind	Reported yield, 24 gpm when drilled. Supplies water for oil-well drilling rigs. See log.
B-25	do.	do.	1943	185	8	do.	a/85.4 a/81.8 a/92.3	Jan. 1948 July 1948 July 1949	C,G	Ind	Slotted casing from 75 to 166 ft. Water level measured periodically by owner. See log.
*B-26	do.	do.	1944	350	--	Alluvium and rocks of Triassic age	--	--	C,G	Ind	Supplies water for oil-well drilling rigs.
B-27	do.	Wayne Bower	1948	235	--	Rocks of Triassic age	--	--	None	N	Reported yield, 1 gpm at 223 ft. See log.
*B-28	W. E. Connell Estate	--	--	560	7	--	--	--	C,G, 118	Ind	Strong supply reported. Supplies water for oil-well drilling rigs. See log.
B-29	M. F. Henderson et al	--	--	74	7	--	64.8	--	C,W	S	
B-30	Jay McGee	--	--	--	--	--	50.3	Nov. 11, 1954	C,W	S	
B-31	Gulf Oil Corp.	Wayne Bower	--	--	--	--	--	--	T,E, 7½	D,Ind	Supplies water for gasoline plant and oil-field camp.
B-32	do.	do.	--	--	--	--	55.9	Sept.28, 1954	T,E, 7½	D,Ind	Do.
B-33	do.	do.	--	--	--	--	--	--	T,E, 7½	D,Ind	Do.
B-34	do.	do.	--	--	--	--	--	--	T,E, 7½	D,Ind	Do.
B-35	do.	do.	1951	130	8	Alluvium and rocks of Triassic age	--	--	T,E, 7½	D,Ind	Casing: 22-in. to 57 ft; 8-in. from 0 to 130 ft. Reported yield, 40 gpm when drilled. Supplies water for gasoline plant and Gulf Oil Corp. camp. See log.

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

Well	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water-bearing formation	Water level: Below land surface datum (ft.)	Water level: Date of measurement	Method of lift	Use of water	Remarks
B-36	Gulf Oil Corp.	Wayne Bower	--	--	--	--	--	--	T,E, 7½	D,Ind	
B-37	Jay McGee	--	--	84	7	--	44.8	Nov. 11, 1954	C,W	S	
B-38	Magnolia Petroleum Co.	--	--	81	8	--	46.4	Sept.28, 1954	None	N	Standby well. Formerly supplied water for oil-well drilling rigs.
B-39	Gulf Oil Corp.	Wayne Bower	1948	89	10¾	--	--	--	None	N	Casing: 10¾-in. to 29 ft. Deepened to present depth in 1949. Reported yield, 80 gpm after shooting with dynamite at 75 ft. See log.
B-40	do.	do.	1948	272	--	--	--	--	None	N	Reported yield, 4 gpm at 58 ft. See log.
B-41	do.	do.	1949	82	7	Alluvium	a/45	1949	T,E, 7½	D,Ind	Casing: 10¾-in. to 10 ft; 7-in. from 0 to 82 ft. Reported yield, 114 gpm after shooting with dynamite at 78 ft. Pump set at 70 ft. Supplies water for gasoline plant and Gulf Oil Corp. camp. See log.
B-42	do.	do.	1949	98	7	do.	a/49	1949	T,E, 7½	D,Ind	Casing: 10¾-in. to 32 ft; 7-in. from 0 to 98 ft. Reported yield, 114 gpm after shooting with dynamite. Supplies water for gasoline plant and Gulf Oil Corp. camp. See log.
*B-43	do.	do.	1948	92	7	do.	--	--	T,E, 7½	D,Ind	Casing: 10¾-in. to 30 ft; 7-in. from 0 to 92 ft. Deepened to present depth in 1949. Reported yield, 80 gpm when drilled. See log.
B-44	do.	do.	1948	200	--	--	--	--	None	N	Weak supply reported. Hole filled. See log.
B-45	do.	do.	1949	87	8-5/8	Alluvium	54.1 54.1	Sept.27, 1954 Dec. 13, 1954	None	N	Casing: 22-in. to 45 ft; 8 5/8-in. from 0 to 56 ft. Reported yield, 40 gpm when drilled. See log.
B-46	do.	do.	1948	84	7	do.	a/42	1949	T,E, 7½	D,Ind	Casing: 7-in. from 0 to 84 ft. Deepened to present depth in 1949. Reported yield, 75 gpm when drilled. Supplies water for gasoline plant and Gulf Oil Corp. camp. See log..

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

Well	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water-bearing formation	Water level: Below land surface datum (ft.)	Water level: Date of measurement	Method of lift	Use of water	Remarks
*B-47	Gulf Oil Corp.	Wayne Bower	1954	700	8 5/8	Rocks of Triassic age	89.1	Nov. 4, 1954	None	N	Casing: 16-in. to 94 ft; 8 5/8-in. from 0 to 675 ft. Slotted from 546 to 644 ft. See log.
B-48	do.	do.	1948	80	7	Alluvium	a/45	1948	T,E, 7½	D,Ind	Casing: 10¾-in. to 26 ft; 7-in. from 0 to 81 ft. Deepened to present depth in 1949. Reported yield, 78 gpm when drilled. See log.
B-49	Lone Star Gas Co.	--	--	80	--	--	--	--	None	N	Weak supply reported. Hole filled.
B-50	Gulf Oil Corp.	Wayne Bower	1949	84	4½	Alluvium	a/43	1949	T,E, 3	D,Ind	Casing: 4½-in. to 70 ft. Reported drawdown, 33 ft after pumping 19 min at 90 gpm. Supplies water for gasoline plant and Gulf Oil Corp. camp. See log.
B-51	Atlantic Oil & Refining Co.	--	1952	80	10	do.	44.9	Oct. 22, 1954	None	N	Standby well. Strong supply reported.
B-52	City of Crane	Damron Drilling Co.	--	80±	--	do.	--	--	T,E, 3	P	City well no. 1.
B-53	do.	do.	--	80±	--	do.	--	--	T,E, 3	P	City well no. 2.
B-54	do.	do.	--	80±	--	do.	--	--	--	--	City well no. 3.
*B-55	do.	Wayne Bower	1954	83	7	do.	a/42	Feb. 1954	T,E, 3	P	Casing: 12-in. to 20 ft; 7-in. from 0 to 83 ft; slotted from 50 to 78 ft. Gravel-walled with 5 yds pea gravel. Reported yield, 70 gpm by bail-test when drilled. See log.
B-56	do.	do.	1954	80	7	do.	--	--	T,E, 2	P	Casing: 10-in. to 20 ft; 7-in. from 0 to 80 ft. Reported yield, 50 gpm. Gravel-walled; See log.
B-57	do.	do.	1953	80	7	do.	a/40	Dec. 1954	T,E, 3	P	Casing: 10-in. to 20 ft; 7-in. from 0 to 80 ft; slotted from 45 to 80 ft. Reported yield, 50 gpm. Gravel-walled. See log.
B-58	do.	do.	1953	75	7	do.	--	--	None	N	Standby well. Reported yield, 40 gpm when drilled. City well no. 4. See log.

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

Well	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water-bearing formation	Water level		Method of lift	Use of water	Remarks
							Below land surface datum (ft.)	Date of measurement			
B-59	City of Crane	Wayne Bower	1953	81	7	Alluvium	--	--	T,E, 2	P	Casing: 10-in. to 20 ft; 7-in. from 0 to 81 ft. Reported yield, 120 gpm by bail-testing when drilled. Pump set at 70 ft. See log.
B-60	do.	do.	1953	85	7	do.	--	--	T,E, 3	P	Casing: 10-in. to 20 ft; 7-in. from 0 to 85 ft. Reported yield, 100 gpm by bail-test when drilled. Pumping level measured 53.0 ft below land surface on Sept. 20, 1954. See log.
B-61	Lone Star Gas Co.	--	--	80	--	--	--	--	None	N	Weak supply reported. Hole filled.
B-62	Gulf Oil Corp.	Wayne Bower	1948	402	--	--	--	--	None	N	Weak supply reported. See log.
B-63	do.	do.	1948	195	--	--	--	--	None	N	Do.
*B-64	W. N. Waddell	--	--	61	12	Alluvium	43.8	Sept. 27, 1954	C,W	S	Pumping level measured 59.7 ft on Sept. 27, 1954.
C-1	do.	--	--	75	--	do.	61.7	Nov. 3, 1954	C,W	S	
C-2	Gulf Oil Corp.	--	--	3,573	--	--	--	--	None	N	Oil test. See log.
C-3	Lone Star Gas Co.	--	--	90	--	--	--	--	None	N	Weak supply reported. Hole filled.
C-4	Clark Estate	--	--	--	--	--	55.4	Nov. 3, 1954	C,W	S	
C-5	Lone Star Gas Co.	--	--	87	--	--	--	--	None	N	Drilled as test hole. Reported yield, 100 gpm when drilled. Hole filled.
C-6	do.	--	--	107	--	--	--	--	None	N	Drilled as test hole. Reported yield, 90 gpm when drilled. Hole filled.
C-7	do.	--	--	103	--	--	--	--	None	N	Drilled as test hole. Reported yield, 45 gpm when drilled. Hole filled.
C-8	do.	--	--	73	--	--	--	--	None	N	Drilled as test hole. Weak supply reported. Hole filled.
C-9	do.	--	--	70	--	--	--	--	None	N	Drilled to top of red beds as test hole. Weak supply reported. Hole filled.
C-10	do.	--	--	110	--	--	--	--	None	N	Drilled as test hole. Weak supply reported. Hole filled.

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

Well	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water-bearing formation	Water level		Method of lift	Use of water	Remarks
							Below land surface datum (ft.)	Date of measurement			
C-11	Lone Star Gas Co.	--	--	103	--	--	--	--	None	N	Drilled as test hole. Weak supply reported. Hole filled.
C-12	Gulf Oil Corp.	Wayne Bower	1951	585	10¾	Rocks of Triassic age	196.7	Nov. 3, 1954	None	N	Casing: 10¾-in. to 15 ft. Standby well. Reported yield, 37 gpm by bail-test when drilled. Formerly supplied water for oil-well drilling rigs. See log.
*C-13	Phillips Petroleum Corp.	--	--	--	--	Alluvium	--	--	A	P,Ind	Supplies water for oil leases and oil-field camps.
C-14	do.	--	--	--	--	do.	--	--	A	P,Ind	Do.
C-15	do.	--	--	--	--	do.	--	--	A	P,Ind	Do.
C-16	Lone Star Gas Co.	--	--	90	--	do.	--	--	None	N	Drilled as test hole. Reported yield, 90 gpm when drilled. Hole filled.
C-17	Phillips Petroleum Corp.	--	--	--	--	do.	--	--	A	P,Ind	Supplies water for oil leases and oil-field camps.
C-18	do.	--	--	--	--	--	54.4 a/56.1	May 6, 1953 Sept. 1954	A	P,Ind	Supplies water for oil leases and oil-field camps. Water level measured at intervals by owner.
C-19	do.	--	--	--	--	--	--	--	A	P,Ind	Supplies water for oil leases and oil-field camps.
C-20	do.	--	--	--	--	--	--	--	A	P,Ind	Do.
C-21	do.	--	--	--	--	--	--	--	A	P,Ind	Do.
C-22	Gulf Oil Corp.	--	--	3,484	--	--	--	--	None	N	Oil test. See log.
C-23	do.	--	1940	183	6-5/8	Alluvium	51.4 51.4	Sept. 30, 1954 Dec. 16, 1954	None	N	Casing: 6 5/8-in. from 0 to 167 ft; 7-in. from 0 to 93 ft; slotted from 60 to 72 ft. Formerly supplied water for oil-well drilling rig.

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

Well	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water-bearing formation	Water level: Below land surface datum (ft.)	Water level: Date of measurement	Method of lift	Use of water	Remarks
C-24	Phillips Petroleum Corp.	--	1947	160	6-5/8	Alluvium	--	--	A	P,Ind	Casing: 6 5/8-in. from 0 to 160 ft; slotted from 66 to 94 ft. Supplies water for oil leases and oil-field camps. See log.
C-25	do.	--	--	167	6-5/8	do.	--	--	A	P,Ind	Casing: 6 5/8-in. from 0 to 167 ft; slotted opposite water sand above red beds. Pumping level measured 61.5 ft below land surface on Dec. 15, 1954. Supplies water for oil leases and oil-field camps.
C-26	do.	--	--	167	6-5/8	do.	--	--	A	P,Ind	Casing: 6 5/8-in. from 0 to 167 ft; slotted opposite water sand above red beds. Pumping level measured 69.0 ft below land surface on Dec. 15, 1954. Supplies water for oil leases and oil-field camps.
C-27	do.	--	--	167	6-5/8	do.	--	--	A	P,Ind	Casing: 6 5/8-in. from 0 to 167 ft; slotted opposite water sand above red beds. Supplies water for oil leases and oil-field camps.
C-28	do.	--	--	167	6-5/8	do.	--	--	A	P,Ind	Do.
*C-29	do.	--	--	167	6-5/8	do.	--	--	A	P,Ind	Do.
C-30	do.	--	--	166	6-5/8	do.	--	--	A	P,Ind	Casing: 6 5/8-in. from 0 to 166 ft; slotted opposite water sand above red beds. Supplies water for oil leases and oil-field camps.
C-31	do.	--	--	167	6-5/8	do.	--	--	A	P,Ind	Casing: 6 5/8-in. from 0 to 167 ft; slotted opposite water sand above red beds. Supplies water for oil leases and oil-field camps.
C-32	do.	--	--	166	10, 6-5/8	do.	a/62.8	Sept. 1954	A	P,Ind	Casing: 10-in. from 0 to base of water sand; 6 5/8-in. to 166 ft. Supplies water for oil leases and oil-field camps.
C-33	do.	--	--	161	10, 6-5/8	do.	--	--	A	P,Ind	Casing: 10-in. from 0 to base of water sand; 6 5/8-in. to 162 ft. Supplies water for oil leases and oil-field camps.

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

Well	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water-bearing formation	Water level		Method of lift	Use of water	Remarks
							Below land surface datum (ft.)	Date of measurement			
C-34	Phillips Petroleum Corp.	--	--	162	10, 6-5/8	Alluvium	--	--	-A	P,Ind	Casing: 10-in. from 0 to base of water sand; 6 5/8-in. to 162 ft. Supplies water for oil leases and oil-field camps.
C-35	do.	Bethel & Matthews	1947	150	8	do.	--	--	A	P,Ind	Casing: 8-in. from 0 to 150 ft. Supplies water for oil leases and oil-field camps. See log.
C-36	do.	--	--	163	10, 6-5/8	do.	--	--	A	P,Ind	Casing: 10-in. from 0 to base of water sand; 6 5/8-in. to 163 ft. Pumping level measured 63.9 ft below land surface on Dec. 15, 1954. Supplies water for oil leases and oil-field camps.
C-37	do.	--	--	160	10, 6-5/8	do.	58.6	Dec. 15, 1954	A	P,Ind	Casing: 10-in. from 0 to base of water sand; 6 5/8-in. to 160 ft. Supplies water for oil leases and oil-field camps.
C-38	do.	Bethel & Matthews	1947	150	8	do.	a/61.7	Sept. 1954	A	P,Ind	Casing: 8-in. from 0 to 150 ft. Water level measured periodically by owner. Supplies water for oil leases and oil-field camps. See log.
C-39	do.	--	--	160	10, 6-5/8	do.	---	--	A	P,Ind	Casing: 10-in. from 0 to base of water sand; 6 5/8-in. to 160 ft. Supplies water for oil leases and oil-field camps.
C-40	do.	--	--	162	10, 6-5/8	do.	--	--	A	P,Ind	Casing: 10-in. from 0 to base of water sand; 6 5/8-in. to 162 ft. Supplies water for oil leases and oil-field camps.
C-41	do.	--	--	168	10, 6-5/8	do.	57.4	Dec. 15, 1954	A	P,Ind	Casing: 10-in. from 0 to base of water sand; 6 5/8-in. to 168 ft. Supplies water for oil leases and oil-field camps.

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

Well	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water-bearing formation	Water level: Below land surface datum (ft.)	Water level: Date of measurement	Method of lift	Use of water	Remarks
C-42	Phillips Petroleum Corp.	--	--	162	10, 6-5/8	Alluvium	--	--	A	P,Ind	Casing: 10-in. from 0 to base of water sand; 6 5/8-in. to 162 ft. Supplies water for oil leases and oil-field camps.
C-43	do.	Bethel & Matthews	1947	160	10, 6-5/8	do.	a/56.2 a/58.3	May 1953 Sept. 1954	A	P,Ind	Casing: 10-in. from 0 to base of water sand; 6 5/8-in. to 160 ft. Water level measured at intervals by owner. Supplies water for oil leases and oil-field camps. See log.
C-44	do.	do.	1949	150	8	do.	--	--	A	P,Ind	Casing: 8-in. from 0 to 150 ft. Supplies water for oil leases and oil-field camps. See log.
C-45	do.	--	--	162	10, 6-5/8	do.	61.6	Dec. 15, 1954	A	P,Ind	Casing: 10-in. from 0 to base of water sand; 6 5/8-in. to 162 ft. Supplies water for oil leases and oil-field camps. Weak supply reported.
C-46	do.	--	--	179	10, 6-5/8	do.	--	--	A	P,Ind	Casing: 10-in. from 0 to base of water sand; 6 5/8-in. to 179 ft. Pumping level measured 54.3 ft on Dec. 15, 1954. Supplies water for oil leases and oil-field camps.
C-47	do.	--	--	172	10, 6-5/8	do.	--	--	A	P,Ind	Casing: 10-in. from 0 to base of water sand; 6 5/8-in. to 172 ft. Pumping level measured 55.6 ft on Dec. 15, 1954. Supplies water for oil leases and oil-field camps.
C-48	do.	--	--	--	2	--	63.2	Dec. 15, 1954	None	N	Formerly used by owner for water-level observations.
C-49	Gulf Oil Corp.	Wayne Bower	1951	121	22, 8-5/8	Alluvium	a/58	--	T,E, 7½	Ind	Casing: 22-in. to 60 ft; 8 5/8-in. from 0 to 121 ft; slotted from 73 to 104 ft. Reported drawdown, 27 ft after bailing at 37 gpm for 1 hr when drilled. See log.

