TEXAS
WATER
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BOARD

REPORT 74

GROUND-WATER RESOURCES OF TYLER COUNTY, TEXAS

MAY 1968

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GROUND-WATER RESOURCES OF TYLER COUNTY, TEXAS

By

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United States Geological Survey

Prepared by the U.S. Geological Survey
in cooperation with the
Texas Water Development Board
and the
Lower Neches Valley Authority

May 1968

Published and distributed
by the
Texas Water Development Board
Post Office Box 12386
Austin, Texas 78711

TABLE OF CONTENTS

TABLE OF CONTENTS (Cont'd.)

TABLES

TABLE OF CONTENTS (Cont'd.)

Page

FIGURES

GROUND-WATER RESOURCES OF TYLER COUNTY, TEXAS

ABSTRACT

The ground-water supplies underlying Tyler County are practically untapped. In 1964, withdrawals of ground water amounted to about 2,550 acre-feet or 2.3 mgd (million gallons per day) as compared with 62 mgd that is being transmitted by the Jasper, Evangeline, and Chicot aquifers under the present (1965) hydraulic gradient (5 feet per mile). In addition, the three aquifers contain about 80 million acre-feet of water in storage, of which 23 million acre-feet is stored in the upper 400 feet of the aquifers.

The principal aquifers--Jasper, Evangeline, and Chicot--contain fresh to slighty saline water to a depth of at least 2,945 feet below sea level. In the southern part of the county where all three aquifers are present, the net thickness of sands containing fresh to slightly saline water is as much as 1,000 feet. In the northern part of the county where the Jasper, Evangeline, and Chicot are absent, the Jackson Group and Catahoula Sandstone are the only sources of good quality water.

Ground water in the principal aquifers is suitable for most purposes. The water is of the sodium or calcium bicarbonate type, low in dissolved solids, chloride, and sulfate.

GROUND-WATER RESOURCES OF TYLER COUNTY, TEXAS

INTRODUCTION

Location and Extent of Area

Tyler County is in the West Gulf Coastal Plain in southeastern Texas, approximately 60 to 100 miles north of the Gulf of Mexico and 20 to 70 miles west of Louisiana (Figure 1). It lies between latitudes 30°30' and 31°05' N, and longitudes 94°00' and 94°40' W. The county is bounded on the north and east by Angelina and Jasper Counties, with the Neches River forming the boundary; on the south by Hardin County; and on the west by Polk County. Woodville, the county seat, is about 50 miles north of Beaumont. The county has an area of 918 square miles.

Purpose and Scope of Investigation

The Tyler County ground-water investigation was a cooperative project of the Texas Water Development Board, the Lower Neches Valley Authority, and the U.S. Geological Survey. The purpose of the investigation was to determine the occurrence, availability, dependability, quality, and quantity of ground water suitable for development as municipal, industrial, and irrigation supplies. The results of the investigation are described in this report, which includes a discussion of the geology and hydrology as they are related to the occurrence and availability of ground water. The report also presents information and data obtained during the investigation that can be used as a guide for the development and protection of the ground-water resources of Tyler County.

The scope of the investigation included the determination of the location and extent of aquifers containing fresh to slightly saline water, the chemical quality of the water, the quantity of ground water being withdrawn and the effects of the withdrawals on water levels, the hydraulic characteristics of the important aquifers, and an estimate of the quantity of ground water available for development.

Methods of Investigation

The investigation was begun in November 1964 and the fieldwork was completed in November 1965. Specific details of the study included:

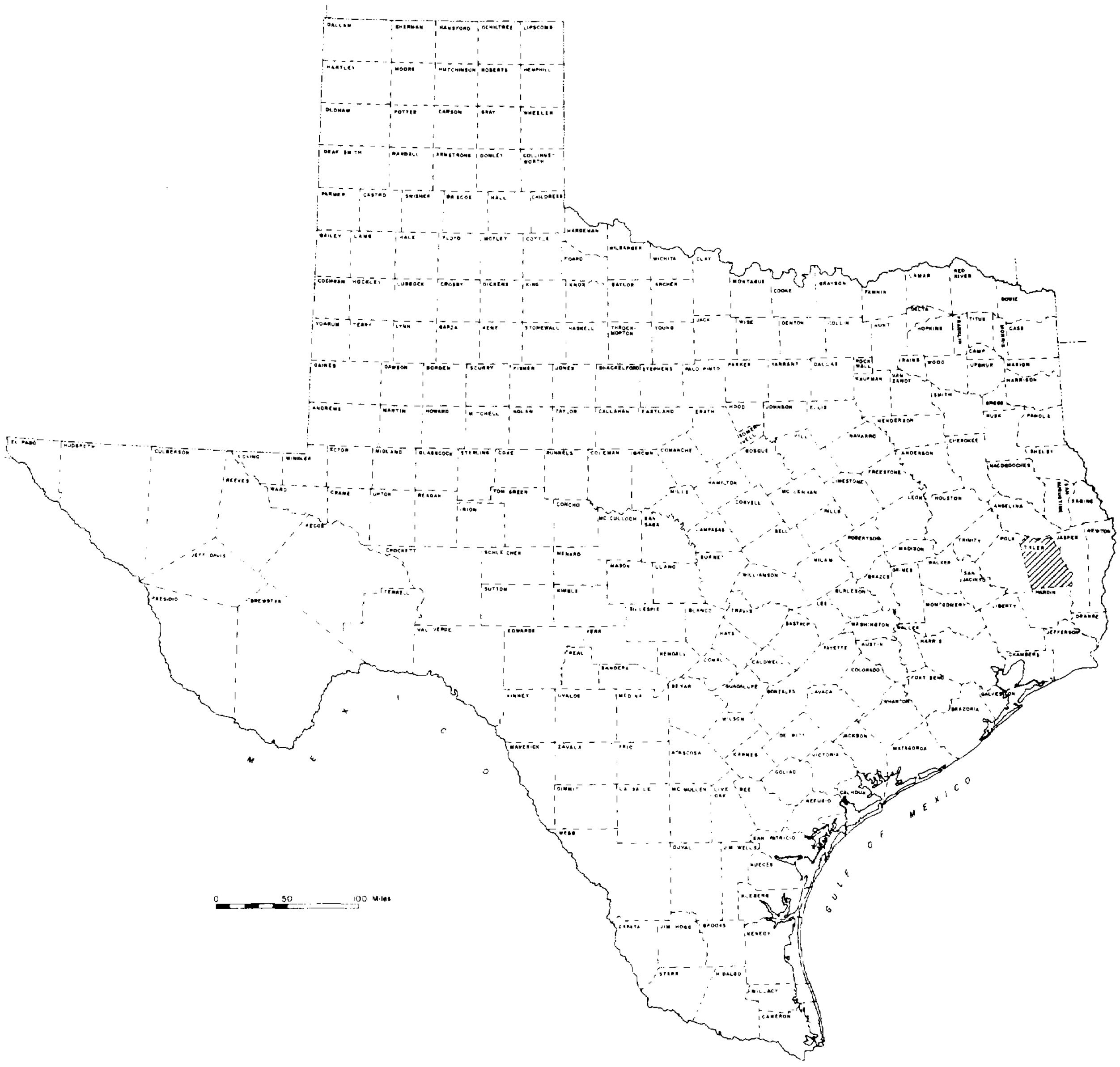

Figure 1

Location of Tyler County

U.S. Geological Survey in cooperation with the Texas Water Development Board and the Lower Neches Valley Authority

1. An inventory of 449 wells, including all municipal and industrial wells and a representative number of domestic and livestock wells. The locations of the wells are shown on Figure 12.

2. An inventory of the pumpage of ground water by municipal and industrial users.

3. Electrical logs of 109 wells and drillers' logs of 94 wells were collected and studied to correlate the hydrologic and geologic units and to evaluate their water-bearing characteristics. Special attention was given to the total sand thickness and to the quality of the water.

4. A map was compiled from previously published maps and from field observations to show the location and surface extent of the geologic and hydrologic units (Figure 12).

5. The elevations of water wells and the locations of a few oil tests were determined from topographic maps.

6. Climatological data were collected and compiled (Figure 2).

7. Measurements of water levels were made in all accessible wells. Records of the measurements are included in Table 3.

8. Samples of water were collected from 57 wells and springs to determine the chemical quality of the water (Table 5).

9. Areas of recharge and natural discharge were determined.

10. Pumping tests were run in 12 wells to determine the hydraulic characteristics of the water-bearing sands (Table 2).

11. Maps, cross-sections, charts, and graphs were prepared to illustrate the geologic, hydrologic, and quality-of-water data.

12. Data were analyzed to determine the quantity and quality of water available for future development and to predict general effects of future withdrawals.

Previous Investigations

Prior to this investigation, no detailed study had been made of the ground-water resources of Tyler County. Deussen (1914, p. 347-350) discussed briefly the geology and hydrology of Tyler County in his reconnaissance investigation of the southeastern part of the Texas Coastal Plain. Most of Tyler County was included in the report by Wood (1956) on the availability of ground water in the Gulf Coastal region of Texas and in the reconnaissance report by Wood and others (1963); and all of the county was included in the reconnaissance report by Baker and others (1963). The report by Sundstrom and others (1948, p. 267-268) on the public-water supplies in eastern Texas included inventories of the water supplies at Doucette and Woodville. Detailed investigations of the ground-water resources of adjoining counties include: Hardin County (Baker, 1964), and Jasper and Newton Counties (Wesselman, 1967).

