TEXAS WATER DEVELOPMENT BOARD

REPORT 133

GROUND-WATER RESOURCES OF CHAMBERS AND JEFFERSON COUNTIES, TEXAS

By

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With a section on Quaternary Geology

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GROUND-WATER RESOURCES OF CHAMBERS AND JEFFERSON COUNTIES, TEXAS

ABSTRACT

The hydrologic units of Chambers and Jefferson Counties, the Chicot and Evangeline aquifers and the Burkeville aquiclude, are composed of gravel, sand, silt, and clay of Miocene, Pliocene, Pleistocene, and Holocene age.

Only small quantities of fresh ground water, less than 1,000 mg/l (milligrams per liter) dissolved solids, are available in Chambers and Jefferson Counties, and these supplies are fairly well developed. In 1965, approximately 18.6 mgd (million gallons per day) of ground water was used in the report area. Of this amount 10 mgd was fresh water produced from wells in adjacent Hardin and Orange Counties. Total pumpage of fresh water in Chambers and Jefferson Counties was approximately 6.1 mgd. About 2.5 mgd was slightly or moderately saline water.

Industrial use of ground water was approximately 9 mgd, of which 4 mgd was imported. Municipal use of ground water was approximately 8 mgd, of which 6 mgd was imported from Hardin County by the city of Beaumont. Irrigation use in 1965 was approximately 1.5 mgd. Use of ground water for irrigation will remain small because most of the available water is too saline.

Two aquifers, the Chicot (including the upper and lower units), and the Evangeline, furnish fresh water to wells. Fresh water is produced from wells in the Chicot aquifer in the Mont Belvieu, Houston Point, Anahuac, Galveston Bay, and Trinity Bay areas of Chambers County; in a small strip 2 to 4 miles wide along the eastern and northern boundaries of Jefferson County; and in the Hamshire-Winnie area of Chambers and Jefferson Counties. The Evangeline aquifer produces fresh water in the Mont Belvieu and Houston Point areas of Chambers County. Salinization of water in the aquifers has occurred in the vicinity of shallow salt domes.

Additional small supplies of fresh ground water can be developed in the present producing areas. The largest undeveloped source of fresh water underlies Galveston Bay in Chambers County. Large scale increased usage of ground water will require further importation from neighboring counties.

Most areas in both counties are underlain by very little or no fresh water, but large quantities of slightly and moderately saline ground water (1,000 - 10,000 mg/l) are present at shallow depths in all areas except in the vicinity of shallow salt domes.

Aquifer tests were made in 22 wells. Coefficients of permeability ranged from 108 to 1,670 gpd (gallons per day) per square foot. The highest permeability (1,670 gpd per square foot) was determined in a brackish-water well completed in the lower unit of the Chicot aquifer. The permeability of the sands of the Evangeline aquifer (244 and 327 gpd per square foot) approximate the permeability measured in the Houston district and in Jasper and Newton Counties.

Water levels have declined generally in both counties. The largest decline is due to pumping in adjacent Harris County. The maximum decline was estimated to be at least 150 feet in the lower unit of the Chicot aquifer in the area adjacent to Baytown in Harris County. This major decline has resulted in a land-surface subsidence of about 2 feet.

The exposed formations in Chambers and Jefferson Counties consist of Pleistocene and Holocene deposits, of which the Beaumont Clay of Pleistocene age is the oldest. Remnants of the relict Ingleside barrier island and beach system are enclosed within the Beaumont. The Deweyville deposits of Bernard (1950), which are topographically lower than the Beaumont, underlie the high terraces that border the Holocene floodplains of the Trinity and Neches Rivers. The Holocene deposits are alluvial and deltaic deposits and coastal marsh, mud flat, and beach (chenier) deposits, all comparatively low lying.

The Beaumont Clay, which is the most extensively exposed formation, is a sequence of deltaic and meander-belt deposits of the Pleistocene Trinity River. The Beaumont is probably less than 100 feet thick. On the basis of radiocarbon dating, the formation is probably more than 30,000 years old.

GROUND-WATER RESOURCES OF CHAMBERS AND JEFFERSON COUNTIES, TEXAS

INTRODUCTION

Purpose and Scope of the Investigation

The investigation of ground-water resources in Chambers and Jefferson Counties began in September 1965 as a cooperative project between the U.S. Geological Survey and the Texas Water Development Board. The purpose of the project was to determine the occurrence, availability, dependability, quality, and quantity of ground water suitable for public supply, industrial use, and irrigation.

The general scope of the investigation included the collection, compilation, and analysis of data; determination of the location and extent of the water-bearing formations; determination of the hydrologic characteristics of the water-bearing sands; a study of the chemical quality of the water; and estimates of the quantities of ground water available for development.

One section of the report presents a previously unpublished study of the Quaternary geology of the area.

Location and Extent of the Area

Chambers and Jefferson Counties are situated on the upper Texas Gulf Coast in the West Gulf Coastal Plain physiographic province (Fenneman, 1938). The two counties, which have a combined area of 1,562 square miles, are bounded on the north by Liberty and Hardin Counties; on the east by the Neches River, Sabine Lake, and Orange County; on the south by Galveston Bay and the Gulf of Mexico; and on the west by Galveston Bay, Cedar Bayou, and Harris County. Anahuac, the county seat of Chambers County, is 40 miles east of Houston; Beaumont, the county seat of Jefferson County, is 80 miles east of Houston (Figure 1).

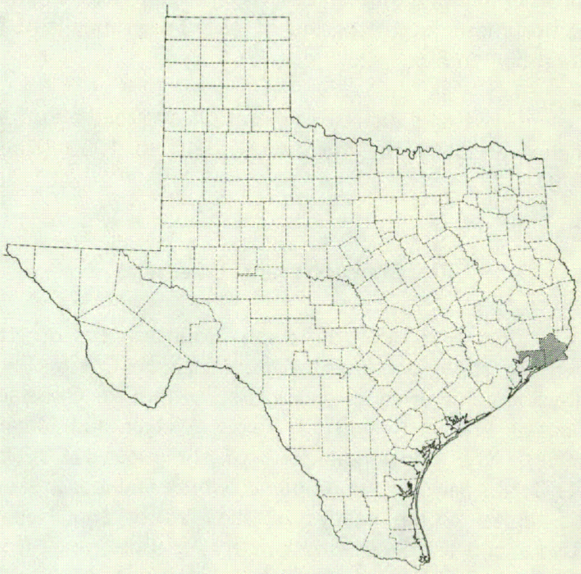

Figure 1.—Location of Chambers and Jefferson Counties

Economic Development

The largest segment of the economy of Chambers and Jefferson Counties is based on the production of petroleum, petrochemicals, natural gas, and sulfur. Since the discovery of oil at Spindletop in 1901, a total of approximately 800 million barrels have been produced in the two counties.

Beaumont and Port Arthur are centers of a petroleum-based industrial complex served by the Intracoastal Waterway and other canals suitable for ocean-going vessels. Timber, cattle, fresh and salt-water fish, and agricultural products are other important elements of the economy.

In 1965, Chambers and Jefferson Counties had estimated populations of 11,100 and 268,000, respectively. Anahuac, the largest town in Chambers County, had a 1965 population of 2,200; Beaumont, the largest city in Jefferson County, had a 1965 population of 127,800.

Climate

Chambers and Jefferson Counties have a warm humid climate. Precipitation, which averages about 54 inches annually, is well distributed throughout the year but is greatest from May to September.

The average annual temperature at Beaumont is about 21°C (70°F). Temperatures below freezing occur on the average of only 12 days per year, and temperatures about 38°C (100°F) are unusual. The approximate dates of the first and last killing frosts are December 2 and March 2. The average annual precipitation, average monthly temperature, and average monthly precipitation at Beaumont for the period of record beginning in 1931 are shown in Figure 2.

Gross lake-surface evaporation averaged about 47 inches annually for the period 1940 to 1965 (Kane, 1967).

Physiography and Drainage

Chambers and Jefferson Counties are on the extreme seaward margin of the West Gulf Coastal Plain physiographic province and entirely within the Grassland Coastal Prairie Region of Texas (Walker and Miears, 1957). The physiography is of three general types: (1) flat to gently rolling upland, which includes most of the area; (2) the valleys of the Trinity and Neches Rivers; and (3) the coastal border. Altitudes range from sea level to a maximum of 81 feet above sea level at Mont Belvieu (Barbers Hill salt dome) in western Chambers County.

Along a line from Smith Point to Beaumont, a series of remnants of abandoned beaches and beach ridges reach altitudes ranging from 15 to 25 feet. The more prominent of these sandy remnants are about 5 feet above the upland surface. Salt domes form two prominent hills on the upland surface: Barbers Hill, in northwestern Chambers County, about 40 feet above the general land surface and Big Hill, in southwestern Jefferson County, about 20 feet high.

The major streams in Chambers County are the Trinity River, which drains the northwestern part of the county and flows into Trinity Bay near Anahuac; Cedar Bayou, which forms the western boundary of the county and flows into Galveston Bay; Double Bayou, which drains the central part of the county and flows into Trinity Bay south of Anahuac; and Oyster Bayou, Onion Bayou, and East Bay Bayou, which drain the eastern part of the county and flow into East Bay.

The major streams in Jefferson County are the Neches River, which drains the eastern part of the county and flows into Sabine Lake; Pine Island Bayou, which forms the northern boundary of the county and flows into the Neches River; Taylor Bayou and its principal tributaries, Hillebrandt and Big Hill Bayous, which drain the western part of the county and flow into Sabine Lake south of Port Arthur; and Spindletop and Salt Bayous, which drain the southern part of the county and flow into the Intracoastal Waterway.

Urbanization and rice cultivation have resulted in the canalization of many streams and the construction of ditches and canals for drainage and irrigation. In some places, natural drainage directions have been changed by deepening parts of the streams.

Methods of Investigation

The following items were included in the investigation of the ground-water resources of Chambers and Jefferson Counties:

1. An inventory was made of all industrial, public supply, and irrigation wells, and of a representative number of domestic and livestock wells (Table 4). Locations of the wells are shown on Figure 24.

2. Electrical logs and drillers' logs of water wells and oil tests were used for construction of the hydrologic sections (Figures 25 through 28) and for determination of the total thickness of sands containing fresh water (Figures 17 and 18).

3. An inventory was made of the withdrawal of ground water for public supply, irrigation, and industrial use.

4. Pumping tests were made to determine the hydraulic characteristics of the water-bearing sands (Table 2).

5. Altitudes of water wells were determined from topographic maps.

6. Measurements of water levels were made in wells, and available records of past fluctuations of water levels were compiled (Table 6 and Figures 8 through 11).

7. Climatological records were collected and compiled (Figure 2).

8. Analyses of water samples were made to determine the chemical quality of the water (Table 7).

9. Maps, sections, and graphs were prepared to correlate and illustrate geologic and hydrologic data.

10. The hydrologic data were analyzed to determine the quantity and quality of ground water available for development.

11. Data were compiled on the subsidence of the land surface (Figure 12).

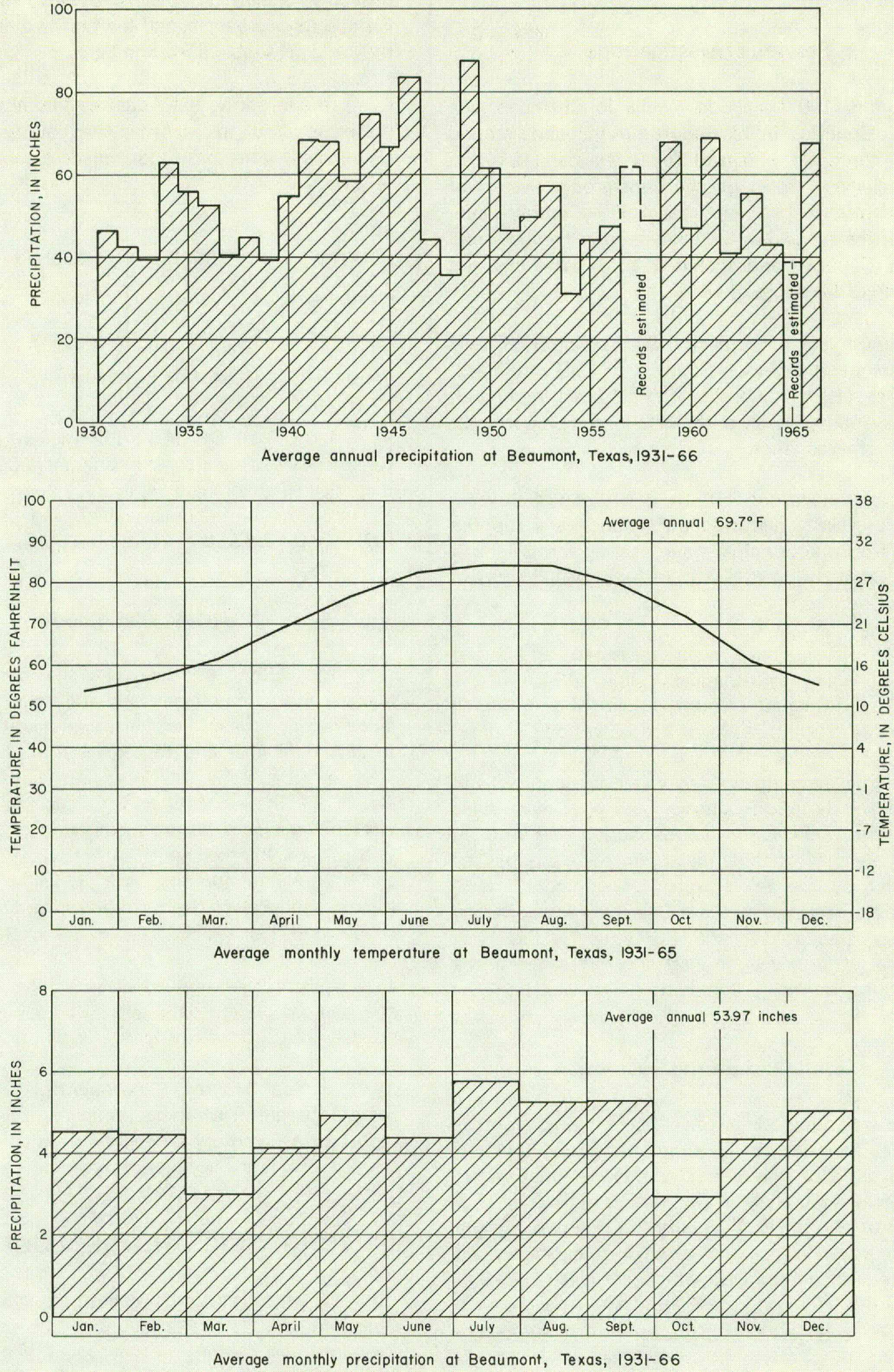

Figure 2

Average Annual Precipitation, Average Monthly Temperature, and Average Monthly Precipitation at Beaumont

From records of U.S. Weather Bureau

12. Problems related to the development and protection of ground-water supplies were studied.

Previous Investigations

Taylor (1907) included wells in Chambers and Jefferson Counties in his report on the underground waters of the Coastal Plain of Texas. Duessen (1914), in a reconnaissance report on the underground waters of the southeastern part of the Texas Coastal Plain, discussed the ground-water geology of Chambers and Jefferson Counties and included a list of wells and springs and drillers' logs of wells.

Livingston and Cromack (1942) inventoried wells in Chambers and Jefferson Counties in 1941 and 1942, and Doyel (1956) published an updated report on Chambers County. Much of the data in these reports was used in this investigation.

Reports by Wood (1956), and Wood, Gabrysch, and Marvin (1963) discussed the ground-water supplies available from the principal water-bearing formations in the Gulf Coast region of Texas, including Chambers and Jefferson Counties.

Water levels have been measured and water samples collected systematically since 1949 in the western part of Chambers County as part of a continuing ground-water program in Harris and Galveston Counties.

Periodic measurements of water levels in wells in Chambers and Jefferson Counties have been made since 1949 as part of the statewide observation-well program in Texas. Records of these measurements are published periodically by the Texas Water Development Board, and records of selected wells in Chambers and Jefferson Counties are published by the U.S. Geological Survey in reports on water levels and artesian pressures in the United States (Hackett, 1962).

Well-Numbering System

The well-numbering system used in this report is the system adopted by the Texas Water Development Board for use throughout the State. Under this system, each 1-degree quadrangle in the State is given a number consisting of two digits. These are the first two digits in the well number. The 1-degree quadrangles are divided into 7½-minute quadrangles which are given two-digit numbers from 01 to 64. These are the third and fourth digits of the well number. Each 7½-minute quadrangle is subdivided into 2½-minute quadrangles and given a single digit number from 1 to 9. This is the fifth digit of the well number. Each well within a 2½-minute quadrangle is given a two-digit number as it is inventoried, starting with 01. These are the last two digits of the well number.

Only the last three digits are shown on the well-location map (Figure 24). The second two digits are generally shown in the northwest corner of each 7½-minute quadrangle, and the first two digits are shown by the large double-lined numbers.

In addition to the 7-digit well number, a two-letter prefix is used to identify the county. Prefixes for Chambers, Jefferson, and adjacent counties are as follows:

COUNTY	PREFIX	COUNTY	PREFIX
Chambers	DH	Hardin	LH
Jefferson	PT	Liberty	SB
Orange	UJ	Harris	LJ

Thus, well DH-64-11-802 (which supplies water for the city of Anahuac) is in Chambers County (DH), in the 1-degree quadrangle 64, in the 7½-minute quadrangle 11, in the 2½-minute quadrangle 8, and was the 2nd well (02) inventoried in that 2½-minute quadrangle.

Acknowledgments

The author acknowledges the assistance of the many county, municipal, and industrial officials who aided in this project. Particular appreciation is expressed to Jett Hankamer and to personnel of Humble Oil and Refining Co., Mobil Oil Corp., Pure Oil Co., Placid Oil Co., Gulf States Utilities Co., Diamond Alkali Co., Warren Petroleum Corp., and Chambers County Water Control and Improvement District No. 1 for permitting and assisting in pumping tests in wells. The Houston Lighting and Power Co. furnished information as it was collected in their testing program east of Baytown.

Well drillers supplied drillers' logs, electrical logs, and well-completion data; and all landowners contacted granted access to their property, wells, and records.

Dr. Saul Aronow, Department of Geology, Lamar State College of Technology, prepared the section of the report on Quaternary geology and aided the author in the task of relating geology to hydrology.

HYDROLOGIC AND GEOLOGIC UNITS

The geologic units composing the aquifers in Chambers and Jefferson Counties are, from oldest to youngest: the Fleming Formation of Miocene age; the Goliad Sand of Pliocene age; the Willis Sand of Pliocene(?) age; the Bentley Formation, Montgomery Formation, and Beaumont Clay of Pleistocene age; the Deweyville deposits of Bernard (1950) of Pleistocene(?) age; and the alluvial, deltaic, coastal marsh, mudflat, and beach (chenier) deposits of Holocene age. The correlation of geologic and hydrologic units is shown in Table 1.

The Beaumont Clay and the Holocene deposits (described in the section on Quaternary geology) crop out within the two counties. Their surface relationships are shown on the geologic map (Figure 20). The older formations crop out in the counties to the north.

The geologic units are generally composed of sand, silt, and clay, with lesser amounts of gravel, marl, and lignite. Faults are common, especially in the vicinity of salt domes, but surface traces of the fault zones are rarely discernible. Some, but not all, of the salt domes are marked by surface features such as higher altitudes, topographic depressions, or a combination of both.

Figures 25, 26, 27 and 28 are hydrologic sections showing the aquifers, their stratigraphic relationship, and the salinity of the water they contain.

Burkeville Aquiclude

The Burkeville aquiclude, the lowermost hydrologic unit discussed in this report, is principally a clay section within the Fleming Formation and is equivalent, at least in part, to the Castor Creek Member (Fisk, 1940) of the Fleming Formation of Kennedy (1892), as mapped by Rogers and Calandro (1965) in Vernon Parish, Louisiana. The Burkeville is also equivalent to "Zone 2" of Lang, Winslow, and White (1950) in the Houston district.

The Burkeville ranges in thickness from 130 to 300 feet. The unit contains minor amounts of sand in some places but is not a source of water in Chambers and Jefferson Counties. The significance of the Burkeville in the two counties is that it forms the lower confining layer for the overlying Evangeline aquifer.

Evangeline Aquifer

The Evangleine aquifer is the lowermost unit containing fresh or slightly saline water in Chambers and Jefferson Counties. The Evangeline overlies the Burkeville aquiclude and includes the Goliad Sand and sands in the upper part of the Fleming Formation. The aquifer is equivalent to the "heavily pumped" layer of Wood and Gabrysch (1965) in the Houston district. In Louisiana, the unit is equivalent to the Blounts Creek Member (Fisk, 1940) of the Fleming Formation of Kennedy (1892) in Vernon Parish (Rogers and Calandro, 1965) and the Foley Formation in Calcasieu Parish (Harder, 1960).

The Evangeline is about 1,400 feet thick in northern Jefferson County and increases in thickness toward the Gulf. The aquifer yields fresh water to large wells in northwestern Chambers County.

Chicot Aquifer

The Chicot aquifer includes all deposits above the Evangeline aquifer. The unit consists of the Willis Sand, the Bentley Formation, the Montgomery Formation, the Beaumont Clay, the Deweyville Deposits of Bernard (1950), and the Holocene alluvium.

The physical basis for separation of the Evangeline and Chicot is the difference in lithology and permeability. In some areas, the two aquifers are separated by beds of clay, but such beds are not continuous. The units differ in average grain size, cementation, and compaction. The higher permeabilities are usually associated with the Chicot.

The differences noted may be recognized in ways other than by examination of the sediments. A displacement of the spontaneous-potential curve of an electrical log as the logging tool passes out of the Evangeline into the Chicot often marks the contact between the two lithologically dissimilar aquifers. In addition, the formation factor (ratio between aquifer resistivity and aquifer water resistivity) for the two aquifers is generally significantly different. The formation factor for the Chicot aquifer is usually greater. In some areas, where lithologic differences are not pronounced or where changes in water quality makes comparative readings difficult or impossible, the contact between the two aquifers is not readily apparent from electrical logs.

In parts of eastern Jefferson County and western Chambers County, the Chicot aquifer is divided into two units by a clay bed that separates an upper sand section from a lower sand section. There are significant differences in water levels in wells completed in the upper and lower units of the Chicot in eastern Jefferson County and western Chambers County. These sands merge in some places, and in other places, one of the sands may be absent.

In some parts of the two counties, the upper and lower units of the Chicot merge into one large mass of interbedded and interconnected sand and clay as much as 1,600 feet thick. In these areas, determination of a boundary between the two units becomes impossible. This is especially true near some of the shallow piercement-type salt domes and in a large area in central Chambers County. The configuration of the base of the Chicot aquifer and the locations of most of the salt domes in the area are shown on Figure 3.

Lower Unit

In the downdip (southeast) parts of Chambers and Jefferson Counties, the lower unit of the Chicot aquifer is generally two or more massive sands separated by clay. These sands are probably equivalent to the "500-foot" and "700-foot" sands as mapped in Calcasieu Parish, Louisiana (Harder, 1960). In reports on Galveston and Harris Counties, the massive sands of the lower Chicot

Table 1.--Geologic and Hydrologic Units Used in This Report and in Recent Reports in Nearby Areas

		HARDER (1960)		ROGERS AND CALANDRO (1965)		RECENT TEXAS REPORTS	BAKER (1964)	WESSELMAN (1965)	WOOD AND GABRYSCH (1965)	1/	THIS REPORT
SYSTEM	SERIES	FORMATION	HYDROLOGIC UNIT	GROUP OR FORMATION	HYDROLOGIC UNIT	FORMATION	HYDROLOGIC UNIT	HYDROLOGIC UNIT	HYDROLOGIC UNIT	HYDROLOGIC UNIT	HYDROLOGIC UNIT
Quaternary	Holocene	Alluvium		Alluvium	Alluvium	Alluvium 2/	GULF COAST AQUIFER		Beaumont		Upper Chicot
	Pleistocene	Prairie Formation	Chicot shallow	Stream terrace and upland deposits	Stream terrace and upland deposits	Beaumont Clay		Upper aquifer		Chicot aquifer	Chicot aquifer
		Montgomery Formation	"200 foot"			Lissie Formation 3/: Montgomery Formation		Middle aquifer	Alta Loma Sand of Rose (1943)		
		Bentley Formation	"500 foot"			Lissie Formation 3/: Bentley Formation					Lower Chicot
		Willianna Formation	"700 foot"			Willis Sand 4/					
Tertiary	Pliocene	Foley Formation	Evangeline aquifer	Fleming Formation	Blounts Creek Member	Goliad Sand		Lower aquifer	Heavily pumped layer	Evangeline aquifer	Evangeline aquifer
				? of Kennedy (1892)	? of Fisk (1940)						
	? Miocene	Fleming Formation of Fisk (1940)	?		Castor Creek Member of Fisk (1940)	Fleming Formation 5/			Zone 2	Burkeville aquiclude	Burkeville aquiclude

1/ Wesselman (1967), Tarver (1968a and 1968b), Anders and others (1968), Sandeen (1968), and Wilson (1967).
2/ Floodplain and terrace deposits in Baker (1964).
3/ Lissie Formation in Baker (1964), Wesselman (1965 and 1967), Sandeen (1968), and Anders and others (1968); and Bentley and Montgomery Formations in Wilson (1967) and Tarver (1968a and 1968b).
4/ Pliocene (?).
5/ Shown as the Lagarto Clay of Miocene (?) age in Baker (1964) and Wesselman (1967).

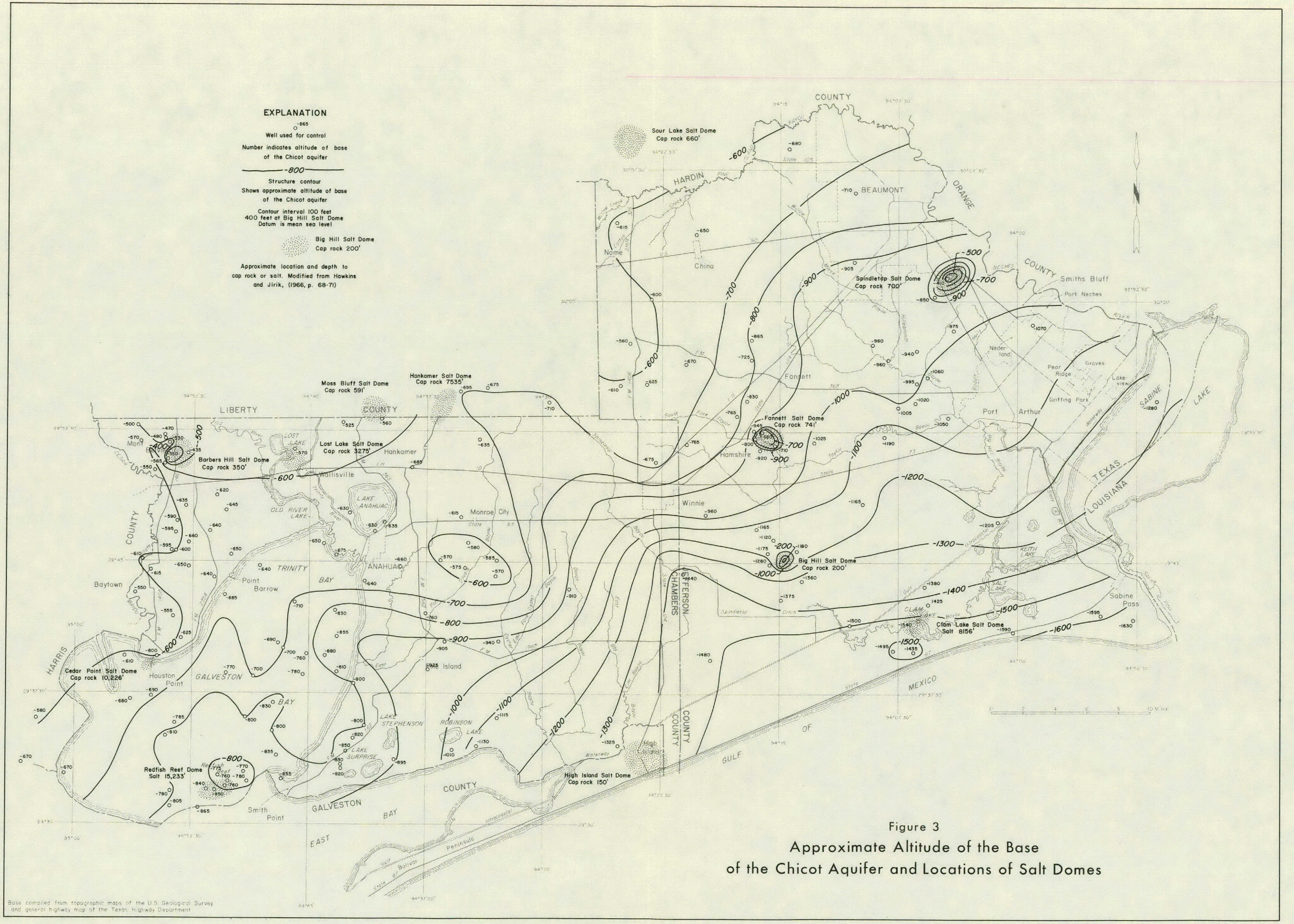

Figure 3
Approximate Altitude of the Base of the Chicot Aquifer and Locations of Salt Domes

unit have been mapped as the Alta Loma Sand of Rose (1943). In Orange County (Wesselman, 1965), the sands were mapped together as the "middle" aquifer.

In much of the updip (northwest) parts of Chambers and Jefferson Counties, the lower unit of the Chicot thins and loses much of the sand that is present downdip. Much of this loss is due to wedging of the unit, but some of the loss is due to facies changes.

Upper Unit

The upper unit of the Chicot consists of a basal sand overlain by clay. Most of the sand is part of the Montgomery Formation and can be traced into the outcrop of this geologic unit. The uppermost overlying clay is Beaumont, but in many places clay of the Montgomery Formation is also present.

No criteria other than the mapping of terrace levels have been developed for separating the Beaumont sands or sands of Holocene age from the underlying sands of the Montgomery Formation. The basal sand of the upper unit of the Chicot may be correlated with the "200-foot" sand of Calcasieu Parish, Louisiana (Harder, 1960).

SOURCE AND OCCURRENCE OF GROUND WATER

The principal source of fresh ground water in Chambers and Jefferson Counties is precipitation. Most precipitation runs off and becomes streamflow or evaporates immediately. Only a small fraction of the rainfall infiltrates to the zone of saturation. The zone of saturation is the zone below the water table where the interstices in the rocks are filled with water. Much of the penetrating water is rapidly returned to the atmosphere by evaporation or transpiration. A large percentage of the water that reaches the zone of saturation in the aquifers is rapidly returned to the surface as spring flow, which supports the base flow of the streams of the area.

Ground water occurs in aquifers. An aquifer is a geologic formation, group of formations, or part of a formation that is water bearing. An aquiclude is an impermeable or relatively impermeable bed that may contain water but is incapable of transmitting an appreciable quantity.

The water in an aquifer exists under one of two conditions, water table or artesian. Under water-table conditions, the water contained in the aquifer is under atmospheric pressure only. The water table is free to rise or fall in response to changes in the volume of water stored. A well penetrating an aquifer under water-table conditions fills with water to the level of the water table.

Artesian conditions occur when an aquifer is overlain by sediments of lower permeability that confine the water under hydrostatic pressure. Such conditions occur downdip from the outcrops of the aquifers. A well penetrating sands under artesian head (pressure) becomes filled with water to a level above the top of the aquifer. If the head (pressure) is great enough to raise the water to a level higher than the top of the well, the water flows. The height above the aquifer that the water will rise in a well is equivalent to the pressure head in the aquifer.

The water in the aquifers moves under the influence of gravity from areas of recharge to areas of discharge. The average velocity of movement is slow, less than a foot a day, except in the immediate vicinity of large wells or springs.

Discharge of ground water occurs both naturally and artificially. Natural means of discharge include evapotranspiration, spring flow, and upward seepage through clays. Artificial discharge is accomplished by pumping from wells; by pumping from excavations that intersect the water table; or by drainage that results when ditches are cut into and below the water table.

RECHARGE, MOVEMENT, AND DISCHARGE OF GROUND WATER

Before man began developing ground water in the Gulf Coast regions, the deeper aquifers had a higher head than the more shallow ones. The original higher piezometric head on the deeper aquifer systems was caused by the outcrops of the deeper aquifers being topographically higher. Downdip from the outcrops, movement of water was generally southeastward, in the direction of the hydraulic gradients, toward areas of natural discharge.

In much of the area, continuous clay beds confined the water, and the only avenue of discharge was upward through the clays. However, in some areas of low altitude, the aquifer sands are not overlain by clay, and fresh water was discharged through the sands. One such area is located between Smiths Point and Monroe City, 6 miles east of Anahuac, in Chambers County and another in the Pine Island Bayou and Neches River lowlands north and east of Beaumont. Much of the artesian fresh water that entered from surrounding counties was discharged as spring flow or seepage in these and similar areas.

The interconnection of the aquifers along the sides of the shallow piercement-type salt domes also provide avenues of discharge. Interconnection is indicated by electric logs and by water-quality data in the vicinity of Barbers Hill, Lost Lake, Moss Bluff, Fannett, Big Hill, and Spindletop Domes (Figure 3).

Originally, fresh and saline waters moved toward these domes under sufficient artesian heads to cause water to flow above land surface. Much of this water was, or became, salty as it passed adjacent to the domes from the lower aquifers to the upper aquifers. Interconnection of the aquifers allowed this deeper and usually more saline water with its higher piezometric head to rise and mix with the fresher water in the upper aquifers. A generalized illustration showing ground-water movement near domes was published by Hanna (1958, p. 11). It is reproduced here as Figure 4.

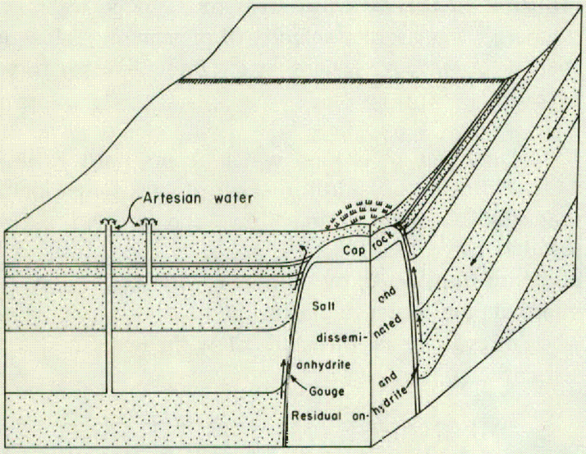

Figure 4.—Idealized Block Diagram Illustrating Ground-Water Circulation Around Salt Domes

Since the development of the ground-water resources of this region began in the 1800's, the subsurface circulation of the water has been changed repeatedly, and new recharge-discharge relationships have been established. Because of ground-water development, water levels declined. Cones of depression around each well altered the natural flow pattern, and water now moves from all directions into these centers of pumping. Withdrawals from the aquifers in Harris and Orange Counties have established large regional cones of depression that extend into Chambers and Jefferson Counties. A smaller cone of depression has been established by pumping in the Winnie-Hamshire area.

The cones of depression have lowered the piezometric surface below land surface in the artesian aquifers at all observed points, and below sea level in much of the area. Because of this alteration, the previously described areas of discharge have, or will soon become, areas of recharge to the underlying aquifers.

Specifically, some parts of the upper unit of the Chicot aquifer in Chambers and Jefferson Counties which formerly discharged water as springs and seeps are probably now recharged with fresh water through these outcrops of sand within the counties. Probably most of the lower unit of the Chicot and the Evangeline aquifers are still recharged through outcrops in adjoining or nearby counties.

HYDRAULIC CHARACTERISTICS OF THE AQUIFERS

"The worth of an aquifer as a fully developed source of water depends largely on two inherent characteristics: its ability to store and its ability to transmit water" (Ferris and others, 1962, p. 70). These characteristics are measured by the coefficients of storage and transmissibility.

The coefficient of storage is important in any calculation of the quantity of water that can be obtained from an aquifer; but the availability of the water, especially in an artesian aquifer, depends primarily on the ability of the aquifer to transmit water. The coefficient of permeability is a measure of that ability and is defined as the rate of flow of water in gallons per day through a cross-sectional area of 1 square foot under a unit-hydraulic gradient (1 foot per foot) at a temperature of 16°C (60°F). In field practice the adjustment to the standard temperature of 16°C (60°F) is commonly disregarded, and the permeability is then understood to be a field coefficient at the prevailing water temperature. The coefficient of transmissibility is the product of the field coefficient of permeability and the saturated thickness of the aquifer.

The specific capacity of a well is its yield per unit drawdown and can be theoretically related to transmissibility. It is expressed in gallons per minute per foot of drawdown. The measured specific capacity may differ from the computed theoretical specific capacity of a well for one or more reasons. Improper well construction and development, screen losses, unfavorable local geologic conditions, screening only part of the available aquifer—all are factors that will decrease the measured specific capacity. On the other hand, in some wells the effective diameter of the well may be increased by proper development. As a result, the measured specific capacity can be larger than the theoretical. Wood and others (1963, p. 40), referring to the Gulf Coast region, reported that ". . . the measured specific capacities of most wells in the region are smaller than the theoretical, indicating that many of the sands in the gravel-packed zone are poorly connected to the interior of the screen so that screen losses are considerable during pumping."

The coefficients of storage and transmissibility of the aquifers were determined by aquifer tests made in wells in Chambers and Jefferson Counties. The test data were analyzed by the Theis non-equilibrium method as modified by Cooper and Jacob (1946, p. 526-534), or by the Theis recovery method (Wenzel, 1942, p. 95-97). The results of the tests and specific capacities of the wells are shown in Table 2. None of the wells are completed in a full section of an aquifer, therefore the values in the table are less than the aquifer's total capability.

The coefficients of transmissibility and storage may be used to predict drawdowns in water levels caused by pumping. The theoretical relation between drawdown and distance from the center of pumping for different coefficients of transmissibility is shown on Figure 5. The calculations of drawdown are based on a withdrawal of 1 mgd (million gallons per day) for 1 year from an aquifer having coefficients of transmissibility and storage as shown and assuming the aquifer has infinite areal extent. For example, if the coefficients of transmissibility and storage are 50,000 gpd (gallons per day) per foot and 0.001, respectively, the drawdown or decline in the water level would be 12 feet at a distance of 1 mile from a well or group of wells discharging 1 mgd for 1 year. If the coefficients of transmissibility and storage are 5,000 gpd per foot and 0.0001, respectively, the same pumping rate for the same time would cause 84 feet of decline at the same distance.

Figure 6 shows the relation of drawdown to distance and time as a result of pumping from an artesian aquifer with characteristics similar to those found in the artesian aquifers of Chambers and Jefferson Counties. To prepare these curves, it was assumed that the aquifers had infinite areal extent. This illustration shows that the rate of drawdown decreases with time. For example, the drawdown at 100 feet from a well is 11 feet after 1 mgd has been pumped for 1 year, and the drawdown is about 15 feet after 1 mgd has been pumped for 100 years. The total drawdown at any one place within the cone of depression (or influence) of several wells would be the sum of the influences of the several wells. The equilibrium curve illustrates the time-drawdown relation when a line source of recharge is 25 miles from the point of discharge.

Figure 7 shows the relation of drawdown to distance and time as a result of pumping from a water-table aquifer with characteristics similar to small parts of the upper unit of the Chicot aquifer. Again, infinite areal extent of the aquifer is assumed. The drawdown is less than that in an artesian aquifer because, under water-table conditions, the coefficient of storage is larger.

Interference between wells may cause a decrease in yield of the wells, or an increase in pumping costs, or both. If the pumping level declines below the top of the aquifer screened, the saturated thickness of the aquifer decreases and the result is a decrease in the yield of the well.

Aquifer tests were run on 10 wells tapping the lower unit of the Chicot aquifer in Chambers and Jefferson Counties. Coefficients of transmissibility ranged from 5,200 to 401,000 gpd per foot and coefficients of permeability ranged from 108 to 1,670 gpd per square foot. The highest permeability was determined from a test of a saline-water well completed in the lowermost massive sand in the lower unit of the Chicot. Specific capacities ranged from 3.4 to 32.5 gpm (gallons per minute) per foot. The coefficient of storage in the lower unit of the Chicot ranged from 0.0004 to 0.0037.

Tests of 9 wells completed in the upper unit of the Chicot showed the following ranges in coefficients: transmissibilities from 10,800 to 29,800 gpd per foot; permeabilities from 174 to 596 gpd per square foot; and specific capacities from 1.7 to 11 gpm per foot. Two determinations of the coefficient of storage were 0.0007 and 0.0002.

Tests were made in two wells completed in the Evangeline aquifer. The coefficients of transmissibility were 32,000 and 36,000 gpd per foot and coefficients of permeability were 244 and 327 gpd per square foot. The coefficient of storage was 0.00003. The specific capacity of one of the wells was 16.2 gpm per foot. These results compare favorably with those observed in nearby areas. Tests of the "heavily pumped layer" (Evangeline aquifer) in the Houston district show the average coefficient of permeability to be about 250 gpd per square foot, and tests in Jasper and Newton Counties northeast of the report area showed an average of 260 gpd per square foot.

PRODUCTION AND USE OF GROUND WATER

The first production of ground water in Chambers and Jefferson Counties was probably from holes dug into beach ridges by Indians who hunted and fished along the Gulf Coast. Early permanent settlers of the region utilized mostly shallow wells. Deussen (1914) reported many deep, fairly large wells, most of which flowed. These wells had been drilled in the decades preceding and following 1900. Oil exploration together with the development of rice irrigation in southeastern Texas and southern Louisiana caused many wells to be drilled. The extent and quality of the ground water were fairly well known at that time.

Penn Livingston and G. H. Cromack (written commun., 1943) reported that in Jefferson County, production of ground water, stimulated by oil field development, irrigation, and the construction of refineries, rose to a peak of about 25 mgd in 1926. Much of this development was in areas underlain mostly by slightly or moderately saline water. The poor quality of much of the water probably discouraged its use as production decreased to about 10 mgd in 1927. In 1941, the combined production in Chambers and Jefferson Counties was probably a little less than 8.5 mgd. Total production of ground water in both counties decreased to about 5 mgd in 1948. Development of the upper unit of the Chicot aquifer in the Winnie-Hamshire, Anahuac, and Hankamer areas; of the Evangeline and Chicot

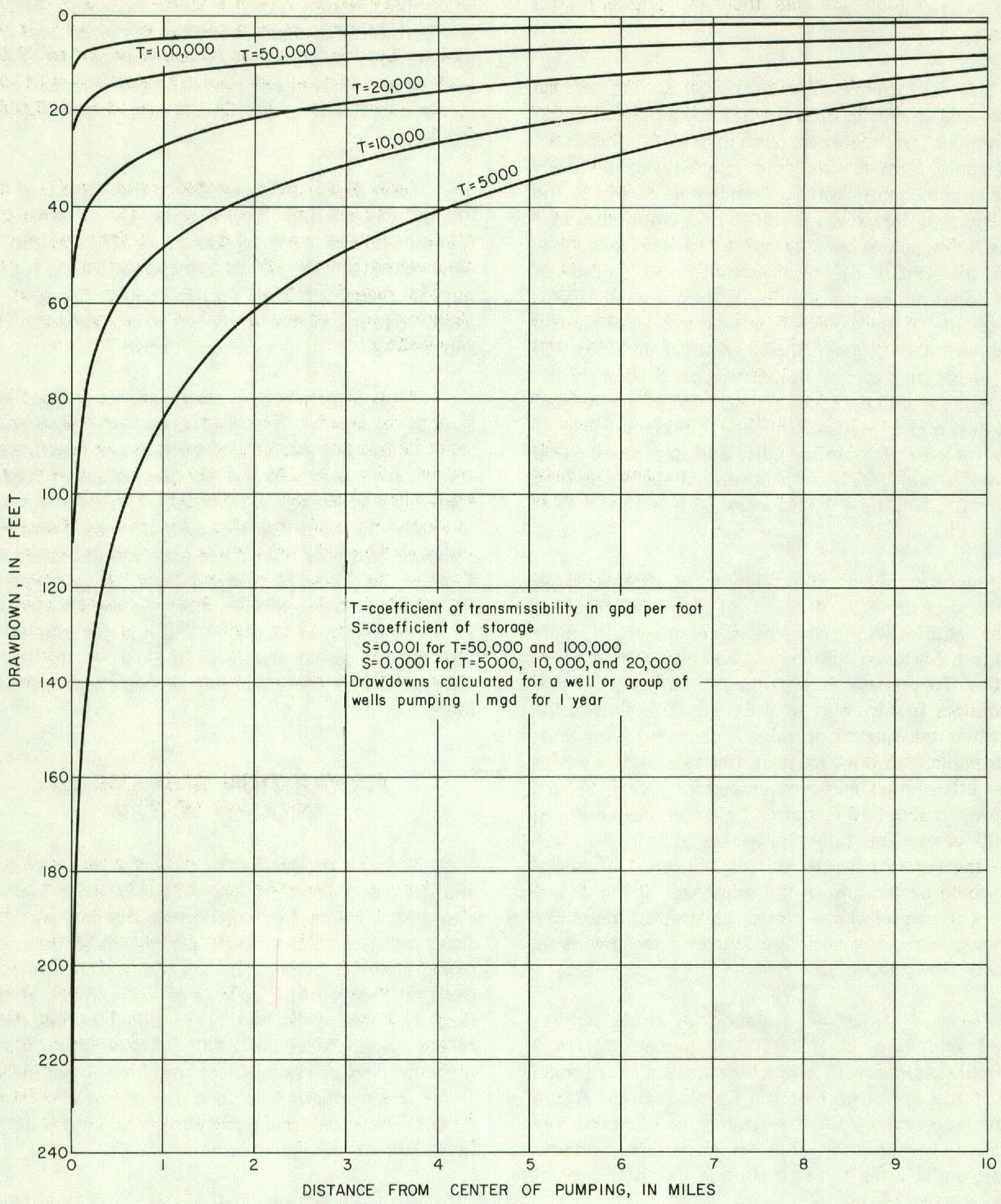

Figure 5.—Relation of Drawdown to Transmissibility and Distance

aquifers in the Mont Belvieu-Baytown area; and of the lower Chicot in the Beaumont-Port Arthur area raised the production rate to 8.6 mgd by 1965.

Most of the ground water developed prior to World War II was taken from the lower unit of the Chicot aquifer in the Beaumont-Port Arthur area, whereas production in 1965 was divided about equally among the upper unit of the Chicot, lower unit of the Chicot, and the Evangeline. The principal areas of production are the Mont Belvieu-Baytown area of western Chambers County, the Winnie-Hamshire area of Chambers and Jefferson Counties, and the Beaumont-Port Arthur area of Jefferson County. Other sites where significant ground-water withdrawals occur include the Big Hill Dome, the flank of High Island Dome, Redfish Reef in Galveston Bay, Hankamer, and Anahuac. The locations of wells in Chambers and Jefferson Counties and adjacent areas are shown on Figure 24.

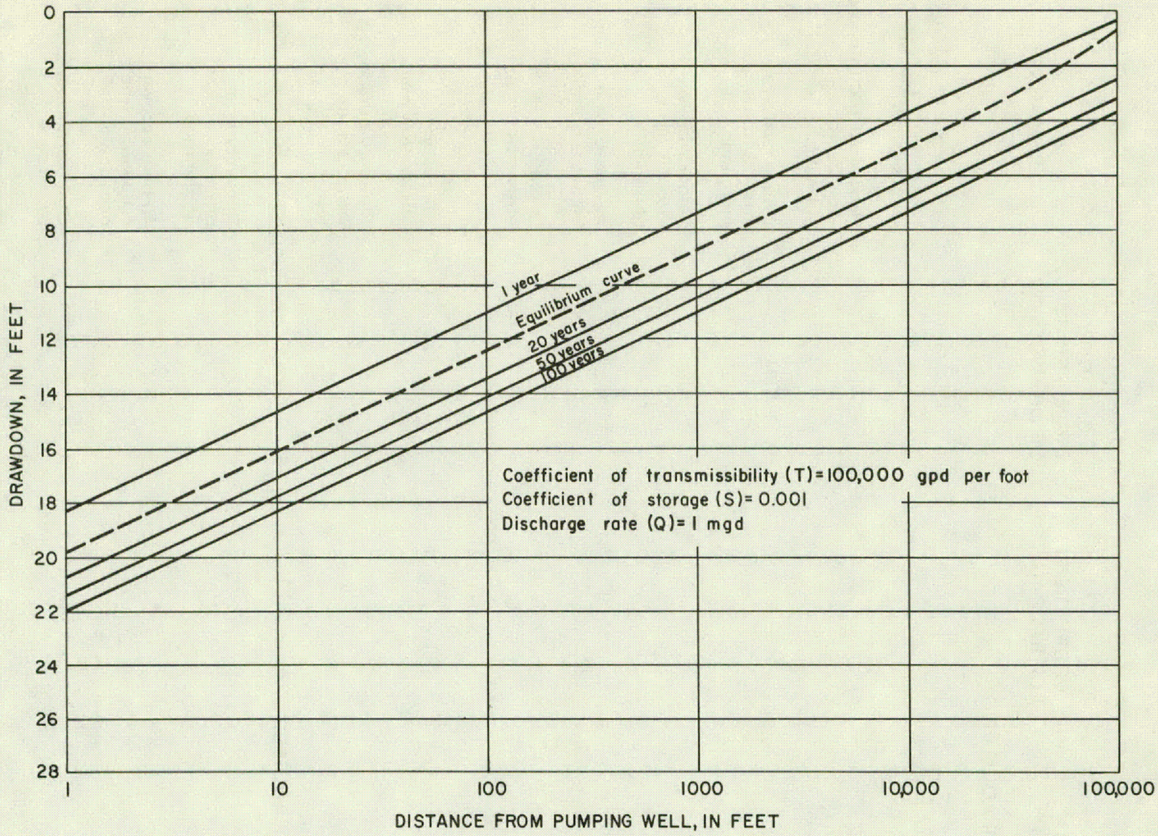

Figure 6.—Relation of Drawdown to Distance and Time as a Result of Pumping Under Artesian Conditions

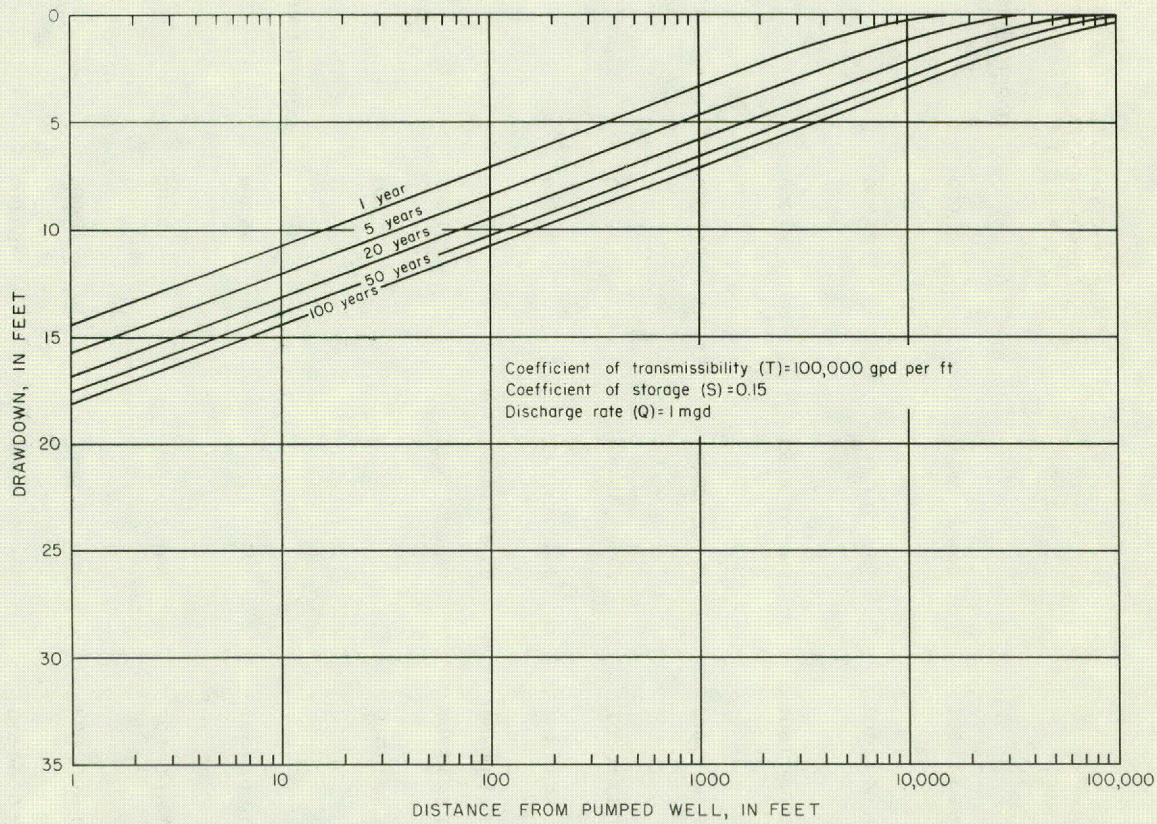

Figure 7.—Relation of Drawdown to Distance and Time as a Result of Pumping Under Water-Table Conditions

Table 2.—Summary of Aquifer Tests

WELL	DATE	COEFFICIENT OF TRANSMISSIBILITY (GPD PER FT)	COEFFICIENT OF PERMEABILITY (GPD PER FT^2)	COEFFICIENT OF STORAGE	SPECIFIC CAPACITY (GPM PER FT OF DRAWDOWN)	REMARKS
UPPER UNIT OF CHICOT AQUIFER						
DH-64-11-801	Dec. 3, 1955	15,000	375	—	11	100 minutes pumping time; recovery pumped well.
DH-64-12-102	July 12, 1966	29,800	*596	—	7	Recovered 100 minutes after 28 hours pumping.
DH-64-13-601	Sept. 16, 1953	10,800	360	—	5.3	5-hour recovery after 48 hours pumping.
DH-64-13-602	Oct. 2, 1953	11,800	358	—	8.3	5-hour recovery after 51 hours pumping.
PT-64-14-407	June 1, 1945	26,000	222	—	6.2	Recovery after 24 hours pumping.
PT-64-14-408	June 21, 1945	17,900	174	7.0×10^{-4}	—	Drawdown observation well.
PT-64-14-409	June 1, 1945	21,000		2.0×10^{-4}	—	Do.
PT-64-15-704	Sept. 22, 1966	21,300	207	—	—	Recovery observation well.
PT-64-15-705	—	21,600	216	—	1.7	Recovery pumped well; 23-hour test.
LOWER UNIT OF CHICOT AQUIFER						
PT-61-64-501	1941	55,200	502	—	—	Recovery after unknown period of pumping.
PT-61-64-502	Mar. 22, 1966	13,100	108	—	8.7	40-hour recovery following 27-hour drawdown.
PT-61-64-503	Mar. 21, 1966	18,000	310	4×10^{-4}	—	Observation well; drawdown.
PT-61-64-505	Mar. 24, 1966	183,000	915	—	32.5	Recovery pumped well after 22 hours pumping.

Table 2.—Summary of Aquifer Tests—Continued

WELL	DATE	COEFFICIENT OF TRANSMISSIBILITY (GPD PER FT)	COEFFICIENT OF PERMEABILITY (GPD PER FT^2)	COEFFICIENT OF STORAGE	SPECIFIC CAPACITY (GPM PER FT OF DRAWDOWN)	REMARKS
			LOWER UNIT OF CHICOT AQUIFER—Continued			
PT-61-64-506	Mar. 24, 1966	163,000	906	1.06×10^{-3}	—	Drawdown test in observation well.
PT-61-64-509	Mar. 21, 1966	30,800	296	7×10^{-4}	—	Drawdown observation well.
DH-64-09-301	Nov. 3, 1966	78,200	821	—	25.8	25 hours recovery after 27 hours pumping.
DH-64-09-302	do	80,000	762	3.7×10^{-3}	—	Recovery of observation well.
DH-64-26-701	Nov. 29, 1966	5,200	157	—	3.4	5-hour recovery after 24 hours pumping.
DH-64-29-502	Aug. 22, 1966	401,000	1,670	—	11.0	130-minute recovery after 24 hours pumping.
			LOWER UNIT OF CHICOT AQUIFER AND EVANGELINE AQUIFER			
DH-64-10-401	Aug. 3, 1955	45,000	—	—	23.2	Recovered 70 minutes after 5 days pumping.
			EVANGELINE AQUIFER			
DH-64-09-305	May 27, 1966	32,000	244	—	16.2	300-minute recovery of constantly pumped well.
DH-64-09-307	do	36,000	327	3.0×10^{-5}	—	Recovery observation well.

* Permeability based on screen length.

The production of water from wells in Chambers and Jefferson Counties in 1965 was as follows (figures are in mgd):

COUNTY	CLASS OF USE INDUS-TRIAL	MUNICIPAL	IRRIGA-TION	TOTAL*
Jefferson	3.1	1.0	.5	4.6
Chambers	2.0	1.0	1.0	4.0
Total*	5.1	2.0	1.5	8.6

* Figures are approximate because some of the production was estimated.

About 30 percent of this production (about 2.5 mgd) was slightly or moderately saline water used by industry.

The high salinity of much of the ground water has restricted its use. Consequently, the primary sources of water have been the Neches and Trinity Rivers, and most of the needs of industry, irrigation, and large municipalities in the area from the mid-1920's until the 1950's were met from these sources. However, the consistent quality and uniform temperature of ground water was especially desirable for some uses and as early as the 1920's, ground water produced from the lower unit of the Chicot aquifer in Orange County was imported by a refinery in the Port Arthur area.

The total estimated use of ground water (including imported ground water) in Chambers and Jefferson Counties in 1965 was approximately 18.6 mgd. Of this, 10 mgd was fresh water produced from wells in Hardin and Orange Counties and imported by the city of Beaumont and industries in Beaumont and Port Arthur. In 1958, Beaumont started supplementing its surface-water supply with ground water from a well field tapping the Evangeline aquifer in Hardin County, and in 1965 obtained 6 mgd from this field. According to Underwood Hill, Water Superintendent of Beaumont (personal commun., July 8, 1967), the city of Beaumont plans to expand its usage of ground water to 20 mgd by 1980.

Two industries in Beaumont and Port Arthur in 1965 imported 4 mgd of ground water produced from the lower unit of the Chicot aquifer in Orange County. One industry in Port Arthur has been importing about 0.5 mgd since the 1920's. The other developed its supply in 1962.

Because sufficient quantities of fresh ground water are not available locally and large supplies of fresh ground water are available nearby, further importation of fresh ground water from outside the counties is probable.

WATER LEVELS

Water-level data are presented by hydrographs and maps. Data gathered during the 1941-42 inventory and during inventories since 1942 were used in the preparation of Figures 8 and 9. Water-level measurements are presented in Tables 4 and 6.

Long-term records of water levels indicate the magnitude of the water-level changes that have occurred in the Chicot aquifer. Measurements show that in well PT-64-06-401 (Figure 9), the differences in the high and low water levels were less than 2 feet during the period of record 1941-66. The largest change in water levels occurred in the lower unit of the Chicot aquifer in western Chambers County in the area adjacent to the city of Baytown, where water levels dropped more than 90 feet during the period 1941-66. The 1966 measurements, compared with the early reports of flowing wells, indicate that water levels have declined at least 150 feet. No long-term water-level records are available for the Evangeline aquifer. Water levels have possibly declined as much in the Mont Belvieu area as the decline recorded in the lower unit of the Chicot in the Baytown area.

Evangeline Aquifer

Water-level measurements in wells completed in the Evangeline aquifer in Chambers and Jefferson Counties date back only a few years. The levels that have been measured are in the Mont Belvieu area, and these closely approximate the levels in the lower Chicot in the same area.

Chicot Aquifer

The water levels and other criteria used to separate the upper and lower units of the Chicot aquifer in most of Chambers and Jefferson Counties were not sufficient to separate the two units in a large area centered near the eastern edge of Trinity Bay in Chambers County. Inspection of the maps (Figures 10 and 11) and of the hydrographs of wells (Figure 9) shows that the declines and seasonal fluctuations of water levels have been less in this area than in the areas to the east and west of it.

Lower Unit

The map of the 1941 and 1966 water levels in the lower unit of the Chicot aquifer (Figure 10) shows large depressions in western Chambers County as early as

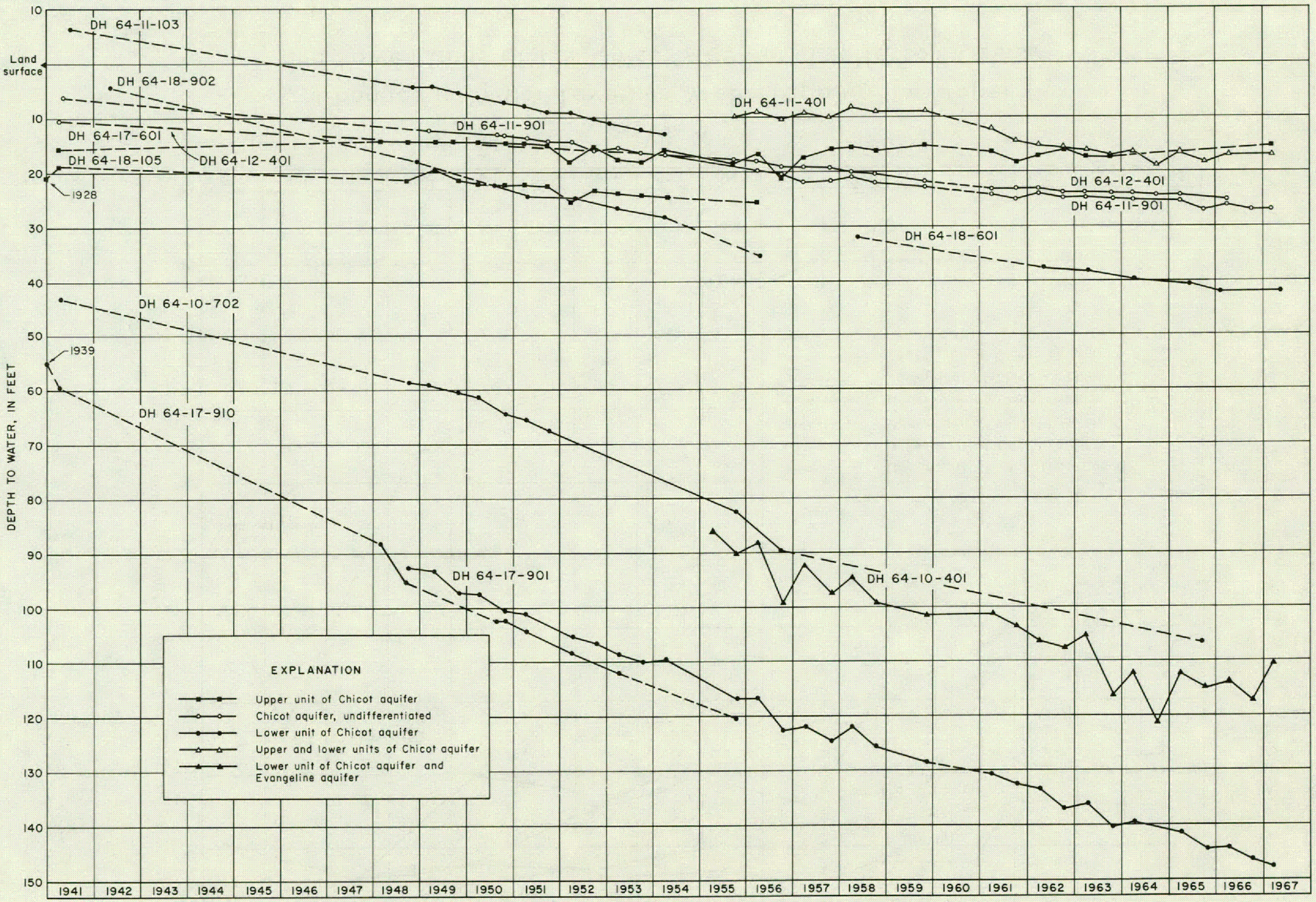

Figure 8

Changes in Water Levels in Wells Tapping Various Aquifers in Chambers County

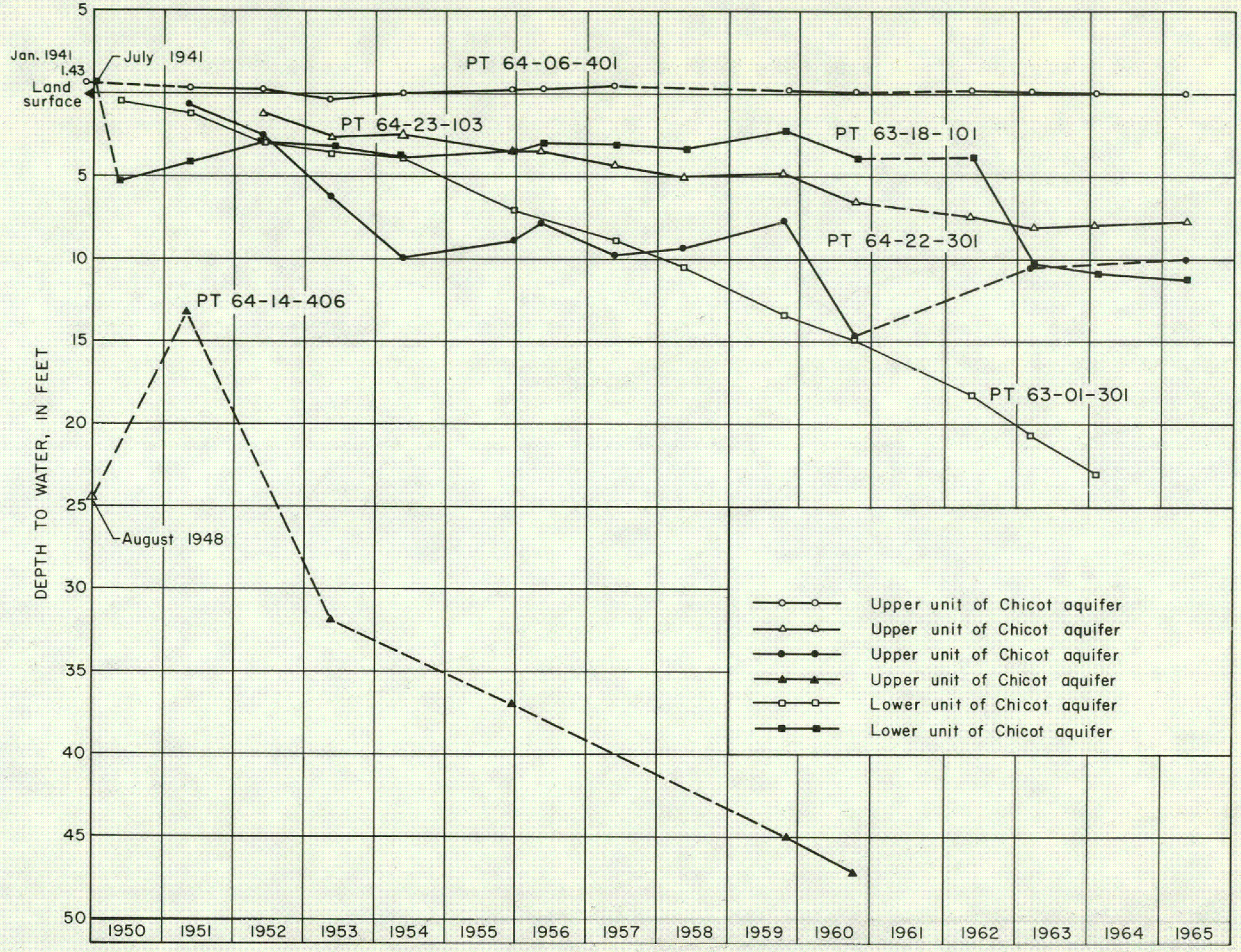

Figure 9

Changes in Water Levels in Wells Tapping the Upper and Lower Units of the Chicot Aquifer in Jefferson County

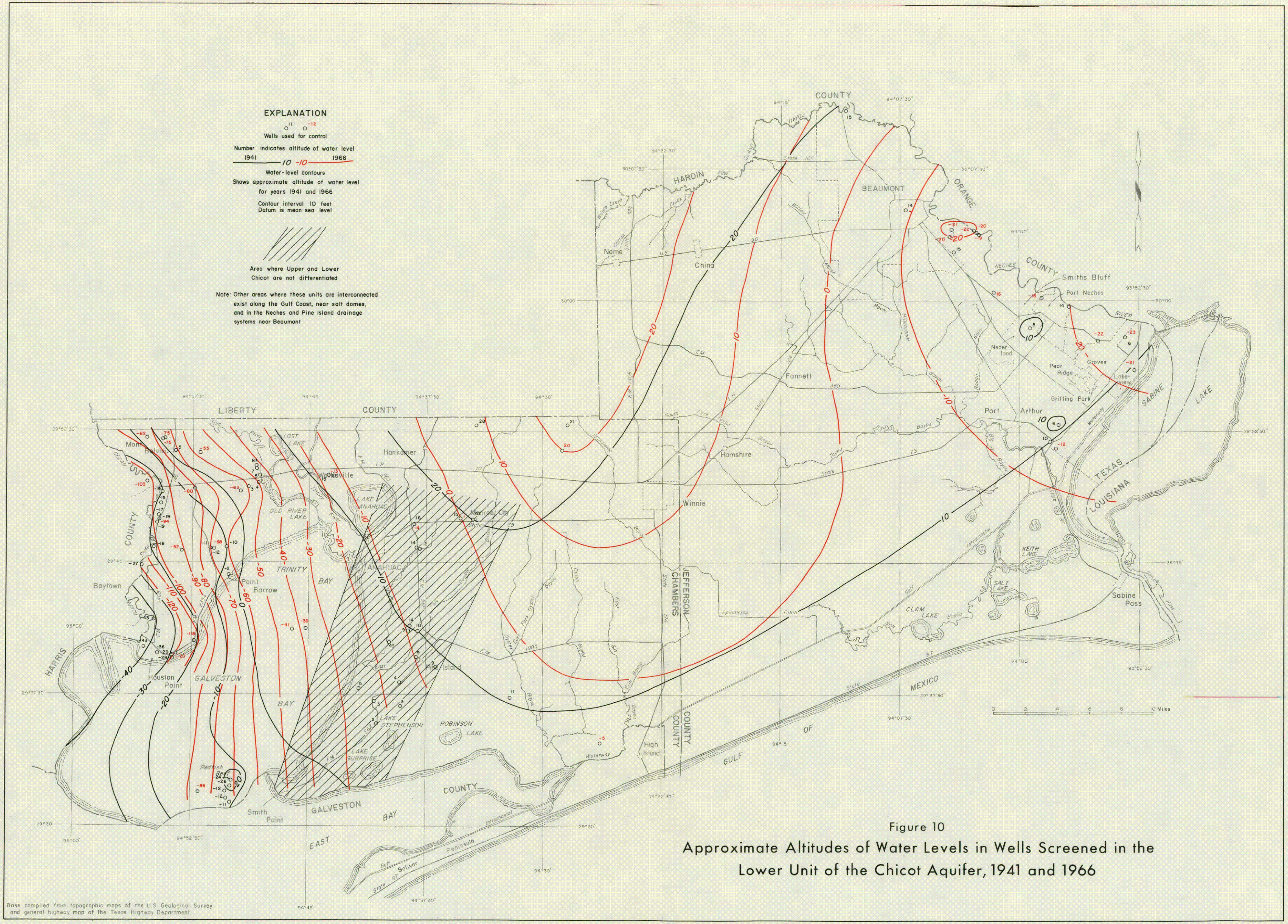

Figure 10

Approximate Altitudes of Water Levels in Wells Screened in the Lower Unit of the Chicot Aquifer, 1941 and 1966

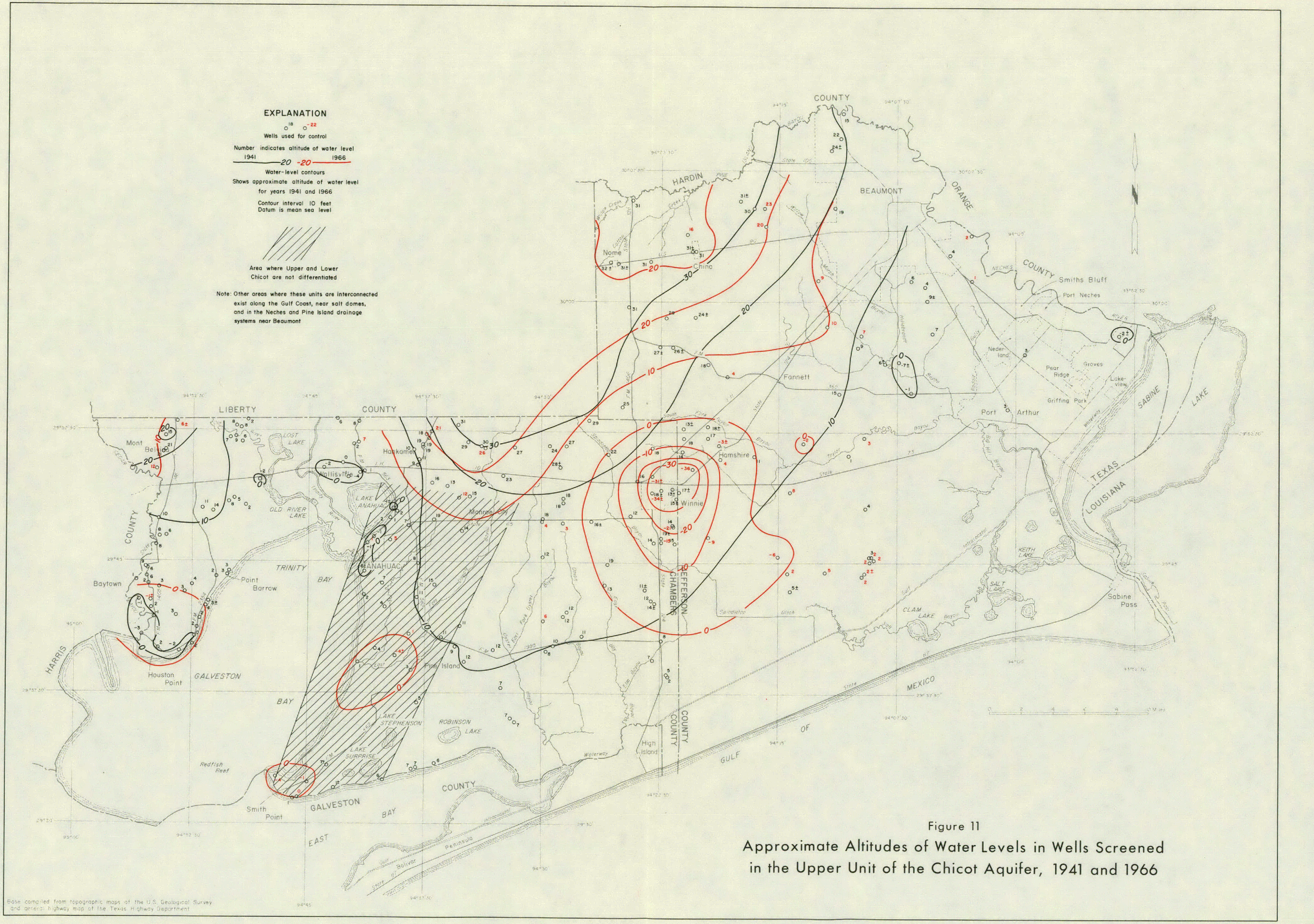

Figure 11

Approximate Altitudes of Water Levels in Wells Screened in the Upper Unit of the Chicot Aquifer, 1941 and 1966

1941. These depressions were caused by heavy pumping in Galveston and Harris Counties. Contour lines on the map indicate that water in the lower unit of the Chicot aquifer was moving from western Chambers County into Harris and Galveston Counties in 1941. The direction of movement in 1966, as indicated by the map, is still the same, but the hydraulic gradient and the rate of movement have increased.