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

Well	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water-bearing formation	Water level: Below land surface datum (ft.)	Water level: Date of measurement	Method of lift	Use of water	Remarks
C-50	Gulf Oil Corp.	Wayne Bower	1948	110	7, 5½	Alluvium	a/45 a/60.3	Nov. 1948 Sept. 1954	None	N	Casing: 7-in. to 45 ft; 5½-in. from 0 to 110 ft. Reported yield approximately 50 gpm when drilled. Formerly supplied water for oil-well drilling rig. See log.
C-51	Phillips Petroleum Corp.	--	--	--	--	--	a/54.3 a/61.1	May 1953 Sept. 1954	T,E, 5	P,Ind	Water level measured at intervals by owner. Supplies water for oil leases and oil-field camps.
C-52	do.	--	1953	105	7	Alluvium	a/55.5 a/58.6	Feb. 1954 May 1954	T,E, 5	P,Ind	Casing: 7-in. from 0 to 105 ft. Water level measured at intervals by owner. Supplies water for oil leases and oil-field camps.
C-53	do.	Bethel & Matthews	1954	108	--	do.	a/54.1	Sept. 1954	T,E, 5	P,Ind	Reported yield, 160 gpm when drilled. Supplies water for oil leases and oil-field camps. See log.
C-54	do.	--	--	--	--	--	--	--	T,E, 5	P,Ind	Supplies water for oil leases and oil-field camps.
C-55	do.	--	--	--	--	--	46.6	Sept.30, 1954	T,E, 5	P,Ind	Do.
C-56	Gulf Oil Corp.	Carl Hammett	1948	115	7	Alluvium	--	--	T,G, 7½	Ind	Reported yield, 52 gpm when drilled. Supplies water for oil-well drilling rigs. See log.
C-57	do.	Wayne Bower	1947	123	5½	do.	--	--	T,E, 7½	Ind	Casing: 5½-in. from 0 to 123 ft. See log.
*C-58	--	--	--	--	--	--	51.2	Sept.22, 1954	C,W	S	
C-59	Gulf Oil Corp.	Dixilyn Drilling Co.	1949	140	7	Alluvium	--	--	None	N	Casing: 7-in. from 0 to 71 ft. Reported yield, 35 gpm when drilled. Formerly supplied water for oil-well drilling rigs.
C-60	do.	Frank Haydon	1948	111	6-5/8	do.	--	--	T,E, 7½	Ind	Casing: 6 5/8-in. from 0 to 111 ft. See log.
C-61	do.	Dixilyn Drilling Co.	1947	140	7	--	--	--	T,E, 7½	Ind	Casing: 7-in. from 0 to 80 ft. Reported yield, approximately 85 gpm when drilled. See log.

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

Well	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water-bearing formation	Water level		Method of lift	Use of water	Remarks
							Below land surface datum (ft.)	Date of measurement			
C-62	Gulf Oil Corp.	Carl Hammett	1948	115	7	Alluvium	a/60	Apr. 1947	T,E, 7½	Ind	Casing: 7-in. from 0 to 79 ft. Reported yield, approximately 30 gpm when drilled. See log.
C-63	do.	Dixilyn Drilling Co.	1947	120	6	do.	--	--	T,E, 7½	Ind	Casing: 6-in. from 0 to 60 ft. Reported yield, approximately 85 gpm when drilled. See log.
C-64	Texas State Highway Dept.	Wayne Bower	1948	90	7	do.	41.9 41.9 41.9 41.9	Sept. 16, 1954 Oct. 21, 1954 Nov. 17, 1954 Dec. 13, 1954	None	N	Casing: 7-in. from 0 to 87 ft. Reported yield, 80 gpm when drilled. Standby well. Formerly supplied water for road construction. See log.
C-65	City of Crane	Damron Drilling Co.	--	85±	--	do.	43.1	Dec. 13, 1954	T,E, 3	P	Measured drawdown 15 ft after pumping several hours at about 50 gpm.
C-66	do.	do.	--	80±	--	do.	42.9	do.	T,E, 3	P	City well no. 5.
C-67	Gulf Oil Corp.	Wayne Bower	1949	100	--	do.	--	--	None	N	Drilled as test hole. Weak supply reported. See log.
C-68	do.	do.	1949	100	--	do.	--	--	None	N	Drilled as test hole. Weak supply reported. Hole plugged. See log.
C-69	City of Crane	Damron Drilling Co.	--	80±	--	do.	--	--	T,E, 3	P	City well no. 8.
C-70	do.	do.	--	80±	--	do.	--	--	T,E, 3	P	City well no. 7.
*C-71	do.	do.	--	80±	--	do.	42.6 41.7	Sept. 25, 1954 Dec. 13, 1954	T,E, 3	P	City well no. 6.
C-72	Gulf Oil Corp.	Wayne Bower	1949	102	10¾	do.	a/50	May 1949	None	N	Reported drawdown, 20 ft after pumping 14 hrs at 75 gpm. See log.
C-73	do.	do.	1949	118	4½	do.	a/52	May 1949	None	N	Casing: 4½-in. from 0 to 70 ft. Drilled as test hole. Reported drawdown, 20 ft after bailing 90 gpm when drilled. See log.
C-74	do.	Parker Drilling Co.	1948	130	6-5/8	do.	a/70	Nov. 1948	None	N	Casing: 8 5/8-in. to 34 ft; 6 5/8-in. from 0 to 128 ft. Standby well. Reported yield, about 50 gpm by bail-test when drilled. See log.

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

Well	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water-bearing formation	Water level		Method of lift	Use of water	Remarks
							Below land surface datum (ft.)	Date of measurement			
C-75	Gulf Oil Corp.	C & M Drilling Co.	1954	111	6-5/8	Alluvium	--	--	T,E, 7½	Ind	Casing perforated from 57 to 101 ft. Gravel-walled from top to bottom. See log.
C-76	do.	Wayne Bower	1951	107	6-5/8	do.	--	--	C,G	Ind	Casing: 6 5/8-in. to 107 ft; 2 joints slotted opposite water sand. Reported yield, 25 gpm when drilled. See log.
C-77	do.	do.	1947	190	7	do.	--	--	None	N	Casing: 7-in. to 100 ft; slotted from 80 to 100 ft. Reported yield, 28 gpm when drilled. Formerly supplied water for oil-well drilling rigs. See log.
C-78	do.	C & M Drilling Co.	1952	120	10¾	do.	--	--	T,E, 7½	P,Ind	Casing: 10¾-in. to 60 ft; slotted from 60 to 80 ft and 80 to 105 ft. Reported drawdown, 40 ft after pumping 2 hrs at 71 gpm. Gravel-walled with 10 yds pea gravel. Supplies water for oil leases and oil-field camps. See log.
C-79	do.	--	--	10,881	--	--	--	--	None	N	Oil test. See log.
C-80	do.	Parker Drilling Co.	1947	115	8-5/8, 6	Alluvium	a/65	Oct. 1947	None	N	Casing: 8 5/8-in. to 32 ft; 6-in. from 0 to 115 ft; slotted from 75 to 115 ft. Standby well. Reported yield, 45 gpm when drilled. Formerly supplied water for oil-well drilling rigs. See log.
C-81	do.	Wayne Bower	1947	100	7	do.	a/45	Dec. 1947	None	N	Casing: 7-in. to 100 ft; slotted from 60 to 100 ft. Formerly supplied water for oil-well drilling rigs. See log.
C-82	do.	do.	1949	107	10¾	do.	a/55	May 1949	None	N	Casing: 10¾-in. to 30 ft. Drilled as test hole. Tested with 6-in. 21-stage Pomona pump set at 88 ft. Reported drawdown, 28 ft after pumping 24 hrs at 90 gpm. See log.
C-83	do.	do.	1949	115	8-5/8	do.	a/49	July 1949	T,E, 7½	Ind	Casing: 8 5/8-in. to 115 ft. Reported yield, 50 gpm when drilled. See log.
C-84	do.	do.	1949	111	13-3/8	do.	a/50	July 1949	None	N	Casing: 13 3/8-in. to 20 ft. Reported yield, 21 gpm by bail-test when drilled. See log.

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

Well	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water-bearing formation	Water level: Below land surface datum (ft.)	Water level: Date of measurement	Method of lift	Use of water	Remarks
C-85	Gulf Oil Corp.	Wayne Bower	1949	108	7	Alluvium	50.5	Sept. 26, 1954	T,E, 7½	P,Ind	Casing: 7-in. to 108 ft; slotted from 34 to 108 ft. Reported yield, 53 gpm when drilled. Supplies water for oil leases and oil-field camps. See log.
C-86	do.	do.	1949	99	--	do.	a/50	May 1949	None	N	Drilled as test hole. Reported drawdown, 21 ft after bail-testing 3 hrs at 27 gpm. See log.
C-87	do.	do.	1949	100	10¾	do.	--	--	None	N	Drilled as test hole. Reported yield, 32 gpm after bail-testing 1 hr at 32 gpm. See log.
C-88	do.	do.	1949	150	10¾	do.	a/63	May 1949	None	N	Drilled as test hole. Reported yield, 35 gpm after bail-testing when drilled. See log.
C-89	do.	do.	1949	535	7	Alluvium & rocks of Triassic age	a/105	Apr. 1949	None	N	Drilled as test hole. Hole plugged back from 600 ft. Tested with 6-in. Pomona pump set at 338 ft. Reported yield, 24 gpm. See log.
C-90	do.	do.	1949	250	10¾	do.	--	--	None	N	Drilled as test hole. Weak supply reported. Hole filled. See log.
C-91	do.	do.	1949	75	10¾	Alluvium	--	--	None	N	Drilled as test hole. Reported yield, 10 gpm after bail-testing 6 hrs when drilled. Hole sealed. See log.
C-92	Magnolia Petroleum Co.	--	1939	412	15, 7	Alluvium & rocks of Triassic age	48.6	Dec. 18, 1954	None	N	Standby well. Formerly supplied water for oil-well rigs. See log.
C-93	--	--	--	120	--	--	--	--	None	N	Seismograph shothole. See log.
C-94	--	--	--	120	--	--	--	--	None	N	Do.
C-95	--	--	--	120	--	--	--	--	None	N	Do.
C-96	--	--	--	125	--	--	--	--	None	N	Do.
C-97	Kewanee Oil Co.	--	--	1,300	--	--	--	--	None	N	Oil test. See log.
*C-98	--	--	--	--	6	Alluvium	48.9	Sept. 26, 1954	C,W	S	Pumping level measured 53.8 ft on Sept. 26, 1954. Temp. 72°F.
C-99	Texas Pacific Coal & Oil Co.	--	--	2,598	--	--	--	--	None	N	Oil test. See log.

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

Well	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water-bearing formation	Water level		Method of lift	Use of water	Remarks
							Below land surface datum (ft.)	Date of measurement			
D-1	Ted Weiner	Wayne Bower	1952	129	7	--	57.8	Oct. 29, 1954	None	N	Casing: 7-in. to 128 ft; slotted from 88 to 128 ft. Reported yield, 55 gpm when drilled. See log.
*D-2	A. H. Scott Estate	--	--	58	7	Alluvium	50.0	do.	C,W	S	
D-3	Gulf Oil Corp.	B. A. Healy	1949	110	7	do.	--	--	None	N	Casing: 7-in. to 6 ft. Reported yield, 7 gpm when drilled. See log.
D-4	do.	Wayne Bower	1952	115	7	do.	a/55	Apr. 1952	None	N	Casing: 7-in. to 115 ft. Reported yield, 47 gpm when drilled. Gravel-walled. See log.
*D-5	Jas. H. King	--	--	64	10	do.	52.1	Nov. 23, 1954	C,W	S	
D-6	Gulf Oil Corp.	--	--	--	8	--	59.2	Oct. 29, 1954	None	N	Standby well. Formerly supplied water for oil-well drilling rigs.
*D-7	Jas. H. King	--	1949	100	7	Alluvium	62.6	Nov. 23, 1954	C,W	S	
D-8	Gulf Oil Corp.	--	--	6,317	--	--	--	--	None	N	Oil test. See log.
D-9	do.	Wayne Bower	1949	130	--	Alluvium	--	--	T,E, 7½	P,Ind	Supplies water for oil leases and oil-field camp. Reported yield, about 80 gpm when drilled. See log.
D-10	do.	do.	1948	135	10¾	do.	a/55	May 1948	T,E, 7½	P,Ind	Pump set at 125 ft. Reported yield, 35 gpm when drilled. Supplies water for oil leases and oil-field camp. See log.
*D-11	do.	W. P. Holt	1934	136	6-5/8	Alluvium & rocks of Triassic age	--	--	T,E, 7½	P,Ind	Casing: 6 5/8-in. to 136 ft; slotted from 70 to 116 ft. Pump set at 108 ft. Supplies water for oil leases and oil-field camp. See log.
*D-12	Crane County	Wayne Bower	1953	165	7	Alluvium	55.4	Dec. 7, 1954	T,E, 5	P,Ind	Casing: 7-in. to 165 ft. Measured drawdown, 43 ft after pumping 1 hr at 55 gpm. Supplies water for small community and for summer pool. Temp. 69°F. See log.
D-13	Gulf Oil Corp.	do.	1946	130	--	--	--	--	T,E, 7½	P,Ind	Pumping level measured 77.3 ft on Sept. 20, 1954. Supplies water for oil leases and oil-field camp.

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

Well	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water-bearing formation	Water level: Below land surface datum (ft.)	Water level: Date of measurement	Method of lift	Use of water	Remarks
*D-14	Gulf Oil Corp.	Wayne Bower	1946	130	--	Alluvium	a/59.7 a/58.5	Jan. 1948 Jan. 1949	T,E, 7½	P,Ind	Supplies water for oil leases and oil-field camp. Water-level measured semi-annually by owner.
D-15	do.	do.	1946	130	10¾	do.	--	--	T,E, 7½	P,Ind	Supplies water for oil leases and oil-field camp. See log.
D-16	Jas. H. King	--	1942	100	--	do.	--	--	C,W	S	
D-17	do.	--	--	100	--	do.	--	--	C,W	S	
D-18	S. W. Estes	Jean Watkins	1902	100	--	do.	--	--	T,G, 96	Ind	No casing. Pump set at 74 ft. Reported yield, 75 gpm when drilled. Supplies water for oil leases.
D-19	do.	-- Jones	--	466	--	Alluvium & rocks of Triassic age	51.5	Nov. 1, 1954	None	N	No casing. Deepened from 100 to 466 ft.
D-20	Jas. H. King	--	Old	75	4	Alluvium	47.9	Nov. 23, 1954	C,W	S	
*D-21	do.	--	Old	100	--	do.	--	--	C,W	S	
*D-22	Ell Long	--	--	51	--	do.	45.2	Nov. 15, 1954	C,W	D,S	
*D-23	Gulf Oil Corp.	-- Canterberry	1954	550	--	Alluvium & Rustler formation	--	--	None	N	Drilled to supply water for oil-well drilling rig.
*D-24	W. N. Waddell	--	1941	461	4	Rustler formation	+ +	Apr. 2, 1941 Dec. 12, 1954	Flows	N	Supplies water for oil leases and road construction.
E-1	Gulf Oil Corp.	Wayne Bower	1947	120	--	Alluvium	57.3	Oct. 4, 1954	None	N	Weak supply reported. See log.
E-2	do.	--	--	4,510	--	--	--	--	None	N	Oil test. See log.
E-3	do.	Carl Hammett	1937	426	8, 5/8, 7	Alluvium & Rustler formation	45.0	Oct. 4, 1954	C,G	Ind	Casing: 8 5/8-in. to 43 ft; 7-in. from 0 to 426 ft. Reported yield, 42 gpm when drilled. Supplies water for oil leases. See log.
E-4	do.	W. P. Holt	1936	145	8-5/8, 7	--	--	--	None	N	Casing: 8 5/8-in. to 20 ft; 7-in. from 0 to 145 ft. Standby well. Reported yield, 15 gpm when drilled. See log.

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

Well	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water-bearing formation	Water level		Method of lift	Use of water	Remarks
							Below land surface datum (ft.)	Date of measurement			
E-5	Humble Oil & Refining Co.	F. C. Ingraham	1935	124	--	--	--	--	None	N	Formerly supplied water for oil-well drilling rigs. See log.
E-6	do.	--	--	370	10¾, 6	--	--	--	None	N	Casing: 10¾-in. to 22 ft; 6-in. from 0 to 198 ft. Reported yield, 15 gpm on Oct. 13, 1954. Hole plugged back from 370 to 200 ft. See log.
E-7	do.	R. A. Barger	1940	377	8-5/8	Alluvium & rocks of Triassic age	49.5	Oct. 4, 1954	None	N	Casing: 8 5/8-in. from 0 to 377 ft; slotted from 140 to 160 ft and from 328 to 367 ft. Reported yield, 48 gpm when drilled. See log.
E-8	American Liberty Oil Co.	--	1937	145	8	--	52.3	Sept. 18, 1954	None	N	Standby well. Formerly supplied water for oil-well drilling rigs.
E-9	Humble Oil & Refining Co.	F. C. Ingraham	1935	144	--	--	--	--	None	N	Casing: 6-in. to 127 ft. Reported yield, 21 gpm when drilled. See log.
*E-10	American Liberty Oil Co.	--	1937	130	8	--	45.0	Sept. 18, 1954	None	N	Formerly supplied water for oil-well drilling rigs.
E-11	do.	--	1937	140	8	--	57.5	do.	None	N	Do.
*E-12	Humble Oil & Refining Co.	--	1940	170	13, 9-5/8	Alluvium & rocks of Triassic age	--	--	T, E, 5	P, Ind	Casing: 13-in. to 44 ft; 9 5/8-in. from 0 to 150 ft. Hole caved from 150 to 168 ft. Reported yield, 32 gpm when drilled. Supplies water for oil leases and oil-field camp. See log.
E-13	do.	O. F. Stripling	1940	162	13, 8-5/8	do.	--	--	C, E	P, Ind	Casing: 13-in. to 19 ft; 8 5/8-in. from 0 to 150 ft; slotted from 75 to 150 ft. Hole caved from 150 to 162 ft. Reported yield, about 40 gpm when drilled. See log.
E-14	do.	S & S Drilling Co.	1937	420	10¾, 6	--	--	--	None	N	Casing: 10¾-in. to 20 ft. Formerly supplied water for oil-well drilling rigs. See log.
E-15	Byrd & Frost	Earl Scarbrough	1943	172	8	Alluvium	62.9 72.1	Sept. 29, 1954 Dec. 7, 1954	None	N	Standby well. Red beds reported at 190 ft. Formerly supplied water for the city of Imperial.
E-16	do.	--	1941	220	8	do.	--	--	T, G, 35	D, Ind	Red beds reported at 190 ft. Supplies water for oil leases; formerly supplied water for the city of Imperial.