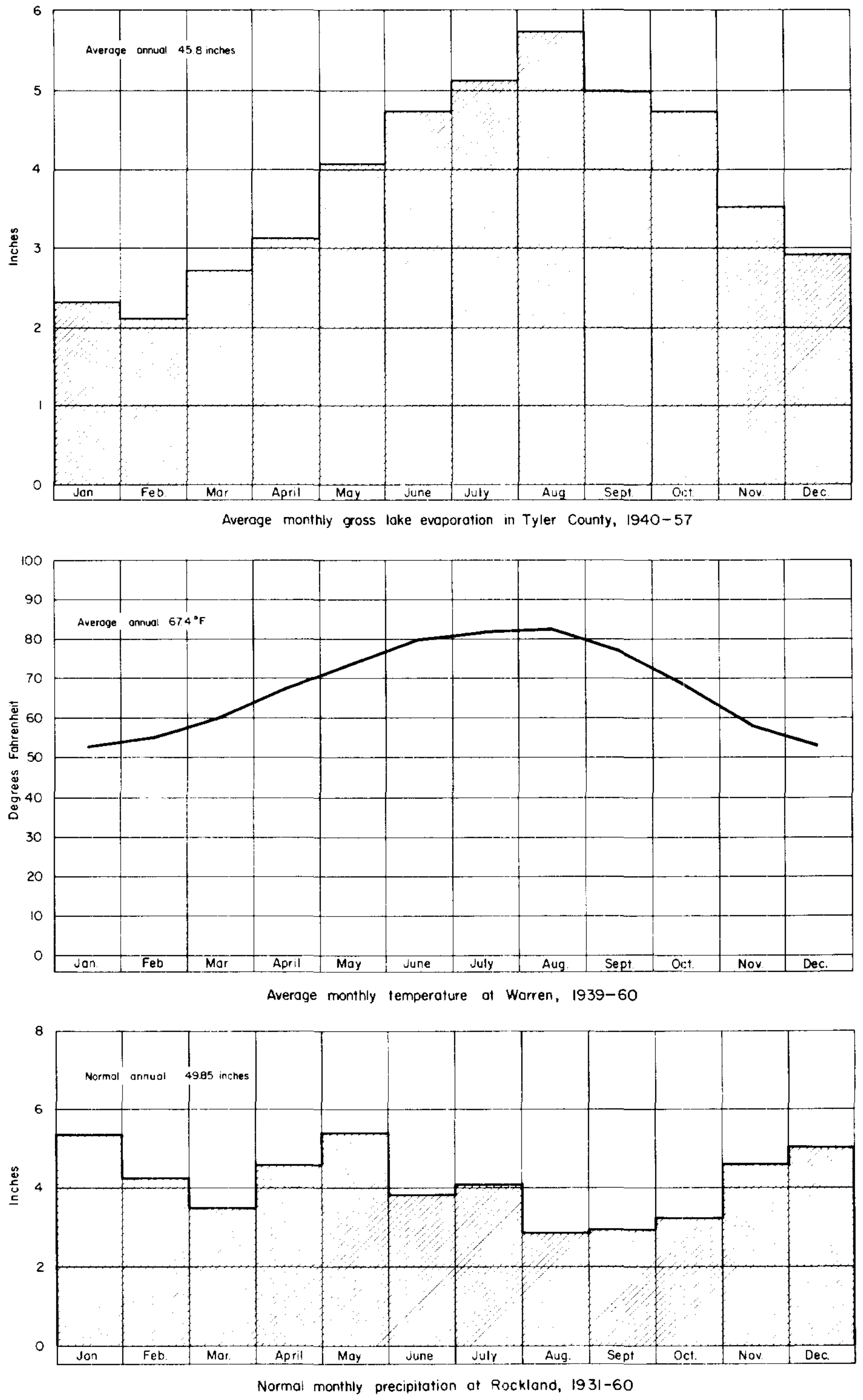

Figure 2

Average Monthly Gross Lake Evaporation in Tyler County, Average Monthly Temperature at Warren, and Monthly Precipitation at Rockland

U. S. Geological Survey in cooperation with the Texas Water Development Board and the Lower Neches Valley Authority

Economic Development

The people of Tyler County derive their income principally from the harvesting of timber for the production of pulpwood, the raising of poultry and cattle, the manufacturing of aluminum products, and the production of oil and gas.

Woodville, the principal town and center of commerce and industry, has a large sawmill and an aluminum window manufacturing plant. The towns of Colmesneil, Warren, and Chester are small commercial centers. The shore area of Dam B Reservoir (Town Bluff Lake) is rapidly becoming a resort area for residents of the Beaumont area.

Forests of pine and lesser stands of hardwood occupy 92 percent of the area of the county. Lumber and poles are processed at six mills, and pulpwood is shipped to paper mills in nearby counties. The estimated value of all wood products is 5 million dollars per year. Farm income, derived principally from the raising of poultry and cattle, contributes approximately $2\frac{1}{2}$ million dollars per year to the local economy. Most of the row-crop farming has been replaced by timber production. During recent years, no irrigation has been practiced in the county.

Oil and gas have been produced since 1937. A total of about 14.5 million barrels of oil was produced to January 1, 1961, of which 861,642 barrels was produced in 1960. Twelve oil fields, some with multiple pay zones, have produced through the years, but some fields are being abandoned because of depletion.

Tyler County had a population of 10,666 in 1960, which is 2 percent less than in 1890. Woodville, which has 18 percent of the population of the county, had a population of 1,920 in 1960. The estimated populations of other communities are: Colmesneil, 650; Warren, 260; Doucette, 250; Hillister, 200; and Chester, 350. The remaining 66 percent of the population reside in the rural areas. Tyler County has a good system of roads and is served by the Missouri-Pacific Railroad.

All of the water for public supply, industrial, and domestic uses in Tyler County is obtained from wells, with the exception of the community of Rockland in the northern part of the county, which is supplied from a small reservoir on a spring-fed Sugar Creek.

Physiography and Drainage

Tyler County includes three distinct land forms: a moderately dissected plain, a slightly dissected plain, and the valley of the Neches River. The entire county is drained by the Neches River and its tributaries.

The moderately dissected plain lies north of the latitude of Hillister and includes about 65 percent of the county. The altitude of this land surface ranges from approximately 130 feet in the southern part to 440 feet in the northern part. The northernmost part is hilly, rocky, and generally devoid of the forest growth that characterizes the rest of Tyler County. The southern part is characterized by sand and clay hills and gravel-covered hills and ridges rising above the plain.

An eastward-trending belt of blackland prairies from 4 to 8 miles wide is developed on the moderately dissected plain. The belt is sparsely vegetated in contrast to the adjacent growth of pine and hardwood. The prairies are underlain by thin, calcareous clay beds which are interbedded with sand.

The slightly dissected plain lies south of the latitude of Hillister and includes about 25 percent of the county. The altitude of this land surface ranges from 80 feet at the Hardin-Tyler county line to about 200 feet in the vicinity of Spurger. The land, which is relatively flat, supports a heavy growth of pine in the intervalley areas and a lesser growth of hardwood in the stream valleys.

The valley of the Neches River extends along the northern and eastern boundaries of Tyler County and includes about 10 percent of the county. The valley is about 2 miles wide along the northern boundary of the county, and from 6 to 8 miles wide along the eastern boundary. The altitude ranges from 40 feet at the southeastern corner of the county to 130 feet at the northwestern corner. The steep valley walls constitute a distinct boundary between the dissected upland surfaces and the surfaces on the relatively flat alluvial deposits. The flood plain supports a very dense hardwood forest on the heavier soils while pines grow on the sandier terrace surfaces. The valley of the Neches River is poorly drained because of the low relief and dense cover of vegetation.

Climate

The climate of Tyler County is mild and humid. The average growing season is 241 days. The average date of the first freeze is November 12th, and the average date of the last freeze is March 16th. The average annual temperature is 67.4°F at Warren, and the normal annual precipitation is 49.85 inches at Rockland (Figure 2). The precipitation is distributed rather equally throughout the year. The average annual gross lake surface evaporation in the county is 45.8 inches (Lowry, 1960, table G-13).

Well-Numbering System

The well-numbering system used in this report is the one adopted by the Texas Water Development Board for use throughout the State. Under the system, which is based upon the divisions of latitude and longitude, each 1-degree quadrangle in the State is given a number consisting of two digits, from 01 to 89. These are the first two digits appearing in the well number.

Each 1-degree quadrangle is divided into $7\frac{1}{2}$-minute quadrangles which are given 2-digit numbers from 01 to 64. These are the third and fourth digits of the well number. Each $7\frac{1}{2}$-minute quadrangle is divided into $2\frac{1}{2}$-minute quadrangles which are given a single-digit number from 1 to 9. This is the fifth digit of the well number. Each well within a $2\frac{1}{2}$-minute quadrangle is given a 2-digit number in the order in which it is inventoried. These are the last two digits of the well number. The 1-degree and $7\frac{1}{2}$-minute quadrangles are shown on the well-location map of this report (Figure 12).

In addition to the 7-digit well number, a 2-letter prefix is used to identify the county. The prefixes for Tyler and adjacent counties are as shown on page 9.

County	Prefix	County	Prefix
Angelina	AD	Polk	UT
Hardin	LH	Tyler	YJ
Jasper	PR		

Acknowledgments

The investigation was greatly aided by the residents of Tyler County who furnished information and permitted access to their wells and lands. The author gratefully acknowledges the assistance given by: George Belanger, Water Well Service, Silsbee, Texas; Crews and Crews Drilling; J. Tom Snowden, Colmesneil, Texas; and the U.S. Army Corps of Engineers resident engineer at Dam B. Special acknowledgment and thanks are expressed to Dan Edwards of the Humble Oil & Refining Company, who contributed logs and other information on Tyler County, the Pan American Petroleum Corporation, which furnished electrical logs of 12 new wells; and Larry Hamburg of the Shell Oil Company, who furnished many paleontological logs.