The effect of pumping from the lower Chicot in the Beaumont-Port Arthur-Orange area of eastern Jefferson and southern Orange Counties before 1941 is reflected in the shape of the contours. By 1966, the pumping center of this area was well defined. Pumping by chemical industries, municipalities, and from irrigation wells in Orange County caused a regional cone of depression that is reflected by the contours (Figure 10). The cone of depression extends into eastern Jefferson County, consequently, the movement of the water in this area is from Jefferson County into Orange County.

Upper Unit

The map of water levels in the upper unit of the Chicot aquifer in 1941 and 1966 (Figure 11) does not indicate any large regional centers of withdrawals in 1941. However, pumping depressed the water surface below sea level in areas a few miles west of Port Arthur and near Groves in Jefferson County and in the vicinity of Houston Point and Wallisville in Chambers County.

By 1966, the industrial, municipal, and irrigation withdrawals in the vicinity of Winnie had created a cone of depression (Figure 11) in eastern Chambers and western Jefferson Counties.

RELATION OF WATER-LEVEL DECLINES TO LAND-SURFACE SUBSIDENCE

The withdrawal of water from an artesian aquifer results in an immediate decrease in hydraulic pressure which partially supports the weight of the overlying rocks. With reduction in pressure, an additional load is transferred to the skeleton of the aquifer and a pressure difference between the sands and clays causes water to move from the clays to the sands. The entire process results in compaction of the sediments, most of which takes place in the clays. Because of the compaction, the land surface subsides.

Regional subsidence in the Texas Gulf Coast is due principally to the extraction of water, although subsidence may also occur because of the removal of oil and gas. In addition to other factors, the amount of decline in artesian head and the thickness of clay are important to total subsidence. R. K. Gabrysch (oral commun., 1967) found that in the Houston district, which includes the western part of Chambers County, subsidence ranged from 0.5 foot to 1.5 feet for each 100 feet of artesian head decline. The ratio of 0.5 foot subsidence per 100 feet head decline occurred in an area where the section contained about 40 percent clay. As the clay percentage increased, the ratio of subsidence to head decline increased. In the area of 1.5 feet subsidence per 100 feet head decline, clay composed about 70 percent of the section.

Winslow and Wood (1959) show that lowering of the artesian head by development of ground water has resulted in subsidence of the land surface in most of the upper Gulf Coast region of Texas. They mapped the extent of this subsidence by comparing measurements of bench-mark altitudes made at different times by the U.S. Coast and Geodetic Survey. Their map shows that the land surface subsided more than 0.5 foot in western Chambers County between 1918 and 1954. For this period of time, their map showed less than 0.25 foot subsidence for most of the rest of Chambers and Jefferson Counties. A small area in eastern Jefferson County had subsided more than 0.25 foot and an extremely local area, in the vicinity of the Spindletop Dome, subsided more than 1 foot. The areas that subsided, with the exception of the Spindletop Dome, are areas in which artesian head has declined. Subsidence at Spindletop is related to the production of oil. Extremely localized subsidence sometimes takes place when sulfur is removed from the cap rock of the salt domes by the Frasch process. A depression over 15 feet deep, which is periodically enlarging and deepening, is present at the Moss Bluff Dome on the Liberty-Chambers County line just east of the Trinity River. The Frasch process of removing sulfur has been initiated at the Fannett and Spindletop Domes in the last decade but noticeable subsidence that could be attributed to this cause was not found during this study.

The latest releveling of bench marks by the U.S. Coast and Geodetic Survey was in 1964, but only a part of the area mapped by Winslow and Wood was releveled. Gabrysch (1967) showed that subsidence in the western part of Chambers County has continued. Figure 12, a contour map of subsidence in the Houston district, shows that a maximum of 2 feet of subsidence occurred at the eastern edge of the city of Baytown (along the western edge of Chambers County) during the period 1943-1964. East of the area shown on Figure 12, regional subsidence through 1967 probably has been mostly less than 0.5 foot. In small areas, such as Lost Lake, Moss Bluff (north of Lost Lake), Hankamer, High Island, Big Hill (8 miles southeast), and Fannett, subsidence due to the removal of oil and gas probably is greater than 0.5 foot.

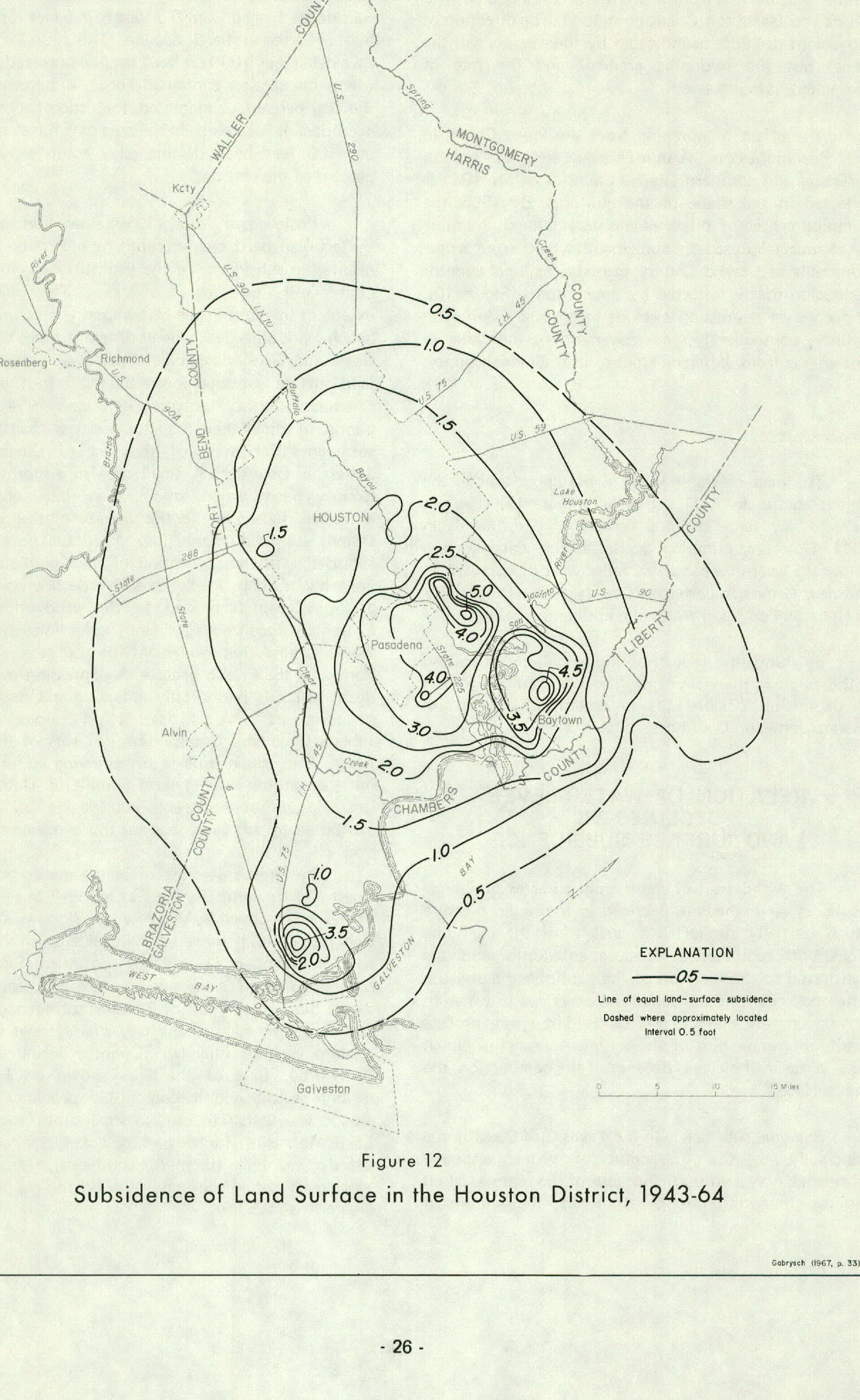

Figure 12

Subsidence of Land Surface in the Houston District, 1943-64

Gabrysch (1967, p. 33)

A sufficient number of bench marks, necessary to determine subsidence in detail, is not available in much of Chambers and Jefferson Counties.

WELL CONSTRUCTION

Generally, when a well is to be constructed for public supply or industrial use in a new location, a test hole is drilled to the depth desired. Formation samples are collected during drilling, and after completion of the test hole, an electrical log is run. The log is used to determine the occurrence of sands and to indicate in general the quality of water they contain. Some of these test holes are used to collect water samples for chemical analysis and to measure the water-yielding properties of the sands.

If favorable ground-water conditions are indicated by the data collected, the test hole is usually reamed to the top of the first sand that is to be screened; surface casing is then installed and cemented into place. The diameter of the surface casing in most large-capacity wells in Chambers and Jefferson Counties ranges from 12 to 20 inches.

The section to be screened is then reamed with the largest drilling bit that can pass through the surface casing. The hole is then underreamed by a device that expands and cuts a hole larger than the diameter of the surface casing, usually to a diameter of 30 inches. Blank pipe and screen are then installed with part of the blank pipe extending up into the surface casing. The bottom of the screen is closed off with a back-pressure valve that permits the use of fluid to keep the hole clean during emplacement of the screen, but prevents water, sand, or gravel from entering through the bottom. Gravel or sand is then pumped into the annular space between the screen and the well bore. The gravel reservoir—the space between the bottom of the surface casing and the top of the blank pipe—is also filled with gravel. The construction of a typical industrial or public-supply well is shown on Figure 13.

Usually the screen is steel pipe, 6 to 14 inches in diameter, that has been perforated and wrapped with stainless steel wire. Where corrosion is a problem, the pipe may be stainless steel. Generally the openings in the screen, which are as much as 0.05 inch wide, are larger than the sand particles in the formation but smaller than those of the gravel envelope. Blank pipe of the same diameter as the screen is used to separate screens and is positioned opposite clay beds in the producing intervals.

The well may be developed by surging, swabbing, pumping, back-washing, and by chemical treatment until the specific capacity of the well indicates complete development and the sand-water ratio is satisfactory. The final production test usually lasts from 4 to 24 hours, during which samples of water for chemical and bacterial analyses are collected.

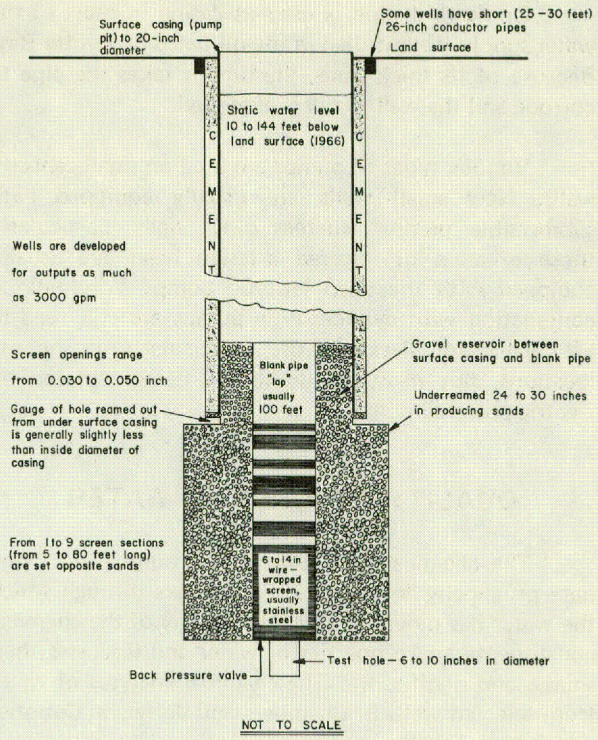

Figure 13.—Construction of Industrial and Public Supply Wells

Some large irrigation wells have been constructed in a similar manner, with slotted pipe being used instead of wrapped screen. More commonly, however, a large diameter hole is drilled from the surface to the finished depth, no cement is used, and gravel is placed outside the entire casing string. In some smaller diameter irrigation wells, screen is selected to fit the sands encountered, and no gravel is used.

The size and type of pump installed on the large-capacity wells depend upon the pumping lift and the quantity of water needed. The larger public-supply and industrial wells have high-capacity, deep-well turbine pumps powered by electricity. Irrigation wells are equipped with the same type of pumps but are powered by diesel or gas motors.

Although shallow dug wells, usually 30 to 36 inches in diameter, have been constructed in a few localities, most of the modern, small-capacity wells used for domestic or industrial supply are drilled wells that have been completed with a single screen.

A variety of screen types are available. Stainless steel and plastic have become the most widely used in Chambers and Jefferson Counties because of their resistance to corrosion. Plastic is coming into widespread use as the material for conductor pipe and screens in the small and relatively shallow wells. Stainless steel screen is used in the large wells.

Oil-rig drill pipe is used as casing in most of the water-supply wells drilled in the oil fields of Trinity Bay. Because of its thick walls, the time it takes the pipe to corrode and the well to fail is extended.

Various types of pumps are used on small-capacity wells. New small wells are usually equipped with submersible pumps, whereas older wells, particularly those in areas of lowered artesian head, are usually equipped with the deep jet-type pumps. Windmills in conjunction with cylinder-type pumps are still used to lift water for livestock use, particularly in remote locations, but many windmills are being replaced by electric-powered pumps.

QUALITY OF GROUND WATER

The chemical constituents of ground water originate principally from the soil and rocks through which the water has moved. Table 3 lists many of the chemical constituents and properties of water and discusses their source and significance. The chemical analyses of water from selected wells in Chambers and Jefferson Counties are given in Table 7.

The quality of water commonly determines its suitability for use. A general classification of water, according to dissolved-solids content in mg/l (milligrams per liter), is as follows (modified from Winslow and Kister, 1956, p. 5):

DESCRIPTION	DISSOLVED-SOLIDS CONTENT (MG/L)
Fresh	Less than 1,000
Slightly saline	1,000 to 3,000
Moderately saline	3,000 to 10,000
Very saline	10,000 to 35,000
Brine	More than 35,000

Maps showing the base of fresh water, the base of slightly saline water, and the thickness of sands containing fresh water are included in this report as Figures 16, 17, 18, and 19. Analysis of these maps and the cross sections (Figures 25 through 28) shows that most of the water underlying Chambers and Jefferson Counties is slightly or more than slightly saline.

Suitability for Public Supply

The U.S. Public Health Service (1962, p. 7) has established standards for the chemical quality of water to be used on common carriers engaged in interstate commerce. These standards, which are commonly used in evaluating public water supplies, are included in Table 3.

According to the U.S. Public Health Service (1962, p. 41), the optimum fluoride level for a given community depends on climatic conditions, because the amount of water (and consequently the amount of fluoride) ingested is influenced primarily by air temperature. In Chambers and Jefferson Counties, the optimum concentration based on the annual average of maximum daily air temperature of 26.1°C (79°F) at Beaumont is 0.8 mg/l. Presence of fluoride in average concentrations greater than twice the optimum value, or 1.6 mg/l, would constitute grounds for rejection of the supply. Excessive concentrations of fluoride are present in the water from some wells in Chambers and Jefferson Counties.

The 1941-42 well inventory and water-sampling program (Livingston and Cromack, 1942a, 1942b) included analyses of water from shallow wells (9 to 47 feet deep) in the upper unit of the Chicot aquifer that showed more than the recommended limit (45 mg/l) of nitrate concentration. However, the nitrate concentration in water from all deeper wells sampled at that time was less than the recommended limit. Samples from only a few shallow wells were collected in 1966. Of these, only one well (PT-64-08-403), 27 feet deep, yielded water with an excessive amount of nitrate. Also, the deeper wells sampled in 1966 did not have excessive nitrates. The presence of nitrates in excess of the limit in the shallow wells suggests pollution by sewage or by other organic material.

Water having a chloride content exceeding 250 mg/l may have a salty taste, and sulfate in water in excess of 250 mg/l may produce a laxative effect. Much of the water produced in Chambers and Jefferson Counties has a chloride content greater than 250 mg/l. Excessive amounts of sulfates occur in water in some shallow sands and in some of the deeper sands near the shallow salt domes.

About half of the samples analyzed for iron showed that this constituent was present in excess of the 0.3 mg/l limit. A relationship between iron concentration and depth of the well was not established, and it was not determined whether the iron occurred naturally or as a product of interaction between the water and the metal parts of the well.

Suitability for Industrial Use

The suitability of water for industrial use is dependent upon the process in which the water is used. Water for cooling and boiler uses should be noncorrosive and relatively free of scale-forming constituents, of which hardness and silica are the most important.

The silica content (Table 7) in water from the aquifers in these counties ranged from 5.3 to 38 mg/l. Moore (1940, p. 263) suggested the following allowable concentration of silica in boilers operating at various

Table 3.—Source and Significance of Dissolved-Mineral Constituents and Properties of Water

CONSTITUENT OR PROPERTY	SOURCE OR CAUSE	SIGNIFICANCE
Silica (SiO_2)	Dissolved from practically all rocks and soils, commonly less than 30 mg/l. High concentrations, as much as 100 mg/l, generally occur in highly alkaline waters.	Forms hard scale in pipes and boilers. Carried over in steam of high pressure boilers to form deposits on blades of turbines. Inhibits deterioration of zeolite-type water softeners.
Iron (Fe)	Dissolved from practically all rocks and soils. May also be derived from iron pipes, pumps, and other equipment. More than 1 or 2 mg/l of iron in surface waters generally indicates acid wastes from mine drainage or other sources.	On exposure to air, iron in ground water oxidizes to reddish-brown precipitate. More than about 0.3 mg/l stains laundry and utensils reddish-brown. Objectionable for food processing, textile processing, beverages, ice manufacture, brewing, and other processes. U.S. Public Health Service (1962) drinking-water standards state that iron should not exceed 0.3 mg/l. Larger quantities cause unpleasant taste and favor growth of iron bacteria.
Calcium (Ca) and magnesium (Mg)	Dissolved from practically all soils and rocks, but especially from limestone, dolomite, and gypsum. Calcium and magnesium are found in large quantities in some brines. Magnesium is present in large quantities in sea water.	Cause most of the hardness and scale-forming properties of water; soap consuming (see hardness). Waters low in calcium and magnesium desired in electroplating, tanning, dyeing, and in textile manufacturing.
Sodium (Na) and potassium (K)	Dissolved from practically all rocks and soils. Found also in ancient brines, sea water, industrial brines, and sewage.	Large amounts, in combination with chloride, give a salty taste. Moderate quantities have little effect on the usefulness of water for most purposes. Sodium salts may cause foaming in steam boilers and a high sodium content may limit the use of water for irrigation.
Bicarbonate (HCO_3) and carbonate (CO_3)	Action of carbon dioxide in water on carbonate rocks such as limestone and dolomite.	Bicarbonate and carbonate produce alkalinity. Bicarbonates of calcium and magnesium decompose in steam boilers and hot water facilities to form scale and release corrosive carbon dioxide gas. In combination with calcium and magnesium, cause carbonate hardness.
Sulfate (SO_4)	Dissolved from rocks and soils containing gypsum, iron sulfides, and other sulfur compounds. Commonly present in mine waters and in some industrial wastes.	Sulfate in water containing calcium forms hard scale in steam boilers. In large amounts, sulfate in combination with other ions gives bitter taste to water. Some calcium sulfate is considered beneficial in the brewing process. U.S. Public Health Service (1962) drinking-water standards recommend that the sulfate content should not exceed 250 mg/l.
Chloride (Cl)	Dissolved from rocks and soils. Present in sewage and found in large amounts in ancient brines, sea water, and industrial brines.	In large amounts in combination with sodium, gives salty taste to drinking water. In large quantities, increases the corrosiveness of water. U.S. Public Health Service (1962) drinking-water standards recommend that the chloride content should not exceed 250 mg/l.
Fluoride (F)	Dissolved in small to minute quantities from most rocks and soils. Added to many waters by fluoridation of municipal supplies.	Fluoride in drinking water reduces the incidence of tooth decay when the water is consumed during the period of enamel calcification. However, it may cause mottling of the teeth, depending on the concentration of fluoride, the age of the child, amount of drinking water consumed, and susceptbility of the individual. (Maier, 1950)
Nitrate (NO_3)	Decaying organic matter, sewage, fertilizers, and nitrates in soil.	Concentration much greater than the local average may suggest pollution. U.S. Public Health Service (1962) drinking-water standards suggest a limit of 45 mg/l. Waters of high nitrate content have been reported to be the cause of methemoglobinemia (an often fatal disease in infants) and therefore should not be used in infant feeding. Nitrate has been shown to be helpful in reducing inter-crystalline cracking of boiler steel. It encourages growth of algae and other organisms which produce undesirable tastes and odors.
Dissolved solids	Chiefly mineral constituents dissolved from rocks and soils. Includes some water of crystallization.	U.S. Public Health Service (1962) drinking-water standards recommend that waters containing more than 500 mg/l dissolved solids not be used if other less mineralized supplies are available. Waters containing more than 1000 mg/l dissolved solids are unsuitable for many purposes.
Hardness as $CaCO_3$	In most waters nearly all the hardness is due to calcium and magnesium. All the metallic cations other than the alkali metals also cause hardness.	Consumes soap before a lather will form. Deposits soap curd on bathtubs. Hard water forms scale in boilers, water heaters, and pipes. Hardness equivalent to the bicarbonate and carbonate is called carbonate hardness. Any hardness in excess of this is called non-carbonate hardness. Waters of hardness as much as 60 ppm are considered soft; 61 to 120 mg/l, moderately hard; 121 to 180 mg/l, hard; more than 180 mg/l, very hard.
Specific conductance (micromhos at 25°C)	Mineral content of the water.	Indicates degree of mineralization. Specific conductance is a measure of the capacity of the water to conduct an electric current. Varies with concentration and degree of ionization of the constituents.
Hydrogen ion concentration (pH)	Acids, acid-generating salts, and free carbon dioxide lower the pH. Carbonates, bicarbonates, hydroxides, and phosphates, silicates, and borates raise the pH.	A pH of 7.0 indicates neutrality of a solution. Values higher than 7.0 denote increasing alkalinity; values lower than 7.0 indicate increasing acidity. pH is a measure of the activity of the hydrogen ions. Corrosiveness of water generally increases with decreasing pH. However, excessively alkaline waters may also attack metals.

pressures: less than 150 psi (pounds per square inch), 40 mg/l; 150-250 psi, 20 mg/l; 250-400 psi, 5 mg/l; and more than 400 psi, 1 mg/l.

A classification commonly used with reference to hardness is as follows: 60 mg/l or less, soft; 61 to 120 mg/l, moderately hard; 121 to 180 mg/l, hard; and more than 180 mg/l, very hard. If water used in steam boilers has more than 75 mg/l hardness as calcium carbonate, it should be treated to prevent the formation of scale (American Society for Testing Materials, 1959, p. 24). In high-pressure boilers, the tolerance is much less than 75 mg/l. Suggested water-quality tolerances for a number of industries are summarized by Hem (1959, p. 253) from Moore (1940). Although the hardness of the water (Table 7) ranges from soft to very hard, most of the water sampled was moderately hard or hard.

Large amounts of water are used to dissolve salt from salt domes to create caverns for storage of gas; the quality of water used for this purpose is not important. In some chemical processes, water of uniform chemical quality, clarity, and temperature is necessary, and even slightly or moderately saline ground water often meets these conditions better than surface water. In water-flooding operations, saline ground water is often preferred because of its compatability with fluids in the formation and because it is usually organically pure and sediment-free.

The temperature of water is often of great importance to industry and to other users. The temperature of ground water near the land surface is approximately the same as the mean annual air temperature of the region, 20.9°C (69.7°F) at Beaumont, but increases with depth. The lowest temperature of ground water recorded during the study, from a well 159 feet deep, was 22°C (71°F). The highest water temperature recorded during the study, from a well 1,255 feet deep, was 29.2°C (84.6°F). Temperature of ground water at any particular depth remains relatively constant throughout the year.

Suitability for Irrigation

The suitability of water for irrigation depends on the chemical quality of the water and on other factors such as soil texture and composition, types of crops, irrigation practices, and climate. The most important chemical characteristics pertinent to the evaluation of water for irrigation are: the proportion of sodium to total cations—an index of the sodium hazard; total concentration of soluble salts—an index of the salinity hazard; RSC (residual sodium carbonate); and the concentration of boron.

A system of classification commonly used for judging the quality of water for irrigation was proposed by the U.S. Salinity Laboratory Staff (1954, p. 69-82). This classification is based primarily on the salinity hazard as measured by the electrical conductivity of the water and on the sodium hazard as measured by the SAR (sodium-adsorption ratio). Although this classification was used in Figure 14, it may not be directly applicable because of the high rainfall. Wilcox (1955, p. 15-16) stated that water would be safe for supplemental irrigation if its conductivity was less than 2,250 micromhos per centimeter at 25°C and if its SAR was less than 14. This classification does show that in Chambers and Jefferson Counties most water tested had a high to very high salinity hazard and a low to very high sodium hazard. However, of the 62 water samples represented on the diagram, 30 samples were within the safe limits for supplemental irrigation. Most of these samples were taken from the freshest portions of the aquifers and the 32 samples which showed the water to be probably unsafe for even supplemental irrigation are probably most representative of most of the water in the aquifers of Chambers and Jefferson Counties.

An excessive concentration of boron renders a water unsuitable for irrigation. Scofield (1936, p. 286) indicated that boron concentrations of as much as 1 mg/l are permissible for irrigating most boron-sensitive crops and that concentrations of as much as 3 mg/l are permissible for the more boron-tolerant crops. All but one analysis (Table 7) which list boron show a concentration less than 1 mg/l.

Another factor in assessing the quality of water for irrigation is the RSC of the water. Excessive RSC will cause water to be alkaline, and the alkaline water will cause organic material of the soil to dissolve. The affected soil, which may become grayish-black, is referred to as "black alkali". Wilcox (1955, p. 11) states that laboratory and field studies have resulted in the conclusion that water containing more than 2.5 me/l (milliequivalents per liter) RSC is not suitable for irrigation. Water containing from 1.25 to 2.5 me/l is marginal, and water containing less than 1.25 me/l RSC is probably safe. Correct irrigation practices and proper use of amendments to the soil might make possible the successful use of marginal water for irrigation. In the majority of the samples analyzed, the RSC was high, the maximum value being 9.31 me/l.

The high conductivity (salinity hazard) and the generally unfavorable SAR and RSC values shown in the analyses are probably among the factors responsible for the abandoning of numerous irrigation wells in Chambers and Jefferson Counties in the past.

RELATIONSHIP OF FRESH GROUND WATER TO SALINE GROUND WATER

Two distinct relationships between fresh and saline water are evident in the Chicot and Evangeline aquifers in Chambers and Jefferson Counties. The normal relationship is for the fresh water to float on the salt water because of the greater density of the latter. This

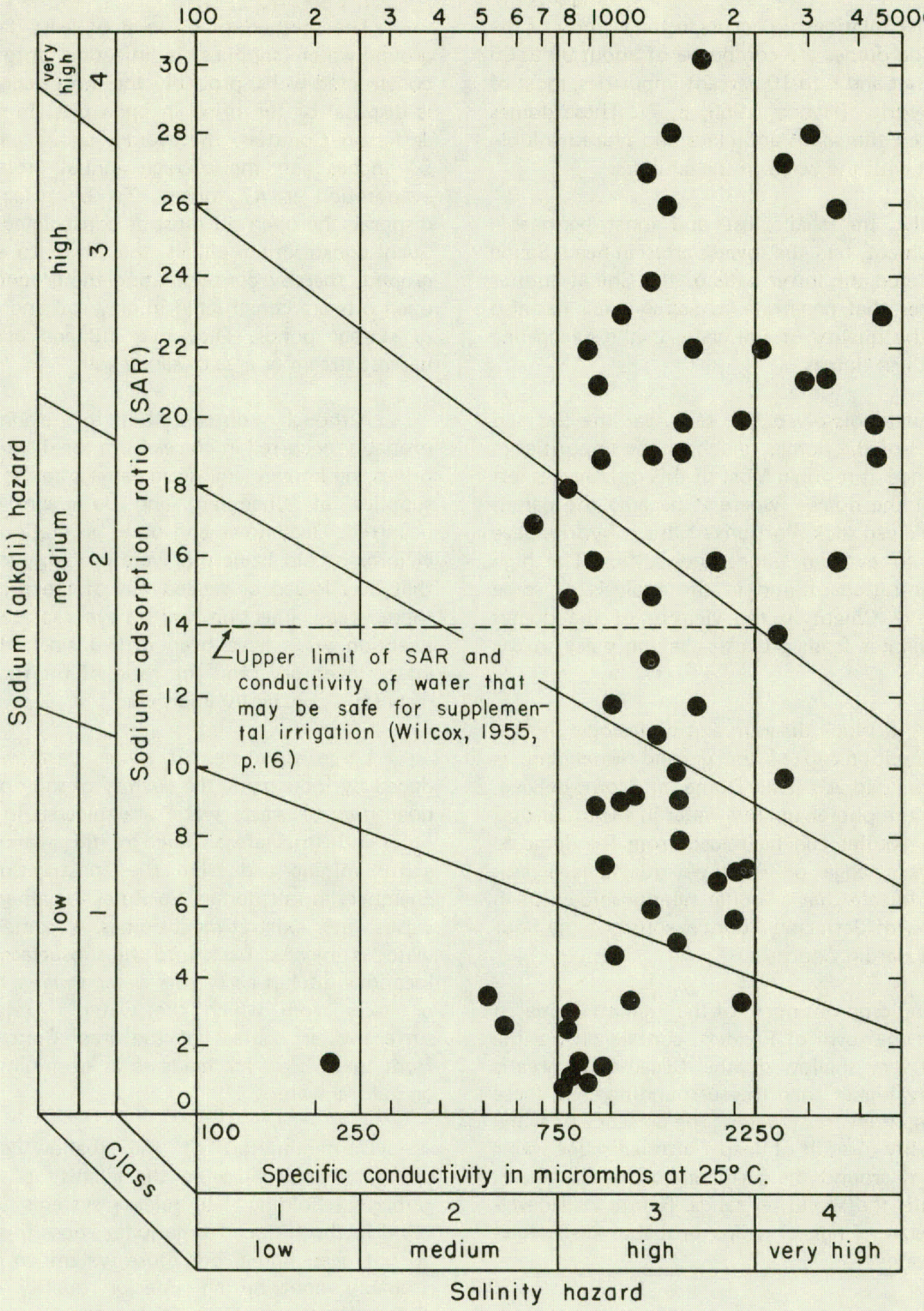

Figure 14

Classification of Irrigation Waters

relationship is modified by the interbedding of sands and clays. Fresh water occurs at depths greater than 1,400 feet under these conditions in Chambers and Jefferson Counties.

The other relationship occurs in the vicinity of the salt domes. The domes are composed of about 90 to 95 percent rock salt and 5 to 10 percent impurities, most of which is anhydrite (Hanna, 1958, p. 7). These domes have penetrated the sands and clays and placed soluble salt in contact with the water in the aquifers.

Originally, the shallowest and most permeable aquifer, the Chicot, had the lowest artesian head. Saline water has entered the lower beds of the Chicot aquifer near the domes that penetrate it. Saline water has also deteriorated the quality of the water in the Evangeline aquifer, near these domes.

When water dissolved the salt near the top and along the sides of the domes, much of the impurities in the salt remained as residue. Most of this residue was left at the top of the domes, where it became the parent material for the cap rock. Portions of this anhydrite have been altered to gypsum, lime, and sulfur. The high sulfate concentrations found in the analysis of some water from the Chicot in the vicinity of the domes probably originates from processes taking place in the cap rock.

Figure 4, a block diagram and hydrologic section showing the relationship of the ground water and its quality to the Barber's Hill Dome at Mont Belvieu, indicates that the poorer quality water in the lower unit of the Chicot aquifer can be traced from the dome to the northeastern edge of Baytown (6 miles away). Electric logs indicate that a similar relationship exists in the Nome area of Jefferson County, south of the Sour Lake Dome in Hardin County.

Sands that crop out north of the Fannett Dome, in the vicinity of the town of Fannett, contain only saline water even at very shallow depths. Because the area is topographically higher than the surrounding area, these sands should contain fresh water. The presence of saline water is probably a result of deeper artesian saline water flowing upward around the periphery of the dome and discharging into the shallower sands. Before well development, surface springs or seeps probably discharged some of this water.

DISPOSAL OF OIL-FIELD BRINES AND OTHER CONTAMINANTS

According to a 1961 salt-water inventory, about 60.4 million barrels of oil-field brine was produced during 1961 in Chambers and Jefferson Counties. Of this quantity, 66 percent was returned to saline water-bearing formations by injection wells, 26 percent was released to surface-water courses, 7.5 percent was disposed of in open pits, and 0.5 percent was disposed of by miscellaneous or "unknown" processes (Texas Water Commission and Texas Water Pollution Control Board, 1963, p. 46-86 and 258-287).

The method of disposal of least danger to fresh ground-water supplies is injection through properly constructed wells; probably the most dangerous method is disposal of the brine in open pits. In Chambers and Jefferson Counties, the average annual precipitation is 54 inches and the average annual gross lake-surface evaporation is 47 inches. To be effective in brine disposal, the open pit must be constructed in sandy soil. Such construction allows the brine to seep into the ground, thereby contaminating the ground water. Most open pits are constructed in clay soil and act as holding or storage ponds. They may fill and overflow to the nearest stream or area of sandy soil.

Although contamination of ground water has probably occurred in places from the disposal of oil-field brines, no known large-scale damage to the ground-water supplies of Chambers and Jefferson Counties has occurred. Dead trees and other vegetation noted in the vicinity of old brine pits were probably killed by brine that overflowed or seeped out of the pits. In most of these areas, injection wells have replaced pits. Many injection wells have been drilled since the 1961 salt-water inventory, and the ratio of pit to injection-well disposal is constantly improving.

Large quantities of saline waste water are produced by industry in the vicinity of salt domes and large quantities of waste water are released in these and in other industrial areas. Much of this water comes from sulfur mining and from the construction of storage chambers in salt domes. Facilities to gather and hold the waste water exist at most domes. At some locations this water is injected back into the subsurface, but at most locations ditches carry this water to large holding ponds or lakes from which the water is released to the surface-water courses of the area. Controlled releases from these lakes are made so as to minimize the effect on natural waters.

Contamination of the shallow ground water probably takes place in the vicinity of many of the gathering, holding, and release systems that are excavated in the surface formations, Those in clay probably do not need lining, but those systems in sandy soil are probably contributing inferior quality water to an already limited source of fresh ground water.

Most towns and industries dispose of their effluent in the tidal portion of the streams or into the bays, which already contain saline water. The most harmful effect of this practice is that under certain conditions this effluent kills fish and wildlife, and the effluent often imparts noxious odors and colors to the streams and bays.

PROTECTION OF WATER QUALITY IN OIL-FIELD DRILLING OPERATIONS

The Railroad Commission of Texas requires that contractors drilling oil and gas wells use casing and cement to protect fresh-water strata from contamination. For more than the past decade, the Railroad Commission has received recommendations from the Texas Water Development Board and from its predecessors, the Texas Water Commission and the Texas Board of Water Engineers, concerning the depths to which the water should be protected.

Where oil or gas fields are established, the recommended depths are incorporated in some of the field rules. Figure 15 shows the amount of surface casing required by the Oil and Gas Division of the Railroad Commission of Texas and the depth of slightly saline water in those fields in Chambers and Jefferson Counties having surface-casing requirements. Figure 16 is a map showing the approximate altitude of the base of slightly saline water.

AVAILABILITY OF GROUND WATER

Evangeline Aquifer

The Evangeline aquifer contains fresh water only in parts of western Chambers County and northern Jefferson County. Assuming a porosity of 30 percent, about 2,600,000 acre-feet of fresh water is stored in western Chambers County and about 800,000 acre-feet of fresh water is stored in northern Jefferson County; however, only a small part of this water could be recovered because of specific retention of much of this water and because of encroachment of nearby salt water. The fresh water extends to depths greater than 1,400 feet below sea level in western Chambers County and to depths of more than 1,000 feet below sea level in northern Jefferson County. Areas where fresh water occurs in the Evangeline aquifer underlie less than 10 percent of the combined areas of these counties. The maximum thicknesses of fresh-water sands is greater than 400 feet in Chambers County and greater than 200 feet in Jefferson County (Figure 17). Several large capacity industrial wells are completed in the Evangeline on the southwest flank of the Barbers Hill Dome. One irrigation well, in the Houston Point area of Chambers County, is completed in the Evangeline and lower unit of the Chicot.

Wells yielding 1,000-3,000 gpm could be constructed in northwestern Chambers County where sands in the Evangeline contain fresh water to depths approaching 1,500 feet below sea level.

Some sands of the Evangeline aquifer contain fresh water in parts of the Houston Point area. These sands and the Chicot sands above them are currently being tested and evaluated by the industries that are establishing new plants. Limited uses for sanitary purposes and boiler-feed water are planned. Wells yielding 100-1,000 gpm from the Evangeline aquifer could be developed in this area. The proximity of slightly saline water in the same beds in this area will probably preclude any large scale development of this water as a dependable source.

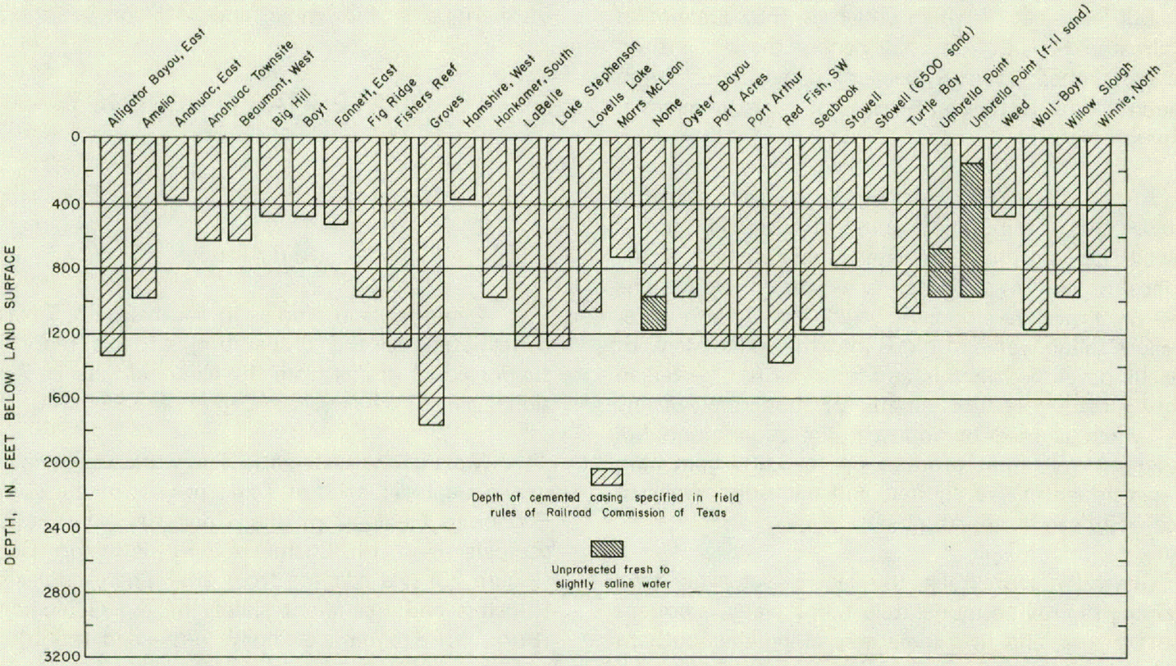

Figure 15.—Comparison Between Surface-Casing Requirements in Oil Fields and Depth of Base of Sands Containing Fresh to Slightly Saline Water

Chicot Aquifer

Lower Unit

The approximate base and thickness of the fresh-water sands in the lower unit of the Chicot aquifer are shown on Figure 18. The lower unit of the Chicot contains fresh water in the Houston Point, Mont Belvieu, and Galveston Bay areas of Chambers County and in a small area along the eastern boundary of Jefferson County. The deepest occurrence of fresh water is in western Chambers County where fresh water extends to depths of more than 800 feet below sea level. Here the net thickness of sands containing fresh water is greater than 100 feet. In Jefferson County the maximum sand thickness is less than 50 feet. Fresh water in this aquifer underlies about a third of Chambers County and less than 5 percent of Jefferson County.

In the Houston Point and Mont Belvieu areas of northwestern Chambers County, the only place in which the lower unit of the Chicot has not been affected by saline water from Barbers Hill Dome is northwest of the dome. In this small area, all of the water in the aquifer is fresh. Large capacity wells that would produce fresh water could be constructed here.

The town of Mont Belvieu is using two public-supply wells (DH-64-09-301 and DH-64-09-302) near the saline water. Water from the public-supply wells will probably become more saline as pumping continues.

Assuming a porosity of 30 percent, almost 4,000,000 acre-feet of fresh water is stored in the lower unit of the Chicot aquifer in Chambers County, 2,900,000 acre-feet of which underlies 150 square miles of Galveston Bay. Only a small part of these quantities could be pumped, however, because of specific retention of much of the water and because of encroachment of nearby salt water.

About 150,000 acre-feet of fresh water is stored in the lower unit of the Chicot aquifer in Jefferson County. The wells tapping this fresh-water supply are all near the interface of the fresh water with the slightly saline water. Extensive development of additional fresh water will cause saline water to move into the wells. Many of the wells developed in this aquifer in eastern Jefferson County already produce slightly or moderately saline water which is used by industry for cooling and fire protection. Wells that produce up to 3,000 gpm have been developed in the aquifer, and additional wells of this capacity can be constructed.

Generally, more than 100 feet of saturated sand containing slightly to moderately saline water is present in most places, and in a large area along the southern boundaries of the counties, massive beds in the aquifer total more than 500 feet in thickness. Large (tens of mgd) sustained withdrawals of moderately saline water could be made in most areas of the two counties without excessive drawdown in water levels.

Upper Unit

The most widespread aquifer containing fresh water in Chambers and Jefferson Counties is the upper unit of the Chicot. Generally, it contains fresh water in and beyond the same areas as the lower unit of the Chicot and the Evangeline aquifers. However, in over 50 percent of Chambers and Jefferson Counties, only small supplies can be developed in this aquifer. Individual sand beds range in thickness from several feet to about 50 feet. Wells produce or have produced up to 1,000 gpm of fresh water from this aquifer in the Houston Point area of eastern Chambers County, at Anahuac, and in a fairly large area centered at Winnie. Additional fresh-water wells can be constructed in this aquifer in these areas of Chambers County and in extreme northern Jefferson County without an immediate threat of water-quality deterioration.

Throughout much of Chambers and Jefferson Counties water of poorer quality underlies or occurs at short distances from many of the producing wells. With continued pumpage, some of these wells probably will produce poorer quality water.

The approximate altitude of the base of fresh water in the upper unit of the Chicot aquifer is shown in Figure 19. The deepest occurrence of fresh water is in the northernmost part of Jefferson County where the base is greater than 200 feet below sea level. The base of fresh water becomes more shallow to the south and is only a few feet below sea level in the central and southern parts of Chambers and Jefferson Counties.

QUATERNARY GEOLOGY

By

Saul Aronow

Geologic field studies in southeastern Texas that contributed to the preparation of this report were supported by grants from the National Science Foundation, Lamar Tech Research Center, and Sigma Xi.

Most of the systematic field work was done as part of the Geologic Atlas of Texas project of the Bureau of Economic Geology of the University of Texas. The geologic map of Chambers and Jefferson Counties (Figure 20) was adapted from preliminary copies of the Houston and Beaumont sheets of the Geologic Atlas (Bureau of Economic Geology, 1968a and 1968b).

The Soil Conservation Service of the U.S. Department of Agriculture provided technical assistance in the

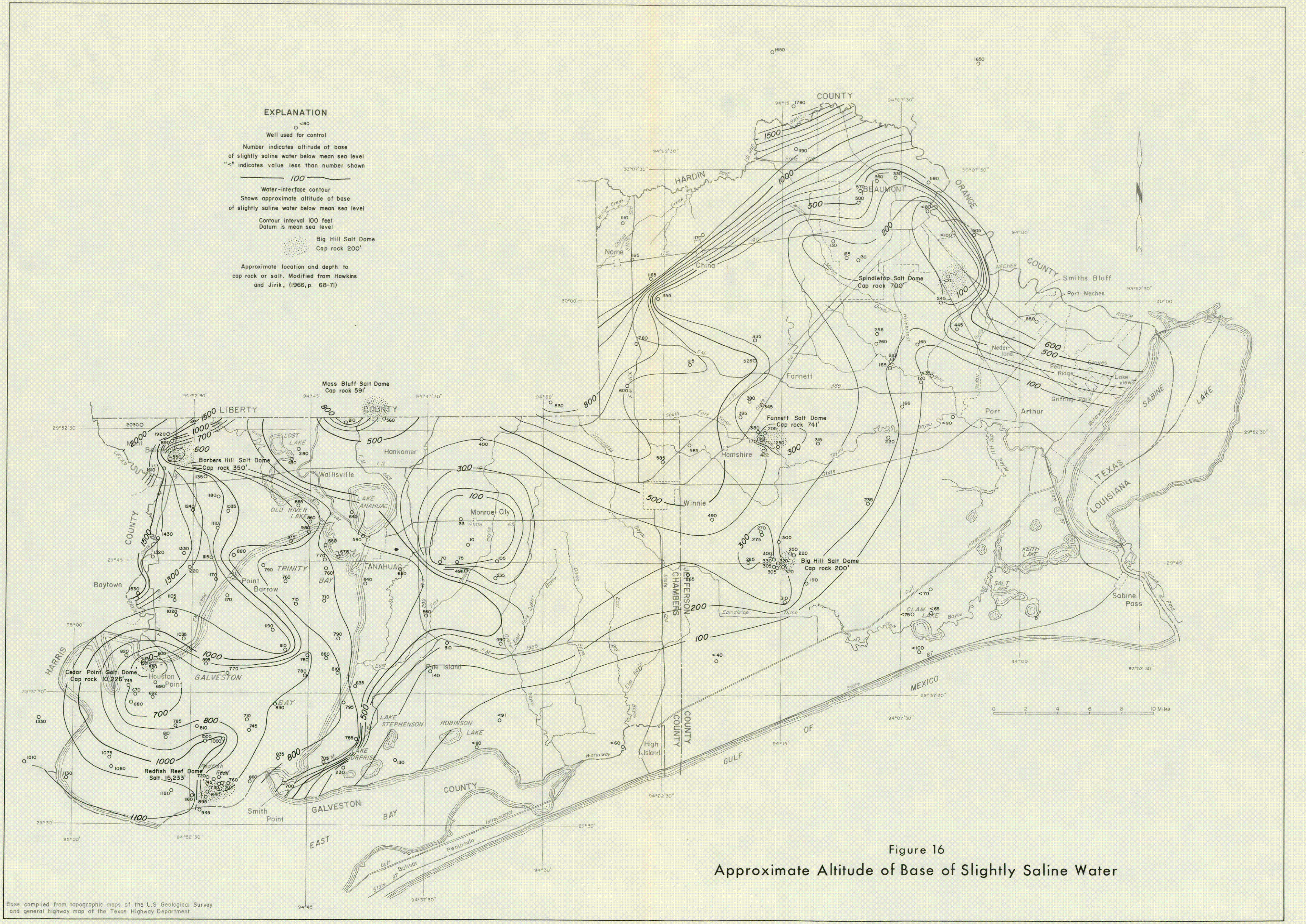

Figure 16
Approximate Altitude of Base of Slightly Saline Water

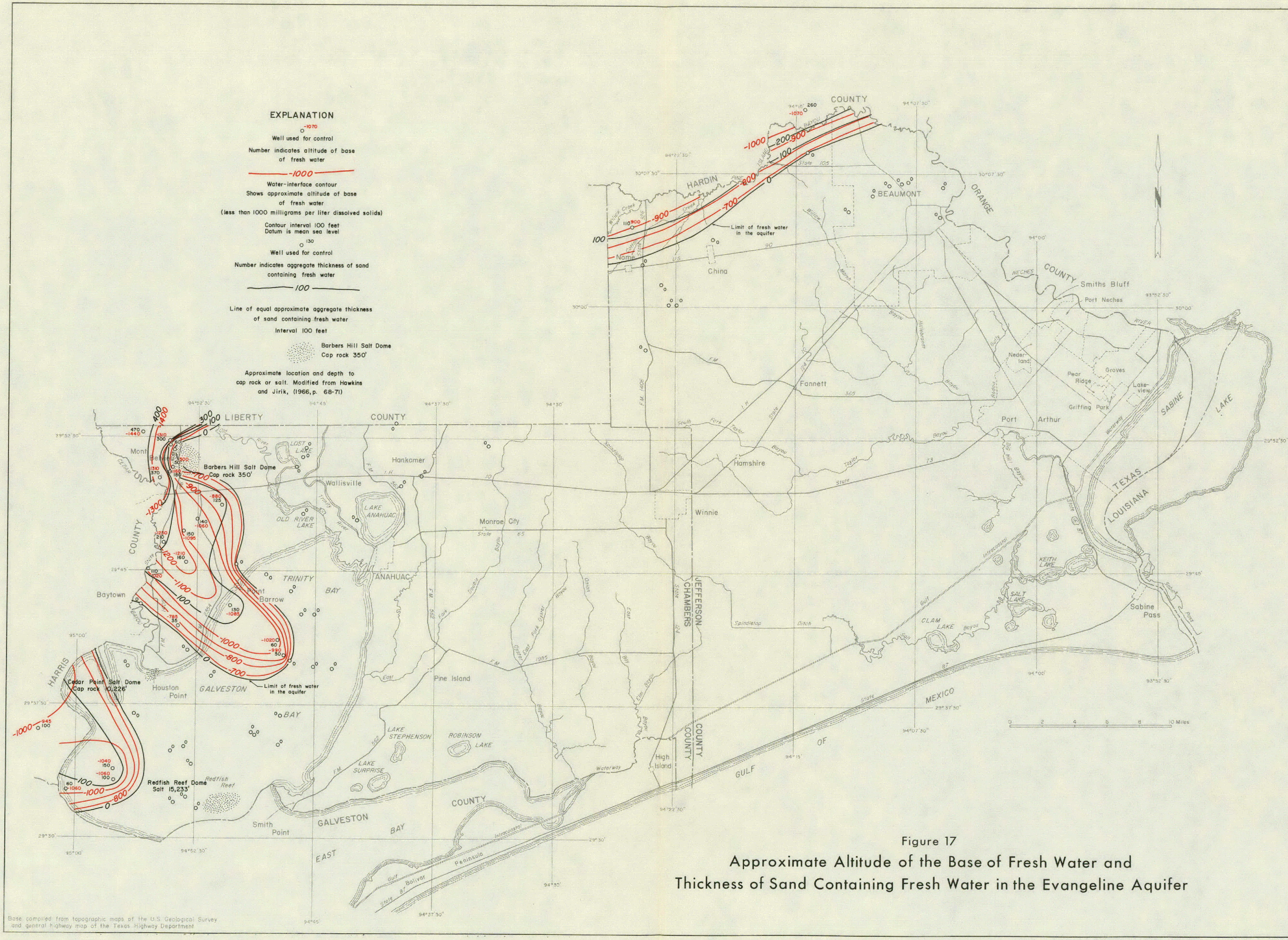

Figure 17

Approximate Altitude of the Base of Fresh Water and Thickness of Sand Containing Fresh Water in the Evangeline Aquifer

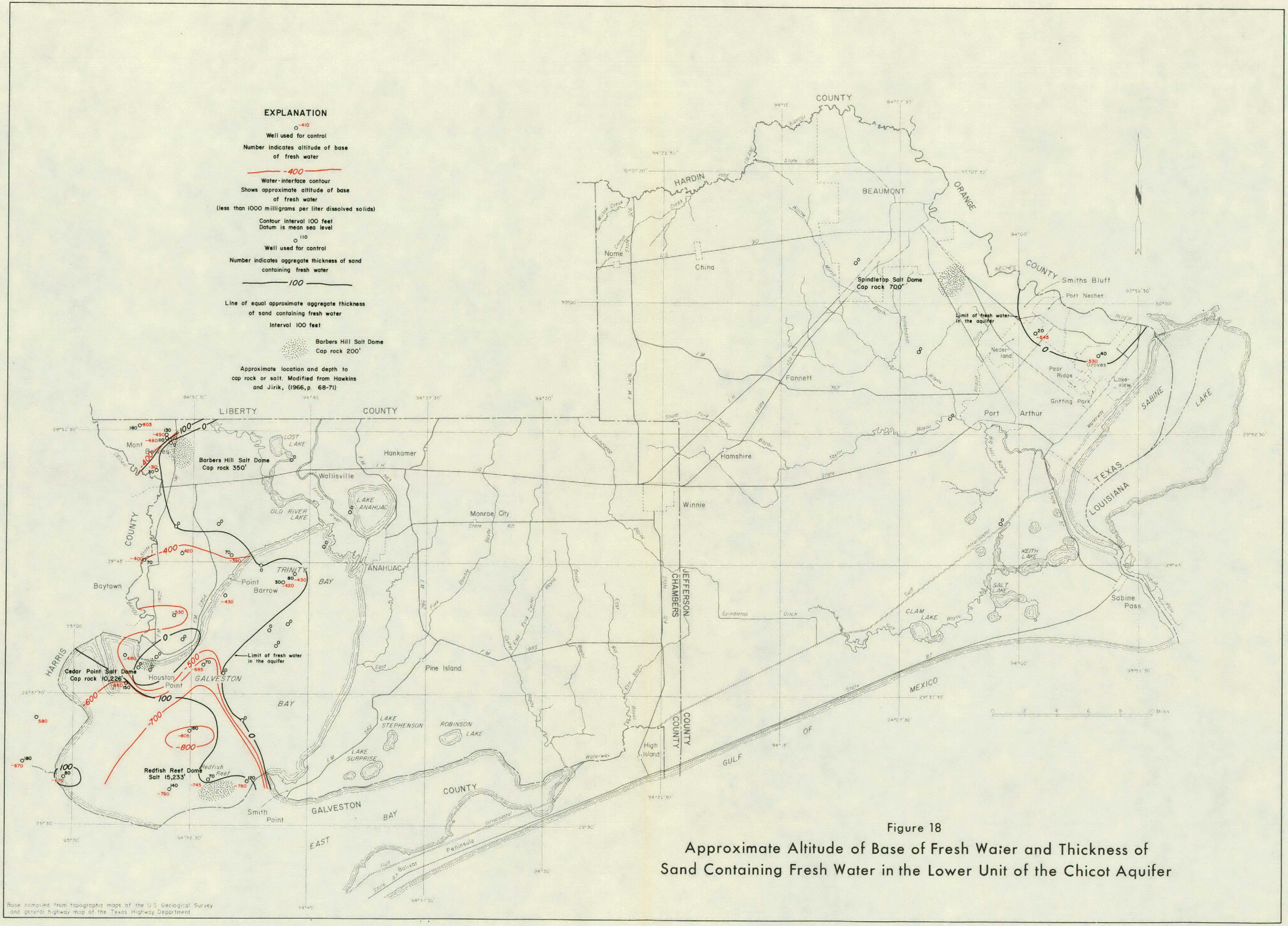

Figure 18
Approximate Altitude of Base of Fresh Water and Thickness of Sand Containing Fresh Water in the Lower Unit of the Chicot Aquifer

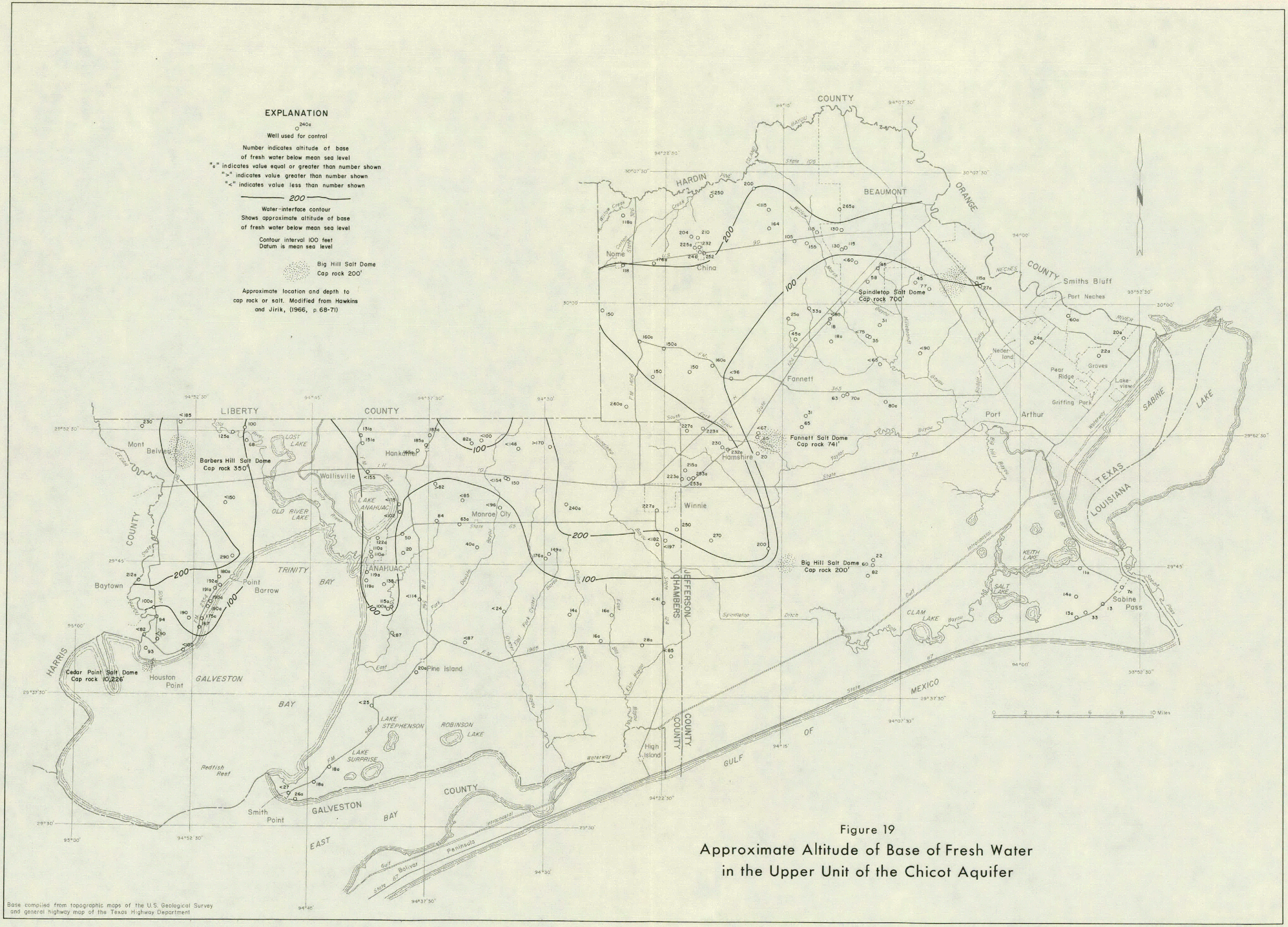

Figure 19
Approximate Altitude of Base of Fresh Water in the Upper Unit of the Chicot Aquifer

field and provided copies of published and unpublished maps of soil surveys in Chambers and Jefferson Counties.

Marcus E. Milling, Marcus W. Walsh, Ben Wicker, and George Zahar, geology students at Lamar Tech, aided the author in mapping geomorphic features, in the preparation of illustrations, and in the determination of stream gradients.

General Stratigraphy and Structure

The geologic units in Chambers and Jefferson Counties (Figure 20) crop out in belts that are nearly parallel to the shoreline of the Gulf of Mexico. The beds dip toward the Gulf, with the older beds dipping at steeper angles than the younger beds. Most formations thicken downdip. The regional (gulfward) dip is interrupted by uplifts associated with salt domes and by arcuate belts of normal faults that are generally downthrown to the Gulf.

The oldest unit that crops out in Chambers and Jefferson Counties is the Beaumont Clay of Pleistocene age (Bernard, LeBlanc, and Major, 1962). The alluvial terrace deposits along the modern floodplains of the Trinity and Neches Rivers, mapped by Bernard (1950) as the "Deweyville beds", are probably of late Pleistocene and Holocene age. The youngest sediments are floodplain, deltaic, coastal marsh, mud flat, and beach (chenier) deposits of Holocene age.

Beaumont Clay

The Beaumont Clay crops out across most of Chambers and Jefferson Counties (Figure 20). The formation was described by Hayes and Kennedy (1903, p. 27-29), from exposures and from samples from wells in the vicinity of Beaumont, as a "series of yellow, gray, blue, brown, and black clays with black sands" overlying the "Columbia sands."

No definite type section has been described, and probably no complete section can be described from the outcrops alone. A type well or a combination type well and surface section can be established only when some unequivocal means of determining the base of the formation can be agreed upon. Bernard (1950) mapped the Beaumont in Texas as its presumed equivalent in Louisiana, the Prairie Formation; Doering (1956) mapped it as the Oberlin and Eunice Formations; Price (1947) mapped it as the Montgomery and Prairie Formations; and Bernard and LeBlanc (1965) reverted to the original name, Beaumont Clay, as used on the geologic map of Texas (Darton and others, 1937).

Two mappable facies of the Beaumont Clay occur in Chambers and Jefferson Counties: (1) a clayey facies composed of alluvial, deltaic, coastal marsh, and lagoonal deposits of clay, silty clay, and sandy clay; and (2) a sandy facies composed of barrier island and beach deposits of very fine to fine sand, which are of local importance as sources of small quantities of fresh ground water.

The clayey facies of the Beaumont composes almost all of the exposed Pleistocene sediments in Chambers and Jefferson Counties. For descriptions of these facies see Crout and others (1965), McEwen (1963, p. 63-64), Kunze and others (1963), and Graf (1966, p. 6, and Figure 8).

The sandy facies of the Beaumont Clay compose a very small percentage of the exposed Pleistocene sediments in Chambers and Jefferson Counties. The material is mostly very fine to fine, well-sorted sand of the barrier island and beach deposits (mapped separately on Figure 20). Grain-size determinations by mechanical analyses and heavy-mineral data are given in Graf (1966).

Deltaic and Meander Belt Deposits

Barton (1930a, 1930b) concluded that the coastal area of southeastern Texas was deltaic plain deposited by Pleistocene streams. The main evidence for this interpretation was the meandering pattern of the sandier soils, found in many places on the crests of low "levee" ridges. Barton pointed out that most of the present drainage is between and is controlled by the old levee or distributary ridges.

The major difference between the views of Barton and those of the author is in the significance of the levee or distributary ridges. Barton believed that the meander belts were a relict group of passes with a "palmate" pattern, similar to that of the present-day Mississippi Delta. The deposits of the Pleistocene Trinity River would therefore represent a delta as large as or larger than the present Mississippi Delta. Barton concluded that the Pleistocene Trinity River had a greater discharge and load than at present because of higher precipitation and a diminution in the drainage basin since the Pleistocene. The author believes that this group of passes was actually a succession of meander belts that terminated in relatively small deltas, similar in size to the present day Trinity River Delta.

A map compiled from the latest soil survey of Jefferson County (Crout and others, 1965) that shows the meander belts defined by mapping the soils that are related to fluviatile deposits is shown as Figure 21.

As shown in Figure 22, there are four well-preserved, more or less continuous meander belts and one less definite belt in Chambers and Jefferson Counties. In order of decreasing age, they are: (1) the Neches Ridge System, which roughly parallels the Neches River in the extreme eastern part of Jefferson

County—the relict meanders in this system are fragmentary and obscure, but the soils are similar to the soils found in the other systems;(2) the Barbers Hill System, between the Trinity River and Cedar Bayou; (3) the Sea Breeze System, in eastern Chambers County; (4) the Big Hill Ridge System; and (5) the China Ridge System, which is the best preserved and has the greatest continuity.

The system of straight stretches of relict stream channels to the northwest and southeast of the Smith Point and Pine Island barriers may be the remains of a stream that was not a tributary to the Pleistocene Trinity River but flowed directly into the Gulf. Figure 20 shows a number of anomalous meanders that cannot be defined as a coherent system.

The bluffs along Trinity Bay and along the valleys of the Trinity and Neches Rivers are the result of stream cutting during a glacial lowering of sea level. Wave erosion of the areas bordering Lake Anahuac and Trinity Bay has maintained the steepness of the bluffs in those areas. East of the Trinity River, the contact of the Deweyville deposits with the Beaumont Clay is marked by low scarps less than 10 feet in height.

The contact of the Beaumont Clay with the marsh and fluviatile deposits of Holocene age between Smith Point in Chambers County and Sabine Lake in Jefferson County has a digitate pattern, and only a few of the recesses are occupied by larger streams. Most of the salients of the Beaumont Clay are levee or distributary ridges similar to those of the Trinity River Delta, and the center lines of some of them are water-filled or marshy depressions. Those that do not have axial depressions can be identified by their sandy soils, by their terminal position in relation to the meander system, and by their areal pattern. The margins of most of these small deltas, which are about 5 feet above sea level, slope gently under the marsh deposits. The termination of the Neches Ridge System does not have a clearly digitate pattern, but does have approximately the same elevation as the other terminations.

The average slope of the surface of the Beaumont Clay east of the Trinity River in Chambers County is about 1 foot per mile. West of the Trinity River, the slope is about 1.5 feet per mile. The gradients of the two best preserved meander belts (not the old stream gradients) are: Big Hill Ridge System, 1.64 feet per mile; and China Ridge System, 0.92 foot per mile. The reconstructed stream gradients are: Big Hill Ridge System, 0.75 foot per mile; and China Ridge System, 0.49 foot per mile.

McEwen (1963), in his study of the most recent delta of the Trinity River, found that the whole delta was only about 15 feet thick. On this basis, a local thickness for the Beaumont Clay of less than 100 feet can easily be conjectured. Should a widespread and easily identifiable lithologic change be found that has some reasonable relationship to the subsurface projection of the surface of the Montgomery Formation, then perhaps the base of the Beaumont can be defined.

Barrier Island and Beach Deposits

The barrier island and beach deposits (Figure 20) were first described by W. A. Price (1933, 1947), and named for the occurrence at Ingleside, near Aransas Pass, Texas. As mapped by Price, the Ingleside System is a series of discontinuous features extending along most of the Gulf Coast of Texas. In Chambers and Jefferson Counties, the barrier island and beach deposits, which are composed of very fine to fine sand, may be divided into three sections—one in Chambers County and two in Jefferson County (see areas marked Qbb on Figure 20). The section in Chambers County consists mainly of three elongated parts, each less than 1 mile wide, extending from Smith Point northeastwardly for a distance of about 20 miles. the part from Smith Point to Lake Stephenson is a ridge that rises about 10 feet above the adjacent marshland (altitude about 12 feet). The ridge contains a number of small, nearly circular lakes. The remainder of this section is more easily identified on soil maps and aerial photographs. The sections in Jefferson County are west of Fannett and in the western part of the city of Beaumont. The one west of Fannett is an irregularly shaped area about 4 miles in width that is essentially a series of abandoned beaches of "cheniers" similar to those near Sabine Pass. Altitudes range from about 15 to 25 feet. This section is forested and is locally called "Lawhorn Woods." The section in the western part of the city of Beaumont is about 3 miles long and about 1 mile in width. The altitude is about 20 feet, but because of urban development, this section is difficult to identify.

Mounds and Depressions

Widespread surface features of the Beaumont Clay, and of the Deweyville deposits, are the "pimple mounds." These circular to elliptical mounds are about 15 to about 50 feet in diameter and 1 to 4 feet in height. They are almost exclusively limited to the sandier and siltier soils that underlie the relict meander belts and the barrier island and beach system. They are largely absent from the gentle swales or relict backswamp areas between meander belts and from some, but not all, of the relict lagoonal areas landward of the old barriers. Pimple mounds are best developed and most abundant on the old barriers.

The origin of pimple mounds is not clearly understood, and they have been considered the result of both organic and inorganic processes. Mounds of this type are not restricted to the Gulf Coast, and similar features elsewhere are sometimes referred to as mima mounds. Discussion of these features goes back to the 1870's; reviews of the literature and references can be

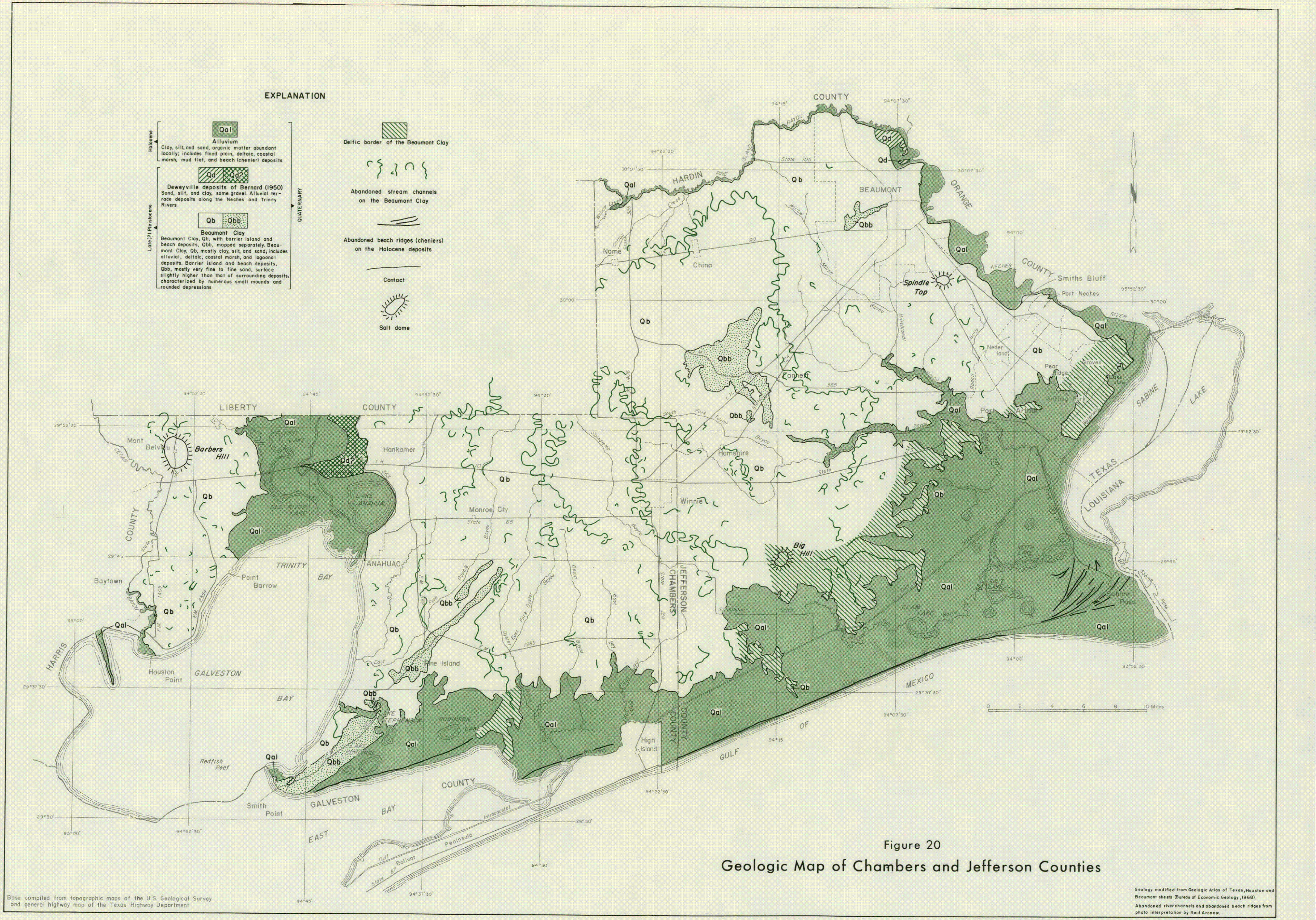

Figure 20
Geologic Map of Chambers and Jefferson Counties

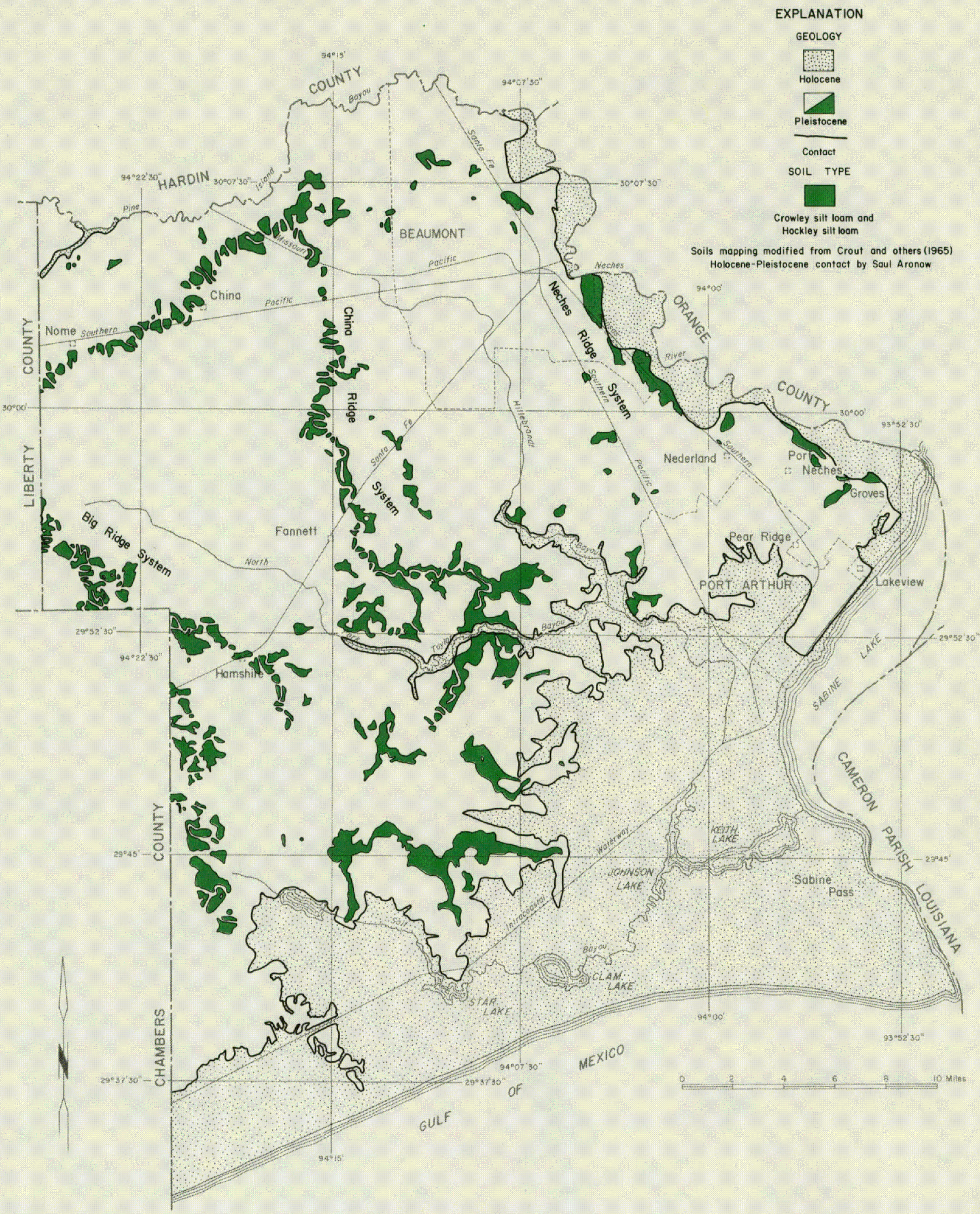

Figure 21

Selected Features From the 1965 Soil-Survey Map of Jefferson County

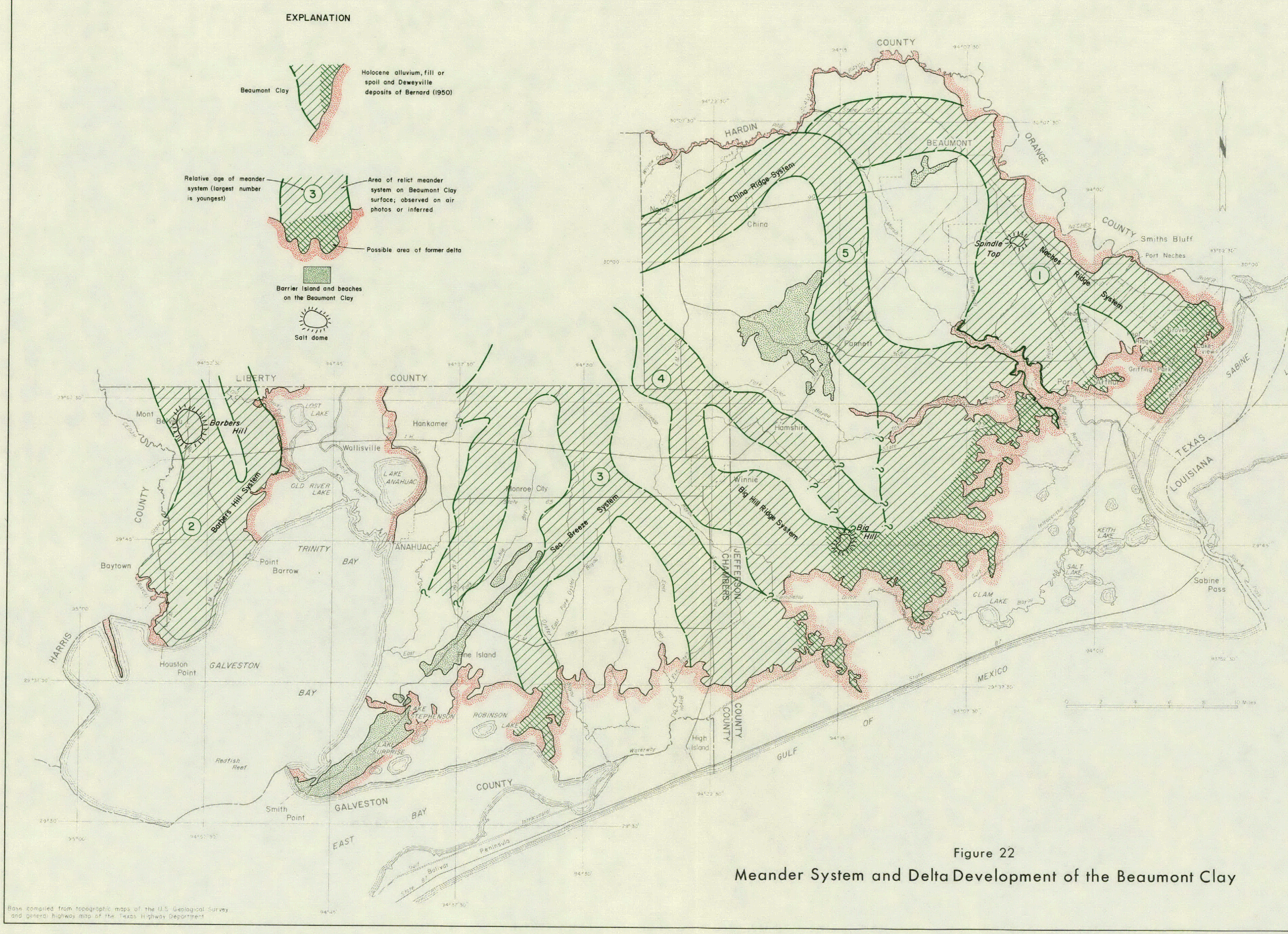

Figure 22

Meander System and Delta Development of the Beaumont Clay

found in Melton (1954), Holland and others (1952), and in Bernard and Leblanc (1965, p. 174-176).