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

Well	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water-bearing formation	Water level: Below land surface datum (ft.)	Water level: Date of measurement	Method of lift	Use of water	Remarks
*E-17	Byrd & Frost	Earl Scarbrough	1943	154	8	Alluvium	70.3 69.3	Sept. 29, 1954 Dec. 7, 1954	T,G, 35	D,Ind	Casing: 8-in. from 0 to 154 ft; slotted from 114 to 154 ft. Drawdown, 30 ft on Sept. 29, 1954, after pumping 1 hr at 60 gpm. Formerly supplied water for the city of Imperial.
E-18	do.	--	1941	220	--	do.	--	--	T,G, 35	D,Ind	Pump set at 200 ft. Reported yield, 32 gpm when drilled. Formerly supplied water for the city of Imperial.
E-19	--	--	--	200	--	--	--	--	None	N	Seismograph shothole. See log.
E-20	Magnolia Petroleum Co.	--	1951	--	10	--	55.1	Oct. 21, 1954	None	N	Weak supply reported.
E-21	P. J. Lea	Magnolia Petroleum Co.	--	515	--	--	--	--	None	N	Formerly supplied water for oil-well drilling rigs. See log.
E-22	do.	do.	--	600	--	--	--	--	None	N	Do.
*E-23	do.	--	--	82	8	--	78.3	Oct. 29, 1954	C,W	S	
E-24	Gulf Oil Corp.	Wayne Bower	1948	205	--	--	--	--	None	N	Weak supply reported. See log.
*E-25	Jay McGee	do.	1948	259	10¾, 7	Rocks of Triassic age	115.1	Sept. 27, 1954	C,W	S	Reported yield, 4 gpm by bail-test; water sand from 220 to 244 ft. See log.
E-26	Lone Star Gas Co.	--	--	75	--	Alluvium	--	--	None	N	Drilled as test hole. Reported yield, 15 gpm when drilled.
*E-27	do.	--	--	73	--	do.	--	--	T,G	S,Ind	Reported yield, 100 gpm when drilled. Supplies water for gasoline plant.
E-28	Jay McGee	Wayne Bower	1949	68	10	do.	39.7	Sept. 27, 1954	None	N	Casing: 10-in. to 5 ft; open hole from 5 to 68 ft. Standby well; drilled as test hole. Reported yield, 80 gpm when drilled. See log.
E-29	Lone Star Gas Co.	--	--	72	10	do.	--	--	None	N	Casing: 10-in. to 70 ft. Drilled as test hole. Reported yield, 75 gpm when drilled.

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

Well	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water-bearing formation	Water level		Method of lift	Use of water	Remarks
							Below land surface datum (ft.)	Date of measurement			
*E-30	Lone Star Gas Co.	--	--	71	10	Alluvium	--	--	T,G	S,Ind	Casing: 10-in. to 71 ft. Gravel-walled with 6 yds of 5/8-in. gravel. Reported yield, 150 gpm when drilled. Supplies water for gasoline plant.
E-31	do.	--	--	80	--	do.	--	--	None	N	Drilled as test hole. Reported yield, 6 gpm when drilled.
E-32	do.	--	--	71	10	do.	43.2	Nov. 17, 1954	None	N	Standby well. Reported yield, 60 gpm when drilled.
E-33	do.	--	--	70	--	do.	--	--	None	N	Weak supply reported.
E-34	do.	--	--	70	--	do.	--	--	None	N	Reported yield, 3 gpm when drilled.
E-35	do.	--	--	75	10	do.	38.6	Nov. 17, 1954	T,G	S,Ind	Casing: 10-in. to 75 ft; gravel-walled. Reported yield, 163 gpm when drilled.
*E-36	P. J. Lea	--	--	80	10	--	50.0	Oct. 21, 1954	C,W	S	
E-37	do.	Magnolia Petroleum Co.	--	550	10	--	--	--	None	N	See log.
E-38	Lone Star Gas Co.	--	--	70	--	Alluvium	--	--	None	N	Drilled as test hole. Weak supply reported.
E-39	do.	--	--	70	--	do.	--	--	None	N	Do.
E-40	do.	--	--	60	--	do.	--	--	None	N	Do.
E-41	do.	--	--	70	--	do.	--	--	None	N	Do.
E-42	--	--	--	120	--	--	--	--	None	N	Seismograph shothole. See log.
E-43	P. J. Lea	Buck Kelton	--	80	--	Alluvium	--	--	C,W	S	
E-44	T. C. Barnsley	Wayne Bower	1952	89	6	do.	55.7	Oct. 21, 1954	C,W	S	Reported yield, 10 gpm by bail-test when drilled. See log.
E-45	P. J. Lea	--	--	43	--	do.	37.3	do.	C,W	S	
E-46	T. C. Barnsley	Wayne Bower	1952	138	--	Rocks of Triassic age	--	--	C,W	S	Weak supply reported at 92 ft.
E-47	--	--	--	160	--	--	--	--	None	N	Seismograph shothole. See log.
E-48	--	--	--	180	--	--	--	--	None	N	Do.

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

Well	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water-bearing formation	Water level: Below land surface datum (ft.)	Water level: Date of measurement	Method of lift	Use of water	Remarks
E-49	Humble Oil & Refining Co.	O. F. Stripling	1940	308	--	Alluvium	--	--	None	N	Hole filled. See log.
E-50	do.	K. P. Looney	1939	148	7	--	--	--	None	N	Casing: 7-in. to 145 ft; perforated from 88 to 110 ft. See log.
E-51	do.	do.	1939	178	13, 7	--	29.5	Oct. 4, 1954	None	N	Casing: 13-in. to 22 ft; 7-in. from 0 to 145 ft. Reported yield, 27 gpm when drilled. Caving water sands reported from 130 to 148 ft and 148 to 160 ft; red beds at 148 ft.
E-52	do.	R. A. Barger	--	319	--	--	--	--	None	N	Weak supply reported at 90 ft. Hole filled. See log.
*E-53	T. C. Barnsley	Wayne Bower	1952	243	16, 8	Rustler formation	7.8 8.4	Oct. 26, 1954 Dec. 5, 1954	C,W	S	Casing: 16-in. to 61 ft; 8-in. from 0 to 243 ft. Reported yield, 360 gpm when drilled. Test pump set at 70 ft. See log.
E-54	do.	do.	--	150	4	--	a/75	--	C,W	S	Reported yield, 15 gpm by bail-test when drilled. See log.
E-55	do.	do.	1951	160	8-5/8	Rocks of Triassic age	--	--	None	N	Weak supply reported from 41 to 48 ft; salt water reported from 152 to 156 ft. Hole filled. See log.
E-56	Gulf Oil Corp.	Damron Drilling Co.	1943	197	--	do.	--	--	None	N	Weak supply reported from 125 to 169 ft. See log.
E-57	T. C. Barnsley	Wayne Bower	--	105	10, 7	Alluvium	47.6	Oct. 26, 1954	C,G	Ind	Casing: 10-in. to 19 ft; 7-in. from 0 to 105 ft; perforated from 50 to 85 ft. Reported yield, 30 gpm by bail-test when drilled. Water reported from sands at 50 to 55 ft and 65 to 70 ft. See log.
E-58	do.	do.	1951	127	6-5/8	Alluvium & rocks of Triassic age	--	--	--	Ind	Casing: 6 5/8-in. to 14 ft; 6-in. from 0 to 100 ft. Reported yield, 150 gpm. Temp. 70°F. See log.
*E-59	do.	do.	1954	100	8-5/8, 6	Alluvium	45.6	Oct. 7, 1954	T,E, 10	D,Ind	Casing: 8 5/8-in. to 14 ft; 6-in. from 0 to 100 ft. Reported yield, 150 gpm. Temp. 70°F. See log.
E-60	do.	do.	--	--	--	--	44.6	Oct. 26, 1954	None	N	Standby well. Formerly supplied water for oil-well drilling rigs.

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

Well	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water-bearing formation	Water level		Method of lift	Use of water	Remarks
							Below land surface datum (ft.)	Date of measurement			
E-61	Moore Bros.	--	--	6,829	--	--	--	--	--	--	Oil test. See cross section A-A'.
E-62	T. C. Barnsley	Wayne Bower	1947	234	8-5/8, 4	--	64.0	Oct. 7, 1954	C,G	Ind	Casing: 8 5/8-in. to 16 ft; 4-in. from 0 to 129 ft. Supplies water for oil leases. See log.
E-63	do.	do.	1953	785	8, 6	--	--	--	C,G	Ind	Casing: 8-in. to 56 ft; 6-in. from 0 to 785 ft. Supplies water for oil leases. See log.
E-64	do.	do.	1954	716	8-5/8, 6-5/8	Rustler formation	--	--	T,G	Ind	Casing: 8 5/8-in. to 191 ft; 6 5/8-in. from 0 to 716 ft. Reported dry hole from 0 to 240 ft; water sand from 702 to 710 ft. See log.
E-65	do.	do.	1953	210	5½	Rocks of Triassic age	--	--	C,G	Ind	Casing: 5½-in. from 0 to 210 ft; perforated from 90 to 210 ft. Reported yield, 27 gpm by bail-test when drilled. See log.
*E-66	do.	do.	1953	267	5½	do.	--	--	C,G	Ind	Casing: 5½-in. from 0 to 226 ft; perforated from 122 to 135 ft, and from 166 to 225 ft. Reported yield, 18 gpm by bail-test when drilled. See log.
*E-67	P. J. Lea	--	--	400	12, 8	--	78.6	Oct. 22, 1954	C,W	S	
E-68	Looney Ranch	Wayne-Bower	1950	100	8	Rocks of Triassic age	--	--	None	N	Reported yield, 60 gpm by bail-test from water sand at 80 ft. Hole plugged back to 100 ft. See log.
E-69	do.	do.	1950	178	8-5/8	--	a/70	Oct. 1950	None	N	Standby well. Reported yield, 380 gpm when drilled; yield estimated to be 35 gpm on Oct. 13, 1954. Formerly supplied water for the city of Imperial. See log.
E-70	do.	do.	1950	195	--	Rocks of Triassic age	a/64	Dec. 1950	None	N	Reported yield, 25 gpm by bail-test when drilled See log.

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

Well	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water-bearing formation	Water level		Method of lift	Use of water	Remarks
							Below land surface datum (ft.)	Date of measurement			
*E-71	Looney Ranch	Wayne Bower	1953	164	8-5/8, 7	Rocks of Triassic age	--	--	T,E, 3	P	Casing: 8 5/8-in. to 122 ft; 7-in. from 0 to 164 ft; perforated from 137 to 154 ft. Pump set at 160 ft. Reported yield, 30 gpm when drilled. Supplies water for the city of Imperial. See log.
E-72	do.	do.	1953	220	7	do.	--	--	T,E, 3	P	Supplies water for the city of Imperial.
*E-73	do.	do.	1950	176	8	--	--	--	T,E, 3	P	Casing: 8-in. from 0 to 176 ft; 32 ft perforated. Reported yield, 15 gpm by bail-test when drilled. Pump set at 168 ft. Supplies water for the city of Imperial. See log.
E-74	do.	do.	1953	220	7	--	--	--	T,E, 3	P	Casing: 7-in. from 0 to 220 ft. Pump set at 160 ft. Reported yield, 15 gpm when drilled. Supplies water for the city of Imperial.
E-75	do.	do.	1953	226	7	Rocks of Triassic age	--	--	T,E, 3	P	Casing: 7-in. from 0 to 169 ft. Reported yield, 2 gpm from 80 to 83 ft; 5 gpm from 105 to 110 ft; and 20 gpm from 160 to 165 ft. Supplies water for the city of Imperial. See log.
*E-76	do.	Robert Cleveland	1954	210	--	do.	75.1	Oct. 19, 1954	None	N	Drilled as test hole for the city of Imperial. Water sands from 93 to 101 ft and 181 to 193 ft. Reported yield, 55 gpm after bail-testing 31 minutes. See log.
*E-77	do.	do.	1954	200	--	do.	60.4	Oct. 26, 1954	None	N	Drilled as test hole for the city of Imperial. Yield estimated to be 32 gpm on Oct. 26, 1954. See log.
E-78	American Liberty Oil Co.	--	--	4,314	--	--	--	--	None	N	Oil test. See log.
E-79	Moore Bros.	--	--	8,013	--	--	--	--	None	N	Do.
E-80	Gulf Oil Corp.	--	--	4,365	--	--	--	--	None	N	Do.
F-1	--	--	--	-80	--	--	--	--	None	N	Seismograph shothole. See log.
*F-2	McElroy Ranch	Wayne Bower	--	52	--	Alluvium	45.4	Sept.16, 1954	C,W	S	Formerly supplied water for road construction.

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

Well	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water-bearing formation	Water level		Method of lift	Use of water	Remarks
							Below land surface datum (ft.)	Date of measurement			
F-3	Lone Star Gas Co.	--	--	70	--	Alluvium	--	--	None	N	Drilled as test hole. Weak supply reported. Hole filled.
F-4	do.	--	--	70	--	do.	--	--	None	N	Do.
F-5	--	--	--	120	--	--	--	--	None	N	Seismograph shothole. See log.
F-6	--	--	--	70	--	--	--	--	None	N	Do.
F-7	--	--	--	70	--	--	--	--	None	N	Do.
F-8	Atlantic Oil & Refining Co.	--	--	80	8	Alluvium	--	--	T,E, 5	D,S, Ind	
F-9	City of Crane	W & Z Drilling Co.	1952	87	10¾, 8-5/8	do.	43.7 43.5	Sept.23, 1954 Dec. 13, 1954	T,E, 5	P	Casing: 10¾-in. to 10 ft; 8 5/8-in. from 0 to 87 ft; 22 ft perforated. See log.
F-10	do.	do.	1952	72	13-5/8, 8-5/8	do.	45.1 45.1 44.3	Sept.23, 1954 Oct. 19, 1954 Dec. 13, 1954	None	N	Not in use on Dec. 13, 1954. See log.
F-11	Atlantic Oil & Refining Co.	Damron Drilling Co.	1940	230	10¾	do.	--	--	T,E, 5	Ind	Casing: 10¾-in. to 44 ft. Reported yield, 18 gpm when drilled. Supplies water for oil leases. See log.
F-12	City of Crane	do.	1949	70	8	do.	--	--	None	N	Not in use on Sept. 15, 1954. See log.
F-13	do.	do.	1949	74	8	do.	--	--	T,E, 3	P	Reported yield, 50 gpm. See log.
F-14	do.	do.	--	80	--	do.	44.4 43.1	Sept.22, 1954 Dec. 13, 1954	T,E, 3	P	Measured drawdown 2.12 ft after pumping 12 hours at 50 gpm on Sept. 24, 1954. See log.
F-15	do.	do.	1949	77	--	do.	--	--	T,E, 3	P	Reported yield, 50 gpm. See log.
F-16	do.	do.	1949	106	--	do.	--	--	T,E, 2	P	Do.
F-17	do.	do.	--	100	6	do.	--	--	T,E, 3	P	Casing: 6-in. from 0 to 110 ft. See log.
F-18	do.	do.	1949	91	--	do.	--	--	T,E, 3	P	Reported yield, 50 gpm. See log.
F-19	do.	do.	1949	75	8	do.	51.3 49.8	Sept.23, 1954 Dec. 13, 1954	T,E, 5	P	Casing: 8-in. from 0 to 75 ft. Measured drawdown 5 ft after pumping 12 hrs at 50 gpm on Sept. 24, 1954. See log.

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

Well	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water-bearing formation	Water level		Method of lift	Use of water	Remarks
							Below land surface datum (ft.)	Date of measurement			
F-20	The Murphy Corp.	--	--	75	7	Alluvium	45.4	Dec. 20, 1954	None	N	
F-21	--	--	--	120	--	--	--	--	None	N	Seismograph shothole. See log.
F-22	--	--	--	70	--	--	--	--	None	N	Do.
F-23	Atlantic Oil & Refining Co.	--	--	65	8	Alluvium	50.1	Oct. 21, 1954	None	N	Not in use on Oct. 21, 1954.
F-24	do.	--	--	70	6	do.	49.3	do.	None	N	Do.
F-25	do.	--	--	70	8	do.	50.6	do.	None	N	Do.
F-26	do.	--	--	62	8	do.	51.9	do.	None	N	Do.
F-27	do.	Hines Water Well Co.	1943	115	8-5/8	do.	--	--	None	N	Casing: 8 5/8-in. to 20 ft. See log.
F-28	do.	--	--	100	7	do.	63.1	Oct. 19, 1954	None	N	Weak supply reported. See log.
F-29	do.	Bethel & Matthews	1945	100	7	do.	--	--	None	N	Yield reported insufficient for use. Hole filled. See log.
F-30	do.	--	--	100	10, 8-5/8	do.	--	--	C,E, 3	Ind	Pumping level measured 66.5 ft below land surface on Oct. 19, 1954. Yield estimated to be 15 gpm on Oct. 19, 1954. See log.
F-31	do.	--	--	70	8	do.	66.4	Oct. 19, 1954	C,E, 3	D,S, Ind	
F-32	do.	--	--	--	15, 8	do.	61.5	do.	None	N	Supply reported inadequate because of decrease in yield. Formerly supplied water for city of Crane.
F-33	do.	--	--	--	--	--	--	--	J,E	D,Ind	Yield estimated to be 15 gpm on Oct. 19, 1954.
F-34	do.	--	--	--	7	--	65.2	Oct. 19, 1954	C,E	N	Not in use on Oct. 19, 1954.
F-35	--	--	--	90	--	--	--	--	None	N	Seismograph shothole. See log.
F-36	--	--	--	80	--	--	--	--	None	N	Do.
F-37	--	--	--	120	--	--	--	--	None	N	Do.
F-38	--	--	--	130	--	--	--	--	None	N	Do.