HYDROLOGIC AND GEOLOGIC UNITS AND THEIR WATER-BEARING PROPERTIES

General Stratigraphy and Structure

The rocks described in this report are sediments that accumulated along the inner border of the Gulf Coast geosyncline during the Tertiary and Quaternary Periods. The rocks, composed of sand, gravel, silt, and clay, with a minor amount of limestone in the northernmost part of the county, are exposed in belts that are nearly parallel to the shoreline of the Gulf of Mexico. The younger beds crop out nearest the Gulf and the older beds crop out successively farther inland. The rocks dip gently toward the Gulf, with the degree of dip increasing with the age of the rocks. Dips range from about 1 foot per mile for the youngest rocks to about 120 feet per mile for the oldest. The thickness of the rock units increases in the direction of the dip. The homoclinal dip of the beds is broken by several normal "down-to-the-coast" strike faults that seldom displace the rocks at the surface.

Hydrologic and Geologic Units

The approximate thickness, lithology, and water-bearing properties of the hydrologic and geologic units are summarized in Table 1; the areal extent of the outcrops of these units is shown on Figure 12. The four geologic sections (Figures 13, 14, 15, and 16) show the thickness of the units and lithology as indicated by electrical logs.

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 rock that may contain water but is incapable of transmitting an appreciable quantity. The major hydrologic units in Tyler County are the

Table 1.--Physical characteristics and water-bearing properties of the geologic and hydrologic units

System	Series	Geologic unit	Hydrologic unit	Maximum thickness (ft)	Composition	Water-bearing properties and distribution of supply
Quaternary	Recent	Alluvium	--	40	Gravel, sand, silt, and clay.	Yields small[1] quantities of fresh[2] water to a few wells along the Neches River.
Quaternary	Pleistocene	Beaumont Clay	Chicot aquifer	190	Gravel, sand, silt, and clay.	Yields small to moderate[1] quantities of fresh water to wells in the southern part of the county. Capable of yielding large[1] quantities of fresh water.
		Lissie Formation				
Tertiary(?)	Pliocene(?)	Willis Sand				
Tertiary	Pliocene	Goliad Sand	Evangeline aquifer	730	Gravel, sand, silt, and clay.	Yields small to moderate quantities of fresh water to wells; probably is capable of yielding large quantities of fresh water to wells in southern part of county.
	Miocene(?)	Lagarto Clay and Oakville Sandstone	Burkeville aquiclude	500	Predominantly clay but locally includes massive beds of sand.	Yields small to moderate quantities of water in localized areas.
	Miocene		Jasper aquifer	2,000	Sand, calcareous silt, and clay.	Yields small to moderate quantities of fresh to slightly saline water to wells; capable of yielding large quantities of water to wells that tap all the sand.
	Miocene(?)	Catahoula Sandstone	--	1,475	Sand, sandstone, conglomerate, silt, volcanic ash, sandy clay, tuffaceous shale, and gravel.	Yields small to moderate quantities of fresh to slightly saline water to wells in the northern part of the county
	Eocene	Jackson Group	--	1,125	Predominately shale and sandy shale with limestone and sand.	Yields only small quantities of fresh to slightly saline water to wells in a 30-square-mile area in the northern part of the county.

1/ Yield of wells: Less than 50 gpm (gallons per minute), small; 50 to 500 gpm, moderate; more than 500 gpm, large.
2/ Quality of water as ppm (parts per million) of dissolved solids: Less than 1,000 ppm, fresh; 1,000 to 3,000 ppm, slightly saline. (From table in section on quality of ground water.)

Jasper aquifer, Burkeville aquiclude, Evangeline aquifer, and Chicot aquifer. The Jackson Group, the Catahoula Sandstone, and the Recent alluvium are units of minor importance.

Jasper Aquifer

The Jasper aquifer, which includes the Oakville Sandstone and probably a part of the Lagarto Clay, crops out in a belt from 4 to 11 miles wide across the northern part of the county (Figure 12). The aquifer, which ranges in thickness from 700 feet in the outcrop area to about 2,000 feet in the southeastern part of the county, consists of alternating beds of clay, calcareous silt, and sand. Electrical and drillers' logs indicate that sand constitutes about 40 percent of the aquifer. The logs also show that massive beds of sand, as much as 250 feet thick, are common in the upper and lower parts of the aquifer; clay interbedded with relatively thin beds of sand predominate in the middle part. The base of the Jasper, which is also the base of the Oakville Sandstone, dips gulfward at a rate slightly less than 100 feet per mile.

The Jasper aquifer is the principal aquifer in Tyler County in terms of storage, availability, and potential for development. It yields small to moderate quantities of fresh to slightly saline water to wells in the county; but the Jasper is capable of yielding large quantities of water to wells that tap all the sand.

Burkeville Aquiclude

The Burkeville aquiclude, a predominantly clay bed about 400 to 500 feet thick, crops out in a sparsely vegetated belt from 3 to 8 miles wide across the central part of the county (Figure 12). This clay bed, which contains considerable amounts of sand in places, is in the upper part of the Lagarto and Oakville sequence, probably equivalent in part to the Lagarto Clay. The Burkeville consists of clay, silt, and sand, with sand constituting about 20 percent of the unit. The electrical logs in Figures 14, 15, and 16 show that in some places individual beds of sand are fairly massive, as much as 150 feet thick.

Although the Burkeville is essentially an aquiclude, it yields small to moderate quantities of water to wells in localized areas.

Evangeline Aquifer

The Evangeline aquifer, which includes the Goliad Sand, crops out in an irregular belt about 8 miles south of the latitude of Woodville (Figure 12). Whether the Evangeline in Tyler County also includes sands in the upper part of the Lagarto Clay, as suggested by Wesselman (1967) in Jasper and Newton Counties, cannot be determined definitely. The Evangeline, 270 to 730 feet thick, consists of sand, gravel, silt, and clay. Sand, which constitutes about 50 percent of the unit, generally contains some gravel. According to Baker (1964, p. 20), the base of the Goliad Sand (base of the Evangeline aquifer) dips gulfward at about 45 feet per mile through a 44-mile span from the contact of the Lagarto and Oakville with the overlying Willis Sand in Tyler County to the base of the Goliad Sand in Jefferson County.

The Evangeline yields small to moderate quantities of fresh water to wells in the Tyler County area; however, judging from well yields in Hardin County, the aquifer probably is capable of yielding large quantities of fresh water to wells in the southern part of Tyler County.

Chicot Aquifer

The Chicot aquifer comprises the Willis Sand, Lissie Formation, and the Beaumont Clay. As a continuous hydraulic unit, the Chicot crops out south of the latitude of Hillister (Figure 12). North of this line, between Hillister and Woodville, the Chicot is thin and serves principally as a recharge area to the underlying Evangeline aquifer.

The Chicot, 80 to 190 feet thick, consists of sand, gravel, silt, and clay. Unlike the Jasper and Evangeline aquifers, which are separated by a thick sequence of clay (the Burkeville aquiclude), no continuous clay unit separates the Chicot and the Evangeline aquifers. In fact, the electrical logs of several wells, for example YJ-61-31-301 (Figure 14) and UT-61-28-702 (Figure 15), show that the two aquifers are probably in hydraulic continuity, so that water moves freely from one aquifer to the other in response to a change in head. In Tyler County, the contact between the aquifers is difficult to determine. In Jasper and Newton Counties, Wesselman (1967) separated the Chicot and Evangeline on the basis of their differences in lithological characteristics and permeability. In Tyler County, the available data are insufficient to determine whether these criteria are applicable. For the purpose of this report, the contact between the aquifers is placed arbitrarily at the base of a relatively thick, highly resistant sand bed, as determined from the electrical logs of several wells.

The Chicot aquifer yields small to moderate quantities of fresh water to a few wells, principally for domestic and livestock use, in the southern half of the county; doubtlessly, it is capable of yielding large quantities of fresh water to wells in the extreme southern part of the county, where the aquifer attains its maximum thickness.

Jackson Group

The Jackson Group crops out in a belt about 1 mile wide in the northwestern part of Tyler County (Figure 12). The Jackson consists of silty, tuffaceous, and lignitic shale; thin limestone; and a few persistent sand beds. The thickness of the group ranges from 900 feet in the northern part of the county to 1,125 feet in the southern part. The rocks dip gulfward at an average rate of 117 feet per mile.

The Jackson Group is not an important source of fresh or slightly saline water in Tyler County. However, in an area of about 30 square miles in the northern part of the county (grid 61, Figure 12), thin beds of sand in the Jackson yield small quantities of water to a few wells. Elsewhere in the county, the water is either too highly mineralized for most uses or other water of good quality is available at shallower depths.

Catahoula Sandstone

The Catahoula Sandstone crops out in a belt about 5 miles wide across the northern part of Tyler County and adjacent parts of Angelina and Jasper Counties (Figure 12). The Catahoula is composed of tuffaceous shale, volcanic ash, fuller's earth, sandy clay, silt, sand, and gravel. The thickness of the Catahoula ranges from about 1,000 feet in the outcrop area to 1,475 feet in the southeastern part of the county. The Catahoula dips toward the Gulf at a fairly uniform rate of about 100 feet per mile (Figure 3).

The Catahoula yields small to moderate quantities of fresh to slightly saline water to wells only in the northern part of the county. Southward, water of good quality can be obtained from shallower aquifers.

Alluvium

Alluvial deposits occur in the valley of the Neches River (Figure 12) and in the valleys of its major tributary streams. The alluvium is composed of gravel, sand, silt, and clay with some organic material. The thickness of the alluvium ranges from zero to at least 40 feet.

The alluvial deposits yield small quantities of fresh water to wells at a few camps along the Neches River. The alluvial deposits also serve as recharge areas to the underlying aquifers.

GROUND-WATER HYDROLOGY

Source and Occurrence of Ground Water

The principal source of ground water is precipitation on the outcrops of the aquifers. Much of this precipitation runs off as streamflow. Part of it is evaporated at the land surface, transpired by plants, or retained by capillary forces in the soil; the remainder moves downward by gravity through the zone of aeration of the zone of saturation, where it becomes ground water.