The hog wallows or "gilgai microrelief" (Crout and others, 1965, p. 6; Mowery and others, 1960, p. 11, 33), are a minor but locally conspicuous kind of surface feature. These are areas of uneven or "wavy" ground consisting of very low mounds or microknolls (less than 2 feet in diameter and less than 8 inches in height) and intervening depressions. They usually become apparent after a heavy rain when the depressions impede surface drainage. In Chambers and Jefferson Counties, hog wallows are restricted to the clayier soils. They are thought to result from the unequal absorption of water or dehydration by certain clay minerals.

Geologic Age

The Beaumont Clay is at least 30,000 years old as determined by radiocarbon dating. McFarlan (1961, p. 133) reported that samples from the Prairie Formation of Louisiana (correlative with the Beaumont Clay) were "dead" and older than 30,000 years. Oyster shells collected by the author from the relict lagoonal area north of Lake Charles, Louisiana, were likewise "dead" and were older than 40,000 years according to Dr. E. L. Martin, Shell Development Co., Exploration and Production Research Division, Houston, Texas. The shell material collected near Winnie by Professor W. H. Matthews was also "dead" and older than 37,000 years according to the Humble Oil and Refining Company (now Esso Production Research), Houston, Texas.

Deweyville Deposits of Bernard (1950)

The Deweyville deposits in Chambers and Jefferson Counties are found along the Trinity and Neches Rivers and are intermediate between the Beaumont Clay and the modern flood plain deposits of the two rivers.

These deposits were first mapped and described by H. A. Bernard (1950), in an unpublished doctoral dissertation. They were named for the community of Deweyville, in Newton County, Texas, about 12 miles north of Orange, Texas, where the deposits form a terrace flanking the Holocene flood plain of the Sabine River. On the Beaumont and Houston Sheets of the Geologic Atlas of Texas (Bureau of Economic Geology, 1968a and 1968b), the Deweyville deposits are identified as the Deweyville Formation.

Along the Neches River in Jefferson County, the Deweyville deposits form a single-level terrace north of the city of Beaumont. The deposits range from silty clay to very fine sand in some places and from very fine sand to coarse sand in others. The top of these deposits, which are at least 30 feet thick, is about 20 feet above sea level.

In Chambers County, the Deweyville deposits are on the eastern side of the Trinity River where they form at least three terrace levels ranging in altitude from 15 to 25 feet. As seen in road cuts, the deposits are clayey silts and silty sands. In several sand pits, the clayey silts and silty sands are underlain by very fine to coarse sand. Incomplete soil maps in the office of the U.S. Soil Conservation Service in Anahuac show that the higher terraces are underlain in many places by soils that are characteristic of the Beaumont Clay, and therefore may be considerably older than the deposits along the Neches River where a sequence of terraces is not present.

The age of the Deweyville deposits has been determined by radiocarbon methods for several localities outside of Chambers and Jefferson Counties. Aronow (1967) reported on samples from deposits along the Trinity, San Jacinto, and Sabine Rivers; and B. H. Slaughter (1965) reported on a sample, which the author interprets to be Deweyville, from deposits along the Trinity River. The dates of these samples range from 13,250 to 25,700 years. Bernard and Leblanc (1965, p. 149) give dates ranging from 17,000 to 30,000 years, but no localities are identified in their paper.

Holocene Deposits

Alluvial and Deltaic Deposits

The principal alluvial deposits of Holocene age are along the Neches River in Jefferson County, along the Trinity River in Chambers County, and in an extensive area along the coast. The principal deltaic deposits of Holocene age are at the mouth of the Trinity River. A map by Kane (1959) showing subsurface contours on top of the oxidized Pleistocene deposits (base of the Holocene) in the vicinity of Sabine Lake is included on Figure 23.

The geomorphology of the floodplains and deltas of the Holocene Trinity River has been worked out in some detail by Aten (1966a and 1966b), who distinguishes a sequence of five delta terminations. The sediments and the three-dimensional geometry of the most recent delta have been studied in detail by McEwen (1963), who divides the sediments of the delta into nine facies or genetic groups.

The modern delta of the Trinity began to form within the past 1,000 years. McEwen (1963, p. 93) reports that the two oldest radiocarbon dates of articulated *Rangia flexuosa* shells found in cores taken near the bottom of delta-front churned sands in the northwest part of the delta are 810 years and 750 years old.

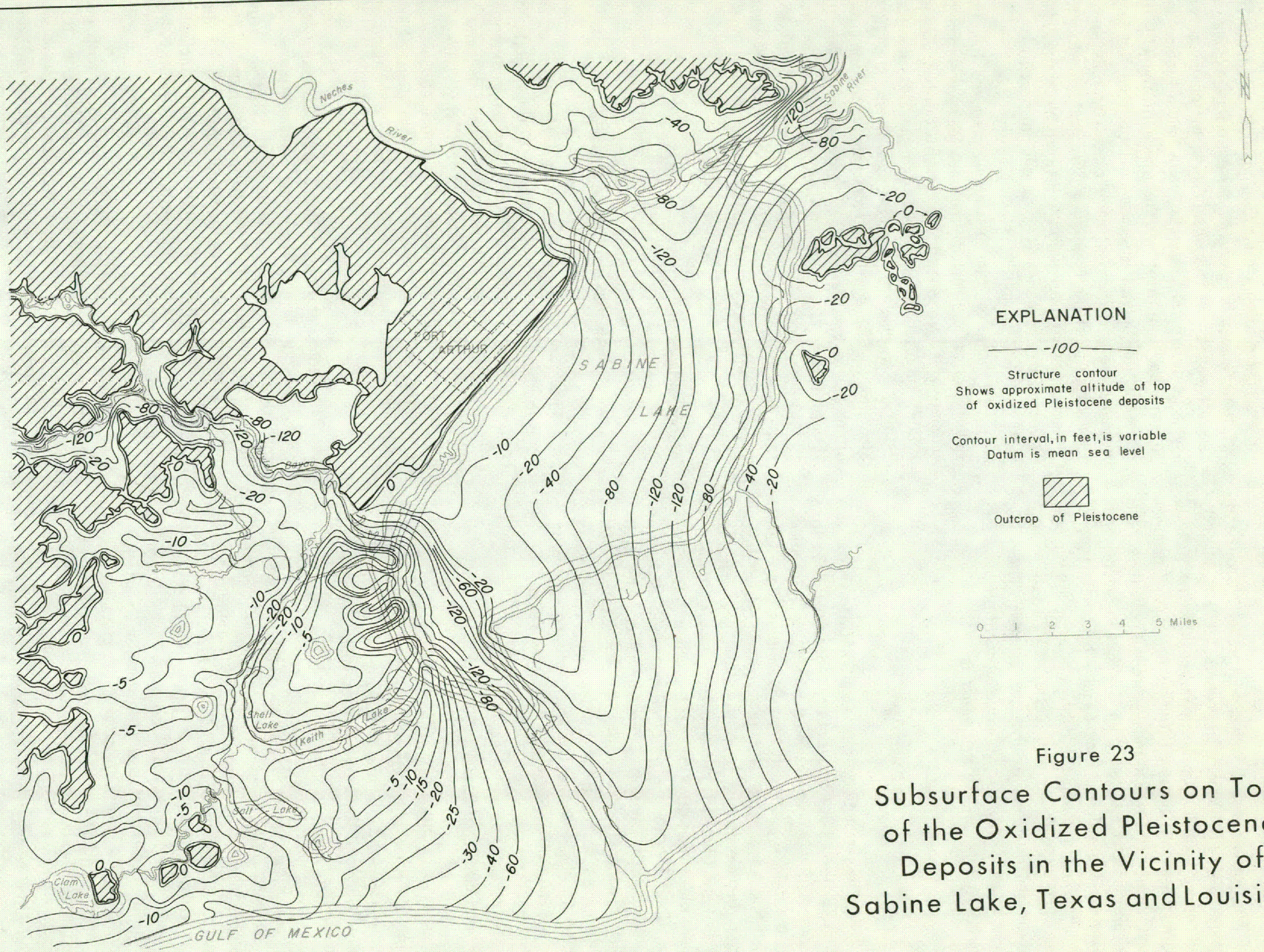

Figure 23
Subsurface Contours on Top of the Oxidized Pleistocene Deposits in the Vicinity of Sabine Lake, Texas and Louisiana

(From Kane, 1959)

Coastal Marsh, Mudflat, and Beach (Chenier) Deposits

The coastal marsh, mud flat, and beach (chenier) deposits along the southern margins of Chambers and Jefferson Counties are the most extensive of the Holocene deposits. The coastal marsh sediments underlie the low plains areas separated from the Gulf by the most recent beaches and include the deposits between relict beaches in the Sabine Pass area of Jefferson County (See Bernard and Leblanc, 1965, Figure 5). The mud flats are the areas of fine-grained sediments gulfward of the most recent beaches.

The surface features in the Sabine Pass area of Texas consist of low beach ridges and intervening relict mud flat or coastal marsh deposits. As can be seen on Figure 20, these arcuate beach ridges or cheniers, convex towards the present shoreline, merge to the southwest into a single beach along the present coast. The ridges, which are 3 to 8 feet in height and as much as 10 miles long, consist of very fine to fine sand with a highly variable shell content. The sand is similar in size to the Holocene beach sands of Galveston Island and Bolivar Peninsula to the west and to the cheniers in Louisiana to the east. (See Hsu, 1960, p. 381-384; Garner, 1967, p. 49-52, 57).

A number of wells, all less than 15 feet deep, have been developed in the beach and associated shell deposits.

Arcuate, fan-like arrangement of the beach ridges on the Texas side of Sabine Pass is more or less duplicated on the Louisiana side of the Pass. This arrangement undoubtedly indicates the gradual closing of the mouth of Sabine Lake by constriction of its southern connection with the Gulf. Originally, Sabine Lake must have been an open estuary of the Gulf. Kane (1959) in his study of the micro-fauna and sediments of Sabine Lake concludes that the micro-fauna, especially the foraminifers, found in the sediments beneath the lake "are similar to those of the present Gulf, indicating greater circulation of saline waters from the Gulf of Mexico before the south end of Sabine Lake was restricted".

Geologic History

The geologic history of the surface formations of Chambers and Jefferson Counties can be tied into the framework of the Pleistocene and Holocene history of the western Gulf Coast region as worked out by H. N. Fisk and his many associates. Later work and areal extensions of Fisk's concepts have been recently and excellently summarized in Bernard and LeBlanc (1965) which contains references to Fisk's many papers.

Fisk believed that the Pleistocene formations of Louisiana and Texas were all deposited as coast-wise terraces between the major stages of continental glaciations, with each successive Pleistocene formation being tilted gulfward. The amount of tilt was cumulative, so that the oldest formation has a considerably greater dip than the youngest.

The Montgomery Formation (with a regional slope of more than twice that of the Beaumont Clay) was deposited during the Sangamon Interglaciation; the Beaumont Clay, or Prairie Formation, was deposited during post-Sangamonian time. (See Fisk and McFarlan, 1955). The glacial stages were times of low sea level when the streams of the Gulf Coast entrenched their channels well below present-day sea level. Estimates of the lowering of sea level during the last glacial stage range from about 300 to 450 feet. The Trinity and Neches Rivers, during the last lowering of sea level, flowed over a 100-mile stretch of the then exposed continental shelf before discharging into the Gulf. (See maps in: Fisk and McFarlan, 1955, figure 4; Curray, 1965, figure 19a; Kane, 1959, figure 2). Kane's map of the oxidized zone at the top of the Beaumont Clay showed that the entrenched valleys of the Neches and Sabine Rivers joined under the present site of Sabine Lake (Figure 23). The sediments deposited since the beginning of the Holocene are those that lie above this marker horizon, which extends beneath the land areas and continues as an unconformity beneath the continental shelf. (See Bernard and LeBlanc, 1965, p. 150, 177-179; Curray, 1965, p. 733).

The time of the lowest sea level during the mid-Wisconsin has been estimated as more than 25,000 years ago by Bernard and LeBlanc (1965, p. 149) and about 18,000 years ago by Curray (1965, p. 723-724).

Sea level rose to its present level perhaps 3,000 to 5,000 years ago and has remained at about the same level. The various coastal features of Holocene age, seaward of the outcrop of the Beaumont Clay, are all less than 5,000 years old. Trinity Bay and Sabine Lake are essentially drowned valleys of the entrenched Pleistocene Trinity and Neches Rivers.

A few recent concepts and reformulations of the glacial stratigraphy and history of the midwestern United States have pointed up some areas where Fisk's theories seem to need revision; see Flint (1963), Frye and Willman (1960), Frye, Willman, and Black (1965), Frye and Leonard (1965), Curray (1965), Frye and Leonard (1953), Bernard and LeBlanc (1965), Durham (1965), Aten (1966a, 1966b), and Aronow (1967).

The Pleistocene history of the western Gulf Coast in general and of Chambers and Jefferson Counties in particular is far from worked out in detail, and much work remains to be done.

CONCLUSIONS AND RECOMMENDATIONS

Only small supplies of fresh ground water exist in the aquifers in Chambers and Jefferson Counties. Most of the fresh water used is surface water from the Trinity and Neches Rivers. Fifty-two percent of the ground water used is imported from neighboring counties. Large quantities of fresh ground water are available in adjoining counties and any large-scale demand for fresh ground water will likely be met by additional importation. Except for Beaumont's planned expansion of its well field in Hardin County, most future water needs will probably be met by surface-water supplies. Additional small fresh water supplies can be developed in Chambers and Jefferson Counties, but this development should be preceded by a careful program of testing and evaluation.

To fully utilize available ground water, the observation-well program in Chambers and Jefferson Counties to obtain data on both quality of water and water levels should not only be continued, but expanded and combined with the programs in adjacent counties. At present, the observation-well program in Chambers and Jefferson Counties covers only parts of the area. The expansion of this program should consider the planned increase of pumpage in Hardin County as well as anticipated increases in other counties. New wells should be continually inventoried, and aquifer tests should be made on the new wells to obtain additional information on the hydraulic properties of the aquifers. Collection of water samples should be expanded to monitor salt movement in all areas. Detailed observation of water levels and water quality in the vicinity of the salt domes, particularly in the vicinity of Mont Belvieu, is needed in order to more precisely define and predict the movement of water in these areas of salinization.

Subsidence, as related to ground-water production, is, and will likely remain, a minor problem because additional development will probably be limited. Water levels will probably continue to be lowered by pumping in adjacent counties. However, data derived from measurements of subsidence when used with geologic and hydrologic data are useful in determining maximum water availability. This type of data has been used in the construction of analog models in this area. Also, knowledge of amount and rate of subsidence is important in planning surface drainage and water transfer facilities. Thus, an expanded program for measuring subsidence is needed in Chambers and Jefferson Counties. Further delay in starting such a program may prevent accurate determination of total subsidence and rates of subsidence. An enlarged network of bench marks should be established and leveled periodically. This program should be in conjunction with the program for the collection of water-level and pumpage records, so that correlations of cause and effect of subsidence can be made in the future.

Electrical-analog models are useful in the evaluation of aquifers. Such a model has been completed for the aquifers of the Houston district (Wood and Gabrysch, 1965). A preliminary model of the Chicot and Evangeline aquifers in southeast Texas and southwest Louisiana, including Chambers and Jefferson Counties, has been constructed. The program recommended above will provide data that could be used to improve the models and aid in the proper planning and development of the ground-water resources of Chambers and Jefferson Counties.

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Table 4.--Records of Wells in Chambers and Jefferson Counties and Adjacent Areas

All wells are drilled unless otherwise noted in remarks column.

Water level : Reported water levels given in feet; measured water levels given in feet and tenths.

Method of lift and type of power : A, airlift; C, cylinder; Cf, centrifugal; E, electric; G, gasoline, butane, or diesel engine; H, hand; J, jet; N, none; T, turbine; W, wind.

Use of water : D, domestic; Ind, industrial; Irr, irrigation; N, none; P, public supply; S, livestock.

Water-bearing unit : C, Chicot aquifer; CL, Lower unit of Chicot aquifer; CU, Upper unit of Chicot aquifer; E, Evangeline aquifer.

WELL	PREVIOUS WELL NUMBER	OWNER	DRILLER	DATE COM-PLET-ED	DEPTH OF WELL (FT)	CASING DIAM-ETER OF WELL (IN.)	CASING INTERVAL (FT)	SCREEN INTER-VAL(S) (FT)	WATER BEAR-ING UNITS(S)	SUR-FACE ELEVA-TION (FT)	WATER LEVEL REFERRED TO LAND SURFACE (FT)	WATER LEVEL DATE OF MEASUREMENT	METHOD OF LIFT	USE OF WATER	REMARKS
							Chambers County								
DH-64-01-803	147	British-Texas Oil Co.	--	1956	9,204	--	--	--	--	40		--	--	--	Oil test.
* 804	A- 1	O.K. Barber	--	Old	40	4	0- 40	--	CU	43	- 2.6	Mar. 26, 1941	N	N	Destroyed.
* 805	A- 2	J.R. Barber	--	Old	35	8	0- 35	--	CU	43	- 3.5	do	C,W	D,S	
* 901	A- 5	T. Fitzgerald	Amos Jennische	1931	55	6	0- 52	None	CU	44	- 3.2	Mar. 10, 1941	N	N	Destroyed.
* 902	--	J.M. Benson	--	1964	185	4	0- 185	175- 185	CU	44	- 37.5	Jan. 7, 1965	T,E	D,S	
903	--	do	J.M. Benson	Old	20	36	0- 20	--	CU	44	+ 1.0	Jan. 7, 1966	C,W	S	Dug well.
* 904	--	M.M. Miller	--Becker	1965	252	4	0- 252	242- 252	CU	44	- 72.0	Jan. 10, 1966	T,E	D,S	
* 02-801	B- 5	R.C. Lawrence	R.C. Lawrence	1931	47	6	0- 47	--	CU	34	- 25.9	Mar. 14, 1941	C,H	D,S	Cement tile casing. Bored well.
* 802	B- 6	J.D. Franssen	--	1931	100	4 2	0- 50 50- 100	88- 100	CU	34	- 26.5	Mar. 14, 1941	C,H	D,S	
* 803	B- 7	J.B. Green	J.B. Green	1940	39	6	0- 33	None	CU	33	- 31.4	do	N	N	Cement tile casing. Bored well.
804	B- 8	L. Dugat	James Jennische	1948	102	2	0- 102	92- 102	CU	33	- 35	Apr. 1948	N	N	Destroyed.
* 03-704	B- 10	Mrs. J.C. McManus	--McManus	1926	25	1 1/2	0- 25	22- 25	CU	17	- 10.7	July 1, 1941	N	N	Bored well.
* 805	B- 11	U.S. Dept. of Agriculture	J.F. Abshier	1937	96	4	0- 96	--	CU	36	- 28.3	Apr. 1, 1941	C,W	S	
* 04-701	C- 1	Irene Lewis	George Lewis	1941	38	1 1/4	0- 38	None	CU	34	- 21.3	Apr. 30, 1941	N	N	Destroyed. Reported fine sand from 15-38 ft.
* 703	C- 3	U.S. Dept. of Agriculture	J.F. Abshier	1937	100	2	0- 100	90- 100	CU	34	- 2.6	Apr. 15, 1941	N	N	
* 709	C- 2	Gulf Oil Co.	Gulf Oil Co.	1930	198	6	0- 147	126- 147	CU	35	--	--	N	N	1/

See footnotes at end of table.

Table 4.--Records of Wells in Chambers and Jefferson Counties and Adjacent Areas--Continued

WELL	PREVIOUS WELL NUMBER	OWNER	DRILLER	DATE COM-PLET-ED	DEPTH OF WELL (FT)	CASING DIAM-ETER OF WELL (IN.)	CASING INTERVAL (FT)	SCREEN INTER-VAL(S) (FT)	WATER BEAR-ING UNITS(S)	SUR-FACE ELEVA-TION (FT)	WATER LEVEL REFERRED TO LAND SURFACE (FT)	WATER LEVEL DATE OF MEASUREMENT	METHOD OF LIFT	USE OF WATER	REMARKS
*DH-64-04-801	C- 4	Ben Weaver	J.F. Abshier	1936	340	6, 2	0- 40 40- 340	-- 280- 340	CL	36	- 8.0	Apr. 30, 1941	C,W	S	
* 05-702	D- 1	F.W. Plummer	--	1933	527	6	0- 527	515- 527	CL	37	- 16.4	May 16, 1941	N	N	
* 801	D- 2	G.C. Bond	--	1940	46	5	0- 46	None	CU	33	- 3.7	do	N	N	Bored well. Reported to have been completed in oyster shell.
09-202	A- 35	Ed Ulrich	Ed Ulrich	1931	25	6	--	--	CU	38	- 1.6	Mar. 26, 1941	N	N	Destroyed. Bored well.
* 203	A- 36	Jerry Ulrich	Jerry Ulrich	1939	36	4	0- 36	--	CU	26	- 8.4	Mar. 7, 1941	N	N	Wood casing. Bored well.
* 206	--	H.N. Nelson	--Jennings	1959	454	4	0- 435	425- 435	CL	40	-121.7	Jan. 7, 1966	T,E	D,S	
* 301	--	Chambers County Water Control & Improvement Dist. no. 1, well 5	Layne-Texas Co.	1958	530	10, 6	0- 400 298- 530	405- 470 485- 520	CL	43	-117.7	Oct. 27, 1966	T,E	P,S	Stainless steel .045 guage screen. Water sampled at: 442-457; 405-520 ft. 1/
* 302	--	Chambers County Water Control & Improvement Dist. no. 1, well 4	do	1957	531	10, 6	0- 414 309- 531	418- 475 478- 521	CL	43	-118.2	do	T,E	P,S	Test hole drilled to 1,250 ft, plugged back to 531 ft. Water sampled at: 458-472; 502-518; 705-720; 757-772; and 418-521 ft. Gravel-packed. 26-in. underreamed. 1/ 2/
303	--	Diamond Alkali Co.	do	1948	250	8	--	--	C	48	- 71.3 - 40.8	Nov. 13, 1959 Dec. 23, 1965	T,E	Ind	Gravel-packed.
304	--	do	do	1947	280	8	--	--	C	48	--	--	T,E	Ind	Test hole drilled and logged to 712 ft; plugged back to 280 ft.
* 305	--	Diamond Alkali Co. well 4	do	1956	1,255	18, 10	0- 727 619-1,255	735- 765 840- 860 913- 918 1,003-1,013 1,089-1,109 1,139-1,165 1,180-1,190 1,225-1,235	Ev	28	-101.8 -141.1	Nov. 13, 1959 Oct. 12, 1966	T,E	Ind	Test hole drilled to 1,417 ft. Water sampled at: 857-870; 1,147-1,167; 735-1,235 ft. 1/ 2/

See footnotes at end of table.

Table 4.--Records of Wells in Chambers and Jefferson Counties and Adjacent Areas--Continued

WELL	PREVIOUS WELL NUMBER	OWNER	DRILLER	DATE COM-PLET-ED	DEPTH OF WELL (FT)	CASING DIAM-ETER OF WELL (IN.)	CASING INTERVAL (FT)	SCREEN INTER-VAL(S) (FT)	WATER BEAR-ING UNITS(S)	SUR-FACE ELEVA-TION (FT)	WATER LEVEL REFERRED TO LAND SURFACE (FT)	WATER LEVEL DATE OF MEASUREMENT	METHOD OF LIFT	USE OF WATER	REMARKS
*DH-64-09-306	--	Warren Petroleum Co.	Layne-Texas Co.	1958	1,474	18, 10	0-1,050 950-1,474	1,073-1,100 1,155-1,185 1,200-1,225 1,255-1,265 1,399-1,460	Ev	32	- 96	Feb. 12, 1958	T,E	Ind	Gravel-packed. Test hole drilled to 1,626 ft. Water sampled at: 791-808; 1,207-1,222; 1,425-1,440; 1,060-1,462 ft. 1/
* 307	--	Diamond Alkali Co. well 3	do	1951	922	14, 8	0- 705 610- 922	720- 750 760- 770 800- 820 830- 860 890- 910	Ev	27	- 85 -130.5 -130.0	Sept. 14, 1951 May 21, 1966 Oct. 12, 1966	T,E	Ind	Gravel-packed. Test hole drilled 1,200 ft. 1/
308	--	do	do	--	149	4	--	--	CU	31	- 18.6	May 27, 1966	N	N	Supplied water to drill DH-64-09-307.
309	--	--	--	--	149	3	0- 149	--	CU	30	- 19.7	do	N	N	Oil rig supply well. Abandoned.
* 310	A- 18	Chambers County Water Control & Improvement Dist. no. 1	Layne-Texas Co.	1949	226	16, 8	--	77- 93 170- 205	CU	48	- 74	July 1949	N	N	1/
* 311	A- 3	Max Brown	Amos Jennische	1927	185	4, 2	0- 60 60- 185	179- 185	CU	45	- 30.4	Apr. 2, 1941	N	N	
* 312	A- 4	do	do	1939	250	4, 2	0- 60 60- 250	240- 250	C	44	- 23.3	do	N	N	
* 313	A- 6	J.M. Davis	do	1932	50	6	0- 50	None	CU	45	- 2.0 - 4.9	Mar. 10, 1941 Jan. 6, 1966	Cf,E	D,S	Well cycling at time of 1966 measurement.
* 314	A- 15	Asa Wilburn	do	1919	156	4, 2	0- 40 40- 156	146- 156	CU	45	- 29.4	Apr. 8, 1941	J,G	D,S	Reported sand 136-156 ft. 1/
* 315	A- 28	Chambers County Water Control & Improvement Dist. no. 1	Layne-Texas Co.	1949	340	16, 8	--	224- 244 304- 334	CL	47	- 78	July 1949	N	N	1/
* 316	A- 17	Sun Oil Co.	Sun Oil Co.	1929	626	6, 5	0- 569 534- 626	--	Ev(?)	40	--	--	N	N	Reported 45 ft of brass screen between 569 and 626 ft. 1/
318	A- 20	Crumpler Bros.	Homer Wright	1935	254	9, 6	--	--	C	55	- 50.2 - 82.5	Mar. 31, 1941 Apr. 5, 1956	--	--	Destroyed. 1/ 3/
319	A- 21	do	do	1934	603	9	0- 520	--	Ev(?)	55	- 43.2 - 79.6	Mar. 31, 1941 Apr. 9, 1957	N	N	Destroyed. 1/ 3/

See footnotes at end of table.

Table 4.--Records of Wells in Chambers and Jefferson Counties and Adjacent Areas--Continued

WELL	PREVIOUS WELL NUMBER	OWNER	DRILLER	DATE COMPLETED	DEPTH OF WELL (FT)	CASING: DIAMETER OF WELL (IN.)	CASING: INTERVAL (FT)	SCREEN INTERVAL(S) (FT)	WATER BEARING UNITS(S)	SURFACE ELEVATION (FT)	WATER LEVEL: REFERRED TO LAND SURFACE (FT)	WATER LEVEL: DATE OF MEASUREMENT	METHOD OF LIFT	USE OF WATER	REMARKS
DH-64-09-320	A- 22	Crumpler Bros.	--	1934	250	4	0- 250	--	C	55	- 67.8	Mar. 1, 1948	N	N	
* 321	A- 23	do	Homer Wright	1938	304	7	0- 304	282- 304	CL	55	- 73	1938	N	N	1/
* 322	A- 33	O.K. Winfree	--	1910	59	4	0- 55	None	CU	52	- 31.3	Mar. 26, 1941	C,W	D,S	
* 323	A- 34	Atlantic Refining Co.	Atlantic Refining Co.	1938	500	5	0- 500	--	CL	45	--	--	C,W	D,S	
* 324	A- 30	J.O. Stockbridge	C.A. Williams	1927	314	--	0- 314	--	CL	60	--	--	C,E	D,S	1/
* 325	A- 31	Kirby Petroleum Co.	--	Old	66	10	--	--	CU	60	- 38.6	Mar. 26, 1941	N	N	
* 326	A- 32	Chambers County	--	1940	18	6	--	--	CU	44	- 6.2	Mar. 7, 1941	N	N	Reported cased with tin. Bored well.
327	A- 19	Crumpler Bros.	Homer Wright	1935	281	6	0- 281	198- 240	C	50	- 50.5	Mar. 31, 1941	N	N	1/
* 328	A- 26	Tillman Fitzgerald	Amos Jennische	1925	510	4, 2	0- 60 60- 510	500- 510	CL	60	- 38.9 - 58.4	Apr. 8, 1941 Oct. 26, 1948	N	N	1/
* 329	A- 24	Temple Fitzgerald	do	1914	217	4, 2	0- 40 40- 217	207- 217	CU	60	- 56.5	Apr. 8, 1941	N	N	1/
330	163	The Texas Co.	--	1955	--	--	--	--	--	45	--	--	--	--	Oil test. 2/
331	155	Sunray Midcontinent Oil Co.	--	1959	--	--	--	--	--	59	--	--	--	--	Do.
332	166	Humble Oil & Refining Co.	--	1966	--	--	--	--	--	60	--	--	--	--	Do.
333	116	Anderson & Fullilove Petroleum well 1	--	1963	--	--	--	--	--	--	--	--	--	--	Do.
334	119	Kraftex Enterprise	--	1951	--	--	--	--	--	31	--	--	--	--	Do.
* 601	E- 4	L.P. & Carl Smith	Amos Jennische	1934	271	4, 2	--	261- 271	C	31	- 12	Mar. 1940	N	N	Brass screen.
* 603	E- 5	K.M. Fitzgerald	do	1919	368	4, 2	0- 40 40- 368	353- 368	CL	22	- 41.4	Apr. 2, 1941	N	N	
604	--	D.E. Abbe	--Becker	1959	385	--	0- 385	--	CL	31	--	--	T,E	P,S	Supplied water for 24 houses in 1966.
* 605	E- 26	Bud Donnelly	D.D. Proctor	1936	48	8	0- 48	None	CU	27	- 17.3	Mar. 4, 1941	N	N	Bored well.

See footnotes at end of table.

Table 4.--Records of Wells in Chambers and Jefferson Counties and Adjacent Areas--Continued

WELL	PREVIOUS WELL NUMBER	OWNER	DRILLER	DATE COMPLETED	DEPTH OF WELL (FT)	CASING: DIAMETER OF WELL (IN.)	CASING: INTERVAL (FT)	SCREEN INTERVAL(S) (FT)	WATER BEARING UNIT(S)	SURFACE ELEVATION (FT)	WATER LEVEL: REFERRED TO LAND SURFACE (FT)	WATER LEVEL: DATE OF MEASUREMENT	METHOD OF LIFT	USE OF WATER	REMARKS
*DH-64-09-606	E- 8	Antone Busch	Amos Jennische	1912	365	2	0- 365	343- 365	CL	31	- 45.7	Apr. 5, 1941	N	N	Drilled to 490 ft; plugged back to 365 ft. Produced black water.
* 607	E- 9	H.G. Kilgore	do	1929	365	4, 2	0- 40 40- 365	350- 365	CL	28	- 45.8	Apr. 2, 1941	N	N	Copper screen. Reported coarse sand from 345 to 365 ft.
* 608	E- 10	R.E. Henerson	R.E. Henerson	1937	22	8	0- 22	--	CU	32	- 1.1	Mar. 27, 1941	N	N	Casing perforated from 9 to 14 ft. Bored well.
* 609	E- 11	Austin Busch	--	Old	35	36	--	--	CU	31	- 1.5	do	N	N	Brick wall casing. Dug well.
* 610	E- 22	J.C. Donnelly	--Donnelly	1895	305	3, 2	0- 40 40- 305	285- 305	CL	27	+ 30 - 42.5	1895 Apr. 2, 1941	J,G	D,S	
611	E- 24	C. Airington	--	--	350	3	--	--	CL	28	- 67.7	Mar. 1, 1948	N	N	
* 612	E- 25	do	Amos Jennische	1915	340	3	0- 90	--	CL	28	- 44.6	Apr. 2, 1941	N	N	
613	--	Humble Oil & Refining Co.	Lowery Water Wells	1964	140	4, 2	0- 131 130- 140	130- 140	CU	31	- 29	May 22, 1964	T,E	D,Ind	1/
614	--	Coastal Land Development Co.	--Becker	1964	351	4	0- 351	340- 350	CL	31	--	--	T,E	P,S	Supplied water for 6 houses in 1966.
* 615	E- 23	J.H. Williams	Amos Jennische	1910	348	3, 2	0- 150 150- 348	328- 348	CL	27	- 42.6 - 66.1	Mar. 27, 1941 Oct. 26, 1948	C,W	D,S	
* 616	--	Ethel W. Gilbert	--Becker	1962	160	4	0- 160	--	CU	38	--	--	T,E	D	Drilled to 330 ft, struck sulphur water; plugged back to 160 ft.
901	E- 52	S.R. Williams	--	1946	387	4	--	--	CL	15	- 47.7 -101.9	Mar. 1, 1948 Mar. 16, 1967	N	N	Supplied water for oil test. 3/
* 903	--	John Nelson	Katy Drilling Co.	1955	945	20, 12	0- 323 323- 945	--	CL, E	29	- 97 -108.1 -120.8	1955 Nov. 9, 1959 May 22, 1966	T,G	Irr	494 ft of slotted pipe. Gravel-packed. Test hole drilled to 1,035 ft. 1/
* 904	E- 50	Iva Lee Kilpatrick	Amos Jennische	1940	85	3, 2	0- 40 40- 85	79- 85	CU	18	- 10.2	Apr. 5, 1941	N	N	Reported coarse sand from 70-85 ft. Destroyed in 1941.
* 907	E- 27	F.M. Fitzgerald	--	1927	336	4, 2	0- 50 50- 336	221- 336	CL	26	- 44.8	Apr. 2, 1941	N	N	
* 909	E- 29	Alvin Banks	James Jennische	1945	347	3, 2	--	337- 347	CL	15	- 55	1945	N	N	Cased to bottom.

See footnotes at end of table.

Table 4.--Records of Wells in Chambers and Jefferson Counties and Adjacent Areas--Continued

WELL	PREVIOUS WELL NUMBER	OWNER	DRILLER	DATE COM-PLET-ED	DEPTH OF WELL (FT)	CASING		SCREEN INTER-VAL(S) (FT)	WATER BEAR-ING UNITS(S)	SUR-FACE ELEVA-TION (FT)	WATER LEVEL		METHOD OF LIFT	USE OF WATER	REMARKS
						DIAM-ETER OF WELL (IN.)	INTERVAL (FT)				REFERRED TO LAND SURFACE (FT)	DATE OF MEASUREMENT			
*DH-64-09-910	E- 30	S.R. Williams	C.A. Williams	1931	200	4, 2	0- 60 60- 200	180- 200	CU	15	- 7.1 - 10.3	Mar. 6, 1941 Mar. 1, 1948	N	N	
* 911	E- 31	G.E. Troxell	Amos Jennische	1934	292	4, 2	0- 40 40- 292	276- 292	C	22	- 25	1934	C,W	D,S	
* 912	E- 32	J.N. Nelson	do	1934	282	4, 3	0- 40 40- 282	262- 282	C	21	- 15.5	Apr. 2, 1941	C,E	D,S	
* 913	E- 51	S.R. Williams	C.A. Williams	1933	375	4, 2	0- 60 60- 375	357- 375	CL	15	- 33.2 - 14.1	Mar. 4, 1941 Oct. 6, 1948	N	N	
914	E- 53	James Frymire	James Jennische	1947	378	3, 2	--	363- 378	CL	15	- 58	Nov. 1947	J	D	
* 915	E- 54	J.W. Frymire	J.W. Frymire	--	70	6	0- 70	None	CU	15	- 20.4	Mar. 4, 1941	C,H	S	
* 916	--	Cedar Bayou Subdivision	--	1954	387	4	--	--	CL	21	--	--	T,E	P,S	Supplied water for 20 houses in 1966.
917	--	Carl T. Staples	--Novak	1959	365	4	0- 365	345- 365	CL	27	-121	1966	T,E	P,S	Supplied water for 12 houses in 1966.
* 918	--	Houston Lighting and Power Co.	--	1967	1,375	--	--	--	--	15	--	--	--	--	Test hole. Water sampled at: 564-587; 778-801; 1,024-1,047; 1,256-1,279 ft. 1/ 2/
* 919	--	do	--	1967	1,208	--	--	--	--	20	--	--	--	--	Test hole. Water sampled at: 344-367; 383-406; 845-868; 920-943; 1,061-1,084; 1,173-1,196 ft.
920		Schilling #12	Texaco, Inc.	1961	7,219	--	--	--	--	29	--	--	--	--	Oil test. 2/
* 10-101	A- 7	O.E. Barber	O.E. Barber	1908	21	4	0- 21	None	CU	38	- 4.5 - 8.4	Mar. 14, 1941 Jan. 10, 1966	C,H	S	Reported fine sand at 21 ft. Cased to botton. Bored well.
* 103	A- 9	Doyle Green	James Jennische	1945	430	2	0- 430	420- 430	CL	39	- 50	1945	J,N	N	
* 104	A- 10	Jim Green	--	--	25	3	--	--	CU	39	- 2.3	Mar. 14, 1941	N	N	Bored well. Destroyed.
* 105	A- 11	Curtis McKinney	James Jennische	1946	300	2	0- 300	290- 300	C	39	- 30	1946	J,E	D,S	
* 106	A- 13	Frank Steadham	C.A. Williams	1940	60	4	0- 60	34- 40 54- 60	CU	36	- 29.0	Mar. 14, 1941	C,W	D,S	Casing perforated.
* 107	A- 12	H.B. Rice	Amos Jennische	1937	125	4, 2	0- 70 70- 125	115- 125	CU	16	- 23.8	do	C,H	D,S	Sand reported from 102 to 125 ft.
* 109	--	W.U. Sutton	Williams & Tolleson	1959	460	3	0- 460	450- 460	CL	40	- 90	1965	J,E	D	

See footnotes at end of table.

Table 4.--Records of Wells in Chambers and Jefferson Counties and Adjacent Areas--Continued

WELL	PREVIOUS WELL NUMBER	OWNER	DRILLER	DATE COM-PLET-ED	DEPTH OF WELL (FT)	CASING		SCREEN INTER-VAL(S) (FT)	WATER BEAR-ING UNITS(S)	SUR-FACE ELEVA-TION (FT)	WATER LEVEL		METHOD OF LIFT	USE OF WATER	REMARKS
						DIAM-ETER OF WELL (IN.)	INTERVAL (FT)				REFERRED TO LAND SURFACE (FT)	DATE OF MEASUREMENT			
DH-64-10-110	--	W.U. Sutton	--Whitley	1963	75	2	0- 75	--	CU	40	- 30	1963	C,W	D	
* 202	B- 2	D.T. Dugat	Mike Redland	1939	120	3, 2	--	112- 120	CU	36	- 27.3	Mar. 5, 1941	C,H	D,S	Copper screen.
* 203	B- 3	Bill Dillard	Bill Dillard	1937	68	5	--	--	CU	32	- 25.7	do	N	N	Wood casing. Bored well.
* 204	B- 4	Chambers County	--	1937	32	6	0- 32	18- 32	CU	32	- 18.1	Mar. 5, 1941	N	N	Bored well.
* 205	B- 31	Will Icet	Amos Jennische	1913	492	2	0- 492	482- 492	CL	33	- 26.1	Apr. 8, 1941	C,H	D,S	Reported flow 25,000 gpd when drilled. 1/
* 206	B- 32	H.C. Icet	C.A. Williams	1926	370	4, 2	0- 80 80- 370	350- 370	CL	30	- 10 - 22	1926 1940	C,G	D,S	1/
207	B- 33	Q. Icet	do	1925	540	4, 2	--	--	E?	31	- 25.0 - 26.4 - 27.1	Mar. 1, 1949 Oct. 15, 1951 Oct. 16, 1953	N	N	
208	B- 34	Mrs. --Wallace	do	1926	175	4, 2	0- 60 60- 175	155- 175	CU	33	- 20 - 26.0	1927 Mar. 5, 1941	N	N	Abandoned.
* 209	B- 30	Pure Oil Co.	do	Old	500	5, 3	0- 480 480- 500	480- 500	CL	12	- 7.4	Apr. 18, 1941	N	N	Reported flowed when drilled and made small amount of natural gas.
302	B- 24	Mayes Estate	Texas Highway Department	1941	148	--	--	--	CU	4	--	--	--	--	Highway inspection test hole. Flowed from 108 ft. Destroyed. 1/
303	--	Bridge Fishing Camp	--	1960	39	2	0- 39	31- 39	CU	8	- 3	1966	Cf,E	D,S	Reported water salty below 40 ft.
401	--	Finger Furniture Co.	Katy Drilling Co.	1955	871	20, 12	0- 317 317- 871	-- 330- 871	CL,E	37	- 86 -110.7	Apr. 5, 1955 Mar. 16, 1967	N	N	1/ 3/
* 402	E- 12	Kirby Petroleum Co.	A. Wolf	1938	26	2	--	--	CU	31	- 1.3	Mar. 28, 1941	C,H	D,S	Tin casing. Gravel-packed. Bored well.
* 403	E- 13	C.D. Harman	Amos Jennische	1939	125	4, 2		115- 125	CU	26	- 18 - 23.7	1939 Oct. 13, 1955	J,E	D,S	3/
404	E- 14	C.O. Williams	C.A. Williams	--	125	4	0- 125	--	CU	25	- 17.3	Oct. 5, 1948	J,E	D	
* 405	E- 15	do	Jim Avera	1936	488	4, 3, 2	0- 120 120- 478 478- 488	478- 488	CL	26	- 8 - 15.9	1936 Mar. 5, 1941	C,G	D,S	1/
406	E- 16	Jack Rosenau	do	1936	149	4	0- 149	143- 149	CU	26	- 20 - 16.4	1936 Apr. 9, 1941	N	N	Abandoned, 1941. 1/

See footnotes at end of table.

Table 4.--Records of Wells in Chambers and Jefferson Counties and Adjacent Areas--Continued

WELL	PREVIOUS WELL NUMBER	OWNER	DRILLER	DATE COMPLETED	DEPTH OF WELL (FT)	CASING: DIAMETER OF WELL (IN.)	CASING: INTERVAL (FT)	SCREEN INTERVAL(S) (FT)	WATER BEARING UNITS(S)	SURFACE ELEVATION (FT)	WATER LEVEL: REFERRED TO LAND SURFACE (FT)	WATER LEVEL: DATE OF MEASUREMENT	METHOD OF LIFT	USE OF WATER	REMARKS
*DH-64-10-407	E- 17	K.D. Carmody	Jim Avera	1937	150	--	--	--	CU	25	- 20	1937	C,W	D,S	
* 408	E- 18	Ben Dutton	Amos Jennische	1933	143	4, 2		132- 142	CU	31	- 18 - 17.3	1933 Mar. 5, 1941	C,W	D,S	1/
* 409	E- 19	do	C.A. Williams	1926	183	4, 2	0- 60 60- 183	163- 183	CU	32	- 30	1926	N	N	
* 410	E- 20	Texas Progress Co.	Amos Jennische	1933	175	4, 2		165- 175	CU	34	- 20 - 23.4	1933 Apr. 9, 1941	N	N	
* 411	--	Aztec Brick Co.	--	1960	160	4	0- 160	--	CU	31	--	--	T,E	D,Ind	
501	--	C.T. Joseph, Jr.	Katy Drilling Co.	1957	912	18, 12	0- 310 310- 912	310- 912	CL,E	33	- 70.6 - 40.2	July 18, 1957 Apr. 7, 1966	N	N	Caved well. 1/ 3/
* 502	--	Texas Eastern Transport Co.	Layne-Texas Co.	1957	511	8, 4	0- 475 475- 511	480- 500	CL	32	- 94.6	Oct. 3, 1966	T,E	Ind, P	Supplies water for 6 houses and compressor station.
* 503	F- 1	Luther J. Oman	Amos Jennische	1933	120	4, 2	--	110- 120	CU	26	- 21 - 20.9	1933 Mar. 5, 1941	C,H	D,S	
504	F- 3	Ernest Winfree	do	1918	222	4, 2	0- 40 40- 222	212- 222	CU	26	- 20 - 24.0	Mar. 1918 Apr. 8, 1941	N	N	Abandoned. 1/
* 505	F- 4	J.B. Wilburn Estate	--	1916	29	24	0- 29	None	CU	12	- 10	Mar. 25, 1941	N	N	Cased to bottom with brick. Dug well.
* 506	F- 5	C.J. Wilburn	James Jennische	1947	294	3, 2	--	284- 294	C	27	- 29	Mar. 1947	J,E	D	
* 507	F- 8	Arnold McKay	do	1947	220	3, 2	--	210- 220	C	25	- 28	June 1947	J,E	D	
* 508	F- 7	R.F. McKay	--	1928	100	4	0- 100	None	CU	30	--	--	N	N	
* 509	F- 6	C.J. Wilburn	C.J. Wilburn	1937	37	4	0- 37	None	CU	27	- 20.1	Mar. 25, 1941	C,H	D,S	Tile casing. Bored well.
* 510	F- 9	W.B. McKay	C.A. Williams	1927	126	4, 2	0- 60 60- 126	106- 126	CU	25	--	--	C,W	D,S	
* 511	F- 11	Hugh Welch	Jim Avera	1935	501	4, 2	0- 65 65- 501	489- 501	CL	30	- 17 - 25.6	1935 Apr. 18, 1941	C,H	D,S	1/
512	F- 12	C.T. Joseph Estate	Amos Jennische	1910	508	2	0- 508	488- 508	CL	30	+	1910	N	N	Flowed when drilled. Destroyed. 1/
* 513	F- 13	W.M. Joseph	do	1937	125	2	0- 125	107- 125	CU	25	- 33 - 27.1	1937 Apr. 8, 1941	A,G	D,S	Copper screen.
514	F- 14	Mayes Estate	Texas Highway Dept.	1941	46	--	--	--	CU	23	--	--	N	N	Uncased. Highway inspection test hole. 1/

See footnotes at end of table.

Table 4.--Records of Wells in Chambers and Jefferson Counties and Adjacent Areas--Continued

WELL	PREVIOUS WELL NUMBER	OWNER	DRILLER	DATE COMPLETED	DEPTH OF WELL (FT)	CASING: DIAMETER OF WELL (IN.)	CASING: INTERVAL (FT)	SCREEN INTERVAL(S) (FT)	WATER BEARING UNITS(S)	SURFACE ELEVATION (FT)	WATER LEVEL: REFERRED TO LAND SURFACE (FT)	WATER LEVEL: DATE OF MEASUREMENT	METHOD OF LIFT	USE OF WATER	REMARKS
DH-64-10-515	F- 15	Mayes Estate	Texas Highway Dept.	1941	80	--	--	--	CU	3	--	--	N	N	Uncased. Highway inspection test hole.
* 516	F- 10	C.T. Joseph Estate	Jim Avera	1936	512	4, 2	0- 69 69- 512	502- 512	CL	33	- 29.6	Apr. 18, 1941	C,W	D,S	10-gage brass screen. 1/
* 518	--	Billy Wood	--Noack	1963	186	4	0- 186	--	CU	33	--	--	T,E	D	
602	F- 21	Chas. Lawrence	Amos Jennische	1911	396	2	0- 396	376- 396	CL	3	+	Mar. 31, 1941	C,W	S	Flowed when drilled.
* 702	E- 38	Texas Oil & Gas Co.	Homer Wright	1938	475	5	0- 475	453- 475	CL	32	- 43.4 -106	Apr. 19, 1941 Sept. 1965	T,E	D,S	1/ 3/
703	E- 39	V.A. Lawrence	Pitre Water Wells	1938	443	4	0- 443	422- 443	CL	31	- 38 -100.5	Oct. 1938 Mar. 16, 1967	N	N	Used for drilling oil wells. 1/ 3/
* 704	E- 37	do	--	Old	556	3	0- 556	--	CL	35	- 40	1937	C,G	D,S	Sand from 536-556. Flowed until 1910.
* 705	E- 34	Mrs. Philip Howard	--	Old	18	22	--	--	CU	36	- 0.8	Mar. 21, 1941	N	N	Bored well.
* 706	E- 36	A.B. Lawrence	James Jennische	1946	574	4	0- 574	554- 574	CL	35	- 81	1947	J,E	D	
* 707	E- 41	V.A. Lawrence	Luther Patterson	1939	429	4	0- 429	407- 429	CL	27	- 38 - 36.7	Oct. 1939 Mar. 28, 1941	N	N	Used for drilling oil tests. 1/
710	E- 49	C.V. Lawrence	Homer Wright	--	400	4	0- 400	--	CL	34	- 23.3	Apr. 16, 1941	N	N	Used for drilling oil tests.
* 711	--	Houston Lighting and Power Co.	--	--	1,355	--	--	--	--	24	--	--	--	--	Test hole. Water sampled at: 620-643; 801-824 ft. 2/
* 801	F- 24	Amos Lawrence Estate	Amos Jennische	1918	399	2	0- 399	379- 399	CL	4	+	Apr. 16, 1941	N	S	1/
901	F- 22	L.H. Dunn	do	1931	400	4, 2	0- 40 40- 400	385- 400	CL	5	+	1931	N	N	
* 11-101	B- 18	Chambers County	--	--	30	3	--	--	CU	18	- 17.6	Apr. 24, 1941	N	N	Bored well.
102	B- 19	U.S. Dept. of Agriculture	J.F. Abshier	1937	27	2	0- 27	--	CU	12	- 14.0	do	N	N	
* 103	B- 20	Josh Mayes	Amos Jennische	1911	515	2	0- 515	495- 515	CL	9	+ 6.2 - 13.3	July 15, 1941 Apr. 14, 1954	N	N	Stopped flowing in 1946. 3/
* 104	B- 21	Mrs. W.A. Beckwith	Homer Wright	1940	128	5	0- 128	--	CU	6	- 1.9	Apr. 24, 1941	N	N	
105	B- 23	A.H. Stade	B & L Water Wells	1946	178	2	0- 178	168- 178	CU	5	- 8	Apr. 1948	N	N	1/

See footnotes at end of table.

Table 4.--Records of Wells in Chambers and Jefferson Counties and Adjacent Areas--Continued

WELL	PREVIOUS WELL NUMBER	OWNER	DRILLER	DATE COMPLETED	DEPTH OF WELL (FT)	CASING: DIAMETER OF WELL (IN.)	CASING: INTERVAL (FT)	SCREEN INTERVAL(S) (FT)	WATER BEARING UNITS(S)	SURFACE ELEVATION (FT)	WATER LEVEL: REFERRED TO LAND SURFACE (FT)	WATER LEVEL: DATE OF MEASUREMENT	METHOD OF LIFT	USE OF WATER	REMARKS
*DH-64-11-201	B- 12	Elder Sherman	Bubba Chambliss	--	131	4	--	--	CU	30	- 23.5	June 19, 1941	C,H	D,S	
* 202	B- 13	W.W. Collins	W.W. Collins	1916	28	1 1/4	--	--	CU	19	- 16.7	Apr. 25, 1941	C,H	D,S	
* 203	B- 14	Chambers County	--	1938	30	4	0- 30	--	CU	24	- 14.5	July 1, 1941	N	N	
* 204	B- 15	B. Barnes	Geo. Abshier	1937	155	3, 2	0- 20 20- 155	147- 155	CU	28	- 27.4	Apr. 25, 1941	C,H	D,S	
* 205	B- 16	Stanolind Oil & Gas Co.	Pitre Water Wells	1936	131	4	0- 131	--	CU	22	- 25.5	July 1, 1941	N	N	Drilled test hole to 227 ft; plugged back to 131 ft. 1/
* 206	B- 17	do	Layne-Texas Co.	1940	140	7, 5, 3	0- 83 83- 106 106- 129	106- 129	CU	22	--	--	J,E	D,S	Brass wire wrapped screen. Underreamed and gravel-packed. 1/
* 207	--	Channel Industries	do	1955	151	16, 8	0- 80 0- 151	--	CU	24	- 16.7	Oct. 3, 1966	T,E	Ind	Gravel-walled.
* 301	C- 15	Jerden Cline	Andy Frankland	1947	346	2	0- 346	326- 346	CL	31	- 15	Oct. 1947	J,E	D	
* 302	C- 16	Geo. Abshier	Geo. Abshier	1938	185	2	0- 185	175- 185	CU	30	- 8 - 10.9	1938 June 6, 1941	Cf,E	D,S	
* 303	C- 17	Chambers County	do	1936	28	2	0- 28	--	CU	30	- 11.4	June 6, 1941	N	N	
* 304	C- 18	do	do	1939	165	1 1/2	0- 165	--	CU	26	- 16.1	do	N	N	
* 305	C- 19	J.A. Hankamer	do	1936	94	3, 1 1/2	0- 28 28- 94	89- 94	CU	30	- 14 - 18.9	1936 July 1, 1941	C,H	D,S	
306	C- 20	U.S. Dept. of Agriculture	do	1937	90	2	0- 90	--	CU	28	- 19.1	Apr. 15, 1941	N	N	
* 307	C- 21	--Morgan	do	1940	23	1 1/2	0- 23	17- 23	CU	30	- 18	1940	C,W	D,S	
401	--	E.S. Abshier	Katy Drilling Co.	1954	595	20, 12	0- 250 250- 595	112- 595	CU,CL	5	- 10.1 - 17.4	Oct. 11, 1955 Mar. 15, 1967	N	N	483 ft of slotted pipe. Gravel-packed. 1/ 3/
402	--	Union Producing Co.	Union Producing Co.	1955	8,910	--	--	--	--	5	--	--	--	--	Oil test. 2/
* 501	F- 17	U.S. Dept. of Agriculture	J.F. Abshier	1937	118	2	0- 118	--	CU	15	- 15.7	July 1, 1941	N	N	
502	F- 18	Sun Oil Co.	Sun Oil Co.	1935	1,252	10	0-1,252	1,035-1,090	E	3	--	--	N	N	Casing perforated from 1,035 to 1,090 ft. Salt water disposal well. 1/
* 503	F- 20	H.W. Wilcox	Geo. Abshier	1934	90	2	0- 90	80- 90	CU	20	--	--	N	N	

See footnotes at end of table.

Table 4.--Records of Wells in Chambers and Jefferson Counties and Adjacent Areas--Continued

WELL	PREVIOUS WELL NUMBER	OWNER	DRILLER	DATE COMPLETED	DEPTH OF WELL (FT)	CASING: DIAMETER OF WELL (IN.)	CASING: INTERVAL (FT)	SCREEN INTERVAL(S) (FT)	WATER BEARING UNITS(S)	SURFACE ELEVATION (FT)	WATER LEVEL: REFERRED TO LAND SURFACE (FT)	WATER LEVEL: DATE OF MEASUREMENT	METHOD OF LIFT	USE OF WATER	REMARKS
*DH-64-11-602	G- 25	E.W. Brown	Geo. Abshier	1935	115	2	0- 115	106- 115	CU	20	- 22	1935	C,H	D,S	
* 603	G- 26	--Helgemier	do	1940	102	2	0- 102	--	CU	21	- 22	1940	Cf,E	D	
* 604	G- 27	U.S. Dept. of Agriculture	do	1937	101	2	0- 101	--	CU	23	- 21.4	May 15, 1941	N	N	Formerly supplied water for dipping vat.
* 610	--	Bobby McCulley	Andy Frankland	1966	102	2	0- 102	--	CU	23	--	--	J,E	D	
* 801	--	City of Anahuac well 2	Layne-Texas Co.	1955	122	8, 6	--	73- 113	CU	22	- 17.9 - 21.4	Oct. 25, 1955 Jan. 17, 1966	T,E	P	Steel casing.
* 802	--	City of Anahuac well 1	Big State Drilling Co.	1950	122	8, 6	0- 80 70- 122	80- 120	CU	22	--	--	T,E	P	Drilled to 519 ft; plugged back to 122 ft. 1/
* 803	--	G. Chambliss	Layne-Texas Co.	--	90	8	--	--	CU	5	- 1.3	Apr. 7, 1961	N	N	
* 804	F- 30	Fred Shultz	Andy Frankland	1946	420	2	0- 420	410- 420	CL	21	- 8	July 1946	J,E	D	
* 805	F- 26	Anahuac City Cemetery	Geo. Abshier	1940	100	4	0- 100	--	CU	21	- 19.2	Apr. 24, 1941	C,W	S	
* 806	F- 39	J.O. Nelson	J.F. Abshier	1935	110	2	0- 110	94- 110	CU	20	--	--	Cf,E	D,S	
* 807	F- 40	G.W. Scott	Geo. Abshier	1936	110	2	0- 110	100- 110	CU	20	--	--	Cf,E	D,S	
* 808	F- 27	J.C. Storms	Andy Frankland	1941	103	2	0- 103	83- 103	CU	23	- 24	Feb. 1941	N	N	
* 809	F- 32	Wilcox Estate	--	1892	840	4	0- 840	--	E	8	+ 8.1	Sept. 15, 1941	N	N	Estimated flow 4 gpm in 1941. Supplied water for city of Anahuac until 1930.
810	F- 34	G. Chambliss	Geo. Abshier	1936	95	2	0- 95	85- 95	CU	4	- 7	1939	N	N	
* 811	F- 36	do	Andy Frankland	1947	108	4	0- 108	93- 108	CU	20	- 12 - 20.1	Apr. 1947 Apr. 5, 1957	N	N	3/
812	F- 37	do	Geo. Abshier	1936	95	3	0- 95	85- 95	CU	4	- 4.9 - 4.1	July 24, 1941 Apr. 11, 1952	N	N	3/
* 901	G- 34	--Barringer	J.F. Abshier	1932	350	2	0- 350	340- 350	C	22	- 6.2 - 27.2	May 2, 1941 Mar. 15, 1967	N	N	3/
* 902	G- 28	Ezra Sherman	--	--	100	2	--	--	CU	22	- 21.2	Apr. 22, 1941	Cf,E	D	
* 903	G- 29	Ox Herman	Andy Frankland	1947	345	2	0- 345	330- 345	CL	22	- 12	June 1947	C,W	S	
* 904	G- 30	J.J. Boudreaux	do	1945	440	2	0- 440	420- 440	CL	20	- 12	Aug. 1945	J,E	D	
* 905	G- 31	Bell Tourist Camp	Geo. Abshier	1936	38	2	0- 38	32- 38	CU	22	- 0.3	Apr. 25, 1941	N	N	

See footnotes at end of table.

Table 4.--Records of Wells in Chambers and Jefferson Counties and Adjacent Areas--Continued

WELL	PREVIOUS WELL NUMBER	OWNER	DRILLER	DATE COMPLETED	DEPTH OF WELL (FT)	CASING: DIAMETER OF WELL (IN.)	CASING: INTERVAL (FT)	SCREEN INTERVAL(S) (FT)	WATER BEARING UNITS(S)	SURFACE ELEVATION (FT)	WATER LEVEL: REFERRED TO LAND SURFACE (FT)	WATER LEVEL: DATE OF MEASUREMENT	METHOD OF LIFT	USE OF WATER	REMARKS
*DH-64-11-906	G- 35	Bob Bosque	--	1939	20	48	--	--	CU	18	- 7.1	June 25, 1941	N	N	Dug well. Casing wood lined.
907	G- 33	G.H. Miles	Geo. Abshier	1940	110	2	0- 110	103- 110	CU	20	- 13.1	Apr. 25, 1941	N	N	
* 908	G- 36	O. White	J.F. Abshier	1939	345	2	0- 345	335- 345	CL	18	- 6	1939	Cf,E	D,S	
* 909	G- 37	W. Stockwell	do	1939	347	2	0- 347	337- 347	CL	19	- 5.3	May 2, 1941	N	N	Abandoned.
* 910	G- 38	do	Andy Frankland	1946	325	2	0- 325	--	CL	18	- 11.0	Feb. 28, 1949	Cf,E	D	
* 911	--	L.F. Fancher	Pitre Water Wells	1963	125	2	0- 125	114- 120	CU	20	- 16	1963	J,E	D,S	1/
* 912	--	Andy Frankland	Andy Frankland	1956	510	4	0- 510	--	CL	21	- 8	1956	J,E	D	
* 913	--	Chambers County Airport	do	1965	102	4	0- 102	--	CU	20	- 15.2	Nov. 9, 1966	T,E	D	
914	--	W.H. Otken	Andy Frankland	1962	340	2	0- 340	330- 340	CL	14	--	--	J,E	D,S	1/
* 915	G- 39	U.S. Dept. of Agriculture	J.F. Abshier	1937	357	2	0- 357	--	CL	18	- 5.8	Apr. 15, 1941	N	N	
12-101	C- 13	do	do	1937	181	2	0- 181	--	CU	28	- 9.4 - 8.5	Apr. 15, 1941 Apr. 4, 1963	N	N	Formerly supplied water for dipping vat. 3/
* 102	--	Jett Hankamer	W.J. Sweinhart	1956	285	10	0- 285	235- 285	CU	32	- 27.0	Nov. 9, 1959	T,G	Irr	
* 103	C- 14	J.F. Abshier	J.F. Abshier	1926	183	2	0- 183	170- 183	CU	30	- 12.0	Apr. 11, 1941	Cf,E	D,S	
* 104	C- 12	Jeff Hankamer	Geo. Abshier	--	68	1 1/4		--	CU	28	- 7.8	June 6, 1941	C,W	D,S	
105	--	I.J. Hankamer	Gulf Oil Co.	1957	2,600	--	--	--	--	31	--	--	--	Ind	Salt water disposal.
* 106	--	G.E. Hamilton	Harry Briceson	1965	280	4	0- 280	256- 280	C	27	--	--	T,E	D,S	Water used in fish hatchery and on farm. Galvanized wire-wrapped screen.
* 107	--	M.P. Hatley	Andy Franklin	1962	91	2	0- 91	81- 91	CU	29	- 17	1962	J,E	D	1/
* 108	--	M.L. Fleischman	Andy Frankland	1966	182	4	0- 182	172- 182	CU	33	- 12.2	Nov. 10, 1966	T,E	D	
109	--	Roy Abshier	Pitre Water Wells	1963	38	3	0- 38	32- 38	CU	31	- 14	1963	J,E	D	1/
* 201	--	Texas Eastern Transport Co.	Layne-Texas Co.	1949	95	6, 4	0- 63 63- 95	63- 93	CU	31	- 5.5	Oct. 3, 1966	T,E	P	Supplies water for 7 houses and compressor station. Test hole to 267 ft, acidized frequently; plugged back to 95 ft.

See footnotes at end of table.

Table 4.--Records of Wells in Chambers and Jefferson Counties and Adjacent Areas--Continued

WELL	PREVIOUS WELL NUMBER	OWNER	DRILLER	DATE COMPLETED	DEPTH OF WELL (FT)	CASING: DIAMETER OF WELL (IN.)	CASING: INTERVAL (FT)	SCREEN INTERVAL(S) (FT)	WATER BEARING UNITS(S)	SURFACE ELEVATION (FT)	WATER LEVEL: REFERRED TO LAND SURFACE (FT)	WATER LEVEL: DATE OF MEASUREMENT	METHOD OF LIFT	USE OF WATER	REMARKS
*DH-64-12-202	C- 9	U.S. Dept. of Agriculture	J.F. Abshier	1937	34	2	0- 34	--	CU	35	- 4.6	Apr. 15, 1941	N	N	Reported sand from 12 to 34 ft.
* 203	C- 10	E.L. Moor	John Gunn	1922	82	2	0- 82	72- 82	CU	35	- 6.3	do	C,W	D,S	
* 204	C- 11	C.A. Fowler	J.F. Abshier	1939	34	2	0- 34	--	CU	35	- 10	1939	C,W	D,S	1/
* 205	C- 8	A.G. Blanke	--	--	16	36	--	--	CU	33	- 2.5	Apr. 30, 1941	N	N	Dug well. Reported wood casing.
* 206	--	C.J. Musgrove	Andy Franklin	1962	310	2	0- 310	300- 310	CL	33	- 30	1962	J,E	D	1/
207	--	Bill Northcutt	Andy Franklin	1965	174	2	0- 174	164- 174	CU	34	--	--	J,E	D	
208	--	The Texas Co. W.E. Jones well 1	--	1957	8,701	--	--	--	--	32	--	--	--	--	2/
* 301	C- 5	U.S. Dept. of Agriculture	J.F. Abshier	1937	146	2	0- 146	--	CU	34	- 7.4	Apr. 30, 1941	N	N	
* 302	C- 6	Pat Boyt	do	1930	324	--	0- 324	318- 324	CL	33	--	--	C,W	D,S	
* 303	C- 7	W.E. Jenkins	Pitre Water Wells	1943	368	2	0- 368	358- 368	CL	33	- 8	Nov. 1948	J,E	D	Drilled to 403 ft; plugged back to 368 ft. 1/
401	G- 19	Sun Oil Co.	L.B. Patterson	1935	358	4	0- 358	334- 358	C	26	- 10.8 - 25.2	Apr. 7, 1941 Apr. 6, 1966	N	N	Destroyed. 3/
* 403	G- 2	S. Roy White	Jack White	1934	82	2	0- 82	70- 82	CU	24	- 7.6	May 15, 1941	N	N	
* 405	G- 4	Taylor White Estate	do	1926	240	1 1/2	0- 240	220- 240	C	24	- 11.2	do	C,W	D,S	
* 407	--	Eddie Fergerson	--	--	85	4, 2	--	--	CU	28	- 15.5	Oct. 19, 1966	C,W	S	
501	G- 5	U.S. Dept. of Agriculture	J.F. Abshier	1937	36	2	0- 36	--	CU	30	- 3.2	Apr. 15, 1941	N	N	
* 502	G- 13	Humble Oil & Refining Co.	Humble Oil & Refining Co.	1938	147	2	0- 147	125- 147	CU	26	- 10.9	do	N	N	1/
* 503	--	Cecil Boyt	Andy Frankland	1963	96	2	0- 96	--	CU	25	--	--	C,E	D	Plastic casing.
* 601	G- 6	U.S. Dept. of Agriculture	J.F. Abshier	1937	154	2	0- 154	--	CU	29	- 6.2	July 1, 1941	N	N	
* 602	G- 10	Continental Oil Co.	Andy Frankland	1946	250	4	0- 250	234- 250	C	30	- 8	Apr. 1946	C,W	P	
* 603	--	B.L. Sythrett	B. & L. Water Well Service	1963	150	--	--	--	CU	29	--	--	Cf,E	D	

See footnotes at end of table.

Table 4.--Records of Wells in Chambers and Jefferson Counties and Adjacent Areas--Continued

WELL	PREVIOUS WELL NUMBER	OWNER	DRILLER	DATE COMPLETED	DEPTH OF WELL (FT)	CASING: DIAMETER OF WELL (IN.)	CASING: INTERVAL (FT)	SCREEN INTERVAL(S) (FT)	WATER BEARING UNITS(S)	SURFACE ELEVATION (FT)	WATER LEVEL: REFERRED TO LAND SURFACE (FT)	WATER LEVEL: DATE OF MEASUREMENT	METHOD OF LIFT	USE OF WATER	REMARKS
*DH-64-12-703	G- 16	Humble Oil & Refining Co.	--	--	15	36	--	--	CU	23	- 8.7	June 4, 1941	Cf,E	D,S	Dug well. Concrete casing.
* 704	G- 18	do	L. Patterson	1939	63	6	0- 63	32- 63	CU	25	--	--	T,E	D,S	1/
* 705	G- 21	Taylor White Estate	Jack White	1926	84	2	0- 84	74- 84	CU	19	- 0.1	June 4, 1941	N	N	
* 706	G- 40	A.D. Middleton	J.F. Abshier	1931	340	2	0- 340	330- 340	CL	19	- 13	1931	N	N	
* 707	G- 44	do	Jack White	1933	540	2	0- 540	520- 540	E?	20	+	1933	C,W	S	
* 708	--	R.M. Middleton	Andy Frankland	1963	600	2	0- 600	--	E?	21	--	--	J,E	S	
* 709	--	L.F. Fancher	do	1964	30	2	0- 30	--	CU	18	--	--	J,E	D,S	Reported salt water at 100 ft.
* 801	G- 42	Humble Pipeline Co.	Geo. Abshier	1935	40	4	0- 40	--	CU	22	- 10	1939	C,W	Ind	Supplies water for pumping station.
* 802	G- 15	U.S. Dept. of Agriculture	J.F. Abshier	--	445	2	0- 445	--	CL	25	- 5.3 - 16.1	May 2, 1941 Apr. 14, 1954	N	N	3/
* 901	G- 11	B.E. Quinn	--	1932	16	48	0- 16	--	CU	24	- 3.4	June 5, 1941	N	N	Wood casing. Dug well.
13-101	D- 6	Oscar Devillier	Layne-Bowler	1917	500	30, 16	0- 100 100- 500	--	CL	34	- 6.0 - 14.0	May 16, 1941 Oct. 5, 1966	N	N	3/
102	D- 3	Sun Oil Co.	A-1 Water Wells	1945	175	4	0- 175	--	CU	35	- 7	Jan. 1945	N	N	Destroyed. 1/
* 103	D- 4	L.L. Fontenot	do	1943	331	2	0- 331	323- 331	C	35	- 4	Feb. 1943	C,E,W	D	
* 104	D- 5	S.E. McBride	S.E. McBride	1936	176	2	0- 176	164- 176	CU	35	- 10.5	Apr. 30, 1941	N	N	Destroyed.
* 105	D- 7	U.S. Dept. of Agriculture	J.F. Abshier	1937	122	2	0- 122	--	CU	--	- 5.9	May 1, 1941	N	N	
106	D- 15	Lawrence Rowland	V.R. Phelps	1940	180	1 1/4	0- 180	170- 180	CU	31	- 3	May 1940	N	N	1/
* 107	D- 16	O.C. Devillier, Jr.	Stagg Supply Co.	1940	135	2	0- 135	90- 110	CU	30	--	--	N	N	
* 110	--	O.C. Devillier	Andy Frankland	1950	160	4	0- 160	--	CU	32	--	--	Cf,E	D,S	Plastic casing.
* 111	--	W.M. McBride	B & L Well Service	1960	171	4	0- 171	--	CU	33	--	--	J,E	D,S	Steel casing.
* 112	--	C.B. Jeffery	Andy Frankland	1962	176	2	0- 176	166- 176	CU	33	- 16	1962	C,W	S	1/
* 201	D- 8	C.A. Moore Estate	--	Old	14	6	--	--	CU	33	- 3.1	May 16, 1941	N	N	Tin casing.

See footnotes at end of table.

