TEXAS BOARD OF WATER ENGINEERS

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BULLETIN 5802

GROUND-WATER CONDITIONS IN CARSON COUNTY, TEXAS

By

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Ground-Water Hydrologist

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CONTENTS

ILLUSTRATIONS

TABLES

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ABSTRACT

Carson County is underlain by the Ogallala formation consisting of interfingered and intergraded lenses and layers of sand, sandstone, clay, caliche, and gravel. The permeable zones are interconnected and constitute an important ground-water reservoir which is the only dependable supply of water available in the county. The thickness of the Ogallala formation is over 800 feet in some parts of the county, and the saturated thickness ranges from a feather edge to 540 feet.

Wells obtaining water from the Ogallala in the county range in depth from 90 to 836 feet and yields range upward to 1,900 gallons per minute. Specific capacities of wells measured in Carson County range from 6.8 to 36 gallons per minute per foot of drawdown.

The amount of water stored in the Ogallala reservoir underlying Carson County is not known and additional studies are needed to provide a reasonable estimate. Recharge to the ground-water reservoir is from precipitation on the surface of the High Plains. Ground water movement is eastward toward springs issuing at the base of the High Plains escarpment.

Water from the Ogallala formation is generally suitable for domestic, municipal, industrial and irrigation uses. Irrigation from wells began in Carson County in 1954 as a result of drought conditions. By March 1956, there were 124 irrigation wells in the county and 36,000 acres of land were under irrigation. As of March 1956, annual pumpage of ground water in the county was estimated to be approximately 31,500 acre feet for irrigation and 9,400 acre feet for municipal and industrial uses.

INTRODUCTION

Carson County is in the northeast part of the Texas Panhandle (figure 1). Most of the county is underlain by the Ogallala ground-water reservoir which is one of the most important reservoirs in the State. Drought conditions prevailing in 1954 led to the development of irrigation from ground water because surface water supplies were unavailable. Ground water is also the only source of supply for industrial and municipal expansion. A careful evaluation of ground-water conditions is, therefore, essential to the utilization and conservation of the ground-water supply.

The Board of Water Engineers is authorized by statute to make scientific investigations of the source, amount, and quality of ground-water supplies, either independently or in cooperation with federal or other state agencies. An inventory of wells in Carson County was made and published by the Board of Water Engineers in cooperation with the United States Geological Survey in 1938. Additional data were collected by the two agencies in connection with war-time activities. Further cooperative investigations were made in 1954 prior to official Board designation of a subdivision of the Ogallala underground reservoir in parts of Carson and adjoining counties. This report is based on data collected in previous investigations and pumpage and irrigation well inventories compiled by the writer in March, 1956.

The report contains discussions of: (1) water-bearing properties of geologic formations, (2) source and movement of ground water, (3) amount of water in storage, (4) chemical character of ground water, (5) utilization of ground water, and (6) conservation of ground water. The investigation and report were authorized by the Board of Water Engineers and technical supervision was by R. T. Littleton, Chief, Ground Water Investigations.

Appreciation is expressed for the cooperation and assistance of county and municipal officials, industrial plant officials, well drillers and farmers and ranchers of Carson County, who contributed valuable information. The assistance of J. E. White, Engineer, Soil Conservation Service, United States Department of Agriculture, and H. M. Nichols, County Agent, Texas Agricultural and Mechanical College, is especially appreciated. Assistance and advice from personnel of the Ground-Water Branch of the United States Geological Survey, Texas District, especially that of R. W. Sundstrom, District Engineer, Austin, and James G. Cronin, Area Engineer, Plainview, is acknowledged. The assistance of Burdge Irelan, District Chemist, United States Geological Survey, Quality of Water Branch, Texas District, Austin, who made helpful suggestions regarding the section of the report dealing with chemical character of ground water, is appreciated.

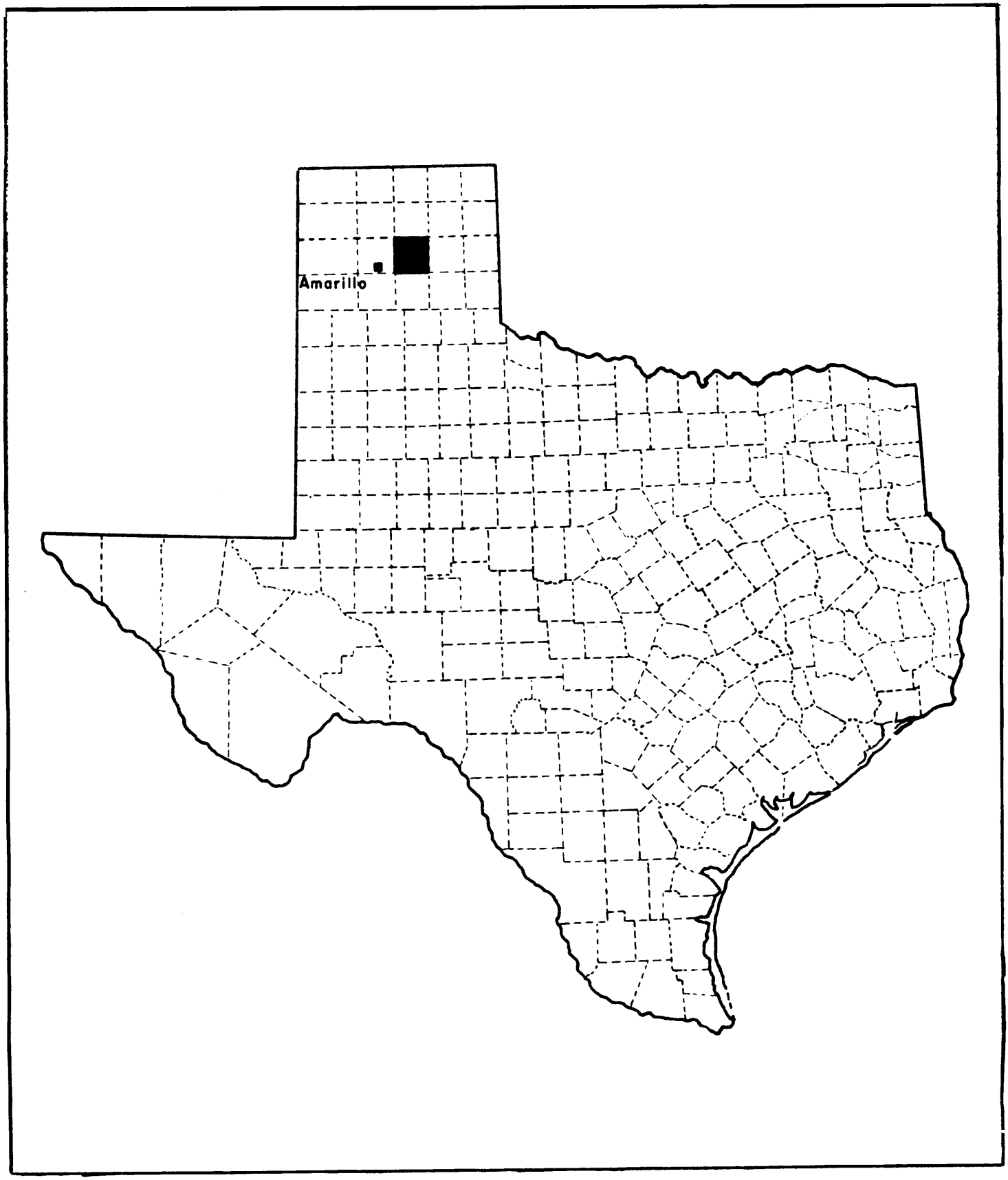

FIGURE 1 - MAP OF TEXAS SHOWING LOCATION OF CARSON COUNTY

ENVIRONMENT

Carson County is on the Southern High Plains, a major subdivision of the High Plains physiographic province of the Great Plains of the west-central United States. The Southern High Plains occupy an area of more than 30,000 square miles, largely in the Panhandle of Texas but covering also part of eastern New Mexico.

Topography and Drainage

Carson County occupies a peninsula-like arm of the Southern High Plains extending northeastward from the City of Amarillo. This arm is a broad table land lying between the canyon of the Canadian River on the north and valleys of tributaries of the Red River on the south. The central and southern parts of the county slope gently eastward and are dotted with saucer-like depressions typical of much of the High Plains surface. The northern part of the county slopes northward and is incised by the headward erosion of small drainage ways that are tributary to the Canadian River.

Most of the run-off in the central and southern parts of the county collects in depression ponds. Some of the run-off in the southeastern part of the county drains to the North Fork of the Red River through the McClelland Creek watershed. Numerous drainage ways in the northern eroded area carry run-off to the Canadian River.

Economy

The economy of Carson County is based on farming, ranching, oil and gas production, and industry. Flat land in the central and southern parts of the county is largely cultivated, and the principal crops are wheat and sorghums. The eroded lands of the northern part of the county are utilized for cattle raising. Oil and gas are produced in Carson and adjoining counties, and several industrial installations connected with oil and gas production and refinement of oil and gas operate in the county. The Pantex Ordnance Plant is the largest industrial plant in the county.

Climate

The climate of Carson County is semi-arid, characterized by cold winters and mild summers. The 64-year average annual percipitation at Amarillo is 20.58 inches, and the average annual temperature for the

same period is 57 degrees. Monthly precipitation at Amarillo is shown in Table 1, and annual precipitation and cumulative departure from average are shown graphically in Figure 2. Table 1 shows that most of the rainfall occurs in the summer months. The lowest recorded annual precipitation was 11.15 inches in 1910, and the highest was 39.75 inches in 1923. Annual rainfall from 1952 through 1955 averaged approximately 13 inches, which is the most severe drought of record. Although rainfall was generally low in the 1930's there were no four consecutive years with precipitation as low as the period from 1952 through 1955.

Evaporation rates from a Young screen pan have been measured at Amarillo since 1952. During the four-year period from 1952 through 1955, the average annual rate of evaporation was 88 inches.

SUMMARY OF PHYSIOGRAPHIC DEVELOPMENT

Carson County is underlain by sediments of Cenozoic age which occupy a basin in older rocks of Permian and Triassic ages. These Permo-Triassic rocks are not differentiated in this report and are collectively termed redbeds. The sediments of Cenozoic age belong principally to the Ogallala formation. They were deposited late in the Tertiary period in a basin formed in the redbed surface which is shown by geologic profiles in Figures 3 and 4. The locations of these sections are shown on Plate 1. Sediments of Quaternary age, which are difficult to distinguish from the Ogallala formation, were deposited as a mantle over part of the area.

This report is concerned primarily with ground water in the Ogallala formation. The Ogallala formation was deposited late in the Tertiary period by streams rising in the Rocky Mountains. Sheets of clay, silt, sand and gravel were spread over a vast area east and southeast of the Rockies. Lohman (1953, p. 70) states, "Renewed uplift of the mountains greatly increased the erosive power of the streams and supplied the streams with enormous quantities of rock debris.---Ultimately a remarkably smooth and gently inclined debris plain spread eastward from the Rockies."

Deposition was followed by erosion. Since the Tertiary period the Pecos and Canadian Rivers in New Mexico and Texas have cut through the debris plain and their valleys were formed in rocks that underlie the Ogallala. Headward erosion by tributaries of the Red and Brazos Rivers systems has formed an irregular escarpment at the eastern edge of the Southern High Plains. The Southern High Plains is an erosional remnant of the original debris plain which extended southeast from the Rocky Mountains across the Texas Panhandle and beyond. It is a table land which stands above the areas to the east and west and is bounded on the north by the canyon of the Canadian River. With respect to the Ogallala formation this table land is an isolated hydrologic unit.

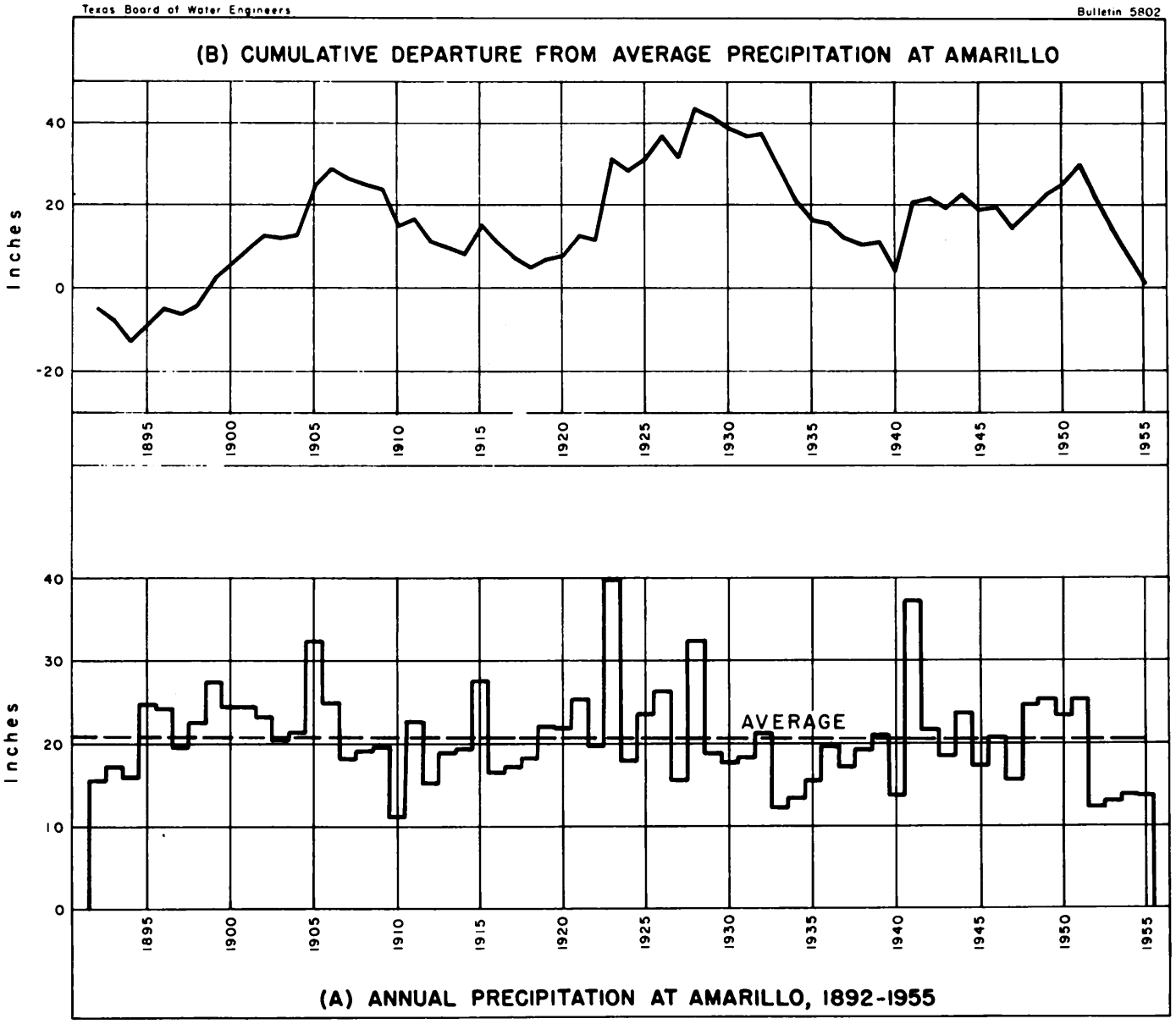

FIGURE 2 - RAINFALL RECORDS AT AMARILLO, TEXAS

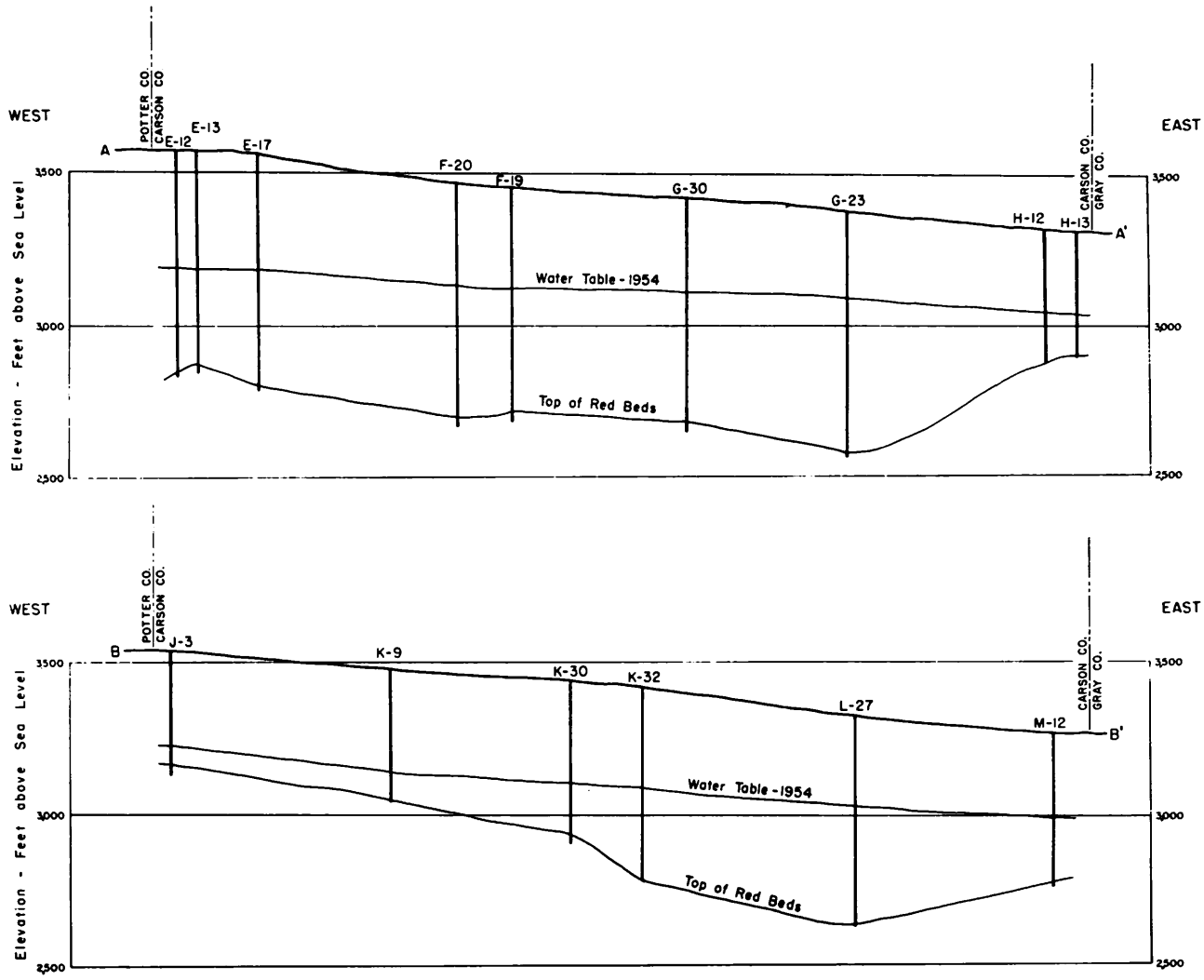

FIGURE 3 - GENERALIZED GEOLOGIC PROFILES
CARSON COUNTY, TEXAS

HORIZONTAL SCALE
0 1 2 3 4 5 miles

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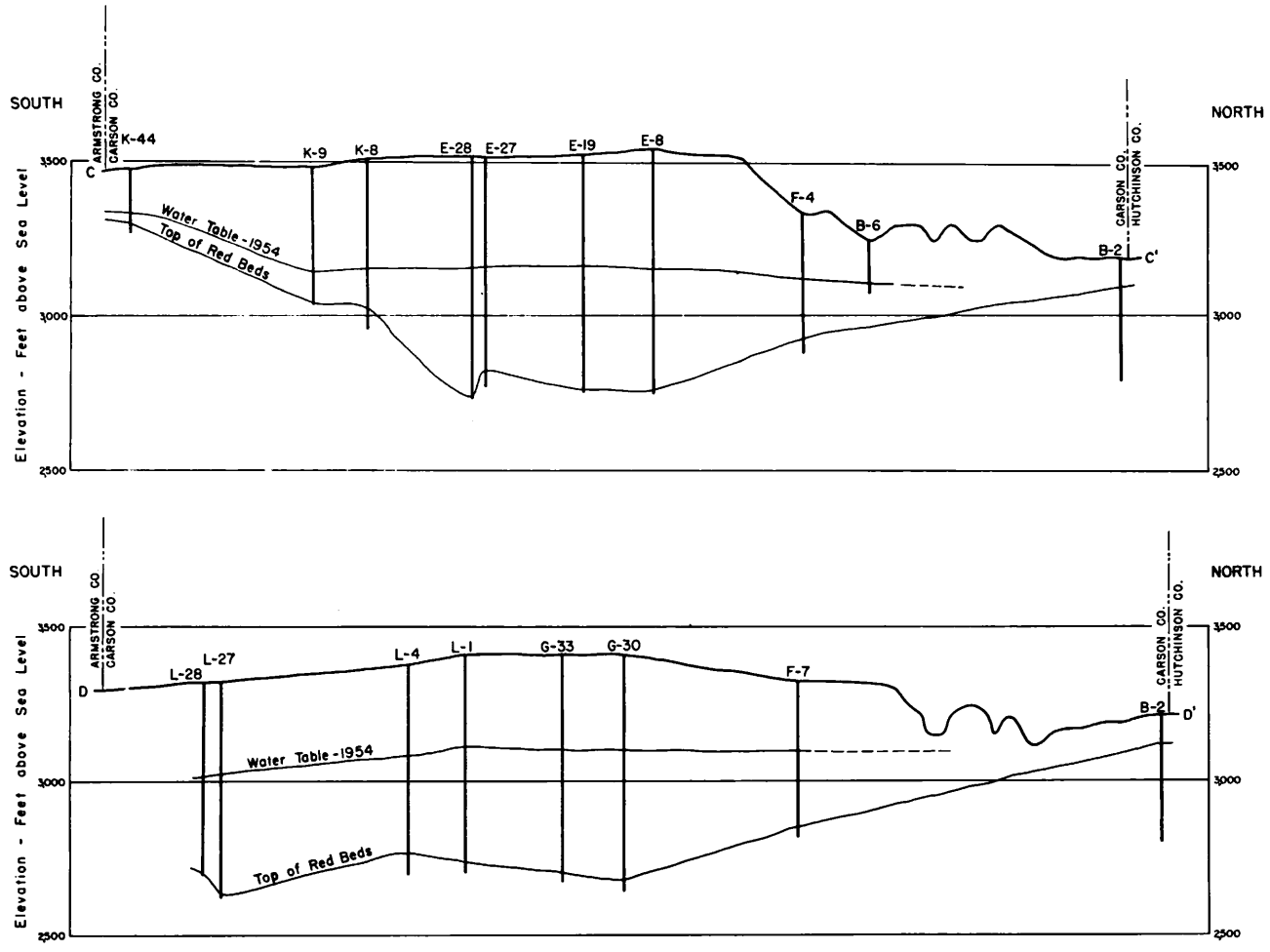

FIGURE 4 - GENERALIZED GEOLOGIC PROFILES
CARSON COUNTY, TEXAS

HORIZONTAL SCALE
0 1 2 3 4 5 miles

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GEOLOGIC FORMATIONS AND WATER SUPPLY

Permian and Triassic Systems

The Quartermaster formation of the Pease River group at the top of the Permian series crops out along the escarpments south and east of Carson County and in the Canadian River valley to the north. It is also exposed along Dixon and Antelope Creeks in northern Carson County, according to Gould (1906, p. 22). He reports vertical sections of 250 feet of the Quartermaster formation that consist of red sandy clay and soft sandstone, with some beds of dolomite and gypsum. The formation may contain small quantities of highly mineralized water, but it is not an important source of ground water in Carson County.

The Dockum group of the Triassic system lies unconformably on Permian rocks. It crops out below the High Plains escarpment in Armstrong County south of Carson County. It does not appear east of Carson County, nor is it exposed in the county. A paleogeologic map by Roth (1955, p. 442) shows the Triassic present in the subsurface only in the southwest part of Carson County. Gould divided the Dockum group into two parts: the basal Tecovas formation and the Trujillo formation (1907, p. 13). He described the Tecovas formation as predominantly dark red or magenta shale with soft sandstone and the Trujillo formation as red shale and red to gray sandstone and conglomerate. The water-bearing properties of the Triassic sandstone underlying the southwestern part of Carson County have not been adequately tested, but the formations as a whole are not important as a source of ground water.

Tertiary System

Ogallala Formation.--The name, Ogallala, as used in this report, relates to sediments of Tertiary age consisting of interfingered and intergraded lenses and layers of sand, sandstone, clay, caliche, and gravel. The lenses and layers of sand and gravel in the Ogallala are interconnected and form a large unconfined ground-water reservoir which yields large to moderate quantities of water to wells and is the most important source of ground water in Carson County. The Ogallala formation occupies a relatively impermeable basin in the Permo-Triassic red beds from which there is no significant vertical leakage.

Records of 326 wells and 140 drillers' logs of wells in the Ogallala formation are given in Tables 2 and 3. Locations of wells and test holes are shown on Plate 1. Analysis of drillers' logs of 62 wells (table 3) in which static water levels are known and which completely penetrate the Ogallala formation indicate a saturated thickness of the Ogallala formation in Carson County ranging from a feather edge to 540 feet. The total maximum

thickness of the formation is over 800 feet. These same logs show that the thickness of saturated sand and gravel ranges from a few feet to 370 feet. Most of the drillers' logs are from wells in the deeper portion of the basin and are not representative of the entire county. Therefore, an average saturated thickness cannot be estimated for the county with these data.

Quaternary System

Pleistocene terrace deposits are present along the larger streams in the northern part of Carson County. Three terraces were described by Evans and Meade (1944, p. 50). Recent alluvial and wind-blown sediments mantle parts of the county. The Quaternary deposits are often difficult to distinguish from the Ogallala formation and are not important sources of ground water in Carson County.

GROUND WATER

Source and Movement

Precipitation is the source of recharge to the underground reservoir in Carson County. Runoff normally pools in natural depressions that drain only a few hundred acres. Much of the water is lost by evaporation from these lakes and a small part by plant transpiration. Only a fraction of the rainfall seeps to underground storage.

Ground-water moves from points of recharge towards point of discharge, although it may move only a few feet per year. Contours on the water table in 1954 in a portion of Carson County are shown on Plate 2. These contours indicate a general eastward movement of water toward springs issuing below the escarpment. The shape of the contours and the hydraulic gradient of the water table are influenced partly by the configuration of the red beds and the land surface and partly by the permeability of the saturated materials. The contours are close together in the southwest corner of the county, indicating a steeper gradient in the thin saturated section than in the thicker section in the central and eastern portion of the county. Plate 2 shows the natural movement of ground-water prior to significant irrigation development. Increased withdrawals of ground water will reduce natural discharge. When withdrawals exceed the reduction in natural discharge, withdrawals of water from storage will result in decline of the water table. Insufficient data are available to determine the precise relationship of recharge and discharge in Carson County. However, the rate of withdrawal is believed to be substantially in excess of the rate of recharge. Water levels in wells can therefore be expected to decline. Ground water movement in the Ogallala aquifer is very slow, and the rate of decline of the water level in any area will be dependent on the degree of concentration of pumpage in the area.