The water-bearing rock units, or aquifers, are of two types--water table, or unconfined aquifers; and artesian, or confined aquifers. Unconfined water occurs where the upper surface of the zone of saturation is under atmospheric pressure only. The water is free to rise or fall in response to the changes in the volume of water in storage. The upper surface of the zone of saturation is the water table, and a well penetrating an aquifer under water-table conditions becomes filled with water to this level. Water-table conditions occur in the outcrop areas of the aquifers and in the alluvial deposits along the larger streams.

Confined water occurs where an aquifer is overlain by materials of lower permeability, such as clay, which confine the water under a pressure greater than atmospheric pressure. Artesian conditions occur downdip from the outcrop of the aquifer. A well penetrating sands under artesian pressure becomes filled with water to a level above the base of the confining layer of rock, and if the pressure head is high enough to cause the water in the well to rise to an altitude greater than that of the land surface, the well will flow. Flowing wells are most common at lower altitudes, especially in the Neches River valley and in the southern part of the county. The level or surface to which water will rise in artesian wells is called the piezometric surface.

Recharge, Movement, and Discharge of Ground Water

The source of recharge to the aquifers in Tyler County is the direct infiltration of rainfall and the movement of ground water into the county from surrounding areas.

A part of the rainfall in the outcrop areas enters the aquifers and moves laterally to points of surface discharge. In Tyler County, the amount of precipitation on the outcrop areas of the aquifers exceeds the amount that can be transmitted downdip under the present hydraulic gradients. Consequently, the excess water is discharged through springs and seeps. That part of the recharge that is not discharged through springs and seeps moves downdip into the artesian parts of the aquifers, and continues down gradient to areas of pumping or natural discharge. Velocities vary, however, depending upon the hydraulic gradient, the permeability of the sediments, and the temperature of the water. On the basis of the present (1965) gradient, the velocity is slow, perhaps on the order of several tens of feet per year.

Hydraulic Characteristics of the Hydrologic and Geologic Units

Knowledge of the hydraulic properties of an aquifer is essential to an evaluation of the ground-water resources of an area. The more important hydraulic properties of an aquifer, which determine its capacity to transmit and store water, are expressed as the coefficients of transmissibility and storage. The coefficient of transmissibility of an aquifer is the number of gallons of water, at the prevailing water temperature, that will move in 1 day through a vertical strip of the aquifer having a width of 1 foot and a height equal to the saturated thickness of the aquifer, under a hydraulic gradient of unity. The coefficient of storage is the volume of water released from or taken into storage per unit surface area of the aquifer per unit change in the component of head normal to that surface.

Pumping tests were made in 12 wells and the data were analyzed by the nonequilibrium formula (Theis, 1935) and by a graphical method devised by Cooper and Jacob (1946, p. 526-534). The coefficients of transmissibility determined from the 12 tests ranged from 2,100 to 90,000 gpd (gallons per day) per foot (Table 2). The wide range of values is due to variations in the permeability and thickness of the sands. Many of the wells tested did not fully penetrate the aquifer. Consequently, the results of the tests generally gave values that are less than those that would have been obtained from wells that penetrate the entire aquifer. The coefficients of permeability, which were estimated from the total amount of sand believed to be contributing to the well (in most of the tests it exceeded the amount of screen in the well), ranged from about 100 to 1,000 gpd per square foot. The average permeability of the Jasper is about 500 gpd per square foot, and that of the Evangeline is about 400 gpd per square foot. These values compare reasonably well with those determined for the Jasper and Evangeline aquifers in Jasper and Newton Counties (Wesselman, 1967).

Table 2.--Coefficients of transmissibility determined from pumping tests of wells in Tyler County

Well	Date	Coefficient of transmissibility (gpd per ft)	Remarks
	Jasper aquifer		
YJ-61-07-704	July 1, 1965	4,600	Recovery test.
61-13-702	Apr. 16, 1965	22,800	Do.
61-13-802	Dec. 21, 1955	50,500	Do.
61-13-804	do	55,700	Interference test.
61-15-106	June 29, 1965	8,500	Recovery test.
	Evangeline aquifer		
61-22-401	Aug. 19, 1965	10,500	Recovery test.
61-22-802	Aug. 11, 1965	8,800	Do.
61-22-816	Aug. 16, 1965	2,100	Do.
61-30-405	Aug. 25, 1965	15,900	Do.
61-31-302	July 22, 1965	12,000	Do.
61-31-303	July 21, 1965	10,800	Do.
	Evangeline and Chicot aquifers		
61-29-704	July 15, 1965	90,000	Recovery test.

Little is known about the hydraulic characteristics of the Chicot aquifer in Tyler County. In Jasper and Newton Counties, Wesselman (1967) reported that the sands in the Chicot are more permeable than those in the Jasper and Evangeline aquifers. Permeabilities determined from five tests in those counties ranged from 910 to 1,700 gpd per square foot and averaged 1,320 gpd per square foot; whether this average value is applicable to the Chicot in Tyler County cannot be determined from the available data.

The coefficient of storage from an aquifer test in one well tapping the Jasper aquifer was 0.0001. This value compares favorably with that determined for the Jasper and Evangeline aquifers in Jasper and Newton Counties (Wesselman, 1967). The coefficient of storage for the Chicot in Tyler County, however, is probably larger because water-table conditions prevail over a considerable part of the area. In a water-table aquifer, the coefficient of storage is nearly equal to the specific yield, which is the amount of water an aquifer will yield by drainage under the force of gravity.

The coefficients of transmissibility and storage were used to construct the drawdown-distance graph (Figure 4) for a typical well completed in the Jasper or Evangeline aquifers. The graph shows the theoretical drawdown of water level (piezometric surface) in wells at the end of various periods of time at various distances from a well pumping 150 gpm (gallons per minute). The graph is based on the assumption that the aquifer is artesian and of infinite areal extent, having a coefficient of transmissibility of 25,000 gpd per foot and a coefficient of storage of 0.0001. The graph shows that the greatest declines occur in the early stage of pumping and continue thereafter at a lesser rate. The graph may be used to predict drawdowns at other rates of pumping because the drawdown at any point is approximately proportional to the rate of pumping; also, the graph may be used to determine the interference of a pumping well on nearby wells. Thus, the graph may be used as a guide to the spacing of wells to minimize the interference that decreases the yield of the well and raises the cost of pumping.

No aquifer tests of the Jackson Group or the Catahoula Sandstone have been made, and little information is available on their hydraulic characteristics.

Use of Ground Water

Only small quantities of ground water are withdrawn from the aquifers in Tyler County. In 1964, about 2.3 mgd (million gallons a day) or 2,556 acre-feet was used, of which 364,500 gpd (16 percent) was for public supply, 150,000 gpd (6 percent) was for industrial use, and 1.2 mgd (52 percent) was for rural use, which includes domestic use and livestock watering. The rest of the water, about 600,000 gpd (26 percent) was discharged from uncontrolled flowing wells. The quantity of water pumped or allowed to flow from particular aquifers was not determined.

Of the water used for municipal supply, 237,000 gpd was pumped by Woodville and 75,000 gpd by Colmesneil. The community of Rockland obtains its water supply from a small reservoir on Sugar Creek.

The principal industrial use of ground water is for the raising of minnows in the Dam B. Reservoir area; approximately 70,000 gpd was pumped for this purpose. Other uses are for processing timber (30,000 gpd) and secondary recovery of oil (15,000 gpd).

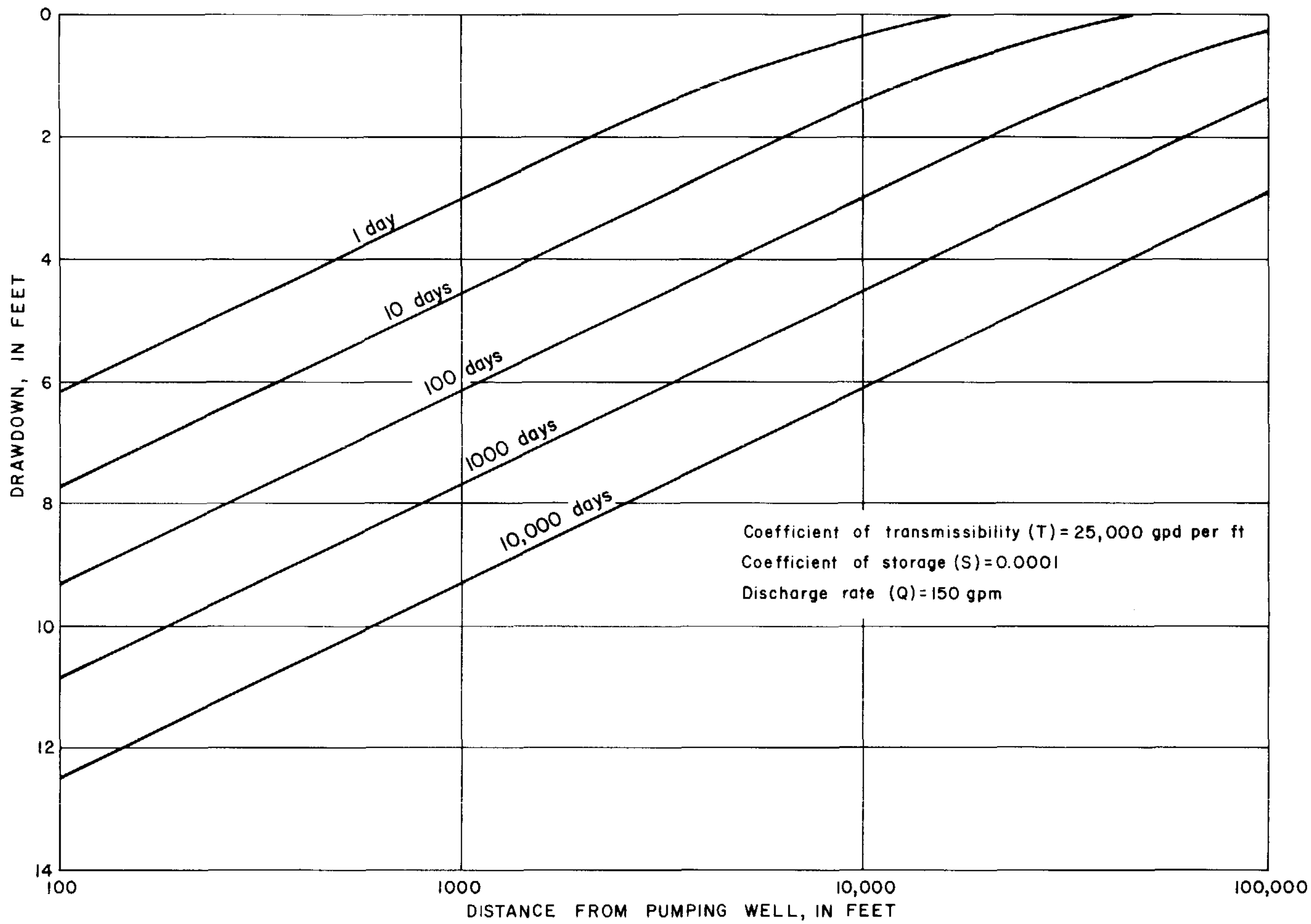

Figure 4

Relation of Drawdown to Distance and Time for a Typical Well Completed in the Jasper or Evangeline Aquifer