Table 4.--Records of Wells in Chambers and Jefferson Counties and Adjacent Areas--Continued

WELL	PREVIOUS WELL NUMBER	OWNER	DRILLER	DATE COMPLETED	DEPTH OF WELL (FT)	CASING: DIAMETER OF WELL (IN.)	CASING: INTERVAL (FT)	SCREEN INTERVAL(S) (FT)	WATER BEARING UNITS(S)	SURFACE ELEVATION (FT)	WATER LEVEL: REFERRED TO LAND SURFACE (FT)	WATER LEVEL: DATE OF MEASUREMENT	METHOD OF LIFT	USE OF WATER	REMARKS
*DH-64-13-202	D- 14	U.S. Dept. of Agriculture	J.F. Abshier	1937	142	2	0- 142	--	CU	30	- 8.2	May 1, 1941	N	N	
* 203	H- 3	E.C. Devillier	E.C. Devillier	1936	12	48	0- 12	None	CU	26	- 2.5	do	C,W	D,S	Wooden casing. Dug well.
* 302	D- 9	Len Evans	--	--	44	2	--	--	CU	33	- 2.1	June 9, 1941	N	N	
* 303	D- 10	U.S. Dept. of Agriculture	J.F. Abshier	1937	156	2	0- 156	--	CU	28	- 10.5	do	N	N	
* 304	D- 13	Len Evans	--	1936	20	1 1/4	0- 20	--	CU	30	--	--	N	N	Bored well.
* 305	--	H.J. DuPlantis	V.R. Phelps	1956	205	2	0- 205	--	CU	30	--	--	J,E	D,S	
* 401	H- 21	Mary Hunter	J.F. Abshier	1937	257	2	0- 257	--	CU	28	- 9.8	June 5, 1941	N	N	Well caved and abandoned.
* 402	H- 22	--Starrett	Jack White	1931	240	2	0- 240	228- 240	CU	27	- 9.0	do	N	N	
* 403	H- 25	Garth Bros.	C. Menard	1940	50	3	0- 50	--	CU	25	--	--	N	N	Sand point from 47 to 50 ft.
* 406	--	O.C. Devillier	Andy Frankland	1960	160	4	0- 160	--	CU	--	--	--	Cf,E	Ind	Supplies water to service station.
* 501	H- 1	U.S. Dept. of Agriculture	J.F. Abshier	1937	164	2	0- 164	--	CU	--	- 7.9	May 1, 1941	N	N	
* 601	--	Trinity Bay Conservation District well 1	Layne-Texas Co.	1953	147	16, 8	--	116- 146	CU	26	- 35 - 48 - 60	Sept. 1953 Nov. 1959 Feb. 1967	T,E	P	Drilled to 261 ft; plugged back to 147 ft. 1/
602	--	Trinity Bay Conservation District well 2	Layne-Texas Co.	1953	148	16, 8	--	117- 147	CU	26	- 40 - 60	Sept. 1953 Feb. 1967	T,E	P	Drilled to 261 ft; plugged back to 148 ft. 1/
* 603	H- 5	U.S. Dept. of Agriculture	J.F. Abshier	1937	144	2	0- 144	--	CU	26	- 13.5	June 9, 1941	N	N	
* 604	H- 6	H.M. Franssen	V.R. Phelps	1936	162	3	0- 162	152- 162	CU	26	- 5	1936	N	N	1/
* 605	H- 10	do	John Gunn	1932	165	3	0- 165	153- 165	CU	26	- 11.4	May 1, 1941	N	N	Reported sand from 87 to 91 and 145 to 165 ft.
* 606	H- 4	F. Dugat	Geo. Abshier	1939	150	2	0- 150	140- 150	CU	30	- 13.7	do	N	N	
* 607	H- 9	D.W. Syphrett	V.R. Phelps	1936	140	2	0- 140	130- 140	CU	25	- 6	1934	N	N	
608	H- 19	G.H. Menely	do	1940	151	2	0- 151	147- 151	CU	28	- 10.8	May 1, 1941	N	N	

See footnotes at end of table.

Table 4.--Records of Wells in Chambers and Jefferson Counties and Adjacent Areas--Continued

WELL	PREVIOUS WELL NUMBER	OWNER	DRILLER	DATE COMPLETED	DEPTH OF WELL (FT)	CASING: DIAMETER OF WELL (IN.)	CASING: INTERVAL (FT)	SCREEN INTERVAL(S) (FT)	WATER BEARING UNITS(S)	SURFACE ELEVATION (FT)	WATER LEVEL: REFERRED TO LAND SURFACE (FT)	WATER LEVEL: DATE OF MEASUREMENT	METHOD OF LIFT	USE OF WATER	REMARKS
*DH-64-13-609	H- 18	U.S. Dept. of Agriculture	J.F. Abshier	1937	46	2	0- 46	--	CU	25	- 1.1	do	N	N	Formerly supplied water for dipping vat.
* 610	H- 16	Chambers County	Jack White	1932	185	2	0- 185	--	CU	24	--	--	N	N	Destroyed.
* 611	H- 17	Eddie Rudd	V.R. Phelps	1940	227	1 1/4	0- 227	217- 227	CU	24	--	--	N	N	
* 613	H- 30	J.C. White	--	1940	158	3	--	--	CU	22	- 10.4	May 14, 1941	N	N	
614	H- 31	Mrs. R.M. White	Dave Phelps	1948	180	2	--	--	CU	25	- 20.9	Mar. 15, 1949	N	N	
* 615	H- 32	do	Jack White	1929	184	2	0- 184	164- 184	CU	23	- 11.7	May 14, 1941	N	N	
616	--	Sinclair Refining Co.	Lowry Water Wells	1965	152	4, 2	0- 130 130- 152	130- 150	CU	26	- 57	Aug. 1965	T,E	Ind	1/
* 617	--	Wilson LeBlanc	Green Bros. Water Well Service	1962	50	2	0- 50	42- 50	CU	28	- 11	Nov. 1962	J,E	D	1/
* 618	--	L.A. Walker	Andy Frankland	1966	152	2	0- 152	142- 152	CU	25	--	--	J,E	D	
701	--	Harvey Haynes	W.J. Swinehart	1956	195	12	0- 195	--	CU	23	- 21.6 - 19.2	Nov. 2, 1959 July 12, 1966	T,G	S	Supplied water to fill cattle tank.
702	--	R.E. Spencer	do	1955	200	10	0- 200	--	CU	23	- 22.4 - 19.4	Nov. 2, 1959 Oct. 20, 1966	N	N	Gravel-packed. 24-in. hole. Reported well sanded in 1963.
703	--	H.M. Franzen	do	1956	247	12	0- 247	--	CU	23	--	--	N	N	Reported in 1966, that well was used last in 1958.
* 704	H- 48	Bon Manuel	A-1 Water Wells	1946	417	2	0- 417	406- 417	CL	21	- 9.3	Mar. 16, 1949	N	N	
* 705	H- 49	Brown Estate	--	1923	176	2	--	--	CU	20	- 7.5	May 22, 1941	N	N	
* 706	H- 24	H.B. Haynes	--	1930	325	1 1/2	0- 325	--	C	25	- 6.8	May 13, 1941	C,W	D,S	
* 707	H- 26	U.S. Dept. of Agriculture	Geo. Abshier	1937	37	2	0- 37	--	CU	26	- 2.4	do	N	N	
* 708	H- 27	H.P. Draught & Co.	F.O. Mauboules	1934	23	8	0- 23	None	CU	26	- 1.6	May 14, 1941	N	N	Tin casing. Bored well.
* 709	--	L.L. Lancaster	B. & L. Drilling Co.	1963	149	2	0- 149	120- 149	CU	21	- 13	1965	Cf,E	D,S	
* 801	H- 28	--	J.F. Abshier	1935	340	4, 2	--	330- 340	CU	23	- 7	1940	N	N	
* 802	H- 45	--	J.D. Hollingshead	1940	86	2	0- 86	81- 86	CU	23	- 2.4	May 23, 1941	C,W	D,S	

See footnotes at end of table.

Table 4.--Records of Wells in Chambers and Jefferson Counties and Adjacent Areas--Continued

WELL	PREVIOUS WELL NUMBER	OWNER	DRILLER	DATE COMPLETED	DEPTH OF WELL (FT)	CASING		SCREEN INTERVAL(S) (FT)	WATER BEARING UNITS(S)	SURFACE ELEVATION (FT)	WATER LEVEL		METHOD OF LIFT	USE OF WATER	REMARKS
						DIAMETER OF WELL (IN.)	INTERVAL (FT)				REFERRED TO LAND SURFACE (FT)	DATE OF MEASUREMENT			
*DH-64-13-803	H- 46	Chambers County	--	1941	39	2	--	--	CU	20	- 6.4	June 5, 1941	N	N	Seismograph test hole.
* 804	H- 47	U.S. Dept. of Agriculture	J.F. Abshier	1937	42	2	0- 42	--	CU	20	- 1.5	May 23, 1941	N	N	
* 901	H- 34	J.T. White	Jack White	1926	170	1 1/2	0- 170	160- 170	CU	24	- 11.9	May 14, 1941	N	N	
* 903	H- 40	P.J. Gaspard	A-1 Water Wells	1946	219	2	0- 219	209- 219	CU	22	- 8	Feb. 1946	J,E	D	
* 904	H- 41	--Gelans	--	--	153	2	--	--	CU	21	- 6.6	May 14, 1941	N	N	
* 905	H- 43	U.S. Dept. of Agriculture	J.F. Abshier	1937	184	2	0- 184	--	CU	19	- 4.5	do	N	N	
* 906	--	Ernest Breaux	V.R. Phelps	1960	265	--	--	--	CU	20	- 30	1960	J,E	D	
14-102	D- 12	S.J. Ryan	Pitre Water Wells	1943	182	4	0- 182	161- 182	CU	20	- 11	Dec. 1943	N	N	Drilled to 198 ft; plugged back to 182 ft.
* 401	H- 11	P. Broussard	V.R. Phelps	1940	144	1 1/4	0- 144	140- 144	CU	24	- 6	1940	N	N	
* 402	H- 12	V.R. Phelps	do	1942	146	1 1/4	0- 146	131- 146	CU	22	- 9 - 20	July 1942 Mar. 1948	J,E	D	
* 403	H- 14	W.P. Kunefke	do	1940	140	1 1/4	0- 140	136- 140	CU	21	- 6	Oct. 1940	N	N	
701	--	A.R. Parnell	Geo. Ballenger	1957	250	12, 8	0- 125 125- 250	125- 250	CU	17	- 27 - 31 - 38.0	1957 1958 July 12, 1966	N	N	Gravel-packed.
702	H- 38	O.H. Acom	Dave Coffee	1903	244	10	0- 244	184- 244	CU	20	+	1903	N	N	Abandoned.
* 703	H- 36	U.S. Dept. of Agriculture	J.F. Abshier	1937	150	2	0- 150	--	CU	19	- 5.1	May 14, 1941	N	N	
* 704	H- 42	J.B. Myers	V.R. Phelps	1940	197	1 1/4	0- 197	193- 197	CU	20	- 1	Sept. 1940	N	N	1/
* 706	H- 78	Courtney Marshall	--	--	21	--	--	--	CU	19	- 3.8	May 14, 1941	N	N	Bored well.
* 707	--	Walter East	Andy Frankland	1966	185	2	0- 185	175- 185	CU	20	- 35	1966	J,E	D	
* 17-203	E- 56	Dick Haden	--	1939	22	5	0- 22	None	CU	20	- 11.1	Mar. 4, 1941	N	N	
* 204	E- 58	E.R. Kilgore	--	1906	212	2	0- 212	None	CU	10	- 8.7	Apr. 4, 1941	N	N	Reported flowed until 1926.
* 205	E- 59	A.M. Wilburn	--	--	18	30	--	--	CU	17	- 10.7	Mar. 13, 1941	N	N	Brick casing. Dug well.
* 206	E- 60	Joe Syer	Amos Jennische	1939	90	4, 2	--	80- 90	CU	15	- 17	1939	C,W	D,S	

See footnotes at end of table.

Table 4.--Records of Wells in Chambers and Jefferson Counties and Adjacent Areas--Continued

WELL	PREVIOUS WELL NUMBER	OWNER	DRILLER	DATE COM-PLET-ED	DEPTH OF WELL (FT)	CASING: DIAM-ETER OF WELL (IN.)	CASING: INTERVAL (FT)	SCREEN INTER-VAL(S) (FT)	WATER BEAR-ING UNITS(S)	SUR-FACE ELEVA-TION (FT)	WATER LEVEL: REFERRED TO LAND SURFACE (FT)	WATER LEVEL: DATE OF MEASUREMENT	METHOD OF LIFT	USE OF WATER	REMARKS
*DH-64-17-207	E- 61	Joe Syer	James Jennische	1947	441	3, 2	--	428- 441	CL	5	- 72	July 1947	J,E	D	
208	E- 62	J.M. Fisher	--	--	25	5	--	--	CU	18	- 11.9	Apr. 5, 1941	N	N	Tin casing. Bored well.
* 209	E- 57	J.W. Wilburn	Amos Jennische	1931	410	2	0- 410	395- 410	CL	16	- 20 - 91.5	1931 Apr. 15, 1954	A,G	D,S	3/
210	E- 79	Fisher Estate	do	1939	90	4, 2	--	80- 90	CU	25	- 22.9	Mar. 4, 1941	C,W	S	
* 211	E- 80	Wilburn Bros.	Amos Jennische	1940	97	4	--	--	CU	15	- 16.4	Apr. 5, 1941	C,W	D,S	
* 212	E- 55	C. Vickers	do	1925	346	4, 2	0- 40 40- 346	331- 346	CL	5	- 25 - 32.4	1929 Apr. 5, 1941	A,E	S	1/
301	--	The Texas Co.	--	--	--	--	--	--	C	24	- 41.6 - 43.8	May 7, 1962 Mar. 16, 1967	N	N	3/
* 302	E- 65	do	Pitre Water Wells	1948	398	3	0- 398	378- 398	CL	22	--	--	J,E	D	Supplies water for oil camp. 1/
303	E- 66	Kirby Oil Co.	James Jennische	1948	375	4	0- 375	355- 375	CL	22	- 63	May 1948	J,E	D	
304	E- 67	The Texas Co.	Pitre Water Wells	1948	584	4	0- 584	564- 584	CL	23	--	--	N	N	1/
305	E- 68	do	do	1947	372	4	0- 372	349- 372	CL	24	- 48	Nov. 1947	N	N	1/
* 306	E- 76	Max Brown	Amos Jennische	1917	110	4, 2	0- 40 40- 110	100- 110	CU	31	- 20 - 27.8	1917 Apr. 8, 1941	C,W	S	
307	E- 77	Odell Fisher	do	1926	96	4, 2	0- 40 40- 96	76- 96	CU	29	- 20 - 26.2	Nov. 1926 Apr. 5, 1941	N	N	1/
* 308	E- 78	B.D. Fisher	do	1926	97	4, 2	0- 40 40- 97	87- 97	CU	29	- 24	Nov. 1926	C,W	D,S	1/
* 309	E- 81	M. Fisher	C.A. Williams	1928	90	4	0- 90	70- 90	CU	24	- 23.6	Mar. 22, 1941	N	N	
310	--	G.A. Laughlin	James Jennische	1952	122	12	0- 122	--	CU	27	- 29.6	Nov. 17, 1959	N	N	Irrigated 120 acres in 1958-59. Reported pumped 1,000 gpm from 45 ft sand.
311	--	Wilburn Bros.	do	1951	105	10	0- 105	78- 105	CU	23	- 23.7	Dec. 10, 1965	N	N	
* 312	E- 69	Collier & Troxell	Amos Jennische	1937	180	3	0- 180	175- 180	CU	27	- 22	1937	C,W	D,S	
* 501	E-104	Mrs. L.L. Jerrell	do	1939	429	4, 2	0- 100 100- 429	414- 429	CL	16	- 52	July 1939	N	N	Copper screen.

See footnotes at end of table.

Table 4.--Records of Wells in Chambers and Jefferson Counties and Adjacent Areas--Continued

WELL	PREVIOUS WELL NUMBER	OWNER	DRILLER	DATE COM-PLET-ED	DEPTH OF WELL (FT)	CASING		SCREEN INTER-VAL(S) (FT)	WATER BEAR-ING UNITS(S)	SUR-FACE ELEVA-TION (FT)	WATER LEVEL		METHOD OF LIFT	USE OF WATER	REMARKS
						DIAM-ETER OF WELL (IN.)	INTERVAL (FT)				REFERRED TO LAND SURFACE (FT)	DATE OF MEASUREMENT			
*DH-64-17-502	E-105	Whitie Algram	Amos Jennische	1938	82	4, 2	--	72- 82	CU	5	- 7.9	Mar. 13, 1941	Cf,E	D,S	
* 503	E-106	Atlantic Pipe-line Co.	C.A. Williams	1932	638	4, 3	0- 60 60- 638	630- 638	CL	19	- 61.6	Jan. 8, 1941	N	N	Copper screen.
* 504	E-107	W.H. Fisher	Amos Jennische	1939	93	4, 2	0- 40 40- 93	83- 93	CU	5	- 18	July 1939	N	N	Do.
* 601	E- 83	Asa Wilburn	do	1919	94	3	0- 94	--	CU	15	- 15.9 - 15.5	Apr. 5, 1941 Mar. 16, 1967	N	N	1/ 3/
602	--	Jones & Laughlin	Layne-Texas Co.	1956	156	14	0- 156	--	CU	28	- 27.1	Nov. 17, 1959	N	N	
* 603	E- 82	Kilgore Estate	C.A. Williams	1936	100	4	0- 100	--	CU	20	- 17.6	Mar. 4, 1941	C,H	D,S	
* 604	E- 84	Asa Wilburn	Amos Jennische	1926	550	4, 2	--	535- 550	CL	13	- 25 - 56.2 - 87.0	1926 Apr. 6, 1941 Mar. 1, 1948	N	N	
605	E- 85	A.M. Wilburn	C.A. Williams	--	99	4	--	--	CU	28	- 24.8	Mar. 22, 1941	N	N	
* 606	E- 86	Theo Wilburn	Wesley Evans	1939	190	3	0- 190	--	CU	26	--	--	C,W	D,S	
* 607	E- 87	J.C. Fowler	Amos Jennische	1920	105	4	0- 105	90- 105	CU	30	- 25.0	Mar. 22, 1941	C,W	S	1/
608	E-102	H. Harper	H. Harper	1936	40	6	0- 40	None	CU	22	- 12.4	Mar. 20, 1941	C,H	D	Wood casing. Bored well.
* 609	E-103	Chas. Kilgore	Amos Jennische	1939	90	4, 2	0- 40 40- 90	80- 90	CU	21	- 21.3	Apr. 9, 1941	N	N	
* 610		Jones & Laughlin Steel Co.	Layne-Texas Co.	1956	1,513	--	--	--	--	25	--	--	--	--	Test hole. Water sampled at: 540-560; 818-838; 1,060-1,080; 1,140-1,160; 1,340-1,360 ft. 1/ 2/
* 803	J- 1	Chas. Kilgore	--	--	11	4	--	--	CU	20	- 5.2	Mar. 28, 1941	N	N	
804	--	Humble Oil & Refining Co.	--	1948	8,824	--	--	--	--	0	--	--	--	N	Oil test. 2/
* 901	J- 8	Seacrest Park	Pitre Water Wells	1946	709	6, 4	0- 666 666- 709	666- 687	CL	25	- 92.6 -147.7	Oct. 5, 1948 Mar. 16, 1967	T,E	D	Well originally 749 ft deep. Reamed to 709 ft in 1947. 1/ 3/
903	J- 3	S.C. Fisher	Amos Jennische	1937	98	4	0- 98	88- 98	CU	26	- 24.4	Mar. 13, 1941	N	N	
* 904	J- 4	Houston YMCA	--	1923	630	8	--	--	CL	26	- 30	1936	A,E	P	Supplies water for camp.
* 905	J- 5	--Ledbetter	Amos Jennische	1940	630	4	0- 630	615- 630	CL	26	- 55	1940	-,E	D,S	

See footnotes at end of table.

Table 4.--Records of Wells in Chambers and Jefferson Counties and Adjacent Areas--Continued

WELL	PREVIOUS WELL NUMBER	OWNER	DRILLER	DATE COMPLETED	DEPTH OF WELL (FT)	CASING: DIAMETER OF WELL (IN.)	CASING: INTERVAL (FT)	SCREEN INTERVAL(S) (FT)	WATER BEARING UNITS(S)	SURFACE ELEVATION (FT)	WATER LEVEL: REFERRED TO LAND SURFACE (FT)	WATER LEVEL: DATE OF MEASUREMENT	METHOD OF LIFT	USE OF WATER	REMARKS
*DH-64-17-906	J- 6	Camp Allen	C.A. Williams	1926	600	4, 2	0- 60 60- 600	580- 600	CL	26	- 20 - 40 - 55	1926 1931 Apr. 1941	J,E	P	
* 907	J- 7	do	James Jennische	1945	685	4, 2	0- 634 634- 685	634- 644 665- 685	E?	26	- 75	1945	C,E	P	
* 908	J- 9	Paul B. Miller	Amos Jennische	1941	100	4, 2	--	90- 100	C	22	- 24	Mar. 1941	Cf,E	S	
* 909	J- 10	R.A. Wolf	C.A. Williams	1930	600	4, 2	0- 80 80- 600	580- 600	CL	21	- 52.1	Mar. 20, 1941	J,E	D,S	
* 910	J- 2	Charles Kilgore	Amos Jennische	1939	550	2	0- 550	535- 550	CL	24	- 55 -120.4	1939 Oct. 13, 1955	J,E	D	3/
911	--	Humble Oil & Refining Co.	Pitre Water Wells	1963	98	4	0- 98	77- 98	CU	19	- 20	Oct. 1963	J,E	Ind	
* 18-101	E- 74	--	--Jennische	1931	41	4	--	--	CU	31	- 27.3	Mar. 27, 1941	C,W	S	
103	E- 42	E.E. Barrow	Amos Jennische	1927	240	4, 2	--	230- 240	C	26	- 22.6	Mar. 6, 1941	N	N	
* 104	E- 43	do	Luther Patterson	1940	340	4	0- 340	319- 340	CL	26	- 28.2	Mar. 28, 1941	N	N	1/
* 105	E- 44	W.W. Pfistner	Amos Jennische	1928	240	4, 2	--	230- 240	CU	22	- 21 - 26.0	1928 Apr. 5, 1956	J,E	D	3/
* 106	E- 46	O.D. Barrow	do	1940	180	4, 2	--	174- 180	CU	28	- 25.7	Mar. 6, 1941	C,W	D,S	
* 107	E- 45	Irvin Bishop	do	1915	634	2	0- 634	614- 634	E?	26	- 40	1939	C,W	D,S	Reported flow 30,000 gpd, when drilled. 1/
* 108	E- 48	E.E. Barrow	do	1938	140	4, 2	--	130- 140	CU	31	- 18	1938	C,W	D,S	
* 109	E- 70	Ebb Fisher	do	1933	198	4, 2	0- 40 40- 198	188- 198	CU	30	--	--	C,W	D,S	
* 110	E- 71	Irvin Bishop	do	1929	192	4, 2	--	182- 192	CU	26	- 20	1939	C,W	D,S	
* 111	E- 72	W.F. Lawrence	Jim Avera	1936	196	4, 2	0- 60 60- 196	184- 192	CU	27	- 25	1936	C,W	D,S	1/
* 112	E- 73	S. Fisher	--	1929	30	8	--	--	CU	25	- 5.9	Mar. 6, 1941	N	N	Bored well.
* 113	E- 89	O.K. Barber	Amos Jennische	1937	190	4, 2	0- 40 40- 190	180- 190	CU	20	- 17.2	Mar. 21, 1941	C,W	D	
201	--	do	--	1956	8,600	--	--	--	--	0	--	--	--	--	Oil test. 2/

See footnotes at end of table.

Table 4.--Records of Wells in Chambers and Jefferson Counties and Adjacent Areas--Continued

WELL	PREVIOUS WELL NUMBER	OWNER	DRILLER	DATE COM-PLET-ED	DEPTH OF WELL (FT)	CASING: DIAM-ETER OF WELL (IN.)	CASING: INTERVAL (FT)	SCREEN INTER-VAL(S) (FT)	WATER BEAR-ING UNITS(S)	SUR-FACE ELEVA-TION (FT)	WATER LEVEL: REFERRED TO LAND SURFACE (FT)	WATER LEVEL: DATE OF MEASUREMENT	METHOD OF LIFT	USE OF WATER	REMARKS
*DH-64-18-401	E- 90	Temple Fitzgerald	Amos Jennische	1937	190	4	0- 190	--	CU	18	--	--	C,W	D	Reported sand from 178 to 190 ft.
* 402	E- 91	G.C. Connor	G.C. Connor	1939	15	60	0- 15	--	CU	5	- 1.3	Mar. 21, 1941	C,H	D,S	Dug well.
* 403	E- 92	Mrs. R.J. Thompkins	W. Evans	1940	175	3	--	--	CU	21	- 19.1	Mar. 6, 1941	C,H	D,S	
* 404	E- 93	C.G. Elliott	James Jennische	1940	604	4	0- 604	--	E[illegible]	21	--	--	C,E	D	
* 405	E- 96	Optimist Boys Club	Layne-Texas Co.	1938	438	5	0- 438	417- 438	CL	15	- 22 - 16.2	May 1938 Oct. 26, 1948	J,E	P	Reports small amount of natural gas.
* 406	E- 97	J.B. Wilburn Estate	Amos Jennische	1934	96	4	--	--	CU	20	- 19.8	Mar. 21, 1941	Cf,E	D,S	
* 407	E- 98	F.A. Fards Estate	C.A. Williams	1931	755	4, 2	0- 80 80- 755	735- 755	E	20	- 30	1931	A,E	D	1/
408	E- 99	J.B. Wilburn Estate	Amos Jennische	1936	96	4	--	--	CU	22	- 17.4	Apr. 8, 1941	C,E	D	
* 409	E-101	John Beazley	do	1938	100	4	0- 100	--	CU	20	- 18.5	Mar. 20, 1941	J,E	D,S	Reported sand from 80 to 90 ft.
410	E-100	S.C. Fisher	James Jennische	1947	610	3, 2	--	590- 610	CL	22	- 89	1947	C,E	D	
411	--	Bay Ridge Maintenance Corp.	do	--	585	4	--	--	CL	21	-138.8	Mar. 16, 1966	T,E	P	
* 412	E- 95	Mrs. --Campacx	Amos Jennische	1939	167	4, 2	0- 40 40- 167	157- 167	CU	21	- 18.5 - 19.7	Mar. 21, 1941 Oct. 5, 1948	C,E	D,S	
601	--	Humble Oil & Refining Co.	Humble Oil & Refining Co.	--	--	--	--	--	CL	0	- 32.2 - 42.1	May 29, 1958 May 13, 1967	N	N	Well located in Galveston Bay. 3/
602	--	do	do	--	--	--	--	--	CL	0	- 32.1 - 41.4	Apr. 15, 1960 Aug. 1, 1966	N	N	Do. 3/
603	--	do	do	--	--	--	--	--	CL	0	- 34.7 - 40.6	Apr. 15, 1960 May 13, 1967	N	N	Do. 3/
604	--	do	do	--	--	--	--	--	CL	0	- 32.4 - 36.1 - 36.4	Apr. 15, 1960 May 21, 1962 Apr. 9, 1963	N	N	Do.
901	K- 1	do	do	1940	651	4	0- 651	559- 592	CL	0			N	N	
* 902	K- 2	do	do	1941	597	4	0- 597	564- 597	CL	0	- 4.4 - 35.4	May 15, 1942 Apr. 24, 1956	N	N	3/
* 19-201	F- 41	H. Faring	Andy Frankland	1940	105	3, 2	0- 20 20- 105	95- 105	CU	17	- 23	1940	Cf,E	D,S	

See footnotes at end of table.

Table 4.--Records of Wells in Chambers and Jefferson Counties and Adjacent Areas--Continued

WELL	PREVIOUS WELL NUMBER	OWNER	DRILLER	DATE COMPLETED	DEPTH OF WELL (FT)	CASING: DIAMETER OF WELL (IN.)	CASING: INTERVAL (FT)	SCREEN INTERVAL(S) (FT)	WATER BEARING UNITS(S)	SURFACE ELEVATION (FT)	WATER LEVEL: REFERRED TO LAND SURFACE (FT)	WATER LEVEL: DATE OF MEASUREMENT	METHOD OF LIFT	USE OF WATER	REMARKS
*DH-64-19-202	F- 42	U.S. Dept. of Agriculture	Geo. Abshier	1937	119	2	0- 119	--	CU	17	--	--	N	N	
* 203	F- 43	E.W. Sykes	do	1936	138	2	0- 138	128- 138	CU	15	- 8.2	May 8, 1941	C,E	D,S	
204	F- 44	Humble Oil & Refining Co.	Petri Water Wells	1943	158	4	0- 158	135- 148	CU	16	--	--	C,E	P	1/
* 205	F- 45	Mrs. A.L. Scherer	D. Scherer	--	22	72	--	None	CU	15	- 13.0	May 6, 1941	C,W	D,S	Dug well. Wooden casing.
* 206	F- 46	do	Andy Frankland	1945	315	2	0- 315	295- 315	C	15	- 8	Aug. 1945	J,E	D	
* 301	G- 45	--	Oscar White	--	25	6	--	--	CU	16	- 8.2	Apr. 11, 1941	C,H	D	Tin casing.
* 302	G- 48	M.K. Smith	H. Guyrusky	1932	14	36	0- 14	None	CU	17	- 4.0	Apr. 11, 1941	C,H	S	Dug well. Wood lined.
* 303	G- 51	--	Andy Frankland	1939	30	1 1/2	0- 30	--	CU	17	--	--	C,W	S	
* 304	G- 54	W.L. Stines	W.L. Stines	1936	22	4	0- 22	None	CU	12	- 12.8	June 25, 1941	C,H	S	Wood casing.
* 305	G- 55	Mrs. A.T. Eddigston	Geo. Abshier	1936	115	4	0- 115	--	CU	12	--	--	C,E	D,S	
* 306	G- 56	P.E. Jackson	P.E. Jackson	1932	14	4	0- 14	None	CU	15	- 4.4	June 25, 1941	H	D,S	Wooden casing.
* 307	G- 57	U.S. Dept. of Agriculture	Geo. Abshier	1937	114	2	0- 114	--	CU	17	- 6.2	June 3, 1941	N	N	
* 308	G- 58	Layne-Bowler Co.	Layne-Bowler Co.	1910	1,050	26, 8	--	--	E	12	- 5.4 - 13.7 - 13.5	Apr. 4, 1941 Apr. 23, 1951 Apr. 13, 1953	N	N	1/
* 309	G- 53	Leroy Edmonds	Andy Frankland	1945	485	2	0- 485	475- 485	CL	16	- 4	Dec. 1945	C,W	D	
* 311	G- 46	Roy Turner	do	1947	340	2	0- 340	330- 340	C	17	- 10	Feb. 1947	J,E	D	
312	--	Wayne Renfro	do	1966	152	2	0- 152	--	CU	19	--	--	J,E	D	
* 501	F- 47	U.S. Dept. of Agriculture	Geo. Abshier	1937	100	2	0- 100	--	CU	12	- 7.6	May 6, 1941	N	N	
* 502	F- 48	Kocijan Bros.	Kocijan Bros.	1940	25	6	0- 25	12- 20	CU	8	- 2.2	June 5, 1941	C,W	S	Tin casing. Perforated casing. Bored well.
* 503	F- 50	C.O. Crone	Geo. Abshier	--	115	2	0- 115	105- 115	CU	6	--	--	C,W	D,S	
* 504	F- 52	U.S. Dept. of Agriculture	do	1937	33	2	0- 33	--	CU	9	--	--	N	N	
* 505	F- 53	J.W. Kocijan	J.W. Kocijan	1939	18	6	0- 18	None	CU	6	- 6.8	do	C,H	S	Tin casing. Bored well.
* 601	G- 79	Martha Johnson	--	1921	30	4	0- 30	None	CU	12	- 12.2	May 7, 1941	H	D,S	Wood casing.

See footnotes at end of table.

Table 4.--Records of Wells in Chambers and Jefferson Counties and Adjacent Areas--Continued

WELL	PREVIOUS WELL NUMBER	OWNER	DRILLER	DATE COMPLETED	DEPTH OF WELL (FT)	CASING: DIAMETER OF WELL (IN.)	CASING: INTERVAL (FT)	SCREEN INTERVAL(S) (FT)	WATER BEARING UNITS(S)	SURFACE ELEVATION (FT)	WATER LEVEL: REFERRED TO LAND SURFACE (FT)	WATER LEVEL: DATE OF MEASUREMENT	METHOD OF LIFT	USE OF WATER	REMARKS
*DH-64-19-602	G- 80	F. Jackson	Geo. Abshier	1940	660	2	0- 660	640- 660	CL	12	- 2.4	May 6, 1941	Cf,E	S	
* 603	G- 81	Mays White	Modesto White	1939	20	1 1/4	0- 20	16- 20	CU	16	- .4	May 7, 1941	C,H	S	Bored well. Sand point from 16 to 20 ft.
* 604	G- 84	Arthur Jackson	J.F. Abshier	1928	640	2	0- 640	625- 640	CL	13	- 3.9	May 6, 1941	Cf,E	S	Reported water salty.
* 605	G- 85	H. Haynes	do	1939	480	2	0- 480	470- 480	CL	6	- 2	1940	C,W	D,S	
* 606	G- 86	do	Andy Frankland	1942	507	2	0- 507	487- 507	CL	5	--	--	C,W	D	
* 607	G- 83	Ocie Jackson	do	1942	525	2	0- 525	515- 525	CL	17	- 3	Mar. 1942	Cf,E	D	
* 608	--	Anahuac School District	do	1964	195	7	0- 195	--	CU	11	- 9.6	Oct. 26, 1966	J,E	P	Supplies swimming pool.
* 609	--	Chas. Gilfillian	R.H. Schneider	1962	81	2	0- 81	73- 81	CU	10	- 8	Oct. 1962	J,E	D	1/
610	--	Warren Jackson	Andy Frankland	--	525	2	0- 525	515- 525	CL	13	- 26	1962	J,E	D	Well reworked in 1962.
* 801	K- 4	--	Don Bishop	1939	110	2	0- 110	--	CU	3	- 2.2	May 6, 1941	N	N	
* 802	K- 5	Brown & Root	Andy Frankland	1947	400	3	0- 400	390- 400	CL	7	- 3	July 1947	Cf,G	Ind	
* 803	K- 6	Dess White	do	1944	546	2	0- 546	526- 546	CL	6	- 4	Apr. 1944	C,W	S	
* 804	K- 7	E.A. Wilburn	R.J. Thompkins	1931	514	2	0- 514	474- 514	CL	5	--	--	N	N	
* 805	K- 8	do	Andy Frankland	1940	330	2	0- 330	310- 330	C	4	+	July 15, 1941	N	N	Flowed when drilled.
* 806	K- 9	Henry Gau	do	1939	216	1 1/2	0- 216	200- 216	CU	4	+ 1	1939	C,W	S	
* 807	K- 10	L.J. Harding	--	1937	30	2	0- 30	25- 30	CU	8	- 1.6	May 7, 1941	C,W	D,S	Bored well.
* 901	L- 1	Asa Stanley	Harry Johnson	1937	19	48	0- 19	None	CU	10	- 2.6	May 6, 1941	N	N	Dug well. Brick casing. Destroyed.
* 902	L- 2	E.A. Wilburn	Andy Frankland	1940	325	2	0- 325	--	C	9	--	--	C,W	S	Reported sand from 310 to 325 ft.
* 903	L- 5	do	do	1939	408	2	0- 408	388- 408	CL	10	- .2	May 7, 1941	C,W	D,S	
904	L- 6	R. Barrow	J.F. Abshier	1926	596	2	0- 596	581- 596	CL	11	+ - 19.5	1940 Oct. 11, 1951	N	N	Reported flowed until 1940. Destroyed. 3/
* 906	L- 20	C. Wilburn	--	1938	20	2	0- 20	15- 20	CU	13	--	--	C,W	D,S	Bored well.
907	L- 21	C. Wilburn	Geo. Abshier	1932	100	2	0- 100	80- 100	CU	13	- 9.8	May 7, 1941	N	N	Destroyed.
* 908	L- 23	G.R. Canada	do	1939	565	2	0- 565	545- 565	CL	7	--	--	C,W	S	
909	L- 24	do	R.J. Thompkins	--	565	3	0- 565	--	CL	9	- 5.4	June 27, 1941	N	N	

See footnotes at end of table.

Table 4.--Records of Wells in Chambers and Jefferson Counties and Adjacent Areas--Continued

WELL	PREVIOUS WELL NUMBER	OWNER	DRILLER	DATE COMPLETED	DEPTH OF WELL (FT)	CASING: DIAMETER OF WELL (IN.)	CASING: INTERVAL (FT)	SCREEN INTERVAL(S) (FT)	WATER BEARING UNITS(S)	SURFACE ELEVATION (FT)	WATER LEVEL: REFERRED TO LAND SURFACE (FT)	WATER LEVEL: DATE OF MEASUREMENT	METHOD OF LIFT	USE OF WATER	REMARKS
*DH-64-19-910	L- 25	G.R. Canada	Geo. Abshier	1939	844	2	0- 844	824- 844	E	11	--	--	C,W	D,S	
911	--	E.A. Wilburn	Andy Frankland	1962	326	2	0- 326	306- 326	C	9	- 6	Oct. 1962	C,W	S	1/
* 912	--	Asa Stanley	B. & F. Drilling Co.	1963	300	2	0- 300	--	C	9	--	--	J,E	D,S	Plastic casing.
* 913	--	Howard Stanley	Andy Frankland	1965	332	2	0- 332	323- 332	C	9	- 13	1965	J,E	D,S	
* 20-101	G- 49	Teresa Beverley	--	1940	11	48	--	None	CU	18	- 2.6	June 3, 1941	H	D	Dug well. Wood casing.
* 301	G- 60	U.S. Dept. of Agriculture	Geo. Abshier	1937	184	2	0- 184	--	CU	20	- 5.5 - 18.2	May 22, 1941 Apr. 7, 1961	C,W	D,S	3/
* 302	G- 59	do	do	1937	283	2	0- 283	--	C	17	- 3.9	May 22, 1941	N	N	
* 303	G- 62	--	--	--	17	6	--	--	CU	13	- 1.8	do	N	N	Bored well. Tin casing.
* 402	G- 77	Andy Frankland	Andy Frankland	1942	28	2	0- 28	18- 28	CU	16	- 12	1942	J,E	D	
* 403	G- 72	U.S. Dept. of Agriculture	Geo. Abshier	1937	160	2	0- 160	--	CU	15	- 3.6	July 7, 1941	N	N	
* 404	G- 73	--	J.F. Abshier	1937	260	2	0- 260	250- 260	CU	7	+ 1.6	July 16, 1941	N	N	
* 405	G- 74	Guy Jackson	--	--	13	54	--	--	CU	10	- 4.4	June 24, 1941	C,W	S	Dug well. Wood casing.
406	G- 75	U.S. Dept. of Agriculture	J.F. Abshier	1937	100	2	0- 100	90- 100	CU	15	- 3.8	May 7, 1941	N	N	
* 407	G- 78	J.C. Jackson	--	1903	21	6	0- 21	17- 21	CU	16	- 1.4	do	N	N	Driven well.
* 408	--	Mrs. James B. Jackson	Andy Frankland	1962	549	2	0- 549	534- 549	CL	15	- 32	1962	J,E	S	1/
* 502	G- 63	J.E. Broussard	--	1925	24	6	--	None	CU	6	- 3.1	May 22, 1941	N	N	Tin casing. Bored well.
* 503	G- 64	F. Jackson	Geo. Abshier	1939	455	2	0- 455	--	CL	7	+ 5.0	Aug. 21, 1941	N	N	
* 504	G- 67	do	do	1939	460	2	0- 460	--	CL	11	- 1.4	May 12, 1941	N	N	Reported flowed until 1940.
* 505	G- 70	Bud Moss	Andy Frankland	1940	87	2	0- 87	73- 87	CU	11	--	--	C,W	S	
* 506	G- 68	F. Jackson	--	1936	18	48	--	None	CU	12	- 3.9	May 12, 1941	N	N	Dug well. Wood casing.
* 507	G- 69	do	--	1936	17	--	--	--	CU	11	- 4.0	do	N	N	Bored well.
601	--	Sun Oil Co.	R.H. Schneider	1962	214	4	0- 214	192- 214	CU	8	- 16	Feb. 1962	N	N	1/
* 701	L- 7	Fred Kruger	Fred Kruger	1940	18	1 1/4	0- 18	15- 18	CU	15	--	--	C,W	S	Driven well. 3-ft sand point.

See footnotes at end of table.

Table 4.--Records of Wells in Chambers and Jefferson Counties and Adjacent Areas--Continued

WELL	PREVIOUS WELL NUMBER	OWNER	DRILLER	DATE COMPLETED	DEPTH OF WELL (FT)	CASING: DIAMETER OF WELL (IN.)	CASING: INTERVAL (FT)	SCREEN INTERVAL(S) (FT)	WATER BEARING UNITS(S)	SURFACE ELEVATION (FT)	WATER LEVEL: REFERRED TO LAND SURFACE (FT)	WATER LEVEL: DATE OF MEASUREMENT	METHOD OF LIFT	USE OF WATER	REMARKS
*DH-64-20-702	L- 8	R. Barrow	--	--	12	132	--	--	CU	12	- 1.5	June 27, 1941	C,W	S	Dug well. Wood casing.
* 703	L- 16	do	R.J. Thompkins	1926	210	2	0- 210	190- 210	CU	5	- 5	1940	N	N	Reported stopped flowing in 1930.
* 704	L- 17	do	Geo. Abshier	1939	572	2	0- 572	556- 572	CL	5	+ 3.6	Aug. 21, 1941	N	N	
* 801	L- 11	Guy Jackson	--	--	250	3	0- 250	--	CU	7	+ 4.0	Aug. 22, 1941	N	N	
* 802	L- 36	do	Pear Broussard	--	250	2	0- 250	190- 210	CU	4	+ 2.7	do	N	N	Destroyed.
* 803	L- 15	Temple Fitzgerald	--	--	300	2	--	--	C	6	+ 5.6 + 6.7	Aug. 22, 1941 Mar. 16, 1949	N	N	
* 804	L- 9	Guy Jackson	Amos Jennische	1918	420	2	0- 420	400- 420	CL	7	+ 4.2 - .9	July 23, 1941 Mar. 16, 1949	N	N	1/
* 21-201	H- 50	D.A. Bennett	J.D. Hollingshead	1937	165	2	0- 165	155- 165	CU	22	- 3	Jan. 1941	Cf,G	D,S	
* 202	H- 54	O.H. Acom	H.L. Dow	1937	26	4	0- 26	--	CU	15	- 2.3	May 23, 1941	Cf,G	D,S	Wood casing. Bored well.
203	H- 55	Taylor White Estate	Jack White	1936	220	2	0- 220	200- 220	CU	14	- 4.8	Aug. 23, 1941	N	N	
204	H- 51	Frost Oil Co.	Pitre Water Wells	1942	195	3	0- 195	167- 187	CU	22	- 6	Apr. 1948	J,E	D	1/
301	H- 64	Sun Oil Co.	A-1 Water Wells Co.	1947	194	4	0- 194	174- 194	CU	14	- 3	Sept. 1947	Cf,E	Ind	1/
* 302	H- 65	O.H. Acom	Sun Oil Co.	1938	221	5	0- 221	179- 218	CU	14	- 2.5 - 18.8	May 24, 1941 Oct. 25, 1966	J,E	Ind	
303	H- 66	Bill McBride	A-1 Water Wells Co.	1942	180	2	0- 180	172- 180	CU	14	--	--	Cf,G	D	
* 304	H- 52	O.H. Acom	Sun Oil Co.	1939	197	5	0- 197	175- 195	CU	13	- 2	1940	N	N	
* 305	H- 53	do	do	--	12	2	0- 12	--	CU	13	--	--	N	N	
* 306	--	Sun Oil Co.	--	--	33	4	0- 33	--	CU	14	--	--	J,E	D	Plastic casing. 1/
* 401	--	E.L. Nolte	--	1936	20	24	0- 20	--	CU	12	- 5.8	Oct. 21, 1966	C,W	D	Dug well.
* 402	--	do	--	Old	300	4	0- 300	--	CU	11	--	--	J,E	S	
403	--	Sun Oil Co.	Sun Oil Co.	1938	200	--	--	--	CU	11	--	--	J,G	S	
* 404	--	do	do	1949	300	7	--	--	CU	9	--	--	T,E	Ind	Used for sanitary well.

See footnotes at end of table.

Table 4.--Records of Wells in Chambers and Jefferson Counties and Adjacent Areas--Continued

WELL	PREVIOUS WELL NUMBER	OWNER	DRILLER	DATE COMPLETED	DEPTH OF WELL (FT)	CASING: DIAMETER OF WELL (IN.)	CASING: INTERVAL (FT)	SCREEN INTERVAL(S) (FT)	WATER BEARING UNITS(S)	SURFACE ELEVATION (FT)	WATER LEVEL: REFERRED TO LAND SURFACE (FT)	WATER LEVEL: DATE OF MEASUREMENT	METHOD OF LIFT	USE OF WATER	REMARKS
*DH-64-21-405	H- 58	Broussard & Hebert	Sun Oil Co.	1939	211	5	0- 211	190- 211	CU	12	- 0.3	May 23, 1941	N	N	
* 406	H- 76	R. Barrow	R.J. Thompkins	1912	208	3	0- 208	188- 208	CU	7	- 2.6	Nov. 20, 1948	C,H	S	
* 407	H- 77	F. Jackson	Geo. Abshier	1935	224	2	0- 224	--	CU	9	+ .8	July 8, 1941	N	N	
* 408	H- 59	Broussard & Hebert	--	--	14	6	--	--	CU	16	- 4.4	May 22, 1941	N	N	Tile casing. Bored well.
501	H- 61	Prince Drilling Co.	Pitre Water Wells	1944	186	4	0- 186	159- 181	CU	9	--	--	N	N	Destroyed. 1/
* 502	H- 62	Chambers County	--	Old	16	4	--	--	CU	12	- 2.3	May 23, 1941	N	N	Wood casing. Bored well.
* 503	H- 73	R. Barrow	--	--	16	48	--	--	CU	12	- 6.2	May 20, 1941	C,W	S	Dug well. Wood casing.
* 504	H- 75	R. Barrow	J.F. Abshier	--	234	2	0- 234	214- 234	CU	7	+ 4.3	July 23, 1941	N	N	
* 601	H- 70	Taylor White Estate	Joe Johnson	1937	28	--	--	--	CU	9	- 3.9	May 20, 1941	C,H	D	
* 701	M- 1	F. Jackson	Geo. Abshier	1935	230	2	0- 230	210- 230	CU	6	+ 2.3	July 8, 1941	N	N	
* 801	M- 4	R. Barrow	J.F. Abshier	1934	540	2	0- 540	530- 540	CL	5	+	1934	C,W	S	
* 802	M- 5	F. Jackson	Andy Frankland	1939	240	2	0- 240	220- 240	CU	3	+	1939	N	N	
* 901	M- 12	Taylor White Estate	Sun Oil Co.	1936	220	3	0- 220	--	CU	3	+	May 1941	C,W	S	Estimated flow 1 gpm, May 20, 1941.
* 902	M- 10	do	--	Old	176	2	--	--	CU	3	+ 3.9	Aug. 20, 1941	N	N	Estimated flow 3 gpm, Aug. 20, 1941.
* 22-101	H- 67	Hebert Trust Co.	--	Old	91	1 1/2	--	--	CU	13	- 5.0	May 23, 1941	C,W	S	
* 401	--	J.M. White	V.R. Phelps	1950	160	4	0- 160	--	CU	7	--	--	J,E	D,S	
* 402	H- 69	U.S. Dept. of Agriculture	--	Old	190	2	--	--	CU	5	+ 2.9 - .5	July 16, 1941 Apr. 14, 1954	N	N	Estimated flow 2 gpm in 1941. 3/
701	M- 14	Jim White	A-1 Water Wells	1948	312	2	0- 312	--	CU	4	+ 1	June 1948	N	N	
* 702	M- 8	Taylor White Estate	--	1935	85	2	0- 85	75- 85	CU	5	- 8	1940	N	N	
* 703	M- 9	do	--	--	156	2	--	--	CU	5	+ 1.3	July 16, 1941	C,W	S	Estimated flow 1 gpm in 1941.
* 704	M- 13	do	Sun Oil Co.	1936	220	2	0- 220	--	CU	4	+ .9	do	C,W	S	Estimated flow 1/2 gpm on July 16, 1941.

See footnotes at end of table.

Table 4.--Records of Wells in Chambers and Jefferson Counties and Adjacent Areas--Continued

WELL	PREVIOUS WELL NUMBER	OWNER	DRILLER	DATE COM-PLET-ED	DEPTH OF WELL (FT)	CASING		SCREEN INTER-VAL(S) (FT)	WATER BEAR-ING UNITS(S)	SUR-FACE ELEVA-TION (FT)	WATER LEVEL		METHOD OF LIFT	USE OF WATER	REMARKS
						DIAM-ETER OF WELL (IN.)	INTERVAL (FT)				REFERRED TO LAND SURFACE (FT)	DATE OF MEASUREMENT			
DH-64-22-705	M- 15	Taylor White Estate	Jack White	Old	212	1 1/4	0- 212	192- 212	CU	3	- 1.2	May 20, 1941	N	N	
25-901	--	Humble Oil & Refining Co.	--	1958	9,650	--	--	--	--	0	--	--	--	--	Oil test. 2/
26-501	K- 27	do	Humble Oil & Refining Co.	1940	765	4	0- 765	717- 760	CL	0	- 23.8 - 24.4 - 58.4	July 28, 1941 May 15, 1942 Dec. 16, 1948	N	N	Well located in Galveston Bay.
* 601	--	J.E. Robbins	Andy Frankland	1966	110	4	0- 110	100- 110	CU	2	- 6.3	Nov. 16, 1966	T,E	Ind	
* 701	--	Humble Oil & Refining Co.	Bilbo Redding Co.	1962	683	13, 8, 5	0- 48 0- 628 628- 683	-- 610- 638 640- 671	CL	0	- 85.7	Nov. 29, 1966	T,E	Ind	Gravel-packed. In Galveston Bay.
* 704	--	Humble Oil & Refining Co.	Humble Oil & Refining Co.	1958	863	5	0- 863	743- 863	CL	0	- 68.0 - 76.8	Apr. 14, 1960 Aug. 1, 1966	N	N	In Galveston Bay. 3/
706	J- 13	do	do	1940	550	4	0- 550	521- 550	CL	0	- 11.9 - 12.2 - 39.9	July 28, 1941 May 15, 1942 Dec. 16, 1948	N	N	Destroyed. In Galveston Bay.
707	J- 14	do	do	1940	557	4	0- 557	524- 556	CL	0	- 11.8 - 11.0	July 28, 1941 May 15, 1942	N	N	Destroyed. In Galveston Bay 1/
708	J- 15	do	do	1948	708	4	0- 708	655- 708	CL	0	- 59.6 - 70.6	Dec. 16, 1948 May 29, 1958	N	N	Drilled to 718 ft. In Galveston Bay. 1/ 3/
802	K- 28	do	do	1941	750	4	0- 750	717- 750	CL	0	- 25.6	July 28, 1941	N	N	In Galveston Bay.
* 803	K- 29	do	do	1942	760	5, 4	--	728- 760	CL	0	--	--	N	N	Do.
* 804	K- 30	do	do	1948	742	4	0- 742	684- 742	CL	0	- 11.4 - 39.5	May 15, 1942 Aug. 25, 1950	N	N	Do.
805	K- 31	do	do	1941	571	4	0- 571	538- 571	CL	0	- 10.2 - 10.6 - 39.5	July 28, 1941 May 15, 1942 Aug. 25, 1950	N	N	Do.
807	--	do	--	1956	11,747	--	--	--	--	0	--	--	--	--	Oil test. 2/
* 901	K- 25	A.W. Robbins	Andy Frankland	1937	108	2	0- 108	104- 108	CU	5	--	--	N	N	
* 902	K- 32	U.S. Dept. of Agriculture	Geo. Abshier	1937	127	2	0- 127	--	CU	4	- 4	1937	C,W	S	
* 903	K- 33	Hatfield's Camp	V.R. Phelps	1941	120	2	0- 120	112- 120	CU	7	- 6.8	May 27, 1941	Cf,E	D	
* 904	K- 34	E.R. Hicks	--	--	26	2	--	--	CU	5	- 4.1	May 27, 1941	Cf,E	D	
905	--	J.E. Patton	Petri Water Wells	1965	33	3	0- 33	22- 33	CU	12	- 12	Oct. 1965	J,E	D	1/

See footnotes at end of table.

Table 4.--Records of Wells in Chambers and Jefferson Counties and Adjacent Areas--Continued

WELL	PREVIOUS WELL NUMBER	OWNER	DRILLER	DATE COMPLETED	DEPTH OF WELL (FT)	CASING: DIAMETER OF WELL (IN.)	CASING: INTERVAL (FT)	SCREEN INTERVAL(S) (FT)	WATER BEARING UNITS(S)	SURFACE ELEVATION (FT)	WATER LEVEL: REFERRED TO LAND SURFACE (FT)	WATER LEVEL: DATE OF MEASUREMENT	METHOD OF LIFT	USE OF WATER	REMARKS
*DH-64-26-906	--	C.T. Lucas	C.T. Lucas	1962	30	2	0- 30	24- 30	CU	10	--	--	C,E	D	Jetted well.
27-201	K- 14	Sun Oil Co.	Andy Frankland	1944	223	5	0- 223	203- 223	CU	5	- 4 - 6.6	Apr. 1944 Mar. 15, 1967	N	N	3/
* 202	K- 12	W.J. Hawkins	do	1940	25	2	0- 25	15- 25	CU	6	- 9	1940	C,W	D,S	Bored well.
* 203	K- 11	Henry Gau	R.J. Thompkins	1931	685	2	0- 685	665- 685	CL	3	--	--	N	N	Reported flowed until 1937.
* 204	K- 15	G.R. Canada	Geo. Abshier	1939	210	2	0- 210	190- 210	CU	4	--	--	C,W	S	Reported drilled to 500 ft; plugged back to 210 ft.
* 205	K- 16	U.S. Dept. of Agriculture	Geo. Abshier	1937	527	2	0- 527	511- 527	CL	4	- 1.6	May 7, 1941	N	N	
* 206	K- 17	Dess White	--	1910	300	2	0- 300	--	C	5	--	--	N	N	Reported flowed 2 gpm July 3, 1941.
* 207	K- 13	McCarthy Oil Co.	Pitre Water Wells	1945	214	4	0- 214	192- 214	CU	6	- 8	Nov. 1945	N	N	Drilled to 414 ft; plugged back to 214 ft. 1/
* 301	L- 28	G.R. Canada	Geo. Abshier	1939	220	2	0- 220	200- 220	CU	3	+ 2.4	Aug. 21, 1941	N	N	
* 302	L- 27	do	The Texas Co.	1939	650	4	0- 650	None	CL	5	- 2.0	July 18, 1941	C,W	S	Reported flowed until 1939.
* 401	K- 19	Humble Oil & Refining Co.	Andy Frankland	1948	241	6	0- 241	206- 241	CU	11	- 12	Oct. 1948	J,E	D	
* 403	K- 21	E. Whitehead	E. Whitehead	1910	18	1 1/2	0- 18	14- 18	CU	12	- 5	1940	N	N	4-ft sand point 14 to 18 ft.
* 406	K- 24	Frankland Estate	--	1916	18	2	0- 18	--	CU	10	--	--	C,W	S	
* 407	--	H.J. Whitehead	Andy Frankland	1950	220	2	0- 220	210- 220	CU	12	--	--	J,E	D	
408	--	Humble Oil & Refining Co.	--	1948	10,024	--	--	--	--	7	--	--	--	--	Oil test. 2/
* 507	K- 18	Ocie Jackson	Andy Frankland	1943	735	2	0- 735	715- 735	CL	3	+ 1	Sept. 1943	C,W	S	
* 502	K- 37	W.L. Moody	Geo. Abshier	1938	292	2	0- 292	272- 292	CU	5	+ 1.5	July 18, 1941	N	N	
* 601	L- 45	G.R. Canada	do	1931	265	2	0- 265	--	CU	5	+ 2.1	do	N	N	
602	L- 43	W.L. Moody	Andy Frankland	1942	292	2	0- 292	282- 292	CU	5	+ 1	July 1943	C,W	S	
* 603	L- 44	U.S. Dept. of Agriculture	Geo. Abshier	1937	230	2	0- 230	--	CU	5	+ 2.3	July 18, 1941	N	N	

See footnotes at end of table.

Table 4.--Records of Wells in Chambers and Jefferson Counties and Adjacent Areas--Continued

WELL	PREVIOUS WELL NUMBER	OWNER	DRILLER	DATE COMPLETED	DEPTH OF WELL (FT)	CASING: DIAMETER OF WELL (IN.)	CASING: INTERVAL (FT)	SCREEN INTERVAL(S) (FT)	WATER BEARING UNITS(S)	SURFACE ELEVATION (FT)	WATER LEVEL: REFERRED TO LAND SURFACE (FT)	WATER LEVEL: DATE OF MEASUREMENT	METHOD OF LIFT	USE OF WATER	REMARKS
DH-64-27-604	--	Humble Oil & Refining Co.	--	1961	12,451	--	--	--	--	5	--	--	--	--	Oil test. 2/
* 701	K- 35	E. Whitehead	Geo. Abshier	1938	268	2	0- 268	248- 268	CU	2	- 1	1940	C,W	S	Reported no sand above 228 ft.
702	--	S.W. Mahoney	Andy Frankland	1962	126	4	0- 126	116- 126	CU	10	- 10.5	Nov. 15, 1966	T,E	D	1/
801	K- 36	W.L. Moody	do	1943	397	2	0- 397	381- 397	C	5	+ 1	July 1943	C,W	S	
* 28-101	L- 32	Carl Fitzgerald	Andy Frankland	1948	204	4	0- 204	--	CU	3	- 3	Nov. 1948	N	N	
102	L- 33	do	do	1948	233	4, 2	0- 233 223- 233	223- 233	CU	1	- 3 - .4	July 1948 Mar. 16, 1949	C,W	S	
* 301	L- 37	Guy Jackson	Pear Broussard	--	720	2	0- 720	--	CL	5	+ 6.3	Aug. 23, 1941	N	N	
* 302	L- 38	do	--	--	245	2	--	--	CU	5	+ 1.8	do	N	N	
* 303	L- 39	do	J.F. Abshier	--	240	8, 3	--	--	CU	5	+ 1.6	Aug. 23, 1941	N	N	Reported small amount of natural gas with water in 1941.
* 401	L- 46	G.R. Canada	Geo. Abshier	1939	251	2	0- 251	231- 251	CU	5	+ 1.4	Aug. 21, 1941	C,W	S	
* 402	L- 48	E.A. Wilburn	R.J. Thompkins	1931	262	3	0- 262	242- 262	CU	5	+	July 1941	C,W	S	Reported flowed 1 gpm July 3, 1941.
* 501	L- 49	do	Geo. Abshier	1938	280	2	0- 280	260- 280	CU	3	+	July 1941	C,W	S	Estimated flow 3 1/2 gpm July 3, 1941.
503	--	Standard Oil Co.	--	1956	10,450	--	--	--	--	3	--	--	--	--	Oil test. 2/
* 29-201	M- 17	R. Barrow	J.F. Abshier	1925	200	2	0- 200	190- 200	CU	2	+	1925	N	N	
501	--	Placid Oil Co.	--	1948	8,228	--	--	--	--	4	--	--	--	--	Oil test. 2/
* 502	--	do		1965	1,330	9, 5	0-1,091 789-1,307	1,099-1,248 1,258-1,300	CL	2	- 11.8	Aug. 17, 1965	T,E	Ind	
65-32-614		State Tract 301 well # 1	The Sparta Oil Co., et al	1959	8,853	--	--	--	--	0	--	--	--	--	Oil test. 2/

Jefferson County

WELL	PREVIOUS WELL NUMBER	OWNER	DRILLER	DATE COMPLETED	DEPTH OF WELL (FT)	CASING: DIAMETER OF WELL (IN.)	CASING: INTERVAL (FT)	SCREEN INTERVAL(S) (FT)	WATER BEARING UNITS(S)	SURFACE ELEVATION (FT)	WATER LEVEL: REFERRED TO LAND SURFACE (FT)	WATER LEVEL: DATE OF MEASUREMENT	METHOD OF LIFT	USE OF WATER	REMARKS
*PT-61-54-901	66	C.E. Lowry	--	--	21	36	0- 21	None	CU	30	- 6.9	Mar. 10, 1941	J,E	D,S	Dug well. Wood casing.
* 902	--	Gulf Coast Enterprise	Mitchell Bros.	1963	450	6	0- 450	350- 371 429- 450	CL	26	--	--	T,E	P	
* 55-401	69	Joe Richardson	O.B. Landrum	1940	51	1 1/4	0- 51	--	CU	27	--	--	N	N	Destroyed.

See footnotes at end of table.

Table 4.--Records of Wells in Chambers and Jefferson Counties and Adjacent Areas--Continued

WELL	PREVIOUS WELL NUMBER	OWNER	DRILLER	DATE COMPLETED	DEPTH OF WELL (FT)	CASING: DIAMETER OF WELL (IN.)	CASING: INTERVAL (FT)	SCREEN INTERVAL(S) (FT)	WATER BEARING UNITS(S)	SURFACE ELEVATION (FT)	WATER LEVEL: REFERRED TO LAND SURFACE (FT)	WATER LEVEL: DATE OF MEASUREMENT	METHOD OF LIFT	USE OF WATER	REMARKS
*PT-61-55-503	72	Kirby Lumber Corp.	J.D. Adams	1937	315	8	0- 315	275- 315	C	14		--	N	N	Destroyed.
* 504	75	do	--	1910	600	6	--	--	CL	14	+ 18.0	Sept. 27, 1941	N	N	Do.
* 505	74	do	--	1911	280	6	0- 280	240- 280	C	13	+ 1.6	Sept. 27, 1941	N	N	Do.
* 506	73	do	--	1911	100	10, 6	--	88- 100	CU	14	+ 2.2	do	N	N	Do.
* 507	76	H.K. Meeks	J.D. Adams	1935	180	4	0- 180	172- 180	CU	24		--	N	N	Do.
* 508	71	Texas Public Service Co.	Giles & Williams	1910	320	10	0- 320	280- 320	C	10	+	Mar. 1941	N	N	Do.
* 509	70	J.A. Nichols	J.A. Nichols	1939	14	1 1/4	0- 14	--	CU	15	--	--	N	N	Driven well. Sand point on bottom.
* 510	78	J.G. Bythewood	--Williams	1924	280	4	0- 280	240- 280	C	29	--	--	N	N	
* 511	77	Charles Noble	Paul Acheson	1937	234	1 1/4	0- 234	230- 234	C	30	--	--	N	N	Ten gauge screen.
* 701	68	Geo. Tammen	do	1937	68	2	0- 68	64- 68	CU	36	- 9	1937	N	N	
* 702	--	Floyd Miles	--	1956	167	1 1/2	0- 167	--	CU	21	--	--	J,E	D	
* 703	--	W.R. Whitfield	--Chance	1953	190	2	0- 190	180- 190	CU	26	- 5	1953	J,E	D	
704	--	J.R. Watson	--	1947	200	2	0- 200	--	CU	22	--	--	J,E	D	
* 705	--	J.W. Barry	Greene Bros.	1962	85	2	0- 85	--	CU	33	--	--	J,E	P	
706	--	R.L. Chance & J.C. Chance, Jr., B.E. Quinn well 1	--	1955	2,341	--	--	--	--	30	--	--	--	--	Oil test. 2/
* 801	84	Texas Public Service Co.	Paul Acheson	1940	70	1 1/4	0- 70	62- 70	CU	35	--	--	N	N	
* 802	83	F.W. Hawley	do	1936	68	3	0- 68	60- 68	CU	34	--	--	N	N	Destroyed.
* 803	81	H. Visser	do	1935	63	2	0- 63	--	CU	32	- 8	Mar. 1940	N	N	Do.
* 804	80	Rosedale Voth School	do	1939	70	2	0- 70	62- 70	CU	30	--	--	N	N	
* 805	79	Roy Guess	--Craig	1929	187	5, 4	--	167- 187	CU	34	- 11.5	Mar. 15, 1941	N	N	
* 806	--	Jefferson County Precinct	Paul Acheson	1950	275	2	0- 275	--	C	37	--	--	J,E	D	

See footnotes at end of table.

Table 4.--Records of Wells in Chambers and Jefferson Counties and Adjacent Areas--Continued

WELL	PREVIOUS WELL NUMBER	OWNER	DRILLER	DATE COMPLETED	DEPTH OF WELL (FT)	CASING: DIAMETER OF WELL (IN.)	CASING: INTERVAL (FT)	SCREEN INTERVAL(S) (FT)	WATER BEARING UNITS(S)	SURFACE ELEVATION (FT)	WATER LEVEL: REFERRED TO LAND SURFACE (FT)	WATER LEVEL: DATE OF MEASUREMENT	METHOD OF LIFT	USE OF WATER	REMARKS
*PT-61-55-901	87	W.S. Crocker	Paul Acheson	1940	69	1 1/4	0- 69	65- 69	CU	32	--	--	N	N	Destroyed.
* 902	89	S.P. Williams	do	1940	199	1 1/2	0- 199	192- 199	CU	20	--	--	N	N	
* 903	86	J.J. Bonura	--Williams	1941	72	2	0- 72	68- 72	CU	35	--	--	N	N	Destroyed.
* 56-701	90	Beaumont Country Club	George Rainey	1907	650	4	0- 650	--	CL	18	--	--	N	N	
* 702	91	do	Layne-Texas Co.	1937	534	8, 6	0- 112 112- 534	224- 249 321- 342 387- 409	CL	17	- 3.0	Mar. 28, 1941	N	N	1/
* 704	92	Pine Grove Golf Course	V.R. Phelps	1939	140	1 1/2	0- 140	--	CU	21	--	--	N	N	
* 61-308	1	Hart's Place	S.H. Mixon	1940	96	1 1/2	0- 96	92- 96	CU	35	- 4.4	June 10, 1941	J,E	D	
* 501	--	Austin Briscoe	China Plumbing Co.	1965	168	2	0- 168	--	CU	37	--	--	J,E	D	
601	--	Lawrence J. Kelly Carpenter well 1	--	1957	8,515	--	--	--	--	40	--	--	--	--	Oil test. 2/
* 602	2	Tyrrell Trust	--	1903	300	4	0- 300	--	C	35	- 6.7	Mar. 11, 1941	N	N	Destroyed.
* 801	34	C.L. Freeman	--	1926	30	36	0- 30	None	CU	45	- 4	Mar. 1941	N	N	Dug well. Destroyed.
* 803	32	Southern Pacific Co.	--	1940	98	12	0- 98	77- 97	CU	41	- 9 - 5.8	June 1940 June 15, 1966	J,E	Ind,D	
* 804	31	W.G. Frenzel	Paul Acheson	1940	118	1 1/4	0- 118	114- 118	CU	42	- 11	1940	N	N	
* 805	--	--Aldrich	V.R. Phelps	1955	330	2	0- 330	--	CL	44	--	--	J,E	D,S	
* 806	--	do	--	Old	120	2	0- 120	--	CU	45	--	--	J,E	D,S	
807	33	Southern Pacific Co.	Gust C. Warnecke	1906	692	8	0- 692	--	E	41	+ 2	1907	N	N	Destroyed. 1/
* 901	27	--Beaver	--	Old	12	42	0- 12	None	CU	33	--	--	N	N	Destroyed. Dug well. Wood casing. 1/
902	35	Hugh Long	--	1902	132	8	0- 132	--	CU	35	+	1902	N	N	Destroyed.
* 903	30	Jimmie Gober	Paul Acheson	1940	125	2	0- 125	119- 125	CU	45	--	--	N	N	
* 904	29	Nelson Laidacker	Bud Ansoline	1931	176	4	0- 176	--	CU	42	- 11.1	May 17, 1941	N	N	Destroyed.

See footnotes at end of table.

Table 4.--Records of Wells in Chambers and Jefferson Counties and Adjacent Areas--Continued

WELL	PREVIOUS WELL NUMBER	OWNER	DRILLER	DATE COMPLETED	DEPTH OF WELL (FT)	CASING: DIAMETER OF WELL (IN.)	CASING: INTERVAL (FT)	SCREEN INTERVAL(S) (FT)	WATER BEARING UNITS(S)	SURFACE ELEVATION (FT)	WATER LEVEL: REFERRED TO LAND SURFACE (FT)	WATER LEVEL: DATE OF MEASUREMENT	METHOD OF LIFT	USE OF WATER	REMARKS
*PT-61-61-905	--	Shell Oil Co.	--	1937	441	6, 4, 3, 2	--	420- 441	CL	42	- 13	1937	Cf,E	D	Well reworked in 1954.
* 906	--	V. Denton	--	1955	115	2	0- 115	109- 115	CU	35	--	--	Cf,E	D	
* 62-201	4	N.E. Laidacker	Paul Acheson	1938	198	3	0- 198	--	CU	43	--	--	N	N	
* 202	5	Chas. C. Huff	--	1936	250	2	0- 250	--	C	37	--	--	N	N	
* 203	6	C.C. Dailey	C.C. Dailey	1939	26	3	0- 26	--	CU	43	- 9	1939	N	N	Destroyed.
* 204	7	Mrs. Raymond Lewis	Paul Acheson	1940	229	2	0- 229	223- 229	C	40	--	--	N	N	
* 205	--	John P. Yancey	--Sears	1964	195	2	0- 195	--	CU	39	--	--	J,E	D	
* 206	--	J.N. Dickens	Mitchell Bros.	1964	72	2	0- 72	--	CU	35	--	--	J,E	D	
* 207	--	C.C. Dailey	--	1949	240	2	0- 240	--	C	43	--	--	J,E	D	
301	65	Mrs. F. Bridgeman	V.R. Phelps	1940	94	2	0- 94	86- 94	CU	39	--	--	N	N	Destroyed.
* 302	11	Al Jagneaux	Blackie Jordan	1938	115	3, 1 1/4	--	--	CU	36	--	--	C,H	D,S	
303	10	Mrs. E. Abel	Pitre Water Wells	1938	102	4	0- 102	96- 102	CU	38	- 8.0	Mar. 11, 1941	N	N	Destroyed.
* 304	9	Edmund Le June	Edmund Le June	1941	17	1 3/4	0- 15	None	CU	40	--	--	C,H	D	Reported sand from 3 to 4 ft.
* 305	8	Magnolia Pipeline Co.	Paul Acheson	1940	208	2	0- 208	200- 208	C	39	- 8	1940	N	N	Destroyed.
* 306	--	B.A. Roll	do	1948	226	2	0- 226	216- 226	C	39	- 27	1948	J,E	D,S	Reported no water above 226 ft.
307	--	S.M. Johnson	--	--	100	2	0- 100	--	CU	39	--	--	J,E	D	
308	--	H.B. Dugan	--	1960	150	2	0- 150	--	CU	35	- 12	1966	J,E	D,S	
* 309	--	--Satter	--	--	200	2	0- 200	--	CU	43	--	--	J,E	D	
401	--	Sun Oil Co.	--	1953	1,939	--	--	--	--	42	--	--	--	--	Oil test 2/
* 402	24	R. Blake Mackan	Paul Acheson	1940	72	2	0- 72	66- 72	CU	40	--	--	N	N	Destroyed.
* 403	23	J.C. Blanch	do	1940	204	2	0- 204	198- 204	C	45	- 29.2	June 16, 1966	N	N	
* 404	22	L. Thibodeaux	L. Thibodeaux	1929	11	36	0- 11	None	CU	40	- 3.8	Mar. 11, 1941	C,H	D,S	Dug well.

See footnotes at end of table.

Table 4.--Records of Wells in Chambers and Jefferson Counties and Adjacent Areas--Continued

WELL	PREVIOUS WELL NUMBER	OWNER	DRILLER	DATE COMPLETED	DEPTH OF WELL (FT)	CASING		SCREEN INTERVAL(S) (FT)	WATER BEARING UNITS(S)	SURFACE ELEVATION (FT)	WATER LEVEL		METHOD OF LIFT	USE OF WATER	REMARKS
						DIAMETER OF WELL (IN.)	INTERVAL (FT)				REFERRED TO LAND SURFACE (FT)	DATE OF MEASUREMENT			
*PT-61-62-405	21	N.E. Laidacker	Paul Acheson	1940	225	2	0- 225	217- 225	C	42	--	--	N	N	
* 406	20	Ed Goudet	do	1940	142	1 1/2	0- 142	138- 142	CU	41	- 10	Sept. 1940	N	N	
* 407	19	Southern Pacific Co.	--	1931	246	2, 2	--	--	C	41	- 10	1941	N	N	
408	17	China School District	Paul Acheson	1933	250	2	0- 250	--	C	36	- 17	1933	N	N	
* 409	25	N.E. Laidacker	do	1921	206	1 1/2	0- 206	--	C	43	- 12	1921	N	N	
* 410	--	Blake Mackan	--	1963	260	2	0- 260	250- 260	C	44	--	--	J,E	D	
411	--	J.C. Blanch	--Goodwin	1960	208	2	0- 208	--	C	45	- 30	1960	J,E	D	
* 413	--	W. Higgenbottom	do	1953	232	6, 4	0- 72 72- 232	--	CU	40	--	--	T,E	P	
414	--	do	Pitre Water Wells	1964	232	4	0- 232	--	C	40	- 20	1964	T,E	P	
501	3	N.E. Laidacker	--Gunn	1915	208	3	0- 208	--	C	41	- 15.3	May 17, 1941	N	N	Destroyed.
* 502	16	W. Higginbotham	--	1927	14	36	0- 14	--	CU	36	- 2.7	June 10, 1941	N	N	Dug well. Wood casing. Destroyed.
* 503	15	do	--	--	16	6	0- 16	--	CU	28	- 1.5	June 10, 1941	N	N	Bored well. Concrete casing.
* 504	14	Broussard Trust	--	Old	19	42	0- 19	None	CU	31	- 7.1	June 10, 1941	N	N	Dug well. Wood casing. Destroyed.
* 505	18	E.A. Luce	Paul Acheson	1940	252	2	0- 252	244- 252	C	40	--	--	N	N	
* 507	--	Research Farm	Green Bros.	1965	102	4	0- 102	--	CU	34	--	--	J,E	D	
* 601	62	Roy Meagher	Paul Acheson	--	150	2	0- 150	--	CU	32	--	--	N	N	Destroyed.
* 602	61	Broussard Trust	Lee Fontenot	1940	17	36	0- 17	None	CU	36	--	--	N	N	Dug well. Destroyed.
* 603	12	J.S. McCormack	J.S. McCormack	1924	23	30	0- 23	None	CU	36	--	--	N	N	Dug well. Tin casing.
* 604	--	Mrs. Duplex Melancon	--	1956	164	2	0- 164	--	CU	37	- 17	1965	J,E	D,S	
* 701	43	Cleveland Jeanise	Cleveland Jeanise	1937	19	6	0- 19	None	CU	22	--	--	N	N	Bored well. Destroyed.
* 704	40	Texas Public Service Co.	--	1935	120	2	0- 120	116- 120	CU	30	--	--	N	N	Destroyed.
* 705	26	Mrs. C.O. Thompson	--	--	15	36	0- 15	None	CU	34	- .8	June 10, 1941	N	N	Dug well. Wood casing.

See footnotes at end of table.