Data from wells in Carson County which fully penetrate the Ogallala formation are insufficient to determine exactly the amount of water in storage under Carson County. The volume of water in storage can be estimated by multiplying the area of the county by the estimated average saturated thickness and the estimated average specific yield of the aquifer.

CHEMICAL CHARACTER OF GROUND WATER

Ground water normally contains dissolved minerals, the composition and concentration of which may limit its usefulness. In Carson County water in the Ogallala formation is generally suitable for domestic, municipal, and irrigation uses. Water from underlying red beds is highly mineralized. Chemical analyses of water from selected wells in the Ogallala are shown in Table 4. Analyses of samples collected in 1938 were made by chemists employed on a Work Progress Administration project under the direction of Dr. E. P. Schoch, Director of the Bureau of Industrial Chemistry of the University of Texas, in the laboratories of the Bureau. Subsequent analyses were made by the Quality of Water Branch of the U. S. Geological Survey.

Suitability for Domestic and Municipal Use

Recommended standards of the United States Public Health Service (1946) for drinking water on interstate carriers include the following limits:

	Parts per million
Chloride	250
Sulphate	250
Total solids (desirable)	500
Total solids (permitted)	1,000

The range of chloride in the analyses in Table 4 is from 6 to 114 ppm and the range of sulphate 12 to 164 ppm. Dissolved solids range from 264 to 620 ppm. The upper limits of these ranges are from the analysis of water from well D-10. The chloride and sulphate in all the analyses are below the 250 ppm limit. Total solids in the analyses are less than the desirable limit of 500 ppm, except for well D-10.

Tests for fluoride have been made on only a few samples of water from Carson County. Fluoride content was not determined as a regular practice at the time the earlier analyses were made (table 4). Fluoride concentrations given in the table range from 0.2 to 2.3 ppm. Public health authorities do not certify as acceptable water which contains fluoride in excess of 1.5 ppm.

Public health standards do not include limitations on the hardness of water. All of the waters represented in Table 4 are very hard; however, with the exception of water from well D-10, they could be softened comparatively inexpensively.

Suitability for Irrigation

Irrigation waters are classified by the United States Department of Agriculture (Wilcox, 1955) by the following criteria:

1. Salinity hazard
2. Sodium (Alkali) hazard
3. Residual sodium carbonate
4. Boron concentration

The classification applies to average conditions of soil, texture and permeability, arid to semi-arid climate, average rate of application of water and moderate salt tolerance of the crops grown.

Salinity Hazard.—The salinity of water depends upon its total concentration of dissolved salts. Excessive concentrations of salts retard or prevent plant growth. The electrical conductivity, or specific conductance, expressed in micromhos per centimeter at 25°C, is used as a measure of the salinity hazard in irrigation water. It is closely related to the concentration of dissolved salts.

Sodium (Alkali) Hazard.—Dissolved minerals sometimes interact with soil particles in such a manner as to seriously damage soil structure and prevent infiltration of water. This effect is primarily due to the sodium ion. The sodium adsorption ratio (SAR) is a measure of the sodium hazard and is expressed in milliequivalents per liter (meq/l) as follows:

$$SAR = \frac{Na+}{\sqrt{\frac{Ca^{++} + Mg^{++}}{2}}}$$

The sodium hazard is dependent on the total ion concentration as well as the sodium adsorption ratio. The classification of irrigation waters by salinity and sodium hazards is shown in Figure 5.

Values for specific conductance and sodium adsorption ratio of ground water in Carson County are shown in Table 4. With the exception of water from well D-10, the values are within the classification of medium salinity-low sodium hazard (figure 5). The water can be used in most cases by plants

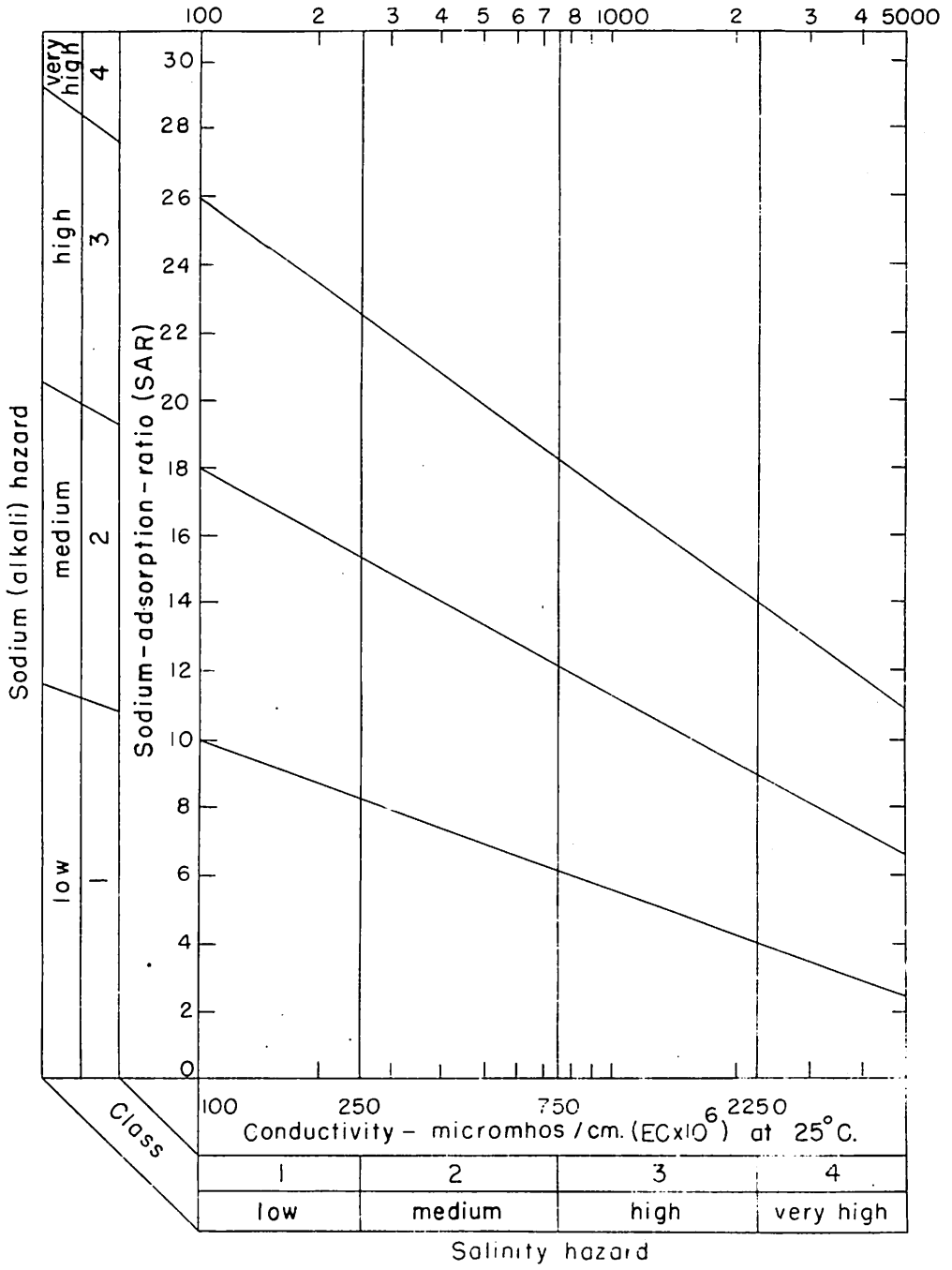

FIGURE 5 - Diagram for the classification of irrigation waters
(After Wilcox, 1955, p.9)

with moderate salt tolerance with little danger of the development of harmful levels of exchangeable sodium without special methods of salinity controls in areas where a moderate amount of soil leaching occurs (Wilcox, 1955).

Residual Sodium Carbonate.—Waters containing high concentrations of carbonate and bicarbonate tend to precipitate calcium and magnesium as carbonates when the water in the soil is concentrated by evaporation and transpiration. The removal of calcium and magnesium increases the sodium hazard. The hazard in using high bicarbonate water is measured as residual sodium carbonate (RSC) expressed in meq/l and defined by the formula: RSC = (carbonate + bicarbonate) - (calcium + magnesium). The following classification, based on residual sodium carbonate is proposed by Wilcox (1955, p. 11).

RSC(meq/l)	
More than 2.5	Not suitable for irrigation
1.25 - 2.5	Marginal
Less than 1.25	Probably safe

Values for RSC computed from analyses of water in Carson County wells (table 4) range from 0 to 1.81. Only four values exceed the "probably safe" limit of 1.25 meq/l.

Boron Concentration.—A small amount of boron is essential to plant growth, but a concentration only slightly above optimum is sometimes exceedingly harmful. Only a few boron concentrations were determined in the analyses of water from Carson County wells (table 4). These range from 0.06 to 0.39 ppm and are generally suitable for most crops (Wilcox, 1955, p. 11).

WELL PERFORMANCE

Wells in Carson County range in depth from 90 to 836 feet, and yields range upward to 1,960 gallons per minute. This wide range is characteristic of the county even within the deeper parts of the reservoir. Well yield depends on well design and construction methods and the thickness and hydraulic characteristics of the water-bearing formation penetrated. The amount of permeable water-bearing material encountered in many test wells was not great enough to yield water in sufficient quantities for irrigation use. Depths and reported yields of selected wells in Carson County are shown in Table 2.

The specific capacity of a well, expressed in gallons per minute per foot of drawdown, is an indication of the performance of a well. Specific capacity is calculated by dividing the pumping rate, in gallons per minute,

by the drawdown, the difference between the non-pumping water level in the well and the pumping level. Specific capacity is related to the hydraulic characteristics of the aquifer, the design and construction of the well, and the period of pumping. Specific capacities of wells measured in Carson County range from 6.8 to 36 gallons per minute per foot of drawdown (table 5).

Table 5.—Specific Capacities of Wells in Carson County

Well No.	Pumping rate (gpm)	Drawdown (feet)	Time of pumping	Specific capacity (gpm ft)
C-6	260	20	Several hours	13.0
D-10	1000	35	3 weeks	28.6
E-12	1960	59	½ hour	33.2
E-19	1960	79	2 hours	24.8
F-46	350	14	Several hours	25.0
G-17	225	33	1 hour	6.8
H-12	500	44	--	11.4
K-22	523	35	--	14.9
L-2	1000	34	15 days	29.4
L-12	900	25	1 day	36.0

UTILIZATION OF GROUND WATER

Ground-water in Carson County is used largely for irrigation but also for domestic, municipal, and industrial purposes.

Municipal Use

The cities of Panhandle, White Deer, Groom, and Skellytown obtain water from wells in the Ogallala formation. The City of Amarillo owns water rights in the western part of Carson County and began construction of a pipeline and well field in the spring of 1956. The Phillips Petroleum Company's Plains Water Station in the northern part of the county furnishes part of the water supply for the City of Borger as well as water for industrial use in the Borger area.

In March 1956, the City of Panhandle had three wells (F-45, F-46 and F-47) in service. All wells are inside the city limits. Test hole F-48 was drilled to a depth of 795 feet in the spring of 1956 in preparation for the construction of an additional well. The estimated annual consumption of water in Panhandle based on incomplete records for 1955 and 1956 is approximately 90 million gallons.

The City of White Deer has three wells (G-15, G-16, and G-17), all of which are inside the city limits. Estimated annual consumption at White Deer is approximately 35 million gallons. The estimate is based on incomplete meter readings on one well, total population, and number of water connections.

The City of Groom has two wells (M-11 and M-12). Estimated consumption in Groom based on pump capacities and operation time in 1955 is approximately 38 million gallons.

The City of Skellytown is furnished water by the Southwestern Public Service Company from a well (C-6) owned by the Santa Fe Railway Company. Records of the Southwestern Public Service Company show a pumpage of approximately 15 million gallons in 1955.

The Phillips Petroleum Company had eight wells in service in March 1956, at their Plains Water Station at McBride. An additional well was drilled in the spring of 1956, but was not in service in March. Total pumpage from the water station in 1955 was 2,496 million gallons.

Annual pumpage for municipal use in 1955-56 is shown in Table 6 along with estimated industrial and irrigation pumpage. No figures for the City of Amarillo are shown because their Carson County well field had not been put into service at the time the inventory was made.

Industrial Use

The principal industrial water users in Carson County are the Phillips Petroleum Company's Plains Water Station, Pantex Ordnance Plant, Skelly Oil Company, and Northern Natural Gas Company.

The Phillips Petroleum Company's Plains Water Station was discussed in the preceding section, since it furnishes water to the City of Borger as well as to industries in the Borger area.

The Skelly Schafer plant at Skellytown has two wells (D-3 and D-4). The total pumpage in 1955 from the two wells is estimated to be 250 million gallons. Part of this water goes to the Cabot Carbon Plant in Skellytown.

The Northern Natural Gas Company has two wells at their Skellytown plant (C-4 and C-5). Total annual pumpage from the two wells based on company records for 1955 and 1956 is approximately 60 million gallons.

The Pantex Ordnance Plant has five wells. Government security regulations prevent release of the well locations, so they are not shown on the map. Total pumpage at the Pantex Plant in 1955 was 64.6 million gallons.

Irrigation

Irrigation began in Carson County in 1954. A well inventory in the county in 1954 included only seven irrigation wells. There were 124 irrigation wells in Carson County in mid-March 1956. The drought which began in 1953 was an important factor in the rapid development of irrigation.

At the time the 1956 investigation was completed irrigation was so new in the county that many farm operators had not determined the most efficient irrigation practices nor the amount of acreage they would irrigate. Many operators planned to irrigate more land prior to planting than would be watered during the growing season. A great many operators planned to irrigate both wheat and row crops; thereby approximately doubling the amount of land watered from one well, since these types of crops require water at different times during the year.

Since irrigation practices were not established in 1956, the amounts of water needed for various crops in years of normal rainfall are estimated. Opinions of local residents and investigations in other parts of the High Plains (Bonner et al, 1952) indicate that in years of normal rainfall wheat will require application of five to six inches per year and row crops about 12 inches per year.

Records of the United States Department of Agriculture Soil Conservation Service show that there were 36,000 acres of land under irrigation in the county in March 1956. About one-fourth of this land was planted in wheat and the remainder in row crops. There were 280,341 acres of land under cultivation in the county in 1956. Of this acreage, 153,429 acres were allotted to wheat, and the remainder was planted in row crops, principally sorghums. Approximately 75 percent of the cultivated land is irrigable by gravity methods without leveling.

The total withdrawal of ground water for irrigation in 1956 based on the number of acres under irrigation in March 1956 is estimated as follows:

9,000 acres wheat at 6-inches	=	4,500 acre feet
27,000 acres row crops at 12-inches	=	27,000
Total	=	31,500 acre feet

An acre foot of water will cover an acre of land one foot deep and is equal to 325,851 gallons. The estimate of 31,500 acre feet shown above is equal to approximately ten billion gallons of water.

The complexities of farm prices and variable climatic conditions preclude a reasonable prediction of the rate of future irrigation development. The ultimate annual draft on the underground reservoir for irrigation of all of the cultivated land in the county which can be irrigated without leveling (a total of about 210,000 acres), estimated on an average application of 10 inches, is 175,000 acre feet (57 billion gallons).

Table 6.—Estimated Annual Pumpage, Carson County, Texas 1955-56

	Million gallons	
Municipal and Industrial		
City of Panhandle	90	
City of White Deer	35	
City of Groom	38	
City of Skellytown	15	
Phillips Petroleum Co. (Plains Water Station)	2,496	
Skelly Oil Co., (Schafer Plant)	250	
Northern Natural Gas Co.	60	
Pantex Ordnance Plant	65	
		3,049
Irrigation (1956)		10,000
	Total	13,049

GROUND-WATER CONSERVATION

The boundaries of the Permo-Triassic basin, of which Carson County occupies a part, form a subdivision of the Ogallala underground reservoir from which withdrawals of ground water will not unreasonably affect the supply of underground water in other parts of the reservoir. A subdivision of the Ogallala underground reservoir, including parts of Carson, Potter, Gray, Roberts, Armstrong, and Donley Counties (figure 6) was designated by the Board of Water Engineers on May 26, 1955. Creation of Underground Water Conservation District Number 3, south of the Canadian River, with boundaries coterminus with the boundaries of the reservoir subdivision, was ordered by the Board of Water Engineers on August 25, 1955 in response to a petition by local residents. Public hearings were held as prescribed in Article 7880, Vernon's Annotated Civil Statutes of Texas, and elections in each county followed the creation of the District. However, only residents in those parts of Carson and Gray Counties within the reservoir subdivision voted to join the Conservation District (figure 6).

The Ogallala underground reservoir in Carson County contains an adequate supply of water of suitable quality for municipal, industrial and agricultural expansion for many years. However, withdrawals of water from wells exceed replenishment of the supply. Therefore, practices to conserve the available supply and obtain maximum benefit from the water used by the prevention of waste will prolong the useful life of the reservoir.

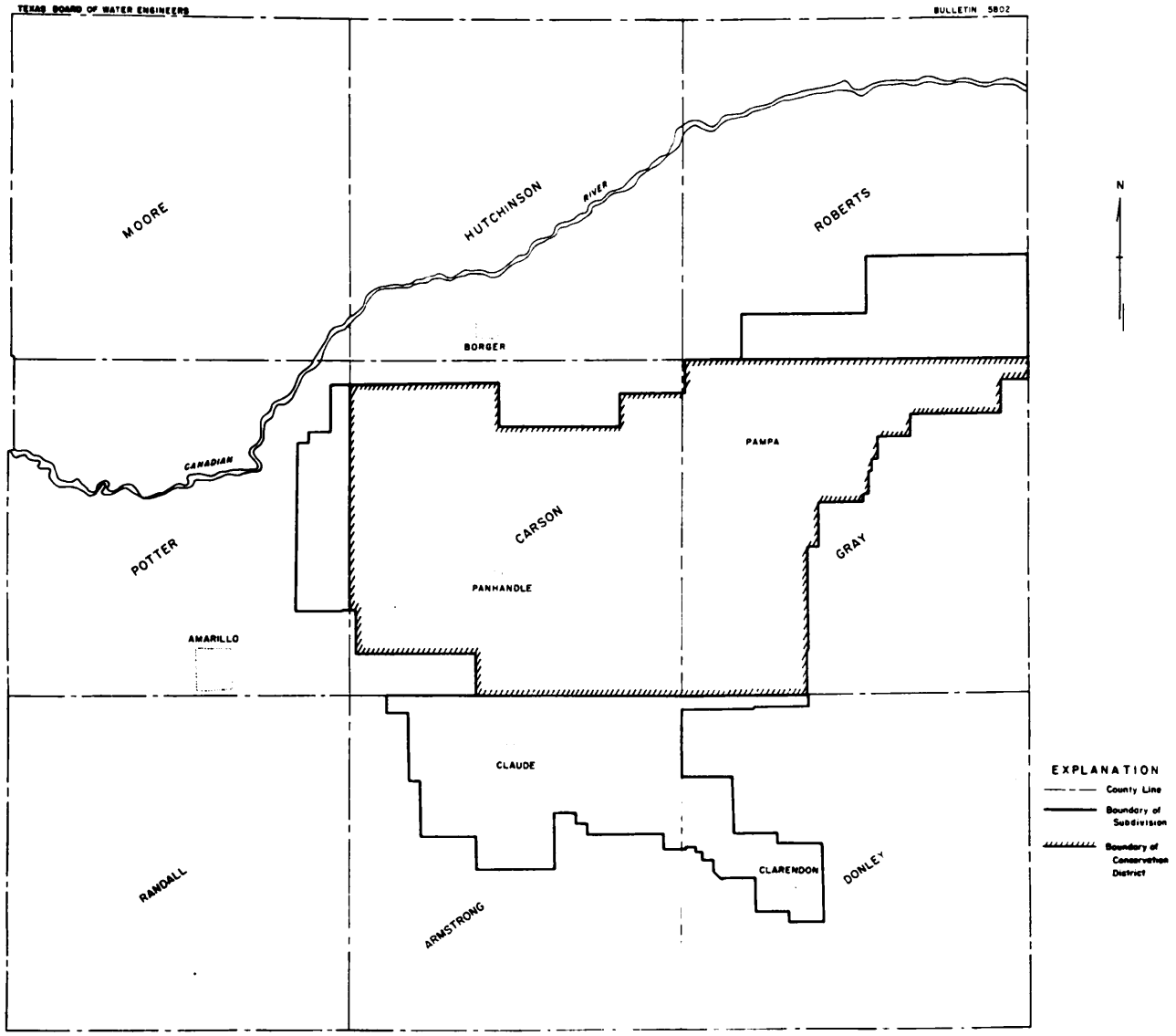

FIGURE 6 - MAP SHOWING SUBDIVISION OF THE OGALLALA UNDERGROUND RESERVOIR EAST OF AMARILLO AND BOUNDARIES OF UNDERGROUND WATER CONSERVATION DISTRICT

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Table 1.--Monthly and annual precipitation in inches at Amarillo, 1892-1955

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
1892	0.42	0.57	2.10	0.21	2.70	1.49	1.85	1.93	0.24	2.85	0.16	1.08	15.60
1893	0.09	2.03	T	0.16	2.19	2.03	2.05	2.67	5.27	0.03	0.28	0.43	17.23
1894	0.02	1.15	0.05	0.85	1.30	3.59	1.82	3.41	2.41	0.39	0	.82	15.81
1895	1.60	1.92	.16	1.31	1.78	6.84	2.88	3.87	.57	2.26	.81	.79	24.79
1896	.76	.41	.21	1.95	2.20	2.31	7.04	0.63	2.45	3.09	.35	2.88	24.28
1897	2.26	.65	.47	1.08	4.44	2.32	2.16	2.71	.73	1.63	.08	.63	19.16
1898	.86	.82	.35	.98	3.52	4.81	3.88	4.03	.48	.41	.34	2.06	22.54
1899	.29	.07	.17	.23	3.12	4.45	6.96	.51	6.09	1.15	3.24	1.11	27.39
1900	.59	.47	.48	5.47	4.53	1.84	3.21	.83	5.25	1.58	.08	.07	24.40
1901	.03	.48	.02	4.90	5.99	.92	1.56	3.03	2.19	3.26	2.00	.04	24.42
1902	.04	T	.74	1.83	9.14	2.01	1.45	2.42	.95	1.74	2.24	.55	23.11
1903	.12	2.93	.26	.90	1.79	2.83	3.38	4.67	.82	2.58	0	T	20.28
1904	.16	.08	T	.63	2.88	5.53	2.48	4.69	3.55	.44	.20	.69	21.33
1905	1.00	1.52	2.62	4.52	6.16	2.19	3.76	.63	3.08	.30	5.09	1.45	32.32
1906	.41	.51	.64	3.23	1.18	2.07	2.90	6.76	1.96	2.49	2.58	.19	24.92
1907	1.11	.24	.02	1.25	.99	1.97	1.49	6.20	.91	1.79	.66	1.46	18.09
1908	.26	.72	T	1.90	3.55	1.73	5.40	2.75	1.83	.40	.51	0	19.05
1909	.07	.28	1.28	.50	1.08	4.72	3.63	.87	2.19	1.18	3.25	.54	19.59
1910	.05	.17	.34	.59	2.99	.66	3.57	2.19	.05	.26	.28	T	11.15
1911	.13	2.88	.50	2.76	5.88	.20	3.85	2.97	.83	.84	.94	.95	22.73
1912	T	1.94	.82	.72	1.67	1.90	1.88	2.28	2.28	0.39	.02	1.18	15.08
1913	.11	.55	.59	1.76	1.41	2.32	1.80	.61	4.19	.81	1.98	2.84	18.97
1914	.06	.10	.15	.95	4.43	.84	3.07	2.97	1.07	4.46	T	1.17	19.27
1915	.72	1.60	1.00	5.05	1.70	1.04	4.14	5.85	4.69	1.55	.18	.13	27.65
1916	.36	.02	.57	1.71	.89	2.18	.94	3.82	1.76	2.90	.40	.88	16.43
1917	.69	.22	.25	.71	2.49	.83	2.68	6.17	2.05	.34	.59	.04	17.06
1918	1.01	.26	1.06	.48	2.23	1.44	2.23	2.36	.64	2.47	1.16	2.78	18.12
1919	T	.73	1.73	2.56	2.08	2.94	1.75	3.21	4.58	.67	1.26	.50	22.01
1920	1.11	.18	.51	.64	2.57	2.56	1.85	5.52	3.04	1.87	1.33	.64	21.82
1921	2.10	1.19	.68	.39	2.09	7.75	4.17	5.77	.76	.28	T	.06	25.24
1922	.78	1.44	4.06	3.25	1.60	3.77	1.04	.78	1.41	.23	1.39	.10	19.85
1923	0	1.71	2.97	3.22	1.70	9.76	1.85	1.54	6.42	7.34	2.13	1.11	39.75
1924	.13	.56	1.75	.87	.67	2.82	3.66	3.57	1.13	.86	1.25	.63	17.90
1925	.51	.06	.11	1.33	1.94	1.71	5.13	3.19	4.88	3.35	.95	.37	23.53
1926	.48	.06	1.67	3.74	3.98	3.17	2.27	1.76	5.72	2.15	.29	.96	26.25
1927	.18	.23	.46	1.95	.07	1.51	1.68	5.31	3.40	.14	.02	.47	15.42
1928	T	1.11	.86	.77	6.48	3.45	5.39	6.15	1.31	2.77	3.54	.51	32.34
1929	.16	.34	1.84	T	3.19	.77	1.76	4.54	1.97	3.28	.91	.11	18.87
1930	.57	0	1.27	2.19	1.49	4.47	2.42	1.61	.20	2.57	.33	.46	17.58
1931	.31	1.83	1.69	1.57	3.11	.69	1.40	2.19	.51	.92	2.89	1.24	18.35
1932	1.60	.41	.42	2.21	1.02	9.24	1.22	.70	2.79	.64	.02	.87	21.14
1933	.02	.29	.56	.64	2.01	.05	.66	6.02	.88	.49	.58	.02	12.22
1934	.09	.09	2.83	.77	3.21	1.94	.19	1.51	.96	.21	1.13	.40	13.33
1935	.75	.22	1.14	.05	2.57	.28	.81	5.32	2.03	.87	1.27	.18	15.49
1936	1.02	.25	T	.25	9.02	.84	.51	1.39	4.74	.82	T	.88	19.72
1937	0.29	.18	1.10	.39	6.83	2.83	1.49	.64	2.61	.31	.14	.29	17.10
1938	.18	2.87	1.24	1.07	4.03	2.49	1.88	.15	1.62	3.06	.43	.08	19.10
1939	2.51	.17	.25	2.30	1.75	7.59	.57	3.28	.45	1.10	.06	.98	21.01
1940	.52	.88	.24	1.10	2.68	1.64	.88	.71	.54	.29	3.87	.27	13.62
1941	.40	.94	2.55	1.29	7.47	5.07	3.36	3.18	4.30	7.64	.33	.68	37.21

Table 1.--Monthly and annual precipitation in inches at Amarillo, 1892-1955--Contd.