U. S. Geological Survey in cooperation with the Texas Water Development Board and the Lower Neches Valley Authority

During the investigation 23 uncontrolled flowing wells were located; most of the wells were in the Neches River valley and formerly were used to supply water for the drilling of oil wells. These wells flowed water at rates ranging from about 1 gpm to as much as 200 gpm.

Changes in Water Levels

Long-term records of water-level measurements in wells in Tyler County are not available. The water levels in two wells were measured in 1953 or 1955 and again in 1964 or 1965. In one well (YJ-61-13-804), which is screened in the Jasper aquifer, the water level declined 2.7 feet between 1955 and 1965. In well YJ-61-30-303, screened in the Evangeline aquifer in the southern part of the county, the water level declined at least 7.3 feet between 1953 and 1964. A large part of the decline in this well reflects pumping in Jasper and Newton Counties. It is not known whether or not the declines measured in a few wells are representative of water-level changes throughout the county.

Well Construction

Shallow dug wells, usually 24 to 36 inches in diameter, are common in Tyler County. However, most of the modern, small-capacity wells that furnish water for domestic and livestock uses are drilled wells that have been completed with a single screen. The sizes of the screen and pipe range from 2 to 4 inches. A variety of screen types are available, but stainless steel and plastic have become the most widely used because of their resistance to corrosion. The recent adoption of the air lift has resulted from the general realization that this method of lift reduces most iron and corrosion problems.

The three wells that supply the city of Woodville are the only large-capacity wells in the county. The diameter of the casing ranges from 10 to 12 inches; two wells are completed with multiple screens and the third with slotted casing; all are gravel packed.

CHEMICAL QUALITY OF GROUND WATER

Quality Standards and Suitability for Use

The chemical constituents in ground water originate principally from the soil and rocks through which the water has passed; consequently, the differences in chemical character of the water reflect in a general way the nature of the geologic formations that have been in contact with the water. Generally, ground water is free from contamination by organic matter, but the chemical content increases with depth. General discussions of the quality of ground water are included in "A primer on Water Quality," by Swenson and Baldwin (1965), and in "Study and Interpretation of the Chemical Characteristics of Natural Water," by Hem (1959).

The suitability of a water supply depends upon the chemical quality of the water and the limitations imposed by the contemplated use of the water. For many purposes the dissolved-solids content is a major limitation on the use of water. A general classification of water, according to dissolved-solids content, is as follows (Winslow and Kister, 1956, p. 5):

Description	Dissolved-solids content (parts per million)
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

The dissolved-solids, sulfate, chloride, and iron content, and hardness in water from selected wells in Tyler County are shown in Figure 5.

Certain quality standards have been established or suggested for public, industrial, and irrigational supplies. Water for public use should be free of bacteria, colorless, odorless, and should not contain excessive concentrations of dissolved solids.

The United States Public Health Service has established and periodically revises standards of drinking water to be used on common carriers engaged in interstate commerce. These standards are commonly used in evaluating water for use as a public supply. The following are the limits of concentration for some of the constituents (U.S. Public Health Service, 1962, p. 7-8):

Substance	Concentration (parts per million)
Chloride (Cl)	250
Fluoride (F)	(*)
Iron (Fe)	.3
Manganese (Mn)	.05
Nitrate (NO_3)	45
Sulfate (SO_4)	250
Dissolved solids	500

*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. The optimum value of 0.7 ppm (parts per million) and the upper limit of 0.8 ppm in Tyler County are based on the annual average of daily maximum air temperature of 80.0°F at Warren.

The consumption of fluoride in optimum amounts may reduce the rate of teeth caries in children by 65 percent (Dean, Arnold, and Elvove, 1942, p. 1155-1179; Dean and others, 1941, p. 761-792). The consumption of fluoride in excess of the recommended amount may cause mottling of the teeth. Only one of the samples analyzed for fluoride (Table 5) contained more than 0.8 ppm.

Concentrations of chemical constituents exceeding the recommended limits are objectionable; however, water containing more than the recommended amounts is used often with little ill effect. Chloride concentrations exceeding 250 ppm are tolerable but water containing as much as 500 ppm chloride tastes salty.

Concentrations of nitrate in excess of 45 ppm are potentially dangerous according to Maxcy (1950, p. 271) who correlated the incidence of infant cyanosis with the consumption of high nitrate water. The disease causes a loss of oxygen in the blood which is a form of asphyxia. Concentrations of nitrate in excess of a few ppm, especially when accompanied by a high chloride concentration, is considered by Hem (1959, p. 7) to be indicative of organic pollution. Of the water samples analyzed for nitrate, only two contained more than 45 ppm. Concentrations of sulfate in excess of 250 ppm may have a laxative effect, but the body generally regulates in a few days to much higher concentrations.

Calcium and magnesium are the principal constituents causing hardness in water, which is objectionable because of increased soap consumption. The accumulation of white rings in cooking utensils and the formation of scale in pipes also are indications of the hardness of water. The following is a commonly used classification for the hardness of water.

Hardness range (ppm)	Classification
60 or less	Soft
61 - 120	Moderately hard
121 - 180	Hard
More than 180	Very hard

Excessive concentrations of iron and manganese in water cause reddish-brown and dark gray deposits that stain paint, plumbing fixtures, and laundry. The problem of excessive iron in water used for rural domestic supplies in Tyler County has been solved by pumping the wells with compressed air and by storing the water in large cisterns. The cistern serves as a settling basin where the iron is further oxidized and precipitated. The water to be used is withdrawn from the upper part of the cistern and the iron precipitate is occasionally drained at the bottom. The use of plastic casing and screens in many wells helps to control the problem.

Standards for industrial water supplies vary widely. The two most common industrial uses of water are for steam production and cooling. The water should be of good quality--low in calcium, magnesium, silica, and iron which form scale in heat exchangers and boilers. The water should be low in chloride, acids, and carbon dioxide which make water corrosive. Water for cooling is generally used in great volumes; therefore, cost of production and treatment is of primary importance.

Industrial use of process water is subject to a wide range of quality standards depending upon the product manufactured. Triple-distilled water may be essential in the manufacture of some chemical solutions and medicines. Water free of iron and manganese and low in dissolved solids is required in the manufacture of textiles. Sea water is used in the processing and packing of many seafood products. Industrial requirements of water quality are diverse, but in general, the quality must be rigidly controlled.

The suitability of water for irrigation depends upon the chemical quality of the water, permeability of the soil, type of soil, rainfall, and type of crop. The most important chemical characteristics in the determination of the suitability of water for irrigation are: (1) the proportion of sodium to total cations (an index of the sodium hazard); (2) total concentration of soluble salts (an index of the salinity hazard); (3) RSC (residual sodium carbonate); and (4) the concentration of boron.

A system of classification of irrigation water used in a semi-arid climate was proposed by the U.S. Salinity Laboratory Staff (1954, p. 69-82). The classification is based on the salinity hazard as measured by the electrical conductivity of the water and the sodium hazard as measured by the SAR (sodium-adsorption ratio). Wilcox (1955, p. 15) states that the system of classification of irrigation waters proposed by the Salinity Laboratory Staff "...is not directly applicable to supplemental waters used in areas of relatively high rainfall." He indicates (p. 16) that generally water can be used safely for supplemental irrigation if the conductivity is less than 2,250 micromhos per centimeter at 25°C and the SAR is less than 14. The SAR value and conductivity of samples from 20 wells tapping the major hydrologic units in Tyler County are shown in Figure 6. All these samples are within the limits of safe use for supplemental irrigation.

Another factor used in assessing the quality of water for irrigation is the RSC (residual sodium carbonate) of the water. Excessive RSC will cause the water to be alkaline, and the organic content of the soil will tend to dissolve. The soil becomes a grayish black and the land areas affected are 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 epm (equivalents per million) RSC is not suitable for irrigation. Water containing from 1.25 to 2.5 epm is marginal, and water containing less than 1.25 epm RSC probably is safe. However, it is believed that good irrigation practices and proper use of soil amendments might make it possible to use the marginal water successfully for irrigation.

An excessive boron content renders water unsuitable for irrigation. Wilcox (1955, p. 11) indicates that a boron concentration of as much as 1.0 ppm is permissible for irrigating sensitive crops, as much as 2.0 ppm for semitolerant crops, and as much as 3.0 ppm for tolerant crops. Only one of the water samples analyzed for boron (Table 5) contained more than 1.0 ppm.