Table 4.--Records of Wells in Chambers and Jefferson Counties and Adjacent Areas--Continued

WELL	PREVIOUS WELL NUMBER	OWNER	DRILLER	DATE COMPLETED	DEPTH OF WELL (FT)	CASING: DIAMETER OF WELL (IN.)	CASING: INTERVAL (FT)	SCREEN INTERVAL(S) (FT)	WATER BEARING UNITS(S)	SURFACE ELEVATION (FT)	WATER LEVEL: REFERRED TO LAND SURFACE (FT)	WATER LEVEL: DATE OF MEASUREMENT	METHOD OF LIFT	USE OF WATER	REMARKS
*PT-61-62-706	--	W.H. Beavers	Auto Pump Drilling Co.	1958	350	2	0- 350	--	CL	30	--	--	Cf,E	D	
* 901	57	D.S. Wier	--	Old	7	36	--	--	CU	25	- 4.8	Aug. 27, 1941	N	N	Dug well. Wood casing. Destroyed.
* 902	--	Willie Hebert	--	Old	200	2	0- 200	--	C	31	--	--	J,E	D	Not used for drinking purposes.
* 903	--	Ola Pitre	--	--	25	48	0- 25	None	CU	30	--	--	J,E	D	Dug well. Concrete casing.
* 63-101	64	Eula Dishman	--	1935	100	1 1/2	0- 100	96- 100	CU	38	--	--	J,E	D,S	
* 102	63	John F. Pipkin	Paul Acheson	1938	120	2	0- 120	--	CU	37	--	--	J,E	D,S	
103	--	A. Martin	--Goodwin	1942	150	2	0- 150	--	CU	41	--	--	J,E	D	
* 202	99	W.P. McCormack	--	1941	24	8	0- 24	None	CU	32	- 2.5	Mar. 14, 1941	N	N	Destroyed.
* 203	100	F.C. Gaily	Sun Oil Co.	1938	65	2	0- 65	--	CU	32	--	--	N	N	Do.
* 204	101	Yount Estate	Conn & Gracy	1936	265	4	0- 265	--	C	27	- 8.2	June 10, 1941	N	N	
* 205	82	S. Rutledge	--	1928	14	1 1/2	0- 14	--	CU	36	--	--	N	N	Destroyed.
* 206	--	Gilbert McCormack	Frank Major	1966	200	2	0- 200	--	C	32	--	--	J,E	D	Plastic casing.
* 207	--	S. Rutledge	--	1962	69	2	0- 69	--	CU	36	--	--	J,E	D	
* 301	94	Frank Vaughn	Paul Acheson	--	68	1 1/2	0- 68	64- 68	CU	32	--	--	N	N	
* 302	95	E.H. Smallwood	do	1940	67	1 1/4	0- 67	59- 67	CU	30	--	--	N	N	Destroyed.
* 303	96	Stanolind Oil & Gas Co.	--	1918	33	36	0- 33	None	CU	29	- 21	Mar. 1941	N	N	Dug well. Destroyed.
304		do		1940	5,378		--	--	--	27	--	--	--	--	Oil test. 2/
305	110	Hugh Oxford	F.R. Balcar	Old	340	4	0- 340	--	CL	20	- 5.5	Mar. 4, 1941	N	N	Destroyed.
* 306	111	J.G. Fuqua	Paul Acheson	1940	65	2	0- 65	59- 65	CU	21	--	--	N	N	Do.
* 307	97	J. Kinsolving	do	1940	157	2	0- 157	151- 157	CU	24	--	--	N	N	
* 401	103	C. Richards	--	1930	17	72	0- 17	None	CU	29	- 1.2	Mar. 20, 1941	N	N	Dug well.
* 402	60	J.H. Stagg	J.H. Stagg	1932	70	4	--	None	CU	37	--	--	Cf,E	D,S	
* 403	59	J.W. Cooley	J.W. Cooley	1925	28	10	0- 28	--	CU	35	--	--	C,H	D,S	Bored well.
* 404	102	City of Beaumont	Paul Acheson	1940	115	2	0- 115	109- 115	CU	32	--	--	J,E	D,P	

See footnotes at end of table.

Table 4.--Records of Wells in Chambers and Jefferson Counties and Adjacent Areas--Continued

WELL	PREVIOUS WELL NUMBER	OWNER	DRILLER	DATE COMPLETED	DEPTH OF WELL (FT)	CASING: DIAMETER OF WELL (IN.)	CASING: INTERVAL (FT)	SCREEN INTERVAL(S) (FT)	WATER BEARING UNITS(S)	SURFACE ELEVATION (FT)	WATER LEVEL: REFERRED TO LAND SURFACE (FT)	WATER LEVEL: DATE OF MEASUREMENT	METHOD OF LIFT	USE OF WATER	REMARKS
*PT-61-63-405	--	W.E. Johnson	Mitchell Bros.	1961	105	2	0- 105	--	CU	32	--	--	J,E	D	
* 406	--	J.C. Lockard	do	1964	155	2	0- 155	--	CU	29	--	--	J,E	D	Plastic casing.
* 501	105	Long & Guinn	Paul Acheson	1940	65	1 1/4	0- 65	61- 65	CU	29	--	--	N	N	Destroyed.
* 502	106	Amelia School District	do	1938	130	2	0- 130	122- 130	CU	29	- 12	1938	T,E	Irr	
* 503	107	H.F. Walton	do	1940	234	3, 2	--	222- 234	C	21	--	--	N	N	
* 504	108	Paul Acheson	do	1938	80	2	0- 80	72- 80	CU	24	- 10	1938	N	N	Destroyed.
* 505	109	Amelia School District	do	1940	79	1 1/4	0- 79	75- 79	CU	26	--	--	N	N	
* 506	117	R.H. Barrett	do	1940	115	1 1/4	0- 115	111- 115	CU	24	--	--	N	N	Destroyed.
* 507	118	R.J. Peveto	do	1940	130	1 1/4	0- 130	122- 130	CU	26	--	--	N	N	
* 508	104	Hank Wooten	do	1940	129	1 1/4	0- 129	--	CU	28	--	--	N	N	Destroyed.
* 601	116	J.S. Rosheger	do	1940	62	2	0- 62	56- 62	CU	17	--	--	N	N	
* 701	120	Henry Spears	Henry Spears	1940	21	2	0- 21	17- 21	CU	24	- 10	Mar. 1941	N	N	Bored well.
* 702	58	Bea L. Garrett	--	--	18	36	0- 18	None	CU	31	--	--	N	N	Dug well. Destroyed.
* 703	--	Ed Gehed	--	1953	16	36	0- 16	None	CU	32	--	--	J,E	D	Dug well. Concrete casing.
* 704	--	Earl Nobles	--	1963	24	36	0- 24	None	CU	32	--	--	J,E	D	Do.
705	--	do	--	Old	169	2	0- 169	--	CU	24	- 14.7	June 24, 1966	N	N	Reported water salty.
* 801	119	P.H. Teal	P.H. Teal	1933	20	4	0- 20	None	CU	22	--	--	N	N	Tile casing. Bored well.
* 802	122	Tyrrell Trust	Clyde Lewis	1922	242	4	0- 242	None	C	16	--	--	C,W	S	
* 803	121	Fred Zoch	William Peat	1938	24	48	0- 24	None	CU	19	--	--	Cf,E	S	Dug well.
* 804	--	W.A. Stirling, Jr.	G. Ballinger	1964	130	3	0- 130	--	CU	24	--	--	J,E	D	
* 805	--	Fitzgerald Estate	--	Old	30	36	0- 30	None	CU	19	--	--	J,E	D	Dug well. Concrete casing.
806	D- 6	Humble Oil & Refining Co.	--	1959	8,431	--	--	--	--	20	--	--	--	--	Oil test. 2/
* 901	123	A.W. Geitsen	Paul Acheson	1940	58	1 1/4	0- 58	54- 58	CU	14	--	--	Cf,E	D,S	

See footnotes at end of table.

Table 4.--Records of Wells in Chambers and Jefferson Counties and Adjacent Areas--Continued

WELL	PREVIOUS WELL NUMBER	OWNER	DRILLER	DATE COMPLETED	DEPTH OF WELL (FT)	CASING: DIAMETER OF WELL (IN.)	CASING: INTERVAL (FT)	SCREEN INTERVAL(S) (FT)	WATER BEARING UNITS(S)	SURFACE ELEVATION (FT)	WATER LEVEL: REFERRED TO LAND SURFACE (FT)	WATER LEVEL: DATE OF MEASUREMENT	METHOD OF LIFT	USE OF WATER	REMARKS
*PT-61-63-902	124	G.W. Downs	G.W. Downs	1935	20	48	0- 20	None	CU	14	--	--	Cf,E	S	Dug well. Wood casing.
* 903	125	M. Biehler	M. Biehler	1931	45	1 1/4	0- 45	41- 45	CU	15	--	--	Cf,E	D,S	Bored well.
64-102	112	J.F. Keith	--	Old	700	4	--	--	CL	19	- 4.7	Mar. 30, 1941	N	N	Reported flowed when drilled.
* 103	113	Crystal Ice Co.	Frank Balcar	Old	240	4	--	--	C	12	--	--	N	N	
* 104	93	Spence Charlton	--	1932	9	36	--	--	CU	14	- 2.7	Jan. 29, 1942	N	N	Dug well. Wood casing.
* 402	115	Cummer-Graham Co.	A.E. Fawcett	1939	78	6	0- 78	62- 78	CU	18	--	--	N	N	
* 404	--	San Jacinto Bldg.	Layne-Texas Co.	1961	540	10, 6	0- 380 - 540	390- 430 500- 530	CL	23	- 33	Dec. 1961	T,E	Ind	
* 501	126	Mobil Oil Co.	do	1941	620	12, 8	0- 496 405- 620	494- 612	CL	26	- 19.8	Sept. 23, 1941	T,E	Ind	1/
* 502	--	Gulf State Utilities Co.	Coastal Water Wells	1957	435	20, 10	0- 306 212- 435	--	CL	10	- 20.6 - 31.8	Feb. 28, 1963 Mar. 17, 1966	T,E	Ind	Drilled to 630 ft; plugged back to 435 ft. 121 ft of screen between 306 and 435 ft. 1/
503	--	Gulf State Utilities Co.	Coastal Water Wells	1956	450	16, 10	0- 375 286- 450	--	CL	15	- 48 - 26.7 - 35.4	Jan. 1963 Feb. 28, 1963 Mar. 16, 1966	N	N	58 ft of screen between 375 and 450 ft.
* 504	129	Olin Mathieson Co.	Frank Balcar	1930	641	10, 8	0- 575 575- 641	532- 575 600- 639	CL	21	- 8.6	July 15, 1941	T,E	N	Unused in 1966. 1/
505	--	Mobil Oil Co.	Texas Water Wells, Inc.	1961	775	20, 12	0- 415 315- 775	420- 454 514- 544 552- 628 710- 770	CL	26	- 37.6 - 46.2	Feb. 21, 1963 Mar. 23, 1966	T,G	Ind	Drilled to 909 ft; plugged back to 775 ft. 1/
506	--	do	do	1959	765	20, 12	0- 410 315- 765	415- 455 510- 550 600- 630 680- 760	CL	25	- 35 - 37.8 - 46.2	1960 Feb. 27, 1963 Mar. 23, 1966	T,G	Ind	Drilled to 908 ft; plugged back to 765 ft. 1/
508	--	Gulf State Utilities Co.	Coastal Water Wells	1956	1,612	--	0-1,612	--	--	5	--	--	--	--	Test hole. 1/
509	--	do	do	1956	542	20, 10	0- 380	--	CL	8	- 26.7 - 19.7 - 27.2	Jan. 28, 1963 Feb. 28, 1963 Mar. 16, 1966	N	N	104 ft of stainless steel screen between 380 and 542 ft.
510	--	Gulf State Utilities Co.	Coastal Water Wells	1957	248	16, 10, 8	--	185- 246	C	13	- 10.8 - 10.7	Jan. 28, 1963 Mar. 16, 1966	N	N	1/

See footnotes at end of table.

Table 4.--Records of Wells in Chambers and Jefferson Counties and Adjacent Areas--Continued

WELL	PREVIOUS WELL NUMBER	OWNER	DRILLER	DATE COMPLETED	DEPTH OF WELL (FT)	CASING		SCREEN INTERVAL(S) (FT)	WATER BEARING UNITS(S)	SURFACE ELEVATION (FT)	WATER LEVEL		METHOD OF LIFT	USE OF WATER	REMARKS
						DIAMETER OF WELL (IN.)	INTERVAL (FT)				REFERRED TO LAND SURFACE (FT)	DATE OF MEASUREMENT			
*PT-61-64-511	127	Magnolia Petroleum Co.	Layne-Texas Co.	1930	600	--	--	--	CL	20	--	--	N	N	Abandoned, 1941.
512	130	Olin Mathieson Co.	Frank Balcar	1940	145	4	0- 145	--	CU	20	- 15.7	Mar. 8, 1941	N	N	
* 513	--	Mobil Oil Co.	Layne-Texas Co.	1964	476	12, 7	0- 375 275- 476	386- 466	CL	25	- 40	1964	T,E	Ind	Drilled to 640 ft; plugged back to 476 ft. Gravel-packed. .045 gauge stainless steel screen. 1/
* 701	138	N.S. Whitman Estate	V.R. Phelps	1941	45	1 1/4	0- 45	41- 45	CU	12	- 6	Apr. 1941	C,W	S	
* 702	136	do	do	1941	77	1 1/4	0- 77	69- 77	CU	10	- 6	Apr. 1941	C,W	S	Reported produces some gas with water.
* 703	137	John W. Fish	--	--	60	1 1/4	0- 60	--	CU	17	--	--	Cf,E	D,S	
* 705	135	N.S. Whitman Estate	V.R. Phelps	1941	159	1 1/4	0- 159	151- 159	CU	9	--	--	C,W	S	
* 801	226	McFadden Trust	--	1890	27	48	0- 27	None	CU	22	- 10.9	Apr. 15, 1941	N	N	Dug well. Concrete casing. Destroyed.
* 802	132	R.E. Masterson	--	Old	22	4	0- 22	--	CU	19	- 2.1	Jan. 29, 1942	N	N	Bored well.
803	133	Philp Bros.	Higgins Oil & Fuel Co.	1901	1,006	6	--	--	--	25	--	--	--	--	Oil test. 1/
804	134	McFadden, Wiess, & Kyle	J.G. & A.W. Hamill	1901	1,160	--	--	--	--	15	--	--	--	--	Original "Lucas Gusher" in spindletop oil field. 1/
* 805	--	Merchants Truck Line	Mitchell Bros.	1961	115	4	--	--	CU	20	- 18.6	May 16, 1966	T,E	D,Ind	
* 901	--	Air Reduction Corp.	Layne-Texas Co.	1962	540	10, 6	0- 450 351- 540	462- 482 505- 525	CL	21	- 33 - 39.2	Oct. 1962 May 16, 1966	T,E	Ind	Water sampled at: 462-525 ft. 1/
* 902	--	do	do	1962	550	10, 6	0- 497 394- 550	497- 550	CL	20	- 32 - 36.5	Oct. 1962 May 16, 1966	T,E	Ind	Water sampled at: 500-530 ft. 1/
* 903	--	Big Three Industrial Gas Co.	do	1965	590	10, 6	0- 500 390- 590	504- 574	CL	16	- 34	Dec. 1964	T,E	Ind	1/
* 904	--	do	do	1964	590	10, 6	0- 485 385- 590	495- 535 545- 575	CL	17	- 35	Nov. 1964	T,E	Ind	Test hole. Drilled to 780 ft. Reported 3,075 ppm chloride from test at 720,740 ft. 1/

See footnotes at end of table.

Table 4.--Records of Wells in Chambers and Jefferson Counties and Adjacent Areas--Continued

WELL	PREVIOUS WELL NUMBER	OWNER	DRILLER	DATE COMPLETED	DEPTH OF WELL (FT)	CASING: DIAMETER OF WELL (IN.)	CASING: INTERVAL (FT)	SCREEN INTERVAL(S) (FT)	WATER BEARING UNITS(S)	SURFACE ELEVATION (FT)	WATER LEVEL: REFERRED TO LAND SURFACE (FT)	WATER LEVEL: DATE OF MEASUREMENT	METHOD OF LIFT	USE OF WATER	REMARKS
PT-62-57-703	251	Pure Oil Co.	--Walling	1938	608	8, 6	0- 470 608	504- 608	CL	15	--	--	N	N	Lead seal at 439 ft. 1/
* 704	245	do	do	1934	602	8, 6	0- 458 602	478- 520 561- 602	CL	19	- 13.0 - 37.1	Mar. 11, 1941 Mar. 17, 1966	N	N	Lead seal at 433 ft. 1/
* 705	--	Sun Pipeline Co.	Layne-Texas Co.	1947	575	7, 5	0- 485	522- 572	CL	15	--	--	T,E	P,Ind	
* 706	238	Pure Oil Co.	--Walling	1923	518	8, 6	0- 455 445- 418	457- 518	CL	18	- 7.9	Mar. 11, 1941	N	N	Destroyed. 1/
* 707	241	do	do	1923	606	8, 6	0- 450 606	479- 521 563- 606	CL	18	- 7.1	do	N	N	Lead seal at 437 ft. Destroyed. 1/
* 708	253	Magnolia Petroleum Co.	--	Old	774	8, 4	--	--	CL	15	- 3.7	Sept. 23, 1941	C	Ind	Reworked in 1939. Powered by steam.
* 709	249	Pure Oil Co.	--Walling	1938	605	8, 6	0- 452 452- 605	--	CL	7	+ 3.8	Mar. 11, 1941	N	N	1/
710	250	do	do	1938	610	8, 6	0- 463 610	508- 610	CL	18	--	--	N	N	Lead seal at 443 ft. 1/
711	--	Sun Pipeline Co.	Sun Pipeline Co.	--	34	4	0- 34	30- 34	CU	17	- 2.2	May 17, 1966	N	N	Plastic casing.
* 712	237	Sun Oil Co.	--	Old	600	--	--	--	CL	14	- 2.4	Mar. 7, 1941	N	N	Destroyed.
713	244	Pure Oil Co.	--Walling	1925	606	8, 6	0- 455 455- 606	468- 513 560- 606	CL	18	--	--	N	N	1/
714	239	do	do	1923	606	8, 6	0- 453 453- 606	475- 519 562- 606	CL	18	--	--	Cf,E	D	
715	252	do	do	1938	608	8, 6	0- 461 461- 608	504- 608	CL	15	--	--	T,E	Ind	
* 63-01-101	232	C.B. Wagner	C.B. Wagner	1916	30	48	--	None	CU	12	- 6	Apr. 1941	N	N	Dug well. Brick curb.
103	247	Pure Oil Co.	--Walling	1936	608	8, 6	0- 438 438- 608	468- 518 558- 608	CL	14	--	--	N	N	
* 104	235	City of Nederland	Frank Balcar	1937	510	6, 4	0- 482 482- 510	488- 510	CL	21	--	--	N	N	Destroyed. 1/
105	234	do	do	1935	510	6	0- 510	--	CL	21	- 13.2 - 12.3	Mar. 7, 1941 Sept. 23, 1941	N	N	Do.
106	233	do	do	1933	140	6	0- 140	--	CU	21	- 16.1	Mar. 7, 1941	N	N	
* 107	--	Pure Oil Co.	Layne-Texas Co.	1942	530	8, 6	--	--	CL	14	--	--	T,E	P,Ind	

See footnotes at end of table.

Table 4.--Records of Wells in Chambers and Jefferson Counties and Adjacent Areas--Continued

WELL	PREVIOUS WELL NUMBER	OWNER	DRILLER	DATE COMPLETED	DEPTH OF WELL (FT)	CASING: DIAMETER OF WELL (IN.)	CASING: INTERVAL (FT)	SCREEN INTERVAL(S) (FT)	WATER BEARING UNITS(S)	SURFACE ELEVATION (FT)	WATER LEVEL: REFERRED TO LAND SURFACE (FT)	WATER LEVEL: DATE OF MEASUREMENT	METHOD OF LIFT	USE OF WATER	REMARKS
*PT-63-01-108	--	Pure Oil Co.	Layne-Texas Co.	1942	511	8, 6	--	434- 511	CL	17	- 24	1958	T,E	P,Ind	
* 201	--	City of Groves	do	1959	546	6, 4	0- 104 104- 546	520- 540	CL	9	- 15 - 24.2 - 30.8	1959 Feb. 5, 1963 May 17, 1966	N	N	Drilled to 602 ft; plugged back to 546 ft.
202	254	City of Port Arthur	Layne-Bowler Co.	1912	629	11	0- 629	447- 627	CL	19	- 7.0	Mar. 10, 1941	N	N	Destroyed. 1/
* 203	260	The Texas Co.	--	--	656	10, 8	--	--	CL	16	- 3.0	Sept. 23, 1941	N	N	Destroyed.
204	255	City of Port Arthur	Layne-Bowler Co.	1912	657	24, 12	0- 63 63- 657	497- 657	CL	20	- 8.3	Mar. 10, 1941	N	N	Destroyed. 1/
205	256	do	do	1916	682	24, 12	0- 59 59- 682	519- 674	CL	17	- 2.6	do	N	N	Do.
* 206	257	do	Layne-Texas Co.	1933	644	24, 18, 12, 10	--	509- 634	CL	19	- 7.0	do	N	N	1/
* 207	258	City of Port Neches	--	--	60	24	0- 60	--	CU	19	- 2.7	Mar. 30, 1941	N	N	Destroyed.
* 208	259	The Texas Co.	--	--	681	10	0- 681	--	CL	17	--	--	N	N	Do.
* 301	261	L.J. Gibling	--Edler	1906	1,000	4	0-1,000	--	CL	12	- .6 - 23.0	May 18, 1950 Feb. 6, 1964	C,H	S	3/
* 302	264	Atlantic Refining Co.	Layne-Texas Co.	1936	549	8, 6	0- 449 449- 549	449- 547	CL	9	- 14	May 1936	T,E	Ind,P	1/
* 303	263	do	--	Old	822	8	0- 822	--	CL	9	+ 3.2 - 31.7	Mar. 13, 1941 May 12, 1966	A	N	1/
* 304	262	Port Arthur Country Club	--	1927	20	6	--	None	CU	5	- 6.5	Jan. 26, 1942	N	N	Destroyed.
305	265	Atlantic Refining Co.	Layne-Texas Co.	1936	1,471	--	--	--	--	10	--	--	N	N	Test hole. 1/
401	230	Ross Combest	Paul Acheson	1940	91	2	0- 91	--	CU	12	- 8.9	Apr. 14, 1941	N	N	Destroyed.
* 402	231	do	--	1940	24	4	0- 24	18- 24	CU	12	--	--	N	N	
* 501	266	C.R. Bernhardt	--	Old	22	--	--	--	CU	8	- 4.9	Sept. 8, 1966	N	N	Dug well.
* 505	--	Texas Highway Department	Layne-Texas Co.	1964	196	4	0- 196	174- 194	CU	6	--	--	T,E	Ind	Drilled to 600 ft; plugged back to 196 ft. Standby for sanitary facilities. 1/

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Table 4.--Records of Wells in Chambers and Jefferson Counties and Adjacent Areas--Continued

WELL	PREVIOUS WELL NUMBER	OWNER	DRILLER	DATE COMPLETED	DEPTH OF WELL (FT)	CASING: DIAMETER OF WELL (IN.)	CASING: INTERVAL (FT)	SCREEN INTERVAL(S) (FT)	WATER BEARING UNITS(S)	SURFACE ELEVATION (FT)	WATER LEVEL: REFERRED TO LAND SURFACE (FT)	WATER LEVEL: DATE OF MEASUREMENT	METHOD OF LIFT	USE OF WATER	REMARKS
PT-63-01-605	--	City of Groves	Layne-Texas Co.	1966	580	6	0- 580	538- 580	CL	5	- 38	Mar. 1966	--	--	Fiberglass casing.
* 606	--	do	do	1966	814	6	0- 814	784- 814	CL	5	- 25.9	Sept. 20, 1966	T,E	--	Drilled to 887 ft; plugged back to 814 ft. Used for processing sewage. 1/
701	271	The Texas Co.	--	1921	908	12, 9	0- 803 803- 908	866- 908	CL	3	--	--	N	N	Well flowed when drilled. 1/
702	274	do	--	1921	924	12, 9	0- 770 770- 924	840- 924	CL	3	--	--	N	N	Do. 1/
* 703	275	Olin Mathieson Co.	--Balcar	1936	935	12, 8, 6	0- 621 621- 817 817- 935	-- 891- 935	CL	5	+ 1.3	July 16, 1941	N	N	1/
* 09-101	279	Gulf Refining Co.	--	--	950	10	--	--	CL	12	--	--	N	N	Destroyed.
* 102	280	do	Gulf Coast Drilling Co.	1921	946	10, 8	0- 780 780- 886	886- 946	CL	12	--	--	N	N	1/
* 103	284	do	do	1921	965	10, 8	0- 765 765- 965	--	CL	3	+ 6.8	Mar. 25, 1941	N	N	Destroyed. 1/
104	--	do	--	--	--	--	--	--	--	5	- 17.9	Sept. 28, 1966	N	N	
105	--	do	--	--	--	--	--	--	--	5	- 16.9	do	N	N	
* 201	276	Jefferson County	--	1896	1,000	6	0-1,000	--	CL	5	+	Feb. 13, 1941	N	N	Destroyed.
202	277	Gulf State Utilities Co.	Layne-Texas Co.	1927	953	24, 12	0- 113 113- 953	105- 126 512- 532 820- 936	CL	5	- 21	Apr. 1927	N	N	Destroyed. 1/
203	278	do	do	1925	881	24, 12	0- 112 112- 881	216- 239 515- 534 771- 874	CL	5	- 14	Dec. 1925	N	N	Do.
* 17-201	285	Guy Moore	Guy Moore	--	11	1 1/2	0- 11	--	CU	4	--	--	N	N	
* 202	288	A.H. Moss	A.H. Moss	1936	14	48	0- 14	None	CU	6	- 5.0	Apr. 9, 1941	C,W	S	Dug well.
301	286	Granger's Sea Food Cafe	--	--	7	48	0- 7	None	CU	5	- 2.0	Feb. 13, 1941	N	N	Dug well. Destroyed.
* 302	--	George Peltier	George Peltier	1955	13	1 1/4	0- 13	11- 13	CU	7	--	--	C,E	D,S	
* 502	290	Sid Broussard	W.O. Fawvor	1935	13	48	0- 13	None	CU	8	--	--	H	D,S	Dug well. Water from bed of blue shell.
* 503	291	W.O. Fawvor	do	1935	13	2	0- 13	10- 13	CU	8	--	--	N	N	Bored well. Destroyed.

See footnotes at end of table.

Table 4.--Records of Wells in Chambers and Jefferson Counties and Adjacent Areas--Continued

WELL	PREVIOUS WELL NUMBER	OWNER	DRILLER	DATE COMPLETED	DEPTH OF WELL (FT)	CASING: DIAMETER OF WELL (IN.)	CASING: INTERVAL (FT)	SCREEN INTERVAL(S) (FT)	WATER BEARING UNITS(S)	SURFACE ELEVATION (FT)	WATER LEVEL: REFERRED TO LAND SURFACE (FT)	WATER LEVEL: DATE OF MEASUREMENT	METHOD OF LIFT	USE OF WATER	REMARKS
*PT-63-17-504	292	W.O. Fawvor	Works Project Administration	1941	135	4	0- 135	--	CU	8	--	--	N	N	Bored well. Water sampled at: 119 ft. Destroyed. 1/
505	--	George Peltier	George Peltier	1960	13	2	0- 13	--	CU	8	--	--	Cf	D	Driven well; sand point on bottom.
601	R- 1	Sinclair Oil & Gas Co.	--	1960	8,391	--	--	--	--	2	--	--	--	--	Oil test. 2/
18-101	287	Houston Oil Co.	Gust Warnecke	1897	1,065	--	--	--	CL	5	+ 20 - 11.1	1906 May 7, 1965	N	N	1/ 3/
* 64-05-201	--	Nolte Junior Irrigation Co.	China Plumbing Co.	1963	150	2	0- 150	--	CU	41	--	--	J,E	D	
* 301	46	Texas Public Service Co.	--Gunn	1928	176	2	0- 176	166- 176	CU	33	- 18	Mar. 1941	N	N	
* 302	39	Willis McDermand	--	Old	20	--	--	--	CU	33	--	--	C,W	D,S	Bored well.
* 303	37	Hugh Long	--	1929	30	48	0- 30	--	CU	35	- 4	Mar. 1941	N	N	Dug well. Destroyed.
* 304	--	Neches Irrigation Co.	Green Bros.	1952	125	2	0- 125	117- 125	CU	34	--	--	J,E	D	
305	--	Hunt Oil Co. & Dishman & Lucas	--	1948	8,298	--	--	--	--	35	--	--	--	--	Oil test. 2/
* 501	--	Willis McDermand	Paul Acheson	1940	413	2	0- 413	--	CL	44	--	--	J,E	D	
* 601	51	G.R. Bauer	do	1940	150	2	0- 150	--	CU	29	--	--	C,W	D,S	
* 602	47	Texas Public Service Co.	--	1900	150	8	0- 150	--	CU	29	- 1.8	Jan. 28, 1942	N	N	Destroyed.
* 901	54	Lohman Bros.	N.C. Gilbert	Old	135	2	--	--	CU	28	--	--	C,W	D,S	Iron casing.
* 902	53	C.W. Howth	--	1929	150	2	--	--	CU	35	- 1.0	1941	N	N	Iron casing. Destroyed.
* 903	--	Martin Koelemay	C & M Pump Co.	1959	260	1 1/2	0- 260	250- 260	C	35	- 18	1959	J,E	D,S	
* 904	--	Sam Franklin	H. Bryson	1956	80	2	0- 80	--	CU	33	--	--	J,E	D	
* 06-101	45	R.B. Mackan	--	1920	260	6	0- 260	--	C	26	+ 3.1	June 10, 1941	N	N	Destroyed.
* 102	44	J.E. Broussard	--	1923	20	48	0- 20	None	CU	25	- 1.0	Mar. 28, 1940	N	N	Dug well. Wood curb.

See footnotes at end of table.

Table 4.--Records of Wells in Chambers and Jefferson Counties and Adjacent Areas--Continued

WELL	PREVIOUS WELL NUMBER	OWNER	DRILLER	DATE COMPLETED	DEPTH OF WELL (FT)	CASING: DIAMETER OF WELL (IN.)	CASING: INTERVAL (FT)	SCREEN INTERVAL(S) (FT)	WATER BEARING UNITS(S)	SURFACE ELEVATION (FT)	WATER LEVEL: REFERRED TO LAND SURFACE (FT)	WATER LEVEL: DATE OF MEASUREMENT	METHOD OF LIFT	USE OF WATER	REMARKS
*PT-64-06-401	49	Texas Pipeline Co.	Pitre Water Wells	1941	255	4	0- 255	234- 254	CU	25	+ 1.4 - .1	Jan. 28, 1942 May 7, 1965	N	N	Destroyed. [3]
* 402	50	John N. Gilbert Estate	Paul Acheson	1938	135	2	--	--	CU	26	--	--	N	N	Destroyed.
* 403	55	do	do	1939	150	2	--	--	CU	20	--	--	N	N	Do.
* 404	48	Lawrence Leger	Golden Hardy	1934	20	36	0- 20	None	CU	23	- 4	Mar. 1941	N	N	Dug well. Wood curbing.
* 501	147	J.N. Gilbert Estate	--	Old	96	2	0- 96	--	CU	20	- 16.2	June 21, 1966	N	N	
* 502	56	do	--Jordan	1939	160	2	0- 160	--	CU	21	- 3	Aug. 1941	N	N	Destroyed.
* 601	145	G.D. Clubb	G.D. Clubb	1939	15	30	0- 15	None	CU	20	- 6.2	Aug. 27, 1941	N	N	Dug well. Wood casing. Destroyed.
* 602	146	T.A. Clubb	T.A. Clubb	1929	14	42	0- 14	None	CU	17	- 3.7	do	N	N	Do.
* 603	148	Ted Burdoff	V.R. Phelps	1938	159	1 1/4	0- 159	155- 159	CU	17	- 7	1938	C,H	D,S	
* 604	149	J. Ainsworth	do	1938	208	2	0- 208	204- 208	CU	15	--	--	C,H	D,S	Reported sand from 198-208 ft.
* 605	--	W.L. Pender	F.M. Majors	1958	113	2	0- 113	--	CU	15	--	--	J,E	D	
* 606	--	Robert Sensat	H. Bryson	1962	200	2	0- 200	--	CU	20	--	--	J,E	D	
* 607	--	O.C. Carter	--	1958	160	2	0- 160	--	CU	19	--	--	J,E	D	
* 701	168	Henry Lohman	V.R. Phelps	1940	223	2	0- 223	203- 223	CU	20	--	--	J,E	D,S	
* 702	169	do	E.G. Bennett	1930	227	1 1/2	0- 227	--	CU	21	- 8	Dec. 1940	J,E	D,S	
* 703	--	do	V.R. Phelps	1951	600	2	0- 600	--	CL	20	--	--	C,W	S	
* 704	--	Donald Gaus	do	1946	180	2	0- 180	--	CU	24	--	--	J,E	D,S	
* 801	167	Henry Lohman	do	1941	223	2	0- 223	215- 223	CU	18	--	--	N	N	
* 901	156	I.R. Bordages	do	1941	119	2	0- 119	115- 119	CU	11	- 1.0	May 22, 1941	N	N	Drilled to 200 ft. Well completed at 119 ft. [1]
* 902	158	E. Thomas, et al	Gulf Oil Co.	1929	400	5	0- 400	--	C	14	--	--	N	N	
* 903	159	--Fifield	Paul Acheson	1940	67	1 1/4	0- 67	59- 67	CU	16	- 10	Jan. 1940	N	N	
* 07-101	142	L.D. Fontenot	L.D. Fontenot	1924	33	36	0- 33	None	CU	24	- 6.0	Apr. 2, 1941	N	N	Dug well. Wood curb casing. Destroyed.

See footnotes at end of table.

Table 4.--Records of Wells in Chambers and Jefferson Counties and Adjacent Areas--Continued

WELL	PREVIOUS WELL NUMBER	OWNER	DRILLER	DATE COMPLETED	DEPTH OF WELL (FT)	CASING: DIAMETER OF WELL (IN.)	CASING: INTERVAL (FT)	SCREEN INTERVAL(S) (FT)	WATER BEARING UNITS(S)	SURFACE ELEVATION (FT)	WATER LEVEL: REFERRED TO LAND SURFACE (FT)	WATER LEVEL: DATE OF MEASUREMENT	METHOD OF LIFT	USE OF WATER	REMARKS
*PT-64-07-102	143	Whitney Migues	Whitney Migues	1938	25	4	0- 25	--	CU	26	- 4.1	Apr. 2, 1941	N	N	Destroyed.
* 103	144	Elmer Boyt	Elmer Boyt	1935	45	2	0- 45	--	CU	25	--	--	C,W	N	Bored well.
* 105	--	Whitney Migues	Whitney Migues	1960	26	6	0- 29	--	CU	26	--	--	Cf,E	D	Asbestos casing. Bored well.
* 201	140	Tony Tortoris	--	1940	18	1	0- 18	--	CU	20	- 8 - 3.0	Aug. 1941 Sept. 15, 1966	N	N	Bored well.
* 202	141	R.H. Hunter	--	1930	18	4	0- 18	--	CU	21	- 2.8	Apr. 1, 1941	N	N	Do.
203	--	Ivy Senset	Green Bros.	1961	156	2	0- 156	148- 156	CU	21	- 14.6	Sept. 14, 1966	--	D	Stainless steel casing. 1/
204	--	P.A. Neichoy	do	1965	155	2	0- 155	147- 155	CU	23	- 13	Feb. 1966	--	D	Do.
* 205	--	Max B. Clark	Mitchell Bros.	1961	142	2	0- 142	134- 142	CU	21	--	--	J,E	Ind	
* 206	--	do	--	1966	126	2	0- 126	--	CU	21	--	--	J,E	Ind	Steel casing.
* 207	--	Lizza Breaux	Green Bros.	1964	155	2	0- 155	147- 155	CU	21	- 15	Sept. 1964	J,E	D	Steel casing. Stainless steel screen. 1/
* 208	--	J.J. Willis Trucking Co.	--	Old	80	--	--	--	CU	21	--	--	J,E	Ind	
* 209	--	American Rice Growers Co-op Assn.	Green Bros.	1962	150	2	0- 150	142- 150	CU	21	- 14	1962	J,E	Ind	
* 301	139	Jefferson Land Co.	--	1916	110	6	0- 110	None	CU	16	--	--	N	N	
* 305	--	do	--	--	31	4	0- 31	--	CU	16	--	--	E,-	D	Sand point on bottom.
* 306	--	Bayou Din Golf Club	--	1958	75	--	--	--	CU	10	--	--	J,E	D	
* 307	--	do	--	1958	150	3	0- 150	--	CU	10	- 2.7	Sept. 29, 1966	Cf,E	P	Used for swimming pool.
* 308	--	do	--	1958	35	--	--	--	CU	10	--	--	Cf,E	D	
* 405	--	Poley Mitchell	Green Bros.	1965	155	2	0- 155	147- 155	CU	18	- 12	Jan. 1965	--	S	Steel casing. Stainless steel screen. 1/
501	217	Calder & Steinhagen	--	1941	18	1	0- 18	--	CU	15	- 5.2	Aug. 22, 1941	N	N	Bored well. Destroyed.
* 502	218	do	--	1931	37	4	0- 37	--	CU	12	- 2.7	do	N	N	
* 601	219	B.A. Steinhagen	--	Old	100	6, 4	--	--	CU	4	+	May 1941	N	N	

See footnotes at end of table.

Table 4.--Records of Wells in Chambers and Jefferson Counties and Adjacent Areas--Continued

WELL	PREVIOUS WELL NUMBER	OWNER	DRILLER	DATE COMPLETED	DEPTH OF WELL (FT)	CASING: DIAMETER OF WELL (IN.)	CASING: INTERVAL (FT)	SCREEN INTERVAL(S) (FT)	WATER BEARING UNITS(S)	SURFACE ELEVATION (FT)	WATER LEVEL: REFERRED TO LAND SURFACE (FT)	WATER LEVEL: DATE OF MEASUREMENT	METHOD OF LIFT	USE OF WATER	REMARKS
PT-64-07-602	215	C.L. Reno	--	--	202	4	0- 202	192- 202	CU	16	--	--	N	N	Destroyed.
* 605	--	B.A. Steinhagen	B & L Drilling Co.	1964	65	--	--	--	CU	7	--	--	Cf,E	D	
* 701	153	J.B. Wingate	Paul Acheson	1940	103	1 1/4	0- 103	95- 103	CU	16	--	--	N	N	Destroyed.
* 702	154	C.A. Kiker	do	1940	65	1 1/4	0- 65	61- 65	CU	16	--	--	J,E	D,S	
* 703	150	Mrs. Ila Boyt	--	1939	18	36	0- 18	None	CU	19	--	--	Cf,E	D,S	Dug well.
* 705	--	Arthur Gilmore	G. Theriot	1961	31	6	0- 31	--	CU	17	- 3.4	Sept. 16, 1966	--	D	
* 801	152	T.G. & D. Korry	--	1936	15	36	0- 15	None	CU	19	- 7	Mar. 1941	C,H	D,S	Dug well. Wood Curb.
* 802	213	C.W. Burrell	--	1900	16	48	0- 16	None	CU	15	--	--	J,E	D,S	Do.
* 803	216	W.G. Burrell	J.L. Ray	1939	63	1 1/2	0- 63	54- 63	CU	20	- 5	Mar. 1941	C,H	D,S	
* 805	--	W.E. & J.J. Burrell	Baine Price	1957	70	2	0- 70	55- 70	CU	19	--	--	--	D	
* 902	214	H.S. Anderson	Paul Acheson	1940	80	2	0- 80	72- 80	CU	15	--	--	J,E	D,S	
* 903	220	M.A. Welch	--	1935	18	1 1/4	0- 18	--	CU	15	--	--	C,H	D,S	
904	--	Port Arthur Country Club	--	--	20	4	0- 20	--	CU	10	--	--	-,E	D	
* 905	--	do	V.R. Phelps	--	29	--	--	25- 29	CU	10	--	--	J,E	P	Plastic casing.
* 906	--	Mrs. Stella Nobles	--	1952	22	--	--	--	CU	11	--	--	-,E	D	
* 907	--	R.P. Bordes	G. Theriot	1965	22	4	0- 22	--	CU	11	- 6.0	Sept. 15, 1966	--	D	Plastic casing.
* 08-101	224	Broussard Trust	--	Old	18	42	0- 18	None	CU	11	- 4.2	May 23, 1941	N	N	Dug well.
* 301	227	R.C. Stafford	R.C. Stafford	1940	18	2	0- 18	--	CU	15	- 5.2	Apr. 15, 1941	N	N	Bored well.
* 302	228	John Koelemay	John Koelemay	1924	32	30	0- 32	None	CU	14	--	--	N	N	Dug well.
* 303	--	Sun Pipeline Co.	Layne-Texas Co.	1947	531	--	--	501- 531	CL	21	--	--	T,E	D,Ind	
* 305	--	Mrs. M.G. Winters	G. Theriot	--	36	4	0- 36	--	CU	14	--	--	Cf,E	D	
* 401	223	Humble Oil & Refining Co.	L. Patterson	1939	64	6	0- 64	44- 64	CU	7	- 14	Mar. 1940	N	N	Destroyed.
* 402	222	--Brockman	--Brockman	1930	25	1 1/4	0- 25	None	CU	9	--	--	N	N	Bored well.

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Table 4.--Records of Wells in Chambers and Jefferson Counties and Adjacent Areas--Continued

WELL	PREVIOUS WELL NUMBER	OWNER	DRILLER	DATE COMPLETED	DEPTH OF WELL (FT)	CASING: DIAMETER OF WELL (IN.)	CASING: INTERVAL (FT)	SCREEN INTERVAL(S) (FT)	WATER BEARING UNITS(S)	SURFACE ELEVATION (FT)	WATER LEVEL: REFERRED TO LAND SURFACE (FT)	WATER LEVEL: DATE OF MEASUREMENT	METHOD OF LIFT	USE OF WATER	REMARKS
*PT-64-08-403	--	Adam A. Petak	--	--	27	4	0- 27	--	CU	9	--	--	--	D	Galvanized casing. Sand point on bottom.
* 404	--	B.W. Bewley	--	1966	229	--	--	--	CU	5	--	--	J,E	D	
405	--	Humble Oil & Refining Co.	--	1957	9,306	--	--	--	--	10	--	--	--	--	Oil test. 2/
* 501	225	E.B. Hebert	E.B. Hebert	1938	18	120	0- 18	None	CU	11	--	--	N	N	Tin lined casing. Destroyed.
* 505	--	R.D. Humphries	G. Theriot	1955	25	4	0- 25	--	CU	11	--	--	--	D	Steel casing. Sand point on bottom.
* 601	229	S. Sassine	F. Dionne	1939	18	6	0- 18	--	CU	6	--	--	N	N	Reported galvanized tin casing. Bored well.
* 701	221	O.H. Cuniff	--	1930	24	36	0- 24	None	CU	7	- 8.0	Mar. 26, 1941	N	N	Wood curb casing. Dug well. Destroyed.
* 705	--	Fred Cuniff	Fred Cuniff	1950	25	--	--	--	CU	11	--	--	J,E	D	Bored well.
* 801	268	L.W. Lloyd	L.W. Lloyd	1931	20	24	0- 20	None	CU	7	--	--	N	N	Dug well.
802	I- 2	Sun Oil Co.	--	1956	9,520	--	--	--	--	6	--	--	--	--	Oil test. 2/
901	267	D. Smith	--Broussard	1937	22	4	0- 22	None	CU	5	- 8	Apr. 1941	N	N	Bored well. Destroyed.
* 902	269	W. Talbot	Murphy Richards	--	27	48	0- 27	None	CU	5	- 2	Apr. 1941	N	N	Dug well. Destroyed.
* 14-101	--	Union Texas Petroleum Co. well 5	Layne-Texas Co.	1948	215	18, 10	--	147- 212	CU	17	- 28 - 41.9	Dec. 1948 Nov. 2, 1959	T,E	Ind	Drilled to 304 ft; plugged back to 215 ft. 1/
* 103	170	Cordelia Powers	--	1931	18	4	0- 18	--	CU	21	- 3.0	Apr. 11, 1941	N	N	Tile curbed. Bored well.
104	--	Union Texas Petroleum Co. well 10	Layne-Texas Co.	1948	237	18, 10	0- 116 116- 237	126- 155 175- 233	CU	15	- 25 - 51.0	1948 Sept. 16, 1966	T,G	P,Ind	
* 105	171	N.N. Vickers	--	Old	10	42	0- 10	None	CU	18	- 3.8	Aug. 27, 1941	N	N	Dug well. Wood casing.
* 201	164	Mrs. G.W. Blanch	--	1925	232	8	0- 232	216- 232	CU	16	--	--	N	N	
* 202	165	Ed Van Houten	Ed Van Houten	1926	24	5	0- 24	None	CU	18	--	--	N	N	Bored well. Destroyed.
* 203	166	Rodney Christ	Edgar Caruthers	1918	228	8	0- 228	208- 228	CU	18	- .9	May 23, 1941	N	N	Destroyed.
* 204	172	N.S. Whitman Estate	V.R. Phelps	1941	306	1 1/4	0- 306	294- 306	C	15	+ - 19.3	May 1941 Feb. 28, 1966	N	N	
* 205	--	Peter DeYoung	Paul Acheson	1949	230	2, 2	0- 230	210- 230	CU	16	- 6 - 19	1949 1965	J,E	P	
206	--	do	--	1958	230	2	0- 230	210- 230	CU	16	- 19	1964	J,E	P	

See footnotes at end of table.

Table 4.--Records of Wells in Chambers and Jefferson Counties and Adjacent Areas--Continued

WELL	PREVIOUS WELL NUMBER	OWNER	DRILLER	DATE COMPLETED	DEPTH OF WELL (FT)	CASING		SCREEN INTERVAL(S) (FT)	WATER BEARING UNITS(S)	SURFACE ELEVATION (FT)	WATER LEVEL		METHOD OF LIFT	USE OF WATER	REMARKS
						DIAMETER OF WELL (IN.)	INTERVAL (FT)				REFERRED TO LAND SURFACE (FT)	DATE OF MEASUREMENT			
*PT-64-14-207	173	William Fischer	William Fischer	1910	28	6	0- 28	None	CU	10	--	--	N	N	Bored well.
* 301	160	C.A. Bristow	Paul Acheson	1938	65	1 1/4	0- 65	57- 65	CU	12	--	--	N	N	
* 302	161	J. Garvin	J. Garvin	1938	20	6	0- 20	None	CU	11	--	--	N	N	Bored well.
* 303	162	Guy Junker Estate	Lee Williams	1926	275	2	0- 275	--	CU	11	0.0	May 21, 1941	C,H	D,S	
* 304	163	Asa Hamshire	D. Meloncon	1933	18	48	0- 18	None	CU	15	--	--	N	N	Dug well.
* 305	180	P. Arceneaux	--	1930	18	48	0- 18	None	CU	10	- 6	Mar. 1941	N	N	Do.
* 405	175	Roy Moore	V.R. Phelps	1940	127	1 1/4	0- 127	123- 127	CU	22	- 5	June 1940	J,E	D,S	
* 406	--	Union Texas Petroleum Co. well 9	Layne-Texas Co.	1948	223	18, 10	--	111- 221	CU	17	- 24 - 47.3	Aug. 1948 Oct. 11, 1960	T,E	Ind	Drilled to 299 ft; plugged back to 223 ft. 1/ 3/
* 407	--	Union Texas Petroleum Co. well 1	do	1945	253	18, 10	--	120- 197 210- 250	CU	17	- 38.7	Nov. 3, 1955	T,E	Ind	Drilled to 275 ft; plugged back to 253 ft. 1/
* 408	--	Union Texas Petroleum Co. well 2	do	1945	253	18, 10	0- 118 118- 253	128- 208 213- 236	CU	--	--	--	T,E	P,Ind	
409	--	Union Texas Petroleum Co.	do	1945	155	--	--	--	CU	--	--	--	N	N	Destroyed.
* 502	178	McFadden Trust	--	1939	20	4	0- 20	None	CU	15	--	--	N	N	Bored well.
601	179	Arceneaux Estate	Edgar Caruthers	1898	250	6	0- 250	--	CU	12	+	May 1941	N	N	
* 801	177	S.R. Smith Estate	V.R. Phelps	1940	180	2	0- 180	None	CU	11	--	--	N	N	
802	--	E.V. Fielder	W.J. Swinehart	1956	270	12	0- 270	230- 270	CU	13	- 21.8	May 25, 1966	T,G	Irr	Gravel-packed.
* 901	182	Security State Bank & Trust Co.	Paul Acheson	1940	162	2	0- 162	156- 162	CU	9	--	--	N	N	
* 902	185	Pipkin Ranch	--	Old	200	2	--	--	CU	10	--	--	C,W	S	
* 15-101	155	J.V. Manuel	W.J. Giles	1900	300	6, 2	--	--	CU	7	+	May 1941	N	N	
* 105	--	John S. Thompson	--	1966	180	2	0- 180	--	CU	7	- 9.5	Sept. 28, 1966	Cf,E	D	Plastic casing.
* 202	209	C.E. Ward	Sun Oil Co.	1934	117	3, 1 1/4	--	--	CU	10	--	--	Cf,E	D	1/

See footnotes at end of table.

Table 4.--Records of Wells in Chambers and Jefferson Counties and Adjacent Areas--Continued

WELL	PREVIOUS WELL NUMBER	OWNER	DRILLER	DATE COM-PLET-ED	DEPTH OF WELL (FT)	CASING		SCREEN INTER-VAL(S) (FT)	WATER BEAR-ING UNITS(S)	SUR-FACE ELEVA-TION (FT)	WATER LEVEL		METHOD OF LIFT	USE OF WATER	REMARKS
						DIAM-ETER OF WELL (IN.)	INTERVAL (FT)				REFERRED TO LAND SURFACE (FT)	DATE OF MEASUREMENT			
*PT-64-15-203	210	C.E. Ward	--	1926	18	4	0- 18	--	CU	8	- 7.4	Aug. 22, 1941	C,H	D	
* 205	--	J.J. Hebert Heirs & Co.	--	Old	100	2	0- 100	--	CU	10	--	--	C,W	S	Steel casing.
* 301	--	J.J. Hebert Heirs	Sun Oil Co.	--	32	36, 6	0- 25 25- 32	--	CU	15	- 12.4	Oct. 4, 1966	Cf,E	D,S	Concrete casing.
305	--	W.E. Price	--	--	11	--	--	--	CU	10	--	--	--	D	
306	--	Port Arthur Country Club	Pitre Water Wells	1964	40	4, 2	0- 21 21- 40	29- 40	CU	14	--	--	-,E	--	Drilled to 91 ft; plugged back to 40 ft. 1/
* 307	--	do	V.R. Phelps	--	34	6	0- 34	30- 34	CU	14	--	--	J	D,Irr	
308	--	J.J. Hebert Heirs & Co.	Green Bros.	1961	86	2	0- 86	78- 86	CU	10	--	--	Cf,G	S	1/
* 309	--	do	--	Old	100	2	0- 100	None	CU	10	--	--	C,W	S	Steel casing.
* 310	--	do	--	Old	120	2	0- 120	None	CU	15	--	--	C,W	S	Do.
* 401	181	Mrs. George Gill	--	1900	254	2	0- 254	248- 254	CU	8	--	--	N	N	
402	--	Rush Craigen	B & L Well Service	1947	275	--	--	--	CU	10	--	--	Cf,E	D	
* 404	--	J.H. Taylor	V.R. Phelps	1954	180	4	0- 180	--	CU	10	--	--	J,E	D	
* 405	--	do	do	1947	240	4	0- 240	--	CU	10	- 2	1966	J,E	D	Reported gas in the water.
* 406	--	John Klein	B & L Drilling Co.	1965	202	--	0- 202	--	CU	11	--	--	T,E	D	
* 601	202	Broussard Trust	J.J. Brown	1940	28	12	0- 28	--	CU	9	- 4.8	May 15, 1941	C,H	D,S	Tile casing. Bored well. Reported sand from 24 to 28 ft.
* 602	203	do	--	Old	28	4	0- 28	--	CU	6	--	--	N	N	Bored well.
603	--	Sun Oil Co.	N.H. Schneider	1962	100	4	0- 100	84- 100	CU	8	- 7	1962	N	N	1/
701	--	Stanolind Oil & Gas Co.	--	--	15	--	--	--	CU	30	--	--	N	N	
702	--	Bruce Pipkin	V.R. Phelps	--	20	--	--	15- 20	CU	10	--	--	Cf,E	D	
703	--	Grayson Lee	do	--	69	4	0- 69	--	CU	30	--	--	J,E	D	
704	--	Pure Oil Co.	B & L Water Wells	1962	332	4	0- 332	312- 332	CU	14	- 19.9	Sept. 21, 1966	T,E	Ind	Sanitary well.

See footnotes at end of table.

Table 4.--Records of Wells in Chambers and Jefferson Counties and Adjacent Areas--Continued

WELL	PREVIOUS WELL NUMBER	OWNER	DRILLER	DATE COM-PLET-ED	DEPTH OF WELL (FT)	CASING		SCREEN INTER-VAL(S) (FT)	WATER BEAR-ING UNITS(S)	SUR-FACE ELEVA-TION (FT)	WATER LEVEL		METHOD OF LIFT	USE OF WATER	REMARKS
						DIAM-ETER OF WELL (IN.)	INTERVAL (FT)				REFERRED TO LAND SURFACE (FT)	DATE OF MEASUREMENT			
*PT-64-15-705	--	Pure Oil Co.	Layne-Texas Co.	1956	415	12, 7	0- 272 272- 415	303- 415	CU	15	- 20.4	Sept. 21, 1966	T,E	Ind	Drilled to 480 ft. Well reworked in 1962. 1/
706	--	Bruce Pipkin	--	--	180	4	0- 180	--	CU	10	--	--	J,E	S	Steel casing.
* 901	201	McFadden Trust	Paul Acheson	1937	60	2	0- 60	56- 60	CU	7	- 5.2	Oct. 4, 1966	N	N	
902	--	do	B & L Water Wells	1961	81	4	0- 81	--	CU	5	- 3.0	do	N	N	Plastic casing.
* 903	200	do	--	1904	22	36	0- 22	None	CU	7	- 3.9	Aug. 26, 1941	Cf,E	D	Dug well. Wood casing.
904	--	McFadden Ranches	B & L Well Services	1961	70	4	0- 70	--	CU	7	- 4.6	Oct. 4, 1966	N	N	
16-901	--	Shell Oil Co. McFadden Trust 1	--	1944	2,800	--	--	--	--	10	--	--	--	--	Oil test. 2/
* 22-301	187	Pipkin Ranch	Jimmie Cannor	Old	327	6	0- 327	--	CU	5	- .7 - 9.7	May 17, 1951 May 7, 1965	C,W	S	3/
801	--	Placid Oil Co.	--	1948	10,055	--	--	--	--	6	--	--	--	--	Oil test. 2/
* 23-101	189	Pipkin Ranch	The Texas Co.	1920	327	4, 2	--	312- 327	CU	5	--	--	N	N	
102	--	Grayson Lee	V.R. Phelps	--	98	8	0- 98	--	CU	5	- 3.2	Aug. 17, 1966	C,W	S	
* 103	190	Pipkin Ranch	Edgar Caruthers	1915	250	2	0- 250	--	CU	5	- 1.1 - 7.7	June 5, 1952 May 7, 1965	N	N	3/
* 104	191	do	V.R. Phelps	1934	250	2	0- 250	228- 250	CU	5	+	1934	N	N	Bronze screen.
* 201	192	do	do	1937	178	2	0- 178	166- 178	CU	5	- 6 - .4	1937 Sept. 24, 1966	C,W	S	
* 301	197	McFadden Trust	Paul Acheson	1937	82	2	0- 82	74- 82	CU	3	--	--	N	N	
302	--	McFadden Ranch	B & L Well Service	1961	70	--	--	--	CU	3	- 1.1	Oct. 4, 1966	N	N	
303	--	do	--	Old	93	4	0- 93	--	CU	3	- 1.1	do	N	N	
24-101		Magnolia Petro-leum Co.	--	1952	15,005	--	--	--	--	5	--	--	--	--	2/
501	--	Sea Breeze Inn	--	1962	6	48	0- 6	None	CU	5	- 2.5	May 31, 1966	Cf,E	D	Dug well. Cement casing.
502	--	Beach-Comber Motel	--	--	10	36	0- 10	--	CU	5	- 3	Aug. 1966	--	D	Dug well.

See footnotes at end of table.

Table 4.--Records of Wells in Chambers and Jefferson Counties and Adjacent Areas--Continued

WELL	PREVIOUS WELL NUMBER	OWNER	DRILLER	DATE COMPLETED	DEPTH OF WELL (FT)	CASING		SCREEN INTERVAL(S) (FT)	WATER BEARING UNITS(S)	SURFACE ELEVATION (FT)	WATER LEVEL		METHOD OF LIFT	USE OF WATER	REMARKS
						DIAMETER OF WELL (IN.)	INTERVAL (FT)				REFERRED TO LAND SURFACE (FT)	DATE OF MEASUREMENT			
PT-64-24-601	Q- 4	Humble Oil & Refining Co.	--	1941	8,015	--	--	--	--	5	--	--	--	--	Oil test. 2/
						Harris County									
		Humble West Fee well C-62	Humble Oil & Refining Co.	1957	10,002	--	--	--	--	12	--	--	--	--	Oil test. 2/
		State tract well 2 Clear Lake well 1	Wesley West	1956	9,670	--	--	--	--	0	--	--	--	--	Do.
						Liberty County									
SB-64-05-701	--	--Boyt well B-1	Wesley West	1944	9,183	--	--	--	--	37	--	--	--	--	Oil test. 2/
						Hardin County									
LH-46-50-303	--	East Texas Oil Co. Fee well I-1	Humble Oil & Refining Co.	1955	9,700	--	--	--	--	58	--	--	--	--	Oil test. 2/
61-55-403	--	Keith Co. well 1	Humble Oil & Refining Co.	1961	11,289	--	--	--	--	12	--	--	--	--	Do.
						Orange County									
UJ-61-56-202	--	Frost National Bank of San Antonio	Humble Oil & Refining Co.	1953	7,763	--	--	--	--	26	--	--	--	--	Oil test. 2/

* Chemical analyses of water from wells in Chambers and Jefferson Counties are given in Table 7.

1/ Drillers' logs of wells in Chambers and Jefferson Counties are given in Table 5.

2/ Electric logs in files of Texas Water Development Board or U.S. Geological Survey in Austin and Houston, Texas.

3/ Water levels in wells in Chambers and Jefferson Counties are given in Table 6.

Table 5.—Drillers' Logs of Wells in Chambers and Jefferson Counties

Chambers County

Well DH-64-04-709

Owner: Gulf Oil Co.
Driller: Gulf Oil Co.

	THICKNESS (FEET)	DEPTH (FEET)
Clay, surface	15	15
Gumbo	37	52
Sand	58	110
Gumbo	18	128
Sand	21	149
Gumbo	25	174
Sand	22	196
Gumbo	2	198

Well DH-64-09-301

Owner: Chambers County Water Control & Improvement District No. 1 Well 5
Driller: Layne-Texas Co.

	THICKNESS (FEET)	DEPTH (FEET)
Soil	4	4
Clay	111	115
Clay, sandy	45	160
Shale	30	190
Shale, sandy and shale	100	290
Shale	108	398
Sand, fine gray	72	470
Shale	4	474
Sand, coarse white	46	520
Shale	10	530

Well DH-64-09-302

Owner: Chambers County Water Control & Improvement District No. 1 Well 4
Driller: Layne-Texas Co.

	THICKNESS (FEET)	DEPTH (FEET)
Soil	4	4
Clay	112	116
Shale, sandy	42	158
Shale	175	333
Sand and shale	8	341
Shale and streaks of sand	60	401
Sand, gray	74	475
Shale	3	478
Sand, coarse white	43	521
Shale	20	541
Sand	13	554
Shale and streaks of sand	34	588
Sand	8	596
Shale and sandy shale	51	647
Sand	21	668
Shale	16	684
Sand and streaks of shale	40	722
Shale	5	727
Sand, coarse and streaks of shale	65	792
Shale and streaks of sand	16	808
Sand and streaks of shale	29	837
Shale	10	847
Sand	13	860
Shale	18	878
Shale and sand streaks	26	904
Sand, fine and shale streaks	101	1,005
Shale and sand streaks	63	1,068
Sand	5	1,073
Shale and sandy shale	53	1,126
Sand, fine white	13	1,139
Shale, sandy and shale	15	1,154
Sand	13	1,167
Shale and sandy shale	83	1,250

Well DH-64-09-305

Owner: Diamond Alkali Co. Well 4
Driller: Layne-Texas Co.

	THICKNESS (FEET)	DEPTH (FEET)
Surface soil	4	4
Clay	31	35
Clay and lime breaks	41	76
Clay, sandy and few lime breaks	40	116
Clay, sticky	20	136
Clay, sandy	14	150
Clay	55	205
Sand	18	223
Clay	47	270
Clay, sandy	27	297
Sand and clay breaks	40	337
Shale, sandy	14	351
Sand, broken	19	370

	THICKNESS (FEET)	DEPTH (FEET)
Well DH-64-09-305—Continued		
Shale	21	391
Shale, sandy	17	408
Shale	20	428
Sand	32	460
Sand, broken	25	485
Shale, sandy	24	509
Sand and shale breaks	19	528
Sand	37	565
Sand and shale streaks	29	594
Rock	1	595
Shale	28	623
Shale, sandy and sand	21	644
Shale	32	676
Shale, sandy	11	687
Sand	18	705
Shale	14	719
Sand	51	770
Sand and shale streaks	18	788
Sand and few shale breaks	76	864
Shale	11	875
Sand and shale, broken	30	905
Sand	23	928
Shale, sandy and shale breaks	25	953
Shale	22	975
Shale, sandy	10	985
Sand and lime breaks	125	1,110
Sand and shale breaks	124	1,234
Shale	10	1,244
Sand	37	1,281
Shale	10	1,291
Sand	10	1,301
Shale	37	1,338
Sand	19	1,357
Shale, sandy	5	1,362
Sand and shale breaks	44	1,406
Shale	11	1,417

	THICKNESS (FEET)	DEPTH (FEET)
Well DH-64-09-306		
Owner: Warren Petroleum Co. Driller: Layne-Texas Co.		
Surface soil	10	10
Clay	113	123
Sand	15	138
Shale	172	310
Sand	60	370
Shale, sandy	70	440
Sand-cut good	90	530
Sand and layers of rock	5	535
Sandy coarse-cut good, little hard	43	578
Shale	112	690
Sand, coarse with hard shale breaks	96	786
Sand-cut good	37	823
Sand, coarse with hard shale breaks	94	917
Shale-few sand breaks	81	998
Sand, fine	33	1,031
Sand, fine with shale breaks	54	1,085
Sand	41	1,126
Shale and streaks of sand	25	1,151
Sand	30	1,181
Shale	9	1,190
Sand and streaks of shale	29	1,219
Shale	26	1,245
Sand	20	1,265
Shale and few sand breaks	21	1,286
Sand	27	1,313
Shale	40	1,353
Sand and few shale breaks	103	1,456
Shale	11	1,467
Sand, coarse, cut good	22	1,489
Shale	8	1,497
Sand, coarse and shale breaks	30	1,527
Shale	32	1,559
Sand, cut poorly	16	1,585
Shale	21	1,606
Shale, sandy	10	1,616
Shale	5	1,621
Shale, sandy	5	1,626

Table 5.—Drillers' Logs of Wells in Chambers and Jefferson Counties—Continued

Well DH-64-09-307

Owner: Diamond Alkali Co. Well 3
Driller: Layne-Texas Co.

	THICKNESS (FEET)	DEPTH (FEET)
Clay	98	98
Sand	102	200
Clay, sandy	117	317
Sand	100	417
Sand and shale streaks	260	677
Shale	23	700
Sand	28	728
Sand and shale breaks	189	917
Shale and sand streaks	103	1,020
Sand and sandy shale	180	1,200

Well DH-64-09-310

Owner: Chambers County Water Control & Improvement District No. 1
Driller: Layne-Texas Co.

	THICKNESS (FEET)	DEPTH (FEET)
Soil	5	5
Clay	60	65
Sand, white, coarse	22	87
Clay	12	99
Sand layers and shale	17	116
Shale	8	124
Sand	12	136
Shale	20	156
Sand, gray, coarse	25	181
Sand, coarse, and traces of gravel	35	216
Shale	10	226

Well DH-64-09-314

Owner: Asa Wilburn
Driller: Amos Jennische

	THICKNESS (FEET)	DEPTH (FEET)
Soil	2	2
Clay	58	60
Shale and fine sand	9	69
Gumbo	21	90
Gumbo and shale	46	136
Sand	20	156

Well DH-64-09-315

Owner: Chambers County Water Control & Improvement District No. 1
Driller: Layne-Texas Co.

	THICKNESS (FEET)	DEPTH (FEET)
Topsoil	5	5
Clay	47	52
Sand, brown, fine	9	61
Shale	14	75
Shale, sandy	30	105
Shale	84	189
Sand, white, fine	18	207
Sand and shale streaks	11	218
Shale	8	226
Sand, coarse	25	251
Shale	21	272
Sand, blue	11	283
Shale	6	289
Sand, white, coarse	51	340

Well DH-64-09-316

Owner: Sun Oil Co.
Driller: Sun Oil Co.

	THICKNESS (FEET)	DEPTH (FEET)
Clay and sand	99	99
Clay	12	111
Sand and boulders	42	153
Gumbo	184	337
Sand and gravel	95	432
Rock	2	434
Sandy shale	30	464
Sand	14	478
Gumbo	128	606
Sand	18	624
Gumbo	2	626

Well DH-64-09-318

Owner: Crumpler Brothers
Driller: Homer Wright

	THICKNESS (FEET)	DEPTH (FEET)
Soil and sandy clay	30	30
Sand	14	44
Clay	8	52
Clay, sandy	24	76

Table 5.—Drillers' Logs of Wells in Chambers and Jefferson Counties—Continued

	THICKNESS (FEET)	DEPTH (FEET)
Well DH-64-09-318—Continued		
Sand	14	90
Gumbo	22	112
Sand	17	129
Gumbo	33	162
Sand	10	172
Gumbo	10	182
Sand	6	188
Gumbo	3	191
Sand, white, coarse	24	215
Sand, blue, fine, and wood	6	221
Gumbo, light blue	3	224
Sand, white, coarse	12	236
Shale, sticky	18	254

Well DH-64-09-319

Owner: Crumpler Brothers
Driller: Homer Wright

	THICKNESS (FEET)	DEPTH (FEET)
Sand, soil and clay	76	76
Sand	14	90
Clay, sandy	93	183
Sand	7	190
Gumbo	4	194
Sand	44	238
Gumbo	10	248
Shale, sandy	34	282
Sand and boulders	58	340
Sand, shale and boulders	68	408
Gumbo	24	432
Shale, sandy	34	466
Sand	8	474
Gumbo	9	483
Sand, coarse	25	508
Gumbo	10	518
Sand, fine	52	570
Sand, coarse	30	600
Shale	3	603

Well DH-64-09-321

Owner: Crumpler Brothers
Driller: Homer Wright

	THICKNESS (FEET)	DEPTH (FEET)
Soil and sand	20	20
Clay	20	40
Shale, sandy	138	178
Shale, hard	26	204
Sand, fine	33	237
Shale, green	4	241
Sand, fine	42	283
Sand, coarse	21	304

Well DH-64-09-324

Owner: J. O. Stockbridge
Driller: C. A. Williams

	THICKNESS (FEET)	DEPTH (FEET)
Clay, yellow	64	64
Gumbo, tough	28	92
Shale, sandy	23	115
Sand, soft	30	145
Gumbo, soft and sand	27	172
Gumbo, tough	16	188
Gumbo, soft and sand	22	210
Gumbo, tough	10	220
Sand and shale	20	240
Gumbo, sticky	41	281
Sand and gumbo	5	286
Sand, hard	28	314

Well DH-64-09-327

Owner: Crumpler Brothers
Driller: Homer Wright

	THICKNESS (FEET)	DEPTH (FEET)
Soil and clay	10	10
Sand	9	19
Clay	6	25
Sand	10	35
Sand and clay	25	60
Sand	16	76
Clay, hard	6	82
Sand	10	92
Gumbo	17	109
Sand	21	130

Table 5.—Drillers' Logs of Wells in Chambers and Jefferson Counties—Continued

	THICKNESS (FEET)	DEPTH (FEET)
Well DH-64-09-327—Continued		
Gumbo	9	139
Sand	6	145
Gumbo	40	185
Shale, sandy	12	197
Sand	44	241
Gumbo and sand	40	281
Well DH-64-09-328		
Owner: Tillman Fitzgerald Driller: Amos Jennische		
Soil	3	3
Clay	17	20
Shale	50	70
Gumbo	5	75
Shale and sand	10	85
Gumbo	15	100
Shale and gumbo	10	110
Gumbo	85	195
Shale	9	204
Sand, fine	3	207
Gumbo and shale	48	255
Gumbo	52	307
Shale and sand	10	317
Sand	83	400
Gumbo	93	493
Sand	17	510
Well DH-64-09-329		
Owner: Temple Fitzgerald Driller: Amos Jennische		
Soil	3	3
Clay	3	6
Quicksand	29	35
Shale	25	60
Gumbo and shale	20	80
Gumbo	120	200
Shale	9	209
Sand	8	217

	THICKNESS (FEET)	DEPTH (FEET)
Well DH-64-09-613		
Owner: Humble Oil & Refining Co. Driller: Lowry Water Wells		
Clay, yellow and white	72	72
Sand	41	113
Shale	13	126
Sand, good	14	140
Well DH-64-09-903		
Owner: John Nelson Driller: Katy Drilling Co.		
Clay and topsoil	137	137
Sand and clay strips	48	185
Clay	63	248
Shale, sandy	22	270
Clay	50	320
Shale, sandy	20	340
Clay	37	377
Sand	30	407
Clay and sand strips	15	422
Sand, rocky and clay strips	71	493
Clay	27	520
Sand	6	526
Clay and sand strips	27	553
Sand and clay strips	44	597
Clay and sand strips	118	715
Sand	11	726
Clay	20	746
Sand and clay strips	85	831
Sand, fine	76	907
Clay	5	912
Sand and clay	33	945
Well DH-64-09-918		
Owner: Houston Lighting & Power Co. Driller: --		
Clay, small sand breaks	70	70
Sand	31	101
Clay with small sand breaks	147	248
Clay and sandy clay	86	334
Sand and gravel with clay breaks	71	405

	THICKNESS (FEET)	DEPTH (FEET)
Well DH-64-09-918—Continued		
Sand	1	406
Clay	2	408
Sand	31	439
Clay	19	458
Sand with clay breaks	7	465
Sand	20	485
Sand and hard streaks	126	611
Sand, fine	20	631
Sandy clay with streaks of sand	15	646
Clay with sandy clay	31	677
Sand and clay	8	685
Clay, sandy clay, and streaks of sand	37	722
Sand, fine	15	737
Clay and streaks of sand	19	756
Sand and streaks of clay	52	808
Sand and sandy clay	50	858
Clay and sandy clay	113	971
Sand, fine	19	990
Clay	8	998
Sand	60	1,058
Sand and streaks of clay	19	1,077
Clay and sandy clay	11	1,088
Sand	5	1,093
Clay and sandy clay with streaks of sand	22	1,115
Sand and streaks of clay	25	1,140
Sand	7	1,147
Sandy clay with streaks of clay	29	1,176
Clay and sandy clay	21	1,197
Sand, fine	19	1,216
Clay and sandy clay	10	1,226
Sand	63	1,289
Clay	9	1,298
Clay	8	1,306
Sand	6	1,312
Sandy clay and hard streaks	9	1,321
Sand	22	1,343
Clay	3	1,346
Sand and hard streaks	25	1,371
Clay	4	1,375

Well DH-64-10-205

Owner: Will Icet
Driller: Amos Jennische

	THICKNESS (FEET)	DEPTH (FEET)
Soil	6	6
Clay	124	130
Sand	15	145
Gumbo, sand and shale	205	350
Gumbo	129	479
Sand	13	492

Well DH-64-10-206

Owner: H. C. Icet
Driller: C. A. Williams

	THICKNESS (FEET)	DEPTH (FEET)
Clay, red	150	150
Gumbo	20	170
Sand, fine	10	180
Gumbo	30	210
Sand	10	220
Gumbo, hard	60	280
Shale, soft	25	305
Sand, coarse	35	340
Sand, fine	30	370

Well DH-64-10-302

Owner: Mayes Estate
Driller: Texas Highway Dept.