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

Well	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water-bearing formation	Water level		Method of lift	Use of water	Remarks
							Below land surface datum (ft.)	Date of measurement			
*F-39	McElroy Ranch	--	--	--	7	--	48.2	Dec. 20, 1954	C,W	S	
F-40	Kewanee Oil Co.	--	--	1,143	--	--	--	--	None	N	Oil test. See log.
F-41	Amerada Oil Co.	Wayne Bower	1949	374	6	Rocks of Triassic age	--	--	C,G	N	Casing: 6-in. from 0 to 374 ft; perforated from 331 to 355 ft. Not in use on Dec. 5, 1954. Water reported unfit for domestic use. Reported yield, 55 gpm by bail-test when drilled. See log.
F-42	Kewanee Oil Co.	--	--	645	--	--	--	--	None	N	Oil test. See log.
F-43	do.	--	--	1,045	--	--	--	--	None	N	Do.
F-44	Gulf Oil Corp.	--	--	94	4	--	62.3	Dec. 18, 1954	C,G	N	Not in use on Dec. 18, 1954.
F-45	Tide Water Associated Oil Co.	J. F. Postelle	1939	104	6	--	--	--	None	N	Casing: 6-in. from 0 to 100 ft; perforated from 85 to 104 ft. Hole filled in above water level.
F-46	Shell Oil Co.	Wayne Bower	1954	450	7	Alluvium & rocks of Triassic age	111.6	Dec. 18, 1954	None	N	Casing: 7-in. from 0 to 575 ft; gravel-walled. Reported yield, approximately 11 gpm by bail-test when drilled. Formerly supplied water for oil-well drilling rig. See log.
*F-47	Humble Oil & Refining Co.	--	--	--	7	--	--	--	T,E	Ind	Supplies water for oil leases.
F-48	Tide Water Associated Oil Co.	E. L. Churchill	--	551	--	Rocks of Triassic age	--	--	None	N	Formerly supplied water for oil leases. Hole filled.
F-49	Sinclair Oil & Refining Co.	--	--	--	7	--	58.5	Dec. 2, 1954	C,E	N	Not in use on Dec. 2, 1954.
F-50	Tide Water Associated Oil Co.	Morris & Howell	1927	320	6-5/8	Rocks of Triassic age	74.8 75.4	Oct. 18, 1954 Dec. 16, 1954	None	N	Casing: 6 5/8-in. from 0 to 312 ft. Formerly supplied water for oil-well drilling rigs. See log.
F-51	do.	do.	1927	460	5-3/16	do.	--	--	None	N	Casing: 5 3/16-in. from 0 to 416 ft. Water sands from 200 to 210 ft; 250 to 260 ft; and 420 to 460 ft. Formerly supplied water for oil-field drilling rigs.

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

Well	Owner	Driller	Date completed	Depth of well (ft.)	Diameter of well (in.)	Water-bearing formation	Water level: Below land surface datum (ft.)	Water level: Date of measurement	Method of lift	Use of water	Remarks
F-52	Gulf Oil Corp.	Wayne Bower	1954	700	10¾	Rocks of Triassic age	--	--	--	Ind	Casing: 10¾-in. to 15 ft. Water reported unfit for drinking. Reported yield, 6 gpm when drilled. See log.
F-53	do.	do.	1954	425	10¾, 7	Alluvium & rocks of Triassic age	--	--	--	Ind	Casing: 7-in. from 0 to 425 ft; perforated from 20 to 40 ft; 61 to 80 ft, 110 to 140 ft, 210 to 270 ft, 300 to 340 ft, and 370 to 415 ft. Reported yield, approximately 40 gpm by bail-test when drilled. Water reported unfit for drinking. See log.
F-54	do.	do.	1952	380	10¾, 7	--	--	--	--	Ind	Water reported unfit for drinking.
F-55	do.	do.	1952	397	10¾, 7	Alluvium & rocks of Triassic age	a/22	Jan. 1952	--	Ind	Casing: 10¾-in. to 19 ft; 7-in. from 0 to 397 ft; slotted from 46 to 79 ft, 123 to 169 ft, 189 to 212 ft, 236 to 257 ft, 279 to 300 ft, and 319 to 386 ft. Gravel-walled. Water reported unfit for drinking. See log.
F-56	do.	--	--	2,989	--	--	--	--	None	N	Oil test. See log.

a/ Water level reported by owner or driller.

* For chemical analyses, see table 6.

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

Asterisk indicates altitude as reported by oil operator.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well A-1					
Owner: Seismograph shothole. Altitude of land surface, 2,752 feet.*					
Sand	5	5	Red beds	3	45
Caliche	18	23	Shale, sandy, red	7	52
Clay, sandy, red	15	38	Sandstone	68	120
Sandstone, red	4	42	Red beds	28	148
Well A-2, partial log					
Owner: Wilcox Oil & Gas Co. Altitude of land surface, 2,773 feet.					
Caliche	20	20	Rock, red, lime shells, and anhydrite	63	925
Red beds, sand and shells	89	109	Anhydrite	30	955
Caliche and gravel	41	150	Rock, red	60	1,015
Rock, red	190	340	Salt	40	1,055
Sand, hard, and shale	40	380	Anhydrite	15	1,070
Sand, hard, and anhydrite stringers	70	450	Salt	30	1,100
Sand, hard, and shale	65	515	Anhydrite	10	1,110
Rock, red	64	579	Salt and shale, red	30	1,140
Rock, red, and shells	161	740	Total depth		7,221
Rock, red, and anhydrite stringers	122	862			
Well A-4					
Owner: Seismograph shothole. Altitude of land surface, 2,738 feet.*					
Caliche and clay	14	14	Clay, sandy	37	68
Sand	17	31	Red beds	37	105

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well A-7--partial log					
Owner: Gulf Oil Corp. Altitude of land surface, 2,707 feet.					
Soil	18	18	Anhydrite, gypsum, and salt	112	1,037
Shale and shells	107	125	Anhydrite and salt	73	1,110
Gypsum	34	159	Anhydrite, gypsum, and salt	136	1,246
Gypsum, shale, and shells	71	230	Anhydrite and salt streaks	59	1,305
Red beds and gypsum	165	395	Anhydrite, gypsum, and salt	138	1,443
Red beds, gypsum and anhydrite	190	585	Anhydrite and lime	56	1,499
Gypsum and red beds	19	604	Anhydrite, lime shells, and salt	76	1,575
Red beds and shells	106	710	Total depth		2,583
Shells	29	739			
Gypsum, shale, and salt	66	805			
Anhydrite and lime shells	70	875			
Anhydrite, gypsum, and red beds	50	925			
Well A-8					
Owner: Charles Edwards. Altitude of land surface, 2,649 feet.*					
Sand, loose, light-brown	12	12	Sand and gravel, white, water	3	85
Sand, soft, yellow	8	20	Sand, firm, red, water	13	98
Sand, firm, light-yellow	27	47	Sand, hard, red	22	120
Sand, firm, light-red	13	60			
Sand, hard, light-red	22	82			
Well A-9					
Owner: Seismograph shothole. Altitude of land surface, 2,597 feet.*					
Sand	8	8	Sandstone	30	65
Caliche	7	15	Sandstone, red	35	100
Sand	20	35			
Well A-10					
Owner: Seismograph shothole. Altitude of land surface, 2,648 feet.*					
Sand	28	28	Sand and sandy clay	32	70
Caliche	10	38	Clay, red	30	100

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

Thickness (feet)	Depth (feet)	Thickness (feet)	Depth (feet)
Well A-11			
Owner: Seismograph shothole. Altitude of land surface, 2,652 feet.*			
Sand ---------- 46	46	Sandstone, hard -------- 6	78
Clay, sandy, and sandstone - 26	72	Red beds and sandstone - 142	220
Well A-13--partial log			
Owner: Gulf Oil Corp. Altitude of land surface, 2,693 feet.*			
Sand and gravel ---------- 100	100	Anhydrite and potash --- 66	963
Red beds and gravel -------- 70	170	Anhydrite and salt ----- 110	1,073
Red beds and shale --------- 205	375	Salt and potash -------- 62	1,135
Shale and rock, red -------- 218	593	Anhydrite ------------- 55	1,190
Anhydrite and potash ------- 90	683	Anhydrite and salt ----- 125	1,315
Anhydrite ----------------- 62	745	Total depth ----------	6,258
Salt and anhydrite --------- 36	781		
Anhydrite, potash and rock, red ---------- 116	897		
Well B-1--partial log			
Owner: Kewanee Oil Co. Altitude of land surface, 2,823 feet.*			
Red beds and shells -------- 510	510	Red beds, salt and anhydrite ---------- 172	1,060
Red beds, shells, and shale 205	715	Total depth	7,164
Red beds and shells -------- 173	888		
Well B-2--partial log			
Owner: Kewanee Oil Co. Altitude of land surface, 2,814 feet.*			
Sand and caliche ---------- 50	50	Shale, red ---------- 315	900
Shale, red ---------- 50	100	Sand ---------- 10	910
Sand, water ---------- 7	107	Rock, red ---------- 45	955
Rock, red ---------- 25	132	Anhydrite and shale ---- 35	990
Red shale ---------- 338	470	Lime, hard ---------- 10	1,000
Shale, sandy, red ---------- 10	480	Lime, sandy ---------- 5	1,005
Sand, white ---------- 10	490	Shale, blue ---------- 5	1,010
Lime, sandy, gray ---------- 10	500	Shale, red ---------- 10	1,020
Shale, sandy, red ---------- 55	555	Anhydrite and salt ----- 365	1,385
Sand, red, water ---------- 30	585	Total depth unknown	

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well B-4					
Owner: Gulf Oil Corp. Driller: Wayne Bower.					
Sand	27	27	Rock, sandy, and gravel	10	70
Caliche	10	37	Sand, red	10	80
Sand, red	18	55	Sand and gravel, hard	26	106
Sand, red, and gravel	5	60	Rock, red	20	126
Well B-5					
Owner: Jay McGee. Driller: Wayne Bower.					
Sand	5	5	Sand, pink	6	81
Caliche	20	25	Sand, red	14	95
Sand, pink	20	45	Sand, red and gravel	17	112
Sand, red	30	75	Rock, red	4	116
Well B-6					
Owner: Gulf Oil Corp. Driller: C & M Drilling Co.					
Sand	55	55	Clay	8	110
Clay, sandy	39	94	Sand and gravel	11	121
Gravel	8	102	Rock, red	11	132
Well B-9--partial log					
Owner: Gulf Oil Corp. Altitude of land surface, 2,754 feet.*					
Sand and caliche	120	120	Rock, red	185	955
Red beds	75	195	Red beds and anhydrite	155	1,110
Rock, red	350	545	Salt and anhydrite	988	2,098
Red beds	130	675	Anhydrite	202	2,300
Rock, red, and shale	95	770	Total depth		3,551

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well B-11					
Owner: Gulf Oil Corp. Driller: Wayne Bower.					
Sand	10	10	Sand and gravel	12	87
Caliche	10	20	Sand, red	12	99
Sand	1	21	Sand and gravel	10	109
Sand, pink	34	55	Rock, red	15	124
Sand and rock	9	64	Sand, red	6	130
Sand, red	11	75	Sand	6	136
Well B-12					
Owner: Gulf Oil Corp. Driller: Wayne Bower.					
Sand	7	7	Sand and gravel	6	80
Caliche, soft, white	9	16	Sand, red, and gravel	10	90
Sand, brown	9	25	Sand, brown, and gravel	5	95
Sand, pink	30	55	Rock, red	14	109
Sand, red, and gravel	6	61	Sand, gray	15	124
Sand, pink, and gravel	8	69	Rock, red	16	140
Sand, red	5	74			
Well B-13					
Owner: Gulf Oil Corp. Driller: Wayne Bower.					
Sand	12	12	Sand, dark-gray	12	104
Caliche	12	24	Rock, red	20	124
Sand rock	2	26	Sand, red, caving	21	145
Sand, brown	14	40	Rock, red	5	150
Sand, red	10	50	Sand, dark-gray	20	170
Sand, pink	15	65	Shale, gray	6	176
Sand and gravel	8	73	Sand, gray	5	181
Rock, red	13	86	Shale, red	11	192
Sand, red	6	92	Sand, gray	8	200

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well B-14					
Owner: Gulf Oil Corp. Driller: Wayne Bower.					
Sand	15	15	Sand, rock and shell	1	72
Caliche	10	25	Sand and gravel	8	80
Sand, brown	15	40	Sand, brown	15	95
Sand, gray	5	45	Rock, red	16	111
Sand, brown	15	60	Sand, red	32	143
Sand and gravel	11	71	Rock, red	7	150
Well B-15--partial log					
Owner: Gulf Oil Corp. Altitude of land surface, 2,782 feet.*					
Sand, gray	55	55	Shell, red	30	1,115
Rock, red	330	385	Salt and shell	10	1,125
Rock, sandy, red	130	515	Salt and rock, red	40	1,165
Sand, water	35	550	Anhydrite	25	1,190
Rock, red	15	565	Salt and rock, red	65	1,255
Sand, water	20	585	Salt and potash	25	1,280
Rock, red	367	952	Anhydrite	10	1,290
Shale	20	972	Salt and rock, red	150	1,440
Shell, red	52	1,024	Salt and potash	90	1,530
Anhydrite	21	1,045	Salt	70	1,600
Shell, red	15	1,060	Total depth		3,665
Shale, blue	25	1,085			
Well B-16--partial log					
Owner: Gulf Oil Corp. Altitude of land surface, 2,772 feet.*					
Caliche	21	21	Anhydrite, gypsum, and salt	214	1,715
Red beds	266	287	Anhydrite and salt	337	2,052
Red beds and sand	93	380	Anhydrite	444	2,496
Red beds	516	896	Anhydrite, gypsum, and salt	92	2,588
Red beds and anhydrite	402	1,298	Total depth		9,925
Red beds, anhydrite, and gypsum	203	1,501			

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well B-17--partial log					
Owner: Gulf Oil Corp. Altitude of land surface, 2,695 feet.*					
Sand	30	30	Anhydrite	111	901
Sand and caliche	215	245	Anhydrite and salt	656	1,557
Red beds	85	330	Anhydrite and gypsum	66	1,623
Rock, red	300	630	Total depth		8,845
Anhydrite and rock, red	160	790			
Well B-18					
Owner: Gulf Oil Corp. Driller: C & M Drilling Co.					
Sand	68	68	Sand, water	17	103
Sand and gravel, water	6	74	Sandstone, water	12	115
Rock, sandy, red	12	86	Rock, red	5	120
Well B-22					
Owner: Gulf Oil Corp. Driller: Wayne Bower.					
Sand	38	38	Rock, sandy, red, and gypsum	51	305
Sand and rock, sandy, red	71	109	Gypsum and sand	30	335
Rock, red	41	150	Shale, sand, gypsum and rock, red	17	352
Red beds	50	200			
Red beds and sand shells	54	254			
Well B-23					
Owner: Gulf Oil Corp. Driller: Damron Drilling Co.					
Sand	15	15	Sand, red, water	15	105
Caliche, white	15	30	Sand, hard, red	40	145
Red beds	55	85	Rock, red	5	150
Sand, fine, water	5	90			

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well B-24					
Owner: Gulf Oil Corp. Driller: Damron Drilling Co.					
Sand	12	12	Red beds	24	112
Caliche	46	58	Sand, water	8	120
Red beds	21	79	Rock, red	5	125
Sand, brown, water	9	88	Sand, red	20	145
Well B-25					
Owner: Gulf Oil Corp. Driller: Damron Drilling Co.					
Sand	7	7	Red beds	54	133
Caliche	52	59	Sand, red, water	42	175
Red beds	11	70	Red beds	10	185
Sand, fine, brown, water	9	79			
Well B-27					
Owner: Gulf Oil Corp. Driller: Wayne Bower.					
Sand	10	10	Rock, red, and sand	28	180
Caliche	13	23	Rock, sandy, red	2	182
Sand	12	35	Rock, red	31	213
Sand and gravel	27	62	Sand	19	232
Rock, red	66	128	Rock, red	3	235
Sand	24	152			
Well B-28					
Owner: W. E. Connell Estate.					
Caliche	30	30	Shale, red	275	545
Sand, red	230	260	Sand	15	560
Lime	10	270			

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

Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well B-35				
Owner: Gulf Oil Corp. Driller: Wayne Bower.				
Sand ---------- 5	5	Sand, gravel, and caliche	3	70
Sand ---------- 22	27	Gravel and clay ----------	3	73
Caliche ---------- 23	50	Sand, red ----------	21	94
Sand and caliche ---------- 10	60	Sand, and gravel ----------	15	109
Sand ---------- 7	67	Rock, red ----------	21	130
Well B-39				
Owner: Gulf Oil Corp. Driller: Wayne Bower.				
Sand ---------- 4	4	Sand and gravel ----------	2	51
Caliche ---------- 13	17	Sand ----------	13	64
Sand ---------- 23	40	Rock, red ----------	25	89
Sandstone ---------- 9	49			
Well B-40				
Owner: Gulf Oil Corp. Driller: Wayne Bower.				
Sand ---------- 12	12	Rock, soft, red ----------	33	180
Caliche ---------- 16	28	Sand, hard, gray ----------	2	182
Sand, brown ---------- 22	50	Rock, soft, red ----------	3	185
Sand, pink and brown ---------- 8	58	Sand, shells, and rock, red ----------	7	192
Sand and gravel ---------- 4	62	Sand, hard, red ----------	5	197
Rock, red ---------- 14	76	Sand, hard, gray ----------	15	212
Sand, red ---------- 6	82	Rock, soft, red ----------	14	226
Sand and rock, red ---------- 24	106	Sand, hard, gray ----------	19	245
Sand, hard ---------- 19	125	Sand and gravel ----------	20	265
Rock, soft, red ---------- 7	132	Shale, soft, gray ----------	2	267
Rock, sandy, red ---------- 15	147	Sand, hard, gray ----------	5	272