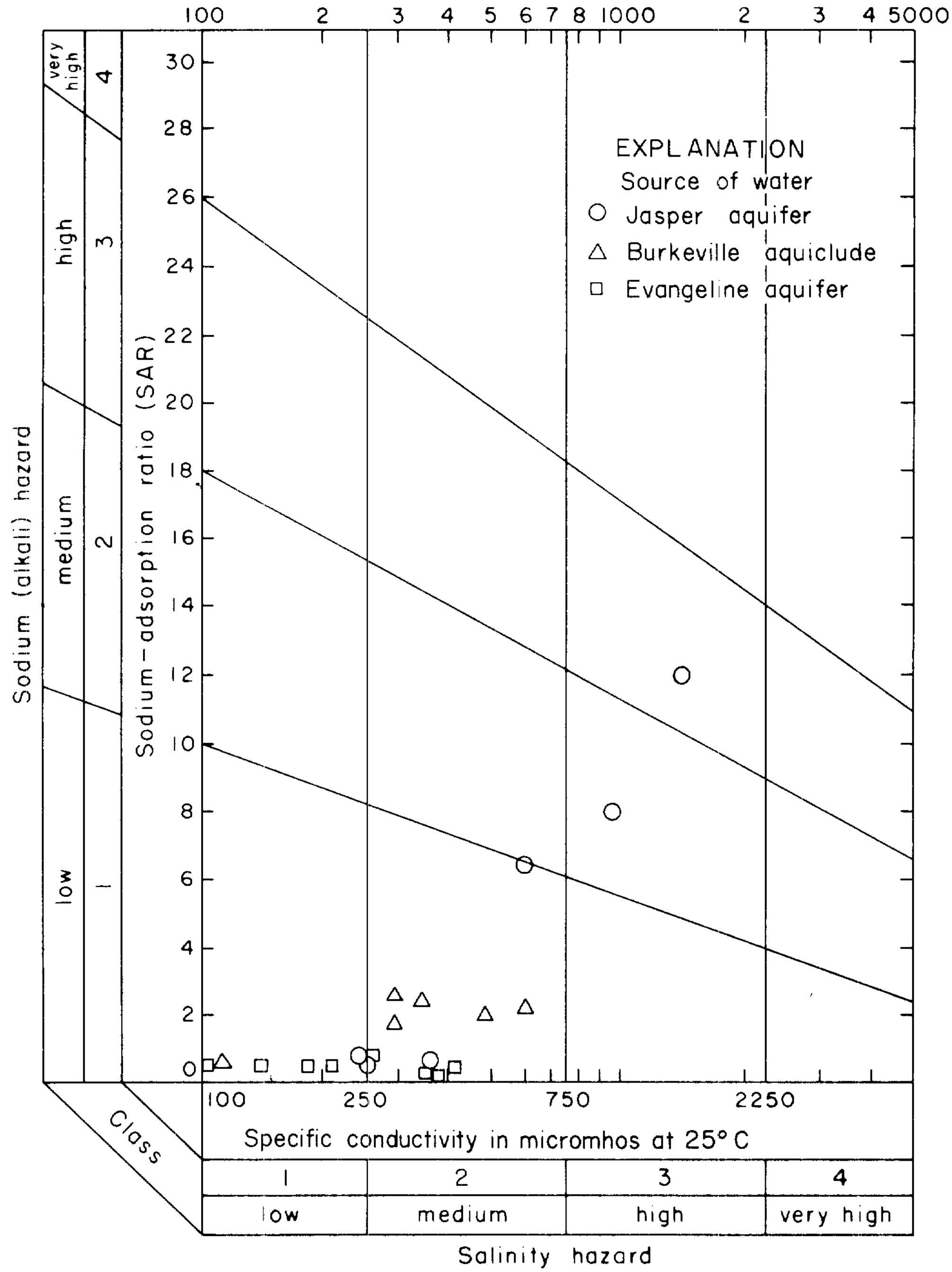

Figure 6

Classification of Irrigation Waters

U. S. Geological Survey in cooperation with the Texas Water Development Board and the Lower Neches Valley Authority

Major Hydrologic Units

The results of the chemical analyses of water from 34 wells and 2 springs that tap the Jasper, Evangeline, and Chicot aquifers show that the water from these aquifers is similar in chemical quality (Table 5). In general, the water is low in dissolved solids, sulfate, chloride, and nitrate. The dissolved-soilds content exceeded 500 ppm in only two wells (YJ-61-15-104 and YJ-61-15-105), both of which tap the Jasper aquifer. The principal difference in the water from these aquifers is in the calcium and sodium content. Water from the Jasper is of the calcium-bicarbonate type, in which calcium is the predominant cation; whereas, water from the Evangeline and Chicot aquifers is of the sodium-calcium-bicarbonate type, in which sodium and calcium are first and second in order of abundance in chemical equivalents. Iron in the water from the three aquifers is a problem in Tyler County. Of 35 samples tested, 14 contained iron in excess of 0.3 ppm; 7 of these samples were from wells in the Jasper aquifer. Nitrate is not a problem in Tyler County, although the water from two wells--YJ-61-21-608 in the Evangeline aquifer and YJ-61-29-203 in the Chicot aquifer--contained 79 and 155 ppm nitrate. The latter well, 30 feet deep, yielded water high in potassium, indicating contamination from organic wastes.

The water from 10 wells presumably tapping sands in the Burkeville aquiclude is of good chemical quality. It is similar to the water from the Evangeline, being a sodium-calcium-bicarbonate type and low in dissolved-solids content, chloride, and sulfate. The similarity in the chemical quality of the water in these two units indicates, at least in places in the county, hydraulic continuity between the units. In effect, the Burkeville in Tyler County tends more to retard the movement of water between the Jasper and Evangeline aquifers than to confine the water in these units.

According to the diagram for the classification of irrigation waters (Figure 6), the water from the major units--Jasper and Evangeline aquifers and the Burkeville aquiclude--is within the upper limits of SAR (14) and specific conductance (2,250 micromhos at 25°C) and is suitable for irrigation. Of the samples tested for RSC, only four--all in the Jasper aquifer--exceeded 2.5 epm.

The temperature of ground water in the major hydrologic units ranges from about 66°F to 75°F. The available data indicate that the temperature increases about 1.5°F for every 100 feet in depth. The temperature of the ground water near the land surface is approximately the same as the mean air temperature (67.4°F), therefore the gradient of 1.5°F per 100 feet probably can be applied to the base to determine the approximate temperature of the water at any given depth.

Minor Hydrologic Units

Only a few wells tap the Jackson Group in Tyler County at the present time (1966). Water from two wells, YJ-37-61-903 and YJ-37-61-909, was soft, high in chloride, and had a dissolved-solids content of 1,400 and 889 ppm, respectively. Both wells reportedly yielded water having a high gas content, which was either vented to the atmosphere or used for cooking and heating.

The Catahoula Sandstone yields fresh to slightly saline water to a few wells in the northern part of the county. The water from four wells ranging in depth from 212 to 610 feet was high in sodium, chloride, and bicarbonate. The dissolved-solids content ranged from 1,220 to 3,000 ppm and the iron from 0.02 to 0.52 ppm. The water sampled from one spring in the Catahoula was fresh.

The high to very high sodium and salinity hazard renders the water in the Jackson Group and the Catahoula Sandstone unsuitable for continuous irrigation. In fact, the water may not be suitable even for supplemental irrigation without consideration of such factors as soil type, drainage, and the method of application.

Possible Sources of Contamination

Contamination of the ground-water supplies in Tyler County is possible through improperly cased oil and gas wells, or the infiltration of oil-field brines from unlined disposal pits, or by the upward movement of salt water.

Wells drilled for oil or gas normally penetrate not only sands containing fresh to slightly saline water but also those containing salt water. If the salt water is under greater pressure than the fresh or slightly saline water, the salt water may move up the well bore into the fresh-water sands. The Oil and Gas Division of the Railroad Commission of Texas is responsible for seeing that oil and gas wells are properly constructed, and the Texas Water Development Board furnishes ground-water data to oil operators and to the Railroad Commission in order that all fresh-water strata may be protected. The Railroad Commission requires that fresh-water strata be protected by surface casing of new or reconditioned pipe and cement, or by alternate protection devices. The term "fresh water" as used by the Railroad Commission may include water that is more mineralized than the "fresh to slightly saline water" used in this report.

Whether inadequately cased oil or gas wells have caused contamination of the fresh or slightly saline water supplies could not be determined. Such contamination is possible, however, in at least two oil fields in which the ground water is only partially protected by the amount of surface casing required, and in several other fields in which no formal rules for surface casing have been established.

Oil-field brine disposed in surface pits is a source of contamination of the shallow aquifers in Tyler County. According to a salt-water disposal inventory (Texas Water Commission and Texas Water Pollution Control Board, 1963), 2.5 million barrels of brine was produced in 1961 in Tyler County. Of this amount, 600,000 barrels (24 percent) was discharged to surface pits, and the rest was injected into sands below the base of fresh to slightly saline water (Texas Water Commission and Texas Water Pollution Control Board, 1963, p. 423-432).

Brine placed in unlined surface pits either evaporates, overflows, or seeps into the ground, eventually percolating downward to the water table. The rate at which brine percolates downward depends principally upon the permeability of the underlying sediments. When the brine reaches the water table, it may be diluted, but generally the brine will move in a more or less well-defined streamline, with a minimum of lateral or vertical diffusion and dilution (California State Water Pollution Control Board, 1963, p. 19-20). As a result, and because of the low velocity of movement of ground water, the brine that is placed in a pit may not affect the chemical quality of the water in nearby wells for many years. In Tyler County, contamination from unlined disposal pits is not apparent because of the absence of shallow wells in or near the oil fields.

A possible source of contamination of the ground water in Tyler County is by the upward movement of saline water. The geologic sections (Figures 14 and 16) show that the fresh water-salt water interface occurs in the Jasper aquifer in the southern part of the county. In some wells, the fresh-water and salt-water bodies are hydraulically connected; whereas, in other wells, the two bodies of water are separated by relatively thick beds of clay.