	THICKNESS (FEET)	DEPTH (FEET)
Soil, black, sandy	3	3
Clay, gray, soft, sandy	4	7
Clay, yellow, sticky	2	9
Sand, yellow, water	14	23
Sand, water	8	31
Clay, brown and gray, sandy with small shells	8	39
Clay, brown and blue	2	41
Clay, brown and blue streaked	15	56
Clay, brown and blue streaked hard	2	58

	THICKNESS (FEET)	DEPTH (FEET)
Well DH-64-10-302—Continued		
Clay, hard, light-brown streaked	1	59
Clay, light-blue streaked	10	69
Clay, blue, sandy, soft	1	70
Sand, blue, water	8	78
Sand, blue, soft, water	8	86
Sand, blue, water	2	88
Clay, blue	1	89
Sand, blue, water	31	120
Clay, blue	7	127
Sand, blue, water	7	134
Clay, blue, soft, sandy	1	135
Sand, blue, water	13	148
Well DH-64-10-401		
Owner: Finger Furniture Co. Driller: Katy Drilling Co.		
Topsoil and clay	132	132
Sand and clay strips	58	190
Clay	45	235
Sand, real fine	12	247
Clay, blue	83	330
Sand	61	391
Clay	52	443
Sand, fine	63	506
Clay and sand strips	54	560
Clay	30	590
Sand	7	597
Clay and sand strip	68	665
Sand, rock, and clay strips	51	716
Clay and sand strips	39	755
Sand, rocky and clay	116	871
Well DH-64-10-405		
Owner: C. O. Williams Driller: Jim Avera		
Sand	2	2
Clay	85	87
Sand, coarse	40	127
Shale	204	331
Sand	15	346
Shale	8	354
Sand	8	362
Shale	68	430
Shale, sandy	10	440
Shale	30	470
Sand	18	488
Well DH-64-10-406		
Owner: Jack Rosenau Driller: Jim Avera		
Clay	118	118
Shale, sandy	10	128
Sand, water	21	149
Well DH-64-10-408		
Owner: Ben Dutton Driller: Amos Jennische		
Soil	3	3
Clay	93	96
Shale	22	118
Sand	25	143
Well DH-64-10-501		
Owner: C. T. Joseph, Jr. Driller: Katy Drilling Co.		
Topsoil and clay	110	110
Sand	23	133
Clay	38	171
Sand	98	269
Clay	10	279
Sand	31	310
Clay	35	345
Sand, shale	22	367
Sand	20	387
Clay	28	415
Shale, soft	32	447
Sand and shell	19	466
Clay	13	479
Shale, soft	49	528

Table 5.—Drillers' Logs of Wells in Chambers and Jefferson Counties—Continued

	THICKNESS (FEET)	DEPTH (FEET)
Well DH-64-10-501—Continued		
Shale, soft, and sandy strips	38	566
Shale and small clay strips	35	601
Sand	15	616
Shale	112	728
Sand, rocky	181	909
Shale	1	910
No record	2	912
Well DH-64-10-504		
Owner: Ernest Winfree Driller: Amos Jennische		
Soil	3	3
Clay	112	115
Sand	6	121
Gumbo	6	127
Rock and boulders	8	135
Gumbo	50	185
Shale	19	204
Sand	18	222
Well DH-64-10-511		
Owner: Hugh Welch Driller: Jim Avera		
Clay	94	94
Sand, water	24	118
Shale with sand streaks	42	160
Shale, sticky	110	270
Shale, sandy	8	278
Shale, sticky	62	340
Sand, water	26	366
Shale, sticky	39	405
Shale, sandy	7	412
Shale, sticky	63	475
Sand, water	26	501
Well DH-64-10-512		
Owner: C. T. Joseph Estate Driller: Amos Jennische		
Clay	98	98
Sand	20	118

	THICKNESS (FEET)	DEPTH (FEET)
Gumbo and shale	147	265
Shale, sandy	10	275
Gumbo	70	345
Sand	15	360
Gumbo	120	480
Sand	28	508
Well DH-64-10-514		
Owner: Mayes Estate Driller: Texas Highway Dept.		
Clay, brownish-yellow and shell	1	1
Clay, yellow, soft, brown	1	2
Clay, yellow	1	3
Clay, yellow and gray and some white gravel	1	4
Clay, yellow and gray	4	8
Clay, yellow and gray, sandy	1	9
Clay, yellow and gray	4	13
Clay, yellow and gray, sandy	1	14
Clay, yellow with white gravel	3	17
Clay, gray and yellow	4	21
Clay, yellowish-blue and gray	1	22
Clay, red, yellow and blue	3	25
Clay, red, yellow and blue, sandy, water	1	26
Clay, red and gray	5	31
Clay, yellow and blue	10	41
Clay, blue and brown	5	46
Well DH-64-10-516		
Owner: C. T. Joseph Estate Driller: Jim Avera		
Soil	2	2
Clay	146	148
Sand	12	160
Shale	118	278
Sand	5	283
Shale	62	345
Sand	8	353
Shale	145	498
Sand	14	512

Table 5.—Drillers' Logs of Wells in Chambers and Jefferson Counties—Continued

Well DH-64-10-702

Owner: Texas Oil and Gas Co.
Driller: Homer Wright

	THICKNESS (FEET)	DEPTH (FEET)
Clay and sand	185	185
Sand	27	212
Shale and sand	105	317
Sand	25	342
Shale	58	400
Sand	75	475

Well DH-64-10-703

Owner: V. A. Lawrence
Driller: Pitre Water Wells

	THICKNESS (FEET)	DEPTH (FEET)
Clay	71	71
Sand	3	74
Gravel	1	75
Clay	15	90
Clay, sandy	8	98
Gravel	2	100
Clay, sandy	14	114
Sand	7	121
Clay	4	125
Sand, fine	16	141
Clay	7	148
Sand, fine	7	155
Clay	19	174
Clay, fine sand with lens of clay	31	205
Clay	29	234
Clay with lens of sand and gravel	16	250
Sand	12	262
Clay	2	264
Sand, fine, water	4	268
Sand, coarse, water	10	278
Gravel, water	6	284
Sand, fine, water	6	290
Clay, blue	15	305
Sand	10	315
Clay, sandy	5	320
Sand and gravel	19	339
Clay	9	348
Gravel	2	350
Shale, sandy	12	362
Sand	4	366
Clay	18	384
Sand and gravel	1	385
Clay	2	387
Sand, fine	3	390
Clay, sandy	3	393
Clay	7	400
Sand and gravel, water	43	443

Well DH-64-10-707

Owner: V. A. Lawrence
Driller: Luther Patterson

	THICKNESS (FEET)	DEPTH (FEET)
Surface	24	24
Shale	124	148
Sand	49	197
Shale	11	208
Sand	44	252
Shale	133	385
Sand, water	44	429

Well DH-64-10-801

Owner: Amos Lawrence Estate
Driller: Amos Jennische

	THICKNESS (FEET)	DEPTH (FEET)
Soil	3	3
Shale	52	55
Sand	5	60
Shale	10	70
Gumbo, soft	65	135
Sand	10	145
Gumbo	60	205
Sand, fine	25	230
Gumbo, soft	43	273
Gumbo and rock	2	275
Sand	25	300
Gumbo	65	365
Sand	34	399

Table 5.—Drillers' Logs of Wells in Chambers and Jefferson Counties—Continued

Well DH-64-11-105

Owner: A. H. Stade
Driller: B & L Water Wells

	THICKNESS (FEET)	DEPTH (FEET)
Clay	9	9
Sand	25	34
Shale	76	110
Sand	20	130
Shale	33	163
Sand	15	178

Well DH-64-11-205

Owner: Stanolind Oil and Gas Co.
Driller: Pitre Water Wells

	THICKNESS (FEET)	DEPTH (FEET)
Clay	31	31
Sand, water	17	48
Clay, tough	19	67
Sand, fine	34	101
Clay	9	110
Sand, water	26	136
Shale	23	159
Sand	3	162
Shale	7	169
Sand, water	6	175
Clay, tough	23	198
Sand	3	201
Shale	12	213
Shale, sandy	7	220
Sand	1	221
Shale, sandy	6	227

Well DH-64-11-206

Owner: Stanolind Oil and Gas Co.
Driller: Layne-Texas Co.

	THICKNESS (FEET)	DEPTH (FEET)
Clay	11	11
Sand	43	54
Clay	29	83
Sand	23	106
Clay	11	117
Sand	19	136
Clay	4	140

Well DH-64-11-401

Owner: E. S. Abshier
Driller: Katy Drilling Co.

	THICKNESS (FEET)	DEPTH (FEET)
Topsoil	5	5
Sand	25	30
Clay	82	112
Sand	30	142
Clay	65	207
Sand	12	219
Clay	10	229
Sand	40	269
Clay	71	340
Sand	42	382
Clay	110	492
Sand, rocky	38	530
Clay	10	540
Sand, rocky	27	567
Clay	11	578
Sand and clay	17	595

Well DH-64-11-502

Owner: Sun Oil Co.
Driller: Sun Oil Co.

	THICKNESS (FEET)	DEPTH (FEET)
Sand, surface and clay	108	108
Shale, gravel and sand	88	196
Shale and gravel	420	616
Shale	100	716
Shale and sand	244	960
Sand and gravel	130	1,090
Shale and sand	162	1,252

Well DH-64-11-802

Owner: City of Anahuac Well 1
Driller: Big State Drilling Co.

	THICKNESS (FEET)	DEPTH (FEET)
Surface soil	2	2
Clay	3	5
Clay and sand	15	20
Clay	10	30
Shale	40	70
Clay	10	80

	THICKNESS (FEET)	DEPTH (FEET)
Well DH-64-11-802—Continued		
Sand, water	40	120
Clay, sandy	10	130
Shale	20	150
Shale, sandy	48	198
Clay	2	200
Sand	5	205
Shale, sandy	120	325
Sand, poor	25	350
Shale	10	360
Sand and shale, layers	60	420
Shale	20	440
Sand, poor	20	460
Sand and shale broken layers	59	519

Well DH-64-11-911

Owner: L. F. Fancher
Driller: Pitre Water Wells

	THICKNESS (FEET)	DEPTH (FEET)
Clay, vari-colors	97	97
Sand, fine, white	25	122
Sand and clay, broken	3	125

Well DH-64-11-914

Owner: W. H. Otken
Driller: Andy Frankland

	THICKNESS (FEET)	DEPTH (FEET)
Surface sand	2	2
Clay, yellow	158	160
Sand, fine	15	175
Gumbo, gray	145	320
Sand	20	340

Well DH-64-12-107

Owner: M. P. Hatley
Driller: Andy Frankland

	THICKNESS (FEET)	DEPTH (FEET)
Surface sand	2	2
Clay, yellow	60	62
Sand	29	91

Well DH-64-12-109

Owner: Roy E. Abshier
Driller: Pitre Water Wells

	THICKNESS (FEET)	DEPTH (FEET)
Clay	22	22
Sand, very fine, white	16	38

Well DH-64-12-204

Owner: C. A. Fowler
Driller: J. E. Abshier

	THICKNESS (FEET)	DEPTH (FEET)
Soil	4	4
Clay	8	12
Sand	22	34

Well DH-64-12-206

Owner: C. J. Musgrove
Driller: Andy Frankland

	THICKNESS (FEET)	DEPTH (FEET)
Surface sand	2	2
Clay, yellow	52	54
Sand, fine	26	80
Gumbo	185	265
Sand	15	280
Gumbo	11	291
Sand	19	310

Well DH-64-12-303

Owner: W. E. Jenkins
Driller: Pitre Water Wells

	THICKNESS (FEET)	DEPTH (FEET)
Clay, tough, yellow	194	194
Sand, fine, gray	10	204
Shale, blue	74	278
Sand, fine, gray	10	288
Shale, blue	32	320
Sand, fine, gray	5	325
Shale, gray	20	345
Sand, fine, gray	5	350
Sand, loose, gray	23	373
Shale, medium	25	398
Sand, soft, dark-gray, very fine	5	403

Well DH-64-12-502

Owner: Humble Oil and Refining Co.
Driller: Humble Oil and Refining Co.

	THICKNESS (FEET)	DEPTH (FEET)
Clay	91	91
Sand and gravel	4	95
Clay	35	130
Sand, water	17	147

	THICKNESS (FEET)	DEPTH (FEET)
Well DH-64-12-704		
Owner: Humble Oil and Refining Co. Driller: L. Patterson		
Clay	22	22
Sand	25	47
Clay	4	51
Sand	8	59
Clay	4	63
Well DH-64-13-102		
Owner: Sun Oil Co. Driller: A-1 Water Wells		
Soil, black surface	4	4
Clay, yellow	18	22
Sand, yellow	3	25
Shale, yellow	25	50
Sand, fine, blue	6	56
Shale, sticky	42	98
Sand, fine, gray	27	125
Shale, soft, blue	15	140
Sand, gray, water	35	175
Well DH-64-13-106		
Owner: Lawrence Rowland Driller: V. R. Phelps		
Clay	40	40
Shell, oyster	20	60
Clay	46	106
Sand	74	180
Well DH-64-13-112		
Owner: C. B. Jeffery Driller: Andy Frankland		
Surface sand	2	2
Clay, yellow	103	105
Sand, and clay, fine	15	120
Clay, gray	39	159
Sand	17	176
Well DH-64-13-601		
Owner: Trinity Bay Conservation District Well 1 Driller: Layne-Texas Co.		
Topsoil	3	3
Clay	114	117
Sand, coarse	28	145
Clay	46	191
Sand, fine, gray	21	212
Clay	49	261
Well DH-64-13-602		
Owner: Trinity Bay Conservation District Well 2 Driller: Layne-Texas Co.		
Clay	115	115
Sand, white	33	148
Clay	41	189
Sand, gray	20	209
Clay	52	261
Well DH-64-13-604		
Owner: H. M. Franssen Driller: V. R. Phelps		
Clay	20	20
Sand, blue, fine	80	100
Clay	40	140
Sand	22	162
Well DH-64-13-616		
Owner: Sinclair Refining Co. Driller: Lowry Water Wells		
Surface, clay	18	18
Sand, gray	46	64
Shale, blue	61	125
Sand, good	25	150
Shale, soft	2	152
Well DH-64-13-617		
Owner: Wilson LeBlanc Driller: Green Bros. Water Well Service		
Clay, yellow	16	16
Sand, white	34	50

Table 5.—Drillers' Logs of Wells in Chambers and Jefferson Counties—Continued

	THICKNESS (FEET)	DEPTH (FEET)
Well DH-64-14-102		
Owner: S. J. Ryan Driller: Pitre Water Wells		
Clay, medium	20	20
Sand, fine	29	49
Clay, medium	64	113
Sand, coarse	35	148
Clay, medium	8	156
Sand, soft	20	176
Clay, medium	22	198
Well DH-64-14-704		
Owner: J. B. Myers Driller: V. R. Phelps		
Clay	35	35
Quicksand	4	39
Clay	150	189
Sand	8	197
Well DH-64-17-212		
Owner: C. Vickers Driller: Amos Jennische		
Clay	74	74
Sand	29	103
Shale	37	140
Shale and gumbo	60	200
Gumbo	125	325
Sand, fine and shale	10	335
Sand	11	346
Well DH-64-17-302		
Owner: The Texas Co. Driller: Pitre Water Wells		
Clay, red	71	71
Sand	28	99
Shale, blue	8	107
Sand, hard	13	120
Shale, blue	92	212
Sand, hard	47	259
Shale, blue	61	320
Sand, hard	7	327
Shale	5	332
Sand	66	398
Well DH-64-17-304		
Owner: The Texas Co. Driller: Pitre Water Wells		
Clay, medium	64	64
Sand, soft	44	108
Shale, blue and shell	75	183
Sand, white fine	37	220
Shale with coarse sand	178	398
Shale, hard	120	518
Sand, hard	47	565
No record	19	584
Well DH-64-17-305		
Owner: The Texas Co. Driller: Pitre Water Wells		
Clay, medium red	40	40
Shale, medium blue	25	65
Shale, medium blue and sand	15	80
Sand, rough, white and gravel	28	108
Shale, blue, sticky	36	144
Sand, medium fine, blue and shale	31	175
Shale, medium blue, sandy	44	219
Shale, medium blue	32	251
Sand, medium white, rough, fine	22	273
Sand, soft, white, fine	22	295
Clay, sticky, blue	49	344
Sand, rough, white	28	372
Well DH-64-17-307		
Owner: Odell Fisher Driller: Amos Jennische		
Soil	3	3
Clay	77	80
Sand	16	96

Table 5.—Drillers' Logs of Wells in Chambers and Jefferson Counties—Continued

	THICKNESS (FEET)	DEPTH (FEET)
Well DH-64-17-308		
Owner: B. D. Fisher Driller: Amos Jennische		
Soil	3	3
Clay	77	80
Sand	17	97
Well DH-64-17-601		
Owner: Asa Wilburn Driller: Amos Jennische		
Soil	3	3
Clay	71	74
Sand	20	94
Well DH-64-17-607		
Owner: J. C. Fowler Driller: Amos Jennische		
Soil	3	3
Clay	12	15
Quicksand	5	20
Clay	10	30
Quicksand	15	45
Clay	50	95
Sand	10	105
Well DH-64-17-610		
Owner: Jones & Laughlin Steel Co. Driller: Layne-Texas Co.		
Clay	75	75
Clay, sandy	16	91
Sand, broken	29	120
Shale	30	150
Sand and shale layers	35	185
Shale and sandy	46	231
Sand, broken and shale	10	241
Shale	146	387
Shale, sandy	8	395
Shale	38	433
Sand and shale streaks	9	442
Shale	50	492
Sand and shale streaks	93	585
Shale	5	590
Sand	5	595
Shale	26	621
Sand, broken and shale layers	14	635
Shale and sandy shale	58	693
Shale	18	711
Sand, broken	20	731
Shale	28	759
Sand	80	839
Shale	6	845
Sand-fine and shale breaks	30	875
Shale, hard	32	907
Sand	5	912
Shale, sandy	12	924
Sand	6	930
Shale, hard	20	950
Sand, fine	35	985
Shale	8	993
Sand	25	1,018
Shale	8	1,026
Sand	6	1,032
Shale, sandy	9	1,041
Sand and shale streaks	80	1,121
Shale	17	1,138
Sand and shale streaks	52	1,190
Shale, hard	29	1,219
Sand and shale streaks	39	1,258
Shale	48	1,306
Sand	26	1,332
Shale	8	1,340
Sand	58	1,398
Shale	4	1,402
Sand	32	1,434
Shale and sandy shale	7	1,441
Sand and shale streaks	54	1,495
Shale and sandy shale	18	1,513

Table 5.—Drillers' Logs of Wells in Chambers and Jefferson Counties—Continued

Well DH-64-17-901

Owner: Seacrest Park
Driller: Pitre Water Wells

	THICKNESS (FEET)	DEPTH (FEET)
Sand	18	18
Clay	7	25
Sand	25	50
Shale	17	67
Sand	63	130
Clay	8	138
Sand and shale	12	150
Sand, soft, green, and shale	80	230
Clay, medium red	13	243
Sand, soft gray	8	251
Shale, medium blue	43	294
Shale, soft green	36	330
Shale, hard blue, boulders	53	383
Shale, soft gray	11	394
Gumbo, medium blue	42	436
Shale, medium green and sand	15	451
Shale, medium shale and sand	13	464
Shale, medium blue	28	492
Sand, soft gray	43	535
Shale, medium blue	19	554
Sand, soft gray	63	617
Clay, red medium	15	632
Sand, fine, soft gray, water	68	700
Shale, medium blue	3	703
No Record	6	709

Well DH-64-18-104

Owner: E. E. Barrow
Driller: Luther Patterson

	THICKNESS (FEET)	DEPTH (FEET)
Surface	24	24
Shale	197	221
Sand	22	243
Shale	43	286
Sand	54	340

Well DH-64-18-107

Owner: Irvin Bishop
Driller: Amos Jennische

	THICKNESS (FEET)	DEPTH (FEET)
Soil	3	3
Clay	122	125
Sand and shale	5	130
Gumbo	20	150
Sand	25	175
Shale	15	190
Gumbo	35	225
Sand	30	255
Gumbo and shale	45	300
Sand	42	342
Gumbo	58	400
Sand	70	470
Gumbo	140	610
Sand	24	634

Well DH-64-18-111

Owner: W. F. Lawrence
Driller: Jim Avera

	THICKNESS (FEET)	DEPTH (FEET)
Clay	125	125
Shale	25	150
Shale, fine and sand streaks	16	166
Sand, fine	30	196

Well DH-64-18-407

Owner: F. A. Fards Estate
Driller: C. A. Williams

	THICKNESS (FEET)	DEPTH (FEET)
Clay	10	10
Sand, yellow	20	30
Gumbo	170	200
Sand	40	240
Gumbo	40	280
Sand and boulders	77	357
Gumbo and boulders	36	393
Shale and boulders	44	437
Gumbo, hard and lime	13	450
Shale	13	463
Sand, hard	2	465

Table 5.—Drillers' Logs of Wells in Chambers and Jefferson Counties—Continued

	THICKNESS (FEET)	DEPTH (FEET)
Well DH-64-18-407—Continued		
Shale	2	467
Rock	3	470
Shale and boulders	4	474
Shale, sandy	34	508
Shale, hard	20	528
Sand	60	588
Shale	11	599
Gumbo	6	605
Sand, hard	5	610
Shale, hard and lime	95	705
Shale, broken and sand	25	730
Sand	25	755
Well DH-64-19-204		
Owner: Humble Oil and Refining Co. Driller: Pitre Water Wells		
Clay, medium	72	72
Clay, hard	60	132
Sand, fine, soft	13	145
Clay, hard	13	158
Well DH-64-19-308		
Owner: Layne-Bowler Co. Driller: Layne-Bowler Co.		
Loam	2	2
Clay	8	10
Sand	24	34
Clay	10	44
Sand	39	83
Clay	19	102
Gumbo	48	150
Shale, hard	19	169
Shale, soft	15	184
Shale, hard	13	197
Gumbo	7	204
Sand	46	250
Gumbo, blue	13	263
Sand	43	306
Gumbo, blue	23	329
Shale, hard	9	338
Shale, soft	11	349
Sand	7	356
Gumbo	13	369
Clay	7	376
Gumbo	23	399
Sand	33	432
Gumbo	4	436
Clay	6	442
Sand and gravel	32	474
Clay, blue	29	503
Shale	33	536
Sand	18	554
Gumbo	26	580
Shale	19	599
Gumbo	42	641
Shale, blue	3	644
Clay, tough	56	700
Gumbo	57	757
Shale	20	777
Sand	8	785
Gumbo	15	800
Sand	12	812
"Hard Pan"	8	820
Sand and gravel	31	851
Gumbo	18	869
No record	181	1,050
Well DH-64-19-609		
Owner: Charlie Gilfillian Driller: R. H. Schneider		
Clay, yellow	24	24
Shale, blue	16	40
Shale, pink	22	62
Sand, fine	19	81
Well DH-64-19-911		
Owner: E. A. Wilburn Driller: Andy Frankland		
Clay, yellow	18	18
Sand, fine	6	24

Table 5.—Drillers' Logs of Wells in Chambers and Jefferson Counties—Continued

	THICKNESS (FEET)	DEPTH (FEET)
Well DH-64-19-911—Continued		
Clay, soft gray	254	278
Sand, streaks	11	289
Clay, blue	15	304
Sand with clay streaks	22	326
Well DH-64-20-408		
Owner: Mrs. James B. Jackson Driller: Andy Frankland		
Surface sand	24	24
Clay, yellow	61	85
Sand, fine	20	105
Clay, gray	165	270
Sand	4	274
Clay, soft	256	530
Sand	19	549
Well DH-64-20-601		
Owner: Sun Oil Co. Driller: R. H. Schneider		
Clay, yellow	20	20
Shale, blue	62	82
Sand	16	98
Shale, blue	92	190
Sand	24	214
Well DH-64-20-804		
Owner: Guy Jackson Driller: Amos Jennische		
Soil	3	3
Clay	77	80
Clay and shale	100	180
Gumbo	40	220
Shale	80	300
Sand	6	306
Shale	48	354
Sand	6	360
Gumbo	15	375
Sand	45	420

	THICKNESS (FEET)	DEPTH (FEET)
Well DH-64-21-204		
Owner: Frost Oil Co. Driller: Pitre Water Wells		
Clay, medium yellow	22	22
Sand, fine, soft	17	39
Clay, soft sandy	44	83
Sand, fine, soft	17	100
Shale, medium	58	158
Sand, medium soft	17	175
Sand, coarse and gravel	9	184
Clay, medium	11	195
Well DH-64-21-301		
Owner: Sun Oil Co. Driller: A-1 Water Wells		
Soil, surface black	2	2
Clay, yellow	16	18
Sand, fine, yellow	12	30
Sand, fine, blue	35	65
Shale, blue	91	156
Sand, water	38	194
Well DH-64-21-306		
Owner: Sun Oil Co. Driller: --		
Surface soil, black	2	2
Clay, yellow	20	22
Sands, fine yellow	11	33
Well DH-64-21-501		
Owner: Prince Drilling Co. Driller: Pitre Water Wells		
Sand	18	18
Shale	22	40
Unknown	20	60
Sand	96	156
Sand, fine	24	180
Shale	6	186

Table 5.—Drillers' Logs of Wells in Chambers and Jefferson Counties—Continued

	THICKNESS (FEET)	DEPTH (FEET)
Well DH-64-26-707		
Owner: Humble Oil and Refining Co. Driller: Humble Oil and Refining Co.		
Sand and shale	456	456
Shale, sandy	27	483
Sand	74	557
Well DH-64-26-708		
Owner: Humble Oil and Refining Co. Driller: Humble Oil and Refining Co.		
Shell and clay	160	160
Sand and clay	130	290
Shale	183	473
Sand and gravel	43	516
Shale	85	601
Sand	15	616
Shale	29	645
Gravel	18	663
Sand	47	710
No record	8	718
Well DH-64-26-905		
Owner: J. E. Patton Driller: Pitre Water Wells		
Sand, brown	6	6
Clay, broken black	1½	7½
Sand, powder brown	10	17½
Log, brown	½	18
Sand, fine, vari-color	12	30
Shell, oyster and sand	3	33
Well DH-64-27-207		
Owner: McCarthy Oil Co. Driller: Pitre Water Wells		
Sand, soft gray, fine	33	33
Clay, medium red	7	40
Clay, medium red, and sand	20	60
Shale, medium green	25	85
Sand, soft gray, fine	115	200
Sand, medium green and shale	22	222
Sand, soft gray	46	268
No record	146	414

	THICKNESS (FEET)	DEPTH (FEET)
Well DH-64-27-702		
Owner: S. W. Mahoney Driller: Andy Frankland		
Surface sand	30	30
Clay, soft gray	60	90
Sand	36	126
Jefferson County		
Well PT-61-56-702		
Owner: Beaumont Country Club Driller: Layne-Texas Co.		
Clay, sandy	22	22
Clay, tough	184	206
Sand, white	41	247
Clay	30	277
Clay, sandy	37	314
Sand	26	340
Clay	28	368
Clay, sandy	16	384
Sand	20	404
Shale	130	534
Well PT-61-61-807		
Owner: Southern Pacific Co. Driller: Gust C. Warnecke		
Clay	19	19
Sand	84	103
Clay	4	107
Sand	16	123
Clay	46	169
Sand	12	181
Clay	49	230
Loam, sandy	129	359
Sand	21	380
Clay	40	420
Sand	40	460
Shale, soft	182	642
Sand, water	50	692

Table 5.—Drillers Logs of Wells in Chambers and Jefferson Counties—Continued

Well PT-61-64-501

Owner: Mobil Oil Co.
Driller: Layne-Texas Co.

	THICKNESS (FEET)	DEPTH (FEET)
Soil, surface and clay	25	25
Sand, red	28	53
Shale	62	115
Sand, gray	30	145
Shale	209	354
Sand and shale layers	32	386
Shale, sandy	45	431
Sand	25	456
Shale	39	495
Sand	10	505
Shale	3	508
Sand, water	110	618
Shale	2	620

Well PT-61-64-502

Owner: Gulf States Utilities Co.
Driller: Coastal Water Wells

	THICKNESS (FEET)	DEPTH (FEET)
Topsoil	5	5
Sand	25	30
Shale	60	90
Shale and sand	30	120
Shale	30	150
Sand, fine	40	190
No record	40	230
Sand, coarse	30	260
No record	270	530
Shale, sandy	100	630

Well PT-61-64-504

Owner: Olin Mathieson Co.
Driller: Frank Balcar

	THICKNESS (FEET)	DEPTH (FEET)
Clay	18	18
Sand	4	22
Shale	11	33
Gumbo	19	52
Sand	10	62
Gumbo	47	109
Sand	47	156
Gumbo	9	165
Sand	50	215
Shale	34	249
Sand	9	258
Gumbo	5	263
Sand and shale	45	308
Gumbo	16	324
Sand and shale	65	389
Gumbo	28	417
Sand	20	437
Gumbo	59	496
Sand with gravel at bottom	145	641

Well PT-61-64-505

Owner: Mobil Oil Co.
Driller: Texas Water Wells, Inc.

	THICKNESS (FEET)	DEPTH (FEET)
Surface	4	4
Clay	28	32
Sand	7	39
Shale	32	71
Sand	14	85
Shale	11	96
Sand	51	147
Shale	153	300
Shale, sandy	56	356
Shale	56	412
Sand	35	447
Shale	61	508
Sand	125	633
Sand, shale streaked	27	660
Sand	178	838
Shale, sandy	71	909

Well PT-61-64-506

Owner: Mobil Oil Co.
Driller: Texas Water Wells, Inc.

	THICKNESS (FEET)	DEPTH (FEET)
Surface	7	7
Clay	24	31
Sand, fine	3	34

	THICKNESS (FEET)	DEPTH (FEET)
Well PT-61-64-506—Continued		
Sand, clay streaks	64	98
Sand, gray	50	148
Clay	255	403
Sand, fine, hard	54	457
Shale	51	508
Sand, fine hard	45	553
Shale, sand streaks	41	594
Sand, fine, hard	39	633
Shale	29	662
Sand, very hard	171	833
Shale, sandy	63	896
Shale	12	908
Well PT-61-64-508		
Owner: Gulf States Utilities Co. Driller: Coastal Water Wells		
Sand	15	15
Gumbo	30	45
Sand	15	60
Gumbo	13	73
Shale	87	160
Sand	100	260
Shale	60	320
Sand	30	350
Shale	40	390
Sand	50	440
Shale	40	480
Sand	80	560
Shale, sandy	240	800
Shale, gummy	800	1,600
Sand, fine	12	1,612
Well PT-61-64-510		
Owner: Gulf States Utilities Co. Driller: Coastal Water Wells		
Sand	19	19
Gumbo	24	43
Sand	18	61
Gumbo	9	70

	THICKNESS (FEET)	DEPTH (FEET)
Shale, sandy	55	125
Gumbo	45	170
Sand, medium	75	245
Gumbo	3	248
Well PT-61-64-513		
Owner: Mobil Oil Co. Driller: Layne-Texas Co.		
Surface soil	3	3
Clay	68	71
Sand	12	83
Clay	13	96
Sand and clay, streaks	12	108
Sand	40	148
Clay	5	153
Sand, broken	20	173
Shale, sandy	3	176
Shale, sandy and sand, streaks	49	225
Sand	11	236
Clay, sandy	28	264
Sand and clay	17	281
Clay, sandy	31	312
Sand and clay, streaks	29	341
Sand and clay	20	361
Sand and clay, streaks	84	445
Clay, sandy	12	457
Sand, coarse	25	482
Shale and sand, streaks	32	514
Sand, hard, and shale, streaks	122	636
Shale	4	640
Well PT-61-64-803		
Owner: Philip Bros. Driller: Higgins Oil and Fuel Co.		
Soil, black sandy loam	1	1
Clay, yellow with red streaks	13	14
Clay, blue with limy concretions	2	16
Sand, bluish-gray	6	22
Clay, yellowish-colored with lime	8	30
Clay, dark-blue with lime and shells	10	40

Table 5.—Drillers' Logs of Wells in Chambers and Jefferson Counties—Continued

	THICKNESS (FEET)	DEPTH (FEET)
Well PT-61-64-803—Continued		
Sand, gray	16	56
Sand, blue	13	69
Clay, blue with pyrites	51	120
Sand, blue with some clay and small pebbles	26	146
Sand, fine bluish-gray	10	156
Sand, fine gray	31	187
Sand, fine gray with black specks	10	197
Sand, bluish-tinted gray	65	262
Sand, dark-gray with black specks	9	271
Sand, fine, dark-gray	44	315
Sand, fine grayish-tinted	35	350
Sand, fine, grayish-green	50	400
Sand, fine, brownish-gray	40	440
Sand, fine brown with shells	30	470
Sand, fine, brown with broken shells	21	491
Sand, coarse, blue with broken shells	9	500
Sand, very fine, muddy	47	547
Sand, very fine, bluish-gray	17	564
Sand, very fine, gray with bluish tint	48	612
Sand, fine, gray with bluish tint	12	624
Clay, fine, sandy (fishbones at 628 feet)	42	666
Clay, fine, blue, sandy	6	672
Sand, very fine, light blue	13	685
Rock, light blue	43	728
Sand, bluish-gray	8	736
Sand, light gray with shells	14	750
Marl with small shells	6	756
Sand, light bluish-gray and shells	5	761
Sand, fine and shells	64	825
Sand, very fine, dark brownish-gray	49	874
Clay, hard, grayish-blue, sandy with shells	26	900
Rock, dark-2 feet, shells-1 foot	3	903
Sand, dark grayish-blue with some clay	12	915
Lignite	5	920
Sand, bluish-gray with shells	34	954
Rock, bluish-gray	4	958
Sand, very fine, grayish-brown, with shells	24	982
Sand, very fine, with shells	13	995
Rock, dark gray, "Cap Rock"	5	1,000
Sand, coarse, dark-gray with oil	6	1,006

Well PT-61-64-804

Owner: McFadden, Wiess & Kyle
Driller: J. G. & A. W. Hamill

	THICKNESS (FEET)	DEPTH (FEET)
Clay, yellow	36	36
Sand, coarse, gray	20	56
Clay, blue, hard	114	170
Sand, fine, gray	75	245
Gravel, vari-colored	20	265
Sand, coarse, gray	52	317
Clay, blue	35	352
Sand, coarse gray with pyrite concretions	24	376
Clay, blue	19	395
Sand, fine, gray with lignite	45	440
Marl	8	448
Sand, gray with concretions and much lignite	60	508
Limestone, soft	¾	508¾
Clay, gray and sulphurated hydrogen gas	19½	528¼
Sandstone, hard with calcite depositions	¾	529
Sand, gray	34	563
Sand, compact hard with pyrite	25	588
Sandstone, hard and calcareous concretions	½	588½
Clay, gray	13¼	601¾
Sand, hard	¼	602
Clay, gray with calcareous concretions	57	659
Shells, white, calcareous	6	665
Clay, gray	14	679
Sandstone, gray	6	685

Table 5.—Drillers' Logs of Wells in Chambers and Jefferson Counties—Continued

	THICKNESS (FEET)	DEPTH (FEET)
Well PT-61-64-804—Continued		
Clay, gray, with calcareous concretions	7	692
Clay, gray, hard	23	715
Concretions, calcareous	2	717
Clay, hard, gray, with calcareous concretions and fine pyrite	136	853
Sandstone and pyrite, hard	20	873
Rock, hard, limestone	2	875
Sand, fine, oil	24	899
Clay, hard	80	979
Sandstone, hard with calcareous concretions	50	1,029
Gas, heavy pressure and oil	40	1,069
Sand, mixed with calcareous concretions and fossils	70	1,139
No record	21	1,160
Well PT-61-64-901		
Owner: Air Reduction Corporation Driller: Layne-Texas Co.		
Surface soil	3	3
Clay, sandy	57	60
Clay	11	71
Sand	31	102
Clay, sandy	47	149
Sand	12	161
Clay	5	166
Sand	20	186
Clay and sand streaks	215	401
Clay, sandy and sand streaks	51	452
Sand, coarse	34	486
Clay	4	490
Sand, fine	4	494
Clay	6	500
Sand, coarse (very good)	20	520
No record	20	540
Well PT-61-64-902		
Owner: Air Reduction Corporation Driller: Layne-Texas Co.		
Surface soil	4	4
Clay, sandy	65	69
Sand	28	97
Clay	51	148
Sand	13	161
Clay	4	165
Sand	20	185
Clay and streaks of sand	263	448
Sand, broken	42	490
Clay	7	497
Sand (good)	53	550
Well PT-61-64-903		
Owner: Big Three Industrial Gas Co. Driller: Layne-Texas Co.		
Top soil	3	3
Clay	18	21
Sand	14	35
Clay	35	70
Sand and sandy clay	83	153
Sand and streaks of clay	57	210
Sandy clay and streaks of sand	240	450
Sand	22	472
Clay	11	483
Sand	107	590
Well PT-61-64-904		
Owner: Big Three Industrial Gas Co. Driller: Layne-Texas Co.		
Top soil	3	3
Clay	57	60
Sand	34	94
Clay	15	109
Sand, clay and sandy clay	49	158
Sand, shell and sandy clay	68	226
Clay	20	246
Clay and sandy clay	108	354
Clay, sandy and clay	21	375
Clay	69	444
Sand	23	467
Clay	10	477
Sand, salt and pepper	284	761
Clay, sandy	19	780

Well PT-62-57-703

Owner: Pure Oil Co.
Driller: --Walling

	THICKNESS (FEET)	DEPTH (FEET)
Clay	38	38
Sand and shale	73	111
Sand	15	126
Clay	10	136
Sand and clay	34	170
Clay	56	226
Sand	8	234
Sand and clay	38	272
Clay	18	290
Gumbo	20	310
Clay and shale	28	338
Clay	42	380
Clay and shale	13	393
Gumbo	74	467
Sand	17	484
Sand and clay	22	506
Sand	102	608

Well PT-62-57-704

Owner: Pure Oil Co.
Driller: --Walling

	THICKNESS (FEET)	DEPTH (FEET)
Mud and sand	70	70
Clay	45	115
Sand	20	135
Shale and clay	55	190
Sand and boulders	15	205
Sand	15	220
Clay	20	240
Sand and boulders	28	268
Clay	67	335
Gumbo	47	382
Clay	32	414
Gumbo	36	450
Sand	68	518
Gumbo	23	541
Sand	61	602

Well PT-62-57-706

Owner: Pure Oil Co.
Driller: --Walling

	THICKNESS (FEET)	DEPTH (FEET)
Sand and clay	150	150
Sand	22	172
Clay	90	262
Sand	21	283
Clay	154	437
Gumbo	20	457
Sand	61	518

Well PT-62-57-707

Owner: Pure Oil Co.
Driller: --Walling

	THICKNESS (FEET)	DEPTH (FEET)
Mud	22	22
Sand	119	141
Mud and sand	41	182
Mud	41	223
Clay	119	342
Gumbo	40	382
Clay	20	402
Gumbo	47	449
Sand	66	515
Gumbo	29	544
Sand	62	606

Well PT-62-57-709

Owner: Pure Oil Co.
Driller: --Walling

	THICKNESS (FEET)	DEPTH (FEET)
Mud and clay	28	28
Sand and shale	103	131
Clay	39	170
Sand and clay	14	184
Gumbo and boulders	44	228
Clay	17	245
Sand	5	250
Clay	108	358
Shale and clay	12	370
Gumbo	90	460
Sand and clay	28	488
Sand	117	605

	THICKNESS (FEET)	DEPTH (FEET)
Well PT-62-57-710		
Owner: Pure Oil Co. Driller: --Walling		
Clay	34	34
Sand and shale	84	118
Sand and clay	36	154
Gumbo	35	189
Shale and clay	35	224
Clay	31	255
Sand	21	276
Gumbo	61	337
Sand and shale	63	400
Gumbo	27	427
Sand and clay	47	474
Gumbo	30	504
Sand	106	610
Well PT-62-57-713		
Owner: Pure Oil Co. Driller: --Walling		
Mud	30	30
Sand	110	140
Sand and mud	40	180
Clay	65	245
Sand and clay	35	280
Clay	45	325
Gumbo	55	380
Clay	36	416
Gumbo	39	455
Sand	61	516
Gumbo	24	540
Sand	66	606
Well PT-63-01-104		
Owner: City of Nederland Driller: Frank Balcar		
Clay, yellow	32	32
Sand	6	38
Shale	22	60
Gumbo	10	70
Shale, blue	39	109
Sand	52	161
Shale	11	172
Gumbo, blue	13	185
Shale, gray	60	245
Rock, sand	1	246
Gumbo	24	270
Shale, hard	30	300
Gumbo	26	326
Rock	1	327
Shale, pink	23	350
Gumbo	32	382
Shale, hard	53	435
Shale, soft	23	458
Shale, sandy	22	480
Rock, shale	2	482
Sand, water	28	510
Well PT-63-01-202		
Owner: City of Port Arthur Driller: Layne-Bowler		
Clay	14	14
Quicksand	13	27
Sand, yellow	41	68
Sand, white, fine-grained, water	27	95
Clay	83	178
Sand, black, fine-grained	14	192
Clay, yellow	48	240
Sand, gray, medium-grained	43	283
Gumbo, blue	77	360
Sand, white, coarse-grained	14	374
Gumbo, hard	68	442
Pack sand, hard	185	627
Shale, hard	2	629
Well PT-63-01-204		
Owner: City of Port Arthur Driller: Layne-Bowler		
Clay	14	14
Quicksand	17	31
Clay, yellow	44	75

	THICKNESS (FEET)	DEPTH (FEET)
Well PT-63-01-204—Continued		
Sand, white, coarse-grained, water	27	102
Gumbo	83	185
Sand, blue, fine-grained	33	218
Gumbo, blue	38	256
Sand, gray, medium-grained	46	302
Gumbo, blue	18	320
Sand, white, medium-grained	32	352
Gumbo, hard	91	443
Sand, gray, fine-grained	34	477
Gumbo, blue	19	496
Sand, gray, medium-grained	80	576
Sand and gravel	80	656
Rock	1	657

Well PT-63-01-205

Owner: City of Port Arthur
Driller: Layne-Bowler

	THICKNESS (FEET)	DEPTH (FEET)
Topsoil	12	12
Quicksand	18	30
Gumbo, blue	48	78
Sand, blue, fine-grained	30	108
Sand, coarse-grained	51	159
Clay, yellow	37	196
Sand, blue, fine-grained	58	254
Gumbo, blue	59	313
Sand, fine-grained	33	346
Sand, heavy, white	30	376
Gumbo, hard, blue	90	466
Sand, blue, fine-grained	20	486
Sand, medium-grained and gravel	196	682

Well PT-63-01-206

Owner: City of Port Arthur
Driller: Layne-Texas Co.

	THICKNESS (FEET)	DEPTH (FEET)
Soil	3	3
Clay	80	83
Sand, and salt, white, coarse-grained	58	141
Shale, soft blue	189	330
Sand, gray, coarse-grained	55	385
Gumbo, soft blue	115	500
Sand with layers of gravel	137	637
Gravel, coarse	7	644

Well PT-63-01-302

Owner: Atlantic Refining Co.
Driller: Layne-Texas Co.

	THICKNESS (FEET)	DEPTH (FEET)
Clay	18	18
Clay, sandy	8	26
Clay	45	71
Shale	15	86
Sand, streaks, and shale	12	98
Shale	6	104
Sand, water	37	141
Shale	36	177
Sand	18	195
Shale	15	210
Sand	10	220
Gumbo	34	254
Shale, sticky	39	293
Shale and sand streaks	15	308
Sand and shale	13	321
Shale, tough, sticky	11	332
Sand and shale	5	337
Sand	10	347
Shale, tough	79	426
Sand	26	452
Shale	21	473
Sand layers, and shale	12	485
Sand	61	546
Shale	3	549

Well PT-63-01-303

Owner: Atlantic Refining Co.
Driller: --

	THICKNESS (FEET)	DEPTH (FEET)
Clay, yellow	18	18
Sand	12	30
Clay, yellow	23	53
Gumbo, soft	44	97

Table 5.—Drillers' Logs of Wells in Chambers and Jefferson Counties—Continued

	THICKNESS (FEET)	DEPTH (FEET)
Well PT-63-01-303—Continued		
Gumbo, hard	20	117
Sand	34	151
Gumbo, blue	12	163
Sand	4	167
Gumbo	47	214
Sand	4	218
Gumbo and shale	264	482
Sand	30	512
Gumbo	40	552
Sand	38	590
Gravel	6	596
Shale, blue	111	707
Shale, sandy	23	730
Sand	26	756
Gravel	66	822
Well PT-63-01-305		
Owner: Atlantic Refining Co. Driller: Layne-Texas Co.		
Surface soil	1	1
Clay	9	10
Clay with sand streaks	51	61
Shale	18	79
Sand, small amount of water	19	98
Clay	4	102
Sand, water	40	142
Clay	33	175
Sand	18	193
Shale	20	213
Sand	7	220
Gumbo	26	246
Shale	5	251
Gumbo	12	263
Shale and gumbo streaks	50	313
Sand	11	324
Gumbo	3	327
Sand	12	339
Gumbo	17	356
Sand	2	358
Shale	65	423
Sand	28	451
Gumbo	15	466
Sand	82	548
Gumbo	52	600
Lime, sandy	10	610
Gumbo, sandy lime streaks	18	628
Shale	46	674
Gumbo	24	698
Sand, water	130	828
Gumbo	25	853
Sand	207	1,060
Gumbo	47	1,107
Shale	220	1,327
Sand	60	1,387
Gumbo	18	1,405
Shale, sticky	20	1,425
Sand	42	1,467
Shale, sticky	4	1,471
Well PT-63-01-505		
Owner: Texas Highway Dept. Driller: Layne-Texas Co.		
Surface soil	6	6
Clay, blue	57	63
Sand	34	97
Clay	21	118
Sand	27	145
Clay	24	169
Sand	29	198
Clay and sand streaks	123	321
Sand and clay streaks	59	380
Sand	17	397
Clay	4	401
Sand and clay streaks	21	422
Clay, sandy and clay streaks	48	470
Clay	39	509
Clay, and sand streaks	31	540

	THICKNESS (FEET)	DEPTH (FEET)
Well PT-63-01-505—Continued		
Sand	20	560
Sand and hard streaks	40	600
Well PT-63-01-606		
Owner: City of Groves Driller: Layne-Texas Co.		
Soil	4	4
Clay	11	15
Clay, sandy	45	60
Clay	25	85
Sand, fine	12	97
Clay	26	123
Sand, fine	3	126
Shale and sandy shale	51	177
Sand, fine	5	182
Shale	32	214
Shale, sandy	16	230
Sand	11	241
Shale, sandy	230	471
Sand	5	476
Shale, sandy shale, and streaks of sand	269	745
Sand	126	871
Shale	15	886
No record	1	887
Well PT-63-01-701		
Owner: The Texas Co. Driller: --		
Clay, surface	20	20
Sand	10	30
Clay and sand	148	178
Sand and shale	113	291
Gumbo	18	309
Shale, sandy and boulders	131	440
Shale, hard	50	490
Gumbo	10	500
Sand	36	536
Gumbo	30	566
Sand and boulders	59	625
Rock, sand	22	647
Gumbo	23	670
Sand	14	684
Gumbo	16	700
Shale, sandy	15	715
Gumbo	88	803
Sand, fine-grained	37	840
Gravel, coarse	10	850
Sand, coarse-grained	10	860
Sand, fine-grained	48	908
Well PT-63-01-702		
Owner: The Texas Co. Driller: --		
Surface, clay	54	54
Shells	22	76
Shale	41	117
Gumbo	90	207
Shale	178	385
Gumbo	30	415
Shale, sandy	15	430
Gumbo	138	568
Shale	81	649
Gumbo	26	675
Shale	25	700
Gumbo	35	735
Shale	19	754
Gumbo	21	775
Shale, sandy	67	842
Sand, medium and coarse-grained, water	80	922
Gumbo	2	924
Well PT-63-01-703		
Owner: Olin Mathieson Co. Driller: Frank Balcar		
No formational record	756	756
Gumbo, blue and shale	84	840
Sand, blue and shale rock	15	855
Sand and gravel	80	935

	THICKNESS (FEET)	DEPTH (FEET)
Well PT-63-09-102		
Owner: Gulf Refining Co. Driller: Gulf Coast Drilling Co.		
Clay	150	150
Sand	30	180
Gumbo	36	216
Sand	14	230
Gumbo	110	340
Sand, and thin layers of lignite	110	450
Gumbo	64	514
Sand, hard	44	558
Gumbo	30	588
Sand	102	690
Gumbo	110	800
Shale	80	880
Sand, coarse-grained, water	64	944
Gumbo	2	946
Well PT-63-09-103		
Owner: Gulf Refining Co. Driller: Gulf Coast Drilling Co.		
Clay, blue and yellow	95	95
Shells	21	116
Shale	42	158
Gumbo	65	223
Sand and shale	143	366
Sand, hard	102	468
Gumbo	68	536
Shale	18	554
Gumbo	46	600
Shale	80	680
Gumbo	100	780
Shale	45	825
Sand and shale	55	880
Sand, water	82	962
Gumbo	3	965
Well PT-63-09-202		
Owner: Gulf State Utilities Co. Driller: Layne-Texas Co.		
Surface	3	3
Clay, sandy	102	105
Sand, coarse-grained, water	20	125
Clay	6	131
Sand	5	136
Clay	10	146
Sand	9	155
Clay	5	160
Clay, soft, sandy	5	165
Clay	58	223
Sand and shale	22	245
Shale, sandy and shell	36	281
Sand	12	293
Clay	45	338
Sand	20	358
Shale	17	375
Sand	33	408
Clay and sand	11	419
Sand	9	428
Clay	12	440
Sand	30	470
Clay	32	502
Sand	49	551
Wood	4	555
Sand	16	571
Clay	109	680
Sand	5	685
Clay	10	695
Sand	5	700
Shale	10	710
Sand	38	748
Shale	5	753
Sand	16	769
Shale	41	810
Sand	82	892
Shale	4	896
Sand and gravel, coarse-grained, water	47	943
Shale	10	953

Table 5.—Drillers' Logs of Wells in Chambers and Jefferson Counties—Continued

Well PT-63-09-203

Owner: Gulf State Utilities Co.
Driller: Layne-Texas Co.

	THICKNESS (FEET)	DEPTH (FEET)
No record	112	112
Clay	5	117
Sand	8	125
Clay	4	129
Sand	15	144
Clay	10	154
Sand	29	183
Clay	31	214
Sand, coarse-grained	36	250
Shale	124	374
Sand	36	410
Shale	80	490
Sand	52	542
Shale	51	593
Sand	10	603
Shale	97	700
Sand	14	714
Shale	32	746
Sand	15	761
Shale	16	777
Sand, water	104	881

Well PT-63-17-504

Owner: W. O. Fawvor
Driller: Works Project Administration

	THICKNESS (FEET)	DEPTH (FEET)
Surface sand, reddish-brown	1	1
Sand, brown, fine-grained	6	7
Sand, brown and small shell fragments	1	8
Sand, brown, silty, fine-grained, and shell fragments	2	10
Sand, gray, fine-grained and shell fragments	5	15
Silt, blue, sandy	1	16
Silt, gray, sandy and small shell fragments	4	20
Clay, dark-gray, sticky	11	31
Shell, small, gray, hard packed	1	32
Clay, dark-gray, sticky and pieces of rock	1	33
Clay, hard, yellow	6	39
Clay, yellow, wet	2	41
Clay, hard, yellow	1	42
Clay, hard, brown, joint	6	48
Clay, hard, dark-brown	5	53
Clay, dark-blue, sticky	3	56
Clay, blue, sandy	1	57
Clay, soft blue and shell	1	58
Clay, soft blue	5	63
Clay, dark-gray, sandy and shell	2	65
Clay, dark-blue, sticky	6	71
Shells, small, gray	1	72
Shells, some large	1	73
Clay, dark-gray, sticky	5	78
Clay, hard, light-brown	2	80
Shells, dark-gray, and medium sized	1	81
Clay, hard, brown	1	82
Clay, light-brown	3	85
Clay, hard, dark-brown	3	88
Shale, hard, light-gray, limy bedded	3	91
Clay, black and lignite	1	92
Clay, tough, light-blue, sticky	8	100
Clay, hard, light-blue	1	101
Clay, blue, sandy	2	103
Clay, impervious hard, blue	1	104
Sand, dark-gray	1	105
Clay, compact, hard, brown	1	106
Sand, light-gray, fine-grained	2	108
Clay, gray, sandy and small shell	4	112
Clay, hard, dark-gray	3	115
Clay, gray, sandy	3	118
Clay, hard, dark, impervious	5	123
Clay, light-gray, sandy and some caliche	2	125
Clay, light-gray and yellow with shell and caliche	2	127
Clay, yellow and shell fragments	1	128
Sand, yellowish-gray, silty	1	129
Clay, gray, with hard pieces of shell and caliche	3	132

	THICKNESS (FEET)	DEPTH (FEET)
Well PT-63-17-504—Continued		
Clay, hard, light-blue with shell and caliche	3	135
Well PT-63-18-101		
Owner: Houston Oil Co. Driller: Gust C. Warnecke		
Mud, black and sand	60	60
Sand, salt water, no flow	115	175
Clay	277	452
Sand, flows 7 gallons a minute of salt water	46	498
Clay and shell mixed	533	1,031
Shell	4	1,035
Sand, flows salt water	30	1,065
Well PT-64-06-901		
Owner: I. R. Bordages Driller: V. R. Phelps		
Shale, sandy and clay	22	22
Sand, blue	46	68
Clay, blue	17	85
Clay, yellow	2	87
Sand, white	32	119
Shale, blue, chalky	75	194
Sand, gray, fine-grained	6	200
Well PT-64-07-203		
Owner: Ivy Senset Driller: Green Bros.		
Clay, yellow	20	20
Sand, yellow	5	25
Clay, yellow	40	65
Clay, blue	75	140
Sand, salt and pepper	16	156
Well PT-64-07-204		
Owner: P. A. Neichoy Driller: Green Bros.		
Clay, gray	29	29
Sand, red	6	35
Clay, blue	55	90
Clay, gray	20	110
Sand, water	45	155

	THICKNESS (FEET)	DEPTH (FEET)
Well PT-64-07-207		
Owner: Lizza Breaux Driller: Green Bros.		
Clay, green	20	20
Sand, white	10	30
Clay, gray	60	90
Clay, blue	25	115
Sand, water	40	155
Well PT-64-07-405		
Owner: Poley Mitchell Driller: Green Bros.		
Sand, red	20	20
Clay, yellow	60	80
Clay, blue	50	130
Sand, water	25	155
Well PT-64-14-101		
Owner: Union Texas Petroleum Co. Well 5 Driller: Layne-Texas Co.		
Soil, sandy	2	2
Clay, yellow	14	16
Sand, fine, loose, white	21	37
Sand, fine, gray, shale	21	58
Shale, gray, sandy, with some shell	20	78
Shale	35	113
Sand, broken, shale (poor)	33	146
Sand, loose, gray (good)	39	185
Sand, loose, gray (good)	26	211
Shale	11	222
Shale, thin layers	82	304
Well PT-64-14-406		
Owner: Union Texas Petroleum Co. Well 9 Driller: Layne-Texas Co.		
Surface soil	3	3
Clay	38	41
Sand, fine	7	48
Shale	48	96
Sand	29	125
Shale, broken	6	131
Sand	30	161

Table 5.—Drillers' Logs of Wells in Chambers and Jefferson Counties—Continued

	THICKNESS (FEET)	DEPTH (FEET)
Well PT-64-14-406—Continued		
Shale, broken	7	168
Sand	37	205
Shale	52	257
Shale, sandy	15	272
Sand	16	288
Shale	11	299

Well PT-64-14-407

Owner: Union Texas Petroleum Co. Well 1
Driller: Layne-Texas Co.

	THICKNESS (FEET)	DEPTH (FEET)
Clay	12	12
Sand, white	35	47
Clay, and shale	64	111
Sand, cut clean	80	191
Shale	12	203
Sand, good	24	227
Sand, coarse	20	247
Shale	28	275

Well PT-64-15-202

Owner: C. E. Ward
Driller: Sun Oil Co.

	THICKNESS (FEET)	DEPTH (FEET)
Loam, brown, sandy	4	4
Shale, yellow	4	8
Clay, white, and shale	7	15
Clay, brown	6	21
Shale, brown, sandy	12	33
Sand, brown	3	36
Gumbo, blue	38	74
Gumbo, blue and yellow with red streaks	23	97
Sand	20	117

Well PT-64-15-306

Owner: Port Arthur Country Club
Driller: Pitre Water Wells

	THICKNESS (FEET)	DEPTH (FEET)
Surface sand, brown	2	2
Clay, vari-colored, hard	4	6
Sand, fine, white	5	11
Clay, sandy, brown	6	17
Sand, powder, brown	18	35
Clay, white, hard	13	48
Clay, blue, hard	7	55
Clay, and shell blue	28	83
Clay, brown, hard	8	91

Well PT-64-15-308

Owner: J. J. Hebert Heirs & Co.
Driller: Green Bros.

	THICKNESS (FEET)	DEPTH (FEET)
Clay, yellow	20	20
Sand, white	5	25
Clay, blue	35	60
Sand, salt and pepper	26	86

Well PT-64-15-603

Owner: Sun Oil Co.
Driller: N. H. Schnieder

	THICKNESS (FEET)	DEPTH (FEET)
Clay, yellow	30	30
Sand	11	41
Shale, blue	5	46
Sand, fine	15	61
Shale, blue	29	90
Sand	9	99
Shale, blue	1	100

Well PT-64-15-705

Owner: Pure Oil Co.
Driller: Layne-Texas Co.

	THICKNESS (FEET)	DEPTH (FEET)
Topsoil	2	2
Clay	30	32
Shale, blue and seashells	277	309
Sand, cut good	163	472
Shale	8	480

Table 6.—Water Levels in Wells in Chambers and Jefferson Counties
(Water level, in feet, below land surface)

Chambers County

Well DH-64-09-318

Owner: Crumpler Bros.
Elevation: 55

DATE		WATER LEVEL
Mar.	31, 1941	50.18
Mar.	1, 1948	66.87
Oct.	6	67.71
Apr.	27, 1949	67.15
Nov.	7	71.85
Nov.	3, 1950	77.23
Apr.	19, 1951	76.70
Oct.	15	79.00
Apr.	10, 1952	80.29
Oct.	10	82.18
Apr.	13, 1953	83.06
Oct.	16	84.57
Apr.	15, 1954	85.42
Oct.	13, 1955	83.07
Apr.	5, 1956	82.52

Well DH-64-09-319

Owner: Crumpler Bros.
Elevation: 55

DATE		WATER LEVEL
Mar.	31, 1941	43.16
Mar.	1, 1948	61.09
Apr.	10, 1952	79.20
Oct.	10	82.91
Apr.	13, 1953	83.70
Oct.	16	87.92
Apr.	5, 1956	94.19
Apr.	9, 1957	79.60

Well DH-64-09-901

Owner: S. R. Williams
Elevation: 15

DATE		WATER LEVEL
Mar.	1, 1948	47.70
Oct.	6	46.85
Apr.	27, 1949	42.40
Nov.	4	43.18
Apr.	12, 1950	47.54
Nov.	3, 1950	43.24
Apr.	19, 1951	48.76
Apr.	10, 1952	52.30
Oct.	10	52.32
Apr.	13, 1953	63.23
Oct.	16	65.76
Apr.	15, 1954	65.45
Oct.	13, 1955	68.64
Apr.	5, 1956	71.83
Oct.	13	83.23
Apr.	9, 1957	73.98
Oct.	31	73.14
Apr.	7, 1958	71.40
Oct.	23	74.21
Nov.	10, 1959	90.89
Apr.	10, 1961	95.83
Oct.	18	101.6
Oct.	10, 1962	110.0
Apr.	2, 1963	96.0
Oct.	28	111.2
Oct.	18, 1965	85.0
Mar.	16, 1967	101.9

Well DH-64-10-401

Owner: Finger
Furniture Co.
Elevation: 37

DATE		WATER LEVEL
Apr.	1955	86
Oct.	13	90.99
Apr.	5, 1956	88.34
Oct.	18	99.67
Apr.	5, 1957	92.26
Oct.	31	97.94
Apr.	7, 1958	94.60
Oct.	23	99.38
Nov.	9, 1959	101.63
Apr.	10, 1961	101.31
Oct.	18	103.66
Apr.	6, 1962	106.34
Oct.	22, 1962	107.57
Apr.	2, 1963	105.17
Oct.	31	116.28
Apr.	6, 1964	112.35
Oct.	14	121.27
Apr.	5, 1965	112.39
Oct.	18	115.02
Apr.	7, 1966	113.32
Oct.	12	117.27
Mar.	16, 1967	110.74

Well DH-64-10-403

Owner: C. D. Harman
Elevation: 26

DATE		WATER LEVEL
	1939	18
Mar.	5, 1941	18.07
Oct.	27, 1948	19.82
Nov.	7, 1949	19.66
Apr.	12, 1950	21.22
Nov.	3	21.90
Apr.	19, 1951	20.75
Oct.	15	21.46
Apr.	10, 1952	26.15
Oct.	10	22.79
Apr.	13, 1953	22.5
Apr.	15, 1954	24.53
Oct.	13, 1955	23.69

Well DH-64-10-501

Owner: C. T. Joseph, Jr.
Elevation: 33

DATE		WATER LEVEL
July	18, 1957	70.63
Oct.	14	69.55
Oct.	31	68.73
Apr.	7, 1958	66.10
Oct.	23	69.52
Nov.	9, 1959	67.29
Apr.	10, 1961	63.54
Apr.	6, 1962	65.67
Apr.	2, 1963	69.69

Table 6.—Water Levels in Wells in Chambers and Jefferson Counties—Continued
(Water level, in feet, below land surface)

Well DH-64-10-501—Continued

DATE		WATER LEVEL
Apr.	7, 1964	40.25
Apr.	5, 1965	43.20
Apr.	7, 1966	40.22

Well DH-64-10-702

Owner: Texas Oil and Gas Co.
Elevation: 32

DATE		WATER LEVEL
Apr.	19, 1941	43.44
Oct.	5, 1948	58.40
Apr.	27, 1949	59.13
Nov.	3	60.58
Apr.	12, 1950	61.25
Nov.	3	64.80
Apr.	19, 1951	65.70
Oct.	15	67.80
Oct.	13, 1955	82.43
Oct.	18, 1956	89.75
Sept.	1965	106.5

Well DH-64-10-703

Owner: V. A. Lawrence
Elevation: 31

DATE		WATER LEVEL
Oct.	1938	38
Mar.	28, 1941	42.75
May	7, 1962	89.98
Oct.	22	96.70
Apr.	2, 1963	92.26
Oct.	28	99.87
Apr.	6, 1964	94.75
Oct.	14	103.97
Apr.	5, 1965	96.24
Oct.	18	106.91
Apr.	7, 1966	98.61
Oct.	12	104.27
Mar.	16, 1967	100.47

Well DH-64-11-103

Owner: Josh Mayes
Elevation: 9

DATE		WATER LEVEL
July	15, 1941	+ 6.2
Apr.	24	Flows
Nov.	18, 1948	4.74
Apr.	28, 1949	4.44
Nov.	8	5.65
Apr.	10, 1950	6.48
Nov.	1	7.45
Apr.	20, 1951	8.03
Oct.	11	9.11
Apr.	11, 1952	9.25
Oct.	9	10.78
Apr.	8, 1953	11.21
Oct.	15	12.40
Apr.	14, 1954	13.30

Well DH-64-11-401

Owner: E. S. Abshier
Elevation: 5

DATE		WATER LEVEL
Oct.	11, 1955	10.10
Apr.	4, 1956	9.07
Oct.	17	10.94
Apr.	5, 1957	9.53
Oct.	30	10.30
Apr.	10, 1958	8.42
Oct.	21	9.25
Nov.	9, 1959	9.03
Apr.	7, 1961	12.67
Oct.	19	14.77
Apr.	5, 1962	15.50
Oct.	23	16.05
Apr.	4, 1963	16.61
Oct.	30	17.33
Apr.	7, 1964	16.82
Oct.	14	19.02
Apr.	6, 1965	16.75
Oct.	19	18.92
Apr.	6, 1966	17.16
Mar.	15, 1967	17.36

Well DH-64-11-811

Owner: G. Chambliss
Elevation: 20

DATE		WATER LEVEL
Apr.	1947	12.0
Oct.	9, 1952	21.86
Apr.	8, 1953	20.54
Oct.	15	20.83
Apr.	14, 1954	21.20
Oct.	11, 1955	10.58
Apr.	4, 1956	19.23
Oct.	17	21.48
Apr.	5, 1957	20.11

Well DH-64-11-812

Owner: G. Chambliss
Elevation: 4

DATE		WATER LEVEL
July	24, 1941	4.89
Oct.	6, 1948	9.08
Apr.	28, 1949	5.92
Nov.	8	7.87
Apr.	10, 1950	7.82
Nov.	1	8.68
Apr.	20, 1951	6.90
Oct.	11	7.84
Apr.	11, 1952	4.14

Well DH-64-11-901

Owner: --Barringer
Elevation: 22

DATE		WATER LEVEL
May	2, 1941	6.22
Mar.	16, 1949	12.47
Aug.	31, 1950	13.34
Nov.	1	13.74
Apr.	20, 1951	14.17
Oct.	11	14.74
Apr.	11, 1952	14.92
Oct.	9	16.06

Table 6.—Water Levels in Wells in Chambers and Jefferson Counties—Continued
(Water level, in feet, below land surface)

Well DH-64-11-901—Continued

DATE	WATER LEVEL
Apr. 8, 1953	16.02
Oct. 15	16.76
Apr. 14, 1954	16.97
Apr. 4, 1956	19.55
Oct. 17	20.83
Apr. 5, 1957	22.15
Oct. 30	21.97
Apr. 10, 1958	21.32
Oct. 21	22.08
Nov. 3, 1959	22.86
Apr. 7, 1961	24.39
Oct. 19	25.51
Apr. 5, 1962	24.13
Oct. 23	25.41
Apr. 4, 1963	24.77
Oct. 30	25.62
Apr. 7, 1964	25.17
Apr. 6, 1965	25.84
Oct. 19	26.21
Apr. 6, 1966	26.34
Oct. 13	27.07
Mar. 15, 1967	27.15

Well DH-64-12-101

Owner: U.S. Dept. of Agriculture
Elevation: 28

DATE	WATER LEVEL
Apr. 15, 1941	9.35
Dec. 1, 1948	8.14
Nov. 8, 1949	8.55
Apr. 10, 1950	6.49
Nov. 1	7.44
Apr. 20, 1951	7.66
Oct. 11	8.47
Apr. 11, 1952	8.06
Oct. 9	8.93
Apr. 8, 1953	8.67
Oct. 15	9.65
Apr. 14, 1954	9.87
Oct. 11, 1955	9.29
Apr. 4, 1956	8.52
Oct. 17	9.37
Apr. 5, 1957	10.51
Oct. 30	9.94
Apr. 10, 1958	8.55
Oct. 21	8.87
Nov. 3, 1959	8.63
Apr. 7, 1961	7.31
Apr. 5, 1962	7.27
Apr. 4, 1963	8.51

Well DH-64-12-401

Owner: Sun Oil Co.
Elevation: 26

DATE	WATER LEVEL
Apr. 7, 1941	10.84
Apr. 14, 1954	17.13
Oct. 11, 1955	18.22
Apr. 4, 1956	18.46
Oct. 17	19.56
Apr. 5, 1957	19.32
Oct. 30	19.84
Apr. 10, 1958	20.43
Oct. 27	20.92
Nov. 3, 1959	21.97
Apr. 7, 1961	23.54
Oct. 19	23.42
Apr. 5, 1962	23.49
Oct. 23	24.10
Apr. 4, 1963	24.31
Oct. 30	24.36
Apr. 7, 1964	24.21
Oct. 14	24.87
Apr. 6, 1965	24.79
Apr. 6, 1966	25.16

Well DH-64-12-802

Owner: U.S. Dept. of Agriculture
Elevation: 25

DATE	WATER LEVEL
May 2, 1941	5.34
Dec. 1, 1948	11.81
Nov. 8, 1949	12.09
Apr. 10, 1950	12.60
Nov. 1	13.24
Apr. 20, 1951	13.46
Oct. 11	13.90
Apr. 8, 1953	15.16
Oct. 18	15.83
Apr. 14, 1954	16.07

Well DH-64-13-101

Owner: Oscar Devillier
Elevation: 34

DATE	WATER LEVEL
May 16, 1941	6.03
Mar. 15, 1948	6.85
Nov. 8, 1949	5.78
Apr. 10, 1950	8.15
Nov. 1	8.91
Apr. 23, 1951	9.05
Oct. 11	9.97
Apr. 11, 1952	10.86
Apr. 8, 1953	10.18
Apr. 14, 1954	10.97
Apr. 4, 1956	10.73
Oct. 17	11.06
Apr. 5, 1957	12.16
Oct. 30	11.03
Apr. 10, 1958	12.59
Oct. 21	12.71
Nov. 3, 1959	13.80
Apr. 7, 1961	11.94
Oct. 19	12.03
Apr. 5, 1962	12.19
Oct. 23	14.00
Apr. 4, 1964	14.01

Table 6.—Water Levels in Wells in Chambers and Jefferson Counties—Continued
(Water level, in feet, below land surface)

Well DH-64-13-101—Continued

DATE		WATER LEVEL
Oct.	30, 1964	15.21
Apr.	6, 1965	14.06
Oct.	19	15.73
Apr.	6, 1966	14.13
Oct.	5	13.95

Well DH-64-17-209

Owner: J. W. Wilburn
Elevation: 16

DATE		WATER LEVEL
	1931	20
Apr.	5, 1941	44.53
Aug.	31, 1950	80.60
Nov.	3, 1950	80.80
Apr.	19, 1951	82.01
Oct.	15	85.37
Apr.	10, 1952	85.65
Oct.	10	88.59
Apr.	13, 1953	89.73
Apr.	15, 1954	91.53

Well DH-64-17-301

Owner: The Texas Co.
Elevation: 24

DATE		WATER LEVEL
May	7, 1962	41.58
Oct.	22	43.23
Apr.	2, 1963	41.89
Oct.	28	45.07
Apr.	6, 1964	41.90
Oct.	14	46.72
Apr.	5, 1965	42.27
Apr.	7, 1966	43.54
Oct.	12	44.62
Mar.	16, 1967	43.82

Well DH-64-17-601

Owner: Asa Wilburn
Elevation: 15

DATE		WATER LEVEL
Apr.	5, 1941	15.88
Mar.	1, 1948	14.50
Oct.	6	14.48
Apr.	27, 1949	14.43
Nov.	7	14.75
Apr.	12, 1950	14.67
Nov.	3	14.90
Apr.	19, 1951	15.15
Oct.	15	15.18
Apr.	10, 1952	18.24
Oct.	10	15.68
Apr.	13, 1953	17.96
Oct.	16	18.49
Apr.	15, 1954	16.33
Oct.	13, 1955	18.94
Apr.	5, 1956	16.97
Oct.	18	21.46
Apr.	9, 1957	17.64
Oct.	31	16.30
Apr.	7, 1958	15.85
Oct.	23	16.52
Nov.	10, 1959	15.53
Apr.	10, 1961	16.78
Oct.	18	18.82
Apr.	6, 1962	17.33
Oct.	22	16.08
Apr.	2, 1963	17.28
Oct.	28	17.71
Mar.	16, 1967	15.53

Well DH-64-17-901

Owner: Seacrest Park
Elevation: 25

DATE		WATER LEVEL
Oct.	5, 1948	92.60
Apr.	27, 1949	93.45
Nov.	7	97.25
Apr.	12, 1950	97.32
Nov.	3	100.53
Apr.	19, 1951	101.10
Apr.	10, 1952	105.52
Oct.	10	106.91
Apr.	13, 1953	108.83
Oct.	16	110.1
Apr.	15, 1954	109.83
Oct.	13, 1955	116.85
Apr.	5, 1956	116.81
Oct.	18	122.79
Apr.	9, 1957	121.96
Oct.	31	124.34
Apr.	7, 1958	122.03
Oct.	23	125.82
Nov.	10, 1959	128.36
Apr.	10, 1961	130.81
Oct.	18	132.46
Apr.	6, 1962	133.16
Oct.	22	136.99
Apr.	2, 1963	136.11
Oct.	28	140.21
Apr.	6, 1964	139.52
Apr.	5, 1965	141.65
Oct.	18	144.84
Apr.	7, 1966	144.2
Oct.	12	146.5
Mar.	16, 1967	147.7

Well DH-64-17-910

Owner: Charles Kilgore
Elevation: 24

DATE		WATER LEVEL
	1939	55
Apr.	9, 1941	59.47
Mar.	1, 1948	88.30
Oct.	6	95.47
Aug.	31, 1950	102.70
Nov.	3	102.47
Apr.	19, 1951	104.26

Table 6.—Water Levels in Wells in Chambers and Jefferson Counties—Continued
(Water level, in feet, below land surface)

Well DH-64-17-910—Continued

DATE	WATER LEVEL
Apr. 10, 1952	108.53
Apr. 13, 1953	112.16
Oct. 13, 1955	120.45

Well DH-64-18-105

Owner: W. W. Pfistner
Elevation: 22

DATE	WATER LEVEL
1928	21
Mar. 29, 1941	18.91
Oct. 5, 1948	21.38
Apr. 27, 1949	19.62
Nov. 4	21.78
Apr. 12, 1950	22.17
Nov. 3	22.75
Apr. 19, 1951	22.58
Oct. 15	23.00
Apr. 10, 1952	25.51
Oct. 10	23.92
Apr. 13, 1953	24.05
Oct. 16	24.84
Apr. 15, 1954	24.33
Apr. 5, 1956	25.93

Well DH-64-18-601

Owner: Humble Oil and
Refining Co.
Elevation: 0

DATE	WATER LEVEL
May 29, 1958	32.2
May 21, 1962	37.90
Apr. 9, 1963	38.35
Apr. 17, 1964	39.85
June 16, 1965	40.9
Aug. 1, 1966	42.3
May 13, 1967	42.08

Well DH-64-18-602

Owner: Humble Oil and
Refining Co.
Elevation: 0±

DATE	WATER LEVEL
Apr. 15, 1960	32.06
May 21, 1962	34.86
Apr. 9, 1963	34.46
Apr. 17, 1964	40.0
June 16, 1965	39.4
Aug. 1, 1966	41.41

Well DH-64-18-603

Owner: Humble Oil and
Refining Co.
Elevation: 0±

DATE	WATER LEVEL
Apr. 15, 1960	34.69
May 21, 1962	35.74
Apr. 9, 1963	37.10
Apr. 17, 1964	40.4
June 16, 1965	37.9
Aug. 1, 1966	39.02
May 13, 1967	40.6

Well DH-64-18-902

Owner: Humble Oil and
Refining Co.
Elevation: 0±

DATE	WATER LEVEL
May 15, 1942	4.40
Dec. 16, 1948	18.15
Aug. 25, 1950	22.91
May 4, 1951	24.74
May 20, 1952	24.95
Apr. 16, 1953	27.00
Apr. 29, 1954	28.77
Apr. 24, 1956	35.40

Well DH-64-19-904

Owner: R. Barrow
Elevation: 11

DATE	WATER LEVEL
1940	Flowed
Mar. 17, 1948	2.84
Nov. 9, 1949	6.12
Apr. 11, 1950	13.94
Nov. 2	18.27
Apr. 23, 1951	19.65
Oct. 11	19.52

Well DH-64-20-301

Owner: U.S. Dept. of
Agriculture
Elevation: 20

DATE	WATER LEVEL
May 22, 1941	5.54
Dec. 1, 1948	9.45
Nov. 8, 1949	8.81
Apr. 10, 1950	9.02
Nov. 1	6.06
Apr. 23, 1951	10.89
Oct. 11	10.58
Apr. 11, 1952	10.96
Oct. 9	12.38
Apr. 8, 1953	13.17
Oct. 15	11.6
Apr. 4, 1954	11.99
Oct. 11, 1955	15.3
Apr. 4, 1956	15.2
Nov. 3, 1959	19.35
Apr. 7, 1961	18.22

Well DH-64-22-402

Owner: U.S. Dept. of
Agriculture
Elevation: 5±

DATE	WATER LEVEL
July 16, 1941	+ 2.9
Mar. 15, 1949	+ 0.49
Nov. 9	+ .42
Apr. 11, 1950	+ .41
Nov. 2	+ .46
Apr. 23, 1951	+ .80
Apr. 11, 1952	+ .70
Oct. 9	- .11
Oct. 22, 1953	- .46
Apr. 14, 1954	- .48

Well DH-64-26-704

Owner: Humble Oil and
Refining Co.
Elevation: 0

DATE	WATER LEVEL
Apr. 14, 1960	68.0
May 21, 1962	69.24

Table 6.—Water Levels in Wells in Chambers and Jefferson Counties—Continued
(Water level, in feet, below land surface)

DATE		WATER LEVEL
Well DH-64-26-704—Continued		
Apr.	9, 1963	69.77
Apr.	17, 1964	78.38
June	16, 1965	76.2
Aug.	1, 1966	76.75
Well DH-64-26-708		
Owner: Humble Oil and Refining Co. Elevation: 0		
Dec.	16, 1948	59.63
Aug.	25, 1950	58.87
May	4, 1951	58.56
May	20, 1952	61.61
May	20	61.79
May	20	61.59
Apr.	15, 1953	59.96
Apr.	29, 1954	62.47
Apr.	24, 1956	64.67
May	29, 1958	70.62
Well DH-64-27-201		
Owner: Sun Oil Co. Elevation: 5		
Apr.	1944	4
Mar.	17, 1949	4.60
Nov.	9	22.12
Apr.	11, 1950	7.22
Nov.	2	6.34
Apr.	23, 1951	6.27
Oct.	11	5.72
Apr.	11, 1952	6.09
Oct.	9	6.54
Apr.	8, 1953	5.99
Oct.	15, 1953	6.26
Apr.	14, 1954	6.82
Apr.	14	6.57
Oct.	11, 1955	6.45
Apr.	4, 1956	6.39
Oct.	17	6.75
Apr.	5, 1957	6.53
Oct.	30	6.58
Apr.	10, 1958	6.28
Oct.	21	6.64
Nov.	12, 1959	5.51
Apr.	3, 1962	6.15
Oct.	23	6.59
Apr.	4, 1963	6.36
Oct.	30	6.61
Apr.	7, 1964	6.41
Apr.	6, 1965	6.42
Apr.	6, 1966	6.58
Oct.	13	6.09
Mar.	15, 1967	6.56
Jefferson County		
Well PT-63-01-301		
Owner: L. J. Gibling Elevation: 12		
May	18,1950	0.64
May	16, 1951	1.47
May	29, 1952	3.08
May	27, 1953	3.71
May	27, 1954	4.03
Dec.	14, 1955	7.68
May	28, 1957	9.09
May	21, 1958	10.57
Oct.	19, 1959	13.54
Oct.	10, 1960	14.96
May	10, 1962	18.07
Mar.	19, 1963	20.74
Feb.	6, 1964	22.96
Well PT-63-18-101		
Owner: Houston Oil Co. Elevation: 5		
	1906	+ 20
July	18, 1941	+ .72
May	18, 1950	5.52
May	16, 1951	4.39
May	29, 1952	3.31
May	27, 1953	3.48
May	27, 1954	3.98
Dec.	14, 1955	3.57
May	16, 1956	3.05
May	29, 1957	3.24
May	21, 1958	3.48
Oct.	19, 1959	2.39
Oct.	11, 1960	3.92
May	10, 1962	3.84
Mar.	20, 1963	10.26
Feb.	6, 1964	10.82
May	7, 1965	11.09
Well PT-64-06-401		
Owner: Texas Pipeline Co. Elevation: 25		
Jan.	28, 1942	+ 1.43
May	17, 1951	+ .32
June	5, 1952	+ .35
May	27, 1953	- .39
May	28, 1954	+ .01
Dec.	14, 1955	+ .31
May	16, 1956	+ .28
May	29, 1957	+ .46
Nov.	10, 1959	+ .19
Oct.	11, 1960	+ .13
May	9, 1962	+ .15
Mar.	19, 1963	+ .05
Feb.	6, 1964	+ .13
May	7, 1965	.09
Well PT-64-14-406		
Owner: Union Texas Petroleum Co. Well 9 Elevation: 17		
Aug.	31, 1948	24
May	17, 1951	13.29
May	27, 1953	31.93

Table 6.—Water Levels in Wells in Chambers and Jefferson Counties—Continued
(Water level, in feet, below land surface)

DATE		WATER LEVEL
Well PT-64-14-406—Continued		
Dec.	14, 1955	36.98
Nov.	4, 1959	45.08
Oct.	11, 1960	47.26
Well PT-64-22-301		
Owner: Pipkin Ranch Elevation: 5		
May	17, 1951	0.67
June	5, 1952	2.47
May	22, 1953	6.16
May	28, 1954	9.99
Dec.	14, 1955	8.91

DATE		WATER LEVEL
May	16, 1956	7.74
May	29, 1957	9.80
May	21, 1958	9.42
Oct.	19, 1959	7.72
Oct.	11, 1960	14.64
Mar.	20, 1963	10.48
May	7, 1965	9.73
Well PT-64-23-103		
Owner: Pipkin Ranch Elevation: 5		
June	5, 1952	1.06
May	27, 1953	2.67

DATE		WATER LEVEL
May	28, 1954	2.43
Dec.	14, 1955	3.54
May	16, 1956	3.53
May	29, 1957	4.37
May	21, 1958	5.01
Oct.	19, 1959	4.75
Oct.	11, 1960	6.58
May	10, 1962	7.42
March	20, 1963	8.01
Feb.	6, 1964	7.82
May	7, 1965	7.69

Table 7.--Chemical Analyses of Water From Wells in Chambers and Jefferson Counties

(Analyses given are in milligrams per liter except SAR, RSC, specific conductance, and pH.)