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Annual
1942	0.06	0.63	0.42	3.74	0.91	2.29	0.80	3.95	1.45	6.18	T	1.19	21.62
1943	.08	T	.01	1.06	1.82	1.01	6.64	2.09	.79	.72	.39	3.77	18.38
1944	1.67	.72	T	1.83	3.72	4.33	5.06	1.40	2.08	.84	.75	1.20	23.60
1945	.77	.28	.41	1.58	.42	1.61	1.62	5.17	4.02	1.31	T	T	17.19
1946	1.05	.33	.66	.55	.82	2.37	.12	3.96	3.25	5.73	.78	1.18	20.80
1947	.32	.07	.77	2.07	4.59	3.19	1.54	.39	.24	.12	.92	1.26	15.48
1948	.63	1.83	.72	.73	2.82	4.92	1.52	5.16	1.27	2.58	2.11	.09	24.38
1949	2.02	.59	.57	1.99	6.43	2.82	3.90	3.78	1.69	1.30	.01	.30	25.13
1950	T	.20	T	.64	1.83	3.25	7.32	4.54	5.02	T	.03	.35	23.18
1951	.38	1.17	.55	.43	9.81	4.34	2.01	1.52	2.01	2.35	.25	.45	25.27
1952	.53	.24	.56	2.46	2.05	1.75	1.36	.88	.38	0	1.44	.50	12.15
1953	.64	.53	.38	.62	.70	.01	1.81	2.00	.26	4.56	.56	.98	13.05
1954	.25	.09	.17	2.31	4.44	1.95	.55	2.91	.30	.73	T	.19	13.89
1955	.53	.06	.33	.38	2.70	1.49	3.35	1.49	3.13	.13	.02	.10	13.71
64 year Average	.56	.70	.79	1.55	3.08	2.78	2.59	2.95	2.20	1.71	.92	.75	20.58

Table 2.—Records of wells in Carson County, Texas

Abbreviations for Use of Wells: D, Domestic; Ind, Industrial; Irr, Irrigation; M, Municipal; N, None; O, Oil or gas test; S, Stock; T. H., Test Hole.

/a Altitude from topographic map. /b Reported. * Chemical analysis in Table 4.

Well	Owner	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Static Water Level		Reported yield (gpm)	Use of water	Remarks
						Below land surface datum (ft.)	Date of measurement			
A-1	John Q. Bost	1931	2,852	12	--	--	--	--	O	See log.
*A-2	C. F. Deahl	1906	170	5	3,288.5	154.9	9- 8-54	--	D,S	
*A-3	J. M. Huber Corp.	1936	186	12-10	--	--	--	55	D,Ind	See log.
A-4	do.	1936	115	12-8	--	---	--	155	D,Ind	See log.
A-5	do.	1934	202	12-10	--	--	--	35	D,Ind	See log.
A-6	do.	1935	210	12-10	--	--	--	73	D,Ind	See log.
*A-7	A. F. Bennett	--	157	4	--	132.1 136.2	11-14-38 9- 8-54	--	S	
A-8	--	--	--	6	3,251 /a	104.7	9-20-54	--	S	
A-9	Phillips Petroleum Co.	1926	403	--	--	260	1926	--	T.H.	Plains Water Station No. 1 test well See log.
A-10	do.	1926	409	--	--	218	1926	--	T.H.	Plains Water Station No. 3 test well See log.
B-1	S. B. Burnett Estate	--	--	6	3,278 /a	61.5	9-15-54	--	--	

Table 2.--Records of wells in Carson County--Continued

Well	Owner	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Static Water Level		Reported yield (gpm)	Use of water	Remarks
						Below land surface datum (ft.)	Date of measurement			
B-2	Gulf Oil Corp.	1943	403	8	--	--	--	--	D	Perforated 303-403 in Permian. See log.
B-3	S. B. Burnett Estate	--	--	6	3,337 /a	140.5	9-15-54	--	D,S	
B-4	--	--	--	4	3,193 /a	166.6	9-17-54	--	D	
*B-5	S. B. Burnett Estate	--	97	6	3,173 /a	59.2 59.0	10-12-38 9- 8-54	--	S	
B-6	do.	--	--	6	3,262 /a	143	9-15-54	--	S	
B-7	Phillips Petroleum Co.	1926	396	--	3,412.6	235	1926	--	T.H.	Plains Water Station No. 2 test well. See log.
B-8	do.	1926	403	16	3,416.8	--	--	350	Ind,M	Plains Water Station No. 1 water well. See log.
*B-9	do.	1928	500	20-15	3,418.4	---	--	350	Ind,M	Plains Water Station No. 5 water well. See log.
B-10	do.	1936	535	20-14	--	--	--	350	Ind,M	Plains Water Station No. 6 water well. See log.
B-11	do.	1926	402	20	3,346.7	174 /b	1926	350	Ind,M	Plains Water Station No. 2A water well. See log.

Table 2.—Records of wells in Carson County--Continued

Well	Owner	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Static Water Level		Reported yield (gpm)	Use of water	Remarks
						Below land surface datum (ft.)	Date of measurement			
B-12	Phillips Petroleum Co.	1926	330	--	3,369.9	--	--	--	T.H.	Plains Water Station No. 5 test well. See log.
B-13	do.	1926	255	--	3,293.3	--	--	--	T.H.	Plains Water Station No. 6 test well. See log.
B-14	do.	1926	273	--	3,301.7	--	--	--	T.H.	Plains Water Station No. 8 test well. See log.
B-15	do.	1927	375	18-13	3,313.8	--	--	350	Ind,M	Plains Water Station No. 3 water well. See log.
B-16	do.	1926	270	--	3,305.9	139 /b	1926	--	T.H.	Plains Water Station No. 7 test well. See log.
B-17	do.	1927	348	--	3,348.0	--	--	--	T.H.	Plains Water Station No. 10 test well. See log.
C-1	S. B. Burnett Estate	--	167	8	3,141	96.5 93.8	11-26-38 9-21-54	--	N	
C-2	--	--	--	5	3,202.6	234.4	9-22-54	--	S	See log.
C-3	B. F. Block	1937	3,168	13-7	3,181	--	--	--	O	
C-4	Northern Natural Gas Co.	1953	340	10	--	--	--	160	Ind	Owner's No. 4.
C-5	do.	--	330	10	--	--	--	120	Ind	Owner's No. 1.

Table 2.—Records of wells in Carson County--Continued

Well	Owner	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Static Water Level		Reported yield (gpm)	Use of water	Remarks
						Below land surface datum (ft.)	Date of measurement			
*C-6	Panhandle & Santa Fe RR	1927	418	14	--	320 /b 300 /b	1927 1947	260	M	340 feet of casing. Supplies Skellytown. See log.
*C-7	Magnolia Petroleum Co.	--	210	4	3,169.8	192.0 191.1	11-28-38 9-10-54	--	D,S	
*C-8	- Davidson	--	263	6	3,221.1	223.2 222.7	11-26-38 9-13-54	--	D,S	
*C-9	S. B. Burnett Estate	--	126	5	3,130.1	109.1 110.0	11-26-38 9-21-54	--	S	
D-1	--	--	90	7	3,004.2	71.8	11-15-54	--	S	
D-2	E. Cooper	1935	3,023	16-8	3,048	--	--	--	O	See log.
D-3	Skelly Oil Co.	1929	684	20-16	--	321 /b	1929	800	Ind	Schafer Plant, well 1. See log.
D-4	do.	1947	415	16	--	308 /b	1945	800	Ind	Schafer Plant, well 2. See log.
D-5	Julia McConnell	--	390	4	--	335.8 323.8	11-25-38 9-10-54	--	N	
D-6	John Haggard	1955	488	--	--	--	--	--	Irr	See log.
D-7	Russell McConnell	1955	493	16	--	375 /b	1955	900	Irr	
D-8	H. L. Boone	1955	450	16	--	--	--	400	Irr	See log.

Table 2.—Records of wells in Carson County--Continued

Well	Owner	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Static Water Level		Reported yield (gpm)	Use of water	Remarks
						Below land surface datum (ft.)	Date of measurement			
D-9	Julia McConnell	1924	3,060	--	--	--	--	--	O	See log.
*D-10	T. H. Barnard	1954	517	16	--	370 /b	1955	1,000	Irr	
*D-11	do.	--	420	--	--	--	--	4	D	
E-1	C. F. Moore	--	195	6	3,317	144.4 163.7	10-18-38 9-20-54	--	S	
*E-2	C. E. Deahl	1914	400	4	3,451	269.9	9-21-54	--	N	
E-3	--	1953	711	--	--	--	--	--	T.H.	City of Amarillo No. C-23. See log.
*E-4	--	--	260	4	3,406	237.8	9-21-54	--	S	
E-5	--	--	--	--	3,469	322.7	9-17-54	--	S	
E-6	--	1953	685	--	--	--	--	--	T.H.	City of Amarillo No. C-5. See log.
E-7	R. C. Durrett	1955	747	16	--	380 /b	1955	800	Irr	Cased to 694 feet, perforated 584-694 feet. See log.
E-8	M. L. Purvine	1955	790	16	--	390 /b	1955	900	Irr	Casing perforated 640-781 feet. See log.
E-9	Stuart Purvine	1955	808	16	--	381.9	3-21-56	--	Irr	Casing perforated 559-599 feet and 652-808 feet. See log.

Table 2.—Records of wells in Carson County--Continued

Well	Owner	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Static Water Level		Reported yield (gpm)	Use of water	Remarks
						Below land surface datum (ft.)	Date of measurement			
E-10	--	1953	695	--	--	--	--	--	T.H.	City of Amarillo No. C-18. See log.
E-11	J. M. Poling	1948	509	7	3,570	389.3	8-27-54	--	D,S	
E-12	City of Amarillo	1955	747	16	--	386 /b	1955	1,960	N	Not in use in March, 1956. Casing perforated 450-738 feet. See log.
E-13	do.	1956	732	16	--	--	--	1,800	N	Not in use in March, 1956. Casing perforated 442-732 feet. See log.
E-14	M. D. Eagle	1954	705	16-10	--	388.7	1-24-56	--	Irr	
E-15	R. R. Masterson	1953	--	12-10	3,570.1	394.3	8-27-54	--	N	
E-16	City of Amarillo	1956	833	--	--	--	--	--	N	Well not completed when scheduled in March, 1956. See log.
E-17	do.	1956	780	16	3,556.6	380 /b	1956	--	N	Not in use in March, 1956. Casing perforated 488-778 feet. See log.
E-18	--	1953	710	--	--	--	--	--	T.H.	City of Amarillo No. C-22. See log.
E-19	City of Amarillo	1955	774	16	--	360 /b	1955	1,960	N	Not in use in March, 1956. Cased to 765 feet, perforated 488-763 feet. See log.

Table 2.--Records of wells in Carson County--Continued

Well	Owner	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Static Water Level		Reported yield (gpm)	Use of water	Remarks
						Below land surface datum (ft.)	Date of measurement			
E-20	O. L. Cummings	1945	--	7	3,562.3	391.9	8-27-54	--	D,S	
E-21	Lorene O. Locke	1955	655	16	--	387.2	3-26-56	750	Irr	Cased to 650 feet. See log.
E-22	Mrs. Nettie Witten	1956	720	16	--	405.6	1-23-56	--	Irr	
*E-23	T. J. Bushkoeter	1913	476	4	3,592.9	405.5 405.1	10- 7-38 8-31-54	--	D,S	
E-24	D. W. Osburn, Jr.	1955	740	16	--	370 /b	1955	700	Irr	Cased to 705 feet, perforated 556-695 feet. See log.
*E-25	Pantex Ordnance Plant	1942	489	--	--	375 /b	1942	--	T.H.	Drilled for City of Amarillo. See log.
*E-26	J. L. Pratt	--	236	4	3,518.0	225.8 218.0	10- 7-54 8-17-54	--		
E-27	--	1942	746	--	3,520	--	--	--	T.H.	Drilled for Pantex Ordnance Plant. See log.
E-28	--	1942	785	--	3,521	--	--	--	T.H.	Drilled for Pantex Ordnance Plant. See log.
E-29	Harry G. Vance	1955	660	12	--	385 /b	1955	500	Irr	
E-30	Fred Obrecht	1955	710	16	--	357.2	1-24-56	800	Irr	

Table 2.--Records of wells in Carson County--Continued

Well	Owner	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Static Water Level		Reported yield (gpm)	Use of water	Remarks
						Below land surface datum (ft.)	Date of measurement			
E-31	Fred Obrecht	1950	390	7	3,513.3	349.3	8-17-54	--	S	
F-1	Phillips Petroleum Co.	1927	302	--	3,344.7	187 /b	1927	--	T.H.	Plains Water Station No. 12 test well. See log.
*F-2	do.	1927	376	20	3,321.7	--	--	350	Ind,M	Plains Water Station No. 4 water well. See log.
F-3	do.	1927	322	--	3,339.9	168 /b	1927	--	T.H.	Plains Water Station No. 11 test well. See log.
*F-4	do.	1937	451	20-16	--	--	--	350	Ind,M	Plains Water Station No. 7 water well. See log.
F-5	do.	1937	459	20-16	--	--	--	350	Ind,M	Plains Water Station No. 8 water well. See log.
F-6	S. B. Burnett Estate	1936	217	6	3,323.5	176.6	9- 7-54	--	S	
F-7	--	1953	500	--	--	--	--	--	T.H.	City of Amarillo No. C-9. See log.
F-8	--	--	151	6	3,297	139.9	9- 7-54	--	S	
F-9	--	1953	600	--	--	--	--	--	T.H.	City of Amarillo No. C-10. See log.

Table 2.—Records of wells in Carson County--Continued

Well	Owner	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Static Water Level		Reported yield (gpm)	Use of water	Remarks
						Below land surface datum (ft.)	Date of measurement			
F-10	--	--	--	4	--	276.4	9-17-54	--	S	
*F-11	--	1953	797	--	--	--	--	--	T.H.	City of Amarillo No. C-20. See log.
F-12	L. C. Shepherd	1955	595	16	--	300 /b	1955	600	Irr	Cased to 405 feet, perforated 325-405 feet.
F-13	Phil Hawkins	1955	550	16	--	330 /b	1955	900	Irr	Casing perforated 360-550 feet.
F-14	A. L. Stovall	1954	554	16	--	328.3	1-25-56	900	Irr	
F-15	--	1953	836	--	--	--	--	--	T.H.	City of Amarillo No. C-13. See log.
F-16	J. D. Kelly	1955	592	16	--	325 /b	1955	1,000	Irr	
F-17	Faye Herndon	1955	720	12	--	--	--	--	Irr	See log.
F-18	--	--	--	7	3,453.0	304.6	8-25-54	--	S	
F-19	--	1953	770	--	--	--	--	--	T.H.	City of Amarillo No. C-8. See log.
F-20	--	1953	800	--	--	--	--	--	T.H.	City of Amarillo No. C-6. See log.
F-21	H. L. Welsh	1955	515	16	--	344.4	3-21-56	700	Irr	Cased to 425 feet, perforated 360-425 feet.

Table 2.--Records of wells in Carson County--Continued

Well	Owner	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Static Water Level		Reported yield (gpm)	Use of water	Remarks
						Below land surface datum (ft.)	Date of measurement			
F-22	--	1930	375	4	3,495	342.6	8-25-54	--	D,S	
F-23	Mrs. M. M. Held	1955	688	16	--	344.4	1-24-56	--	Irr	
F-24	--	1953	770	--	--	--	--	--	T.H.	City of Amarillo No. C-21. See log.
F-25	--	--	--	8	3,510.1	347.2	8-18-54	--	N	
F-26	G. A. Mahler	1926	600	5	3,500.0	277.0	8-19-54	100	--	
F-27	W. H. Lusk	--	380	4	3,478.6	328.8	do.	--	D,S	
F-28	Agnes R. Howe	1955	683	12-10	--	--	--	600	Irr	Casing perforated 609-683 feet. See log.
F-29	--	1953	700	--	--	--	--	--	T.H.	City of Amarillo No. C-3. See log.
F-30	Buela Garretson	1955	740	16	--	340 /b	1955	800	Irr	Casing perforated 542-730 feet. See log.
F-31	George Rohan	1955	686	16	--	347 /b	1955	900	Irr	Cased to 650 feet, perforated 519-649 feet. See log.
F-32	--	--	--	5	3,464.3	322.0	8-26-54	--	D,S	

Table 2.—Records of wells in Carson County--Continued

Well	Owner	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Static Water Level		Reported yield (gpm)	Use of water	Remarks
						Below land surface datum (ft.)	Date of measurement			
F-33	Henry Haiduk	1955	700	16	--	334.4	3-21-56	1,000	Irr	Cased to 688 feet. See log.
*F-34	John Katara	1954	--	--	--	331.4	8-19-54	--	Irr	
F-35	Howard Bedding-field	1955	717	16	--	335 /b	1955	700	Irr	Cased to 697 feet. See log.
F-36	C. E. McCray	1955	690	12-10	--	335 /b	1955	600	Irr	See log.
F-37	B. F. Urbanczyk	1954	568	16	--	336.9	3-10-56	900	Irr	Casing perforated 468-568 feet.
*F-38	--	1953	820	--	--	317.4	2-23-56	--	T.H.	City of Amarillo No. C-11. See log.
F-39	Charles Lemmons	1955	600	16	--	335 /b	1955	1,000	Irr	
F-40	W. E. Bichsel	1956	711	16	--	318 /b	1956	500	Irr	Casing perforated 511-711 feet.
F-41	J. A. Whiteside	1955	790	16	--	335 /b	1955	700	Irr	Casing perforated 565-790 feet.
F-42	--	1953	820	--	--	--	--	--	T.H.	City of Amarillo No. C-2. See log.
F-43	Howard Lane	1955	650±	12	--	--	--	800	Irr	
F-44	do.	1955	650±	14	--	309.0	3- 9-56	--	N	

Table 2.--Records of wells in Carson County--Continued

Well -	Owner	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Static Water Level		Reported yield (gpm)	Use of well	Remarks
						Below land surface datum (ft.)	Date of measurement			
*F-45	City of Panhandle	1926	525	16	--	--	--	250	M	Owner's No. 1, cased to 380 feet.
*F-46	do.	1929	550	--	--	--	--	350	M	Owner's No. 3. See log.
*F-47	do.	1926	523	24	--	--	--	350	M	Owner's No.2
F-48	do.	1956	795	--	--	--	--	--	T.H.	See log.
G-1	B. Urbanczyk	1921	436	4	3,349.0	366.5 365.4	11- 4-38 9-10-54	--	S	
G-2	S. B. Burnett Estate	--	--	7	3,407.3	285.0	8-19-54	--	D	
G-3	Mary E. McCray	1954	550	16	--	322 /b	1954	800	Irr	Cased to 547 feet, perforated 337-547 feet. See log.
G-4	Margret Carson	1956	545	12	--	325 /b	1955	500	Irr	Cased to 530 feet. See log.
G-5	W. G. Ellers	1955	490	--	--	306.5	3-24-56	500	Irr	
G-6	do.	1935	3,801	12	3,410	--	--	--	O	See log.
G-7	J. A. Whitmore	1955	652	16	--	315 /b	1955	900	Irr	Cased to 508 feet. See log.
G-8	J. W. Fields	1930	340	7	3,425	294.8	8-19-54	--	D	

Table 2.—Records of wells in Carson County--Continued

Well	Owner	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Static Water Level		Reported yield (gpm)	Use of water	Remarks
						Below land surface datum (ft.)	Date of measurement			
G-9	--	1953	708	--	--	--	--	--	T.H.	City of Amarillo No. C-7. See log.
G-10	Mrs. T. B. Ramey	1955	470	16	--	321.1	3-24-56	550	Irr	Cased to 438 feet, perforated 338-437 feet. See log.
G-11	Harold Biggs	1955	520	--	--	--	--	--	Irr	
G-12	Mrs. M. B. Pickens	1955	555	16	--	306.3	3-24-56	900	Irr	Cased to 437 feet, perforated 341-436 feet. See log.
G-13	Alva Thornburg	1956	497	12	--	300 /b	1956	--	Irr	Cased to 400 feet. See log.
G-14	Mrs. M. B. Pickens	--	--	5	--	284.4	8-18-54	--	N	
G-15	City of White Deer	--	562	--	--	--	--	--	M	Owner's No. 3. See log.
*G-16	do.	1926	400	8	--	306.8	12- 6-38	77	M	Owner's No. 2.
*G-17	do.	1927	400	8	--	--	--	225	M	Owner's No. 1.
G-18	G. H. Grimes	--	--	4	3,351.0	283.4	8-11-54	--	D,S	
G-19	Eugene Richardson	1955	500	16	--	300 /b	1955	800	Irr	

Table 2.—Records of wells in Carson County--Continued

Well	Owner	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Static Water Level		Reported yield (gpm)	Use of water	Remarks
						Below land surface datum (ft.)	Date of measurement			
G-20	Mrs. Annie Cunningham	1955	496	16	--	305.0	3-13-56	800	Irr	
G-21	Earl McConnell	1955	466	16	--	235 /b	1955	800	Irr	
G-22	Panhandle & Santa Fe RR	1919	347	10	--	--	--	500	Ind	Cased to 346 feet, Perforated 320-346 feet. See log.
G-23	--	1953	810	--	--	--	--	--	T.H.	City of Amarillo No. C-12. See log.
G-24	Alva Thornburg	1955	500	16	--	285 /b	1955	--	Irr	
G-25	E. S. Milton	1955	478	16	--	262 /b	1955	1,000	Irr	See log.
G-26	C. A. Caldwell	--	--	4	3,406.2	300.2	8-18-54	--	D,S	
G-27	do.	1955	430	12	--	320 /b	1955	--	Irr	
G-28	Minor Simms	1955	577	16	--	318 /b	1955	700	Irr	Cased to 457 feet, perforated 328-456 feet. See log.
G-29	do.	1955	515	12	--	--	--	500	Irr	Cased to 500 feet. See log.
G-30	--	1953	765	--	--	--	--	--	T.H.	City of Amarillo No. C-15. See log.
G-31	Donna Locke	1956	500	16	--	--	--	1,100	Irr	Casing perforated 300-500 feet.

Table 2.--Records of wells in Carson County--Continued

Well	Owner	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Static Water Level		Reported yield (gpm)	Use of water	Remarks
						Below land surface datum (ft.)	Date of measurement			
G-32	Leonard E. Olson	1955	561	--	--	324.1	1-25-56	--	Irr	Cased to 497 feet, perforated 427-487 feet. See log.
G-33	--	1953	740	--	--	--	--	--	T.H.	City of Amarillo No. C-14. See log.
G-34	B. C. Hare	1956	698	12	--	--	--	--	Irr	Cased to 645 feet. See log.
G-35	Clyde Lawson	1955	667	16-10	--	--	--	900	Irr	See log.
G-36	John Appel	--	--	4	3,411	311.7	8-25-54	--	D,S	
*G-37	Mrs. O. W. Canady	1955	810	16	--	312 /b	1955	900	Irr	Cased to 807 feet, perforated 636-796 feet. See log.
G-38	Mrs. H. C. Dittberner	1955	698	12	--	318.4	1-25-56	--	Irr	Cased to 653 feet. See log.
G-39	Julius Meaker	--	--	--	3,411.5	297.1	8- 6-54	--	D,S	
G-40	E. B. Carroll	--	--	7	3,381	282.6	7-17-54	3	D,S	
G-41	do.	1955	586	12	--	320 /b	1955	--	Irr	Cased to 512 feet. See log.
G-42	V. D. Crumpacker	--	--	4	3,394.8	293.8	8- 6-54	--	S	
G-43	--	1953	490	--	--	--	--	--	T.H.	City of Amarillo No. C-16. See log.

Tabel 2.--Records of wells in Carson County--Continued

Well	Owner	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Static Water Level		Reported yield (gpm)	Use of water	Remarks
						Below land surface datum (ft.)	Date of measurement			
G-44	H. C. Dittberner	1910	319	4	3,383.9	294.0	8- 6-54	--	D,S	
G-45	Buisz Urbanczyk	1955	645	16	--	312 /b	1955	800	Irr	Cased to 590 feet. See log.
G-46	do.	1955	547	16	--	305 /b	1955	800	Irr	Cased to 510 feet. See log.
G-47	John O'Keefe	1955	654	16	--	277 /b	1955	1,000	Irr	Cased to 613 feet. See log.
G-48	Buisz Urbanczyk	1955	460±	--	--	--	--	--	Irr	
*G-49	P. W. Harnley	--	303	6	3,369.3	284.4 285.4	10- 8-38 8-11-54	--	D,S	
G-50	do.	--	523	16	--	289.8	1-25-56	--	Irr	
G-51	Mrs. D. C. Hearst	--	--	4	3,371.2	282.3	8-19-54	--	D,S	
G-52	Frank Evans	1955	536	16	--	286.7	3-13-56	--	Irr	See log.
G-53	Charles Warminskie	1955	480	16	--	285 /b	1955	800	Irr	See log.
G-54	L. O. Eakin	--	--	4	3,358.0	287.8	8-11-54	--	S	
G-55	R. J. Sailor	1955	435	16	--	303.4	3-14-56	650	Irr	Cased to 430 feet, perforated 324-430 feet. See log.