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well B-41					
Owner: Gulf Oil Corp. Driller: Wayne Bower.					
Sand	3	3	Sand	3	56
Caliche	19	22	Sand and gravel	6	62
Sand	21	43	Rock, red	3	65
Sandstone	2	45	Sand	2	67
Sand and gravel	8	53	Rock, red	15	82
Well B-42					
Owner: Gulf Oil Corp. Driller: Wayne Bower.					
Sand	4	4	Sand and gravel	23	62
Caliche	18	22	Sand	16	78
Sand	12	34	Rock, red	20	98
Sandstone	5	39			
Well B-43					
Owner: Gulf Oil Corp. Driller: Wayne Bower.					
Sand	4	4	Sand	17	42
Caliche	14	18	Sand and gravel	30	72
Sand	6	24	Sand	7	79
Sandstone	1	25	Rock, red	13	92
Well B-44					
Owner: Gulf Oil Corp. Driller: Wayne Bower.					
Sand	2	2	Sand	18	110
Caliche	15	17	Rock, sandy, red	2	112
Sand	2	19	Rock, red	20	132
Sand and gravel	17	36	Sand	21	153
Rock, red	19	55	Rock, sandy, red	4	157
Rock, sandy, red	3	58	Rock, red	11	168
Rock, red	5	63	Sand	15	183
Rock, sandy, red	5	68	Rock, red	13	196
Rock, red	10	78	Rock, sandy, red	4	200
Rock, sandy, red	14	92			

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well B-45					
Owner: Gulf Oil Corp. Driller: Wayne Bower.					
Sand	3	3	Chert	3	47
Caliche	20	23	Sand and gravel	16	63
Sand	21	44	Rock, red	24	87
Well B-46					
Owner: Gulf Oil Corp. Driller: Wayne Bower.					
Sand	4	4	Sand	1	43
Caliche	17	21	Sand and rock	3	46
Sand	20	41	Sand and gravel	17	63
Rock	1	42	Rock, red	21	84
Well B-47					
Owner: Gulf Oil Corp. Driller: Wayne Bower.					
Sand	4	4	Sand	15	415
Caliche	11	15	Shale, sandy, blue	10	425
Flint	21	36	Shale, brown	10	435
Flint, broken	6	42	Rock, red	91	526
Sand and gravel	30	72	Rock, sandy, red, and shale, blue	9	535
Rock, red	128	200	Rock, red	20	555
Sand	30	230	Sand, red	8	563
Rock, sandy, red	10	240	Sand, gray	27	590
Shale, brown	5	245	Sand	8	598
Sand, gray	50	295	Rock, red	7	605
Rock, red	10	305	Rock, sandy, red	5	610
Rock, sandy, red	40	345	Rock, red	12	622
Rock, red	20	365	Sand, brown	13	635
Rock, sandy, red	15	380	Rock, red	25	660
Sand, gray	15	395	Rock, sandy, red	40	700
Rock, red	5	400			

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well B-48					
Owner: Gulf Oil Corp. Driller: Wayne Bower.					
Sand	2	2	Sand and gravel	22	60
Caliche	16	18	Rock, red	20	80
Sandstone	20	38			
Well B-50					
Owner: Gulf Oil Corp. Driller: Wayne Bower.					
Sand	5	5	Sand	1	44
Caliche	20	25	Sandstone	3	47
Sand	17	42	Sand and gravel	20	67
Rock, flint	1	43	Rock, red	17	84
Well B-55					
Owner: City of Crane. Driller: Wayne Bower.					
Sand	7	7	Sand and gravel	14	74
Caliche	20	27	Sand, brown	4	78
Sand, brown	16	43	Rock, red	5	83
Sand, pink	17	60			
Well B-56					
Owner: City of Crane. Driller: Wayne Bower.					
Sand	5	5	Sand, white	10	55
Caliche	20	25	Sand, red	9	64
Chert	10	35	Sand and gravel	11	75
Sand, brown	10	45	Rock, red	5	80

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well B-57					
Owner: City of Crane. Driller: Wayne Bower.					
Sand	6	6	Sand, pink	22	62
Caliche	24	30	Sand, red, and gravel	13	75
Sand, brown	10	40	Rock, red	5	80
Well B-58					
Owner: City of Crane. Driller: Wayne Bower.					
Sand	5	5	Sand, chocolate-colored	4	56
Caliche	13	18	Sand, brown	8	64
Chert	7	25	Sand, red	6	70
Caliche	22	47	Rock, red	5	75
Sand	5	52			
Well B-59					
Owner: City of Crane. Driller: Wayne Bower.					
Sand	5	5	Sand, white	21	56
Caliche, white	20	25	Sand, brown	12	68
Chert, brown	2	27	Sand and gravel	7	75
Caliche, white	8	35	Rock, red	6	81
Well B-60					
Owner: City of Crane. Driller: Wayne Bower.					
Sand	3	3	Sand, brown	30	72
Caliche	29	32	Rock, red	13	85
Sand, white	10	42			

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well C-2--continued					
Rock, sandy, red	35	748	Salt and potash	11	1,206
Shale	21	769	Rock, red	5	1,211
Rock, red	72	841	Salt	14	1,225
Rock, sandy, red	12	853	Anhydrite	16	1,241
Rock, red	162	1,015	Salt and anhydrite	17	1,258
Shells and rock, red	77	1,092	Salt and potash	63	1,321
Rock, red	28	1,120	Salt	9	1,330
Anhydrite	5	1,125	Anhydrite	7	1,337
Anhydrite, shells, and rock red	25	1,150	Anhydrite and salt	33	1,370
Shale	10	1,160	Salt and potash	84	1,454
Rock, red	8	1,168	Anhydrite and salt	47	1,501
Salt and rock, red	27	1,195	Salt and potash	214	1,715
			Total depth		3,573
Well C-12					
Owner: Gulf Oil Corp. Driller: Wayne Bower.					
Sand	5	5	Rock, red	27	232
Caliche	40	45	Shale, brown	128	360
Red beds	41	86	Rock, red	30	390
Rock, sandy, red	35	121	Sand, gray	15	405
Shale, blue	9	130	Rock, red	128	533
Rock, red	40	170	Sand, water	37	570
Rock, sandy, red	10	180	Rock, red	15	585
Sand	25	205			
Well C-22--partial log					
Owner: Gulf Oil Corp. Altitude of land surface, 2,710 feet.*					
Cellar	8	8	Sand	10	660
Sand, white	37	45	Rock, red	10	670
Sand, hard	5	50	Sand, brown	10	680
Rock, red	10	60	Rock, red	5	685
Sand, hard, red	15	75	Rock, sandy, red	45	730
Rock, red	340	415	Shale, sandy	30	760
Sand, gray	20	435	Rock, red	305	1,065
Rock, red	215	650	Shale, red	140	1,205

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well C-22--continued					
Shale, red, and anhydrite --	30	1,235	Salt, potash, and rock, red	60	1,430
Shale, blue	15	1,250	Salt and potash	360	1,790
Salt and rock, red	55	1,305	Salt, anhydrite, potash, and shale	40	1,830
Salt and potash	35	1,340	Total depth		3,484
Anhydrite	10	1,350			
Potash	20	1,370			
Well C-24					
Owner: Phillips Petroleum Corp.					
Sand	20	20	Sand, hard	7	79
Caliche	20	40	No record	4	83
Sand, hard	29	69	Red beds	77	160
Sand, some water	3	72			
Well C-35					
Owner: Phillips Petroleum Corp. Driller: Bethel & Matthews.					
Sand	65	65	Red beds	70	150
Gravel	5	70			
Gravel, shells, and clay, red	10	80			
Well C-38					
Owner: Phillips Petroleum Corp. Driller: Bethel & Matthews.					
Sand	18	18	Sand and gravel, water	13	78
Caliche	7	25	Red beds	72	150
Sand	40	65			

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well C-43					
Owner: Phillips Petroleum Corp. Driller: Bethel & Matthews.					
Sand	15	15	Red beds	49	139
Caliche	15	30	Sand and gravel, water	15	154
Sand	38	68	Red beds	6	160
Sand and gravel	22	90			
Well C-44					
Owner: Phillips Petroleum Corp. Driller: Bethel & Matthews.					
Sand	18	18	Sand and gravel	14	84
Caliche	22	40	Red beds	66	150
Sand	30	70			
Well C-49					
Owner: Gulf Oil Corp. Driller: Wayne Bower.					
Sand	20	20	Sand and gravel	12	67
Caliche	25	45	Rock, red	54	121
Sand, brown	10	55			
Well C-50					
Owner: Gulf Oil Corp. Driller: Wayne Bower.					
Sand	18	18	Rock, red	10	80
Caliche, sandy	27	45	Sand	12	92
Clay, sandy	15	60	Sand and gravel	13	105
Sand, water	5	65	Rock, red	5	110
Sand	5	70			

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well C-53					
Owner: Phillips Petroleum Corp. Driller: Bethel & Matthews.					
Sand	15	15	Sand	10	65
Sand and caliche	25	40	Sand, water	40	105
Rock	15	55	Red beds	3	108
Well C-56					
Owner: Gulf Oil Corp. Driller: Carl Hammett.					
Sand	20	20	Sand and shale	20	80
Caliche	20	40	Sand, water	20	100
Sand	20	60	Red beds	15	115
Well C-57					
Owner: Gulf Oil Corp. Driller: Wayne Bower.					
Sand	40	40	Clay, sandy	11	93
Caliche	2	42	Gravel	20	113
Sand	40	82	Rock, red	10	123
Well C-60					
Owner: Gulf Oil Corp. Driller: Frank Haydon.					
Sand	20	20	Shale, sandy, and gravel	10	70
Caliche, sandy	30	50	Sand and gravel	20	90
Shale, sandy	10	60	Red beds and gravel	21	111
Well C-61					
Owner: Gulf Oil Corp. Driller: Dixilyn Drilling Co.					
Sand	25	25	Sand and gravel	40	115
Caliche	25	50	Red beds	25	140
Red beds	25	75			

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well C-62					
Owner: Gulf Oil Corp. Driller: Carl Hammett.					
Sand	27	27	Sand, water	30	97
Caliche	30	57	Sand and gravel, water	10	107
Sand	10	67	Shale, red	8	115
Well C-63					
Owner: Gulf Oil Corp. Driller: Dixilyn Drilling Co.					
Sand	25	25	Red beds	50	90
Caliche and rock red	15	40	Sand and gravel	30	120
Well C-64					
Owner: Texas State Highway Department. Driller: Wayne Bower.					
Sand	10	10	Sand, brown	13	49
Caliche, sandy	2	12	Gravel and sand, coarse	35	84
Caliche, white	24	36	Rock, red	6	90
Well C-67					
Owner: Gulf Oil Corp. Driller: Wayne Bower.					
Sand	2	2	Rock, red	14	58
Caliche	26	28	Sand	4	62
Chert	4	32	Rock, red	38	100
Sand	12	44			
Well C-68					
Owner: Gulf Oil Corp. Driller: Wayne Bower.					
Sand	15	15	Sand and gravel	5	45
Caliche	23	38	Rock, red	55	100
Sand	2	40			

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well C-72					
Owner: Gulf Oil Corp. Driller: Wayne Bower. Altitude of land surface, 2,622 feet.					
Sand	29	29	Sand and gravel	20	70
Caliche	9	38	Sand	2	72
Sand	2	40	Sand and gravel	10	82
Chert	10	50	Rock, red	20	102
Well C-73					
Owner: Gulf Oil Corp. Driller: Wayne Bower.					
Sand	22	22	Rock, red	2	63
Caliche	19	41	Sand and gravel	35	98
Sand	14	55	Rock, red	20	118
Sand and gravel	6	61			
Well C-74					
Owner: Gulf Oil Corp. Driller: Parker Drilling Co.					
Sand	20	20	Sand and gravel	10	90
Sand and caliche	10	30	Sand	10	100
Caliche and shells	10	40	Shale	10	110
Sand and caliche	10	50	Sand and gravel	10	120
Sand	10	60	Shale and gravel	10	130
Sand, water	20	80			
Well C-75					
Owner: Gulf Oil Corp. Driller: C & M Drilling Co.					
Sand	16	16	Sand, water	2	58
Caliche	8	24	Gravel	22	80
Lime, hard	22	46	Sand, water	5	85
Sand and gravel	4	50	Gravel	16	101
Sandstone	6	56	Rock, red	10	111

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well C-76					
Owner: Gulf Oil Corp. Driller: Wayne Bower.					
Sand	15	15	Sand, red	7	70
Caliche	25	40	Sand and gravel	15	85
Sand, red	20	60	Sand, red	10	95
Gravel, water	3	63	Sand and red beds	12	107
Well C-77					
Owner: Gulf Oil Corp. Driller: Wayne Bower.					
Sand	25	25	Caliche, sandy	10	50
Caliche, sandy	7	32	Sand	50	100
Sand	8	40			
Well C-78					
Owner: Gulf Oil Corp. Driller: C & M Drilling Co.					
Sand	33	33	Clay, sandy	12	92
Caliche	15	48	Gravel	8	100
Lime	13	61	Clay	10	110
Sand	7	68	Clay, sandy	1	111
Sand and gravel	9	77	Rock, red	9	120
Clay and gravel	3	80			
Well C-79--partial log					
Owner: Gulf Oil Corp. Altitude of land surface, 2,659 feet.*					
Sand	30	30	Red beds	107	853
Caliche	24	54	Rock, red, and anhydrite	290	1,143
Sand	67	121	Anhydrite	29	1,172
Sand and rock, red	129	250	Salt and anhydrite	225	1,397
Rock, red	40	290	Salt, potash, and anhydrite	368	1,765
Rock, red, and lime	10	300	Anhydrite, salt streaks	95	1,860
Rock, red	51	351	Anhydrite and salt	80	1,940
Rock, red, and lime	120	471	Anhydrite, potash, salt streaks	60	2,000
Rock, red	59	530	Total depth		10,881
Rock, red, and shells	211	741			
Rock, red	5	746			

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well C-80					
Owner: Gulf Oil Corp. Driller: Parker Drilling Co.					
Sand	30	30	Gravel and sand	10	80
Caliche	10	40	Gravel, fine	10	90
Caliche, sandy	10	50	Gravel, water	15	105
Sand, brown	20	70	Red beds	10	115
Well C-81					
Owner: Gulf Oil Corp. Driller: Wayne Bower.					
Sand	23	23	Shale	4	70
Caliche	15	38	Sand and gravel	20	90
Sand	7	45	Gravel	7	97
Caliche, sandy	17	62	Rock, red	3	100
Sand, water	4	66			
Well C-82					
Owner: Gulf Oil Corp. Driller: Wayne Bower. Altitude of land surface, 2,639 feet.*					
Sand	18	18	Sand and gravel	19	80
Caliche	13	31	Rock, red	1	81
Caliche and sand	9	40	Sand and gravel	6	87
Sand	18	58	Rock, red	20	107
Chert	3	61			
Well C-83					
Owner: Gulf Oil Corp. Driller: Wayne Bower.					
Sand	23	23	Sand and gravel	36	95
Caliche	5	28	Sand and rock, red	11	106
Caliche and sand	12	40	Rock, red	9	115
Sand	19	59			

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well C-84					
Owner: Gulf Oil Corp. Driller: Wayne Bower.					
Sand	16	16	Sand and gravel	39	89
Caliche	7	23	Shale and rock, red	2	91
Sand	27	50	Rock, red	20	111
Well C-85					
Owner: Gulf Oil Corp. Driller: Wayne Bower.					
Sand	33	33	Sand, water	10	53
Rock, red	10	43	Rock, red	55	108
Well C-86					
Owner: Gulf Oil Corp. Driller: Wayne Bower. Altitude of land surface, 2,623 feet.*					
Sand	14	14	Chert	6	57
Caliche	15	29	Sand	14	71
Sand	7	36	Sand and gravel	8	79
Caliche	4	40	Rock, red	20	99
Sand and caliche	11	51			
Well C-87					
Owner: Gulf Oil Corp. Driller: Wayne Bower. Altitude of land surface, 2,633 feet.*					
Sand	15	15	Sand	18	58
Caliche	5	20	Chert	1	59
Sand	14	34	Sand and gravel	21	80
Caliche	6	40	Rock, red	20	110

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well C-88					
Owner: Gulf Oil Corp. Driller: Wayne Bower. Altitude of land surface, 2,626 feet.*					
Sand	61	61	Sand and shale	5	129
Sand and gravel	14	75	Rock, red	21	150
Rock, red	49	124			
Well C-89					
Owner: Gulf Oil Corp. Driller: Wayne Bower. Altitude of land surface, 2,649 feet.*					
Sand	70	70	Sand, water	6	315
Rock, red; water at 98 ft.	34	104	Sand	11	326
Sand	13	117	Sand and gravel	10	336
Rock, red	41	158	Sand	8	344
Sand	14	172	Rock, red	16	360
Rock, red	50	222	Sand	12	372
Sand	16	238	Rock, red	5	377
Rock, red	9	247	Sand	12	389
Shale	4	251	Rock, red	5	394
Rock, red	5	256	Sand	46	440
Sand	4	260	Rock, red	10	450
Rock, red	8	268	Sand	12	462
Sand	14	282	Rock, red	5	467
Rock, red	20	302	Sand	7	474
Sand	7	309	Rock, red	61	535
Well C-90					
Owner: Gulf Oil Corp. Driller: Wayne Bower. Altitude of land surface, 2,665 feet.*					
Sand	65	65	Sand	22	210
Rock, red	123	188	Rock, red	40	250
Well C-91					
Owner: Gulf Oil Corp. Driller: Wayne Bower.					
Sand	50	50	Chert	4	64
Sand and gravel	10	60	Rock, red	11	75