WELL	DEPTH OR PRODUCING INTERVAL (FT)	DATE OF COLLECTION	SILICA (SiO_2)	IRON (Fe)	CAL-CIUM (Ca)	MAGNE-SIUM (Mg)	SODIUM (Na)	POTAS-SIUM (K)	BICAR-BONATE (HCO_3)	SUL-FATE (SO_4)	CHLO-RIDE (Cl)	FLUO-RIDE (F)	NITRATE (NO)	BORON (B)	DIS-SOLVED SOLIDS	HARD-NESS AS $CaCO_3$	SODIUM-ADSORP-TION RATIO (SAR)	RESIDUAL SODIUM CARBONATE (RSC)	SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C)	pH
								Chambers County												
DH-64-01-804	40	Mar. 26, 1941	--	--	74	7.5	25	--	293	3	19	--	< 20	--	273	215	--	--	--	--
805	35	Mar. 26, 1941	--	--	64	8.8	107	--	390	12	68	--	< 20	--	452	195	--	--	--	--
901	55	Mar. 10, 1941	--	--	43	3.6	106	--	378	3	28	--	< 20	--	370	122	--	--	--	--
902	185	Jan. 7, 1966	20	--	118	26	252	--	294	6.8	495	0.8	1.0	--	1,060	402	5.5	0.00	2,000	7.8
904	252	Jan. 10, 1966	15	--	5.2	1.5	181	--	412	.4	48	2.2	.2	--	456	19	18	6.37	785	7.5
02-801	47	Mar. 14, 1941	--	--	--	--	--	--	--	29	122	--	54	--	--	--	--	--	--	--
802	100	Mar. 14, 1941	--	--	66	11	140	--	445	2	105	--	< 20	--	543	211	--	--	--	--
803	39	Mar. 14, 1941	--	--	70	11	243	--	543	29	192	--	5.0	--	817	222	--	--	--	--
03-704	25	July 1, 1941	--	--	145	14	138	--	226	20	362	--	1.2	--	791	418	--	--	--	--
805	96	Apr. 1, 1941	--	--	104	10	213	--	445	2	282	.3	< 20	--	830	301	--	--	--	--
04-701	38	Apr. 30, 1941	--	--	81	9.5	52	--	354	8	40	--	< 20	--	365	241	--	--	--	--
703	100	Apr. 30, 1941	--	--	92	7.1	80	--	397	2	75	--	< 20	--	451	259	--	--	--	--
709	198	Apr. 15, 1941	--	--	30	8.8	196	--	256	27	210	.4	< 20	--	598	110	--	--	--	--
801	340	Apr. 30, 1941	--	--	13	.7	40	--	110	2	22	--	< 20	--	132	35	--	--	--	--
05-702	527	May 16, 1941	--	--	7.6	4.6	554	--	220	2	750	.9	< 20	--	1,430	38	--	--	--	--
801	46	May 16, 1941	--	--	75	11	81	--	397	8	53	--	--	--	423	232	--	--	--	--
09-203	36	Mar. 7, 1941	--	--	117	21	351	--	427	54	520	.7	< 20	--	1,270	378	--	--	--	--
206	435	Jan. 7, 1966	28	--	4.3	1.0	150	0.7	360	0	38	1.8	.0	--	--	14	17	5.61	665	8.1
b/ 301	442- 457	Jan. 4, 1958	17	1.3	4.5	1.5	172	--	381	0	42	--	--	--	631	17	--	--	724	8.5
b/ 301	405- 520	Jan. 15, 1958	16	.1	4	1	173	--	403	0	43	--	--	--	641	14	--	--	730	8.0
301	530	June 27, 1960	22	.01	4	1.3	171	.8	386	.0	46	1.6	.0	--	437	16	19	--	711	8.1
301	530	Aug. 9, 1962	23	.04	4	1	166	.8	380	--	45	1.6	.0	0.20	429	14	19	--	720	7.8
b/ 302	458- 472	Dec. 6, 1957	22	1.0	4	1.7	167	--	373	2	40	--	--	--	625	17	--	--	700	8.5
b/ 302	502- 518	Dec. 7, 1957	13	.15	4	1.7	175	--	395	3	42	--	--	--	645	17	--	--	730	8.4
b/ 302	705- 720	Dec. 11, 1957	14	.10	6.5	1.9	357	--	471	2.5	278	--	--	--	1,144	24	--	--	1,573	8.5
b/ 302	757- 772	Dec. 12, 1957	9	.4	3	1.6	194	--	400	0	70	--	--	--	689	14	--	--	833	8.5
b/ 302	418- 521	Dec. 27, 1957	12	.10	4.5	1	172	--	386	0	42	--	--	--	627	15	--	--	730	8.4
302	531	Aug. 9, 1962	21	.04	4.2	1.1	169	0.8	390	.22	45	1.7	0	0.25	435	15	19	--	723	7.7

See footnotes at end of table.

Table 7.--Chemical Analyses of Water From Wells in Chambers and Jefferson Counties--Continued

WELL	DEPTH OR PRODUCING INTERVAL (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)	BORON (B)	DISSOLVED SOLIDS	HARDNESS AS $CaCO_3$	SODIUM-ADSORPTION RATIO (SAR)	RESIDUAL SODIUM CARBONATE (RSC)	SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C)	pH
DH-64-09-302	531	Nov. 3, 1966	21	0.01c/	4.0	1.1	170	0.6	390	0.4	43	1.6	0.2	0.30	435	14	20	6.10	723	8.0
b/ 305	857- 870	July 13, 1956	7	4.1	7.5	3	193	--	388	5	50	--	--	--	690	31	--	--	845	9.3
b/ 305	1147-1167	July 14, 1956	26	3.2	6.5	2.5	203	--	434	3	50	--	--	--	755	27	--	--	845	8.7
b/ 305	735-1235	July 26, 1956	12	.16	3	1	205	--	404	5	58	--	--	--	712	11	--	--	870	8.6
305	1,255	Aug. 9, 1962	16	.04	2.8	.7	214	1.3	452	--	67	2.4	0	.22	526	10	29	--	893	7.9
305	1,255	May 27, 1966	24	.01c/	3.9	1.2	192	2.7	438	2.8	76	2	.5	.44	521	14	22	6.89	888	7.8
b/ 306	791- 808	Jan. 17, 1958	13	1.6	9.5	2.3	190	--	381	0	53	--	--	--	689	33	--	--	810	8.9
b/ 306	1207-1222	Jan. 20, 1958	21	4.5	8.5	2.2	251	--	554	2	59	--	--	--	921	30	--	--	1,080	8.8
b/ 306	1425-1440	Jan. 20, 1958	12	8.0	6	1.7	249	--	537	2	64	--	--	--	892	22	--	--	1,030	8.5
b/ 306	1060-1462	Feb. 12, 1958	15	.15	2.5	.5	240	--	544	0	60	--	--	--	863	8	--	--	975	8.1
d/ 307	922	Sept. 20, 1951	18	--	5.4	2.0	187	--	364	2.5	72	--	--	--	688	22	--	--	--	8.1
307	922	Aug. 9, 1962	14	.07	8.5	3.0	208	1.8	402	20	96	2	0	.30	552	34	16	--	946	7.9
310	226	May 3, 1950	18	.13c/	12	3.2	105	--	225	2.2	50	.9	.0	.47	310	43	--	--	520	7.5
311	185	Apr. 2, 1941	--	--	.4	3.9	186	--	415	3	56	--	0	--	453	17	--	--	--	--
312	250	Mar. 2, 1941	--	--	11	5.1	10	--	55	8	12	--	20	--	73	48	--	--	--	--
313	50	Mar. 10, 1941	--	--	70	8.5	96	--	397	11	59	--	20	--	440	210	--	--	--	--
313	50	Jan. 11, 1966	21	--	73	10	99	--	400	18	63	1.1	.0	--	482	224	2.9	2.08	816	7.5
314	156	Apr. 9, 1941	--	--	30	10	296	--	372	4	320	--	< 20	--	843	116	--	--	--	--
315	340	Apr. 1950	19	.23c/	16	4.6	297	--	429	1.2	237	1.8	.0	.24	803	59	--	--	1,410	7.0
316	626	Mar. 13, 1941	--	--	52	16	178	--	439	4	150	2.4	< 20	--	618	195	--	--	--	--
316	626	Feb. 19, 1953	17	--	11	3.7	309	--	474	1.8	230	--	.2	--	837	42	--	--	1,390	--
321	304	Mar. 31, 1941	--	--	12	4.1	318	--	360	36	260	1.4	< 20	--	844	47	--	--	--	--
321	304	Apr. 17, 1944	--	--	--	--	--	--	370	--	291	--	--	--	--	63	--	--	--	--
322	59	Mar. 26, 1941	--	--	36	20	178	--	433	23	128	--	< 20	--	598	172	--	--	--	--
323	500	Mar. 26, 1941	--	--	34	7.5	254	--	451	2	210	--	--	--	730	115	--	--	--	--
324	314	Apr. 1950	--	--	27	2.2	170	--	390	2	85	1.7	< 20	--	480	76	--	--	--	--
325	66	Mar. 26, 1941	--	--	--	--	--	--	343	15	41	--	< 20	--	370	--	--	--	--	--
326	18	Mar. 7, 1941	--	--	58	7.3	198	--	476	3	150	--	< 20	--	650	175	--	--	--	--
328	510	Apr. 9, 1941	--	--	4.8	5.1	391	--	506	2	330	--	< 20	--	982	33	--	--	--	--

See footnotes at end of table.

Table 7.--Chemical Analyses of Water From Wells in Chambers and Jefferson Counties--Continued

WELL	DEPTH OR PRODUCING INTERVAL (FT)	DATE OF COLLECTION	SILICA (SiO_2)	IRON (Fe)	CAL-CIUM (Ca)	MAGNE-SIUM (Mg)	SODIUM (Na)	POTAS-SIUM (K)	BICAR-BONATE (HCO_3)	SUL-FATE (SO_4)	CHLO-RIDE (Cl)	FLUO-RIDE (F)	NITRATE (NO)	BORON (B)	DIS-SOLVED SOLIDS	HARD-NESS AS $CaCO_3$	SODIUM-ADSORP-TION RATIO (SAR)	RESIDUAL SODIUM CARBONATE (RSC)	SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C)	pH
DH-64-09-329	217	Apr. 9, 1941	--	--	6.8	5.1	225	--	451	3	110	--	<20	--	572	38	--	--	--	--
09-601	271	Mar. 11, 1941	--	--	52	16	276	--	476	2	285	--	0	--	865	195	--	--	--	--
603	368	Mar. 11, 1941	--	--	9.6	6.1	165	--	415	1	45	1.5	0	--	432	49	--	--	--	--
605	48	Mar. 4, 1941	--	--	86	16	187	--	476	13	200	.8	<20	--	736	280	--	--	--	--
606	365	Mar. 27, 1941	--	--	41	5.1	128	--	317	2	30	.9	118	--	481	123	--	--	--	--
607	365	Mar. 4, 1941	--	--	6.4	1.2	132	--	311	1	35	1.3	<20	--	330	21	--	--	--	--
608	22	Mar. 27, 1941	--	--	120	20	118	--	348	27	230	--	<20	--	686	382	--	--	--	--
609	35	Mar. 27, 1941	--	--	104	10	60	--	397	10	68	--	1.0	--	448	301	--	--	--	--
610	305	Mar. 27, 1941	--	--	6.4	3.9	158	--	360	2	56	--	<20	--	403	32	--	--	--	--
612	340	Feb. 2, 1941	--	--	21	14	274	--	415	35	230	1.0	<20	--	779	108	--	--	--	--
615	348	Mar. 27, 1941	--	--	6.4	3.9	148	--	348	2	48	--	<20	--	379	32	--	--	--	--
616	160	June 29, 1966	--	--	--	--	--	--	416	--	127	--	--	--	--	221	--	2.40	1,000	7.5
09-903	945	Aug. 1, 1966	14	0.08	7.4	2.8	199	1.2	349	21	105	1.3	.0	0.27	524	30	16	5.12	915	7.6
904	85	Mar. 22, 1941	--	--	42	17	254	--	311	8	330	--	<20	--	804	176	--	--	--	--
907	336	Mar. 4, 1941	--	--	6.8	3.6	158	--	342	2	66	--	<20	--	404	32	--	--	--	--
909	347	Dec. 13, 1948	12	--	4.7	2.0	153	--	320	5.1	60	--	.8	--	402	20	--	--	672	--
910	200	Mar. 6, 1941	--	--	17	9.5	204	--	427	1	116	--	1.0	--	559	71	--	--	--	--
910	200	Oct. 6, 1948	13	--	14	5.5	223	--	444	.3	125	--	2.0	--	619	58	--	--	1,050	--
911	292	Mar. 6, 1941	--	--	8.8	3.6	166	--	403	2	46	--	1.0	--	425	37	--	--	--	--
912	282	Apr. 2, 1941	--	--	.4	2.7	159	--	366	2	40	--	<20	--	384	12	--	--	--	--
913	375	Oct. 6, 1948	19	--	48	21	196	--	245	.2	302	--	5.5	--	733	206	--	--	1,390	--
915	70	Mar. 4, 1941	--	--	120	22	286	--	470	3	440	--	1.7	--	1,100	389	--	--	--	--
b/ 918	564- 587	Apr. 11, 1967	23	.39	204	29	1,015	--	359	797	1,210	2.3	.1	--	3,638	630	--	--	--	7.7
b/ 918	778- 801	Apr. 14, 1967	12	.31	6	2.4	230	--	453	0	68	2.9	.2	--	805	25	--	--	955	8.5
b/ 918	1024-1047	Apr. 19, 1967	11	.37	8	2	373	--	630	0	224	3.0	.2	--	1,252	29	--	--	1,590	8.1
b/ 918	1256-1279	Apr. 25, 1967	14	.57	13	6	802	--	721	0	850	3.3	.4	--	2,411	56	--	--	3,540	8.2
b/ 919	344- 367	May 23, 1967	12	.46	6	1.5	153	--	345	5	44	1.3	.3	--	568	21	--	--	706	7.8
b/ 919	383- 406	May 25, 1967	12	.05	8	2	193	--	356	16	97	1.3	.3	--	686	29	--	--	870	7.9
b/ 919	845- 868	May 30, 1967	11	2.4	6	1	221	--	462	0	66	2.7	.3	--	783	19	--	--	925	8.6

See footnotes at end of table.

Table 7.--Chemical Analyses of Water From Wells in Chambers and Jefferson Counties--Continued

WELL	DEPTH OR PRODUCING INTERVAL (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)	BORON (B)	DISSOLVED SOLIDS	HARDNESS AS $CaCO_3$	SODIUM-ADSORPTION RATIO (SAR)	RESIDUAL SODIUM CARBONATE (RSC)	SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C)	pH
b/ DH-64-09-919	920- 943	June 2, 1967	12	0.48	6	1	239	--	516	0	79	2.4	0.2	--	855	21	--	--	973	8.5
b/ 919	1061-1084	June 7, 1967	14	.16	6	1	285	--	558	1	112	2.8	.2	--	990	21	--	--	1,190	8.3
b/ 919	1173-1196	June 9, 1967	12	.44	8	2	433	--	686	1	262	3.7	.2	--	1,426	30	--	--	1,940	8.4
10-101	21	Mar. 14, 1941	--	--	173	6.3	69	--	384	8	180	--	38	--	663	459	--	--	--	--
103	430	Dec. 13, 1948	25	--	20	8.3	409	--	356	54	442	--	.5	0.58	1,130	84	--	--	2,070	--
104	25	Mar. 14, 1941	--	--	116	10	125	--	323	33	215	.4	<20	--	658	331	--	--	--	--
105	300	Dec. 13, 1948	7.0	--	13	6.2	318	--	392	2.1	302	--	.2	.35	854	58	--	--	1,570	--
105	300	Jan. 10, 1966	14	--	12	4.4	323	--	428	.4	279	2.0	.5	--	845	48	20	6.05	1,520	7.6
106	60	Mar. 14, 1941	--	--	81	14	36	--	378	5	20	--	<20	--	342	264	--	--	--	--
107	125	Mar. 14, 1941	--	--	--	--	--	--	262	2	215	--	<20	--	554	--	--	--	--	--
109	460	Jan. 12, 1966	26	--	77	26	758	--	318	290	980	--	.5	--	2,310	298	19	.00	4,230	7.3
202	120	Mar. 5, 1941	--	--	50	8.5	219	--	439	12	185	.8	<20	--	691	160	--	--	--	--
203	68	Mar. 5, 1941	--	--	140	22	285	--	476	86	410	.6	<20	--	1,180	439	--	--	--	--
204	32	Mar. 5, 1941	--	--	102	9.7	120	--	433	11	134	.9	<20	--	591	296	--	--	--	--
205	492	Apr. 9, 1941	--	--	19	5.1	377	--	543	2	310	1.7	<20	--	982	68	--	--	--	--
206	370	Mar. 5, 1941	--	--	13	2.4	218	--	409	2	124	1.2	<20	--	561	42	--	--	--	--
209	500	Mar. 5, 1941	--	--	4.8	3.6	385	--	537	2	300	--	<20	--	959	27	--	--	--	--
402	26	Mar. 28, 1941	--	--	112	10	127	--	397	5	190	--	<20	--	639	321	--	--	--	--
403	125	Mar. 5, 1941	--	--	76	16	278	--	427	2	360	--	<20	--	942	255	--	--	--	--
405	488	Mar. 5, 1941	--	--	65	11	287	--	445	1	330	--	<20	--	913	207	--	--	--	--
407	150	Mar. 25, 1941	--	--	85	19	300	--	451	8	400	.4	.8	--	1,030	292	--	--	--	--
408	143	Mar. 5, 1941	--	--	40	9.7	304	--	439	4	310	--	0	--	884	141	--	--	--	--
409	183	Mar. 28, 1941	--	--	59	12	273	--	445	3	300	--	<20	--	866	198	--	--	--	--
410	175	Apr. 9, 1941	--	--	29	12	278	--	451	4	250	--	<20	--	795	123	--	--	--	--
411	160	June 29, 1966	18	.07	63	18	153	1.9	432	0	158	.7	0	1.7	625	232	4.4	2.44	1,130	7.1
502	511	Aug. 9, 1962	14	.24	8.0	3.6	334	1.7	594	.0	195	2.6	0	.58	852	35	25	--	1,480	7.6
502	511	Oct. 3, 1966	13	.66	8.0	2.9	333	1.0	596	.4	190	2.3	.2	.09	845	32	26	9.13	1,490	7.8
503	120	Mar. 5, 1941	--	--	58	16	305	--	427	2	370	--	20	--	961	210	--	--	--	--
505	29	Mar. 25, 1941	--	--	42	8.8	125	--	427	8	34	--	4.0	--	433	140	--	--	--	--

See footnotes at end of table.

Table 7.--Chemical Analyses of Water From Wells in Chambers and Jefferson Counties--Continued

WELL	DEPTH OR PRODUCING INTERVAL (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)	BORON (B)	DISSOLVED SOLIDS	HARDNESS AS $CaCO_3$	SODIUM-ADSORPTION RATIO (SAR)	RESIDUAL SODIUM CARBONATE (RSC)	SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C)	pH
DH-64-10-506	294	Dec. 13, 1948	--	--	19	7.4	343	--	466	65	265	--	0.8	--	990	78	--	--	1,680	--
507	220	Dec. 13, 1948	--	--	27	9.8	381	--	452	71	348	--	1.5	--	1,070	108	--	--	1,920	--
508	100	Mar. 25, 1941	--	--	72	16	310	--	464	2	380	--	<20	--	1,010	245	--	--	--	--
509	37	Mar. 25, 1941	--	--	59	12	14	--	183	18	42	--	<20	--	235	198	--	--	--	--
510	126	Mar. 25, 1941	--	--	84	17	270	--	488	2	330	--	.5	--	994	281	--	--	--	--
511	501	Apr. 9, 1941	--	--	4.4	3.9	369	--	555	2	260	2.1	<20	--	914	27	--	--	--	--
513	125	Mar. 5, 1941	--	--	87	21	222	--	366	20	330	--	<20	--	860	303	--	--	--	--
513	125	May 8, 1944	--	--	--	--	--	--	402	--	334	--	--	--	--	224	--	--	--	--
516	512	Apr. 9, 1941	--	--	4.4	3.9	350	--	580	3	220	--	<20	--	866	27	--	--	--	--
518	186	June 29, 1966	--	--	--	--	--	--	428	--	274	--	--	--	--	295	--	1.11	1,490	7.3
702	475	Mar. 21, 1941	--	--	39	5.1	195	--	372	31	145	--	<20	--	598	118	--	--	--	--
702	475	Oct. 5, 1948	12	--	10	3.9	237	--	380	38	145	--	1.0	--	652	41	--	--	1,130	--
704	556	Mar. 6, 1941	--	--	4.8	2.4	324	--	567	2	180	2.0	<20	--	794	22	--	--	--	--
705	18	Mar. 21, 1941	--	--	238	18	65	--	244	35	375	--	58	--	909	671	--	--	--	--
706	574	Dec. 13, 1948	12	--	8.4	5.5	316	--	606	.5	162	--	.0	--	844	44	--	--	1,410	--
707	429	Mar. 28, 1941	--	--	66	10	645	--	317	400	660	--	<20	--	1,940	206	--	--	--	--
b/ 711	620- 643	--	13	2.36	9	3.5	397	--	625	0	230	2.6	.2	--	1,315	37	--	--	1,720	8.2
711	801- 824	--	12	1.64	8	2	427	--	703	0	236	3.9	.5	--	1,415	28	--	--	1,820	8.1
801	399	Apr. 16, 1941	--	--	48	7.1	326	--	512	2	308	.6	<20	--	944	149	--	--	--	--
11-101	30	Apr. 24, 1941	--	--	63	3.4	83	--	287	15	72	0	<20	--	377	172	--	--	--	--
103	515	Apr. 24, 1941	--	--	40	18	898	--	390	2	1,280	.8	<20	--	2,430	176	--	--	--	--
104	128	Apr. 24, 1941	--	--	100	20	596	--	390	39	900	--	<20	--	1,850	333	--	--	--	--
201	131	June 16, 1941	--	--	171	16	150	--	439	35	302	--	<20	--	890	495	--	--	--	--
202	28	Apr. 24, 1941	--	--	23	19	20	--	61	17	22	--	103	--	234	137	--	--	--	--
203	30	Apr. 25, 1941	--	--	-5	7.1	20	--	61	8	10	0	<20	--	75	29	--	--	--	--
204	155	Apr. 25, 1941	--	--	71	9.5	406	--	427	2	530	--	0	--	1,230	216	--	--	--	--
205	131	Apr. 24, 1941	--	--	34	7.3	5.7	--	128	2	14	.3	<20	--	126	115	--	--	--	--
206	140	Apr. 24, 1941	--	--	66	3.4	102	--	275	4	119	0	3.0	--	432	178	--	--	--	--
207	151	Oct. 3, 1966	20	2.3	119	12	216	1.8	432	55	288	.3	.5	--	924	346	5.1	.15	1,650	7.2

See footnotes at end of table.

Table 7.--Chemical Analyses of Water From Wells in Chambers and Jefferson Counties--Continued

WELL	DEPTH OR PRODUCING INTERVAL (FT)	DATE OF COLLECTION	SILICA (SiO_2)	IRON (Fe)	CAL-CIUM (Ca)	MAGNE-SIUM (Mg)	SODIUM (Na)	POTAS-SIUM (K)	BICAR-BONATE (HCO_3)	SUL-FATE (SO_4)	CHLO-RIDE (Cl)	FLUO-RIDE (F)	NITRATE (NO)	BORON (B)	DIS-SOLVED SOLIDS	HARD-NESS AS $CaCO_3$	SODIUM-ADSORP-TION RATIO (SAR)	RESIDUAL SODIUM CARBONATE (RSC)	SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C)	pH
DH-64-11-301	346	Dec. 14, 1948	16	--	57	16	467	--	364	3.1	652	--	3.8	--	1,390	208	--	--	2,610	--
302	185	June 6, 1941	--	--	51	9.5	269	--	354	2	325	--	0	--	831	166	--	--	--	--
303	28	June 6, 1941	--	--	46	16	48	--	122	7	102	--	41	--	320	180	--	--	--	--
304	165	June 6, 1941	--	--	37	12	290	--	354	2	340	0.2	1.0	--	856	141	--	--	--	--
305	94	July 1, 1941	--	--	66	5.4	253	--	311	145	235	--	<20	--	855	188	--	--	--	--
307	23	Apr. 22, 1941	--	--	13	2.2	31	--	73	35	8.0	--	<20	--	125	41	--	--	--	--
501	118	July 1, 1941	--	--	24	11	322	--	49	6	540	.2	<20	--	927	107	--	--	--	--
503	90	July 15, 1941	--	--	36	3.9	389	--	348	4	470	--	<20	--	1,070	107	--	--	--	--
602	115	Apr. 24, 1941	--	--	100	17	413	--	458	47	560	0	5.0	--	1,370	320	--	--	--	--
603	102	Apr. 24, 1941	--	--	129	1.0	535	--	397	35	800	--	0	--	1,700	326	--	--	--	--
604	101	May 15, 1941	--	--	59	9.5	245	--	55	4	475	--	<20	--	820	186	--	--	--	--
610	102	Nov. 14, 1966	--	--	--	--	--	--	412	--	1,150	--	--	--	--	808	--	0.00	4,240	7.3
801	122	June 27, 1960	21	1.0	70	15	212	2.3	526	18	172	.5	0	0.20	770	236	6.0	--	1,330	6.9
802	122	Aug. 23, 1966	23	1.2	90	16	134	2.1	480	12	130	.5	0	.11	640	290	3.4	2.06	1,140	7.4
804	420	Dec. 14, 1948	16	--	23	11	650	--	536	.6	762	--	.0	--	1,730	102	--	--	3,170	--
805	100	Apr. 22, 1941	--	--	126	7.1	161	--	397	10	255	0	<20	--	754	344	--	--	--	--
806	110	May 6, 1941	--	--	--	--	--	--	445	25	84	--	<20	--	532	--	--	--	--	--
807	110	May 6, 1941	--	--	37	9.5	200	--	488	14	106	.4	<20	--	607	131	--	--	--	--
808	103	Apr. 22, 1941	--	--	37	11	150	--	360	13	110	0	<20	--	498	137	--	--	--	--
809	840	Apr. 11, 1941	--	--	32	11	991	--	567	2	1,290	.9	<20	--	2,600	127	--	--	--	--
811	108	Dec. 12, 1948	17	--	42	18	107	--	288	15	112	--	1.2	--	471	56	--	--	805	--
901	350	May 2, 1941	--	--	70	22	902	--	354	1	1,370	.6	<20	--	2,540	263	--	--	--	--
901	350	Mar. 16, 1949	15	--	70	31	897	--	384	2.4	1,370	--	3.5	--	2,580	302	--	--	4,770	7.5
902	100	Apr. 22, 1941	--	--	--	--	--	--	543	31	202	--	<20	--	805	--	--	--	--	--
903	345	Dec. 14, 1948	16	--	54	17	824	--	404	.2	1,180	--	2.5	--	2,290	205	--	--	4,200	--
904	440	Dec. 14, 1948	16	--	38	16	766	--	562	7	985	--	.2	--	2,090	161	--	--	3,810	--
905	38	Apr. 25, 1941	--	--	160	20	192	--	238	109	420	0	<20	--	1,020	483	--	--	--	--
906	20	June 25, 1941	--	--	227	42	343	--	543	403	440	.8	.0	--	1,720	741	--	--	--	--
908	345	May 2, 1941	--	--	45	12	757	--	561	2	955	--	<20	--	2,050	162	--	--	--	--

See footnotes at end of table.

Table 7.--Chemical Analyses of Water From Wells in Chambers and Jefferson Counties--Continued

WELL	DEPTH OR PRODUCING INTERVAL (FT)	DATE OF COLLECTION	SILICA (SiO_2)	IRON (Fe)	CAL-CIUM (Ca)	MAGNE-SIUM (Mg)	SODIUM (Na)	POTAS-SIUM (K)	BICAR-BONATE (HCO_3)	SUL-FATE (SO_4)	CHLO-RIDE (Cl)	FLUO-RIDE (F)	NITRATE (NO)	BORON (B)	DIS-SOLVED SOLIDS	HARD-NESS AS $CaCO_3$	SODIUM-ADSORP-TION RATIO (SAR)	RESIDUAL SODIUM CARBONATE (RSC)	SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C)	pH
DH-64-11-909	347	May 2, 1941	--	--	42	21	808	--	586	2	1,040	--	<20	--	2,200	193	--	--	--	--
910	325	Feb. 28, 1949	16	--	48	20	774	--	526	1.2	1,030	0	.0	--	2,150	202	--	--	3,880	--
911	125	Oct. 26, 1966	--	--	--	--	--	--	396	--	1,650	--	--	--	--	1,080	--	0.00	5,850	6.9
912	510	Nov. 3, 1966	--	--	--	--	--	--	488	5.6	1,350	--	--	--	--	204	--	3.92	4,700	7.5
913	102	Nov. 9, 1966	--	--	--	--	--	--	448	--	205	--	--	--	--	138	--	4.85	1,350	8.3
915	357	May 2, 1941	--	--	26	13	730	--	256	2	1,060	.2	< 20	--	1,960	118	--	--	--	--
12-102	285	July 11, 1966	16	--	25	6.5	424	2.1	330	.6	522	.9	.2	0.27	1,160	89	20	3.63	2,160	7.2
103	183	Apr. 11, 1941	--	--	86	17	198	--	366	8	290	.1	< 20	--	779	286	--	--	--	--
104	68	June 6, 1941	--	--	104	20	126	--	378	8	210	--	3.0	--	657	343	--	--	--	--
106	280	Feb. 17, 1966	16	0.04c/	45	7.9	333	2.0	444	.4	360	.5	.2	.30	983	145	12	4.38	1,790	7.3
107	91	Nov. 10, 1966	--	--	--	--	--	--	460	--	166	--	--	--	--	212	--	3.30	1,220	7.3
108	182	Nov. 10, 1966	--	--	--	--	--	--	368	--	280	--	--	--	--	276	--	.51	1,440	7.3
201	95	Oct. 3, 1966	24	2.1	63	9.4	196	2.2	368	71	176	2.8	.2	.50	726	196	6.1	2.12	1,250	7.2
202	34	Apr. 30, 1941	--	--	8.8	2.2	17	--	61	2	11	--	< 20	--	71	31	--	--	--	--
203	82	Apr. 15, 1941	--	--	--	--	--	--	207	12	20	--	< 20	--	218	--	--	--	--	--
204	34	Apr. 30, 1941	--	--	27	9.5	34	--	55	1	68	--	48	--	215	106	--	--	--	--
205	16	Apr. 30, 1941	--	--	96	7.1	45	--	366	4	44	--	< 20	--	376	269	--	--	--	--
206	310	Nov. 14, 1966	--	--	--	--	--	--	362	--	388	--	--	--	--	102	--	3.89	1,780	7.4
301	146	--	--	--	12	7.1	359	--	31	187	440	.2	< 20	--	1,020	59	--	--	--	--
302	324	May 1, 1941	--	--	26	8.3	341	--	384	2	370	--	2.0	--	938	100	--	--	--	--
303	368	Dec. 17, 1948	--	--	15	6.1	298	--	340	1.6	295	--	.0	--	834	62	--	--	1,470	--
403	82	May 15, 1941	--	--	34	5.8	31	--	146	8	34	--	< 20	--	185	109	--	--	--	--
405	240	June 5, 1935	--	--	54	32	582	--	427	0	840	--	--	--	1,590	267	--	--	--	--
405	240	May 15, 1941	--	--	70	19	599	--	427	2	852	2.0	< 20	--	1,750	252	--	--	--	--
407	85	Oct. 19, 1966	--	--	--	--	--	--	394	--	700	--	--	--	--	372	--	.00	3,030	7.5
502	147	Apr. 15, 1941	--	--	50	20	494	--	354	45	670	--	< 20	--	1,450	207	--	--	--	--
503	96	Oct. 20, 1966	--	--	--	--	--	--	452	--	960	--	--	--	--	690	--	.00	3,740	6.8
601	154	July 1, 1941	--	--	32	7.5	501	--	61	35	790	.2	< 20	--	1,400	110	--	--	--	--
602	250	Dec. 14, 1948	15	--	77	31	682	--	390	2	1,050	--	.5	--	2,050	320	--	--	3,830	--

See footnotes at end of table.

Table 7.--Chemical Analyses of Water From Wells in Chambers and Jefferson Counties--Continued

WELL	DEPTH OR PRODUCING INTERVAL (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)	BORON (B)	DISSOLVED SOLIDS	HARDNESS AS $CaCO_3$	SODIUM-ADSORPTION RATIO (SAR)	RESIDUAL SODIUM CARBONATE (RSC)	SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C)	pH
DH-64-12-603	150	Oct. 20, 1966	--	--	--	--	--	--	526	--	700	--	--	--	--	432	--	0.00	3,060	7.6
703	15	June 4, 1941	--	--	88	27	100	--	439	73	80	--	<20	--	584	332	--	--	--	--
704	63	Apr. 15, 1941	--	--	44	1.5	47	--	201	3	32	--	6.0	--	283	116	--	--	--	--
705	84	June 4, 1941	--	--	55	2.2	546	--	31	31	905	0.3	<20	--	1,550	146	--	--	--	--
706	340	May 2, 1941	--	--	21	19	922	--	214	1	1,390	--	<20	--	2,460	132	--	--	--	--
707	540	July 2, 1941	--	--	27	11	797	--	543	3	990	--	2.0	--	2,100	112	--	--	--	--
708	600	Nov. 9, 1966	--	--	--	--	--	--	400	--	2,000	--	--	--	--	360	--	.00	6,470	7.2
709	30	Nov. 15, 1966	--	--	--	--	--	--	388	980	430	--	--	--	--	716	--	.00	3,480	7.5
801	40	June 4, 1941	--	--	17	3.4	41	--	85	31	32	--	< 20	--	166	57	--	--	--	--
802	445	May 2, 1941	--	--	18	5.8	15	--	79	2	25	.3	< 20	--	105	69	--	--	--	--
901	16	June 5, 1941	--	--	24	4.6	42	--	134	2	40	--	<20	--	179	78	--	--	--	--
13-103	331	Dec. 14, 1948	14	--	15	4.6	281	--	392	2	--	--	--	--	756	56	--	--	1,350	--
103	331	Oct. 5, 1966	15	0.13	16	4.9	275	1.4	388	0	245	.7	.5	--	750	60	15	5.16	1,370	7.5
104	176	Apr. 30, 1941	--	--	--	--	--	--	244	74	310	--	< 20	--	790	--	--	--	--	--
105	122	May 1, 1941	--	--	109	25	276	--	329	408	198	.4	< 20	--	1,180	376	--	--	--	--
107	135	May 16, 1941	--	--	89	19	207	--	451	194	127	.2	--	--	858	302	--	--	--	--
110	160	Oct. 5, 1966	17	.03[c]	50	10	272	2.2	430	52	245	.3	.5	--	870	166	9.2	4.06	1,550	7.3
111	171	Oct. 5, 1966	18	.08	70	12	272	2.1	374	76	310	.3	.5	--	945	222	7.9	1.69	1,700	7.2
112	176	Nov. 10, 1966	--	--	--	--	--	--	394	--	304	--	--	--	--	262	--	1.22	1,740	7.0
201	14	May 16, 1941	--	--	98	17	48	--	451	2	34	--	<20	--	421	315	--	--	--	--
202	142	May 1, 1941	--	--	16	20	282	--	177	124	328	--	<20	--	857	123	--	--	--	--
203	12	May 1, 1941	--	--	--	--	--	--	305	12	35	--	<20	--	322	--	--	--	--	--
302	44	June 9, 1941	--	--	10	- 2	46	--	122	2	17	.1	<20	--	135	26	--	--	--	--
303	156	June 9, 1941	--	--	--	--	--	--	390	2	134	--	<20	--	532	--	--	--	--	--
304	20	May 1, 1941	--	--	2.8	1.0	38	--	85	2	16	--	<20	--	104	11	--	--	--	--
305	205	Oct. 21, 1966	--	--	--	--	--	--	458	--	266	--	--	--	--	132	--	4.87	1,560	7.4
401	257	June 5, 1941	--	--	4.8	2.2	25	--	55	4	19	--	< 20	--	82	21	--	--	--	--
402	240	June 5, 1941	--	--	39	10	332	--	537	27	280	--	< 20	--	952	141	--	--	--	--
403	50	May 13, 1941	--	--	--	--	--	--	427	183	130	--	< 20	--	813	--	--	--	--	--

See footnotes at end of table.

Table 7.--Chemical Analyses of Water From Wells in Chambers and Jefferson Counties--Continued

WELL	DEPTH OR PRODUCING INTERVAL (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)	BORON (B)	DISSOLVED SOLIDS	HARDNESS AS $CaCO_3$	SODIUM-ADSORPTION RATIO (SAR)	RESIDUAL SODIUM CARBONATE (RSC)	SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C)	pH
DH-64-13-406	160	Oct. 5, 1966	17	0.06	51	11	295	2.3	480	118	215	0.3	2.2	--	948	172	9.8	4.43	1,630	7.3
501	164	May 1, 1941	--	--	5.2	3.4	352	--	348	15	350	--	<20	--	897	27	--	--	--	--
601	147	June 27, 1960	18	.34	28	7.7	260	3.5	546		158	.5	0	0.27	745	102	11	--	1,330	7.2
601	147	Aug. 24, 1966	17	.38	34	8.9	287	3.4	550	.4	219	.5	.8	.29	842	122	11	6.58	1,490	7.7
603	144	June 9, 1941	--	--	42	8.3	37	--	226	2	24	--	<20	--	224	140	--	--	--	--
604	162	June 9, 1941	--	--	24	4.6	243	--	500	2	136	.1	2.0	--	658	78	--	--	--	--
605	165	May 1, 1941	--	--	9.2	10	256	--	512	3	142	--	<20	--	672	66	--	--	--	--
606	150	May 1, 1941	--	--	28	13	87	--	311	1	40	--	<20	--	322	124	--	--	--	--
607	140	June 9, 1941	--	--	13	11	295	--	525	2	203	--	<20	--	782	77	--	--	--	--
609	46	May 1, 1941	--	--	6.4	6.8	10	--	31	3	37	--	<20	--	68	44	--	--	--	--
610	185	May 14, 1941	--	--	39	12	303	--	659	18	174	.4	<20	--	870	147	--	--	--	--
611	227	June 10, 1941	--	--	18	8.3	411	--	567	2	358	--	<20	--	1,080	78	--	--	--	--
613	158	May 14, 1941	--	--	26	13	365	--	653	2	266	--	<20	--	993	118	--	--	--	--
615	184	May 14, 1941	--	--	45	11	451	--	714	2	390	--	<20	--	1,250	157	--	--	--	--
617	50	Oct. 26, 1966	--	--	--	--	--	--	100	--	15	--	--	--	--	74	--	.56	243	8.4
618	152	Nov. 14, 1966	--	--	--	--	--	--	554	--	274	--	--	--	--	116	--	6.76	1,630	7.7
704	417	Dec. 14, 1948	16	--	43	17	460	--	506	1.0	538	--	2.2	--	1,330	178	--	--	2,430	--
705	176	May 22, 1941	--	--	12	7.1	246	--	256	8	266	--	<20	--	665	59	--	--	--	--
706	325	May 13, 1941	--	--	50	14	322	--	580	70	235	--	<20	--	976	184	--	--	--	--
707	37	May 13, 1941	--	--	54	13	38	--	226	31	38	--	<20	--	285	188	--	--	--	--
708	23	May 14, 1941	--	--	83	19	157	--	567	12	107	--	<20	--	657	287	--	--	--	--
709	149	Oct. 24, 1966	--	--	--	--	--	--	636	--	197	--	--	--	--	134	--	7.74	1,580	7.3
801	340	May 14, 1941	--	--	56	13	535	--	500	2	670	--	<20	--	1,520	193	--	--	--	--
802	86	May 23, 1941	--	--	125	35	219	--	494	268	176	--	<20	--	1,070	456	--	--	--	--
803	39	June 5, 1941	--	--	--	--	--	--	43	27	13	--	0	--	94	--	--	--	--	--
804	42	May 23, 1941	--	--	14	5.8	30	--	85	21	23	--	<20	--	136	59	--	--	--	--
901	170	May 14, 1941	--	--	29	11	333	--	677	31	179	--	<20	--	916	117	--	--	--	--
903	219	Dec. 14, 1948	20	--	44	7.8	552	--	600	1	602	--	.5	--	1,500	142	--	--	2,790	--
904	153	May 14, 1941	--	--	31	12	398	--	744	2	270	--	<20	--	1,080	127	--	--	--	--

See footnotes at end of table.

Table 7.--Chemical Analyses of Water From Wells in Chambers and Jefferson Counties--Continued

WELL	DEPTH OR PRODUCING INTERVAL (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)	BORON (B)	DISSOLVED SOLIDS	HARDNESS AS $CaCO_3$	SODIUM-ADSORPTION RATIO (SAR)	RESIDUAL SODIUM CARBONATE (RSC)	SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C)	pH
DH-64-13-905	184	May 14, 1941	--	--	38	13	466	--	708	2	410	--	<20	--	1,280	148	--	--	--	--
906	265	Aug. 16, 1966	--	--	--	--	--	--	724	--	355	--	--	--	--	128	--	9.31	2,130	8.1
14-401	144	June 9, 1941	--	--	31	3.4	248	--	525	2	141	--		--	683	92	--	--	--	--
402	146	Dec. 1, 1948	16	--	27	5.9	201	--	380	2	152	--	1.0	--	609	92	--	--	1,060	--
403	140	June 9, 1941	--	--	--	--	--	--	427	2	142	--	<20	--	575	--	--	--	--	--
703	150	May 14, 1941	--	--	16	5.8	296	--	555	17	167	--	<20	--	775	64	--	--	--	--
704	197	July 2, 1941	--	--	52	17	523	--	616	2	590	--	<20	--	1,490	201	--	--	--	--
706	21	May 14, 1941	--	--	134	14	63	--	415	12	127	--	<20	--	554	394	--	--	--	--
707	185	Nov. 14, 1966	--	--	--	--	--	--	640	--	560	--	--	--	--	202	--	6.45	2,590	7.1
17-203	22	Mar. 4, 1941	--	--	125	19	332	--	421	74	490	--	<20	--	1,250	392	--	--	--	--
204	212	Apr. 4, 1941	--	--	37	15	260	--	482	27	210	--	<20	--	786	154	--	--	--	--
205	18	Mar. 13, 1941	--	--	70	18	345	--	218	20	480	--	90	--	1,160	251	--	--	--	--
206	90	Mar. 4, 1941	--	--	136	23	299	--	476	15	480	0.4	2.0	--	1,190	434	--	--	--	--
207	441	Dec. 13, 1948	17	--	37	14	477	--	404	253	420	--	1.0	--	1,420	150	--	--	2,380	--
209	410	Mar. 4, 1941	--	--	22	6.1	432	--	431	183	340	1.4	<20	--	1,190	79	--	--	--	--
209	410	Feb. 18, 1952	15	--	26	9.7	432	--	439	183	350	--	1.5	--	1,230	105	--	--	2,050	8.2
211	97	Mar. 6, 1941	--	--	83	21	249	--	500	2	300	--	<20	--	901	293	--	--	--	--
212	346	Mar. 4, 1941	--	--	8.8	3.6	138	--	317	14	44	--	<20	--	364	37	--	--	--	--
302	398	Dec. 13, 1948	12	--	8.9	3.0	187	--	328	32	98	--	.0	--	509	34	--	--	870	--
306	110	Apr. 8, 1941	--	--	40	3.9	251	--	494	3	180	--	<20	--	727	117	--	--	--	--
308	97	Mar. 4, 1941	--	--	114	22	218	--	464	1	330	.5	1.6	--	926	374	--	--	--	--
309	90	Mar. 22, 1941	--	--	72	16	249	--	488	3	270	--	3.0	--	853	245	--	--	--	--
312	180	Apr. 9, 1941	--	--	--	--	--	--	--	8	500	--	<20	--	--	--	--	--	--	--
501	429	Mar. 13, 1941	--	--	17	6.3	352	--	451	2	325	1.3	<20	--	925	69	--	--	--	--
502	82	Mar. 13, 1941	--	--	188	52	370	--	415	2	810	--	2.5	--	1,630	682	--	--	--	--
503	638	Mar. 13, 1941	--	--	16	7.3	458	--	476	2	475	1.2	<20	--	1,190	70	--	--	--	--
504	93	Mar. 13, 1941	--	--	228	66	510	--	458	2	1,120	--	<20	--	2,150	841	--	--	--	--
601	94	Mar. 6, 1941	--	--	101	21	295	--	470	2	420	--	<20	--	1,070	338	--	--	--	--
601	94	Oct. 6, 1948	19	--	91	39	282	--	462	12	430	--	2.8	0.35	1,100	388	--	--	2,040	--

See footnotes at end of table.

Table 7.--Chemical Analyses of Water From Wells in Chambers and Jefferson Counties--Continued

WELL	DEPTH OR PRODUCING INTERVAL (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)	BORON (B)	DISSOLVED SOLIDS	HARDNESS AS $CaCO_3$	SODIUM-ADSORPTION RATIO (SAR)	RESIDUAL SODIUM CARBONATE (RSC)	SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C)	pH
DH-64-17-603	100	Mar. 4, 1941	--	--	93	19	262	--	488	1	340	--	0	--	955	312	--	--	--	--
604	550	Mar. 4, 1941	--	--	22	7.3	374	--	506	2	340	--	.8	--	995	85	--	--	--	--
606	190	Mar. 22, 1941	--	--	46	11	358	--	451	41	370	0.6	5.0	--	1,050	162	--	--	--	--
607	105	Mar. 22, 1941	--	--	87	23	221	--	305	2	380	--	8.0	--	871	314	--	--	--	--
609	90	Apr. 9, 1941	--	--	116	33	283	--	476	3	460	--	< 20	--	1,130	426	--	--	--	--
b/ 610	540- 560	Nov. 6, 1956	20	3.6	15	4.5	299	--	450	29	29	1.9	--	--	1,034	56	--	--	1,390	8.7
b/ 610	818- 838	Nov. 7, 1956	13	2.5	12	3	442	--	559	0	355	1.8	--	--	1,410	40	--	--	1,970	8.7
b/ 610	1060-1080	Nov. 9, 1956	19	.16	32	13	1,266	--	632	0	1,650	1.9	--	--	3,643	132	--	--	6,000	8.5
b/ 610	1140-1160	Nov. 10, 1956	20	.36	73	27	2,000	--	503	0	3,000	1.5	--	--	5,628	295	--	--	9,740	8.1
b/ 610	1340-1360	Nov. 12, 1956	21	.28	113	48	2,730	--	429	0	4,300	1.2	--	--	7,645	480	--	--	13,000	8.2
803	11	Mar. 28, 1941	--	--	80	28	287	--	397	3	435	--	1.0	--	1,030	318	--	--	--	--
901	709	Oct. 5, 1948	14	--	12	5.4	337	--	508	23	242	--	3.2	--	918	52	--	--	1,580	--
901	709	Feb. 18, 1953	16	--	11	5.8	340	--	513	24	245	--	.5	--	922	52	--	--	1,510	--
901	709	June 3, 1960	--	--	--	--	--	--	507	--	248	--	--	--	--	48	--	--	1,520	7.5
901	709	Aug. 9, 1962	--	--	--	--	--	--	508	--	242	--	--	--	48	--	--	--	1,580	7.9
904	630	Mar. 13, 1941	--	--	8.8	5.1	397	--	470	3	365	1.2	< 20	--	1,010	43	--	--	--	--
905	630	Mar. 20, 1941	--	--	15	5.1	367	--	458	2	340	--	< 20	--	954	58	--	--	--	--
906	600	Apr. 2, 1941	--	--	9.2	6.3	342	--	531	2	250	1.4	< 20	--	872	49	--	--	--	--
907	685	Dec. 13, 1948	14	--	9.8	6.6	365	--	502	4	305	--	.2	--	954	52	--	--	--	--
908	100	Mar. 13, 1941	--	--	178	44	256	--	445	8	575	--	0	--	1,280	627	--	--	--	--
909	600	Mar. 20, 1941	--	--	20	8.8	412	--	537	101	305	1.6	1.0	--	1,110	85	--	--	--	--
910	550	Mar. 13, 1941	--	--	12	3.9	365	--	464	2	325	--	< 20	--	936	47	--	--	--	--
910	550	Oct. 6, 1948	16	--	12	5.2	365	--	456	2	332	--	2.2	--	961	52	--	--	1,700	--
910	550	Feb. 18, 1953	18	--	12	5.2	365	--	465	.5	328	--	1.0	--	991	52	--	--	1,680	--
910	550	June 3, 1960	--	--	--	--	--	--	460	--	318	--	--	--	--	356	--	--	1,610	7.2
910	550	Aug. 9, 1962	--	--	--	--	--	--	390	--	312	--	--	--	--	302	--	--	1,570	7.4
18-101	41	Mar. 27, 1941	--	--	93	23	169	--	366	10	273	--	< 20	--	748	329	--	--	--	--
104	340	Mar. 28, 1941	--	--	2.0	1.5	213	--	360	2	124	1.1	< 20	--	521	11	--	--	--	--
105	240	Mar. 6, 1941	--	--	11	3.6	227	--	445	2	120	--	< 20	--	582	42	--	--	--	--

See footnotes at end of table.

Table 7.--Chemical Analyses of Water From Wells in Chambers and Jefferson Counties--Continued

WELL	DEPTH OR PRODUCING INTERVAL (FT)	DATE OF COLLECTION	SILICA (SiO_2)	IRON (Fe)	CAL-CIUM (Ca)	MAGNE-SIUM (Mg)	SODIUM (Na)	POTAS-SIUM (K)	BICAR-BONATE (HCO_3)	SUL-FATE (SO_4)	CHLO-RIDE (Cl)	FLUO-RIDE (F)	NITRATE (NO)	BORON (B)	DIS-SOLVED SOLIDS	HARD-NESS AS $CaCO_3$	SODIUM-ADSORP-TION RATIO (SAR)	RESIDUAL SODIUM CARBONATE (RSC)	SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C)	pH
DH-64-18-105	240	Oct. 5, 1948	12	--	11	4.4	237	--	453	2.0	132	--	1.2	--	638	46	--	--	1,150	--
106	180	Mar. 6, 1941	--	--	22	7.3	274	--	537	2	170	--	< 20	--	739	85	--	--	--	--
107	634	Mar. 6, 1941	--	--	6.8	3.6	366	--	665	1	200	--	< 20	--	904	32	--	--	--	--
108	140	Mar. 6, 1941	--	--	43	12	238	--	512	1	180	--	1.0	--	727	158	--	--	--	--
109	198	Mar. 21, 1941	--	--	12	8.8	261	--	476	3	170	--	< 20	--	689	65	--	--	--	--
110	192	Mar. 6, 1941	--	--	24	6.1	236	--	494	1	135	--	< 20	--	645	84	--	--	--	--
111	196	Mar. 6, 1941	--	--	21	3.6	245	--	451	4	160	--	< 20	--	656	67	--	--	--	--
112	30	Mar. 6, 1941	--	--	112	8.5	88	--	299	35	160	--	< 20	--	551	315	--	--	--	--
113	190	Mar. 21, 1941	--	--	12	2.7	78	--	140	13	58	--	< 20	--	233	42	--	--	--	--
401	190	Mar. 21, 1941	--	--	--	--	--	--	250	8	100	--	< 20	--	373	--	--	--	--	--
402	15	Mar. 21, 1941	--	--	119	15	153	--	451	25	210	--	< 20	--	744	--	--	--	--	--
403	175	Mar. 6, 1941	--	--	36	8.5	370	--	421	58	370	--	2.0	--	1,050	125	--	--	--	--
404	604	Dec. 13, 1948	16	1.2 c/	31	12	502	--	460	286	385	--	.0	--	1,460	127	--	--	2,440	--
405	438	Mar. 21, 1941	--	--	6.4	3.9	457	--	549	23	390	0.8	< 20	--	1,150	32	--	--	--	--
406	96	Apr. 9, 1941	--	--	--	--	--	--	445	2	270	--	< 20	--	790	--	--	--	--	--
407	755	Mar. 21, 1941	--	--	20	7.5	461	--	555	128	350	--	< 20	--	1,240	80	--	--	--	--
409	100	Mar. 20, 1941	--	--	104	26	284	--	488	3	410	--	3.5	--	1,070	366	--	--	--	--
412	167	Mar. 21, 1941	--	--	127	41	276	--	506	5	470	--	3.5	--	1,170	485	--	--	--	--
412	167	Oct. 5, 1948	20	--	128	45	266	--	518	5	462	--	2.8	--	1,180	504	--	--	--	--
902	597	May 15, 1942	--	--	--	--	--	--	100	77	393	--	1.2	--	853	186	--	--	--	--
19-201	105	May 8, 1941	--	--	--	--	--	--	488	117	645	--	< 20	--	1,570	--	--	--	--	--
202	119	May 6, 1941	--	--	68	14	164	--	433	6	160	--	< 20	--	625	229	--	--	--	--
203	138	May 8, 1941	--	--	53	26	589	--	537	2	765	--	< 20	--	1,700	241	--	--	--	--
205	22	May 6, 1941	--	--	--	--	--	--	317	27	212	--	< 20	--	630	--	--	--	--	--
206	315	Dec. 14, 1948	16	--	33	13	522	--	478	1.6	622	--	.2	--	1,440	136	--	--	2,660	--
301	25	Apr. 1, 1941	--	--	211	22	73	--	287	13	355	--	35	--	850	619	--	--	--	--
302	14	Apr. 11, 1941	--	--	107	14	73	--	348	39	94	--	30	--	531	323	--	--	--	--
303	30	June 3, 1941	--	--	152	23	117	--	403	27	262	--	< 20	--	779	474	--	--	--	--
304	22	June 25, 1941	--	--	84	19	59	--	317	46	67	.8	14	--	446	287	--	--	--	--

See footnotes at end of table.

Table 7.--Chemical Analyses of Water From Wells in Chambers and Jefferson Counties--Continued

WELL	DEPTH OR PRODUCING INTERVAL (FT)	DATE OF COLLECTION	SILICA (SiO_2)	IRON (Fe)	CAL-CIUM (Ca)	MAGNE-SIUM (Mg)	SODIUM (Na)	POTAS-SIUM (K)	BICAR-BONATE (HCO_3)	SUL-FATE (SO_4)	CHLO-RIDE (Cl)	FLUO-RIDE (F)	NITRATE (NO)	BORON (B)	DIS-SOLVED SOLIDS	HARD-NESS AS $CaCO_3$	SODIUM-ADSORP-TION RATIO (SAR)	RESIDUAL SODIUM CARBONATE (RSC)	SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C)	pH
DH-64-19-305	115	May 6, 1941	--	--	67	9.5	96	--	317	35	84	--	< 20	--	448	206	--	--	--	--
306	14	June 25, 1941	--	--	111	15	173	--	384	18	268	--	3.0	--	777	339	--	--	--	--
307	114	June 3, 1941	--	--	69	34	561	--	573	77	695	--	< 20	--	1,720	311	--	--	--	--
308	1050	Apr. 11, 1941	--	--	37	6.3	561	--	543	17	620	0.4	< 20	--	1,510	119	--	--	--	--
309	485	Dec. 16, 1948	24	--	122	27	126	--	477	18	198	--	.0	--	755	416	--	--	1,340	--
311	340	Dec. 17, 1948	16	--	32	18	666	--	572	1.6	802	--	.2	--	1,820	154	--	--	3,310	--
501	100	May 6, 1941	--	--	48	4.6	74	--	275	1	51	--	< 20	--	314	138	--	--	--	--
502	25	June 25, 1941	--	--	63	7.8	121	--	67	115	196	--	.5	--	536	190	--	--	--	--
503	115	May 6, 1941	--	--	110	45	467	--	390	362	550	--	< 20	--	1,730	457	--	--	--	--
504	33	May 6, 1941	--	--	134	20	285	--	372	121	430	0	< 20	--	1,170	418	--	--	--	--
505	18	May 6, 1941	--	--	176	55	553	--	85	218	1,120	--	2.0	--	2,160	669	--	--	--	--
601	30	May 7, 1941	--	--	19	2.2	23	--	85	23	8.0	--	< 20	--	117	56	--	--	--	--
602	660	May 6, 1941	--	--	23	3.4	672	--	537	194	630	.8	< 20	--	1,790	72	--	--	--	--
603	20	May 7, 1941	--	--	--	--	--	--	378	31	117	--	< 20	--	537	--	--	--	--	--
604	640	May 6, 1941	--	--	77	12	144	--	238	31	232	.2	< 20	--	613	242	--	--	--	--
605	480	May 6, 1941	--	--	20	8.3	632	--	409	2	795	--	2.0	--	1,660	85	--	--	--	--
606	507	Dec. 16, 1948	17	--	30	12	696	--	474	2	880	--	7.0	--	1,880	124	--	--	3,410	--
607	525	Dec. 16, 1948	14	--	29	30	692	--	488	105	842	0	30	--	1,960	196	--	--	3,530	--
608	195	Oct. 26, 1966	--	--	--	--	--	--	612	--	1,030	--	--	--	--	312	--	3.79	3,940	7.9
609	81	Oct. 26, 1966	--	--	--	--	--	--	476	--	720	--	--	--	--	565	--	.00	3,090	6.9
801	110	May 6, 1941	--	--	21	11	58	--	189	31	25	--	< 20	--	243	97	--	--	--	--
802	400	Dec. 14, 1948	19	--	22	9.6	487	--	440	41	530	--	4.0	--	1,330	94	--	--	--	--
803	546	Dec. 17, 1948	17	--	45	19	734	--	454	3.5	1,000	--	.8	--	2,040	190	--	--	--	--
804	514	Aug. 22, 1941	--	--	47	14	736	--	476	2	980	--	0	--	2,010	173	--	--	--	--
805	330	Aug. 22, 1941	--	--	--	--	--	--	580	2	680	--	< 20	--	1,540	--	--	--	--	--
806	216	July 15, 1941	--	--	18	10	679	--	683	2	710	--	< 20	--	1,750	86	--	--	--	--
807	30	May 7, 1941	--	--	61	18	203	--	305	27	275	--	< 20	--	734	226	--	--	--	--
901	19	May 6, 1941	--	--	22	3.2	92	--	104	27	109	--	< 20	--	304	67	--	--	--	--
902	325	July 7, 1941	--	--	20	20	721	--	695	2	800	.2	< 20	--	1,900	132	--	--	--	--

See footnotes at end of table.

Table 7.--Chemical Analyses of Water From Wells in Chambers and Jefferson Counties--Continued

WELL	DEPTH OR PRODUCING INTERVAL (FT)	DATE OF COLLECTION	SILICA (SiO_2)	IRON (Fe)	CAL-CIUM (Ca)	MAGNE-SIUM (Mg)	SODIUM (Na)	POTAS-SIUM (K)	BICAR-BONATE (HCO_3)	SUL-FATE (SO_4)	CHLO-RIDE (Cl)	FLUO-RIDE (F)	NITRATE (NO)	BORON (B)	DIS-SOLVED SOLIDS	HARD-NESS AS $CaCO_3$	SODIUM-ADSORP-TION RATIO (SAR)	RESIDUAL SODIUM CARBONATE (RSC)	SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C)	pH
DH-64-19-903	408	May 7, 1941	--	--	18	5.8	728	--	653	2	790	0.6	< 20	--	1,860	69	--	--	--	--
906	20	May 7, 1941	--	--	--	--	--	--	98	82	210	--	< 20	--	524	--	--	--	--	--
908	565	June 27, 1941	--	--	26	24	761	--	470	2	1,020	.4	< 20	--	2,060	165	--	--	--	--
910	844	May 7, 1941	--	--	20	13	881	--	476	241	975	.7	< 20	--	2,360	103	--	--	--	--
912	300	Nov. 15, 1966	--	--	--	--	--	--	650	--	760	--	--	--	--	196	--	6.73	3,230	7.2
913	332	Nov. 15, 1966	--	--	--	--	--	--	660	--	760	--	--	--	--	160	--	7.62	3,400	7.2
20-101	11	June 3, 1941	--	--	22	4.6	67	--	159	10	56	--	< 20	--	238	73	--	--	--	--
301	184	May 22, 1941	--	--	56	16	569	--	641	2	648	--	< 20	--	1,610	205	--	--	--	--
302	283	May 22, 1941	--	--	8.0	5.8	1,072	--	140	2	1,600	--	< 20	--	2,760	44	--	--	--	--
303	17	May 22, 1941	--	--	254	46	193	--	329	494	324	--	0	--	1,470	823	--	--	--	--
402	28	Dec. 2, 1948	28	--	32	3.5	20	--	117	1.4	29	--	.0	--	176	94	--	--	282	--
403	160	July 17, 1941	--	--	6.8	12	455	--	299	2	575	--	< 20	--	1,200	68	--	--	--	--
404	260	May 12, 1941	--	--	42	22	813	--	738	1	960	--	< 20	--	2,200	193	--	--	--	--
405	13	June 24, 1941	--	--	42	10	168	--	189	15	240	.3	2.5	--	571	146	--	--	--	--
407	21	May 7, 1941	--	--	24	8.3	21	--	128	3	23	--	< 20	--	142	95	--	--	--	--
408	549	Oct. 25, 1966	--	--	--	--	--	--	478	--	960	--	--	--	--	156	--	4.71	4,040	7.4
502	24	May 22, 1941	--	--	386	108	557	--	268	1,680	460	0	0	--	3,320	1,410	--	--	--	--
503	455	Aug. 21, 1941	--	--	50	16	1,070	--	506	46	1,450	.6	0	--	2,880	190	--	--	--	--
504	460	May 12, 1941	--	--	5	13	865	--	506	3	1,080	--	< 20	--	2,210	54	--	--	--	--
505	87	June 24, 1941	--	--	86	30	495	--	555	27	660	--		--	1,570	338	--	--	--	--
506	18	May 12, 1941	--	--	--	--	--	--	378	2	30	--	< 20	--	366	--	--	--	--	--
507	17	May 12, 1941	--	--	70	8.3	79	--	397	6	36	--	< 20	--	394	210	--	--	--	--
701	18	May 7, 1941	--	--	35	18	62	--	122	27	118	--	< 20	--	320	161	--	--	--	--
702	12	June 27, 1941	--	--	89	22	187	--	372	227	126	.7	< 20	--	835	314	--	--	--	--
703	210	Aug. 21, 1941	--	--	172	110	775	--	549	96	1,430	1.0	0	--	2,850	883	--	--	--	--
704	572	Aug. 21, 1941	--	--	37	14	871	--	543	2	1,130	.1	0	--	2,321	148	--	--	--	--
801	250	Aug. 22, 1941	--	--	--	--	--	--	482	2	1,450	--	0	--	2,670	--	--	--	--	--
802	250	July 7, 1941	--	--	61	38	1,030	--	555	2	1,480	.1	< 20	--	2,880	308	--	--	--	--
803	300	Aug. 22, 1941	--	--	--	--	--	--	512	2	1,010	--	< 20	--	2,000	--	--	--	--	--

See footnotes at end of table.

Table 7.--Chemical Analyses of Water From Wells in Chambers and Jefferson Counties--Continued

WELL	DEPTH OR PRODUCING INTERVAL (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)	BORON (B)	DISSOLVED SOLIDS	HARDNESS AS $CaCO_3$	SODIUM-ADSORPTION RATIO (SAR)	RESIDUAL SODIUM CARBONATE (RSC)	SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C)	pH
DH-64-20-804	420	July 7, 1941	--	--	31	12	920	--	580	2	1,170	--	<20	--	2,420	128	--	--	--	--
21-201	165	July 23, 1941	--	--	60	18	581	--	610	2	700	0.1	0	--	1,660	226	--	--	--	--
202	26	May 23, 1941	--	--	74	13	40	--	336	3	33	--	<20	--	328	238	--	--	--	--
302	221	May 23, 1941	--	--	61	18	529	--	653	2	595	.2	<20	--	1,530	226	--	--	--	--
302	221	Oct. 25, 1966	--	--	--	--	--	--	646	--	610	--	--	--	--	204	--	6.51	2,780	7.1
304	197	May 23, 1941	--	--	48	14	513	--	604	2	565	--	<20	--	1,440	179	--	--	--	--
305	12	May 23, 1941	--	--	79	9.5	52	--	214	89	57	--	<20	--	392	236	--	--	--	--
306	33	Oct. 25, 1966	--	--	--	--	--	--	476	448	225	--	--	--	--	340	--	1.00	2,220	7.6
401	20	Oct. 21, 1966	--	--	--	--	--	--	578	--	180	--	--	--	--	286	--	3.75	1,440	7.5
402	300	Oct. 21, 1966	--	--	--	--	--	--	580	--	1,150	--	--	--	--	284	--	3.83	4,280	7.2
404	300	Oct. 24, 1966	--	--	--	--	--	--	596	--	1,200	--	--	--	--	272	--	4.33	4,380	7.3
405	211	May 22, 1941	--	--	52	36	933	--	604	2	1,280	--	<20	--	2,600	277	--	--	--	--
406	208	May 20, 1941	--	--	48	17	702	--	616	4	852	--	5.4	--	1,930	190	--	--	--	--
407	224	July 8, 1941	--	--	12	27	923	--	366	2	1,270	--	0	--	2,410	87	--	--	--	--
408	14	May 22, 1941	--	--	--	--	--	--	305	8	54	--	<20	--	346	--	--	--	--	--
502	16	May 23, 1941	--	--	83	26	190	--	451	21	239	--	<20	--	786	316	--	--	--	--
503	16	May 20, 1951	--	--	90	13	92	--	415	3	95	--	<20	--	497	278	--	--	--	--
504	234	June 23, 1941	--	--	57	24	1,440	--	506	4	2,090	--	0	--	3,860	240	--	--	--	--
601	28	May 20, 1951	--	--	--	--	--	--	397	8	102	--	<20	--	496	--	--	--	--	--
701	230	July 8, 1941	--	--	68	2.7	1,050	--	525	2	1,440	--	0	--	2,820	182	--	--	--	--
801	540	July 8, 1941	--	--	46	54	1,420	--	476	2	2,150	.7	0	--	3,900	338	--	--	--	--
802	240	July 8, 1941	--	--	12	35	1,220	--	628	2	1,640	--	0	--	3,220	171	--	--	--	--
901	220	May 20, 1941	--	--	125	58	1,740	--	506	2	2,770	--	<20	--	4,940	551	--	--	--	--
902	176	Aug. 24, 1941	--	--	54	22	882	--	683	2	1,120	--	<20	--	2,420	224	--	--	--	--
22-101	91	May 23, 1941	--	--	157	58	529	--	445	93	935	0	<20	--	1,990	631	--	--	--	--
401	160	Sept. 29, 1966	22	0.15c/	40	16	758	7.0	724	1.2	880	0	1.0	--	2,080	166	26	8.55	3,720	7.1
402	190	May 20, 1951	--	--	48	14	690	--	610	2	835	--	<20	--	1,890	179	--	--	--	--
702	85	May 29, 1941	--	--	221	65	976	--	586	27	1,730	--	2.0	--	3,300	820	--	--	--	--
703	156	May 29, 1941	--	--	11	11	717	--	653	3	775	--	<20	--	1,840	72	--	--	--	--

See footnotes at end of table.

Table 7.--Chemical Analyses of Water From Wells in Chambers and Jefferson Counties--Continued

WELL	DEPTH OR PRODUCING INTERVAL (FT)	DATE OF COLLECTION	SILICA (SiO_2)	IRON (Fe)	CAL-CIUM (Ca)	MAGNE-SIUM (Mg)	SODIUM (Na)	POTAS-SIUM (K)	BICAR-BONATE (HCO_3)	SUL-FATE (SO_4)	CHLO-RIDE (Cl)	FLUO-RIDE (F)	NITRATE (NO)	BORON (B)	DIS-SOLVED SOLIDS	HARD-NESS AS $CaCO_3$	SODIUM-ADSORP-TION RATIO (SAR)	RESIDUAL SODIUM CARBONATE (RSC)	SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C)	pH
DH-64-22-704	220	May 20, 1941	--	--	--	--	--	--	470	2	3,950	--	<20	--	1,570	--	--	--	--	--
26-601	110	Nov. 16, 1966	--	--	--	--	--	--	303	--	3,980	--	--	--	--	3,090	--	0.00	11,500	6.7
701	683	May 21, 1962	16	0.35	4.5	2.0	216	0.9	450		85	1.6	0	0.48	547	19	22	--	937	7.9
701	683	Apr. 9, 1963	--	--	--	--	--	--	460	--	87	--	--	--	--	20	--	7.14	919	7.9
701	683	Apr. 17, 1964	15	--	5.2	1.5	--	--	426	0	83	1.5	.8	--	548	19	22	7.07	934	8.5
701	683	June 16, 1965	15	.09	4.8	2.2	--	--	458	.4	87	1.6	.2	--	557	21	21	7.09	956	8.2
701	683	Aug. 1, 1966	14	.24	5.2	1.7	221	1.2	452	0	86	1.6	.2	.31	553	20	21	7.01	947	7.7
701	683	Nov. 30, 1966	--	--	--	--	--	--	448	--	85	--	--	--	--	20	--	6.94	940	7.6
704	863	May 29, 1958	17	.21	8.5	3.3	383	2.0	504	0	318	1.6	.8	.71	983	34	28	--	1,240	8.0
803	760	May 15, 1942	--	--	9.2	3.1	277	--	489	2	166	--	1.5	--	733	36	--	--	--	--
804	742	Dec. 16, 1948	14	--	5.8	3.8	219	--	456	2	92	--	.5	--	592	30	--	--	985	--
901	108	May 27, 1941	--	--	110	29	375	--	378	2	635	--	1.0	--	1,340	303	--	--	--	--
902	127	May 27, 1941	--	--	44	16	436	--	506	2	500	--	<20	--	1,250	175	--	--	--	--
902	127	Dec. 17, 1948	22	--	46	18	431	--	494	4.8	508	--	.2	.65	1,270	189	--	--	2,330	--
903	120	May 27, 1941	--	--	70	17	444	--	494	2	570	.1	<20	--	1,350	245	--	--	--	--
904	26	May 27, 1941	--	--	43	3.4	25	--	140	12	35	--	<20	--	187	122	--	--	--	--
906	30	Nov. 15, 1966	19	1.2	54	5.2	30	4.0	192	9.6	42	.4	0	--	258	156	1.0	.02	477	7.6
27-202	25	May 17, 1941	--	--	16	.1	521	--	134	20	760	--	<20	--	1,390	69	--	--	--	--
203	685	--	--	--	56	18	920	--	464	2	1,300	--	<20	--	2,520	216	--	--	--	--
204	210	Aug. 22, 1941	--	--	61	15	577	--	714	2	625	--	<20	--	1,630	214	--	--	--	--
205	527	May 7, 1941	--	--	7.6	4.6	720	--	519	1	835	.3	<20	--	1,820	38	--	--	--	--
206	300	July 3, 1941	--	--	26	8.8	602	--	598	2	650	--	<20	--	1,580	100	--	--	--	--
207	214	Dec. 17, 1948	16	--	34	21	550	--	632	1.5	622	--	<20	--	1,560	172	--	--	--	--
301	220	Aug. 21, 1941	--	--	45	6.3	1,020	--	427	2	1,420	--	<20	--	2,690	139	--	--	--	--
302	650	July 3, 1941	--	--	44	16	1,070	--	421	4	1,520	.2	2.0	--	2,860	175	--	--	--	--
401	241	Dec. 17, 1948	15	--	23	13	470	--	672	5.2	408	--	1.0	--	1,260	111	--	--	2,240	--
403	18	May 27, 1941	--	--	31	3.4	55	--	43	20	110	--	<20	--	240	92	--	--	--	--
406	18	May 27, 1941	--	--	6.0	5.8	52	--	18	20	81	--	1.5	--	175	39	--	--	--	--
407	220	Nov. 16, 1966	--	--	--	--	--	--	620	--	510	--	--	--	--	108	--	8.00	2,460	8.0

See footnotes at end of table.