Table 2.--Records of wells in Carson County--Continued

Well	Owner	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Static Water Level		Reported yield (gpm)	Use of water	Remarks
						Below land surface datum (ft.)	Date of measurement			
*G-56	R. McBrayer	--	490	16	3,354.1	292.4	8-25-54	--	Irr	
G-57	-- Boone	--	--	6	3,314.7	243.2	8- 6-54	--	S	
G-58	V. D. Crum-packer	--	335	4	3,317.4	246.1	do.	--	D,S	
H-1	T. L. Haiduk	1956	465	14	--	380 /b	1956	--	N	Not in use in March, 1956. See log.
H-2	--	1910	411	4	--	374.3 322.3	11-21-38 9-13-54	--	N	
H-3	H. R. Kees	1931	3,336	15	--	--	--	--	O	See log.
H-4	Thomas Anderwald	1955	443	16	--	--	--	900	Irr	See log.
H-5	C. L. Henry	--	--	4	3,301.7	275.2	8-17-54	--	--	
H-6	Carl T. Harris	1955	509	16	--	277.3	1-25-56	--	Irr	
H-7	A. A. Holland Estate	--	--	--	3,316.4	260.9	8-17-54	--	S	
H-8	Niels Edwards	1955	580	14	--	287 /b	1955	375	Irr	
H-9	A. J. Dillard	1955	440	16	--	283.3	3-14-56	500	Irr	Cased to 436 feet.
H-10	W. B. Carey	1955	594	16	--	320 /b	1955	--	Irr	

Table 2.--Records of wells in Carson County--Continued

Well	Owner	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Static Water Level		Reported yield (gpm)	Use of water	Remarks
						Below land surface datum (ft.)	Date of measurement			
H-11	L. M. Ballard	1955	503	16	--	298.0	3-14-56	800	Irr	
H-12	Mrs. Hannah Anderson	1956	437	16	--	302 /b	1956	500	Irr	Casing perforated 347-437 feet. See log.
H-13	L. C. O'Neal	1955	414	16	--	270 /b	1955	800	Irr	Casing perforated 264-414 feet. See log.
H-14	Mrs. I. T. Kuykendall	1955	425	16	--	--	--	700	Irr	See log.
H-15	Mrs. Theresa Click	1956	402	16	--	--	--	--	Irr	See log.
H-16	Byron Hodges	--	--	--	3,320.0	284.9	8-17-54	--	S	
H-17	C. W. Bobbitt	1955	425	16	--	298.1	3-14-56	800	Irr	
H-18	Byron Hodges	1955	447	16	--	290 /b	1955	900	Irr	
H-19	R. A. Thompson, Jr.	1955	404	16	--	292.0	1-25-56	900	Irr	See log.
H-20	C. E. Deahl	--	--	8	3,305	289.8	8- 4-54	--	N	
*H-21	T. D. Hodges	--	340	---	--	292.8	9- 6-54	10	D	
*H-22	do.	1953	440	16	3,330.3	287.1	8-25-54	--	Irr	
H-23	J. H. Osborne	--	--	6	3,336.8	297.2	8- 4-54	--	S	
H-24	Dare Locke	1955	406	16	--	280 /b	1955	950	Irr	

Tabel 2.—Records of wells in Carson County--continued

Well	Owner	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Static Water Level		Reported yield (gpm)	Use of water	Remarks
						Below land surface datum (ft.)	Date of measurement			
H-25	F. L. Smoot	1955	400	16	--	280 /b	1955	500	Irr	
H-26	Mrs. Jenney Cavin	1956	435	16	--	298 /b	1956	500	Irr	
H-27	do.	1955	450	16	--	--	--	400	N	
H-28	Mrs. C. A. Neighbors	1955	460	16	--	293.3	3-14-56	250	N	See log
*J-1	Pantex Ordnance Plant	1938	406	4	---	384.6 386.4	10- 7-38 8-31-54	--	--	
J-2	do.	1942	501	--	3,568	--	--	--	T.H.	See log.
J-3	do.	1942	411	---	3,542	--	--	--	T.H.	See log.
J-4	do.	1942	484	--	3,529	--	--	--	T.H.	See log.
J-5	W. J. Morris	1954	552	16	--	362 /b	1954	1,000	Irr	Cased to 497 feet. See log.
J-6	Toll Ware	1955	500	16	--	358.5	1-26-56	1,000	Irr	
J-7	W. H. Obrecht	1909	388	6	3,514.3	354.7	8-17-54	2½	D,S	
J-8	Wescoat & Hood	1956	454	14	--	--	--	500	Irr	Cased to 440 feet. See log.
*J-9	M. Garretson	--	360	4	3,521.0	354.6 353.4	10- 7-38 8-18-54	--	D,S	

Table 2.—Records of wells in Carson County--Continued

Well	Owner	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Static Water Level		Reported yield (gpm)	Use of water	Remarks
						Below land surface datum (ft.)	Date of measurement			
J-10	U. S. Government	--	--	6	3,509.6	326.6	9-13-54	--	N	
J-11	--	--	--	5	3,501.4	279.5	7-14-54	--	N	
J-12	J. J. Slater	1954	261	--	3,460.1	224.6	do.	350	Irr	
J-13	J. W. Randall	--	--	5	3,481.4	243.0	do.	--	S	
J-14	J. J. Crawford	--	--	4	3,473.2	210.7	do.	--	D,S	
J-15	J. R. Sterling	--	--	6	3,504.0	198.6	7- 8-54	--	D,S	
J-16	--	--	--	8	3,504.9	199.9	7- 1-54	--	D	
J-17	M. H. Hays	1955	243	--	--	192.7	3-21-56	600	Irr	
J-18	Rock Island RR	--	--	--	3,522.4	181.5	7- 1-54	--	N	
J-19	J. E. Manz & Sarah Eaton	--	--	5	--	171.7	7-15-54	--	D,S	
J-20	do.	--	180±	5	3,516.6	179.9	7-21-54	--	D,S	
J-21	--	--	--	4	3,513.9	214.6	7-30-54	--	S	
J-22	R. D. Baker	--	212±	--	3,501.5	200± /b	1954	--	D,S	
J-23	--	--	--	6	3,520.9	195.5	6-28-54	--	S	
J-24	Phillips Petroleum Co.	--	240	8	--	197 /b	1954	60	Ind,D	

Table 2.—Records of wells in Carson County--Continued

Well	Owner	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Static Water Level		Reported yield (gpm)	Use of water	Remarks
						Below land surface datum (ft.)	Date of measurement			
J-25	W. G. Street	--	178	6	3,491.3	150.7	6-29-54	--	S	
J-26	--	--	--	4	3,495.1	159.5	6-28-54	--	N	
J-27	--	--	--	8	3,516.5	173.9	12- 9-54	--	S	
J-28	Panhandle & Santa Fe RR	--	315	10-8	3,530	--	--	25	D	Cased to 312 feet. See log.
K-1	Mrs. L. H. Skaggs	1955	725	12	--	309 /b	1956	--	Irr	Cased to 570 feet. See log.
K-2	--	1953	685	--	--	--	--	--	T.H.	City of Amarillo No. C-4. See log.
K-3	G. A. Mahler	--	445	7	3,491.9	338.5	8-19-54	--	N	
K-4	do.	1955	532	16	--	340 /b	1955	900	Irr	
K-5	Harry Ware	1955	480	16	--	--	--	1,000	Irr	
K-6	do.	1954	476	16	--	346.4	9-20-54	1,000	Irr	
K-7	W. J. Morris	1955	592	16	--	356 /b	1956	1,000	Irr	Cased to 584 feet, perforated 515-574 feet. See log.
K-8	--	1953	550	--	--	--	--	--	T.H.	City of Amarillo No. C-1. See log.
K-9	Mrs. K. E. Guyer	1956	440	16	--	337.7	3-21-56	500	Irr	Casing perforated 315-440 feet. See log.

Table 2—Records of wells in Carson County--Continued

Well	Owner	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Static Water Level		Reported yield (gpm)	Use of water	Remarks
						Below land surface datum (ft.)	Date of measurement			
K-10	C. E. Chenoweth	1948	365	7	3,481.3	330.8	8- 4-54	--	S	
K-11	do.	1956	441	14	--	346 /b	1956	--	Irr	See log.
*K-12	do.	1919	385	4	3,489.6	340.1	8- 4-54	--	N	
K-13	D. E. Price	1956	566	12	--	345 /b	1956	--	Irr	Cased to 473 feet. See log.
K-14	C. E. Chenoweth	1955	487	16	--	438 /b	1955	--	Irr	
K-15	Dick Orr	1955	449	16	--	332.0	1-26-56	1,200	Irr	See log.
*K-16	Herman C. Walker	1930	339	6	3,468.3	311.4	7-26-54	15	D,S	
*K-17	Henry Werner	1930	360	4	3,465.6	326.9	7-29-54	--	D,S	
K-18	T. M. Cleek	1955	802	16	--	336.4	3-21-56	1,000	Irr	Casing perforated 500-600 and 727-802 feet.
K-19	J. Floyd Howe	1955	756	16-10	--	329.3	3- 8-56	700	Irr	
K-20	Ora Lee Pond	1955	800	12	--	333.6	3- 9-56	500	Irr	Casing perforated 340-450 feet. See log.
K-21	Rose Gordon	1956	667	12	--	335 /b	1956	500	Irr	Casing perforated 490-650 feet. See log.
K-22	John Stone	1955	698	14	--	330 /b	1955	550	Irr	Casing perforated 618-698 feet.
K-23	Harold Knapp	1955	656	16	--	--	--	800	Irr	

Table 2--Records of wells in Carson County--Continued

Well	Owner	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Static Water Level		Reported yield (gpm)	Use of water	Remarks
						Below land surface datum (ft.)	Date of measurement			
K-24	Mary H. Aronsis	1956	680	12	--	--	--	560	Irr	See log
K-25	Paul Dauer	1955	707	16	--	323 /b	1955	800	Irr	Casing perforated 477-697 feet. See log.
K-26	--	1953	690	--	--	--	--	--	T.H.	City of Amarillo No. C-17. See log.
K-27	L. T. Cleek	--	388	8	3,425.3	299.4	7-28-54	--	S	
K-28	do.	1951	356	8	3,443.0	317.6	do.	--	D,S	
K-29	Harold O'Niel	1956	423	12	--	--	--	450	Irr	Cased to 410 feet. See log.
K-30	James Knittel	1955	530	16	--	332 /b	1955	930	Irr	Cased to 512 feet, perforated 308-501 feet. See log.
K-31	W. W. Evans	1925	340	5	3,421.6	293.5	8-16-54	--	D,S	
K-32	J. T. Broadaway	1955	637	14	--	332.2	3- 8-56	200	N	Cased to 435 feet. See log.
K-33	W. W. Evans	--	433	16	--	325.9	1-26-56	--	Irr	
K-34	Dick Orr	1955	430	--	--	--	--	--	T.H.	See log.
K-35	J. P. Calliham	--	--	4	3,458.7	331.2	7-29-54	10	D,S	
K-36	A. G. Gripp	--	340	6	3,481.9	312.5	7-27-54	--	D,S	
K-37	Floy Ketchum	--	--	5	3,461.5	311.7	7-26-54	--	D,S	

Table 2.--Records of wells in Carson County--Continued

Well	Owner	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Static Water Level		Reported yeild (gpm)	Use of water	Remarks
						Below land surface datum (ft.)	Date of measurement			
*K-38	R. W. Graham	--	338	5	3,458.6	316.1 318.1	10-13-38 7-26-54	--	D,S	
K-39	Rena Sayden	--	--	4	3,447.0	307.1	8-16-54	--	D,S	
K-40	--	--	--	5	3,455.1	302.0	7- 9-54	--	--	
K-41	Frank Burgin	--	--	5	3,475.2	198.2	do.	--	D,S	
K-42	-- Wooldridge	--	210	5	3,490.2	181.0	7- 7-54	--	D,S	
K-43	W. B. Holderman	--	--	6	3,477.0	146.7	do.	--	D,S	
K-44	R. A. Witt	1955	210	--	--	--	--	--	T.H.	See log.
L-1	Walter Lill	1955	704	16	--	298.3	1955	--	Irr	Cased to 597 feet, perforated 497-587 feet. See log.
L-2	Mrs. Morris John Judd	1955	684	16	--	306 /b	1955	1,000	Irr	Casing perforated 375-684 feet.
L-3	--	1953	630	--	--	--	--	--	T.H.	City of Amarillo C-19. See log.
L-4	Mrs. T. H. McKenzie	1955	535	16	--	295.2	3- 9-56	700	Irr	See log.
L-5	J. A. Horn	--	--	4	3,379.8	288.7	8- 5-54	--	D,S	
L-6	J. S. Stroope	--	--	--	3,350.4	274.7	7-28-54	--	D,S	

Table 2.—Records of wells in Carson County--Continued

Well	Owner	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Static Water Level		Reported yield (gpm)	Use of water	Remarks
						Below land surface datum (ft.)	Date of measurement			
L-7	J. S. Stroope	1956	436	16	--	279.5	1-25-56	--	Irr	
L-8	Dud Burns	1955	405	16	--	--	--	500	Irr	
L-9	Lee Riggins	--	320	6	3,333.5	266.4	7-28-54	--	D,S	
L-10	Lloyd Riggins	--	--	6	3,333.4	270.1	8- 5-54	--	D,S	
L-11	Sewell Kammerer	1955	501	14	--	335 /b	1955	800	Irr	
*L-12	A. L. Stovall	1954	438	20	3,425.3	325 /b	1954	890	Irr	Cased to 419 feet, perforated 316-416 feet. See log.
L-13	Hubert Fowler	1955	595	16	--	305 /b	1955	800	Irr	Cased to 547 feet, perforated 441-536 feet. See log.
L-14	Van Carter	1955	520±	14	--	--	--	800	Irr	
L-15	Frank Robinson	1955	450±	14	--	300 /b	1955	800	Irr	
L-16	do.	1955	470	14	--	--	--	800	Irr	
L-17	H. C. McDowell	--	--	4	3,376.1	290.6	8- 5-54	--	S	
L-18	M. C. McDowell	--	--	6	3,308.8	295.4	do.	--	D,S	
L-19	O. D. Smith	--	--	--	3,412.4	312.6	8-16-54	--	--	
L-20	Frank Robinson	1955	430	14	--	328.5	3- 8-56	200	N	

Table 2.—Records of wells in Carson County--Continued

Well	Owner	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Static Water Level		Reported yield (gpm)	Use of water	Remarks
						Below land surface datum (ft.)	Date of measurement			
L-21	F. W. Hagaman	--	--	4	3,395.6	302.2	8-16-54	--	S	
L-22	O. R. Harrell	1955	370	16	--	320.2	3- 8-56	800	Irr	Casing perforated 310-365 feet. See log.
L-23	Bill W. Hammer	1955	450	14	--	320 /b	1955	800	Irr	
L-24	Mae H. Dean	1955	500±	16	--	--	--	700	Irr	
*L-25	do.	1955	600±	16	--	302.5	3- 8-56	700	Irr	
L-26	Mrs. J. A. Barnett	--	360	4	3,326.1	260.8	7-30-54	--	D,S	
L-27	Mae H. Dean	1955	700	16	--	--	--	700	Irr	Cased to 689 feet, perforated 449-689 feet. See log.
L-28	do.	1955	619	16	--	--	--	700	Irr	Casing perforated 219-619 feet. See log.
L-29	Marietta Britten	--	--	4	3,332.1	284.9	7-26-54	--	S	
M-1	G. E. Clark	--	--	4	3,312.6	272.1	8- 4-54	--	S	
M-2	Mrs. J. Robbins	--	--	4	3,294.2	237.2	7-28-54	--	D,S	
M-3	Mrs. J. F. Pool	--	--	4	3,091.6	249.8	do.	--	D,S	
M-4	Saphronia Jackson	--	--	4	3,298.5	254.5	7-29-54	--	S	
M-5	--	--	--	6	3,309.0	263.0	7-26-54	--	S	

Table 2.--Records of wells in Carson County--Continued

Well	Owner	Date completed	Depth of well (ft.)	Diameter of well (in.)	Altitude of land surface (ft.)	Static Water Level		Reported yield (gpm)	Use of water	Remarks
						Below land surface datum (ft.)	Date of measurement			
M-6	W. C. Mullin Estate	--	--	7	3,294.1	257.3	7-29-54	--	--	
M-7	D. Pierson	1906	300±	4	3,283.7	248.8	do.	--	D,S	
M-8	Mrs. Emma Britton	1911	320	4	3,317.7	281.9	7-27-54	--	D,S	
M-9	W. M. Frederickson	1912	304	4	3,294.7	267.8	do.	--	D,S	
M-10	Mrs. Mary L. Koehler	--	380	4	3,269.5	259.3	do.	--	D,S	
M-11	City of Groom	1945	498	8	--	--	--	80	M	Owner's No. 2. Casing perforated 278-340 and 477-498 feet. See log.
*M-12	do.	1950	508	10	--	280 /b	1956	185	M	Owner's No. 1, cased to 489 feet, perforated 273-323 and 466-489 feet. See log.
*M-13	M. Weller	1904	292	4	3,273.2	259.5 262.7	9-22-38 7-27-54	--	D,S	

Table 3.--Drillers' logs of wells in Carson County, Texas

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well A-1, partial log					
Owner: John Q. Bost. Driller: Canadian River Gas Co.					
Surface materials----	20	20	Sand----------	115	155
Clay----------	20	40	Gypsum----------	10	165
			Total Depth		2852
Well A-3					
Owner: J. M. Huber Corp. Driller: W. D. Witt.					
Surface soil---------	2	2	Clay----------	8	100
Caliche----------	6	8	Sand rock----------	10	110
Sand----------	42	50	Sand----------	10	120
Caliche----------	25	75	Sand, water----------	5	125
Sand rock----------	8	83	Sand rock----------	12	137
Sand, water----------	2	85	Sand, water and gravel	7	144
Sand rock----------	7	92	Rock, red----------	42	186
Well A-4					
Owner: J. M. Huber Corp. Driller: W. D. Witt.					
Soil----------	10	10	Clay----------	5	85
Caliche----------	30	40	Sand rock----------	5	90
Sand rock----------	21	61	Sand, water----------	10	100
Sand, water----------	1	62	Sand rock----------	8	108
Clay----------	8	70	Sand, water and gravel	4	112
Sand rock----------	10	80	Red beds----------	44	156
Well A-5					
Owner: J. M. Huber Corp. Driller: W. D. Witt.					
Soil----------	3	3	Caliche----------	25	85
Caliche----------	7	10	Sand rock----------	10	95
Sand----------	10	20	Sand, water----------	1	96
Caliche----------	30	50	Sand rock----------	11	107
Sand----------	10	60	Clay----------	3	110

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Table 3.--Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well A-5--Continued					
Sand rock----------	10	120	Clay, yellow----------	1	157
Sand, water----------	20	140	Rock----------	2	159
Sand rock----------	10	150	Red beds----------	43	202
Sand, water and gravel	6	156			
Well A-6					
Owner: J. M. Huber Corp.			Driller: W. D. Witt.		
Surface soil---------	3	3	Clay, yellow---------	6	135
Sand----------	7	10	Sand, water----------	7	142
Caliche----------	20	30	Clay----------	2	144
Clay, yellow---------	21	51	Sand----------	21	165
Sand----------	14	65	Sand, water----------	5	170
Caliche----------	45	110	Rock----------	5	175
Sand----------	18	128	Red beds----------	35	210
Sand, water----------	1	129			
Well A-9					
Owner: Phillips Petroleum Co.			Driller: J. W. Wright.		
Dirt----------	40	40	Clay, sandy----------	18	291
Rock, soft, white----	20	60	Sand, fine, water-bearing----------	10	301
Sand and clay--------	8	68	Clay, sandy----------	18	319
Rock, soft, white----	11	79	Sand, good, water-bearing----------	2	321
Sand and clay--------	71	150	Rock, hard, white----	1	322
Clay, yellow---------	10	160	Clay, yellow---------	4	326
Clay and sand--------	30	190	Sand, water-bearing--	40	366
Clay, yellow---------	6	196	Clay, yellow, streaked with sand----------	2	368
Sand----------	28	224	Clay, yellow; thin streaks of water-bearing sand, last five feet firm------	15	383
Rock, soft, white; caliche ----------	8	232	Sand, coarse, water-bearing----------	20	403
Sand mixed with clay, water-bearing-------	26	258			
Sand, fine, water-bearing----------	12	270			
Clay, yellow---------	1	271			
Sand, fine, water-bearing----------	2	273			

Table 3.—Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well A-10					
Owner: Phillips Petroleum Co. Driller: R. P. Brazil.					
Top soil	2	2	Clay, sandy, light yellow	32	336
Clay, reddish	47	49	Sand, grayish loose, and clay	30	366
Clay, yellowish	149	198	Clay, soft, sandy	8	374
Clay, grayish, sandy	20	218	Clay, reddish; very little sand	22	396
Clay, red, sandy	32	250	Clay, red, sandy	13	409
Sand, some clay	32	282			
Sand, water, and gravel	2	284			
Sand, grayish; water and clay	20	304			
Well B-2					
Owner: Gulf Oil Corporation. Driller: H. H. Heiskell.					
Soil	2	2	Rock, flint	3	117
Caliche	5	7	Rock, red	1	118
Clay, brown and sand	8	15	Dolomite	7	125
Sand, dry	82	97	Rock, red	6	131
Shell, hard dolomite	10	107	Rock, red and shells	132	263
Dolomite	7	114	Red beds	140	403
Well B-7					
Owner: Phillips Petroleum Co. Driller: J. W. Wright.					
Dirt	30	30	Clay, hard, yellow	37	304
Sand	60	90	Sand	1	305
Caliche, soft	12	102	Clay, pink	2	307
Sand rock, soft	9	111	Clay, yellow	37	344
Caliche	19	130	Sand, fine, water	8	352
Sand and clay	29	159	Clay, sandy	4	356
Caliche	6	165	Clay, yellow	8	364
Sand and clay	88	253	Clay, blue	23	387
Sand rock	4	257	Sand	3	390
Sand, water, coarse	5	262	Clay, blue	6	396
Sand, dirty; very little water	5	267			

Table 3.--Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well B-8					
Owner: Phillips Petroleum Co. Driller: D. L. McDonald					
Dirt	40	40	Sand, fine, water bearing	2	273
Rock, soft, white (caliche)	10	50	Clay, sandy	18	291
Sand and clay	18	68	Clay, yellow	10	301
Rock, soft, white (caliche)	11	70	Sand, fine, water-bearing	2	303
Sand and clay	71	150	Clay, sandy	16	319
Clay, yellow	10	160	Sand, water-bearing	2	321
Sand and clay	30	190	Rock, white, hard	1	322
Clay, yellow	6	196	Clay, yellow	4	326
Sand	28	224	Sand, water-bearing	34	360
Rock, soft, white (caliche)	8	232	Clay, yellow, streaked with sand	6	366
Sand mixed with clay (water-bearing)	26	258	Clay, yellow; thin streaks of water-bearing sand	17	383
Sand, fine, water-bearing	12	270	Sand, coarse, water-bearing	20	403
Clay, yellow	1	271			
Well B-9					
Owner: Phillips Petroleum Co. Driller: D. L. McDonald.					
Sand rock, not very hard	23	23	Clay and sand, mixed	33	283
Sand rock, hard	22	45	Sand rock, soft	10	293
Sand rock, soft	23	68	Clay	12	305
Sand rock, hard	22	90	Clay and sand	36	341
Sand rock, medium	22	112	Sand rock	6	347
Sand rock, hard	22	134	Clay and sand, red and blue	84	431
Sand rock, soft	20	154	Clay and sand rock, hard	44	475
Sand rock, hard	64	218	Sand rock, hard	25	500
Sand rock, medium	13	231			
Sand rock, soft	19	250			

Table 3.—Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well B-10					
Owner: Phillips Petroleum Co. Driller: D. L. McDonald.					
Soil	1	1	Sand with thin clay streaks	108	325
Caliche	17	18	Sand, coarse, clean	73	398
Clay, sandy	112	130	Sand, hard, cemented	32	430
Rock, white	35	165	Shale, hard, gray	32	462
Sand, dry	40	205	Shale, red	73	535
Rock, white, hard	12	217			
Well B-11					
Owner: Phillips Petroleum Co. Driller: D. L. McDonald.					
Chalk rock, white	10	10	Clay, sandy, yellow	4	214
Clay, sand, reddish and rock	49	59	Sand, water, grayish; streak clay and gravel	24	238
Clay, reddish	17	76	Sand, more, less clay	13	251
Clay, sandy, red and rock	11	87	Clay, yellow, some sandy streaks	20	271
Rock, hard	4	91	Sand, soft; very little clay	14	285
Rock, soft; sandy clay	6	97	Clay, yellowish, hard; sand streaks, gravel	4	289
Rock, hard	4	101	Sand, soft; some gravel	6	295
Rock, hard, sandy clay	11	112	Sand streaks, hard clay	7	302
Clay, sandy, soft	8	120	Sand, water, loose, clean	28	330
Clay, hard and rock	5	125	Sand, coarse, and gravel with sand rock and clay streaks	72	402
Clay, sandy	7	132			
Clay, yellow	24	156			
Clay, yellow and gravel	19	175			
Clay, sandy, yellow; some fine gravel	21	196			
Sand, water, grayish, and gravel; some clay streaks	14	210			
Well B-12					
Owner: Phillips Petroleum Co. Driller: R. P. Brazil.					
Chalk rock, white	10	10	Rock, hard	4	101
Clay, sandy, reddish, and rock	49	59	Rock, soft; sandy clay	6	107
Clay, reddish	17	76	Rock, hard, sandy clay	5	112
Clay, sandy, red	11	87	Clay, sandy, soft	8	120
Rock, hard	4	91	Clay, hard, and rock	5	125
Rock, soft, sandy clay	6	97	Clay, sandy	7	132
			Clay, yellow	24	156

(Continued on next page)

Table 3.—Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well B-12--Continued					
Clay, yellow and gravel	18	174	Clay, yellow, some sandy streaks	20	271
Clay, sandy, yellow; some fine gravel	22	196	Sand, soft very little clay	14	285
Sand, water grayish, and gravel; some clay streaks	14	210	Clay, hard yellowish, sandy streaks some gravel	4	289
Clay, sandy yellow	4	214	Sand, soft some gravel	6	295
Sand, water, grayish streaks of clay and gravel	24	238	Sand, hard streaks clay	7	302
Sand, a little clay	13	251	Sand, water, loose clean	28	330
Well B-13					
Owner: Phillips Petroleum Co. Driller: R. P. Brazil.					
Sandy soil, dark	2	2	Sand, grayish; some clay	17	123
Sand and streaks of clay	28	30	Clay, white; some gravel	20	143
Sand rock, hard	3	33	Clay, sandy, reddish-	11	154
Sand, reddish	17	50	Clay, white	20	174
Clay, yellow; some rock	18	68	Clay, sandy, reddish-	23	197
Clay, yellow; some gravel	11	79	Clay, yellow	32	229
Clay, yellow; more gravel	11	90	Clay, yellow; streaks of sand	12	241
Clay sandy, grayish	16	106	Sand, water, gray	14	255
Well B-14					
Owner: Phillips Petroleum Co. Driller: R. P. Brazil.					
Clay, sandy, dark	26	26	Clay, reddish, sandy-	15	116
Clay, reddish	14	40	Clay, white	18	134
Clay, reddish; some rock	3	43	Clay, sandy, reddish-	11	145
Clay, softer, reddish	5	48	Clay, white; streaks of sand	50	195
Clay, reddish; some rock	4	52	Clay, yellowish	10	205
Clay, sandy, reddish-	30	82	Clay, yellow; streaks of sand	60	265
Clay, sandy, reddish and gravel	19	101	Clay, yellow, and sand	8	273

Table 3.—Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well B-15					
Owner: Phillips Petroleum Co. Driller: D. L. McDonald.					
Soil, black, sandy---	18	18	Clay, sandy, grayish-	30	220
Clay, reddish--------	20	38	Clay, less sand------	10	230
Clay, sandy----------	45	83	Sand, water----------	25	255
Sand and gravel------	26	109	Clay, white, soft----	5	260
Sand, clay and gravel	14	123	Sand, coarse and gravel	10	270
Clay, sandy, reddish-	9	132	Sand, coarse and gravel with sand rock and clay strata----------	105	375
Clay, white----------	43	175			
Clay, sandy, white---	15	190			
Well B-16					
Owner: Phillips Petroleum Co. Driller: R. P. Brazil.					
Soil, black, sandy---	18	18	Clay, sandy, white---	15	190
Clay, reddish--------	20	38	Clay, sandy, grayish-	30	220
Clay, sandy----------	45	83	More clay and less sand----------	10	230
Sand and gravel------	26	109	Sand, water----------	25	255
Sand, clay and gravel	14	123	Clay, white, soft----	5	260
Sand, reddish, and sandy clay----------	9	132	Sand, coarse and gravel	10	270
Clay, white----------	43	175			
Well B-17					
Owner: Phillips Petroleum Co. Driller: R. P. Brazil.					
Soil, dark-----------	2	2	Clay, white----------	20	198
Gravel---------------	2	4	Sand, gray; streaks clay, very little water----------	43	241
Clay, sandy, darkish-	6	10			
Clay, reddish--------	20	30	Clay, white----------	27	268
Clay, light, reddish-	45	75	Clay, sandy, white---	20	288
Sand, grayish; streaks clay----------	65	140	Clay, white----------	18	306
			Clay, sandy, yellowish	17	323
Clay, yellowish and gravel----------	9	149	Clay, yellow, sand streaks, some water-	7	330
Sand streaks, grayish and clay----------	15	164	Sand streaks; yellow clay----------	18	348
Sand, softer, and clay; some water----------	6	170			
Clay, sandy, hard gray	8	178			