At the 1964 pumping rate, the ground-water system in the principal aquifer may be considered as essentially in dynamic equilibrium--that is, the fresh water-salt water interface is practically stationary because the pressure head of the fresh water that is moving downdip from the outcrop and discharging upward through the clays is balanced by the static head of salt water. However, if withdrawals from the three aquifers are increased significantly, this condition of equilibrium will be upset, and as a result, the salt water will move up in response to the change in pressure. The rate at which this upward movement will occur depends principally upon the permeability of the sediments separating the fresh-water and salt-water bodies and the change in the hydraulic head in the fresh-water body.

AVAILABILITY OF GROUND WATER

Major Aquifers

At the 1964 rate of pumping, the ground-water resources of Tyler County are practically undeveloped. The amount of water available for future development from the principal aquifers--Jasper, Evangeline, and Chicot--is dependent upon the rate of recharge to these aquifers and their ability to transmit water. The rate of recharge can be estimated by determining the amount of water that is moving through the aquifers, assuming that the hydraulic gradient has not been influenced significantly by pumping.

Approximately 70,000 acre-feet a year, or 62 mgd, of fresh to slightly saline water is being transmitted by the three principal aquifers at the present hydraulic gradients. This estimate is based on the assumption that the water passes through a vertical section of the aquifer 25 miles long, approximately along the Tyler-Hardin county line. In this vertical section, the fresh to slightly saline water-bearing sands have an aggregate thickness of about 1,000 feet (Figure 7) and a composite transmissibility of about 550,000 gpd per foot. Of the 62 mgd, approximately 18 mgd is transmitted by the Jasper aquifer, 20 mgd by the Evangeline aquifer, and 24 mgd by the Chicot aquifer. These quantities are based on an average hydraulic gradient of about 5 feet per mile, which is greater than that for the Jasper (2 feet per mile) and less than that for the Evangeline (8 feet per mile), shown on Figure 8, and Chicot (10 feet per mile). The steeper gradient in the Evangeline aquifer doubtlessly reflects the pumping of large quantities of water from a relatively small area in Jasper County. Insufficient data were available to map the configuration of the water table in the Chicot aquifer.

The 70,000 acre-feet, or 62 mgd, of effective annual recharge should be considered as a minimum quantity of water that is available for development annually without depleting the aquifers. A substantial quantity of potential recharge is discharged to streams as springflow. This discharge can be considered as rejected recharge, or water that enters the outcrop but cannot move down the dip under the present hydraulic gradient and thus moves toward the streams. Seeps and springs are common along many of the creeks and streams that cross the outcrop of the Evangeline and Chicot aquifers; they are less common along those in the Jasper and rare along those that cross the outcrop of the Jackson Group and Catahoula Sandstone.

An estimate of the volume of water thus rejected as potential recharge can be made on the basis of the base flow of Hickory, Turkey, Theuvenins, and Beech Creeks, which head in the outcrop of the Evangeline or Chicot aquifers, and of Wolf Creek, which heads in the Jasper aquifer. The U.S. Geological Survey has made measurements of the flow at several sites on the above-named creeks. On the basis of these measurements, the base flow of the four streams crossing the Evangeline and Chicot aquifers, when adjusted to the entire outcrops of these aquifers, ranged between 15 and 100 cfs (cubic feet per second) or 11,000 and 72,000 acre-feet per year; for Wolf Creek the base flow was 15.7 cfs or about 11,300 acre-feet per year. Assuming that the rate of rejection as measured in Wolf Creek is applicable to all the outcrop area of the Jasper aquifer, 28 cfs or 20,000 acre-feet of water per year would be rejected from the Jasper aquifer. Thus, the quantity of water discharged to streams as rejected recharge would amount to at least 31,000 acre-feet per year or nearly 28 mgd.

Considering the 70,000 acre-feet of water that is transmitted by the three major aquifers, plus the 31,000 acre-feet discharged to the streams as rejected recharge, slightly more than 100,000 acre-feet is the minimum amount of water available for development annually. This quantity is equivalent to about 2.5 inches of water covering and effectively recharging the outcrop areas of the aquifers, or only 5 percent of the average annual precipitation (49.85 inches).

The three aquifers also contain an immense quantity of ground water in transient storage. The base of fresh to slightly saline water slopes fairly uniformly in the northern half of the county, becoming relatively irregular in the southern half (Figure 9). The map shows that the base of fresh to slightly saline water extends to depths ranging from 100 feet above sea level near the updip limit of the Jasper aquifer to nearly 3,000 feet below sea level in the southeast corner of the county. The rapid changes in the altitude of the base of slightly saline water in the southern half of the county are due to the occurrence of relatively deep beds of slightly saline water-bearing sands that are separated from the main body of fresh to slightly saline water-bearing sands by a substantial thickness of material in which the water is moderately or very saline. This is clearly shown in the electrical logs of wells YJ-61-31-402 and YJ-61-31-301 (Figure 14).

The saturated thickness of fresh to slightly saline water sands in the Jasper, Evangeline, and Chicot aquifers is about 500 feet in the central part of the county, 500 to 1,000 feet in the southwestern part, and 500 to nearly 1,400 feet in the southeastern part (Figure 7). On this basis, and assuming a porosity of 30 percent, the three aquifers contain about 80 million acre-feet of fresh to slightly saline water in transient storage. It would be impracticable to recover much of this water because of the great depth at which it occurs. The amount of water in storage to a depth of 400 feet (perhaps a

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Table 3.--Records of wells and springs in Tyler County 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; B, bucket and rope; C, cylinder; Cf, centrifugal; E, electric; G, gasoline, butane, or diesel engine; H, hand; J, jet; N, none; Ng, natural gas; T, turbine; W, windmill. Number indicates horsepower.
Use of water : D, domestic; Ind, industrial; Irr, irrigation; N, none; P, public supply; S, livestock.
Water-bearing unit : Tj, Jackson Group; Tcs, Catahoula Sandstone; J, Jasper aquifer; B, Burkeville aquiclude; Ev, Evangeline aquifer; Ch, Chicot aquifer.

Well	Owner	Driller	Date completed	Depth of well (ft)	Diameter of well (in.)	Water-bearing unit	Altitude of land surface (ft)	Water level: Below land-surface datum (ft)	Water level: Date of measurement	Method of lift	Use of water	Remarks
						Tyler County						
YJ-37-60-901	Guilder Heirs	J. F. Wagnon	1905	1,200	8	Tcs	180	--	--	--	--	Oil test. Reported sulfur water at 200 ft.
61-701	Mrs. Mattie Wilson well 1	General Crude Oil Co.	1945	7,004	--	--	170	--	--	--	--	Oil test.[1]
801	Dora Wilson well 1	J. C. Bonham	1957	1,751	--	--	120	--	--	--	--	Do.
802	Mrs. Mattie Wilson well 1	Texas & Southern Petroleum Co.	1924	4,400	--	--	110	--	--	--	--	Oil test.
803	Mrs. Mattie Wilson well 2	do	1924	2,544	--	--	140	--	--	--	--	Do.
* 903	P. C. Mays	J. T. Snowden	1964	1,013	2-1/2	Tj	126	+	Nov. 26, 1964	Flows	D	Cased to bottom. Slotted from 988 ft to bottom. Estimated flow 3 gpm, Nov. 26, 1964. Temp. 81°F.
904	J. C. Powell	J. T. Snowden	1964	1,023	2	Tj	125	+	do	Flows	D,S	Cased to bottom. Slotted from 994 ft to bottom. Estimated flow 5.5 gpm, Nov. 26, 1964. Shut-in gas pressure. Temp. 81°F.
905	Denman Kountze well 1	Humble Oil & Refining Co.	1945	7,977	--	--	118	--	--	--	--	Oil test.[1]
906	Kountze Estate well 1	Oil Field Pipe & Supply Co.	1957	1,375	--	--	124	--	--	--	--	Do.
* 907	State Highway Dept.	--	--	Spring	--	Tcs	260	+	--	Flows	N	
908	Southwest Lumber Co. of New Jersey	Kountze Bros.	1905	1,550	--	--	150	+	--	Flows	N	Oil test. Reported flowed salty water in 1905. Abandoned.
* 909	Jerry B. Jones	J. T. Snowden	1961	1,013	2	Tj	130	+	May 7, 1964	Flows	N	Cased to bottom. Slotted from 993 ft to bottom. Estimated flow 2 gpm, Apr. 7, 1965. Temp. 81°F.
910	-- Kountze well 1-A	Humble Oil & Refining Co.	1930	419	--	--	181	--	--	--	--	Oil test.[2]
62-703	Denman Kountze well 3	J. C. Bonham	1940	1,340	--	--	111	--	--	--	--	Oil test.[1]
704	Denman Koutze well 5	do	1940	1,374	--	--	116	--	--	--	--	Do.

See footnotes at end of table.