Table 7.--Chemical Analyses of Water From Wells in Chambers and Jefferson Counties--Continued

WELL	DEPTH OR PRODUCING INTERVAL (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)	BORON (B)	DISSOLVED SOLIDS	HARDNESS AS $CaCO_3$	SODIUM-ADSORPTION RATIO (SAR)	RESIDUAL SODIUM CARBONATE (RSC)	SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C)	pH
DH-64-27-501	735	Dec. 17, 1948	29	--	80	79	823	--	446	0.5	1,380	--	3.0	--	2,610	524	--	--	--	--
502	292	July 3, 1941	--	--	--	--	--	--	622	2	965	--	0	--	2,020	--	--	--	--	--
601	265	--	--	--	36	33	926	--	689	2	1,190	0.2	0	--	2,520	226	--	--	--	--
603	230	July 3, 1941	--	--	43	35	869	--	647	2	1,140	--	0	--	2,410	251	--	--	--	--
701	268	July 3, 1941	--	--	39	15	700	--	04	2	840	--	<20	--	1,890	159	--	--	--	--
28-101	204	Dec. 17, 1948	17	--	49	27	973	--	562	23	1,320	--	2.0	--	2,690	234	--	--	4,830	--
301	720	Aug. 23, 1951	--	--	52	22	1,320	--	360	2	1,970	.8	0	--	3,540	219	--	--	--	--
302	245	Aug. 22, 1941	--	--	62	27	939	--	647	2	1,260	--	<20	--	2,610	267	--	--	--	--
303	240	Aug. 23, 1941	--	--	80	24	1,420	--	378	2	2,180	--	<20	--	3,890	300	--	--	--	--
401	251	July 3, 1941	--	--	71	15	961	--	53	2	1,270	--	<20	--	2,640	239	--	--	--	--
402	262	July 3, 1941	--	--	80	42	959	--	653	2	1,360	--	<20	--	2,740	371	--	--	--	--
501	280	July 3, 1941	--	--	66	43	975	--	573	2	1,410	--	0	--	2,780	342	--	--	--	--
29-201	200	July 8, 1941	--	--	71	72	1,940	--	567	2	2,990	--	<20	--	5,350	475	--	--	--	--
502	1330	Aug. 23, 1966	--	--	--	--	--	--	319	--	4,690	--	--	--	--	758	--	0.00	14,000	7.3
502	1330	Aug. 23, 1966	--	--	--	--	--	--	323	--	4,710	--	--	--	--	767	--	.00	14,000	7.4
502	1330	Aug. 23, 1966	31	--	155	91	2,850	14	321	67	4,710	--	--	1.1	8,080	761	--	.00	14,000	7.5
									Jefferson County											
PT-61-54-901	21	Mar. 11, 1941	--	--	--	--	--	--	43	5	32	--	--	--	--	--	--	--	--	--
902	450	June 28, 1966	14	0.02	7.0	1.1	165	.8	280	0	112	1.4	0	.18	440	22	15	4.15	786	7.7
55-401	51	Mar. 11, 1941	--	--	21	5.1	190	--	336	2	148	--	<20	--	531	73	--	--	--	--
503	315	Mar. 11, 1941	--	--	6.9	1.8	176	--	375	1	69	.7	0	--	440	25	--	--	--	--
503	315	Jan. 10, 1945	--	--	--	--	--	--	--	--	72	--	--	--	--	--	--	--	--	--
504	600	Mar. 11, 1941	--	--	6.0	1.5	429	--	451	2	410	1.5	0	--	1,072	21	--	--	--	--
505	280	Mar. 11, 1941	--	--	4.4	2.7	160	--	348	2	58	--	<20	--	398	22	--	--	--	--
506	100	Mar. 11, 1941	--	--	6.0	1.5	203	--	336	2	130	--	1.0	--	509	21	--	--	--	--
507	180	Mar. 6, 1941	--	--	6.4	2.7	151	--	311	2	68	.6	--	--	384	27	--	--	--	--
508	320	Mar. 12, 1941	--	--	2.4	2.7	160	--	348	2	54	.8	<20	--	393	17	--	--	--	--
509	14	Mar. 12, 1941	--	--	12	3.9	242	--	409	12	160	--	<20	--	631	47	--	--	--	--
510	280	Mar. 15, 1941	--	--	2.0	1.5	181	--	354	2	80	--	<20	--	441	11	--	--	--	--

See footnotes at end of table.

Table 7.--Chemical Analyses of Water From Wells in Chambers and Jefferson Counties--Continued

WELL	DEPTH OR PRODUCING INTERVAL (FT)	DATE OF COLLECTION	SILICA (SiO_2)	IRON (Fe)	CAL-CIUM (Ca)	MAGNE-SIUM (Mg)	SODIUM (Na)	POTAS-SIUM (K)	BICAR-BONATE (HCO_3)	SUL-FATE (SO_4)	CHLO-RIDE (Cl)	FLUO-RIDE (F)	NITRATE (NO)	BORON (B)	DIS-SOLVED SOLIDS	HARD-NESS AS $CaCO_3$	SODIUM-ADSORP-TION RATIO (SAR)	RESIDUAL SODIUM CARBONATE (RSC)	SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C)	pH
PT-61-55-511	234	Mar. 13, 1941	--	--	13	2.4	188	--	403	2	84	--	<20	--	487	42	--	--	--	--
701	68	Mar. 10, 1941	--	--	--	--	--	--	384	2	24	--	--	--	--	--	--	--	--	--
702	167	June 15, 1966	15	0.76	40	5.8	228	1.7	308	.6	260	0.9	.2	0.12	703	124	8.9	2.57	1,290	7.4
703	190	June 15, 1966	--	--	--	--	--	--	280	--	34	--	--	--	--	44	--	3.71	524	7.6
705	85	June 15, 1966	29	1.33	74	11	90	1.4	460	.4	40	.5	.0	.02	472	230	2.6	2.94	797	7.0
801	70	Mar. 21, 1941	--	--	92	7.5	44	--	378	2	31	--	<20	--	363	260	--	--	--	--
802	68	Mar. 21, 1941	--	--	91	6.3	44	--	372	2	31	--	<20	--	357	254	--	--	--	--
803	63	Mar. 10, 1941	--	--	68	8.8	49	--	342	2	21	.2	<20	--	317	205	--	--	--	--
804	70	Mar. 14, 1941	--	--	42	3.9	31	--	201	3	15	.2	<20	--	194	122	--	--	--	--
805	187	Mar. 15, 1941	--	--	16	1.5	283	--	323	2	280	--	<20	--	742	46	--	--	--	--
806	275	June 24, 1966	--	--	--	--	--	--	164	--	86	--	--	--	--	180	--	.00	72	--
901	69	Mar. 17, 1941	--	--	71	5.1	41	--	281	7	35	--	<20	--	297	198	--	--	--	--
902	199	Mar. 17, 1941	--	--	48	10	230	--	262	2	315	--	1.5	--	760	161	--	--	--	--
903	72	Mar. 21, 1941	--	--	42	2.7	21	--	146	3	28	--	<20	--	169	117	--	--	--	--
e/ 56-701	650	Nov. 15, 1907	--	--	24	14	404	--	321	10	470	--	--	--	1,118	--	--	--	--	--
701	650	Mar. 28, 1941	--	--	26	1.5	428	--	342	2	510	.4	<20	--	1,136	71	--	--	--	--
702	534	Mar. 28, 1941	--	--	61	14	677	--	305	3	1,010	.5	<20	--	1,916	208	--	--	--	--
704	140	Jan. 29, 1942	--	--	122	40	161	--	433	172	202	--	0	--	910	470	--	--	--	--
61-308	96	June 10, 1941	--	--	45	3.4	284	--	317	2	342	--	<20	--	832	127	--	--	--	--
501	168	June 27, 1966	--	--	--	--	--	--	288	--	131	--	--	--	--	34	--	4.04	880	7.4
602	300	Mar. 12, 1941	--	--	12	3.9	233	--	256	2	240	--	2.4	--	619	47	--	--	--	--
801	30	Mar. 13, 1941	--	--	83	6.3	39	--	262	8	62	.4	9.4	--	337	234	--	--	--	--
803	98	May 16, 1941	--	--	128	8.3	70	--	397	12	121	.2	<20	--	534	355	--	--	--	--
804	118	May 16, 1941	--	--	76	16	187	--	464	2	198	--	<20	--	707	255	--	--	--	--
805	330	June 14, 1966	16	.35	30	6.1	378	2.0	342	.2	464	1.4	.2	.26	1,070	100	16	3.61	1,980	7.4
806	120	June 14, 1966	19	1.28	117	14	310	2.3	374	.2	510	.5	.2	.12	1,160	350	7.2	.00	2,140	7.3
901	12	June 10, 1941	--	--	13	1.0	26	--	92	4	10	--	<20	--	99	36	--	--	--	--
903	125	May 16, 1941	--	--	100	17	327	--	378	2	510	--	<20	--	1,142	320	--	--	--	--
904	176	May 17, 1941	--	--	43	11	260	--	476	2	230	--	<20	--	780	152	--	--	--	--

See footnotes at end of table.

Table 7.--Chemical Analyses of Water From Wells in Chambers and Jefferson Counties--Continued

WELL	DEPTH OR PRODUCING INTERVAL (FT)	DATE OF COLLECTION	SILICA (SiO_2)	IRON (Fe)	CAL-CIUM (Ca)	MAGNE-SIUM (Mg)	SODIUM (Na)	POTAS-SIUM (K)	BICAR-BONATE (HCO_3)	SUL-FATE (SO_4)	CHLO-RIDE (Cl)	FLUO-RIDE (F)	NITRATE (NO)	BORON (B)	DIS-SOLVED SOLIDS	HARD-NESS AS $CaCO_3$	SODIUM-ADSORP-TION RATIO (SAR)	RESIDUAL SODIUM CARBONATE (RSC)	SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C)	pH
PT-61-61-905	441	June 16, 1966	12	0.91	18	1.7	373	1.5	320	0.8	427	1.3	0.2	0.24	993	52	22	4.20	1,850	7.6
906	115	June 16, 1966	16	1.46	102	16	307	2.6	402	1.2	471	.4	.2	.16	1,110	322	7.4	.15	2,060	7.2
62-201	198	May 17, 1941	--	--	6.8	1.0	342	--	281	2	375	--	< 20	--	866	21	--	--	--	--
202	250	Mar. 11, 1941	--	--	--	--	--	--	329	3	780	--	--	--	--	--	--	--	--	--
203	26	Mar. 11, 1941	--	--	--	--	--	--	250	5	46	--	--	--	--	--	--	--	--	--
204	229	Mar. 11, 1941	--	--	--	--	--	--	336	3	795	--	--	--	--	--	--	--	--	--
205	195	June 17, 1966	--	--	--	--	--	--	356	--	642	--	--	--	--	45	--	4.93	2,540	7.5
206	72	June 17, 1966	--	--	--	--	--	--	462	--	54	--	--	--	--	222	--	3.13	838	7.4
207	240	June 16, 1966	--	--	--	--	--	--	346	--	596	--	--	--	--	48	--	4.71	2,390	7.5
302	115	June 10, 1941	--	--	82	13	148	--	458	39	117	--	< 20	--	624	258	--	--	--	--
304	17	Mar. 11, 1941	--	--	--	--	--	--	61	3	48	--	--	--	--	--	--	--	--	--
305	208	June 10, 1941	--	--	36	4.6	669	--	348	2	905	--	< 20	--	1,788	108	--	--	--	--
306	226	June 17, 1966	17	1.24	94	16	624	3.0	360	2.8	986	--	.2	.26	1,920	300	16	.00	3,580	7.2
309	200	June 27, 1966	--	--	--	--	--	--	332	--	178	--	--	--	--	168	--	2.08	1,060	7.4
402	72	June 10, 1941	--	--	81	11	54	--	451	2	30	--	< 20	--	400	297	--	--	--	--
403	204	June 10, 1941	--	--	14	5.8	294	--	354	2	288	--	< 20	--	778	59	--	--	--	--
404	11	Mar. 11, 1941	--	--	--	--	--	--	37	12	158	--	--	--	--	--	--	--	--	--
405	225	June 10, 1941	--	--	20	5.8	286	--	378	2	272	.3	< 20	--	772	74	--	--	--	--
406	142	Apr. 11, 1941	--	--	41	5.1	196	--	421	8	139	.2	< 20	--	596	123	--	--	--	--
407	246	May 16, 1941	--	--	23	3.4	308	--	366	2	312	--	< 20	--	828	72	--	--	--	--
409	206	Apr. 11, 1941	--	--	25	4.9	307	--	323	2	342	--	20	--	840	83	--	--	--	--
410	260	June 16, 1966	17	.26	18	2.4	326	1.2	378	.2	332	1.2	.2	.22	884	55	19	5.10	1,620	7.7
413	232	June 27, 1966	16	.05	12	2.2	271	1.1	362	0	246	1.0	.8	.26	729	39	19	5.15	1,320	7.4
502	14	June 10, 1941	--	--	118	13	216	--	488	74	242	.2	< 20	--	903	348	--	--	--	--
503	16	June 10, 1941	--	--	138	21	296	--	281	249	400	.1	28	--	1,270	433	--	--	--	--
504	19	June 10, 1941	--	--	70	14	161	--	561	8	82	--	< 20	--	611	234	--	--	--	--
505	252	Apr. 3, 1941	--	--	20	2.7	325	--	378	1	325	--	< 20	--	860	62	--	--	--	--
507	102	June 22, 1966	25	.11	40	8.3	254	1.7	542	28	149	.4	.2	.25	774	134	9.6	6.20	1,300	7.2
601	150	June 10, 1941	--	--	124	22	914	--	281	2	1,520	.6	0	--	2,720	398	--	--	--	--

See footnotes at end of table.

Table 7.--Chemical Analyses of Water From Wells in Chambers and Jefferson Counties--Continued

WELL	DEPTH OR PRODUCING INTERVAL (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)	BORON (B)	DISSOLVED SOLIDS	HARDNESS AS $CaCO_3$	SODIUM-ADSORPTION RATIO (SAR)	RESIDUAL SODIUM CARBONATE (RSC)	SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C)	pH
PT-61-62-602	17	Apr. 3, 1941	--	--	154	16	115	--	470	25	205	--	< 20	--	746	450	--	--	--	--
603	23	Apr. 3, 1941	--	--	229	12	67	--	378	18	240	--	125	--	877	623	--	--	--	--
604	164	June 17, 1966	--	--	--	--	--	--	468	--	61	--	--	--	--	226	--	3.15	877	7.4
701	19	Mar. 28, 1941	--	--	129	15	294	--	525	202	270	0.4	1.5	--	1,170	384	--	--	--	--
704	120	Mar. 28, 1941	--	--	179	27	521	--	354	66	942	.3	1.6	--	1,911	557	--	--	--	--
705	15	June 10, 1941	--	--	64	7.1	97	--	409	2	45	--	< 20	--	416	189	--	--	--	--
706	350	June 16, 1966	17	0.72	72	22	516	2.9	452	.8	726	.6	.2	0.18	1,580	268	14	2.05	2,890	7.3
901	7	Aug. 27, 1941	--	--	97	5.1	25	--	153	23	94	--	45	--	364	263	--	--	--	--
902	200	June 16, 1966	--	--	--	--	--	--	356	--	1,140	--	--	--	--	330	--	.00	3,980	7.2
903	25	June 16, 1966	--	--	--	--	--	--	320	--	81	--	4.9	--	--	288	--	.00	858	7.3
63-101	100	Mar. 14, 1941	--	--	88	10	109	--	445	2	93	--	< 20	--	521	261	--	--	--	--
102	120	Mar. 14, 1941	--	--	16	8.8	152	--	366	2	73	--	< 20	--	432	75	--	--	--	--
102	120	June 20, 1966	--	--	--	--	--	--	468	--	89	--	--	--	--	116	--	5.35	955	7.7
202	24	Mar. 14, 1941	--	--	100	10	27	--	305	4	68	0	< 20	--	359	291	--	--	--	--
203	65	June 10, 1941	--	--	91	9.5	69	--	445	4	33	--	< 20	--	426	266	--	--	--	--
204	265	June 10, 1941	--	--	34	8.3	194	--	488	8	94	.3	< 20	--	578	120	--	--	--	--
205	14	Mar. 10, 1941	--	--	--	--	--	--	275	47	350	--	--	--	--	--	--	--	--	--
206	200	June 22, 1966	--	--	--	--	--	--	482	--	126	--	--	--	--	68	--	6.54	1,100	7.7
207	69	June 24, 1966	--	--	--	--	--	--	180	--	60	--	--	--	--	160	--	.00	472	6.9
301	68	Mar. 17, 1941	--	--	--	--	--	--	287	4	22	--	< 20	--	--	--	--	--	--	--
302	67	Apr. 11, 1941	--	--	68	7.5	70	--	384	5	23	--	< 20	--	363	200	--	--	--	--
303	33	Mar. 21, 1941	--	--	220	37	296	--	415	816	109	.5	< 20	--	1,683	703	--	--	--	--
306	65	Mar. 19, 1941	--	--	23	5.1	19	--	37	29	41	--	< 20	--	135	78	--	--	--	--
307	157	Mar. 19, 1941	--	--	89	23	304	--	451	124	340	--	< 20	--	1,102	319	--	--	--	--
401	17	Mar. 20, 1941	--	--	34	18	139	--	378	66	60	--	< 20	--	503	161	--	--	--	--
402	70	Apr. 3, 1941	--	--	74	11	75	--	415	14	28	--	< 20	--	406	232	--	--	--	--
403	28	Mar. 24, 1941	--	---	49	14	49	--	61	36	117	--	103	--	418	228	--	--	--	--
404	115	Mar. 20, 1941	--	--	88	10	42	--	354	3	42	.4	< 20	--	359	261	--	--	--	--
404	115	June 20, 1966	--	--	--	--	--	--	444	--	46	--	--	--	--	336	--	.56	783	7.6

See footnotes at end of table.

Table 7.--Chemical Analyses of Water From Wells in Chambers and Jefferson Counties--Continued

WELL	DEPTH OR PRODUCING INTERVAL (FT)	DATE OF COLLECTION	SILICA (SiO_2)	IRON (Fe)	CAL-CIUM (Ca)	MAGNE-SIUM (Mg)	SODIUM (Na)	POTAS-SIUM (K)	BICAR-BONATE (HCO_3)	SUL-FATE (SO_4)	CHLO-RIDE (Cl)	FLUO-RIDE (F)	NITRATE (NO)	BORON (B)	DIS-SOLVED SOLIDS	HARD-NESS AS $CaCO_3$	SODIUM-ADSORP-TION RATIO (SAR)	RESIDUAL SODIUM CARBONATE (RSC)	SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C)	pH
PT-61-63-405	105	June 23, 1966	--	--	--	--	--	--	540	--	173	--	--	--	--	247	--	3.91	1,370	7.3
406	155	June 23, 1966	--	--	--	--	--	--	568	--	290	--	--	--	--	132	--	6.67	1,780	7.6
501	65	Mar. 20, 1941	--	--	70	10	127	--	506	8	48	--	< 20	--	512	216	--	--	--	--
502	130	Mar. 13, 1941	--	--	94	16	80	--	439	5	77	0.2	< 20	--	488	300	--	1.56	--	--
502	130	June 20, 1966	--	--	--	--	--	--	464	--	75	--	--	--	--	302	--	1.56	908	7.2
503	234	Mar. 20, 1941	--	--	47	12	321	--	427	2	365	.1	0	--	957	168	--	--	--	--
504	80	Mar. 13, 1941	--	--	77	14	76	--	409	8	50	--	< 20	--	426	248	--	--	--	--
505	79	Mar. 20, 1941	--	--	101	21	112	--	470	101	64	.2	< 20	--	630	338	--	--	--	--
506	115	Mar. 20, 1941	--	--	55	14	298	--	506	113	218	--	< 20	--	947	193	--	--	--	--
507	130	Mar. 20, 1941	--	--	72	15	244	--	390	156	202	--	2.8	--	884	239	--	--	--	--
508	129	Mar. 20, 1941	--	--	56	10	181	--	464	3	135	--	0	--	613	181	--	--	--	--
601	62	Apr. 3, 1941	--	--	59	12	162	--	403	66	107	--	< 20	--	604	198	--	--	--	--
701	21	Mar. 24, 1941	--	--	125	12	66	--	439	20	86	--	4.5	--	530	363	--	--	--	--
702	18	Mar. 28, 1941	--	--	21	5.4	142	--	366	20	44	--	< 20	--	412	74	--	--	--	--
703	16	June 23, 1966	--	--	--	--	--	--	21	--	13	--	--	--	--	22	--	.00	115	6.1
704	24	June 24, 1966	--	--	--	--	--	--	380	--	742	--	--	--	--	898	--	.00	2,920	7.3
801	20	Mar. 24, 1941	--	--	370	43	305	--	390	62	880	--	171	--	2,023	1,100	--	--	--	--
802	242	Mar. 24, 1941	--	--	65	22	247	--	159	323	230	.3	1.0	--	966	254	--	--	--	--
803	24	Apr. 1, 1941	--	--	148	16	109	--	378	43	225	--	< 20	--	727	435	--	--	--	--
804	130	June 23, 1966	--	--	--	--	--	--	532	--	505	--	--	--	--	270	--	3.32	2,480	7.6
805	30	June 24, 1966	--	--	--	--	--	--	624	--	114	--	--	--	--	143	--	7.37	1,320	7.6
901	58	Apr. 1, 1941	--	--	69	15	363	--	488	113	358	--	< 20	--	1,158	234	--	--	--	--
902	20	Apr. 1, 1941	--	--	76	17	138	--	299	124	132	--	.5	--	635	261	--	--	--	--
903	45	Mar. 24, 1941	--	--	105	14	82	--	470	25	61	--	< 20	--	518	318	--	--	--	--
64-103	240	Mar. 28, 1941	--	--	72	7.5	1,069	--	214	2	1,670	.5	< 20	--	2,930	210	--	--	--	--
104	9	Feb. 28, 1942	--	--	72	16	46	--	98	90	90	--	54	--	416	245	--	--	--	--
402	78	Mar. 13, 1941	--	--	52	18	166	--	311	93	152	--	< 20	--	634	206	--	--	--	--
404	540	Oct. 7, 1966	12	0.42	82	20	1,360	2.6	282	18	2,120	.6	1.0	--	3,760	287	35	.00	6,760	7.1
501	620	Sept. 23, 1941	--	--	64	30	1,660	--	286	2	2,590	.2	--	--	4,510	283	--	--	--	--

See footnotes at end of table.

WELL	DEPTH OR PRODUCING INTERVAL (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)	BORON (B)	DISSOLVED SOLIDS	HARDNESS AS $CaCO_3$	SODIUM-ADSORPTION RATIO (SAR)	RESIDUAL SODIUM CARBONATE (RSC)	SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C)	pH
PT-61-64-502	435	Mar. 22, 1966	23	0.05c/	24	5.6	560	2.1	338	0.0	736	1.1	0.5	--	1,520	83	27	3.88	2,770	7.1
504	641	Mar. 7, 1941	--	--	--	--	--	--	332	2	2,260	--	--	--	--	273	--	--	--	--
f/ 511	600	Dec. 2, 1939	--	--	75	24	1,400	--	317	--	2,180	--	--	--	4,300	288	--	--	--	--
b/ 513	465	Feb. 14, 1964	18	.69	90	28	1,361	--	278	11	2,170	--	--	--	3,959	340	--	--	6,735	7.2
701	45	May 22, 1941	--	--	52	13	142	--	482	12	60	--	< 20	--	516	183	--	--	--	--
702	77	May 22, 1941	--	--	143	41	659	--	415	23	1,130	.2	0	--	2,200	525	--	--	--	--
703	60	Jan. 29, 1942	--	--	92	26	97	--	476	49	75	--	1.0	--	574	336	--	--	--	--
705	159	May 22, 1941	--	--	133	28	845	--	427	2	1,370	--	< 20	--	2,590	447	--	--	--	--
705	159	Sept. 9, 1966	--	--	--	--	--	--	466	--	277	--	--	--	--	725	--	.00	1,950	6.9
801	27	Apr. 15, 1941	--	--	72	16	76	--	92	10	203	--	47	--	468	245	--	--	--	--
802	22	Jan. 29, 1941	--	--	123	11	40	--	427	10	50	--	11	--	455	352	--	--	--	--
805	115	May 16, 1966	--	--	--	--	--	--	463	22	275	--	--	--	--	252	--	2.55	1,620	7.2
b/ 901	462- 525	Sept. 10, 1962	23	.14	6	1	257	--	307	0	230	--	--	--	824	18	--	--	1,130	8.3
901	540	May 16, 1966	27	--	8.5	2.4	380	1.6	313	4	425	1.4	.8	0.34	1,010	31	30	4.51	1,860	7.3
b/ 902	500- 530	Oct. 5, 1962	25	.07	4.5	1	275	--	305	0	258	--	--	--	869	17	--	--	1,285	8.2
b/ 903	590	Dec. 2, 1964	24	.08	5	2	275	--	298	0	265	--	--	--	870	19	--	--	1,290	7.8
903	590	May 16, 1966	15	--	7.8	2.4	356	1.4	305	.6	392	1.4	.8	.31	928	30	28	4.41	1,720	7.3
b/ 904	720- 740	Nov. 3, 1964	22	1.24	105	33	1,933	--	325	0	3,075	--	--	--	5,495	400	--	--	9,500	8.1
b/ 904	590	Nov. 13, 1964	24	.07	6	1	285	--	304	0	277	--	--	--	897	19	--	--	1,340	8.0
g/ 62-57-704	602	Jan. 1938	--	--	--	--	--	--	--	--	246	--	--	--	657	95	--	--	--	--
705	575	May 17, 1966	36	--	5.7	1.9	202	1.2	253	.4	182	.9	.2	.18	554	22	19	3.71	981	7.5
g/ 706	518	Jan. 1938	--	--	--	--	--	--	--	0	1,030	--	--	--	1,904	209	--	--	--	--
g/ 707	606	Jan. 1938	--	--	--	--	--	--	--	--	897	--	--	--	2,670	300	--	--	--	--
708	774	Mar. 10, 1941	--	--	--	--	--	--	275	2	980	--	--	--	--	117	--	--	--	--
708	774	Jan. 10, 1945	--	--	--	--	--	--	257	2	1,100	--	--	--	--	--	--	--	--	--
709	605	Mar. 11, 1941	--	--	--	--	--	--	378	4	255	--	--	--	--	22	--	--	--	--
712	600	Mar. 7, 1941	--	--	--	--	--	--	313	2	96	--	--	--	--	20	--	--	--	--
712	600	Jan. 9, 1945	--	--	--	--	--	--	--	--	352	--	--	--	--	--	--	--	--	--
63-01-101	30	Apr. 14, 1941	--	--	--	--	--	--	397	8	142	--	< 20	--	--	--	--	--	--	--

See footnotes at end of table.

Table 7.--Chemical Analyses of Water From Wells in Chambers and Jefferson Counties--Continued

WELL	DEPTH OR PRODUCING INTERVAL (FT)	DATE OF COLLECTION	SILICA (SiO_2)	IRON (Fe)	CAL-CIUM (Ca)	MAGNE-SIUM (Mg)	SODIUM (Na)	POTAS-SIUM (K)	BICAR-BONATE (HCO_3)	SUL-FATE (SO_4)	CHLO-RIDE (Cl)	FLUO-RIDE (F)	NITRATE (NO)	BORON (B)	DIS-SOLVED SOLIDS	HARD-NESS AS $CaCO_3$	SODIUM-ADSORP-TION RATIO (SAR)	RESIDUAL SODIUM CARBONATE (RSC)	SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C)	pH
PT-63-01-104	510	Jan. 10, 1945	26	0.01	4.5	1.5	269	5.1	265	2	261	1.2	2.8	--	721	17	--	--	137	7.8
105	510	Mar. 7, 1941	--	--	--	--	--	--	291	2	320	--	--	--	--	28	--	--	--	--
105	510	Jan. 10, 1945	25	.10	8.2	2.8	328	7.0	273	2	372	1.0	1.5	--	885	32	--	--	172	7.6
107	530	May 17, 1966	34	--	20	6.2	431	2.2	255	.4	580	.7	1.0	0.25	1,200	76	22	2.67	2,260	7.2
108	511	Jan. 9, 1945	--	--	--	--	--	--	238	2	230	--	--	--	--	--	--	--	--	--
108	511	May 17, 1966	32	--	4.8	1.5	261	1.1	246	.4	280	.8	.5	.21	703	18	27	3.67	1,300	7.4
201	546	June 28, 1960	27	.15	3.6	1.4	234	1.2	277		213	1.1	.2	.25	619	15	26	--	1,100	7.4
203	656	Sept. 23, 1941	--	--	30	10	584	--	256	2	830	1.0	< 20	--	1,583	116	--	--	--	--
203	656	Jan. 10, 1945	--	--	--	--	--	--	--	--	850	--	--	--	--	--	--	--	--	--
206	644	Mar. 10, 1941	--	--	--	--	--	--	285	2	235	--	--	--	--	38	--	--	--	--
207	60	Mar. 29, 1941	--	--	111	12	26	--	366	6	55	.4	< 20	--	390	328	--	--	--	--
208	681	Sept. 23, 1941	--	--	35	12	503	--	262	2	720	--	< 20	--	1,401	138	--	--	--	--
208	681	Jan. 15, 1945	--	--	--	--	--	--	259	2	970	--	--	--	--	--	--	--	--	--
301	1000	Mar. 13, 1941	--	--	--	--	--	--	339	2	850	--	--	--	--	88	--	--	--	--
301	1000	Jan. 10, 1945	--	--	--	--	--	--	--	--	860	--	--	--	--	--	--	--	--	--
302	549	Mar. 13, 1941	--	--	--	--	--	--	369	2	141	--	--	--	--	26	--	--	--	--
302	549	Jan. 10, 1945	--	--	--	--	--	--	--	--	145	--	--	--	--	--	--	--	--	--
302	549	May 17, 1966	17	--	4.3	1.4	215	1.0	348	1.8	150	1.6	.5	.37	564	16	23	5.37	1,010	7.4
303	822	Mar. 13, 1941	--	--	--	--	--	--	323	2	1,340	--	--	--	--	159	--	--	--	--
303	822	Jan. 10, 1945	--	--	--	--	--	--	--	--	1,470	--	--	--	--	--	--	--	--	--
304	20	Feb. 13, 1941	--	--	--	--	--	--	384	25	202	--	--	--	--	390	--	--	--	--
402	24	Apr. 14, 1941	--	--	75	48	79	--	397	8	142	--	< 20	--	559	--	--	--	--	--
501	22	Mar. 22, 1941	--	--	69	15	79	--	305	23	89	.4	6.6	--	432	234	--	--	--	--
b/ 505	196	Jan. 25, 1964	11	.68	26	9	630	--	393	0	815	--	--	--	1,886	101	--	--	3,090	8.5
505	196	Sept. 20, 1966	5.3	.13c/	23	8.1	625	1.6	372	1.2	820	.8	.5	--	1,670	91	28	4.28	3,130	7.2
606	814	Sept. 8, 1966	28	.02	49	18	1,180	4.3	314	14	1,720	1.0	2.0	--	3,170	196	35	1.22	5,710	7.2
703	935	July 16, 1941	--	--	--	--	--	--	294	2	3,950	--	--	--	--	417	--	--	--	--
09-101	950	Mar. 24, 1941	--	--	223	125	3,860	--	281	2	6,550	--	< 20	--	10,900	1,070	--	--	--	--
102	946	Mar. 24, 1941	--	--	254	144	4,330	--	250	2	7,400	.4	< 20	--	12,300	1,230	--	--	--	--

See footnotes at end of table.

Table 7.--Chemical Analyses of Water From Wells in Chambers and Jefferson Counties--Continued

WELL	DEPTH OR PRODUCING INTERVAL (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)	BORON (B)	DISSOLVED SOLIDS	HARDNESS AS $CaCO_3$	SODIUM-ADSORPTION RATIO (SAR)	RESIDUAL SODIUM CARBONATE (RSC)	SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C)	pH
PT-63-09-103	965	Mar. 25, 1941	--	--	118	28	1,940	--	323	3	3,100	0.4	<20	--	15,350	413	--	--	--	--
103	965	Jan. 10, 1945	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
201	1000	Feb. 13, 1941	--	--	--	--	--	--	325	2	1,780	--	--	--	--	153	--	--	--	--
17-201	11	Feb. 13, 1941	--	--	--	--	--	--	--	48	138	--	--	--	--	300	--	--	--	--
202	14	Apr. 9, 1941	--	--	60	7.5	46	--	189	27	68	--	<20	--	302	180	--	--	--	--
301	7	Feb. 13, 1941	--	--	--	--	--	--	--	60	143	--	--	--	--	240	--	--	--	--
302	13	May 31, 1966	25	0.00c/	67	22	62	9.7	330	37	91	0.1	.5	0.07	--	258	1.7	0.26	52	6.9
502	13	Mar. 8, 1941	--	--	--	--	--	--	342	135	96	--	--	--	--	--	--	--	--	--
503	13	Mar. 8, 1941	--	--	--	--	--	--	268	72	125	--	--	--	--	--	--	--	--	--
504	119	May 22, 1941	--	--	--	--	--	--	--	--	5,220	--	--	--	--	--	--	--	--	--
18-101	1065	June 6, 1941	--	--	364	192	5,230	--	287	2	9,100	.2	< 20	--	15,000	1,700	--	--	--	--
64-05-201	150	June 21, 1966	--	--	--	--	--	--	358	--	178	--	--	--	--	246	--	.95	1,120	7.2
301	176	Mar. 13, 1941	--	--	31	6.3	285	--	397	2	280	--	3.0	--	802	104	--	--	--	--
302	20	June 10, 1941	--	--	63	12	321	--	378	2	420	--	< 20	--	1,004	207	--	--	--	--
303	30	Mar. 13, 1941	--	--	112	18	274	--	433	78	365	--	< 20	--	1,060	356	--	--	--	--
304	125	June 24, 1966	--	--	--	--	--	--	386	--	335	--	--	--	--	184	--	2.65	1,630	7.5
501	413	June 21, 1966	20	.06	7.5	2.1	282	1.0	412	0	216	1.7	1.2	.30	735	27	24	6.21	1,300	7.7
601	150	Mar. 13, 1941	--	--	133	22	306	--	476	327	255	.2	< 20	--	1,277	424	--	--	--	--
602	150	Jan. 28, 1942	--	--	46	9.7	173	--	323	2	188	--	.5	--	578	156	--	--	--	--
901	135	Aug. 27, 1941	--	--	50	5.1	32	--	226	2	18	.4	< 20	--	218	145	--	--	--	--
902	150	Aug. 27, 1941	--	--	34	10	171	--	384	2	128	--	< 20	--	534	126	--	--	--	--
903	260	June 21, 1966	19	.32	39	5.0	181	1.9	408	0	130	.4	0	.23	578	118	7.2	4.33	1,000	7.4
904	80	June 28, 1966	--	--	--	--	--	--	328	--	53	--	--	--	--	146	--	2.46	654	7.4
06-101	260	June 10, 1941	--	--	--	--	--	--	354	2	490	--	< 20	--	--	--	--	--	--	--
102	20	Mar. 28, 1941	--	--	92	20	--	--	262	29	410	--	2.0	--	918	312	--	--	--	--
401	255	Jan. 28, 1942	--	--	38	9.7	272	--	445	2	255	--	.5	--	796	136	--	--	--	--
402	135	Aug. 27, 1941	--	--	57	6.3	285	--	390	3	330	--	< 20	--	873	169	--	--	--	--
403	150	Aug. 27, 1941	--	--	62	11	272	--	439	31	285	.2	< 20	--	877	202	--	--	--	--
404	20	Mar. 28, 1941	--	--	67	14	254	--	451	50	250	--	< 20	--	857	223	--	--	--	--

See footnotes at end of table.

Table 7.--Chemical Analyses of Water From Wells in Chambers and Jefferson Counties--Continued

WELL	DEPTH OR PRODUCING INTERVAL (FT)	DATE OF COLLECTION	SILICA (SiO_2)	IRON (Fe)	CAL-CIUM (Ca)	MAGNE-SIUM (Mg)	SODIUM (Na)	POTAS-SIUM (K)	BICAR-BONATE (HCO_3)	SUL-FATE (SO_4)	CHLO-RIDE (Cl)	FLUO-RIDE (F)	NITRATE (NO)	BORON (B)	DIS-SOLVED SOLIDS	HARD-NESS AS $CaCO_3$	SODIUM-ADSORP-TION RATIO (SAR)	RESIDUAL SODIUM CARBONATE (RSC)	SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C)	pH
PT-64-06-501	96	Aug. 27, 1941	--	--	40	10	437	--	409	2	535	--	< 20	--	1,225	141	--	--	--	--
502	160	Aug. 27, 1941	--	--	57	5.1	259	--	470	5	238	--	< 20	--	795	163	--	--	--	--
601	15	Aug. 27, 1941	--	--	87	12	90	--	360	73	66	0.2	< 20	--	505	268	--	--	--	--
602	14	Aug. 27, 1941	--	--	190	37	88	--	372	253	164	.2	24	--	939	628	--	--	--	--
603	159	May 21, 1941	--	--	92	14	834	--	299	3	1,320	--	< 20	--	2,405	289	--	--	--	--
604	208	May 22, 1941	--	--	89	17	702	--	415	2	1,040	--	< 20	--	2,059	290	--	--	--	--
605	113	June 1, 1966	--	--	--	--	--	--	368	--	892	--	--	--	--	156	--	2.91	3,340	7.0
606	200	June 28, 1966	--	--	--	--	--	--	324	--	1,530	--	--	--	--	226	--	.79	4,960	7.3
607	160	June 28, 1966	--	--	--	--	--	--	320	--	1,430	--	--	--	--	234	--	.56	4,880	7.3
701	223	Apr. 11, 1941	--	--	--	--	--	--	421	2	138	--	< 20	--	--	--	--	--	--	--
702	227	May 13, 1941	--	--	12	3.2	221	--	445	2	109	--	1.0	--	567	42	--	--	--	--
702	227	June 21, 1966	--	--	--	--	--	--	428	--	91	--	--	--	--	54	--	5.93	902	7.7
703	600	June 21, 1966	31	0.18	27	9.1	872	3.0	440	4.8	1,140	--	1.5	0.58	2,300	105	37	5.11	4,130	7.3
704	180	June 22, 1966	19	.21	26	4.9	185	1.9	400	0	117	.3	0	.23	551	85	8.7	4.86	947	7.5
801	223	Apr. 11, 1941	--	--	28	8.8	225	--	464	2	150	.3	< 20	--	642	105	--	--	--	--
901	119	May 22, 1941	--	--	65	9.5	644	--	342	2	935	--	< 20	--	1,824	201	--	--	--	--
902	400	May 19, 1941	--	--	23	8.0	409	--	476	2	415	.5	< 20	--	1,092	90	--	--	--	--
903	67	Apr. 10, 1941	--	--	35	6.3	467	--	445	2	540	.5	< 20	--	1,270	114	--	--	--	--
07-101	33	Apr. 1, 1941	--	--	50	7.5	265	--	616	27	140	--	< 20	--	793	155	--	--	--	--
102	25	Apr. 2, 1941	--	--	39	5.1	45	--	165	4	54	--	< 20	--	228	118	--	--	--	--
103	45	Apr. 2, 1941	--	--	80	10	117	--	427	51	66	--	< 20	--	534	241	--	--	--	--
105	29	Sept. 13, 1966	--	--	--	--	--	--	416	--	238	--	--	--	--	575	--	.00	1,440	7.2
201	18	Aug. 22, 1941	--	--	74	7.5	40	--	244	18	59	--	< 20	--	319	215	--	--	--	--
202	18	Apr. 1, 1941	--	--	81	5.1	98	--	415	13	58	--	< 20	--	459	223	--	--	--	--
205	142	Sept. 13, 1966	--	--	--	--	--	--	372	--	940	--	--	--	--	264	--	.82	3,380	7.7
206	126	Sept. 13, 1966	--	--	--	--	--	--	372	--	910	--	--	--	--	266	--	.78	3,290	7.4
207	155	Sept. 14, 1966	--	--	--	--	--	--	452	--	850	--	--	--	--	262	--	2.17	3,270	7.5
208	80	Sept. 14, 1966	20	--	98	21	436	4.7	452	89	598	.4	.2	--	1,490	331	10	.79	2,650	7.3
209	150	Sept. 14, 1966	--	--	--	--	--	--	452	--	1,020	--	--	--	--	324	--	.93	3,770	7.8

See footnotes at end of table.

Table 7.--Chemical Analyses of Water From Wells in Chambers and Jefferson Counties--Continued

WELL	DEPTH OR PRODUCING INTERVAL (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)	BORON (B)	DISSOLVED SOLIDS	HARDNESS AS $CaCO_3$	SODIUM-ADSORPTION RATIO (SAR)	RESIDUAL SODIUM CARBONATE (RSC)	SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C)	pH
PT-64-07-301	110	Apr. 1, 1941	--	--	83	6.3	46	--	305	2	58	--	< 20	--	345	233	--	--	--	--
305	31	Sept. 9, 1966	31	0.00	130	5.7	40	1.1	332	5.8	114	0.3	7.1	--	498	348	0.9	0.00	890	7.1
306	75	Sept. 29, 1966	--	--	--	--	--	--	352	--	1,300	--	--	--	--	290	--	.00	4,420	7.0
307	150	Sept. 29, 1966	--	--	--	--	--	--	366	--	1,250	--	--	--	--	282	--	.36	4,380	7.1
308	35	Sept. 29, 1966	26	.04c/	184	46	196	3.1	446	197	370	.5	.5	--	1,240	648	3.4	.00	2,120	6.7
405	155	Sept. 14, 1966	--	--	--	--	--	--	324	--	1,360	--	--	--	--	288	--	.00	4,530	7.7
502	37	Aug. 22, 1941	--	--	117	38	333	--	519	88	465	.4	< 20	--	1,296	449	--	--	--	--
601	100	May 12, 1941	--	--	83	19	743	--	329	8	1,150	--	2.5	--	2,168	287	--	--	--	--
605	65	Sept. 9, 1966	--	--	--	--	--	--	492	--	1,040	--	--	--	--	464	--	.00	3,920	7.0
701	103	Mar. 27, 1941	--	--	60	8.8	183	--	476	25	118	--	< 20	--	629	185	--	--	--	--
702	65	Mar. 27, 1941	--	--	25	5.1	101	--	311	2	33	--	< 20	--	319	83	--	--	--	--
702	65	Sept. 15, 1966	--	--	--	--	--	--	328	--	41	--	--	--	--	220	--	.98	631	7.3
703	18	Mar. 27, 1941	--	--	21	6.3	87	--	195	8	71	--	< 20	--	289	79	--	--	--	--
703	18	Sept. 16, 1966	--	--	--	--	--	--	230	--	50	--	--	--	--	172	--	.33	551	7.0
705	31	Sept. 16, 1966	--	--	--	--	--	--	494	--	127	--	--	--	--	252	--	3.06	1,220	7.3
801	15	Mar. 22, 1941	--	--	109	5.1	20	--	159	8	130	--	67	--	640	295	--	--	--	--
801	15	Sept. 15, 1966	--	--	--	--	--	--	208	--	29	--	--	--	--	126	--	.29	427	7.3
802	16	Mar. 27, 1941	--	--	50	7.5	30	--	116	12	73	--	12	--	242	155	--	--	--	--
803	63	Mar. 22, 1941	--	--	56	3.9	62	--	287	2	36	--	4.7	--	306	157	--	--	--	--
805	70	Sept. 15, 1966	23	--	56	2.8	61	1.7	294	.2	35	.3	.0	--	325	151	2.2	1.80	556	7.1
902	80	Mar. 22, 1941	--	--	67	5.1	38	--	262	2	38	--	< 20	--	279	188	--	--	--	--
902	80	Sept. 15, 1966	--	--	--	--	--	--	308	--	55	--	--	--	--	180	--	1.45	638	7.3
903	18	Mar. 22, 1941	--	--	109	5.1	20	--	159	8	130	--	18	--	368	293	--	--	--	--
903	18	Sept. 9, 1966	--	--	--	--	--	--	200	--	85	--	--	--	--	276	--	.00	644	6.7
905	29	Sept. 15, 1966	25	--	108	12	29	.3	300	11	88	.4	.0	--	422	319	.7	.00	764	7.1
906	22	Sept. 16, 1966	--	--	--	--	--	--	402	--	152	--	--	--	--	360	--	.00	1,100	7.3
907	22	Aug. 19, 1966	38	--	26	6.3	81	1.7	224	.6	62	.4	.2	--	327	92	3.7	1.83	551	6.8
08-101	18	May 23, 1941	--	--	84	24	237	--	525	156	165	--	< 20	--	924	310	--	--	--	--
301	18	Apr. 15, 1941	--	--	84	16	77	--	134	7	230	--	< 20	--	480	275	--	--	--	--

See footnotes at end of table.

Table 7.--Chemical Analyses of Water From Wells in Chambers and Jefferson Counties--Continued

WELL	DEPTH OR PRODUCING INTERVAL (FT)	DATE OF COLLECTION	SILICA (SiO_2)	IRON (Fe)	CAL-CIUM (Ca)	MAGNE-SIUM (Mg)	SODIUM (Na)	POTAS-SIUM (K)	BICAR-BONATE (HCO_3)	SUL-FATE (SO_4)	CHLO-RIDE (Cl)	FLUO-RIDE (F)	NITRATE (NO)	BORON (B)	DIS-SOLVED SOLIDS	HARD-NESS AS $CaCO_3$	SODIUM-ADSORP-TION RATIO (SAR)	RESIDUAL SODIUM CARBONATE (RSC)	SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C)	pH
PT-64-08-302	32	Apr. 14, 1941	--	--	103	14	68	--	403	3	79	--	19	--	484	313	--	--	--	--
303	531	Mar. 7, 1941	--	--	--	--	--	--	313	2	96	--	--	--	--	20	--	--	--	--
303	531	Jan. 9, 1945	--	--	--	--	--	--	278	2	143	--	--	--	--	--	--	--	--	--
305	36	Sept. 9, 1966	--	--	--	--	--	--	448	--	43	--	--	--	--	290	--	1.54	807	6.9
401	64	Mar. 26, 1941	--	--	74	44	344	--	573	78	400	--	< 20	--	1,222	367	--	--	--	--
402	25	Mar. 26, 1941	--	--	93	23	52	--	323	27	103	--	5.0	--	462	329	--	--	--	--
403	27	Aug. 26, 1966	26	--	112	20	27	0.7	348	41	38	0.7	46	--	482	362	0.6	.00	795	7.0
404	229	Aug. 26, 1966	15	--	128	42	1,030	3.7	418	12	1,700	--	1.0	--	3,140	492	20	.00	5,710	7.2
501	18	Apr. 8, 1941	--	--	126	17	71	--	476	15	96	--	< 20	--	559	386	--	--	--	--
505	25	Sept. 9, 1966	--	--	--	--	--	--	464	--	137	--	--	--	--	222	--	3.16	1,240	6.9
601	18	Apr. 8, 1941	--	--	436	206	1,290	--	512	1,283	2,110	0	--	--	5,570	1,940	--	--	--	--
701	24	Mar. 26, 1941	--	--	68	7.5	115	--	384	3	94	--	< 20	--	477	200	--	--	--	--
705	25	Sept. 9, 1966	--	--	--	--	--	--	374	--	106	--	--	--	--	265	--	.83	920	7.1
801	20	Apr. 8, 1941	--	--	42	27	73	--	18	12	200	.2	81	--	244	217	--	--	--	--
901	22	Apr. 8, 1941	--	--	115	47	478	--	726	202	505	.3	< 20	--	1,704	479	--	--	--	--
902	27	Apr. 8, 1941	--	--	74	18	280	--	281	126	360	--	< 20	--	996	261	--	--	--	--
14-101	215	Sept. 16, 1966	--	--	--	--	--	--	394	--	100	--	--	--	--	92	--	4.62	897	7.6
103	18	Apr. 11, 1941	--	--	14	20	54	--	24	7	74	--	127	--	308	117	--	--	--	--
105	10	Aug. 27, 1941	--	--	137	47	351	--	323	634	260	--	8.0	--	1,596	534	--	--	--	--
201	232	Mar. 31, 1941	--	--	18	7.5	245	--	506	3	135	--	< 20	--	658	75	--	--	--	--
202	24	Apr. 11, 1941	--	--	--	--	--	--	427	4	128	--	< 20	--	--	120	--	--	--	--
203	228	May 23, 1941	--	--	38	5.8	47	--	232	2	20	.6	< 20	--	227	120	--	--	--	--
204	306	May 21, 1941	--	--	15	3.4	433	--	573	2	370	--	< 20	--	1,105	52	--	--	--	--
205	230	Feb. 28, 1966	18	0.21	18	3.4	235	1.9	488	0	128	.4	.2	0.29	645	59	13	6.82	1,200	7.7
207	28	Mar. 31, 1941	--	--	276	67	178	--	366	731	178	.4	50	--	1,660	967	--	--	--	--
301	65	Mar. 27, 1941	--	--	42	7.5	463	--	427	2	560	--	< 20	--	1,285	135	--	--	--	--
302	20	Mar. 31, 1941	--	--	95	22	171	--	445	204	52	--	8.2	--	812	329	--	--	--	--
303	275	May 21, 1941	--	--	30	7.1	508	--	458	2	590	--	< 20	--	1,362	104	--	--	--	--
304	18	Mar. 31, 1941	--	--	14	--	38	--	43	27	64	--	< 20	--	173	70	--	--	--	--

See footnotes at end of table.

Table 7.--Chemical Analyses of Water From Wells in Chambers and Jefferson Counties--Continued

WELL	DEPTH OR PRODUCING INTERVAL (FT)	DATE OF COLLECTION	SILICA (SiO_2)	IRON (Fe)	CAL-CIUM (Ca)	MAGNE-SIUM (Mg)	SODIUM (Na)	POTAS-SIUM (K)	BICAR-BONATE (HCO_3)	SUL-FATE (SO_4)	CHLO-RIDE (Cl)	FLUO-RIDE (F)	NITRATE (NO)	BORON (B)	DIS-SOLVED SOLIDS	HARD-NESS AS $CaCO_3$	SODIUM-ADSORP-TION RATIO (SAR)	RESIDUAL SODIUM CARBONATE (RSC)	SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C)	pH
PT-64-14-305	18	Mar. 31, 1941	--	--	30	10	108	--	195	40	106	--	< 20	--	390	116	--	--	--	--
405	127	May 21, 1941	--	--	22	7.1	202	--	384	2	146	--	< 20	--	568	84	--	--	--	--
406	223	Sept. 16, 1966	--	--	--	--	--	--	406	--	148	--	--	--	--	82	--	5.01	1,070	7.3
407	253	Sept. 16, 1966	--	--	--	--	--	--	400	--	113	--	--	--	--	72	--	5.12	943	7.3
408	253	Sept. 16, 1966	16	0.00	18	3.2	209	1.5	436	0	114	0.3	1.2	0.20	577	58	12	5.99	997	7.3
502	20	Apr. 10, 1941	--	--	38	10	259	--	561	25	150	--	1.0	--	759	136	--	--	--	--
801	180	Apr. 10, 1941	--	--	24	10	311	--	744	3	116	0	< 20	--	830	101	--	--	--	--
901	162	Jan. 28, 1942	--	--	50	15	503	--	665	2	518	--	1.0	--	1,416	184	--	--	--	--
902	200	Aug. 26, 1941	--	--	+ 5	18	348	--	427	2	340	--	< 20	--	923	74	--	--	--	--
15-101	300	May 12, 1941	--	--	47	11	562	--	512	3	680	.4	< 20	--	1,555	162	--	--	--	--
105	180	Sept. 28, 1966	17	--	52	11	625	2.6	416	1.2	850	.4	.5	--	1,760	174	21	3.33	3,270	7.2
202	117	Aug. 22, 1941	--	--	80	35	860	--	476	2	1,290	--	--	--	--	240	--	2.31	--	--
202	117	Sept. 27, 1966	--	--	--	--	--	--	434	--	1,200	.2	< 20	--	2,500	341	--	--	4,330	7.0
203	18	Aug. 22, 1941	--	--	32	8.8	34	--	128	12	50	--	< 20	--	200	115	--	--	--	--
205	100	Oct. 6, 1966	18	.12	77	21	885	4.6	428	6.4	1,320	--	.2	--	2,540	280	23	1.41	4,660	7.2
301	32	Oct. 4, 1966	34	.01	85	13	67	2.7	71	14	174	.2	116	--	541	264	1.8	.00	946	6.1
307	34	Aug. 19, 1966	22	--	12	2.8	25	1.4	61	13	24	.3	.2	--	131	42	1.7	.17	211	6.4
309	100	Oct. 6, 1966	20	.02 c/	72	29	288	9.4	402	31	370	.6	.5	--	1,070	300	7.2	.59	1,930	7.2
310	120	Oct. 6, 1966	18	.06	93	26	940	5.0	408	8.8	1,480	--	.2	--	2,770	338	22	.00	5,090	7.0
401	254	Mar. 31, 1941	--	--	20	7.5	542	--	519	2	590	.3	0	--	1,417	80	--	--	--	--
404	180	Aug. 17, 1966	--	--	--	--	--	--	534	--	600	--	--	--	--	108	--	6.59	2,660	8.0
405	240	Aug. 17, 1966	--	--	--	--	--	--	530	--	550	--	--	--	--	108	--	6.53	2,480	7.5
406	202	Oct. 6, 1966	16	.07 c/	38	13	580	3.3	556	1.2	690	.3	.2	--	1,620	150	21	6.11	2,970	7.2
601	28	May 15, 1941	--	--	17	3.4	38	--	55	2	66	--	< 20	--	153	57	--	--	--	--
602	28	Aug. 22, 1941	--	--	106	11	31	--	360	5	56	.2	< 20	--	386	312	--	--	--	--
705	415	Sept. 23, 1966	--	--	--	--	--	--	--	--	920	--	--	--	--	--	--	--	3,890	--
705	415	Sept. 23, 1966	--	--	--	--	--	--	--	--	960	--	--	--	--	--	--	--	4,010	--
705	415	Sept. 23, 1966	--	--	--	--	--	--	--	--	960	--	--	--	--	--	--	--	4,010	--
705	415	Sept. 23, 1966	18	.04	72	26	782	6.9	660	96	980	.4	1.5	.47	2,310	286	20	5.09	4,090	7.3

See footnotes at end of table.

Table 7.--Chemical Analyses of Water From Wells in Chambers and Jefferson Counties--Continued

WELL	DEPTH OR PRODUCING INTERVAL (FT)	DATE OF COLLECTION	SILICA (SiO_2)	IRON (Fe)	CAL-CIUM (Ca)	MAGNE-SIUM (Mg)	SODIUM (Na)	POTAS-SIUM (K)	BICAR-BONATE (HCO_3)	SUL-FATE (SO_4)	CHLO-RIDE (Cl)	FLUO-RIDE (F)	NITRATE (NO)	BORON (B)	DIS-SOLVED SOLIDS	HARD-NESS AS $CaCO_3$	SODIUM-ADSORP-TION RATIO (SAR)	RESIDUAL SODIUM CARBONATE (RSC)	SPECIFIC CONDUCTANCE (MICROMHOS AT 25°C)	pH
PT-64-15-705	415	Sept. 23, 1966	--	--	--	--	--	--	--	--	960	--	--	--	--	--	--	--	3,950	--
901	60	Aug. 26, 1941	--	--	105	11	249	--	268	15	435	--	< 20	--	947	307	--	--	--	--
903	22	Aug. 26, 1941	--	--	114	33	381	--	73	77	775	0	21	--	1,437	421	--	--	--	--
903	22	Oct. 4, 1966	23	0.14	104	9.8	285	3.9	346	6.4	462	.2	1.0	--	1,070	300	7.2	0.00	2,010	6.9
22-301	327	Aug. 26, 1941	--	--	18	11	417	--	622	2	345	--	< 20	--	1,099	92	--	--	--	--
23-101	327	Aug. 26, 1941	--	--	18	11	494	--	653	2	445	.4	< 20	--	1,291	92	--	--	--	--
103	250	Aug. 26, 1941	--	--	28	17	568	--	695	2	570	--	< 20	--	1,527	141	--	--	--	--
104	250	Aug. 26, 1941	--	--	38	17	624	--	702	2	670	.3	< 20	--	1,696	166	--	--	--	--
201	178	Aug. 26, 1941	--	--	61	39	934	--	659	2	1,280	--	< 20	--	2,640	314	--	--	--	--
301	82	Aug. 26, 1941	--	--	195	48	476	--	427	2	970	--	0	--	1,901	685	--	--	--	--

a/ Values given are "total" iron unless otherwise indicated.
b/ Analysis by Microbiology Services Laboratory.
c/ Iron in solution at time of analysis.
d/ Analysis by Curtis Laboratory.
e/ Analysis by The University of Texas.
f/ Analysis by Mobil Oil Company.
g/ Analysis by Pure Oil Company.

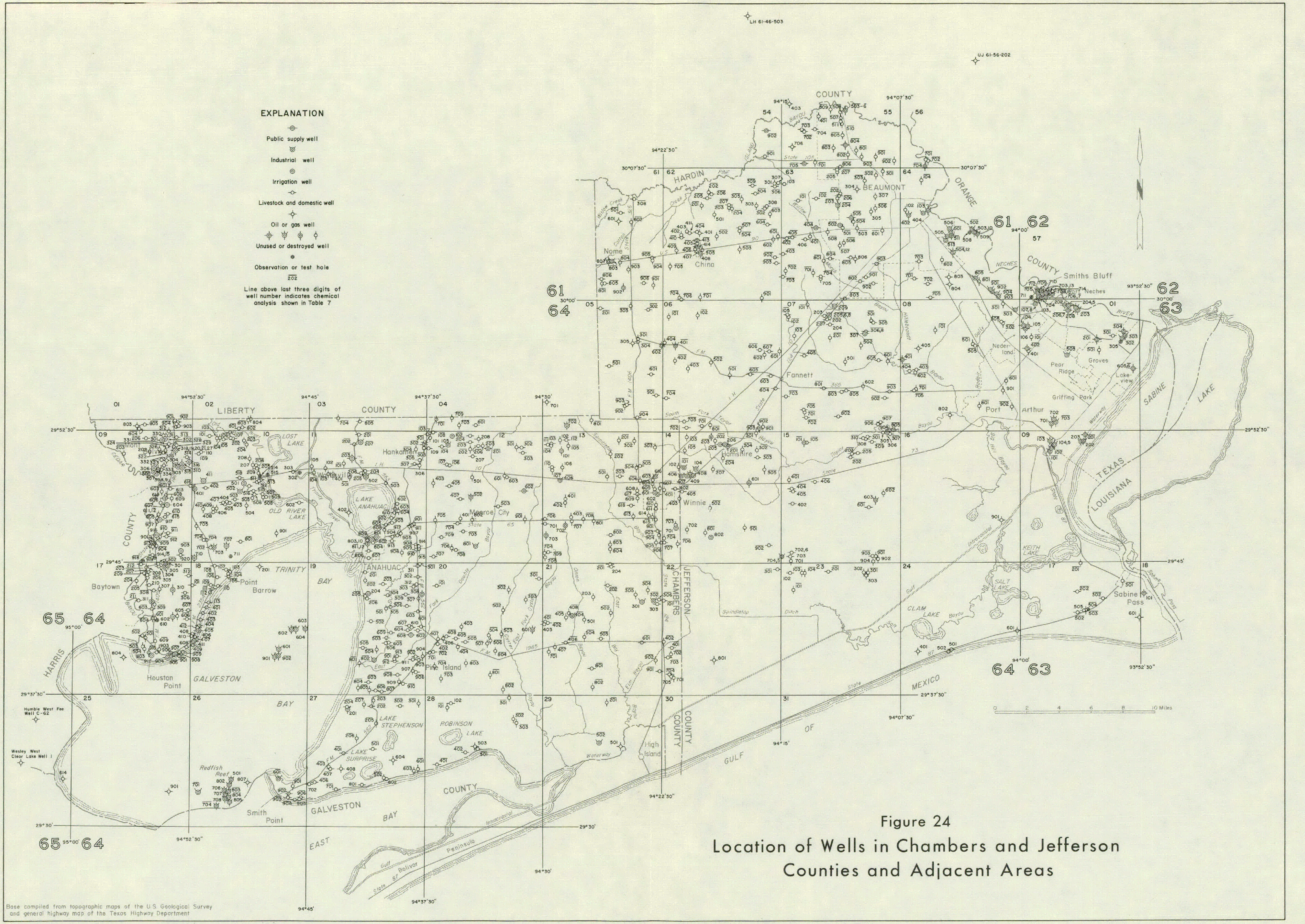

Figure 24
Location of Wells in Chambers and Jefferson Counties and Adjacent Areas

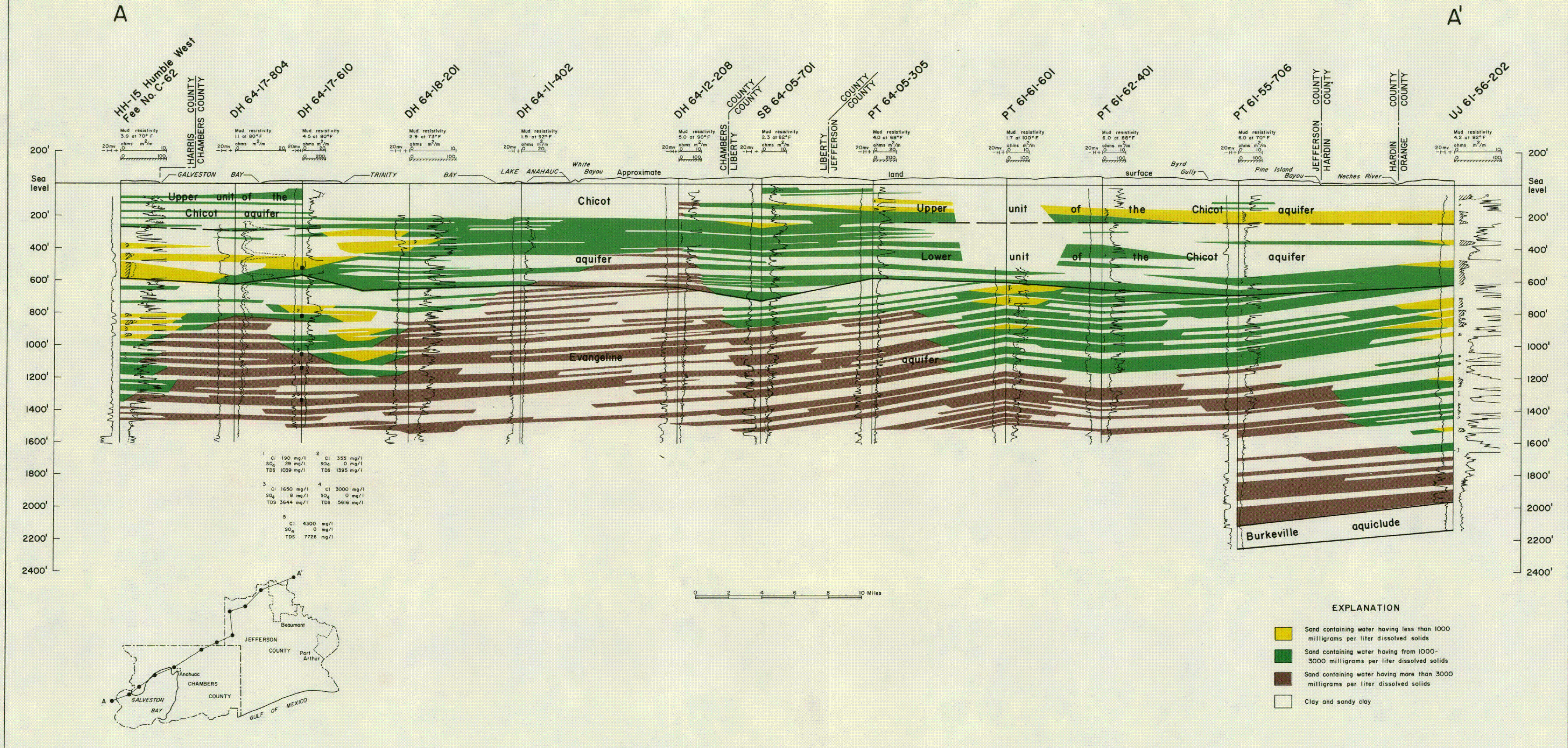

Figure 25

Hydrologic Section A-A', Harris, Chambers, Liberty, Jefferson, Hardin, and Orange Counties

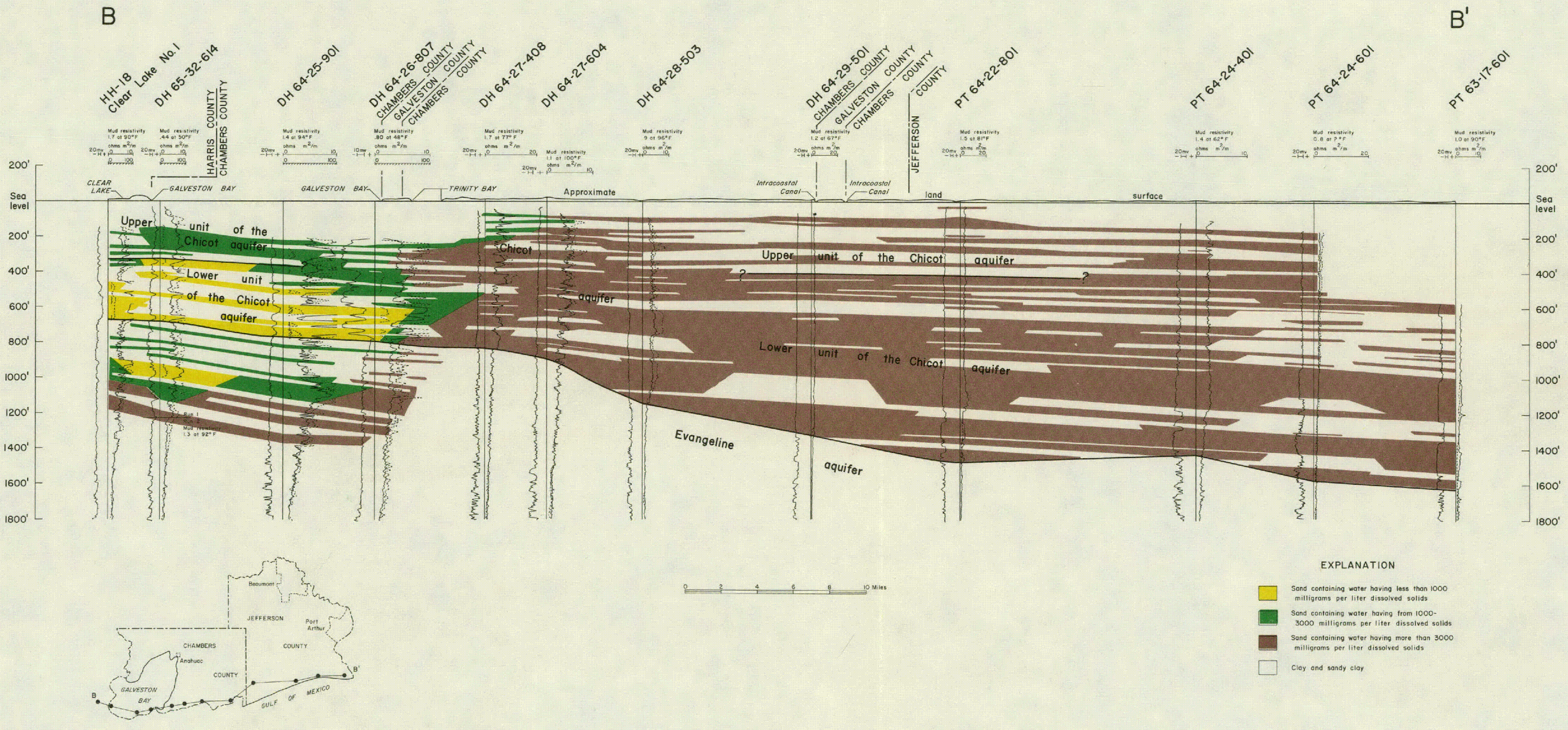

Figure 26

Hydrologic Section B-B', Harris, Chambers, and Jefferson Counties

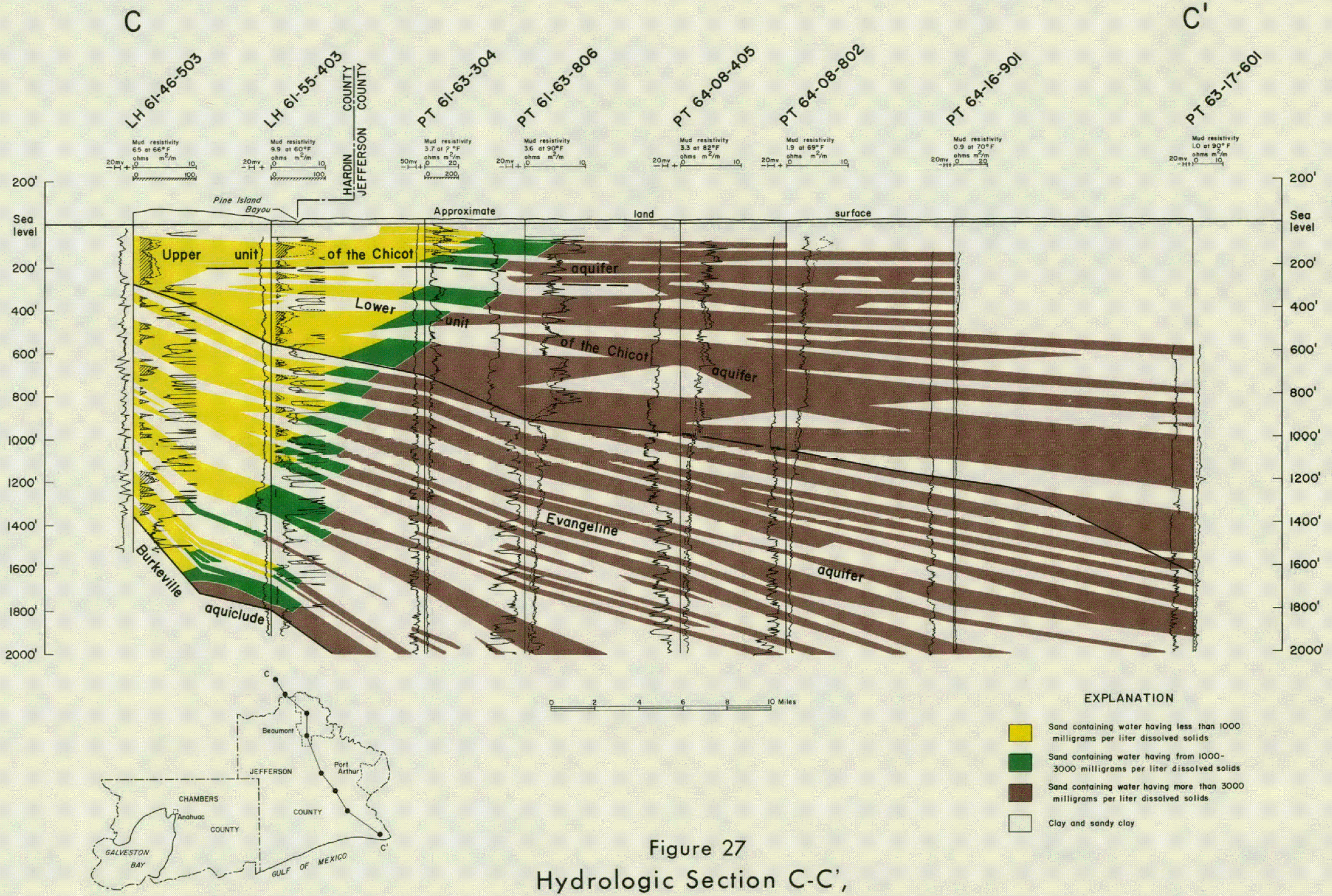

Figure 27
Hydrologic Section C-C',
Hardin and Jefferson Counties

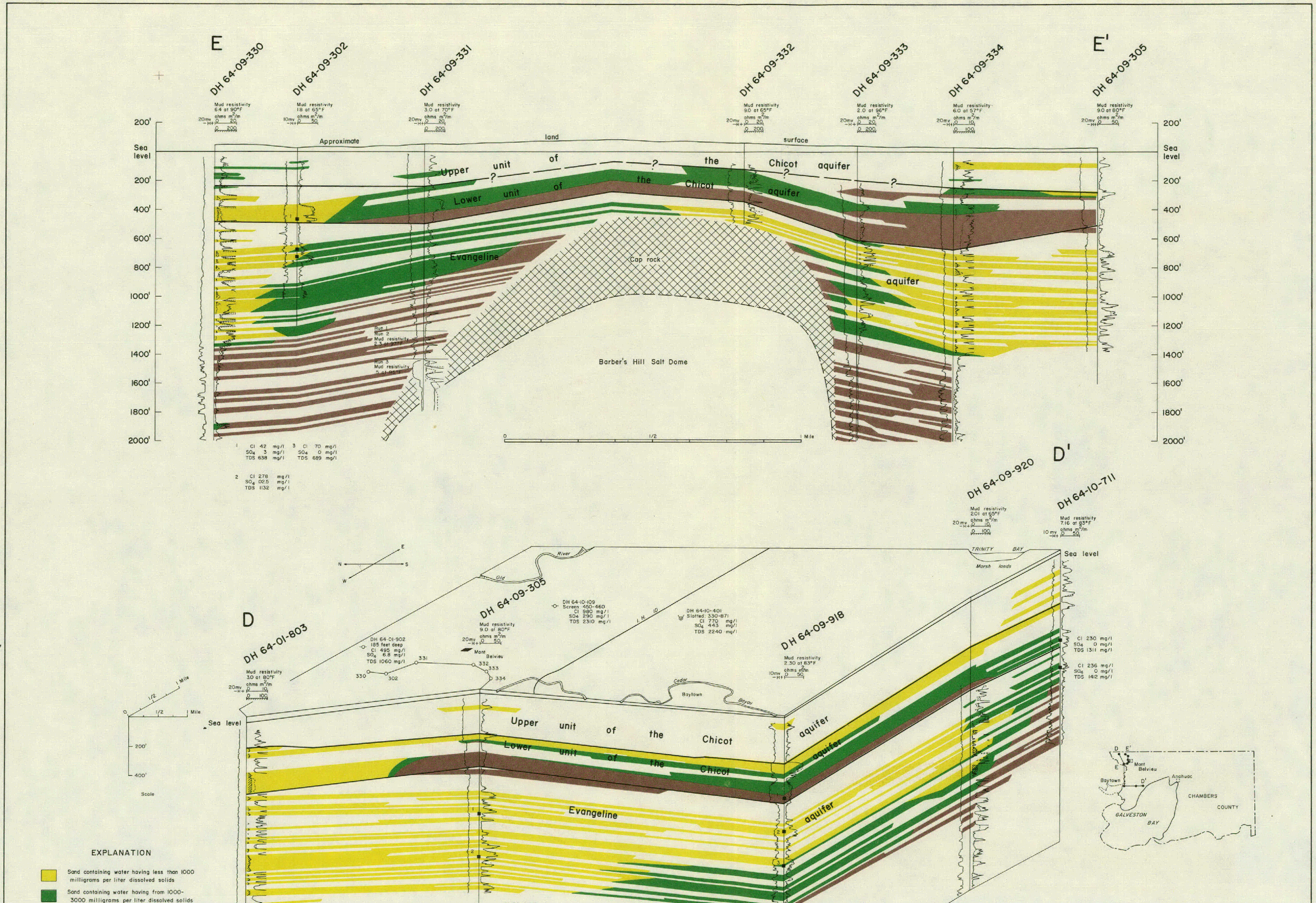

Figure 28
Hydrologic Section E-E' and
Hydrologic Diagram D-D' at
Barber's Hill Dome, Chambers County