Table 3.—Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well C-3, partial log					
Owner: B. F. Block. Driller: Great West Oil Co.					
Surface soil---------	10	10	Red beds----------	28	323
Sand and shells------	65	75	Total Depth		3168
Sand and gravel------	220	295			
Well C-6					
Owner: Panhandle & Santa Fe RR. Driller: Tye Bros.					
Soil----------	3	3	Sand, pack (dry)-----	27	225
Red bed----------	4	7	Sand, pack, light white	35	260
Clay, brown; some sand	21	28	Sand rock, white-----	27	287
Clay, yellow and sand	2	30	Sand, light brown----	33	320
Clay, yellow; sand and gravel----------	30	60	Sand; coarse gravel (water)----------	6	326
Sand, soft, yellow; some gravel and clay	15	75	Gravel, fine and coarse sand---------	14	340
Sand, yellow, pack (soft and dry)------	20	95	Gravel, fine and coarse brown sand---	10	350
Sand, pack, red and lime gravel--------	28	123	Sand, coarse, white, a and very fine gravel	21	371
Sand, pack, red-----	37	160	Clay, yellow; some gravel----------	9	380
Sand, brown---------	15	175	Clay, brown----------	15	395
Sand, brown and clay	15	190	Clay, red and sand---	18	413
Clay, soft, light, fluffy----------	8	198	Quicksand, brown, (second water)------	5	418
Well D-2, partial log					
Owner: E. Cooper. Driller: Gulf Production Co.					
Sand, white---------	50	50	Sand, white----------	50	240
Sand, brown---------	70	120	Clay, yellow and sand	25	265
Sand, white---------	60	180	Rock, red----------	35	300
Sand, yellow--------	10	190	Total Depth		3,023

Table 3.—Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well D-3					
Owner: Skelly Oil Co. Driller: Unknown.					
Clay and caliche	50	50	Sand	47	345
Clay, white	47	97	Sand, water	15	360
Rock, hard	20	117	Sand rock, hard	15	375
Clay, red	11	128	Sand rock, extra hard	2	377
Rock, white	12	140	Sand, soft, with hard streaks	45	422
Sand rock, white	15	155	Red beds	262	684
Sand	53	208			
Sand rock with clay streaks	90	298			
Well D-4					
Owner: Skelly Oil Co. Driller: H. H. Heiskell.					
Soil	5	5	Sand, clay and gravel	30	300
Caliche	45	50	Sand and clay	20	320
Sand and caliche	130	180	Sand and gravel	70	390
Sand and clay	90	270	Sand, coarse and clay	25	415
Well D-6					
Owner: John Haggard. Driller: J. J. Merrifield.					
Top soil	3	3	Sand and gravel	15	325
Clay, sandy, red and caliche	101	104	Sand	25	350
Sandstone	2	106	Clay, sandy, yellow	58	408
Clay, sandy and shale	104	210	Sand, coarse and gravel	72	480
Sand, coarse	15	225	Clay, sandy, red	8	488
Clay, sandy and shale	85	310			
Well D-8					
Owner: H. L. Boone. Driller: J. J. Merrifield.					
Top soil	4	4	Clay, sandy and shale	10	273
Caliche and red clay	100	104	Sand, coarse and gravel and clay	10	283
Sandstone	2	106	Clay, sandy and shale	87	370
Clay, sandy and shale	106	212	Sand, coarse and gravel	70	440
Sand and gravel	15	227	Clay, red and shale	5	445
Clay, sandy	26	253	Red beds	5	450
Gravel and clay	10	263			

Table 3.--Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well D-9, partial log					
Owner: Julia McConnell. Driller: Waggoner Oil Co.					
Upper portion missing	0	393	Red beds	242	635
Water sand	--	393	Total Depth		3,060
Well E-3					
Owner: Unknown. Driller: Western Drilling Co.					
Top soil	2	2	Clay, sandy and gravel with hard layers of limestone	11	330
Clay, sand, yellow; with caliche	6	8	Clay, sandy	60	390
Clay, brown and gray	30	38	Sand, fine loose	61	451
Clay, sandy, yellow; brown and gray clay with some limestone	30	68	Sand, fine, with clay breaks	12	463
Clay, sandy, brown and yellow, with cemented sand and clay gray	32	100	Sand, fine	55	518
Clay, sandy, with limestone	20	120	Sand, fine, with some cemented layers	15	533
Clay, sandy, red	15	135	Sand, fine with some red clay	7	540
Clay, sandy, brown, with some gravel	15	150	Sand, fine, with layers of sandy clay and shale	36	576
Sand, fine, with some limestone	15	165	Clay, sandy, with layers of gravel	4	580
Clay, sandy, red, with streaks of limestone	15	180	Gravel (good)	7	587
Clay, sandy, brown, with cemented gravel	32	212	Gravel (good), cemented	4	591
Clay, sandy brown	22	234	Clay, sandy, yellow; some gravel	24	615
Limestone; clay, sandy yellow	6	240	Gravel, good	7	622
Sand, fine	9	249	Clay, sandy, red and gravel	8	630
Gravel, cemented	21	270	Shale, brown and green	80	710
Layers of sandy gravel and clay	30	300	Rock, hard, white	1	711
Gravel with clay, small layers	19	319			

Table 3.—Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well E-6					
Owner: Unknown. Driller: Western Drilling Co.					
Top soil	7	7	Gravel, medium to fine (good)	15	420
Clay, brown (soft)	16	23	Clay, sandy; some sand fine and gravel	8	428
Clay, sandy, brown	59	82	Clay, yellow and clay, sandy brown	22	450
Clay, sandy, red and caliche	63	145	Clay, brown and some clay, brown, sandy	12	462
Clay, sandy; some fine gravel, and sand	33	178	Clay, brown and white	8	470
Gravel (medium to fine) and clay	35	213	Clay, light gray	11	481
Clay, sandy, brown and yellow (tight)	29	242	Clay, brown and gray	23	504
Clay, sandy, yellow (soft)	21	263	Clay, sandy, brown	22	526
Gravel, cemented and clay, sandy (hard)	6	269	Clay, sandy, brown, with limestone hard layers	22	548
Gravel, cemented, (medium to hard, good, clean)	17	286	Clay, very sandy, brown	8	556
Clay, sandy and caliche	24	310	Clay, very sandy; some gravel	24	580
Clay, sandy, brown and caliche	22	332	Clay, very sandy; some gravel and pebbles coarse	14	594
Clay, sandy, light brown (tight)	7	339	Gravel, medium (good)	14	608
Clay, sandy, light brown (soft)	48	387	Clay, sandy, red	26	634
Clay, brown and yellow; some caliche	11	398	Gravel, fine	6	640
Gravel, medium to fine and sand; some clay sandy	7	405	Sand, fine to medium, good	10	650
			Clay, sandy, brown; some fine gravel	10	660
			Clay, sandy; some fine sand and shale	25	685
Well E-7					
Owner: R. C. Durrett. Driller: H. H. Heiskell.					
Top soil	3	3	Clay and caliche	15	195
Clay, brown	52	55	Sand and gravel	40	235
Clay and caliche	95	150	Clay, brown, sandy	10	245
Clay, sandy	30	180	Sand and gravel	35	280

(Continued on next page)

Table 3.--Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well E-7--Continued					
Clay, brown----------	85	365	Sand, fine and clay--	40	610
Clay, brown, sandy and caliche---------	25	390	Sand, coarse and gravel; little clay-	20	630
Clay, sandy; hard shells and caliche--	45	435	Sand, coarse and gravel----------	30	660
Clay, brown, soft----	10	445	Sand, fine, little clay----------	10	670
Clay, sandy and caliche	15	460	Sand, coarse and gravel, hard--------	13	683
Sand, gravel and clay and hard shells-----	10	470	Clay, sandy----------	7	690
Clay, sandy and hard shells----------	30	500	Clay, pink, hard-----	25	715
Clay, sandy----------	70	570	Clay, sandy and hard; shells----------	32	747
Well E-8					
Owner: M. L. Purvine. Driller: H. H. Heiskell.					
Caliche----------	200	200	Sand rock----------	20	590
Clay, brown, and caliche----------	85	285	Sand, fine, and clay hard----------	20	610
Sand, fine----------	10	295	Sand, fine; gravel and clay----------	10	620
Clay, white, caliche-	85	380	Sand, coarse, and gravel----------	80	700
Sand, fine; white clay----------	130	510	Sand, white, coarse--	80	780
Sand, fine, hard and white clay----------	60	570	Rock, red----------	10	790
Well E-9					
Owner: Stuart Purvine. Driller: H. H. Heiskell.					
Top soil----------	3	3	Clay, sand and sand rock----------	20	570
Clay, brown----------	17	20	Clay, chalky---------	10	580
Caliche and brown clay----------	280	300	Sand, fine; gravel and clay streaks----	100	680
Clay, sandy----------	70	370	Sand, coarse and gravel----------	20	700
Clay, brown----------	15	385	Sand and gravel------	100	800
Sand, fine and sand rock----------	145	530	Rock, red----------	8	808
Clay, yellow---------	20	550			

Table 3.—Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well E-10					
Owner: Unknown. Driller: Western Drilling Co.					
Top soil	3	3	Sand, fine, with some sandy clay, brown and yellow	36	338
Clay, sandy, brown	7	10	Clay, sandy, yellow; fine sand, clay, brown and some cemented sand	48	386
Clay, brown	6	16	Clay, sandy, yellow and shale, brown with sand fine	42	428
Clay, red with sand, cemented	19	35	Sand, fine, with some brown clay	48	476
Clay, yellow and sand cemented with caliche	17	52	Sand, fine and gravel with brown clay	10	486
Clay, sandy, brown, with caliche and limestone	12	64	Sand, fine and gravel with brown clay and limestone	7	493
Sand, fine, yellow, with brown clay and caliche	18	82	Gravel, good	33	526
Clay, sandy, gray and yellow, with caliche and sand, cemented	10	92	Clay, brown, sandy; clay brown and gravel	16	542
Clay, sandy, brown	11	103	Clay, brown and shale	24	566
Clay, sandy brown and yellow, with sand cemented	49	152	Clay, sandy brown and gray, and shale	5	571
Sand, yellow, fine, with some clay, sandy, gray	18	170	Clay, sandy, gray and yellow, with brown shale	11	582
Clay, yellow and green, with fine sand and cemented sand	26	196	Sand, fine, yellow, with some red shale	36	618
Sand, fine and gravel, good	48	244	Clay, sandy, yellow, with sand fine and clay, red	25	643
Sand, fine and gravel with sandy clay, yellow and gray	16	260	Sand, fine, yellow	37	680
Clay, sandy, yellow, with caliche and some gravel	12	272	Clay, red	10	690
Clay, sandy, yellow, with sand, cemented	30	302	Rock, hard white	5	695

Table 3.—Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well E-12					
Owner: City of Amarillo. Driller: Layne Texas					
Soil	3	3	Sand, broken	72	502
Caliche and clay layers	67	70	Rock, hard	7	509
Sand, clay and caliche	36	106	Shale, and sand layers	42	551
Caliche, hard	67	173	Shale, red sticky	41	592
Gravel and caliche	17	190	Sand and streaks of clay	15	607
Caliche	9	199	Clay, red	20	627
Gravel, clay and caliche	21	220	Sand, caliche and streaks of clay	18	645
Sand, gravel and clay	46	266	Sand and streaks of clay	26	671
Sand, rock, hard	14	280	Shale, red and streaks of sand	25	696
Sand, clay and caliche	28	308	Sand, gravel and streaks of lime	32	728
Clay and caliche	16	324	Gravel and caliche	10	738
Sand, gravel and caliche	39	363	Shale, hard red	7	745
Clay, gravel and sand	27	390	Rock, hard	2	747
Sand and clay	15	405			
Clay, gravel, caliche and sand breaks	25	430			
Well E-13					
Owner: City of Amarillo. Driller: Tex Water Wells.					
Rotary to ground	7	7	Red bed	38	567
Surface	2	9	Sand and gravel	44	611
Sand, red; clay	81	90	Red bed	22	633
Clay, red, and caliche	85	175	Sand and gravel with clay streaks	57	690
Lime rock	7	182	Sand rock, hard	3	693
Sand, gravel and clay	11	193	Sand, gravel and lime streaks	12	705
Sand, hard, white, and gravel with clay	127	320	Red beds and lime streaks	7	712
Sand and gravel with lime streaks	83	402	Red beds	18	730
Sand and clay streaks	12	415	Rock, hard	2	732
Sand, broken and gravel	85	500			
Sand, broken and clay with gravel	29	529			

Table 3.—Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well E-16					
Owner: City of Amarillo. Driller: Western Drilling Co.					
Top soil	5	5	Sandstone	1	528
Clay, red; caliche	95	100	Sand, fine	29	557
Caliche, cemented sand	17	117	Sandstone and rock	4	561
Sand rock	8	125	Sand, gravel and white rock	39	600
Sand, fine; brown clay	48	173	Sand, hard, and some clay	5	605
Sand and rock	27	200	Sand and gravel	130	735
Sand, coarse	82	282	Sand, fine; clay	35	770
Sand, caliche	92	374	Sand, coarse, and gravel	50	820
Sand, coarse; and rock	31	405	Rock, white; yellow and gray clay	13	833
Sand, fine loose	122	527			
Well E-17					
Owner: City of Amarillo. Driller: Western Drilling Co.					
Drilling plat to ground	6	6	Sand and sand rock	172	500
Top soil	5	11	Sand and shale; some rock	30	530
Clay, red and caliche	91	102	Sand, coarse, water	30	560
Caliche and cemented sand	15	117	Rock, hard	12	572
Sandstone, hard	3	120	Sand, coarse, and gravel	68	640
Clay, brown, sandy	7	127	Sand, hard; white rock	20	660
Sand, fine and clayey sand	52	179	Sand, coarse	54	714
Sand cemented	11	190	Sand, hard; some rock	31	745
Sand, fine, tight	60	250	Gravel, fine	27	772
Sand, fine; some clay	35	285	Shale, red and yellow	6	778
Clay, sandy; caliche	43	328	Rock, hard	2	780
Well E-18					
Owner: Unknown. Driller: Western Drilling Co.					
Top soil	2	2	Clay, gray with cemented sand	17	63
Caliche	3	5	Caliche with cemented sand	13	76
Clay, brown	33	38			
Clay, green	8	46			

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Table 3.—Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well E-18--Continued					
Clay, sandy, yellow, with cemented sand--	16	92	Sand, fine and gravel	12	375
Sand, fine, with yellow and gray sandy clay----------	51	143	Clay, sandy, yellow--	11	386
Clay, sandy, yellow, with sand, cemented-	16	159	Clay, sandy, yellow, with fine gravel----	10	396
Sand, fine, with cemented sand-------	9	168	Clay, sandy, brown and yellow, with fine sand----------	32	428
Sand, fine and gravel	8	176	Sand, fine, with brown clay----------	30	458
Clay, sandy, yellow, with some limestone-	14	190	Sand, fine----------	9	467
Clay, sandy, yellow, with sand, fine and cemented sand-------	28	218	Gravel, good---------	3	470
Sand, fine and gravel	9	227	Sand, fine and gravel	99	569
Sand, fine and gravel; gray sandy clay-----	11	238	Sand, fine and gravel with some yellow and brown clay----------	7	576
Clay, gray and yellow, with fine sand------	60	298	Rock, hard, white----	2	578
Clay, sandy, gray and yellow, with cemented sand----------	24	322	Sand, fine and gravel	17	595
Clay, sandy, yellow, with cmented sand and brown clay----------	21	343	Rock, hard, white----	1	596
Sand, fine, with brown and green clay------	8	351	Sand, fine and gravel with some brown clay and strips of hard white rock----------	51	647
Clay, sandy, yellow with fine sand------	12	363	Sand, fine, with brown clay----------	10	657
			Sand, fine, with small gravel----------	35	692
			Sand, fine and gravel with brown and yellow sandy clay----------	7	699
			Rock, hard, white----	5	704
			Clay, red----------	6	710
Well E-19					
Owner: City of Amarillo.			Driller: Layne Texas		
Surface soil---------	2	2	Gravel and caliche---	35	212
Clay----------	3	5	Gravel and sandy clay	16	228
Clay and caliche-----	55	60	Sand, clay, caliche and gravel----------	22	250
Clay and caliche and sandy clay----------	37	97	Clay, gravel and sand breaks----------	88	338
Clay and caliche-----	80	177			

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Table 3.—Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well E-19--Continued					
Gravel and sand------	6	344	Sand and gravel------	13	558
Clay and caliche-----	9	353	Sand and gravel; layers of caliche and gravel	31	589
Gravel and sand------	10	363	Caliche----------	5	594
Caliche, hard--------	6	369	Sand and gravel------	22	616
Clay and caliche-----	14	383	Clay and caliche-----	5	621
Gravel and sand------	40	423	Sand and gravel------	11	632
Clay and sand; layers of clay and caliche-	21	444	Clay----------	8	640
Caliche and clay-----	25	469	Sand, gravel and layers of clay----------	61	701
Sand and gravel------	16	485	Sand, gravel and clay breaks----------	63	764
Clay; breaks of sandy clay and sand-------	41	526	Shale, hard----------	10	774
Sand, gravel and caliche----------	19	545			
Well E-21					
Owner: Lorene O. Locke. Driller: Panhandle Irrigation Co.					
Surface clay---------	10	10	Sand----------	20	270
Sand, red----------	10	20	Sand and clay--------	20	290
Sand and clay--------	130	150	Caliche and sand-----	30	320
Sand----------	30	180	Sand----------	270	590
Sand and clay--------	70	250	Gravel----------	65	655
Well E-24					
Owner: D. W. Osburn. Driller: H. H. Heiskell.					
Soil----------	4	4	Sand, fine, white, clay streaks--------	40	590
Caliche----------	106	110	Sand and gravel------	90	680
Clay, sandy----------	141	251	Sand, coarse, white and gravel----------	25	705
Caliche and brown white clay----------	69	320	Clay, yellow---------	10	715
Sand, white and gravel	60	380	Clay, blue and sand--	25	740
Clay, brown----------	90	470			
Clay, sandy white----	80	550			

Table 3.—Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well E-25					
Owner: Pantex Ordnance Plant. Driller: H. H. Heiskell.					
Soil	5	5	Clay, white and caliche, mixed	12	412
Clay, brown	13	18	Sand with caliche pebbles, water-bearing	11	423
Clay, red	11	29	Sand, fine, white, with little clay and small white pebbles, water-bearing	9	432
Clay, sandy	66	95	Clay, sandy	11	443
Sand	142	237	Sand, coarse and fine gravel, water	31	474
Clay, sandy	13	250	Clay, yellow	2	476
Sand	10	260	Sand, coarse, with fine gravel	4	480
Clay, yellow	5	265	Clay, yellow	7	487
Clay, sandy	30	295	Sand and gravel	2	489
Clay, yellow	5	300			
Clay, sandy	20	320			
Caliche gravel, washed, water-bearing	75	395			
Shell, hard broken, caliche with a little white sand, cemented, water-bearing	5	400			
Well E-27					
Owner: Unknown.					
Soil	3	3	Sand and shells	77	353
Clay	37	40	Sand and gravel	23	376
Caliche, red	40	80	Clay, white and gravel	20	396
Caliche, white	15	95	Sand and gravel	204	600
Sand, fine, red	108	203	Sand, gray	96	696
Sand and gravel	17	220	Triassic	50	746
Sand and clay	56	276			
Well E-28					
Owner: Unknown.					
Soil	5	5	Sand and gravel	46	192
Clay	41	46	Sand, fine, gray	18	210
Caliche	30	76	Sand and gravel	24	234
Sand, gray	70	146	Sand	8	242

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Table 3.—Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well E-28--Continued					
Sandstone----------	5	247	Clay, brown----------	22	539
Clay, brown----------	75	322	Sandstone----------	30	569
Clay and gravel------	40	362	Sand and gravel------	73	642
Sand and clay--------	20	382	Sand, fine, brown----	20	662
Sand-----------------	40	422	Sand, gray-----------	20	682
Sand and shells------	20	442	Clay, brown, sandy---	20	702
Sand, gravel shells--	20	462	Sand, gray-----------	81	783
Sand and gravel------	55	517	Triassic------------	2	785
Well F-1					
Owner: Phillips Petroleum Co. Driller: R. P. Brazil.					
Soil, dark, sandy----	3	3	Rock, white----------	6	193
Clay, reddish--------	92	95	Clay, white----------	3	196
Clay, white----------	29	124	Clay, sandy, reddish-	6	202
Clay and gravel, gray sand streaks--------	26	150	Clay, white----------	28	230
			Clay, yellow---------	56	286
Clay, sandy, yellowish	37	187	Sand, water----------	16	302
Well F-2					
Owner: Phillips Petroleum Co. Driller: D. L. McDonald.					
Soil, blackish, sandy-	18	18	Clay, white; more sand	21	214
Clay, sandy, reddish--	23	41	Clay, white; less sand	11	225
Clay, sandy, grayish--	40	81	Sand, grayish, hard and clay----------	43	268
Clay, sandy, yellowish	10	91	Clay, yellow---------	3	271
Clay, sandy, grayish--	27	118	Sand, fairly good water	12	283
Sand, reddish, and gravel----------	9	127	Sand, water, good, clean----------	12	295
Clay, yellowish, sandy	20	147	Clay, white----------	1	296
Clay, white; some sand	35	182	Sand, coarse and gravel with sand rock and clay strata---------	80	376
Sand, white and clay---	11	193			

Table 3.—Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well F-3					
Owner: Phillips Petroleum Co. Driller: R. P. Brazil.					
Soil, dark	18	18	Sand, gravel and clay	4	172
Clay, reddish	33	51	Clay, white	11	183
Clay, yellowish	23	74	Clay, yellow	18	201
Sand rock, grayish	14	88	Sand, water and gravel	23	224
Clay, yellow	16	104	Clay, yellow	30	254
Clay, yellow; some sand	11	115	Clay, sandy, yellowish	16	270
Sand, coarse and clay	30	145	Sand, water	23	293
Sand and gravel	2	147	Clay, sandy, yellowish	10	303
Clay, yellow	21	168	Sand, gray; some water	19	322
Well F-4					
Owner: Phillips Petroleum Co. Driller: D. L. McDonald					
Soil	5	5	Sand, black	5	256
Sand and clay	85	90	Clay, yellow	14	270
Clay, yellow	35	125	Sand, fine, gray	44	314
Clay, gray	10	135	Clay, yellow	16	330
Sand	45	180	Sand, coarse, gray	70	400
Sand, clayey	27	207	Shale, gray	26	426
Sand, black	18	225	Rock, red	25	451
Clay, yellow	26	251			
Well F-5					
Owner: Phillips Petroleum Co. Driller: D. L. McDonald					
Soil, sandy	3	3	Sand, fine	18	268
Caliche	15	18	Clay, sandy, white	72	340
Sand, dry, with clay strata	184	202	Clay, yellow	20	360
Clay, yellow	10	212	Sand, fine	25	385
Sand and gravel	23	235	Clay, brown	23	408
Clay	5	240	Sand with thin clay strata	51	459
Sand, clayey	10	250			

Table 3.—Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well F-7					
Owner: Unknown. Driller: Western Drilling Co.					
Top soil	2	2	Clay, sandy, gray and cemented sand, hard	15	205
Clay, Sandy, gray and caliche	5	7	Clay, sandy, gray with limestone, some gravel	10	215
Clay, sandy, brown and caliche	9	16	Gravel, good, hard	31	246
Clay, sandy, yellow (soft)	22	38	Clay, sandy, red, soft	56	302
Clay, brown; cemented sand, hard	10	48	Clay, sandy, red and gravel, cemented hard	37	339
Clay, gray and cemented sand, hard	5	53	Gravel, good with yellow sandy clay and limestone, hard	33	372
Clay, red and gray, cemented sand, hard	27	80	Clay, sandy red, soft	31	403
Clay, sandy, yellow and cemented sand, hard	32	112	Clay, red, soft	22	425
Clay, yellow with cemented sand and some gravel, hard	16	128	Clay, sandy, brown with some sand and gravel	21	446
Gravel, good, soft	8	136	Clay, sandy, gray with clay, brown and red	5	451
Clay, sandy, yellow, with sand, fine and gravel, soft	12	148	Clay, brown, sandy with some red clay, soft	18	469
Gravel, good, hard	5	153	Rock, hard, white with green and red clay	31	500
Clay, sandy, and cemented sand, hard	22	175			
Clay, sandy, yellow with caliche and sand cemented	15	190			
Well F-9					
Owner: Unknown. Driller: Western Drilling Co.					
Clay, red	40	40	Clay, sandy, very soft, brown	13	142
Caliche and clay, sandy brown	31	71	Clay, sandy, brown with cemented sand	41	183
Clay, sandy, brown, and some sandstone	58	129	Gravel, very good	20	203

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Table 3.—Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well F-9--Continued					
Clay, sandy, brown with gravel	61	264	Gravel, fine, with some clay and caliche	20	481
Clay, sandy, brown with gravel and cemented sand	30	294	Clay, brown and yellow with some gravel	8	489
Gravel, good	13	307	Gravel, good with brown clay; some shale	37	526
Gravel with sandy brown clay	62	369	Clay, sandy, brown; some gravel, medium and shale	12	538
Clay, sandy, red and brown with gravel	33	402	Clay, sandy, brown and shale	46	584
Clay, sandy, brown	11	413	Rock, white, hard	3	587
Clay, sandy, gray with gravel	17	430	Clay, red, and rock, white	13	600
Clay, sandy, brown, with little gravel	31	461			
Well F-11					
Owner: Unknown. Driller: Western Drilling Co.					
Top soil	3	3	Clay, sandy, yellow, with cemented sand and some limestone	40	253
Clay, brown, with cemented sand	2	5	Clay, sandy, yellow, with cemented sand; sand, fine, and gravel	4	257
Clay, brown	11	16	Clay, sandy, yellow, with cemented sand and limestone	30	287
Clay brown and yellow with cemented sand	9	25	Sand, fine, yellow	19	306
Clay, brown	13	38	Sand, fine yellow, with some gravel	12	318
Clay, yellow	14	52	Clay, sandy, yellow with fine sand and gravel	19	337
Clay, sandy, brown and yellow and cemented sand	14	66	Clay, sandy, gray with cemented sand and brown shale	19	356
Clay, brown, with cemented sand	6	72	Clay, sandy, yellow with cemented sand	24	380
Clay, gray and brown	6	78	Clay, sandy, gray and yellow	17	397
Clay, sandy, brown, with cemented sand	25	103			
Clay, sandy, yellow and limestone	25	128			
Clay, sandy, yellow, with cemented sand	9	137			
Clay, sandy, gray and yellow, cemented sand	76	213			