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well C-92					
Owner: Magnolia Petroleum Co.					
Sand	40	40	Rock, red	30	280
Sand, caving	25	65	Shale, blue	20	300
Sand, water	5	70	Rock, red	78	378
Rock, red	25	95	Sand, water	12	390
Shale, blue	5	100	Gravel, water	10	400
Rock, red	125	225	Rock, red	12	412
Shale, sandy	25	250			
Well C-93					
Owner: Seismograph shothole. Altitude of land surface, 2,625 feet.*					
Sand and caliche	45	45	Red beds	55	120
Sandstone, hard	20	65			
Well C-94					
Owner: Seismograph shothole. Altitude of land surface, 2,630 feet.*					
Sand	70	70	Red beds	50	120
Well C-95					
Owner: Seismograph shothole. Altitude of land surface, 2,610 feet.*					
Sand	45	45	Red beds	60	120
Gravel	15	60			
Well C-96					
Owner: Seismograph shothole. Altitude of land surface, 2,636 feet.*					
Sand	80	80	Red beds	45	125

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well C-97					
Owner: Kewanee Oil Co. Altitude of land surface, 2,638 feet.*					
Sand	105	105	Rock, red	35	700
Red beds	30	135	Sand, water	5	705
Rock, red	150	285	Anhydrite and sand	15	720
Sand, wtater	15	300	Sand	10	730
Rock, red	95	395	Rock, red	10	740
Sand, water	5	400	Sand, red	35	775
Rock, sandy, red	30	430	Rock, red	30	805
Sand	30	460	Rock, sandy, red	15	820
Rock, red	20	480	Rock, red	185	1,005
Sand, water	5	485	Red beds	15	1,020
Rock, red	45	530	Rock, red	150	1,170
Shale, blue	5	535	Anhydrite and rock, red	20	1,190
Sand, gray	25	560	Rock, red	5	1,195
Rock, red	50	610	Anhydrite	30	1,225
Shale, red and blue	7	617	Rock, red, and anhydrite	20	1,245
Rock, red	3	620	Shale, blue	10	1,255
Sand	10	630	Red beds and anhydrite	20	1,275
Rock, red	25	655	Anhydrite and salt	25	1,300
Sand, water	10	665			
Well C-99					
Owner: Texas Pacific Coal & Oil Co. Altitude of land surface, 2,688 feet.*					
No record	20	20	Red beds, anhydrite, salt, and shells	450	2,030
Caliche	80	100	Red beds, anhydrite and salt	100	2,130
Rock, red, and red beds	96	196	Anhydrite and salt streaks	302	2,432
Anhydrite and red beds	326	522	Anhydrite and salt	166	2,598
Red beds and shells	123	645			
Red beds, shells, and anhydrite	133	978			
Red beds and shells	602	1,580			

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well D-1					
Owner: Ted Weiner. Driller: Wayne Bower.					
Sand	8	8	Sand, red	10	97
Caliche	22	30	Sand, brown	15	112
Sand, white	15	45	Sand, white	5	117
Sand, red	31	76	Sand, red	5	122
Sand, brown	11	87	Rock, sandy, red	7	129
Well D-3					
Owner: Gulf Oil Corp. Driller: B. A. Healy.					
Sand	8	8	Sand, water	12	80
Caliche	15	23	Sand	25	105
Sand	45	68	Red beds	5	110
Well D-4					
Owner: Gulf Oil Corp. Driller: Wayne Bower.					
Sand	20	20	Sand, brown	45	80
Caliche	10	30	Sand	20	100
Chert	5	35	Rock, red	15	115
Well D-8--partial log					
Owner: Gulf Oil Corp. Altitude of land surface, 2,553 feet.*					
Sand, soft, white	60	60	Red beds	5	370
Caliche, white	5	65	Anhydrite	20	390
Red beds	40	105	Rock, soft, red	15	405
Mud, red	15	120	Shale, blue	15	420
Red beds	110	230	Anhydrite	5	425
Red beds, sandy	55	285	Shale, blue	20	445
Rock, sandy, red	50	335	Red beds	10	455
Anhydrite	30	365	Rock, red	20	475

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well D-8--continued					
Anhydrite and shale breaks, blue	10	485	Anhydrite	8	808
Anhydrite	10	495	Shale, blue	2	810
Red beds	10	505	Salt and anhydrite	5	815
Anhydrite	5	510	Salt and potash	20	835
Salt; top of salt at 510 ft.	5	515	Anhydrite	10	845
Salt and potash	30	545	Salt	80	925
Anhydrite	15	560	Red beds and salt	20	945
Anhydrite and salt	70	630	Anhydrite	25	970
Rock, soft, red	10	640	Anhydrite and salt	45	1,015
Anhydrite	5	645	Anhydrite	15	1,030
Salt and anhydrite	35	680	Salt	10	1,040
Salt and potash	120	800	Anhydrite and salt	70	1,110
			Salt	30	1,140
			Total depth		6,317
Well D-9					
Owner: Gulf Oil Corp. Driller: Wayne Bower.					
Sand	58	58	Sand	15	124
Sand and clay	7	65	Rock, red	6	130
Sand and gravel	44	109			
Well D-10					
Owner: Gulf Oil Corp. Driller: Wayne Bower.					
Sand, white	13	13	Sand, yellow	13	68
Sand, yellow	8	21	Sand and gravel	37	105
Sand, white	8	29	Sand, brown	24	129
Sand, yellow	25	54	Sand, white	4	133
Caliche	1	55	Sand, brown	2	135
Well D-11					
Owner: Gulf Oil Corp. Driller: W. P. Holt.					
Sand, white	12	12	Sand and gravel	40	105
Sand, yellow	23	35	Sand, red	21	126
Sand and caliche, white	30	65	Sand, hard, red	10	136

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well D-12					
Owner: Crane County. Driller: Wayne Bower.					
Sand	15	15	Sand, brown	22	72
Caliche	15	30	Sand, soft	89	161
Sand, brown	15	45	Sand, hard	3	164
Sand, white	5	50	Rock, red	1	165
Well D-15					
Owner: Gulf Oil Corp. Driller: Wayne Bower.					
Sand	15	15	Sand, water	64	125
Caliche	20	35	Sand	5	130
Sand, brown	26	61			
Well E-1					
Owner: Gulf Oil Corp. Driller: Wayne Bower.					
Sand	40	40	Sand	4	95
Sand and gravel	15	55	Rock, red	12	107
Sand and clay	19	74	Shale, sandy	5	112
Clay	17	91	Rock, red	8	120
Well E-2--partial log					
Owner: Gulf Oil Corp.					
Sand	53	53	Rock, red	9	145
Sand and caliche	7	60	Shale, red	5	150
Caliche	5	65	Red beds	10	160
Caliche and sand, red	25	90	Rock, red	15	175
Sand	8	98	Shale, sandy, red	25	200
Sand, hard, white	7	105	Red beds	63	263
Sand	5	110	Sand, red, water	5	268
Sand, red	26	136	Red beds	104	372

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well E-2--continued					
Lime	8	380	Salt	25	735
Rock, red	4	384	Anhydrite	14	749
Lime	5	389	Salt and lime shells	18	767
Caliche	6	395	Anhydrite	11	778
Red beds	20	415	Salt and anhydrite	37	815
Mud, red	10	425	Salt	55	870
Lime and caliche	3	428	Anhydrite	20	890
Lime	32	460	Salt	15	905
Rock, red, and caliche	10	470	Anhydrite	10	915
Lime shells and anhydrite	21	491	Salt	20	935
Anhydrite	4	495	Anhydrite	5	940
Salt and anhydrite	40	535	Lime, hard	5	945
Anhydrite, salt, and shells	25	560	Lime, chalky	30	975
Salt	9	569	Lime, gray	20	995
Anhydrite	6	575	Anhydrite	20	1,015
Anhydrite, salt, and potash	80	655	Lime	20	1,035
Salt	5	660	Anhydrite	5	1,040
Shale, blue	3	663	Salt	25	1,065
Anhydrite and salt	25	688	Anhydrite	5	1,070
Salt	12	700	Salt	45	1,115
Salt and potash	10	710	Total depth		4,510
Well E-3					
Owner: Gulf Oil Corp. Driller: Carl Hammett.					
Sand; water at 70 ft.	80	80	Red beds	22	372
Caliche	25	105	Shale, blue	16	388
Red beds	195	300	Sand, water	14	402
Anhydrite	40	340	Red beds	24	426
Shale	10	350			
Well E-4					
Owner: Gulf Oil Corp. Driller: W. P. Holt.					
Sand	25	25	Sand and gravel, water	25	85
Sand and caliche	15	40	Sand, red	22	107
Sand, red	20	60	Red beds	38	145

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

Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well E-5				
Owner: Humble Oil & Refining Co.		Driller: F. C. Ingraham.		
Sand ---------- 20	20	Sand, water ---------- 37		100
Sand, white ---------- 20	40	Red beds ---------- 24		124
Red beds ---------- 23	63			
Well E-6				
Owner: Humble Oil & Refining Co.				
Sand, gray ---------- 28	28	Lime, hard, gray ------- 10		322
Caliche ---------- 12	40	Lime, gray ---------- 9		331
Sand, red ---------- 28	68	Clay, blue ---------- 6		337
Sand, water ---------- 7	75	Rock, red ---------- 8		345
Sand, red ---------- 35	110	Red beds ---------- 11		356
Red beds ---------- 197	307	Sand, red ---------- 8		364
Lime, gray ---------- 5	312	Sand, caving ---------- 6		370
Well E-7				
Owner: Humble Oil & Refining Co.		Driller: R. A. Basger.		
Sand ---------- 15	15	Gravel ---------- 7		170
Sand, caving ---------- 3	118	Rock, red ---------- 14		184
Sand, yellow ---------- 22	40	Red beds ---------- 16		200
Gravel ---------- 15	55	Rock, red ---------- 30		230
Red beds and gravel -------- 15	70	Shale, pink ---------- 19		249
Sand, red ---------- 5	75	Red beds ---------- 36		285
Sand and gravel ---------- 5	80	No record ---------- 5		290
Sand, red ---------- 25	105	Gravel ---------- 10		300
Sand, red, and gravel ------ 5	110	Mud, red ---------- 15		315
Gravel ---------- 12	122	Red beds ---------- 5		320
Shale, pink ---------- 3	125	Red beds and gypsum ---- 5		325
Sand, water ---------- 10	135	Red beds ---------- 22		347
Rock, red ---------- 15	150	Gravel, water ---------- 21		368
Rock, red and gravel ------- 13	163	Rock, red ---------- 9		377

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well E-9					
Owner: Humble Oil & Refining Co.			Driller: F. C. Ingraham.		
Sand	63	63	Sand, water	25	100
Red beds	12	75	Red beds	44	144
Well E-12					
Owner: Humble Oil & Refining Co.					
No record	44	44	Sand, red	55	148
Sand, gray	41	85	Red beds	22	170
Sand, gray, water	8	93			
Well E-13					
Owner: Humble Oil & Refining Co.			Driller: O. F. Stripling.		
Sand, gray	63	63	Sand, gray, water	10	90
Caliche, light-colored	12	75	Sand, gray, caving	45	135
Sand	5	80	Red beds	27	162
Well E-14					
Owner: Humble Oil & Refining Co.			Driller: S & S Drilling Co.		
Sand, light-colored	32	32	Shell, sandy	10	312
Caliche, light-colored	18	50	Red beds	4	316
Red beds	40	90	Shell, sandy	19	335
Shell, gray, water	1	91	Shale, white	5	340
Sand	4	95	Clay, blue	2	342
Sand, gray	10	105	Lime and shells	10	352
Shell	20	125	Water	4	356
Red beds	83	208	Red beds	12	368
Shell, hard	7	215	Shell	2	370
Shell	5	220	Red beds	30	400
Red beds	35	255	Shale, blue	5	405
Shell	10	265	Water	11	416
Red beds	37	302	Shale, blue	4	420

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well E-19					
Owner: Seismograph shothole. Altitude of land surface, 2,581 feet.*					
Sand and clay	90	90	Red beds	30	200
Red beds, hard, sandy	80	170			
Well E-21					
Owner: P. J. Lea. Driller: Magnolia Petroleum Co.					
Sand	40	40	Sand, dry, hard	20	290
Caliche and sand, hard	90	130	Rock, red	120	410
Rock, red	110	240	Sand, hard	50	460
Sand, water	20	260	Sand, water	55	515
Rock, red	10	270			
Well E-22					
Owner: P. J. Lea. Driller: Magnolia Petroleum Co.					
Sand	10	10	Sand and rock, red	30	310
Caliche, hard	20	30	Rock, red	10	320
Red beds	60	90	Sand and rock, red	20	340
Sand and gravel; little water	90	180	Rock, red	180	520
Rock, red	20	200	Sand, hard and rock, red	50	570
Rock, red and sand	60	260	Sand, water	30	600
Rock, red	20	280			
Well E-24					
Owner: Gulf Oil Corp. Driller: Wayne Bower.					
Sand	5	5	Rock, red	48	143
Caliche	20	25	Sand, shell and rock, red	12	155
Sand and gravel	15	40	Rock, red	13	168
Sand	16	56	Rock, sandy, red	10	178
Caliche	2	58	Sand	18	196
Caliche and gravel	2	60	Rock, red	2	198
Rock, sandy, red	10	70	Sand	2	200
Sand	20	90	Rock, red	5	205
Red beds	5	95			

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well E-25					
Owner: Jay McGee. Driller: Wayne Bower.					
Sand	1	1	Rock, sandy, red	19	184
Caliche	23	24	Sand	4	188
Sand and gravel	12	36	Rock, sandy, red	22	210
Rock, red	35	71	Sand	12	222
Sand and rock	4	75	Shells	2	224
Rock, red	45	120	Sand and gravel	30	254
Rock, sandy, red	10	130	Sand	1	255
Rock, red, and shale, gray	35	165	Rock, red	4	259
Well E-28					
Owner: Jay McGee. Driller: Wayne Bower.					
Sand	2	2	Chert	6	32
Caliche	22	24	Sand	4	36
Sand	2	26	Sand and gravel	32	68
Well E-37					
Owner: P. J. Lea. Driller: Magnolia Petroleum Co.					
Sand	30	30	Sand, hard, dry	30	210
Rock, red	80	110	Sand and rock, red	40	250
Sand, dry	20	130	Rock, red	270	520
Rock, red	10	140	Sand, water	30	550
Sand and rock, red	40	180			
Well E-42					
Owner: Seismograph shothole. Altitude of land surface, 2,583 feet.*					
Sand	30	30	Clay, blue, and sand	25	70
Gravel	15	45	Red beds	50	120

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well E-44					
Owner: T. C. Barnsley. Driller: Wayne Bower.					
Sand	15	15	Sand, gray	15	73
Caliche	20	35	Sand, brown	11	84
Rock, red	23	58	Rock, red	5	89
Well E-46					
Owner: T. C. Barnsley.					
Sand	5	5	Rock, sandy, red	19	119
Caliche	30	35	Sand, gray	13	132
Chert, red	5	40	Rock, red	3	135
Rock, red	20	60	Sand, gray	22	157
Rock, sandy, red	30	90	Rock, red	1	158
Sand, gray	10	100			
Well E-47					
Owner: Seismograph shothole. Altitude of land surface, 2,524 feet.*					
Sand	30	30	Sand, hard, red	100	160
Gravel	30	60			
Well E-48					
Owner: Seismograph shothole. Altitude of land surface, 2,501 feet.*					
Sand and caliche	105	105	Red beds and sandstone	75	180

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

Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well E-49				
Owner: Humble Oil & Refining Co. Driller: O. F. Stripling.				
Sand	12	12	Sand	14 110
Caliche	13	25	Red beds	170 280
Sand	33	58	Sand, dry, gray	5 285
Caliche	12	70	Shell	5 290
Sand, water	10	80	Sand	6 296
Caliche	16	96	Sand and shells	12 308
Well E-50				
Owner: Humble Oil & Refining Co. Driller: K. P. Looney.				
No record	65	65	Sand, water	15 115
Sand, caving, water	5	70	Red beds, caving	15 130
Sand, caving	30	100	Gravel, caving	18 148
Well E-52				
Owner: Humble Oil & Refining Co. Driller: R. A. Barger.				
Sand	25	25	Red beds	30 240
Sand and gravel	7	32	Rock, red	25 265
Sand, red, water	28	60	Gypsum	10 275
Sand, red	12	72	Gravel	5 280
Red beds	13	85	Sand and anhydrite	6 286
Gravel; water at 90 ft.	9	94	Shale, blue	2 288
Red beds	4	98	Red-bed breaks	21 309
Gravel	7	105	Anhydrite	6 315
Rock, red	105	210	Sand and gravel	4 319
Well E-53				
Owner: T. C. Barnsley. Driller: Wayne Bower.				
Caliche	20	20	Rock, sandy, red	173 225
Sand, brown	10	30	Gypsum	9 234
Sand, red	5	35	Sand, gray	9 243
Rock, red	17	52		

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well E-54					
Owner: T. C. Barnsley. Driller: Wayne Bower.					
Sand	12	12	Sand, red	24	94
Caliche	8	20	Rock, red	33	127
Red beds	10	30	Sand, gray	7	134
Sand, brown	15	45	Sand, red	6	140
Sand, brown, and gravel	6	51	Rock, red	10	150
Rock, red	19	70			
Well E-55					
Owner: T. C. Barnsley. Driller: Wayne Bower.					
Sand	16	16	Sand, red	16	64
Caliche	14	30	Rock, red	88	152
Red beds	11	41	Sand; salty water	4	156
Sand, water	7	48	Rock, red	4	160
Well E-56					
Owner: Gulf Oil Corp. Driller: Damron Drilling Co.					
Sand	5	5	Rock, red	28	125
Caliche	35	40	Sand, hard	44	169
Rock, red	25	65	Rock, red	28	197
Sand, red	32	97			
Well E-57					
Owner: T. C. Barnsley. Driller: Wayne Bower.					
Sand	9	9	Sand, white	5	75
Sand and caliche	10	19	Clay	5	80
Sand	11	30	Sand, red	5	85
Caliche	20	50	Rock, red	20	105
Sand, brown	20	70			