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Table 3.—Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)
Well F-11--Continued		
Clay, sandy, gray and yellow (very sandy), with brown shale	169	566
Clay, sandy, green and yellow, with brown shale	9	575
Clay, sandy green and yellow	33	608
Clay, sandy, gray and yellow	9	617
Clay, sandy, yellow, with fine sand and gravel	7	624
Clay, sandy, gray and yellow, with cemented sand and shale, brown, with fine sand	42	666
Clay, sandy, brown, with some sand and brown shale	22	688
Clay, sandy, brown, with clay, red and fine sand	18	706
Gravel and fine sand	21	727
Clay, sandy, gray and yellow; red clay	63	790
Rock, hard, white; some clay	7	797
Well F-15		
Owner: Unknown. Driller: Western Drilling Co.		
Clay, sandy, gray and red	36	36
Clay, red	16	52
Clay, sandy, brown and red	15	67
Clay, sandy, brown and caliche	30	97
Clay, sandy, brown	13	110
Sand, fine	13	123
Clay, sandy, brown, soft	30	153
Limestone	5	158
Clay, sandy, brown	8	166
Clay, sandy, with coarse gravel	12	178
Clay, sandy, brown and fine gravel	21	199
Clay, sandy, brown	22	221
Clay, gray	8	229
Gravel, good, with some sandy gray clay	19	248
Clay, sandy, brown, with some gravel and limestone	46	294
Clay, sandy, brown with shale and cemented sand	9	303
Gravel, good, with brown sandy clay	8	311
Clay, sandy, brown; very little gravel	21	332
Gravel	9	341
Clay, sandy, brown and gravel	13	354
Gravel, good	18	372
Clay, sandy, brown and gray with gravel and some shale	34	406
Gravel, good, with some sandy clay and shale	24	430
Clay, brown, with shale and some gravel	23	453

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Table 3.—Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well F-15-Continued					
Clay, sandy, brown; little gravel	62	515	Clay, sandy, gray and red shale with some gravel	31	593
Clay, sandy, brown and gray, with some gravel	12	527	Clay, sandy, red with brown and red shale	143	736
Clay, sandy, brown with shale and some gravel	8	535	Clay, sandy, yellow	33	769
Clay, sandy, brown and gray, with shale	13	548	Clay, sandy and gravel	61	830
Clay, red	14	562	Rock, hard, white	6	836
Well F-17					
Owner: Faye Herndon Driller: Panhandle Irrigation Co.					
Surface	3	3	Clay, caliche and sand	55	425
Caliche	40	43	Clay and sand	55	480
Clay, sandy	57	100	Clay, caliche and sand	70	550
Sand rock	64	164	Sand, fine	15	565
Caliche, clay and sand	36	200	Gravel	25	590
Sand, coarse and gravel	10	210	Clay, sand and gravel	50	640
Shale, sandy and clay	85	295	Sand and clay	12	652
Sand, coarse and gravel	20	315	Sand, coarse and gravel	5	657
Clay, little sand	10	325	Clay, brown	3	660
Clay and caliche	20	345	Sand, coarse and gravel	57	717
Clay, caliche, rock and sand	25	370	Clay, brown	3	720
Well F-19					
Owner: Unknown. Driller: Western Drilling Co.					
Top soil	2	2	Clay, sandy, brown, with cemented sand	9	102
Clay	3	5	Clay, sandy, brown, with caliche and cemented sand	29	131
Clay, brown	27	32	Clay, sandy brown with cemented sand and fine gravel	75	206
Clay, brown, with cemented sand	6	38	Clay, sandy, gray and cemented sand	26	232
Clay, gray and red	12	50	Clay, brown and gray with gravel	13	245
Clay, brown	6	56			
Clay, sandy, red, with cemented sand	12	68			
Clay, sandy, brown and caliche	25	93			

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Table 3.—Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)
Well F-19--Continued		
Clay, sandy, yellow, with gravel and limestone	25	270
Clay, gray and caliche with gravel	47	317
Clay, sandy, brown and gray with cemented sand	30	347
Clay, sandy gray	19	366
Clay, sandy, gray with some cemented sand	19	385
Clay, sandy brown and shale with gravel	20	405
Gravel, good, with some sandy clay	7	412
Clay, sandy, yellow with some gravel	12	424
Clay, sandy, gray and yellow, with cemented sand	14	438
Clay, sandy, yellow, with clay, brown	18	456
Clay, sandy, yellow, with brown and green clay	17	473
Gravel, fine and yellow clay, sandy	9	482
Gravel, good, with sandy clay and green clay	21	503
Clay, sandy, yellow, with brown and green clay	41	544
Clay, sandy yellow	21	565
Gravel, good	30	595
Gravel, good, with brown and green clay	17	612
Clay, sandy, yellow; brown and green clay; gravel and caliche	10	622
Clay, sandy, yellow; brown and green clay; limestone	10	632
Clay, sandy, yellow (very sandy); green clay and some gravel	21	653
Sand, fine and gravel with brown and green clay (loose good)	57	710
Sand, fine and gravel	28	738
Rock, white, hard	4	742
Clay, red	11	753
Clay, white, hard	5	758
Clay, red	12	770
Well F-20		
Owner: Unknown. Driller: Western Drilling Co.		
Top soil	2	2
Clay, yellow and caliche	16	18
Clay, brown	30	48
Clay, sandy, red and caliche	22	70
Clay, sandy, red and limestone	12	82
Clay, sandy, red and gray sandy clay and limestone	10	92
Clay, sandy, gray with limestone; some brown clay	18	110
Clay, sandy, gray and limestone	12	122
Clay, sandy, brown; gray sandy clay; caliche and limestone	6	128
Clay, sandy, yellow and limestone	27	155
Clay, sandy, yellow and cemented sand	50	205
Clay, sandy, yellow; sand, coarse and cemented sand	15	220
Clay, sandy, yellow and medium gravel	13	233

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Table 3.—Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well F-20--Continued					
Gravel, medium-------	8	241	Clay, brown; clay, sandy, gray and caliche----------	14	456
Clay, sandy, yellow--	22	263	Clay, sandy, yellow and clay brown------	3	459
Clay, sandy, yellow; cemented sand and coarse sand---------	12	275	Clay, sandy, yellow; clay brown; caliche and some green clay-	36	495
Clay, sandy, yellow and limestone----------	20	295	Clay, sandy, yellow and brown clay (very sandy)----------	110	605
Clay, sandy, yellow; caliche and limestone	5	300	Sand, fine and medium gravel, good--------	49	654
Clay, sandy, gray and limestone----------	30	330	Limestone, white, hard layers----------	2	656
Clay, sandy, yellow and brown sandy clay	5	335	Clay, sandy and caliche; some gravel, and brown shale, hard---------	19	675
Sand, cemented; clay sandy, gray---------	18	353	Clay, sandy and brown shale, hard---------	25	700
Clay, sandy, yellow and cemented sand-------	13	366	Clay, sandy and shale with some gravel, hard	38	738
Clay, sandy, gray and caliche----------	18	384	Clay, sandy and shale	12	750
Gravel, good---------	21	405	Sand; gravel and sandy clay----------	18	768
Clay, very sandy, yellow; caliche and cemented sand-------	18	423	Clay, purple and red-	22	790
Clay, sandy, yellow; very sandy----------	14	437	Clay, red----------	10	800
Clay, sandy, yellow and clay----------	5	442			
Well F-24					
Owner: Unknown. Driller: Western Drilling Co.					
Top soil----------	3	3	Clay, gray and yellow, with fine sand----------	10	198
Clay, gray----------	13	16	Clay, gray and yellow, with fine sand and gravel	12	210
Clay, brown and gray-	4	20	Clay, sandy, yellow, with sand, fine and gravel	42	252
Clay, gray----------	13	33	Clay, sandy, yellow, with fine sand and gravel and cemented sand---	15	267
Clay, sandy, gray----	5	38			
Clay, sandy, yellow with cemented sand-------	102	140			
Clay, sandy, gray; fine sand and cemented sand	32	172			
Sand, fine, yellow---	16	188			

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Table 3.—Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well F-24--Continued					
Clay, sandy, brown, gray and yellow, with some shale	7	274	Clay, sandy, yellow, with fine sand	9	472
Clay, sandy, yellow, with cemented sand	8	282	Clay, sandy, yellow, with fine sand and gravel	11	483
Clay, sandy, brown with caliche and some gray clay	28	310	Sand, fine and gravel	49	532
Clay, sandy, yellow and gray	18	328	Sand, fine with clay, gray and brown shale	6	538
Clay, sandy, gray and yellow, with some fine sand	7	335	Gravel, good	4	542
Clay, gray, with sandy clay; fine yellow sand	17	352	Clay, gray, with good gravel and brown shale	16	558
Clay, gray, with fine sand and brown shale	18	370	Sand, fine and gravel	50	608
Clay, brown, with some gray clay and shale	28	398	Clay, gray, with fine sand and gravel	17	625
Clay, brown and gray, with fine sand and some shale	47	445	Clay, gray, with fine sand and gravel and shale, brown	58	683
Clay, sandy, yellow, with fine sand and some gray shale	13	458	Clay, sandy, yellow, with fine sand and gravel	52	735
Clay, sandy, yellow, with brown shale	5	463	Clay, brown and gray, with some gravel and limestone	17	752
			Rock, hard, white	2	754
			Clay, red	16	770
Well F-28					
Owner: Agnes Howe. Driller: Panhandle Irrigation Co.					
Upper portion missing					
Sand and clay	45	560	Gravel	34	640
Clay, brown	8	568	Sand, coarse and clay	20	660
Sand, fine	22	590	Gravel, hard	20	680
Sand, coarse	16	606	Clay	3	683

Table 3.—Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well F-29					
Owner: Unknown. Driller: Western Drilling Co.					
Top soil black	3	3	Clay, very sandy, yellow	10	370
Clay, red	15	18	Clay, very sandy, brown and yellow, soft	10	380
Clay, sandy, red	32	50	Clay, very sandy, brown and light green, soft	6	386
Clay, sandy, red, tight	12	62	Clay, very sandy, light and green, soft	21	407
Clay, sandy, red, with sandstone	18	80	Clay, very sandy, light green and white, soft	20	427
Clay, sandy, hard, with caliche and sandstone	28	108	Clay, sandy, brown (soft)	49	476
Clay, sandy; coarse soft sand	10	118	Clay, sandy, light and dark brown; some sandstone (soft)	4	480
Clay, sandy and sandstone	25	143	Clay, brown, sandy; some gravel pebbles	20	500
Clay, sandy	15	158	Clay, sandy and fine gravel	7	507
Clay, sandy, with sandstone and caliche	70	228	Clay, sandy and medium gravel	15	522
Clay, sandy	13	241	Sand, cemented and gravel, hard layers, good	5	527
Clay, sandy and sandstone	15	256	Gravel, medium (loose, good)	43	570
Clay, sandy and some gravel	19	275	Clay, sandy and gravel	10	580
Clay, sandy and sandstone	25	300	Clay, sandy	65	645
Clay, sandy with coarse sand and sandstone, hard	10	310	Clay, sandy, with hard layers white caliche	15	660
Clay, sandy; pale and fine gravel, hard	10	320	Limestone, hard, white and caliche	10	670
Clay, gray, with coarse sand, hard	10	330	Clay, sandy, brown, tight	30	700
Clay, light green and brown clay and caliche	10	340			
Clay, sandy, soft	10	350			
Clay, sandy, with some sandstone, soft	10	360			

Table 3.—Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well F-30					
Owner: Buela Garretson. Driller: H. H. Heiskell.					
Top soil	5	5	Clay, brown and sand rock	60	500
Caliche	95	100	Sand and clay	20	520
Clay, sandy	160	260	Sand and gravel	65	585
Sand, gravel and caliche	40	300	Clay	15	600
Sand rock and caliche	30	330	Sand and clay	10	610
Sand, fine; caliche and gravel	90	420	Clay, yellow	20	630
Sand, fine, caliche; clay	20	440	Sand and gravel	95	725
			Red beds	15	740
Well F-31					
Owner: George Rohan. Driller: H. H. Heiskell.					
Top soil	5	5	Clay, sandy, soft	10	400
Clay and caliche	20	25	Clay, sandy and hard shells	20	420
Clay, brown	55	80	Clay, white sandy and gravel, soft	45	465
Clay and caliche	145	225	Clay, white	15	480
Clay, brown, soft	5	230	Clay, blue	50	530
Clay and caliche	25	255	Sand, gravel and clay	10	540
Sand, coarse and gravel	15	270	Sand and gravel	120	660
Clay, sandy and caliche	60	330	Sand, gravel and little clay	5	665
Clay, sandy, soft	20	350	Clay	21	686
Clay, sandy, and sand; pack gravel	40	390			
Well F-33					
Owner: Henry Haiduk. Driller: H. H. Heiskell.					
Top soil	4	4	Clay, brown	25	290
Clay, brown and caliche	136	140	Clay, sandy	35	325
Clay, sandy and caliche	10	150	Clay, white and caliche	15	340
Clay, brown and caliche	15	165	Clay, sandy, white and caliche gravel	20	360
Clay, white, sandy and caliche	85	250	Clay, sandy	50	410
Sand, gravel and clay	15	265	Sand, fine and clay streaks, soft	42	452
			Clay, white and dolomite, hard	11	463

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Table 3.—Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well F-33--Continued					
Clay, white, sandy, soft	7	470	Sand, coarse and gravel and clay streaks	30	610
Clay, brown, sandy	20	490	Clay, brown	28	638
Clay, white, sandy and dolomite some gravel	10	500	Sand, gravel and little clay	22	660
Clay, brown	10	510	Sand, hard; gravel and clay	10	670
Sand, coarse and gravel; some clay	30	540	Sand and gravel and clay	13	683
Sand, coarse, and gravel; clay streaks	10	550	Clay, brown, little sand	17	700
Sand, coarse and gravel	30	580			
Well F-35					
Owner: Howard Beddingfield. Driller: H. H. Heiskell.					
Top soil	5	5	Clay, sandy	15	415
Clay, brown	55	60	Clay, sandy and some coarse sand and gravel	5	420
Clay and caliche	130	190	Clay, white and yellow	10	430
Sand, coarse and gravel	10	200	Clay, yellow	10	440
Clay, sandy, brown	10	210	Clay, blue and yellow	10	450
Caliche and clay	15	225	Clay, yellow and sand and hard shells	72	522
Sand rock, hard	25	250	Sand and gravel; some clay, soft	8	530
Clay, sandy	10	260	Sand, coarse and gravel, hard	70	600
Clay and caliche	51	311	Sand, coarse and gravel; clay	30	630
Clay, sandy; little gravel; hard shells	34	345	Sand, coarse and gravel	60	690
Sand, coarse and gravel; little clay	15	360	Clay	27	717
Clay, sandy	20	380			
Clay	20	400			
Well F-36					
Owner: C. E. McCray. Driller: Panhandle Irrigation Co.					
Surface clay	15	15	Sand, white	10	125
Clay	25	40	Caliche	75	200
Sand, red	20	60	Sand and clay	40	240
Clay	55	115	Sand	25	265

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Table 3.—Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well F-36--Continued					
Sand and clay--------	55	320	Clay, sandy----------	25	495
Sand-----------------	15	335	Sand and gravel------	35	530
Clay-----------------	35	370	Gravel and sand------	20	550
Sand-----------------	20	390	Shale, sandy---------	70	620
Caliche and sand-----	20	410	Sand-----------------	60	680
Clay and sand--------	60	470	Clay-----------------	10	690
Well F-38					
Owner: Unknown. Driller: Western Drilling Co.					
Top soil (soft)------	2	2	Gravel, (good, hard)-	27	412
Clay, brown (soft)---	14	16	Clay, sandy, yellow, with some gravel and clay, brown (hard)--------	24	436
Clay, gray (soft)----	6	22	Gravel, good, with some brown clay (hard)---	4	440
Clay, red------------	26	48	Sand, fine and gravel with yellow sandy clay; clay, brown, soft---	22	462
Clay, sandy, red, with cemented sand, hard-	22	70	Clay, sandy, yellow, with clay, brown, soft---	13	475
Clay, sandy, red and gray with cemented sand----------	14	84	Clay, brown, with some fine gravel (soft)--	13	488
Clay, sandy, brown, with caliche and limestone (soft)----	41	125	Clay, sandy, yellow, with brown clay and fine sand (soft)---------	16	504
Sand, fine, yellow, very sandy and soft-	23	148	Clay, sandy, brown and gray (soft)---------	18	522
Clay, sandy, gray, with caliche and sand, cemented (soft)-----	17	165	Clay, sandy, yellow, with fine sand and brown clay (soft)---	14	536
Clay, sandy, yellow, with cemented sand (hard)	47	212	Clay, sandy, yellow, soft----------	29	565
Clay, sandy, gray and yellow (soft)-------	31	243	Clay, sandy, yellow and good gravel (soft)--	8	573
Clay, sandy, yellow, with cemented sand, soft	45	288	Sand, fine, and gravel with brown clay (soft)	85	658
Clay, sandy, gray and yellow, with caliche and limestone (hard)	7	295	Sand, fine, and gravel with brown and yellow clay (soft)---------	25	683
Clay, brown and gray, hard----------	20	315	Clay, sandy, yellow, with clay, brown and yellow; fine sand and gravel; some limestone (hard)----------	35	718
Clay, sandy, gray and yellow, hard--------	31	346			
Clay, sandy, yellow, with brown clay, soft----	39	385			

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Table 3.—Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well F-38--Continued					
Clay, sandy, yellow; fine sand; some cemented sand	25	743	Clay, sandy, yellow, clay, brown and white rock, hard	9	802
Clay, sandy, yellow and sand, fine, hard	12	755	Clay, sandy, yellow and clay, red (hard)	8	810
Clay, brown and yellow, with fine sand, hard	20	775	Rock, hard, white	3	813
Clay, sandy, yellow, with clay, brown and sand, very fine	18	793	Clay, red	7	820
Well F-42					
Owner: Unknown. Driller: Western Drilling Co.					
Top soil, black	5	5	Clay, brown, with medium sandstone	28	233
Clay, red	5	10	Clay, sandy, red	57	290
Clay, sandy, red with caliche	22	32	Clay, sandy, red, with medium sandstone	10	300
Clay, sandy, red with medium sandstone	3	35	Clay, sandy, red with sandy brown clay; medium sandstone	20	320
Clay, sandy, red	13	48	Gravel, fine, tight-	10	330
Clay, sandy, red with caliche	14	62	Clay, brown and caliche (soft)	43	373
Clay, gray with caliche	3	65	Clay, yellow, very sandy (soft)	5	378
Clay, sandy, red	2	67	Clay, brown and soft yellow sandy clay	26	404
Clay, sandy, red, with sandstone, medium	3	70	Sand, very fine and clay brown, soft	6	410
Clay, sandy, red, with caliche	25	95	Clay, sandy, yellow and clay, brown, soft	40	450
Caliche with fine gravel	3	98	Clay, sandy and brown clay, soft	15	465
Clay, sandy, red	2	100	Clay, sandy, white, with some brown clay (soft)	15	480
Clay, sandy, red and caliche	15	115	Clay, sandy, brown and clay, brown (soft)-	85	565
Clay, red, with sandstone	7	122	Clay, yellow	15	580
Clay, sandy, red	10	132	Clay, sandy, yellow-	6	586
Clay, sandy, with gravel and sandstone, medium	6	138			
Clay, sandy, red	7	145			
Clay, sandy, red and sandstone, medium	45	190			
Clay, sandy, with hard sandstone	15	205			

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Table 3.—Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well F-42--Continued					
Clay, yellow	14	600	Gravel, hard, cemented	7	716
Clay, sandy, yellow; some gravel pebbles	10	610	Clay, brown	19	735
Gravel, medium and sand (good)	24	634	Clay, brown with some gravel, small	35	770
Clay, sandy, yellow and gravel	21	655	Clay, brown and gravel small flakes of white limestone	10	780
Gravel, medium and clay	45	700	Clay, brown and gravel	15	795
Sand, fine and clay	9	709	Gravel and sand; some clay	25	820
Well F-46					
Owner: City of Panhandle. Driller: D. L. McDonald.					
Sandy soil	5	5	Sand, water	7	352
Clay, yellow and sand	111	116	Sand rock	28	380
Sand, fine-grained, dry	29	145	Sand	5	385
Clay	30	175	Sand and clay	15	400
Clay and gravel	3	178	Sand rock	20	420
Sand and soapstone	4	182	Clay, yellow	20	440
Sand, fine-grained	18	200	Sand and clay	20	460
Sand rock	4	204	Sand rock	5	465
Clay, hard packed and sand	19	223	Sand and clay	15	480
Sand, dry	47	270	Sand rock	20	500
Clay	5	275	Clay and rock	15	515
Clay and gravel	30	305	Sand rock	29	544
Sand rock	40	345	Sand	6	550
Well F-48					
Owner: City of Panhandle. Driller: Reddell and Suggs Drilling Co.					
Soil	3	3	Clay and sand	75	530
Clay, soft	75	78	Sand, loose, coarse	25	555
Caliche and clay	37	115	Sand, fine; some clay; some pepper	45	600
Sand, dry	30	145	Clay, sandy	10	610
Sand, tight with loose streaks	75	220	Sand, coarse, clean	15	625
Sandy clay, soft	78	298	Sand, coarse and clay	35	660
Clay and sandy clay	30	328	Clay with little sand	30	690
Sand and loose gravel	7	335	Sand, loose and gravel	42	732
Clay and rock	35	370	Clay and sand	18	750
Sand, loose	12	382	Clay, brown and red	20	770
Clay, sandy, soft	33	415	Red beds	25	795
Clay, sandy, with loose sand streaks	40	455			

Table 3.—Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well G-3					
Owner: Mary E. McCray. Driller: H. H. Heiskell.					
Top soil	3	3	Sand and gravel, hard	25	355
Clay, brown and caliche	87	90	Clay, sandy, yellow	13	368
Clay	35	125	Clay, hard, sandy and gravel	22	390
Clay, sandy	5	130	Sand, hard and gravel; little clay	10	400
Clay	30	160	Clay, sandy, soft	30	430
Clay, sandy	20	180	Clay, hard	45	475
Shells, hard	2	182	Sand, gravel, clay	25	500
Clay, sandy	38	220	Sand, coarse, gravel	40	540
Sand, coarse and gravel; clay	70	290	Clay	10	550
Clay, brown and gravel	40	330			
Well G-4					
Owner: Margret Carson. Driller: Panhandle Irrigation Co.					
Surface clay	10	10	Clay and gravel	16	348
Clay	55	65	Gravel	27	375
Clay and caliche	25	90	Clay, sandy	18	393
Sand, red	15	105	Clay, gravel	91	484
Clay	155	260	Gravel, good and some clay	31	515
Sand and gravel	11	271	Gravel	15	530
Gravel and clay	30	301	Clay	15	545
Clay	31	332			
Well G-6, partial log					
Owner: W. G. Ellers. Driller: Alma Oil Co.					
Surface soil	25	25	Gypsum	20	462
Sand	185	210	Rock, red	9	471
Caliche	60	270	Red beds	369	840
Sand	155	425	Total depth		3,801
Rock, red	17	442			

Table 3.--Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well G-7					
Owner: J. A. Whitmore. Driller: H. H. Heiskell.					
Top soil	4	4	Clay, brown	45	485
Caliche	121	125	Sand, gravel and clay	15	500
Clay, sandy	165	290	Clay, brown and shells	110	610
Sand and gravel	40	330	Clay shells, brown and red	10	620
Sand, gravel and clay	10	340	Clay, red and shells	32	652
Clay, white, sandy	100	440			
Well G-9					
Owner: Unknown. Driller: Western Drilling Co.					
Clay, brown	26	26	Clay, sandy brown, with some gravel	7	472
Clay, gray	8	34	Clay, sandy, brown	13	485
Clay, brown	31	65	Clay, sandy, brown and gravel	17	502
Clay, brown and caliche	27	92	Clay, sandy, brown and shale with some gravel	10	512
Clay, sandy, red	18	110	Gravel, good, with small amount of clay	14	526
Clay, sandy and sandstone	18	128	Gravel, medium and brown shale	28	554
Clay, sandy brown	52	180	Clay, brown, with some gravel	7	561
Sand, fine and gravel	40	220	Shale, brown and yellow	51	612
Clay, sandy	16	236	Shale, brown and yellow, and some red clay	28	640
Gravel and cemented sand	33	269	Clay, sandy, brown	28	668
Gravel, medium to fine	16	285	Clay, sandy, brown and red with gravel pebbles	22	690
Clay, sandy	16	301	Clay, brown and sandstone (hard)	16	706
Clay, sandy and caliche	39	340	Rock, white, very hard	2	708
Clay, sandy, brown	13	353			
Sand, fine and medium gravel (good)	17	370			
Clay, light gray and gravel, mixed (soft)	11	381			
Clay, sandy, brown	20	401			
Gravel, medium, with some clay, sandy (soft)	24	425			
Clay, sandy, brown	40	465			

Tabel 3.—Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well G-10					
Owner: Mrs. T. B. Ramey. Driller: H. H. Heiskell.					
Top soil	6	6	Sand, coarse and gravel, hard	10	310
Clay and caliche	39	45	Sand; gravel, soft	10	320
Clay, brown	75	120	Sand and gravel and clay, white	20	340
Clay, brown and caliche	70	190	Sand, coarse and gravel	90	430
Clay, sandy and caliche	25	215	Clay, brown	40	470
Clay, white, sandy	45	260			
Sand, clay and gravel	40	300			
Well G-12					
Owner: Mrs. M. B. Pickens. Driller: H. H. Heiskell.					
Top soil	3	3	Sand and caliche	12	270
Caliche	47	50	Clay, brown	20	290
Clay, white	30	80	Caliche	50	340
Caliche	70	150	Sand and gravel	100	440
Sand, fine	10	160	Clay, brownish-pink	4	444
Clay, brown and caliche	98	258			
Well G-13					
Owner: Alva Thornburg. Driller: M & M Drilling Co.					
Not logged	250	250	Clay; rock	4	378
Sand	20	270	Sand	6	384
Sand and gravel	39	309	Clay	8	392
Rock	3	312	Sand	6	398
Rock; clay	19	331	Clay	61	359
Sand	14	345	Rock	5	464
Clay	23	368	Clay; rock	33	497
Sand	6	374	Red beds		497
Well G-15					
Owner: City of White Deer.					
Surface material	10	10	Clay, sandy, yellow	56	296
Clay, yellow	86	96	Lime rock	10	306
Sand, brown, caving	9	105	Clay, red	26	332
Clay, sandy, yellow	95	200	Sand, rock, red water	3	335
Clay, yellow	40	240	Clay, sandy, red	10	345

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Table 3.—Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well G-15--Continued					
Gravel, water--------	3	348	Sand, water, red-----	20	515
Clay, red, sandy-----	2	350	Clay, red------------	5	520
Clay, red------------	12	362	Sand, red------------	13	533
Clay, red, sandy-----	38	400	Sand, red, bad water-	24	557
Clay, red------------	95	495	Clay, red------------	5	562
Well G-22					
Owner: Panhandle & Santa Fe Railroad.					
Clay, light red------	115	115	Sand, coarse grained, water----------	30	325
Sand rock, red-------	19	134	Clay, red------------	22	347
Clay, hard-pack, dry-	16	150			
Clay, sandy, red-----	145	295			
Well G-23					
Owner: Unknown. Driller: Western Drilling Co.					
Top soil------------	2	2	Sandstone, hard------	21	296
Clay, sandy----------	8	10	Caliche and sandstone	9	305
Clay, brown and red, with little sand----	28	38	Caliche and clay, sandy, with sandstone------	17	322
Clay, sandy, brown---	16	54	Clay, sandy, brown, with some gravel----	21	343
Clay, brown, red-----	10	64	Gravel, fine, with sandy clay----------	62	405
Clay, brown, with cemented sand-------	20	84	Sand, very fine and yellow clay, sandy--	15	420
Clay, sandy, brown, with limestone streaks---	75	159	Gravel, good and fine sand----------	27	447
Clay, sandy, brown, soft, with cemented sand and limestone--	29	188	Clay-----------	4	451
Limestone with some sandy clay (hard)---	9	197	Sand, fine and gravel	11	462
Clay, gray and cemented sand----------	20	217	Clay, sandy, yellow--	4	466
Gravel, coarse (hard)	10	227	Sand, good, with clay small layers--------	26	492
Clay, sandy, gray, with gravel----------	35	262	Sand, fine----------	18	510
Gravel, coarse (tight, good)----------	13	275	Clay, sandy, with some fine sand----------	10	520
			Clay, sandy and shale, brown----------	50	570

(Continued on next page)

Table 3.—Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well G-23--Continued					
Sand, fine and gravel with small layers of clay	20	590	Clay, sandy and shale and fine sand and gravel	50	790
Clay, brown and shale	20	610	Clay, sandy, red and brown shale	5	795
Sand, fine and gravel and brown layers of shale	130	740	Rock, hard, white	5	800
			Clay, white and red	10	810
Well G-25					
Owner: E. S. Milton. Driller: J. J. Merrifield.					
Top soil	5	5	Gravel, sand and lime	35	265
Caliche	22	27	Sand, coarse and gravel	25	290
Clay, yellow and shale	90	117	Clay and gravel; lime	27	317
Clay, sandy and shale	79	196	Clay and gravel; sand; shale	25	342
Rock	3	199	Clay and shale	63	405
Clay and shale	11	210	Sand, coarse and gravel	20	425
Rock	4	214	Clay and gravel	22	447
Shale and clay	6	220	Sand, coarse and gravel	31	478
Lime, shale and gravel	10	230			
Well G-28					
Owner: Minor Sims. Driller: H. H. Heiskell.					
Top soil	5	5	Sand, coarse, gravel; little clay	38	338
Clay, brown	110	115	Sand, coarse; gravel, hard	22	360
Clay and caliche	70	185	Clay, soft	5	365
Clay, brown	25	210	Sand, hard, coarse and gravel	5	370
Sand, coarse and gravel	15	225	Clay, yellow	20	390
Sand, coarse; gravel; hard shells	5	230	Clay, sandy; gravel, and hard shells	40	430
Sand, coarse and gravel	15	245	Clay, yellow	95	525
Sand, coarse; gravel; hard shells	3	248	Clay, sandy, yellow; hard shells	15	540
Sand and gravel	4	252	Sand, gravel, hard clay	37	577
Clay, sandy	28	280			
Clay, sandy; hard shell	10	290			
Clay, sandy	10	300			

Table 3.--Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well G-29					
Owner: Minor Sims. Driller: Panhandle Irrigation Co.					
Surface	12	12	Sand, coarse; gravel (some clay)	20	362
Caliche rock and clay	76	88	Gravel	31	393
Clay	30	118	Clay and gravel	30	423
Clay layers rock	31	149	Clay	22	445
Rock	61	210	Clay; gravel	3	448
Clay rock	30	240	Clay	17	465
Sandstone rock	31	271	Gravel	19	484
Rock and clay	30	301	Gravel and clay	16	500
Clay, sandy	31	332	Clay	15	515
Sand, clay	10	342			
Well G-30					
Owner: Unknown. Driller: Western Drilling Co.					
Surface	5	5	Gravel, good, with some sandy clay; cemented sand	36	406
Clay, sandy, brown	47	52	Clay, sandy, brown, with shale and some gravel	77	483
Clay, sandy, brown and limestone	100	152	Gravel with sandy clay (good)	20	503
Clay, sandy, brown with caliche and cemented sand	33	185	Clay, sandy, brown, with gravel	7	510
Caliche; shale; cemented sand and limestone	13	198	Gravel, tight (good)	26	536
Clay, sandy, brown, with cemented sand and limestone	37	235	Gravel, good, with some shale	29	565
Clay, sandy and sand	9	244	Gravel, cemented	18	583
Clay, sandy, brown and limestone	14	258	Clay, sandy, gray, with gravel	48	631
Caliche with cemented sand and limestone	20	278	Sand, fine	38	669
Clay, sandy, brown, with cemented sand	11	289	Clay, sandy, brown, with fine sandy gravel	35	704
Gravel with sandy clay, brown	19	308	Gravel, cemented and sandstone (hard)	28	732
Clay, sandy, brown, with some gravel	62	370	Red beds	33	765

Table 3.—Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well G-32					
Owner: Leonard E. Olson. Driller: H. H. Heiskell.					
Top soil	4	4	Clay, sandy, with little water gravel	10	430
Caliche and clay	106	110	Sand, coarse and gravel hard	5	435
Clay, brown and caliche	65	175	Sand, coarse and gravel	20	455
Clay, brown; caliche and shells	50	225	Sand, coarse and gravel hard	35	490
Sand, fine	10	235	Sand, coarse and gravel and clay	10	500
Clay and caliche, hard	40	275	Clay, brown	25	525
Clay, brown	25	300	Shells, hard	3	528
Clay, sandy and caliche	60	360	Clay, yellow	33	561
Clay, sandy and hard shells	5	365			
Clay, sandy	55	420			
Well G-33					
Owner: Unknown. Driller: Western Drilling Co.					
Top soil (soft)	3	3	Clay, sandy, gray and yellow, cemented sand (hard)	55	223
Clay, red (soft)	5	8	Clay, sandy, yellow (soft)	10	233
Clay, sandy, yellow, with caliche, soft	8	16	Clay, sandy, yellow, with cemented sand (hard)	25	258
Clay, sandy, yellow, with limestone, (soft)	32	48	Sand, very fine, with some yellow clay (soft)	7	265
Clay, yellow and gray (soft)	8	56	Sand, very fine (soft)	30	295
Clay, brown (soft)	6	62	Clay, sandy, yellow, with caliche and some gravel	8	303
Clay, brown, with cemented sand, hard	8	70	Clay, sandy, gray, with brown clay and cemented sand (hard)	24	327
Clay, sandy, yellow, with cemented sand (hard)	16	86	Clay, sandy, gray with yellow clay and cemented sand (hard)	7	334
Clay, sandy, yellow, with caliche and limestone (hard)	22	108	Clay, sandy, yellow, with some brown clay (soft)	24	358
Clay, brown (hard)	10	118	Clay, sandy, gray and yellow, with brown clay and fine sand (soft)	24	382
Clay, sandy, gray, with cemented sand, hard	6	124	Clay, brown and fine sand (soft)	6	388
Clay, gray (soft)	19	143			
Clay, sandy, yellow (soft)	15	158			
Clay, sandy, gray, with limestone and some brown clay (soft)	10	168			

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Table 3.—Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well G-33--Continued					
Gravel (good, soft)--	30	418	Sand, fine and gravel (good, soft)--------	50	583
Sand, fine and gravel with gray sandy clay and green caliche and clay, brown, soft---	15	433	Sand, fine and gravel with brown clay (soft)	33	616
Clay, brown and gray, with cemented sand, hard----------	5	438	Sand, fine; brown clay and cemented sand (hard)----------	26	642
Sand, very fine, yellow with brown and green clay----------	27	465	Clay, yellow and gravel (soft)----------	26	668
Clay, very sandy, yellow with brown clay (soft)	53	518	Sand, fine and gravel with yellow clay (soft)----------	40	708
Clay, sandy, yellow, with fine sand and gravel (soft)-------	15	533	Rock, white (hard)---	10	718
			Clay, red (tight)----	22	740
Well G-34					
Owner: B. C. Hare. Driller: Panhandle Irrigation Co.					
Surface----------	12	12	Clay----------	10	445
Clay----------	234	246	Clay and gravel------	25	470
Clay and rock--------	25	271	Clay----------	65	535
Clay----------	31	302	Sand and gravel------	35	570
Clay and gravel------	10	312	Clay; some gravel----	20	590
Clay, gray----------	51	363	Gravel----------	15	605
Clay and rock--------	30	393	Clay----------	15	620
Clay----------	17	410	Gravel and sand------	25	645
Gravel----------	25	435	Clay----------	53	698
Well G-35					
Owner: Clyde Lawson. Driller: Panhandle Irrigation Co.					
Surface clay--------	25	25	Clay----------	10	330
Sand, red----------	10	35	Sand and clay--------	45	375
Clay----------	190	225	Sand, coarse (some clay)----------	12	387
Sand and clay--------	95	320			

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Table 3.—Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well G-35--Continued					
Sand, coarse	13	400	Sand and gravel	25	530
Sand, coarse and gravel	55	455	Sand, gravel and clay	40	570
Sand and clay	20	475	Sand and gravel	70	640
Sand, coarse	25	500	Clay and sand	20	660
Clay, yellow and sand	5	505	Not reported	7	667
Well G-37					
Owner: Mrs. O. W. Canady. Driller: H. H. Heiskell.					
Top soil	6	6	Sand, clay and caliche, hard	28	460
Clay and caliche	114	120	Clay, sand, sand rock; gravel, soft	10	470
Clay, sand and caliche	35	155	Clay, sandy	65	535
Clay, brown and caliche	35	190	Clay streaks	2	537
Clay, sandy and caliche	110	300	Clay, sandy	5	542
Clay, sandy fine and caliche	30	330	Clay streaks, blue	2	544
Clay, sandy; caliche and gravel	30	360	Clay, sandy	5	549
Clay, sandy; caliche, hard	45	405	Clay streak, blue	6	555
Clay, sandy, brown, soft	27	432	Clay, black	25	580
			Clay, yellow	20	600
			Clay, sandy	20	620
			Clay, sandy, hard	14	634
			Sand, coarse and gravel, soft	176	810
Well G-38					
Owner: Mrs. H. C. Dittberner. Driller: Panhandle Irrigation Co.					
Surface	12	12	Clay	61	454
Clay, brown	212	224	Clay, sandy	31	485
Clay and rock	63	287	Clay	30	515
Sand, fine	20	307	Sand rock	65	580
Rock, hard	25	332	Sand, coarse and gravel	67	647
Rock	61	393	Clay	51	698

Table 3.—Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well G-41					
Owner: E. B. Carroll. Driller: Panhandle Irrigation Co.					
Surface	15	15	Gypsum	10	350
Clay	70	85	Clay, sandy and gravel	20	370
Caliche	35	120	Clay, sandy	16	386
Sand, red	10	130	Clay	29	415
Sand and caliche	10	140	Clay, blue	20	435
Sand and clay	60	200	Sand and clay	25	460
Clay	65	265	Gravel, sand and clay	48	508
Sand and clay	37	302	Clay, gypsum	3	511
Chalk	18	320	Clay, red	73	584
Sand, clay	20	340	Chalk	2	586
Well G-43					
Owner: Unknown. Driller: Western Drilling Co.					
Top soil	3	3	Clay, sandy, gray and yellow, with cemented sand and limestone	22	208
Clay, brown	9	12	Clay, sandy, gray, with cemented sand and some gravel	4	212
Clay, sandy, brown	6	18	Clay, sandy, yellow, with fine sand and gravel	20	232
Clay, brown	20	38	Clay, sandy, yellow, with limestone	51	283
Clay, yellow, with caliche	12	50	Clay, sandy, gray and yellow, with cemented sand	17	300
Clay, brown, with limestone	4	54	Clay, sandy, yellow, with cemented sand and limestone	18	318
Clay, sandy, red, with cemented sand	4	58	Clay, sandy, yellow, with sand, fine and gravel	7	325
Clay, sandy, yellow, with caliche and cemented sand	7	65	Clay, sandy, yellow	13	338
Clay, yellow and limestone	20	85	Clay, sandy, yellow, with gravel, fine	4	342
Clay, sandy, gray	8	93	Gravel, good, with some fine sand	6	348
Clay, sandy, gray and yellow, with cemented sand	17	110	Clay, sandy, yellow, with fine sand and gravel	25	373
Clay, sandy, yellow, with cemented sand	5	115	Clay, sandy, gray and yellow, with fine sand	23	396
Clay, brown; cemented sand	13	128			
Clay, sandy, gray, with cemented sand	8	136			
Clay, sandy, yellow, with caliche and cemented sand	50	186			

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Table 3.—Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well G-43--Continued					
Clay, sandy, brown, with some limestone	10	406	Gravel, fine to medium, with some clay, sandy (good)	9	475
Clay, sandy, yellow, with sand fine and gravel	9	415	Rock, hard, white and sandy clay, red	5	480
Clay, sandy, yellow, with cemented sand	51	466	Clay, gray and red (Red beds)	10	490
Well G-45					
Owner: Buisz Urbanczyk. Driller: H. H. Heiskell.					
Top soil	3	3	Shell and clay	28	318
Clay, brown	42	45	Sand and clay	3	321
Caliche, hard	85	130	Clay and fine sand	159	480
Clay, white	30	160	Sand, fine; some clay	47	527
Caliche and white clay	51	211	Sand, coarse and gravel	63	590
Sand and clay	43	254	Clay, white and sand	55	645
Sand	36	290			
Well G-46					
Owner: Buisz Urbanczyk. Driller: H. H. Heiskell.					
Soil	3	3	Caliche, hard and sand	24	304
Clay, red, sandy, and caliche	99	102	Chalky clay and sand, soft	16	320
Caliche	8	110	Sand, and gravel, coarse	48	368
Clay, sandy and caliche shells	80	190	Sand and gravel, coarse; blue clay	40	408
Sand, gravel, caliche and sand rock	40	230	Clay, brown	36	444
Clay, yellow and caliche shells	35	265	Sand, fine and gravel	59	503
Clay, sand and gravel, coarse	15	280	Sand, coarse	7	510
			Clay, sandy; mostly clay	28	538
			Clay, pink	9	547

Table 3.—Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well G-47					
Owner: John O'Keefe. Driller: H. H. Heiskell.					
Top soil	4	4	Sand, coarse and gravel, soft	41	406
Clay, reddish-brown and caliche	66	70	Clay, brown, sandy	19	425
Clay, brown and caliche	65	135	Sand, coarse and gravel, clay	30	455
Clay, sandy and caliche	25	160	Sand, fine	20	475
Clay, sandy; yellow and caliche	15	175	Sand, coarse; gravel and clay	20	495
Sand and gravel and caliche	12	187	Sand, coarse and gravel	40	535
Clay, yellow	33	220	Clay, brown and pink; some sand	15	550
Clay, pink, sandy	30	250	Clay, brown	8	558
Clay, white, sandy and caliche	10	260	Sand, gravel; some clay	12	570
Clay, pink, sandy and caliche	15	275	Clay, sandy and gravel	20	590
Sand, coarse and gravel	15	290	Sand, coarse and gravel some clay, hard	20	610
Clay, pink, sandy and caliche	50	340	Clay, pink	30	640
Sand, coarse; gravel and clay	25	365	Sand, gravel and clay	14	654
Well G-52					
Owner: Frank Evans. Driller: J. J. Merrifield.					
Top soil	4	4	Sand, coarse and gravel	80	360
Caliche and clay	56	60	Clay, yellow and shale	45	405
Shale and clay	160	220	Gravel	50	455
Gravel and limestone	10	230	Rock	5	460
Gravel	10	240	Sand, coarse and some gravel	73	533
Rock	2	242	Clay, yellow	3	536
Shale and clay	38	280			
Well G-53					
Owner: Charles Warminskie. Driller: J. J. Merrifield.					
Top soil	4	4	Clay, yellow and shale	35	280
Caliche	36	40	Sand and gravel	80	360
Clay, yellow and shale	185	225	Clay, yellow and shale	45	405
Lime and clay	5	230	Gravel and sand	73	478
Sand and gravel	12	242	Mixed clay	2	480
Sandstone	3	245			

Table 3.—Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well G-55					
Owner: R. J. Sailor. Driller: H. H. Heiskell.					
Top soil	3	3	Sand and gravel	30	310
Clay, brown	12	15	Sand and gravel and clay balls	10	320
Caliche	20	35	Clay and sand rock	10	330
Clay, brown	35	70	Clay, white and sand-	20	350
Clay, white and caliche	170	240	Sand, coarse and gravel	50	400
Sand, clay	10	250	Sand, gravel and clay	25	425
Sand	20	270	Clay, brown	10	435
Clay, white	10	280			
Well H-1					
Owner: T. L. Haiduk. Driller: Lee Murphy Drilling Co. Log of test well 5 feet from Well H-1.					
Surface	5	5	Clay, sandy	5	285
Clay, sandy	61	66	Caliche and clay	40	325
Clay, sandy, with caliche streaks	141	207	Sand, dry, with small clay streaks	60	385
Sand and sandy clay	9	216	Sand, gravel and small clay streaks	65	450
Caliche	39	255	Red beds	10	460
Clay	25	280			
Well H-3, partial log					
Owner: H. R. Kees. Driller: Cities Service Gas Co.					
Clay	50	50	Sand, brown	30	245
Clay, yellow	30	80	Sand, water	120	365
Sand, yellow	40	120	Sand and brown mud	5	370
Shale, sandy	30	150	Rock, red; gypsum and shells	90	460
Sand and shells	20	170	Total Depth		3,336
Sand and yellow clay-	30	200			
Sand	15	215			

Table 3.—Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well H-4					
Owner: Thomas Anderwald. Driller: J. J. Merrifield.					
Top soil	3	3	Clay; red and white shale	100	260
Caliche; red sandy clay	57	60	Sand and gravel	26	286
Clay, yellow and shale	100	160	Clay, yellow and shale	114	400
			Gravel	43	443
Well H-12					
Owner: Mrs. Hannah Anderson. Driller: M & A Drilling Co.					
Top soil	4	4	Clay, sandy	35	360
Caliche and clay	98	102	Sand	50	410
Sand, dry and clay	168	270	Gravel	20	430
Sand	55	325	Sand, fine	7	437
			Red beds		437+
Well H-13					
Owner: L. C. O'Neal. Driller: J. J. Merrifield.					
Top soil	5	5	Rock, sand, coarse and gravel	20	260
Caliche	30	35	Gravel and white clay; shale	135	395
Sand, shale and caliche	155	190	Sand, coarse, and gravel	15	410
Clay, yellow and shale	30	220	Red beds	4	414
Sand and gravel	20	240			
Well H-14					
Owner: Mrs. I. T. Kuykendall. Driller: Lee Murphy Drilling Co. Log of test hole at location of Well H-14.					
Surface	6	6	Caliche	15	112
Caliche	16	22	Caliche and sandy clay	18	130
Caliche, sandy	9	31	Sand and sandy clay	7	137
Clay, sandy, with caliche streaks	55	86	Sand, dry	17	154
Sand and sandy clay	11	97	Caliche	13	167
			Caliche with some sand streaks	8	175

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Table 3.—Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well H-14--Continued					
Sand with caliche streaks	25	200	Sand with broken sandstone and sandy clay streaks	30	324
Sand, dry, coarse	17	217	Caliche clay with small sand streaks	26	350
Caliche	5	222	Sand, coarse, firm and little gravel	16	366
Sand with caliche streaks	8	230	Caliche clay with sand streaks	2	368
Sand	18	248	Sand, good, coarse and gravel	49	417
Sand and gravel	10	258	Clay mixture	3	420
Clay	3	261			
Sand, good, with small clay streaks	29	290			
Clay, sandy, with broken sandstone streaks	4	294			
Well H-15					
Owner: Mrs. Theresa Click. Driller: J. J. Merrifield.					
Top soil	8	8	Sand, gravel and clay streaks	63	278
Clay, yellow and caliche	72	80	Clay, sandy and some gravel	32	310
Clay, yellow and white sand	40	120	Clay, white and shale	10	320
Clay, sandy and shale	30	510	Sand, coarse and gravel	70	390
Clay, yellow and streaks of shale	50	200	Red beds	12	402
Sand and gravel	15	215			
Well H-19					
Owner: R. A. Thompson, Jr. Driller: Lee Murphy Drilling Co. Test hole 20 feet from well H-19					
Surface	6	6	Sand, good	9	285
Clay, sandy	57	63	Caliche	6	291
Caliche	56	119	Caliche with sand streaks	10	301
Clay, sandy, with caliche streaks	71	190	Caliche, hard	15	316
Sand and sandy clay	20	210	Caliche, hard, with small sand streaks	8	324
Sand and sandy clay with caliche streaks	45	255	Sand, coarse and gravel with caliche streaks	13	337
Sand	19	274	Clay	1	338
Caliche	2	276			

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Table 3.--Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well H-19--Continued					
Sand and gravel with small clay streaks--	17	355	Sand with clay streaks	18	405
Clay, sandy----------	7	362	Clay balls with sand streaks----------	31	436
Sand, coarse---------	3	365	Clay and fine sand streaks----------	31	467
Clay, sandy----------	2	367	Clay, red and shales-	13	480
Sand, coarse, with clay streaks----------	20	387			
Well H-28					
Owner: Mrs. C. A. Neighbors. Driller: Lee Murphy Drilling Co. Log of test hole at Well H-28.					
Surface----------	7	7	Clay----------	16	321
Caliche clay---------	15	22	Clay and sand streaks	23	344
Caliche, sandy-------	16	38	Sand and sandy clay--	16	360
Clay, sandy----------	90	128	Sand, coarse and caliche and shale streaks---	25	385
Caliche----------	42	170	Clay mixture---------	17	402
Clay, sandy, with caliche streaks----------	57	227	Clay with small sand streaks----------	24	426
Sand and clay with caliche streaks----------	15	242	Clay, loose and shale	12	438
Sand, hard, dry and gravel----------	8	250	Sand and clay streaks----------	17	455
Caliche----------	28	278	Clay, red----------	5	460
Clay----------	17	295			
Sand with clay streaks	10	305			
Well J-2					
Owner: Pantex Ordnance Plant.					
Surface clay---------	16	16	Clay, sandy----------	14	399
Clay, sandy----------	58	74	Sand, fresh water----	15	414
Shells----------	16	90	Sand and gravel------	6	420
Sand----------	161	251	Sand, shell and gravel	16	436
Sand and gravel------	35	286	Sand----------	14	450
Sand----------	30	316	Rock----------	16	466
Sand and clay--------	25	341	Clay, sandy----------	30	496
Clay, yellow---------	44	385	Triassic----------	5	501

Table 3.—Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well J-3					
Owner: Pantex Ordnance Plant.					
Clay	8	8	Sand and gravel	37	301
Sand and red shell	117	125	Clay, sandy	11	312
Sand, red	80	205	Shells, red and clay	32	344
Shells	3	208	Clay, red and gravel	27	371
Sand and gravel	42	250	Triassic	40	411
Shells, gravel	14	264			
Well J-4					
Owner: Pantex Ordnance Plant.					
Soil	2	2	Shells, sand and gravel	28	365
Clay, brown	24	26	Sand, fine, water	7	372
Clay, sandy, brown	80	106	Clay	62	434
Sand, red	30	136	Sand, clay and gravel	15	449
Sand	30	166	Sand, hard	5	454
Shells	6	172	Conglomerate, hard	16	470
Sand, fine	24	196	Clay, sandy	9	479
Sand and gravel	69	265	Triassic	5	484
Sand	56	321			
Sand and gravel	16	337			
Well J-5					
Owner: W. J. Morris. Driller: H. H. Heiskell.					
Top soil	4	4	Clay, brown and caliche	20	360
Clay, brown	34	38	Clay, sandy, brown; gravel	40	400
Caliche	6	44	Sand, coarse and gravel	22	422
Clay, sandy and caliche	86	130	Clay, brown	16	438
Clay, brown	20	150	Shell, hard	2	440
Clay and caliche	130	280	Clay, sandy, soft	15	455
Clay, sandy and caliche	40	320	Sand and gravel	35	490
Clay, brown	20	340	Clay, brown	35	525
			Clay, brown and white	27	552

Table 3.--Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well J-8					
Owner: Wescoat and Hood. Driller: Panhandle Irrigation Co.					
Surface	12	12	Sand, fine and clay	91	362
Caliche rock	14	26	Sand, and gravel and clay layers	31	393
Clay	92	118	Sand, hard; gravel; clay	30	423
Sandstone rock	61	179	Clay, hard and some gravel	31	454
Clay rock	31	210			
Clay	30	240			
Sand rock and clay	31	271			
Well J-28					
Owner: Panhandle & Sante Fe Railroad.					
Soil, black	2	2	Clay, brown and sand	35	210
Marl, white	5	7	Sand, and dry gravel, caves bad	43	253
Clay, light colored	43	50	Clay, red	35	288
Clay, red and sand caves	100	150	Sand, red, water-bearing	21	309
Clay, light colored and sand	25	175	Clay, red	6	315
Well K-1					
Owner: Mrs. L. H. Skaggs. Driller: Panhandle Irrigation Co.					
Surface	15	15	Sand and clay	64	424
Clay	132	147	Sand	30	454
Rock and clay	28	175	Sand, soft	31	485
Rock, hard	5	180	Clay and sand	30	515
Clay, sandy	91	271	Clay, sandy	153	668
Clay, brown	31	302	Sand, soft	30	698
Sand, fine	58	360	Shale, brown	27	725

Table 3.—Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well K-2					
Owner: Unknown. Driller: Western Drilling Co.					
Top soil, black------	6	6	Clay, gray and brown with caliche and limestone----------	10	320
Clay, red (soft)-----	34	40	Sand, very fine; some coarse sand and caliche----------	20	340
Clay, red sandy, with caliche and sand, coarse----------	5	45	Clay, sandy yellow, with caliche and limestone	10	350
Clay, sandy, with caliche and cemented sand (hard)----------	10	55	Sand, cemented with clay, very sandy and limestone (hard)--------	50	400
Clay, sandy, red, with limestone; coarse sand----------	25	80	Clay, sandy; limestone and some coarse sand (soft)----------	10	410
Clay, sandy, red and limestone (hard)----	25	105	Clay, sandy gray; cemented sand and caliche----	10	420
Sand, very fine and caliche (hard)------	17	122	Clay, sandy, gray; cemented sand and coarse sand and some limestone (medium)----------	55	475
Clay, sandy, fine; cemented sand (hard)	33	155	Clay, sandy, gray, with coarse sand and limestone (soft)----	45	520
Clay, sandy, fine, with caliche and limestone	14	169	Sand, gray; brown clay and some limestone (soft)----------	25	545
Clay, sandy, with caliche and some cemented sand----------	9	178	Clay, sandy, yellow; brown clay and limestone----------	20	565
Clay, sandy, gray with cemented sand (hard)	22	200	Clay, sandy, yellow; some sand, fine and cemented layers-----	2	567
Clay, sandy, gray with cemented sand and coarse sand (hard)---------	28	228	Clay sandy, yellow; some gravel pebbles and caliche----------	15	582
Clay, sandy, red; limestone and some gravel, fine----------	7	235	Clay, sandy; fine sand and gravel----------	73	655
Clay, sandy, yellow and red, with limestone and coarse sand (hard)--	30	265	Clay, sandy----------	8	663
Clay, sandy, with caliche and limestone (hard)	35	300	Clay, sandy and gravel	22	685
Clay, gray and caliche with a little limestone----------	10	310			