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well E-58					
Owner: T. C. Barnsley. Driller: Wayne Bower.					
Sand	26	26	Sand, brown	33	83
Caliche	24	50	Sand, red	44	127
Well E-59					
Owner: T. C. Barnsley. Driller: Wayne Bower.					
Sand	6	6	Sand, brown	20	70
Caliche and sand	44	50	Sand and rock, red	30	100
Well E-61--partial log					
Owner: Moore Bros. Altitude of land surface, 2,472 feet.					
Caliche	20	20	Rock, red	2	592
Rock, red	40	60	Sand	3	595
Sand, red	25	85	Rock, red	20	615
Mud, red	5	90	Anhydrite	35	650
Sand, red, water	15	105	Sand, red	10	660
Rock, red	20	125	Anhydrite	15	675
Red beds	25	150	Rock, red	5	680
Sand, red, some water at 170 to 175 ft.	25	175	Salt	30	710
Red beds	125	300	Salt and anhydrite	10	720
Red beds, muddy	45	345	Rock, red	10	730
Red beds	160	505	Lime	10	740
Anhydrite	10	515	Anhydrite	15	755
Mud, yellow	10	525	Salt, anhydrite, and potash	55	810
Anhydrite	15	540	Salt and potash	50	860
Rock, red	5	545	Anhydrite and salt	10	870
Sand, water	5	550	Anhydrite	5	875
Shale, blue	25	575	Rock, red	5	880
Lime, sandy, gray	7	582	Lime, hard	20	900
Slate, dark-colored	3	585	Salt and anhydrite	25	925
Shale, blue	5	590	Salt and potash	60	985

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well E-61--continued					
Salt and anhydrite	55	1,040	Anhydrite	10	1,120
Anhydrite, hard	20	1,060	Anhydrite and salt	55	1,175
Anhydrite, salt, and potash	20	1,080	Salt, potash and anhydrite	50	1,225
Salt and potash	30	1,110	Total depth		6,829
Well E-62					
Owner: T. C. Barnsley. Driller: Wayne Bower.					
Sand	6	6	Rock, red	3	104
Sand, white	8	14	Sand, gray	2	106
Caliche, hard	2	16	Sand, hard, brown	6	112
Caliche, soft	9	25	Rock, red	3	115
Red beds	45	70	Sand, brown	8	123
Sandstone, brown	1	71	Sand, hard	14	137
Red beds	2	73	Rock, red	3	140
Sand	7	80	Sand, brown	32	172
Sand, brown	5	85	Rock, red	22	194
Rock, red	1	86	Sand, brown	6	200
Sand, brown	5	91	Sand, hard, brown	30	230
Sand, water	10	101	Rock, red	4	234
Well E-63					
Owner: T. C. Barnsley. Driller: Wayne Bower.					
Sand	15	15	Shale, sandy, red	2	657
Sand and caliche	15	30	Lime, sandy	10	667
Sand, brown	65	95	Gypsum	18	685
Sand, gray, water	50	145	Anhydrite	3	688
Sand, red	65	210	Rock, red	7	695
Sand, gray	15	225	Rock, sandy, red	10	705
Rock, sandy, red	15	240	Shale, sandy, blue	17	722
Sand, red	25	265	Limestone	7	729
Rock, red	30	315	Shale, brown	6	735
Rock, sandy, red	30	345	Sand	14	749
Rock, red	125	470	Rock, red, and gypsum	11	760
Rock, sandy, red	65	535	Anhydrite and rock, red	10	770
Rock, red	40	575	Anhydrite	5	775
Rock, sandy, red, and gypsum	35	610	Shale, blue	3	778
Rock, sandy, red	45	655	Anhydrite and shale, blue	7	785

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well E-64					
Owner: T. C. Barnsley. Driller: Wayne Bower.					
Sand	8	8	Shale, blue	5	325
Caliche	22	30	Shale, red	120	445
Sand, pink	10	40	Shale, red and blue	50	495
Sand, red	15	55	Shale, red	120	615
Rock, red	10	65	Anhydrite	10	625
Sand, brown	25	90	Shale, red	25	650
Rock, red	15	105	Anhydrite	10	660
Sand, gray	15	120	Shale, red	7	667
Rock, red	3	123	Anhydrite	13	680
Sand and gravel, fine	17	140	Rock, red	7	687
Sand, red	15	155	Sand, water	9	696
Rock, sandy, red	36	191	Shale, red and blue	6	702
Sand, red	16	207	Sand	8	710
Rock, sandy, red	13	220	Sand, gray	5	715
Sand, red	15	235	Shale, blue	1	716
Rock, red	85	320			
Well E-65					
Owner: T. C. Barnsley. Driller: Wayne Bower.					
Sand	20	20	Sand, hard, red	23	108
Caliche	10	30	Rock, red	7	115
Sand, brown	43	73	Sand, gray	30	145
Clay, yellow	2	75	Sand, red	5	150
Rock, red	2	77	Sand, gray	50	200
Sand, red	8	85	Sand, red	10	210
Well E-66					
Owner: T. C. Barnsley. Driller: Wayne Bower.					
Sand	20	20	Sand, gray	22	169
Caliche	5	25	Rock, red	2	171
Sand, brown	60	85	Sand, red	25	196
Sand, water	3	88	Sand, gray	26	222
Sand, red	17	105	Rock, red	3	225
Sand and gravel	23	128	Sand, red	40	265
Sand, gray	14	142	Rock, red	2	267
Shale, blue	5	147			

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well E-68					
Owner: Looney Ranch. Driller: Wayne Bower.					
Sand	5	5	Sand and gravel	13	88
Sand, brown	15	20	Sand and gravel, hard	12	100
Caliche, soft, white	20	40	Sand and gravel	10	110
Sand, brown	5	45	Sand, red	44	154
Caliche, soft, white	12	57	Sand, red, and rock, red	13	167
Sand, brown	16	73	Sand, hard, red	48	215
Sand and gravel, hard	2	75	Rock, sandy, red	3	218
Well E-69					
Owner: Looney Ranch. Driller: Wayne Bower.					
Sand	12	12	Sand, water	6	81
Sand, white	13	25	Sand and gravel, hard	14	95
Sand, brown	10	35	Sand	25	120
Sand, white	7	42	Sand, red	18	138
Sand, brown	19	61	Rock, sandy, red	36	174
Clay	9	70	Sand, red, coarse	3	177
Shale, brown	5	75	Rock, sandy, red	1	178
Well E-70					
Owner: Looney Ranch. Driller: Wayne Bower.					
Soil	2	2	Clay	4	70
Caliche	1	3	Sand and gravel, hard	21	91
Sand	6	9	Sand, red	84	175
Caliche, white	19	28	Sand, red, and rock, red	20	195
Sand, brown	38	66			

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well E-71					
Owner: Looney Ranch. Driller: Wayne Bower.					
Sand	20	20	Sand and gravel, hard	5	90
Caliche	25	45	Sand, hard	25	115
Sand, brown	13	58	Rock, sandy, red	3	118
Caliche	12	70	Rock, sandy, red	10	128
Sand, white	5	75	Red beds	9	137
Sand and caliche	5	80	Sand, gray, water	17	154
Rock, red, and sand and gravel	5	85	Rock, red	10	164
Well E-73					
Owner: Looney Ranch. Driller: Wayne Bower.					
Sand	20	20	Sand, red	23	137
Caliche, sandy, white	20	40	Rock, red	4	141
Sand, brown	35	75	Sand, red	27	168
Sand and gravel, hard	10	85	Rock, sandy, red	8	176
Sand, hard	29	114			
Well E-75					
Owner: Looney Ranch. Driller: Wayne Bower.					
Sand	19	19	Sand, brown, water	5	110
Caliche	21	40	Rock, sandy, red	27	137
Sand, gray	32	72	Sand, red	23	160
Sand, red	8	80	Sand, brown, water	5	165
Sand, water	3	83	Sand, hard, red	27	192
Red beds	1	84	Rock, sandy, red	23	215
Gravel	21	105	Rock, red	10	225
Well E-76					
Owner: Looney Ranch. Driller: Robert Cleveland.					
Sand	26	26	Shell	14	115
Caliche and sand	45	71	Shell and clay	35	150
Sandstone, red	5	76	Sandstone, hard	24	174
Shell	17	93	Shell and sandstone	7	181
Sand, water	8	101	Sand, red, water	12	193
			Clay, red	17	210

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well E-77					
Owner: Looney Ranch. Driller: Robert Cleveland.					
Sand	6	6	Clay, red, with gray sand streaks	20	170
Caliche	14	20	Clay, sticky, red	30	200
Sandstone, red; water at 81 and 99 ft.	130	150			
Well E-78--partial log					
Owner: American Liberty Oil Co. Altitude of land surface, 2,536 feet.*					
Sand	136	136	Salt	30	670
Rock, red	94	230	Salt and anhydrite	35	705
Rock, sandy, red	95	325	Shells	20	725
Shale, red	65	390	Salt and anhydrite	40	765
Salt and anhydrite	20	410	Anhydrite	5	770
Anhydrite	15	425	Salt and anhydrite	45	815
Shale, red	35	460	Salt	55	870
Anhydrite	16	476	Salt and anhydrite	75	945
Clay, soft, yellow	4	480	Lime	15	960
Anhydrite	52	532	Salt	30	990
Salt and anhydrite	3	535	Anhydrite	15	1,005
Anhydrite	6	541	Shale, blue	10	1,015
Salt	54	595	Salt and anhydrite	40	1,055
Anhydrite	20	615	Salt and lime	45	1,100
Salt	15	630	Total depth		4,314
Anhydrite	10	640			
Well E-79--partial log					
Owner: Moore Bros. Altitude of land surface, 2,423 feet.					
Cellar	5	5	Shale, sandy	5	140
Caliche	25	30	Sand, water	10	150
Sand, red	40	70	Sand and rock, red	35	185
Mud, red	10	80	Rock, sandy, red	15	200
Sand, water	5	85	Rock, red	55	255
Sand	50	135	Shale, red and blue	63	318

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well E-79--partial log					
Shale, red	77	395	Anhydrite and salt	15	845
Shale, red and anhydrite	10	405	Salt, potash, and shale, red	45	890
Shale, red	145	550	Salt, potash, and rock, red	60	950
Anhydrite	20	570	Salt and potash	14	964
Anhydrite and shale, red	25	595	Anhydrite and salt	16	980
Shale, blue	10	605	Salt	78	1,058
Sand and lime	15	620	Shale, red, and salt	17	1,075
Lime	9	629	Anhydrite and salt	20	1,095
Shale, red	26	655	Anhydrite and potash	10	1,105
Anhydrite	10	665	Salt	15	1,120
Shale, gray, and anhydrite	15	680	Anhydrite	8	1,128
Anhydrite	10	690	Salt	7	1,135
Anhydrite, potash, and salt	20	710	Anhydrite	35	1,170
Salt, potash, and shale, red	20	730	Anhydrite and salt	40	1,210
Anhydrite	25	755	Anhydrite	40	1,250
Anhydrite and salt	15	770	Total depth		8,013
Salt	60	830			
Well E-80--partial log					
Owner: Gulf Oil Corp. Altitude of land surface, 2,479 feet.*					
Soil	37	37	Red beds and shale	240	907
Red beds and shells	181	218	Anhydrite and shale	39	946
Red beds	46	264	Anhydrite and salt	287	1,233
Red beds and shale	166	430	Total depth		4,365
Red beds and shells	237	667			
Well F-1					
Owner: Seismograph shothole. Altitude of land surface, 2,617 feet.*					
Sand	13	13	Clay, sandy, brown	18	55
Caliche	18	31	Gravel	5	60
Lime	6	37	Red beds	20	80

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well F-5					
Owner: Seismograph shothole. Altitude of land surface, 2,543 feet.*					
Sand and caliche	25	25	Red beds	65	120
Sand	30	55			
Well F-6					
Owner: Seismograph shothole. Altitude of land surface, 2,561 feet.*					
Sand	7	7	Red beds	12	48
Caliche	15	22	Gravel	5	53
Lime and red beds	14	36	Red beds	17	70
Well F-7					
Owner: Seismograph shothole. Altitude of land surface, 2,589 feet.*					
Sand	7	7	Gravel	11	42
Caliche	11	18	Red beds	28	70
Lime and red beds	13	31			
Well F-9					
Owner: City of Crane. Driller: W & Z Drilling Co.					
Sand, red	18	18	Sand, water	2	56
Caliche, white	12	30	Red beds	4	60
Lime, sandy, white	5	35	Sand, red, water	10	70
Sand, red	8	43	Red beds	1	71
Gravel, water	5	48	Gravel, water	12	83
Lime, brown	6	54	Red beds	4	87

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well F-10					
Owner: City of Crane. Driller: W & Z Drilling Co.					
Sand, red	17	17	Sand and gravel	4	48
Caliche	19	36	Lime, brown	5	53
Sand, red	6	42	Sand, red	4	57
Sand, brown	2	44	Red beds	15	72
Well F-11					
Owner: Atlantic Oil & Refining Co. Driller: Damron Drilling Co.					
Sand	15	15	Shale, red	5	61
Caliche	14	29	Sand, water	29	90
Sand	10	39	Shale, red	140	230
Sand, water	17	56			
Well F-12					
Owner: City of Crane. Driller: Damron Drilling Co.					
Sand	14	14	Red beds	1	55
Caliche	34	48	Gravel, water	12	67
Gravel, water	6	54	Red beds	3	70
Well F-13					
Owner: City of Crane. Driller: Damron Drilling Co.					
Sand	9	9	Rock, hard	1	50
Caliche	27	36	Sand, water	20	70
Clay, brown	6	42	Shale, brown	4	74
Gravel, water	7	49			

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well F-14					
Owner: City of Crane. Driller: Damron Drilling Co.					
Sand	12	12	Gravel, water	5	54
Caliche	29	41	Sandstone	24	78
Clay	8	49	Shale	2	80
Well F-15					
Owner: City of Crane. Driller: Damron Drilling Co.					
Sand	12	12	Gravel	6	56
Caliche	30	42	Sandstone	19	75
Clay, sandy	5	47	Red beds	2	77
Sand, water	3	50			
Well F-16					
Owner: City of Crane. Driller: Damron Drilling Co.					
Sand	14	14	Gravel and clay	8	66
Caliche	28	42	Sandstone	9	75
Clay, sandy	6	48	Sand and gravel	29	104
Sand and gravel; water	10	58	Red beds	2	106
Well F-17					
Owner: City of Crane. Driller: Damron Drilling Co.					
Sand	25	25	Sandstone	4	71
Caliche	18	43	Shale, red	13	84
Clay, sandy	9	52	Gravel and sand	14	98
Shale, red	7	59	Red beds	2	100
Sand and gravel; water	8	67			

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well F-18					
Owner: City of Crane. Driller: Damron Drilling Co.					
Sand	22	22	Sandstone	5	70
Caliche	24	46	Shale	7	77
Clay, sandy	7	53	Sand and gravel	10	87
Shale, red	5	58	Shale	2	89
Sand; water	7	65	Red beds	2	91
Well F-19					
Owner: City of Crane. Driller: Damron Drilling Co.					
Sand	24	24	Sand and gravel	7	65
Caliche	24	48	Shale, red	7	72
Clay, sandy	6	54	Red beds	3	75
Shale, red	4	58			
Well F-21					
Owner: Seismograph shothole. Altitude of land surface, 2,628 feet.*					
Sand and caliche	45	45	Red beds	55	120
Sandstone, hard	20	65			
Well F-22					
Owner: Seismograph shothole. Altitude of land surface, 2,600 feet.*					
Sand	12	12	Clay, sandy	20	50
Caliche	18	30	Red beds	20	70
Well F-27					
Owner: Atlantic Oil & Refining Co. Driller: Hines Water Well Co.					
Sand	20	20	Red beds	25	80
Caliche	20	40	Sand	5	85
Rock, red	5	45	Red beds	30	115
Sand, water	10	55			

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well F-28					
Owner: Atlantic Oil & Refining Co.					
Sand	20	20	Gravel	27	82
Caliche	20	40	Red beds	18	100
Sand	15	55			
Well F-29					
Owner: Atlantic Oil & Refining Co. Driller: Bethel & Matthews.					
Sand	20	20	Gravel, water	20	80
Caliche	20	40	Sand, red	20	100
Sand, hard	20	60			
Well F-30					
Owner: Atlantic Oil & Refining Co.					
Sand	20	20	Gravel	25	80
Caliche	20	40	Red beds	20	100
Sand	15	55			
Well F-35					
Owner: Seismograph shothole. Altitude of land surface, 2,568 feet.*					
Sand	20	20	Gravel	5	67
Caliche	40	60	Red beds	23	90
Clay, sandy, brown	2	62			
Well F-36					
Owner: Seismograph shothole. Altitude of land surface, 2,568 feet.*					
Sand	17	17	Lime and red beds	9	62
Caliche	36	53	Red beds	18	80

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well F-37					
Owner: Seismograph shothole. Altitude of land surface, 2,593 feet.*					
Sand	10	10	Red beds	60	120
Lime, sandy	50	60			
Well F-38					
Owner: Seismograph shothole. Altitude of land surface, 2,568 feet.*					
Sand	60	60	Red beds	45	130
Clay	25	85			
Well F-40					
Owner: Kewanee Oil Co.					
Caliche	6	6	Shale, sandy	13	725
Gravel	40	46	Shale, red	51	776
Shale, red	4	50	Anhydrite and shale, red	120	896
Sand and shale	130	180	Anhydrite	150	1,046
Shale, red	124	304	Salt, anhydrite, and shale, red	97	1,143
Sand and shale, red	261	565			
Sand; water	147	712			
Well F-41					
Owner: Amerada Oil Co. Driller: Wayne Bower.					
Sand	4	4	Rock, red	29	209
Caliche	31	35	Sand, red	14	223
Sand and gravel, hard	5	40	Sand, gray	6	229
Sand and gravel, hard, brown	3	43	Shale, gray	2	231
Rock, red	20	63	Sand, gray	6	237
Shell, hard, gray	1	64	Sand, brown	23	260
Rock, sandy, red	16	80	Rock, red	5	265
Sand, red	26	106	Sand, gray	3	268
Sand and gravel, red	15	121	Rock, sandy, red	38	306
Sand, gray	7	128	Sand, brown	4	310
Rock, red	12	140	Sand, gray	21	331
Sandstone, hard, red	4	144	Sand, brown; water	24	355
Rock, red	7	151	Sand, brown	13	368
Sandstone, red	29	180	Rock, red	6	374