Table 3.--Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well K-7					
Owner: W. J. Morris. Driller: H. H. Heiskell.					
Top soil	9	9	Clay, brown	25	310
Clay, brown	41	50	Clay and caliche	50	360
Clay and caliche	44	94	Sand, coarse; gravel and clay	10	370
Clay, sandy	6	100	Clay, sandy, and caliche	120	490
Clay and caliche	35	135	Sand, coarse; gravel with clay	20	510
Sand rock and hard shells	40	175	Sand, coarse, and gravel, hard	65	575
Clay, sandy and caliche, hard	10	185	Clay, brown and white	17	592
Sand hard rock; caliche; clay	100	285			
Well K-8					
Owner: Unknown. Driller: Western Drilling Co.					
Top soil	1	1	Clay, sandy, brown	55	325
Clay, red	5	6	Clay, sandy, brown and caliche	35	360
Clay, sandy and caliche	7	13	Clay, sandy, yellow and gravel; some caliche	16	376
Clay, sandy, brown and yellowish	42	55	Sand, medium and gravel	40	416
Clay, gray	3	58	Clay, brown	4	420
Clay, sandy, red	22	80	Clay, brown, sandy	11	431
Clay, white	12	92	Clay, sandy, brown and gravel	14	445
Clay, sandy red	16	108	Clay, brown and caliche; some gravel pebbles	10	455
Clay, sandy, red and small pebbles of sandstone and caliche	46	154	Sandstone, hard and brown shale	25	480
Clay, sandy, brown	13	167	Clay, red	10	490
Clay, sandy, brown with small pebbles of sandstone	25	192	Clay, white and red	14	504
Sandstone, cemented and brown clay	43	235	Clay, red, hard layers	1	505
Gravel, medium	10	245	Clay, sandy, red and caliche	15	520
Gravel, medium; cemented layers	12	257	Clay, red	30	550
Clay, sandy, brown and gravel	13	270			

Table 3.--Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well K-9					
Owner: Mr. K. E. Guyer. Driller: Lee Murphy Drilling Co. Log of test hole at Well K-9.					
Surface	6	6	Sand, coarse, with small caliche streaks	10	350
Clay, sandy	70	76	Sand, coarse and gravel	46	396
Caliche	13	89	Caliche	2	398
Clay, sandy, with caliche streaks	90	179	Clay, red	3	401
Clay, sandy, with sand streaks	86	265	Shale, yellow with hard gravel streaks	3	404
Caliche	46	311	Sand, hard	31	435
Caliche with small sand streaks	24	335	Red beds	5	440
Sand with caliche streaks	5	340			
Well K-11					
Owner: C. E. Chenoweth. Driller: M & M Drilling Co.					
Surface	5	5	Rock	15	275
Clay	69	74	Sand; gravel	20	295
Sand	49	123	Clay, rock	32	327
Rock shell	26	149	Rock	39	366
Clay	31	180	Sand	26	392
Sand	62	242	Clay, red	4	396
Clay	14	256	Sand	44	440
Sand	4	260	Clay, red	1	441
Well K-13					
Owner: D. E. Price. Driller: M & M Drilling Co.					
Surface	5	5	Rock shells	3	265
Clay	40	45	Sand; clay	82	347
Clay, yellow	30	75	Clay	33	380
Sand rock	17	92	Sand; clay shells	150	530
Sand	19	111	Clay	17	547
Clay	7	118	Rock	7	554
Sand	62	180	Sand	6	560
Rock	40	220	Red bed	6	566
Sand	42	262			

Table 3.—Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well K-15					
Owner: Dick Orr. Driller: Lee Murphy Drilling Co. Log of test hole at Well K-15.					
Surface	6	6	Sand, dry, with sandy clay streaks	11	196
Caliche	36	42	Gravel, hard	4	200
Clay, sandy, with caliche streaks	15	57	Sand, dry and gravel-	9	209
Caliche	27	84	Caliche	56	265
Clay, sandy, with caliche streaks	7	91	Caliche with sand streaks	6	271
Sand with sandy clay streaks	31	122	Caliche	11	282
Sand and sandy clay--	23	145	Caliche with sand streaks	9	291
Sand, coarse	12	157	Caliche and sand streaks	11	302
Sand with caliche streaks	28	185	Sand and gravel	150	452
			Clay, sandy	8	460
Well K-20					
Owner: Ora Lee Pond. Driller: H. H. Heiskell. Log of test hole 350 yards north of well K-20.					
Top soil	4	4	Clay, brown, sandy; some gravel	20	530
Caliche and brown clay	111	115	Sand, coarse; gravel; little clay	20	550
Caliche, hard	13	128	Clay, brown	36	586
Clay, brown	32	160	Clay, brown; hard sand	4	590
Clay, sandy and caliche	60	220	Clay, sandy, brown	20	610
Caliche, hard	5	225	Clay, sandy, brown and white	50	660
Sand, clay and caliche	40	265	Clay, brown	20	680
Sand, hard; gravel; caliche	5	270	Clay, brown, sandy	45	725
Clay and caliche	30	300	Caliche, hard and gravel	19	794
Clay, sandy, caliche gravel	10	310	Clay, soft, red	26	770
Clay, sandy; caliche hard	140	450	Clay, sandy, soft, white	20	790
Clay, sandy, brown and white	60	510	Clay, red and white--	10	800

Table 3.—Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well K-21					
Owner: Rose Gordon. Driller: Panhandle Irrigation Co.					
Surface	15	15	Sand, soft and blue clay	31	515
Caliche, soft, rock and sand	103	118	Sand; clay; shale	30	545
Sand, sandstone	61	179	Sand, some coarse traces, and shale	31	576
Sand	153	332	Sand, fine; clay, white, and blue shale	30	606
Sandstone rock	30	362	Sand, fine	44	650
Sand rock, hard	31	393	Clay	17	667
Sand and clay	30	423			
Sandrock and clay	31	454			
Shale, blue	30	484			
Well K-24					
Owner: Mary H. Aronsis. Driller: Panhandle Irrigation Co.					
Surface	12	12	Gravel	15	515
Caliche	76	88	Sand, gravel	10	525
Caliche rock	30	118	Sand, coarse; gravel	20	545
Clay and rock	31	149	Clay, some sand; gravel	31	576
Rock, soft	30	179	Sand	14	590
Clay and rock	31	210	Sand and gravel	30	620
Clay	140	350	Gravel, coarse	12	632
Sand, fine	43	393	Clay and gravel	13	645
Clay and sand	61	454	Sand, coarse; gravel	13	658
Clay, sandy	30	484	Gravel, coarse	22	680
Clay, layers of and sand	16	500			
Well K-25					
Owner: Paul Dauer. Driller: H. H. Heiskell.					
Top soil	6	6	Clay, brown and caliche	15	275
Clay, brown and caliche	129	135	Clay, sandy and gravel hard	5	280
Caliche	30	165	Clay, white and caliche hard	30	310
Sand, clay and caliche	15	180	Clay, white, sandy, soft	20	330
Caliche, hard and clay	45	225	Clay, sandy, yellow	10	340
Clay, sandy and caliche	20	245			
Sand and gravel	15	260			

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Table 3.—Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well K-25--Continued					
Clay, sandy, brown and yellow	20	360	Sand, coarse and gravel	20	580
Clay, sandy, yellow and caliche gravel	60	420	Sand, coarse and gravel, hard	5	585
Sand, fine; clay and caliche gravel	28	448	Clay, yellow	5	590
Clay, hard, brown and sand streaks	22	470	Sand, coarse and gravel, hard	52	642
Sand and gravel	10	480	Clay, blue and yellow	33	675
Sand; gravel; clay, soft	10	490	Sand, coarse and gravel; blue clay	25	700
Sand; gravel and clay streaks, soft	70	560	Clay, brown	7	707
Well K-26					
Owner: Unknown. Driller: Western Drilling Co.					
Surface	6	6	Gravel, cemented	3	442
Clay, sandy	33	39	Clay, sandy, brown and limestone and some gravel	8	450
Clay, sandy, brown, with limestone and shale	69	108	Clay, sandy, gray; cemented gravel and limestone	32	482
Clay, sandy, brown and clay brown	61	169	Gravel, and sandstone (hard)	12	494
Clay, sandy, brown, with cemented sand and gravel	22	191	Gravel, fine to medium, with some clay streaks	58	552
Gravel, good	7	198	Gravel, fine to medium, with caliche and some shale	5	557
Sand, fine and gravel	9	207	Gravel, fine to medium, with sand and some shale	34	591
Clay, sandy, brown and gravel, good	4	211	Gravel, cemented	7	598
Clay, sandy, brown and limestone streaks	62	273	Gravel, fine; sandy clay and some shale	37	635
Clay, sandy, brown and cemented sand	57	330	Gravel, cemented	22	657
Clay, sandy, brown with some gravel and some cemented sand	11	341	Gravel, fine, with shale breaks	5	662
Clay, sandy, with caliche and sandstone soft	86	427	Clay, brown, sandy, with shale and sandstone streaks	3	665
Clay, sandy, brown, with gravel, coarse and shale	12	439	Gravel, cemented and shale	14	679
			Red beds	11	690

Table 3.—Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well K-29					
Owner: Harold O'Niel. Driller: Panhandle Irrigation Co.					
Surface	15	15	Sand and gravel	30	240
Caliche	65	80	Sand, coarse	92	332
Sand	60	140	Sand, coarse; some clay	30	362
Sand rock	39	179	Gravel and clay	31	393
Sandstone	21	200	Gravel, coarse	17	410
Gravel; coarse sand	10	210	Clay, red	13	423
Well K-30					
Owner: James Knittel. Driller: H. H. Heiskell.					
Top soil	4	4	Sand, coarse; gravel; little clay hard	20	350
Clay and caliche	66	70	Clay, brown	10	360
Caliche	60	130	Clay, brown and fine sand	40	400
Sand, hard and caliche	35	165	Clay, brown and sandstone hard	10	410
Sand rock, gravel and caliche	15	180	Caliche and clay, hard	15	425
Sand and gravel	35	215	Sand; some gravel and clay	5	430
Caliche, hard and gravel	10	225	Clay, red and yellow	15	445
Sand and gravel	65	290	Sand, hard and clay	60	505
Sand, gravel and little clay	40	330	Clay, red, blue and shells	5	510
			Clay, red	20	530
Well K-32					
Owner: J. T. Broadaway. Driller: Panhandle Irrigation Co.					
Surface	5	5	Clay, caliche; rock	10	393
Caliche	13	18	Clay, hard, brown and gravel	48	441
Clay, brown	101	119	Sand, fine; brown sandy clay	5	446
Clay, gray	30	149	Clay, soft, brown and sand rock	16	462
Clay	61	210	Clay, some loose, coarse gravel	19	481
Clay and rock	31	241	Clay, loose, sandy; some gravel	9	490
Clay, brown	29	270	Clay layers; coarse gravel	61	551
Sand, fine	55	325	Clay, brown	86	637
Clay, sandy	15	340			
Gravel, hard	43	383			

Table 3.—Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well K-34					
Owner: Dick Orr. Driller: Lee Murphy Drilling Co.					
Surface	6	6	Sand and sandy clay	8	246
Caliche	18	24	Clay, sandy	19	265
Caliche rock	2	26	Caliche	20	285
Caliche	29	55	Sand and caliche streaks	17	302
Sand	12	67	Sand, firm	6	308
Sand with caliche streaks	9	76	Sand	7	315
Sandstone, soft	5	81	Sand, coarse, with clay streaks	12	327
Caliche	26	107	Clay, hard and sand	16	343
Sand with caliche streaks	18	125	Sandstone	5	348
Sand and sandy clay	19	144	Sand and soft sandstone	15	363
Sand and soft sandstone	41	185	Clay mixture	2	365
Gravel, cemented	11	196	Sand, hard, fine	19	384
Caliche	18	214	Sand, hard, fine, with clay streaks	29	413
Gravel, hard, cemented	2	216	Shale, yellow	5	418
Caliche	2	218	Clay, red	12	430
Gravel, hard	12	230			
Caliche	8	238			
Well K-44					
Owner: R. A. Witt. Driller: Panhandle Irrigation Co.					
Surface	6	6	Sandstone rock	27	145
Caliche rock	29	35	Sand, fine, white	34	179
Clay and rock	83	118	Red beds	31	210
Well L-1					
Owner: Walter Lill. Driller: H. H. Heiskell.					
Top soil	4	4	Clay, brown	45	285
Clay, brown	56	60	Clay, sandy, brown	30	315
Clay, brown and caliche	95	155	Clay, sandy; sand rock and gravel	5	320
Clay, brown and caliche and shells	75	230	Clay, sandy, white	25	345
Clay, sandy, brown; little gravel	10	240	Clay, soft, sandy	10	355
			Clay, hard, brown	15	370

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Table 3.--Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well L-1--Continued					
Clay, sandy and hard sand	30	400	Sand and gravel; little clay	5	540
Clay, sandy and soft-	20	420	Sand, coarse and gravel	20	560
Clay, brown and white, and shells	10	430	Sand, coarse and gravel and clay	10	570
Clay, white and hard shells	30	460	Clay, sandy, brown and yellow	35	605
Clay, brown and white and hard shells	10	470	Clay, brown and blue-	25	630
Clay, white	50	520	Clay, brown	20	650
Clay, brown and white, sandy	15	535	Clay, light red, sandy	20	670
			Clay, red and hard shells	34	704
Well L-3					
Owner: Unknown. Driller: Western Drilling Co.					
Clay, sandy, brown	26	26	Clay, sandy, brown and cemented sand streaks	48	325
Caliche with clay, sandy, brown	35	61	Clay, sandy, brown and gray; limestone and cemented sand	14	339
Sand, fine, with some clay, sandy	9	70	Clay, gray, with shale and cemented sand streaks	23	362
Caliche with sandy clay, brown	25	95	Clay, brown and gray with limestone streaks	3	365
Clay, sandy brown	12	107	Clay, gray and fine sand	6	371
Clay, sandy, brown, with cemented sand and caliche	23	130	Clay, sandy, brown; limestone and fine sand	12	383
Clay, sandy, brown and cemented sand	12	142	Clay, sandy, brown	15	398
Sand, fine, with some sandy clay	16	158	Clay, sandy, brown, with shale and limestone streaks	40	438
Caliche and sandy clay, brown, with some cemented sand	46	204	Gravel, coarse, with brown and yellow sandy clay	15	453
Gravel, fine to medium with some sandy clay gray	14	218	Gravel, coarse	39	492
Clay, sandy, brown and cemented sand	42	260	Clay, sandy, brown and yellow, with gravel, fine	20	512
Clay, sandy, brown and caliche with limestone breaks	17	277			

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Table 3.—Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well L-3--Continued					
Shale with medium gravel	23	535	Clay, red (red beds)	22	630
Clay, sandy, reddish brown; some gravel	73	608			
Well L-4					
Owner: Mrs. T. H. McKenzie. Driller: Lee Murphy Drilling Co. Log of test hole 25 feet from Well L-4.					
Surface	6	6	Sand	21	484
Clay, sandy	57	63	Sand with small caliche streaks	26	510
Caliche	87	150	Sand	23	533
Clay, sandy, with caliche streaks	48	198	Clay mixture	9	542
Caliche	42	240	Shale with sand streaks	12	554
Sand	6	246	Clay, red	16	570
Caliche	24	270	Rock	1	571
Clay with sand stringers	32	302	Clay	9	580
Sand	13	315	Rock	3	583
Caliche rock	12	327	Clay and shale	22	605
Sand with caliche and clay streaks	53	380	Shale, red	25	630
Sand	80	460	Shale, red, with limestone streaks	9	639
Caliche rock	3	463	Shale, red	41	680
Well L-12					
Owner: A. L. Stovall. Driller: H. H. Heiskell.					
Top soil	3	3	Sand and gravel	33	218
Clay, brown	3	6	Clay, sandy and caliche	24	242
Caliche	29	35	Clay, brown	18	260
Caliche and clay	85	120	Sand and gravel and hard shells	54	314
Caliche	15	135	Sand and gravel	101	415
Caliche and clay	5	140	Clay, brown and white	23	438
Sand, dry	35	175			
Clay, sandy and caliche	10	185			

Table 3.--Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well L-13					
Owner: Hubert Fowler. Driller: H. H. Heiskell.					
Top soil	4	4	Sand, fine; clay and caliche	50	380
Clay and caliche	106	110	Clay, sandy	40	420
Clay, sandy and caliche, hard	20	130	Clay, sandy and caliche	17	437
Sand, fine and caliche, hard	60	190	Sand, coarse and gravel	33	470
Sand, gravel and caliche	30	220	Sand, coarse and gravel, hard	50	520
Clay, sandy and caliche	85	305	Sand, coarse and gravel; little clay	20	540
Sand, fine; clay, caliche	15	320	Clay, brown	55	595
Sand, fine; caliche and shells	10	330			
Well L-22					
Owner: O. R. Harrell. Driller: Big T Pump Co.					
Top soil	3	3	Sand and clay	40	270
Caliche	27	30	Rock	2	272
Clay	20	50	Sand and clay	48	320
Sand and clay	140	190	Sand and gravel	40	360
Rock	3	193	Clay	10	370
Sand and gravel	37	230			
Well L-27					
Owner: Mae H. Dean. Driller: M & M Drilling Co.					
Surface	8	8	Sand	8	270
Caliche	12	20	Clay, caliche	52	322
Clay	25	45	Clay	123	445
Caliche	20	65	Sand, gravel	179	624
Sand	70	135	Clay	26	650
Rock	38	173	Gravel	45	695
Gravel	59	232	Clay, red	5	700
Clay	30	262			

Table 3.—Drillers' logs of wells in Carson County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well L-28					
Owner: Mae H. Dean. Driller: M & M Drilling Co.					
Surface	8	8	Clay	230	425
Clay	17	25	Sand, gravel	50	475
Caliche	10	35	Gravel	137	612
Clay	100	135	Red beds	7	619
Sand	60	195			
Well M-11					
Owner: City of Groom. Driller: H. H. Heiskell.					
Soil	5	5	Sand, gravel, shells	63	270
Clay, yellow	35	40	Chalk, white; gravel sand	52	322
Sand, hard, white and gravel	40	80	Clay, yellow	83	405
Sand, hard, white and shell	25	105	Clay, sandy, yellow	55	460
Clay, sandy, yellow and gravel	102	207	Gravel, coarse, hard	25	485
			Rock, red	13	498
Well M-12					
Owner: City of Groom. Driller: H. H. Heiskell.					
Top soil	2	2	Sand, coarse	50	320
Caliche and yellow clay	68	70	Clay, yellow	40	360
Sand, fine and sand rock	70	140	Clay, sandy and fine sand	40	400
Sand, fine and yellow clay and sand rock	60	200	Clay and shells	30	430
Sand, hard	10	210	Clay, sandy and shells and gravel	60	490
Clay, yellow; coarse sand and gravel	45	255	Gravel, coarse	3	493
Sand, fine	15	270	Red beds	15	508

Table 4.- Chemical analyses of water from wells in Carson County, Texas
(Constituents shown in parts per million)

Well No.	Depth of well (ft.)	Date of collection	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)	Boron (B)	Dissolved solids	Hardness as $CaCO_3$	pH	Specific conductance (micromhos at 25° C)	Sodium adsorption ratio (SAR)	Residual sodium carbonate (RSC)
A-2	170	10-18-38			58	14	6		177	24	34		/b		223/c	204			0.2	0
a/A-3		11-17-38							183	27	12		/b							
A-7	157	11-19-38			54	21	3		195	25	31		/b		230/c	223			.1	0
B-5	97	10-12-38			62	22	16		238	35	28	0.7	8.4		288/c	243			.4	0
B-9	500	11-19-38			52	19	18		250	21	14	.7	/b		247/c	207			.5	0
C-6	418	10- 5-48	21	0.05	43	23	13	4.8	220	27	13	.6	10	0.06	262	202	7.5	445	.4	0
C-7	210	11-28-38			51	14	8		226	8	6		/b		198/c	184			.3	.02
C-8	263	11-26-38			49	15	14		201	32	12		/b		221/c	184			.4	0
C-9	126	do.							159	12	6		/b							
D-10	517	8-30-54	25		68	38	86		224	164	114		2.5	.13	620	326	7.6	1010	2.1	0
D-11	420	do.	24		42	32	23		253	29	34		4.0	.18	305	236	7.7	550	.6	0
E-2	400	11-11-38			41	25	8		226	15	16		/b		216/c	205			.2	0
E-4	260	11-12-38			66	19	7		256	18	11		16		263/c	242			.2	0
E-23	476	10- 7-38			60	22	4		250	20	13	1.0	/b		243/c	238			.1	0
E-25	489	2-12-42	11	.27	39	21	36		234	29	22	.6	8.6		280	184			1.2	.15
E-26	236	10- 7-38			56	22	7		256	14	13		/b		238/c	228			.2	0
F-2	376	11-14-47	28	.06	46	22	20	8.4	250	24	18	.4	3.5		270	206	8.0	442	.6	0
F-4	451	do.	27	.04	46	21	21	9.2	250	23	18	.4	3.5		268	202	8.0	442	.6	.07
F-11	797	2-14-53	22	0	35	21	48	6.0	297	22	8	1.6	6.1	.17	333	174	7.8	515	1.6	1.38
F-34		9- 1-54	34		44	24	16		258	14	7.5		6.0	.09	264	208	7.8	454	.5	.06
F-38	820	1-20-53	17	.14	33	22	50	6.2	290	35	6	1.4	6.1	.18	310	173	8.3	516	1.7	1.29
F-45	525	6-17-55	42	.03	43	30	13	8.0	280	16	12	1.0	8.5		296	231	8.0	492	.4	0
F-46	550	12- 6-38							281	19	11		/b							
F-47	523	11-20-47	7.8	.06	40	33	15	5.2	286	16	10	1.2	7.2		306	236	8.0	508	.4	0
G-16	400	6-24.48	30	.05	41	20	26	3.2	258	18	9	.2	5.1	.19	285	185	7.4	481	.8	.52
G-17	400	12- 6-38			50	20	20		268	15	11		/b		248/c	207			.6	.25
G-37	810	3-28-56	36		38	30	25	6.8	295	27	6.5		5.2	.18	298	218	7.4	507	.7	.04
G-49	303	10- 8-38							256	16	12		/b							
G-56	490	9- 6-54	35		38	28	24		282	18	7		6.0	.08	278	210	7.6	488	.7	.42
H-21	340	do.	34		43	25	25		283	19	6	0.8	3.5	.28	290	210	8.2	493	.7	.43
H-22	440	do.	34		38	25	43		297	26	7.5		5.6	.12	302	198	7.7	524	1.3	.90
J-1	406	10- 7-38			61	19	8		268	16	7	1.3	/b		245/c	232			.2	0
J-9	360	do.							256	20	12		/b							
K-12	385	10-29-38			52	29	18		232	72	12	1.9	/b		299/c	248			.5	0
K-16	339	do.			39	26	26		232	44	19		/b		268/c	206			.8	0
K-17	360	do.			52	29	6		244	28	23		/b		258/c	248			.2	0
K-38	338	10-13-38			51	25	41		268	54	27	2.3	/b		332/c	231			1.2	0
L-12	438	8-20-54	38		44	30	21		297	21	8.5		6.6	.13	299	233	7.5	520	.6	.20
L-25	600+	3-28-56	34		45	24	36	6.6	305	26	8.8		6.2	.21	324	211	7.4	555	1.1	.33
M-12	508	6-24-48	34	0	42	28	21	3.6	290	16	5.5	.4	3.8	.39	295	220	7.7	499	.6	.35
M-13	292	9-22-38							268	16	6		/b							

/a Composite sample wells A-3, A-4, A-5 and A-6.
/b Nitrate less than 20 parts per million.
/c Sum of determined constituents.

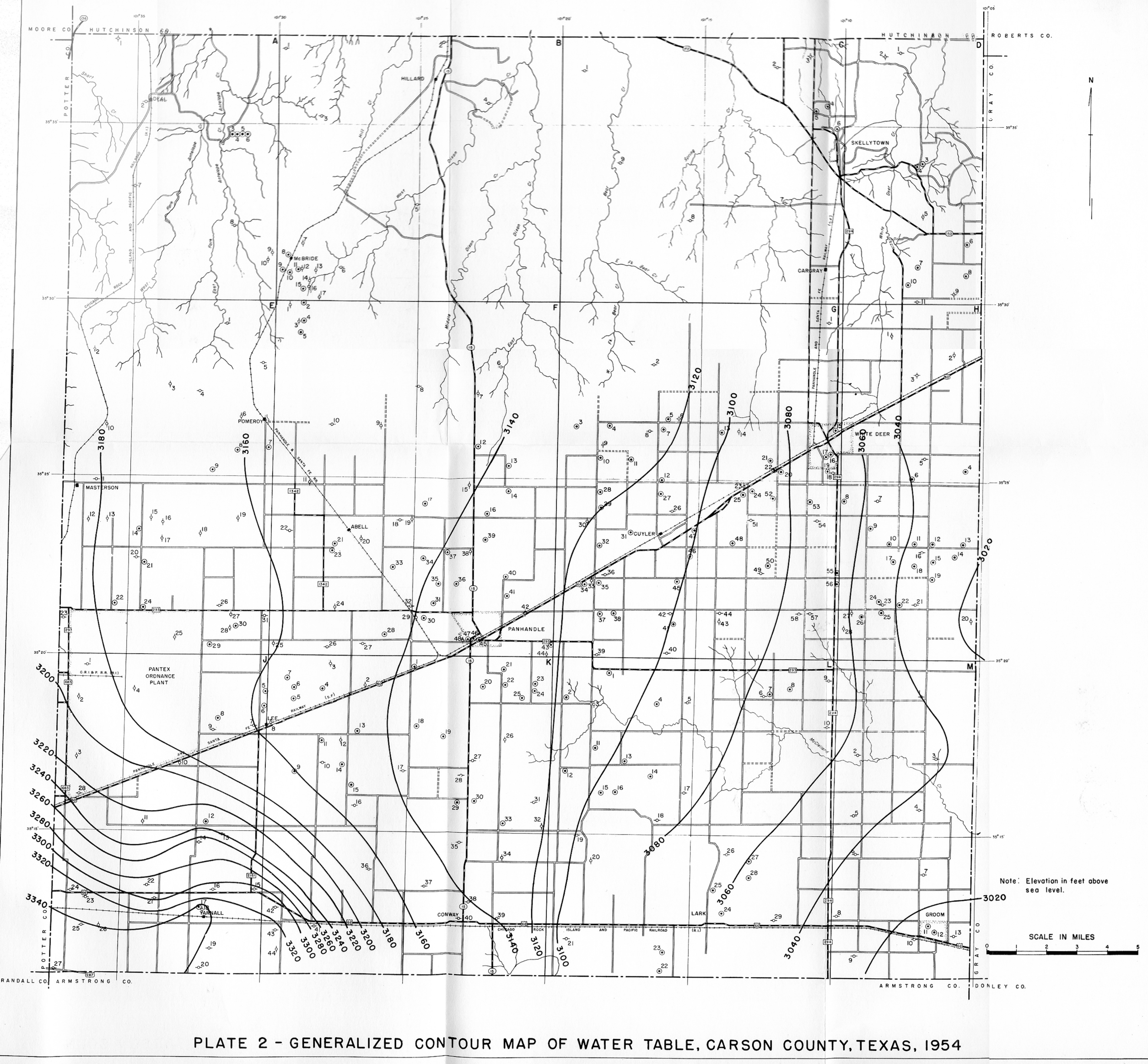

PLATE 2 - GENERALIZED CONTOUR MAP OF WATER TABLE, CARSON COUNTY, TEXAS, 1954