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well F-42					
Owner: Kewanee Oil Co.					
Sand and caliche	40	40	Sand, water	4	375
Sand	20	60	Shale, red	22	397
Shale, red	15	75	Shale, sandy, red	8	405
Sand, water	4	79	Sand, red	30	435
Shale, red	56	135	Shale, red	15	450
Shale, sandy, red	80	215	Shale, sandy, red	25	475
Shale, red	10	225	Sandstone, red	23	498
Shale, sandy, red	14	239	Sand, red	83	581
Shale, red	36	275	Shale, sandy, red	5	586
Shale, sandy, blue	15	290	Sand, red	10	596
Shale, sandy, red	10	300	Shale, sandy, red	44	640
Shale, sandy, gray	17	317	Shale, blue	5	645
Shale, sandy, red	54	371			
Well F-43					
Owner: Kewanee Oil Co. Altitude of land surface, 2,561 feet.*					
Cellar	6	6	Sand, water	7	495
Sand, red	9	15	Sand, hard	25	520
Caliche	28	43	Shale, red	48	568
Sand	42	85	Rock, red, and shale, red	69	637
Shale, sticky, red	40	125	Sand, red	3	640
Shale, red	20	145	Shale, sandy, red	27	667
Shale, sandy, red	70	215	Rock, red, and shale	69	736
Sand, water	15	230	Sand and shale, red	30	766
Shale, red	20	250	Rock, red, and shale	186	952
Rock, red, and shale	15	265	Shale, red	17	969
Shale, sandy, red	98	363	Anhydrite	10	979
Rock, red, and shale, red	67	430	Anhydrite and shale, red	26	1,005
Sand, water	20	440	Shale, blue	20	1,025
Shale, red	18	458	Shale, red, and gypsum	10	1,035
Rock, red, and shale, red	30	488	Shale, red and salt	10	1,045

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well F-46					
Owner: Shell Oil Corp. Driller: Wayne Bower.					
Sand	5	5	Rock, red	13	165
Sand, white	39	44	Rock, sandy, red	160	325
Clay, white	10	54	Sand, gray	10	335
Sand, brown	10	64	Shale, brown	5	340
Shale, red	2	66	Rock, sandy, red	20	360
Sand, brown	9	75	Shale, sandy, brown	15	375
Sand, red	10	85	Rock, red	20	395
Rock, red	60	145	Sand, gray; little water	20	415
Sand, gray	7	152	Rock, red	35	450
Well F-50					
Owner: Tidewater Associated Oil Co. Driller: Morris & Howell. Altitude of land surface, 2,575 feet.					
Sand	10	10	Sand	15	285
Sand, white	10	20	Rock, red	23	308
Sand	15	35	Sand; water	12	320
Rock, red	235	270			
Well F-52					
Owner: Gulf Oil Corp. Driller: Wayne Bower.					
Sand	15	15	Sand, gray	10	210
Clay	10	25	No record	55	265
Caliche	10	35	Shale, brown	15	280
Lime	5	40	Shale, blue, and lime shells	10	290
Gravel	5	45	Shale, sandy, red	15	305
Rock, red	48	93	Lime, shells, sand, and shale	40	345
Shale, sandy, brown	12	105	Shale, sandy	15	360
Sand, gray	50	155	Sand, red	22	382
Shale, blue	5	160	Rock, red	23	405
Rock, red	15	175	Sand, brown	93	498
Sand, gray	15	190			
Rock, red	10	200			

(Continued on next page)

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well F-52--continued					
Rock, sandy, red	12	510	Rock	22	610
Sand, brown	10	520	Shale, red and blue	40	650
Rock, red	3	523	Lime shells	2	652
Sand	27	550	Shale, red	23	675
Sand and rock, red	34	584	Sand, red	10	685
Sand	4	588	Shale, sandy, red	15	700
Well F-53					
Owner: Gulf Oil Corp. Driller: Wayne Bower.					
Soil	5	5	Rock, red, and shale, blue	15	180
Sand	5	10	Sand	5	185
Caliche and gravel	10	20	Rock, red	10	195
Sand	5	25	Sand and gravel	20	215
Sand, gravel and rock	18	43	Sand	10	225
Rock, red	24	67	Rock, sandy, red	15	240
Sand	11	78	Rock, red	11	251
Rock, red	35	113	Shale, blue	4	255
Sand and gravel	23	136	Lime shells	4	259
Shale, blue	3	139	Sand	20	279
Shale, brown	7	146	Rock, red	24	303
Lime and shells	4	150	Sand	7	310
Rock, sandy, red	15	165	Rock, red	115	425
Well F-55					
Owner: Gulf Oil Corp. Driller: Wayne Bower.					
Caliche	27	27	Rock, red	46	106
Gravel	4	31	Rock, sandy, red	4	110
Sand and shells	2	33	Sand and gravel	27	137
Gravel	2	35	Rock, red	9	146
Rock, red	10	45	Sand, red	4	150
Rock, sandy, red	5	50	Rock, red, and shale, blue	8	158
Sand, red	10	60			

(Continued on next page)

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well F-55--continued					
Gravel	9	167	Sand, red	29	310
Rock, red	30	197	Rock, red	20	330
Sand and gravel	11	208	Sand, red	5	335
Rock, red	12	220	Rock, red	15	350
Sand, red	18	238	Sand, red	27	377
Sand, gray	40	278	Rock, red	20	397
Shale, red	3	281			
Well F-56					
Owner: Gulf Oil Corp. Altitude of land surface, 2,536 feet.*					
Caliche	35	35	Rock, red	15	915
Rock, red	35	70	Anhydrite	15	930
Sand	10	80	Salt	30	960
Rock, red	35	115	Anhydrite	35	995
Rock, sandy, red	50	165	Salt and potash	100	1,095
Rock, red	170	335	Salt	50	1,145
Sand; fresh water	15	350	Salt and rock, red	50	1,195
Sand	50	400	Salt	50	1,245
Rock, red	10	410	Salt, potash, and rock, red	50	1,295
Shale, sandy	95	505	Salt	100	1,395
Rock, red	155	660	Anhydrite	15	1,410
Sand; water	20	680	Salt, anhydrite, potash, and rock, red	1233	2,643
Rock, red	180	860	Lime	327	2,970
Anhydrite	10	870	Lime, gray	19	2,989
Shale, blue	20	890			
Red beds	10	900			

Table 6.- Analyses of water from wells in Crane County, Tex.

(Analyses in parts per million, except specific conductance, pH, and percent sodium)

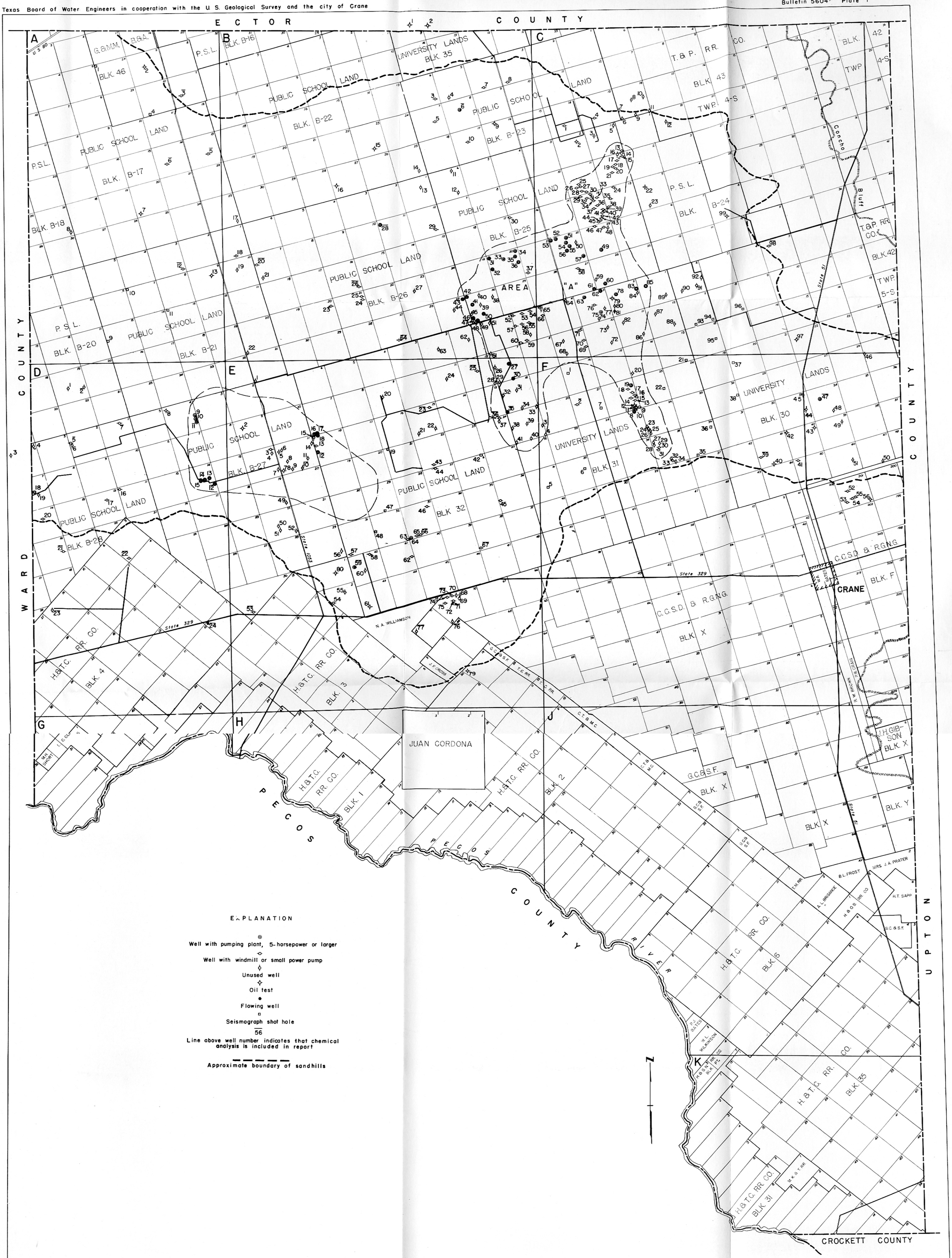
Well	Owner	Depth of well (ft.)	Date of collection year 1954	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	Percent sodium	Specific conductance (micromhos at 25°C)	pH
A-3	McKnight Bros.	94	Nov. 17	30	-	502	128	139		137	1,800	50	3.2	21	2,740	1,780	15	3,030	7.5
A-5	do.	120	Dec. 13	54	-	354	66	201		178	1,020	262	2.8	9.2	2,060	1,150	28	2,680	7.6
A-6	do.	120	do.	41	-	428	177	509		176	2,150	360	3.6	2.8	3,760	1,800	38	4,420	7.7
A-12	do.	120	Dec. 20	70	-	113	38	98		216	347	75	1.0	4.2	890	438	33	1,180	8.0
B-6	Gulf Oil Corp.	132	Sept. 22	45	-	313	56	112		110	943	100	3.0	42	1,670	1,010	19	2,070	7.4
B-20	Ewell McKnight	95	Nov. 4	65	-	126	31	73		189	346	45	3.0	18	827	442	26	1,120	7.5
B-26	Gulf Oil Corp.	145-350	Dec. 13	45	-	46	18	83		205	84	77	1.0	2.5	458	189	49	715	8.0
B-28	W. E. Connell Estate	560	Dec. 20	6.6	-	45	26	1,160		253	1,720	530	1.8	.2	3,610	220	92	5,110	7.9
a/B-43	Gulf Oil Corp.	92	Dec. 7	59	-	90	20	51		161	181	64	1.8	2.8	563	306	27	802	7.8
B-47	do.	b/700	Sept. 22	11	-	128	61	654		330	863	580	1.8	1.5	2,460	570	71	3,520	7.7
B-47	do.	c/700	Sept. 27	9.8	-	88	49	669		307	892	490	1.6	.2	2,350	421	78	3,480	7.8
*d/B-55	City of Crane	83	Oct. 7	58	0.0	100	20	43	4.5	163	205	56	1.6	4.2	606	332	22	841	7.4
B-64	W. N. Waddell	61	Sept. 27	68	-	76	29	51		185	114	50	2.4	90	598	308	26	843	7.6
e/C-13	Phillips Petroleum Corp.	-	Sept. 30	68	-	31	5.5	4.9	-	92	15	4.0	1.4	15	196	100	10	233	7.9
f/C-29	do.	167	do.	68	-	43	6.3	7.0	-	150	12	6.2	.6	5.4	224	133	10	296	8.0
C-58	-	-	Sept. 22	66	-	80	11	40		194	89	50	.8	9.9	460	244	26	676	7.4
C-71	City of Crane	80	Dec. 13	53	-	56	10	22		166	46	28	.8	3.5	301	181	21	438	7.9
C-98	-	-	Sept. 26	68	-	648	33	47		203	1,500	75	2.2	18	2,490	1,750	6	2,680	7.1
D-2	A. H. Scott Estate	58	Oct. 29	38	-	110	37	132		206	418	72	1.4	4.8	937	426	40	1,330	7.9
D-5	Jas. H. King	64	Nov. 23	48	-	100	22	100		216	269	66	1.2	5.2	743	340	39	1,050	7.7
D-7	do.	100	do.	46	.28	121	24	141		189	388	102	.8	3.2	919	400	43	1,350	7.2
D-11	Gulf Oil Corp.	136	Dec. 20	47	-	106	14	54		140	162	108	.2	5.0	600	322	27	872	7.9
D-12	Crane County	165	Nov. 16	25	.18	54	10	26		108	110	18	.4	3.8	318	176	24	469	7.7
D-14	Gulf Oil Corp.	130	Sept. 20	41	-	57	5.8	13		101	39	46	.6	4.4	287	166	14	437	7.7
D-21	Jas. H. King	100	Nov. 23	31	-	64	24	166		117	337	102	2.6	.0	775	258	57	1,180	7.8
D-22	Ell Long	51	Nov. 17	64	-	320	95	803		183	1,060	1,180	2.2	14	3,630	1,190	59	5,390	7.6
D-23	Gulf Oil Corp.	550	do.	62	-	676	127	1,250		190	2,410	1,600	3.0	4.5	6,230	2,210	55	8,190	7.4
D-24	W. N. Waddell	461	Dec. 7	41	-	906	224	1,840		98	2,220	3,390	1.6	-	8,670	3,180	56	12,200	7.4
E-10	American Liberty Oil Co.	130	Sept. 18	1.1	-	144	46	2,000		33	6.0	3,450	.0	-	5,660	548	89	10,100	6.9
g/E-12	Humble Oil & Refining Co.	170	Dec. 7	52	-	61	8.1	22		174	32	37	.8	4.8	313	186	21	477	7.8

See footnotes at end of table.

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

Well	Owner	Depth of well (ft.)	Date of collection year 1954	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Hardness as $CaCO_3$	Percent sodium	Specific conductance (micromhos at 25°C)	pH
E-17	Byrd & Frost	154	Sept. 29	51	-	70	7.4	20		166	29	50	0.8	12	349	205	17	529	7.5
E-23	P. J. Lea	82	Oct. 21	60	-	280	58	247		118	481	560	1.4	104	1,850	937	36	2,860	7.7
E-25	Jay McGee	259	Sept. 27	11	-	50	35	395		471	441	196	2.6	.0	1,360	269	76	2,150	7.5
E-27	Lone Star Gas Co.	73	Nov. 17	63	-	187	42	86		150	556	80	1.4	7.8	1,100	639	23	1,460	7.7
E-30	do.	71	do.	58	-	140	32	56		153	364	65	1.0	5.5	796	481	20	1,120	7.6
E-36	P. J. Lea	80	Oct. 21	44	-	212	89	260		209	823	300	3.0	.5	1,830	895	39	2,580	7.9
E-53	T. C. Barnsley	243	Oct. 26	39	-	592	78	67		101	1,720	44	1.8	3.8	2,600	1,800	7	2,730	7.4
E-59	do.	100	Nov. 17	79	-	60	11	37		192	23	58	2.8	3.8	390	194	29	562	7.7
E-66	do.	267	Oct. 26	53	-	53	16	43		186	48	51	5.0	4.6	277	198	32	576	7.7
E-67	P. J. Lea	400	Oct. 22	49	-	326	124	1,420		255	2,160	1,380	2.8	8.5	5,600	1,320	70	7,700	7.9
h/E-71	Looney Ranch	164	Oct. 13	34	-	70	24	156		210	229	135	2.6	5.8	779	273	55	1,240	7.7
E-73	do.	176	Oct. 30	34	0.00	44	16	180		222	195	119	2.4	10	721	183	69	1,150	8.2
i/E-76	do.	210	Oct. 13	58	-	296	85	485		170	1,090	610	3.0	1.2	2,710	1,090	49	3,870	7.5
j/E-76	do.	210	Oct. 22	48	-	248	80	362		163	960	420	2.6	2.2	2,200	948	45	3,420	7.7
E-77	do.	200	do.	37	-	58	24	115		226	95	140	2.6	5.4	638	243	51	1,160	7.7
F-2	McElroy Ranch	52	Sept. 16	66	-	124	32	105		173	254	173	2.4	14	908	441	34	1,320	7.7
F-39	do.	-	Dec. 20	40	-	248	81	726		256	1,340	650	1.8	4.2	3,220	952	62	4,450	7.9
F-47	Humble Oil & Refining Co.	-	Dec. 18	48	-	452	87	440		157	766	1,070	2.0	2.0	2,940	1,490	39	4,510	7.5

a Composite sample of wells supplying gasoline plant.
b Sample from 230 feet.
c Sample from 675 feet.
d Composite sample from 20 city wells.
e Composite sample from east line of wells.
f Composite sample from north line of wells.
g Composite sample.
h Composite sample.
i Sample from 93 feet.
j Sample from 193 feet.
* Boron (B) 0.20.



EXPLANATION

- Well with pumping plant, 5-horsepower or larger
- Well with windmill or small power pump
- Unused well
- Oil test
- Flowing well
- Seismograph shot hole
- 56 — Line above well number indicates that chemical analysis is included in report
- Approximate boundary of sandhills

0 1 2 3 4 5 Miles

N

MAP SHOWING WELLS IN THE CRANE SANDHILLS, CRANE COUNTY, TEX.