Table 3.--Records of wells and springs in Tyler County and adjacent areas--Continued

Tyler County

Well	Owner	Driller	Date completed	Depth of well (ft)	Diameter of well (in.)	Water-bearing unit	Altitude of land surface (ft)	Water level: Below land-surface datum (ft)	Water level: Date of measurement	Method of lift	Use of water	Remarks
YJ-37-62-705	Southwest Lumber Co. of New Jersey well 1	J. C. Bonham	1939	155	--	--	155	--	--	--	--	Oil test.
* 801	B. & J. Dickerson	J. T. Snowden	1953	450	4	Tcs	135	16.4 17.0	Jan. 25, 1965 June 17, 1965	J,E, 1/2	D,S	Cased to bottom. Slotted from 440 ft to bottom.
802	H. L. Stone	--	1927	350	--	Tcs	115	+	Jan. 25, 1965	Flows	N	Oil test; completed as water well. Reported flow 5 gpm in 1964.
901	G. C. Mattauer well 1	General Crude Oil Co.	1945	3,513	--	--	114	--	--	--	--	Oil test.1/
61-03-601	Alan Shivers	Alvin Crews	1956	900	4	Tcs	198	--	--	C,W	S	Cased to bottom. Screen from 880 ft to bottom.
04-101	R. B. Barnes	H. A. & W. C. Crews	1951	286	2	Tcs	195	29.3	July 5, 1951	J,E, 1/2	D,S	Cased to bottom. Screen from 280 ft to bottom.
102	H. Odell Seamons	W. C. Crews	1956	417	2	Tcs	260	--	--	J,E	D	Cased to bottom. Screen from 407 ft to bottom. Pump set at 125 ft.
103	Mrs. H. E. Seamons	-- Gay	1962	214	2	Tcs	298	--	--	J,E, 1/2	D	Cased to bottom. Screen from 204 ft to bottom.
* 201	Ray Barnes	Ben Blithwood	1961	485	2-1/2	Tcs	270	121	1961	C,E	D,S	
401	Alan Shivers	--	1935	860	4	Tcs	360	169.3 178.9	Apr. 11, 1960 Nov. 10, 1964	C,E,	D,S	
402	do	-- Ballard	1964	377	4	Tcs	300	115.8	Apr. 6, 1965	N	N	Cased to bottom. Slotted from 352 ft to bottom. Supplied water for drilling oil test.
403	Lelia S. Kirby Trust well 2	Joe Smith	1964	5,022	--	--	322	--	--	--	--	Oil test.1/
404	Alan Shivers	H. A. & W. C. Crews	1960	600	2-1/2	Tcs	285	--	--	J,E, 1	D	Unused.
405	do	George Belanger Water Well Service	1960	600	4	Tcs	220	--	--	N	N	Supplied water for drilling oil test.
406	Ross Seamons	H. A. & W. C. Crews	1953	167	2-1/2	J	240	37	Jan. 1953	J,E, 3/4	D	Cased to bottom. Screen from 157 ft to bottom.
407	L. N. Fegsan	Cordril Corp.	--	236	2	J	260	--	--	A,E, 1-1/2	D	Old well.2/
408	H. L. David	H. W. & W. C. Crews	1961	235	2-1/2	J	245	90	1961	C,E, 1	P	Cased to bottom. Screen from 229 ft to bottom. Supplies water for service station.

See footnotes at end of table.

Table 3.--Records of wells and springs in Tyler County and adjacent areas--Continued

Tyler County

Well	Owner	Driller	Date completed	Depth of well (ft)	Diameter of well (in.)	Water-bearing unit	Altitude of land surface (ft)	Water level: Below land-surface datum (ft)	Water level: Date of measurement	Method of lift	Use of water	Remarks
YJ-61-04-409	H. L. David	H. W. & W. C. Crews	1950	250	2-1/2	J	280	110	1950	C,E	D,S	Cased to 246 ft. Screen from 240 to 246 ft.
* 410	do	do	1962	244	4	J	275	96.0 97.8	Oct. 9, 1964 June 22, 1965	T,E, 1	D,Ind	Cased to bottom. Screen from 238 ft to bottom. Estimated discharge 10 gpm. Supplies water for laundry.
411	Alan Shivers	George Belanger Water Well Service	1965	372	3	Tcs	360	172.1	Apr. 6, 1965	N	N	Cased to bottom. Slotted from 352 ft to bottom. Supplied water for drilling oil test.
412	Chester School District	--	--	230	3	J	230	--	--	J,E	P	
413	Lelia S. Kirby Trust well 1	Joe E. Smith	1960	9,002	--	--	235	--	--	--	--	Oil test.[1]
414	Lelia S. Kirby Trust well 3	do	1965	2,510	--	--	369	--	--	--	--	Do.
501	W. T. Carter & Bros. well F-1	Justiss-Mears Oil Co.	1965	4,000	--	--	283	--	--	--	--	Do.
601	T. V. Seamons	H. A. & W. C. Crews	1951	115	2	Tcs	305	60	Aug. 1951	C,E	D	[2]
701	George Vincent	do	1951	76	2	J	282	38.5	Sept. 12, 1951	N	N	Cased to bottom. Screen from 70 ft to bottom. Abandoned.
702	George H. Vinson	do	1951	310	2	J	282	--	--	J,E	D	Cased to bottom. Screen from 296 ft to bottom.
703	Mrs. Ruth Parks	-- Gay	1956	75	2	J	270	40	1956	J,E	D,S	Cased to 63 ft.
801	Mrs. R. C. Coffman	--	1952	100	2	J	290	--	--	C,E	N	Cased to 90 ft. Abandoned.
802	J. T. Foster	H. A. & W. C. Crews	1960	388	2	J	295	--	--	J,E	D	Cased to 348 ft.
803	W. T. Carter & Bros.	Justiss-Mears Oil Co.	1964	9,310	8	--	317	--	--	--	--	Oil test.[1]
804	D. C. Peters	W. C. Crews	1961	324	2	J	300	70	1961	J,E	D,S	Cased to 320 ft.
805	Bob Belt	--	1920	26	24	B	360	23.8	Dec. 14, 1964	J,E	D,S	Dug well. Cased to bottom.
901	W. G. Herren	Ben Blithwood	1964	122	2	J	280	--	--	A,E	D	Cased to 112 ft.
05-201	A. F. Cheshire	Robert Snowden	1965	132	2	Tcs	220	--	--	C,E	D,S	Cased to 126 ft.
202	-- Hayes well 1	Louis Franklin	1940	5,500	--	--	186	--	--	--	--	Oil test.[1]
203	J. M. Sturrock well 1	Ralph E. Fair	1965	7,526	--	--	155	--	--	--	--	Do.

See footnotes at end of table.

Table 3.--Records of wells and springs in Tyler County and adjacent areas--Continued

Tyler County

Well	Owner	Driller	Date completed	Depth of well (ft)	Diameter of well (in.)	Water-bearing unit	Altitude of land surface (ft)	Water level: Below land-surface datum (ft)	Water level: Date of measurement	Method of lift	Use of water	Remarks
YJ-61-05-204	A. F. Cheshire	W. C. Crews	1960	135	2	Tcs	220	--	--	C,E	D,S	Cased to 127 ft.
301	Southwest Lumber Co. of New Jersey	J. C. Bonham	1939	4,253	--	--	220	--	--	--	--	Oil test.
302	J. L. Crews	H. A. & W. C. Crews	1951	183	2	J	410	100	July 1951	N	N	Abandoned.[2]
303	W. C. Crews	W. C. Crews	1960	200	4	J	410	110	1960	T,E	D,S	Cased to 190 ft.
304	J. P. Dean	H. A. & W. C. Crews	1953	208	2	J	255	30	1953	C,E	D	Cased to 196 ft.
305	W. C. Crews	W. C. Crews	1952	180	2-1/2	J	360	90	1952	C,E	D,S	Cased to 170 ft.
401	Schlicher-Thomas well 1	Louis Franklin et al.	1940	4,660	--	--	190	--	--	--	--	Oil test.[1]
402	Cecil Smith	W. C. Crews	1958	350	2	J	295	--	--	J,E	D,S	Cased to 340 ft.
501	J. A. Cruse well 1	D. M. Wallace	1965	2,138	--	--	155	--	--	--	--	Oil test.[1]
502	John A. Pitman	Bernice Crawford	1964	159	2	J	280	--	--	J,E	D	Cased to 151 ft.
503	do	Alvin Crews	1957	129	2	J	275	--	--	N	N	Plastic pipe in well.
504	E. P. Wallace well 1-A	Humble Oil & Refining Co.	1931	1,431	--	--	162	--	--	--	--	Oil test.
505	J. M. Milner well 1-A	do	1931	1,403	--	--	210	--	--	--	--	Do.
506	J. A. & H. P. Crews well 1	-- Boone, et al.	1925	2,246	--	--	150	--	--	--	--	Do.
601	Allen Hayes	-- Crews	1950	115	4	J	380	--	--	C,E	D	Cased to 105 ft.
602	M. T. White	Alvin Crews	1948	120	2	J	360	--	--	C,E	D,S	Cased to 110 ft.
* 603	H. L. Poindexter	Simmons Water Well Service	1957	610	2	Tcs	410	160	1957	A,E	D,S	Cased to 602 ft. Measured discharge 1/2 gpm.
604	Arthur N. Owens	J. T. Snowden & Son	1963	100	2	J	405	60	Apr. 1963	C,E	D,S	Cased to 92 ft.
605	Teddy Minyard	Teddy Minyard	1965	6	21	J	205	1.0	Apr. 6, 1965	J,E	D	Dug well. Cased to bottom.
606	J. L. Wilson	H. A. & W. C. Crews	1959	191	2	J	225	--	--	J,E	D	Cased to 185 ft.
607	Cecil Davis	do	1960	245	2	J	375	70	1960	J,E	D,S	Cased to 235 ft.
701	Clyde Freeman	do	1960	163	2	J	280	83	1960	A,E	D,S	Cased to 157 ft.
702	R. P. Stephens	do	1957	400	2	J	300	117	1957	C,E	D,S	Cased to 391 ft.
703	Edmond Bryant	--	1915	21	28	J	253	16.7	Dec. 14, 1964	Cf,E	D,S	Dug well. Cased to bottom.

See footnotes at end of table.

Table 3.--Records of wells and springs in Tyler County and adjacent areas--Continued

Tyler County

Well	Owner	Driller	Date completed	Depth of well (ft)	Diameter of well (in.)	Water-bearing unit	Altitude of land surface (ft)	Water level: Below land-surface datum (ft)	Water level: Date of measurement	Method of lift	Use of water	Remarks
YJ-61-05-704	G. S. Downing	Ben Blithwood	1963	80	2	J	255	--	--	J,E	D,S	
705	R. E. Mullins	H. A. & W. C. Crews	1957	150	2	J	260	--	--	J,E	D,S	
706	W. L. Shouty	do	1954	375	2	J	330	--	--	C,E	D,S	Cased to 367 ft.
801	W. C. Crews	do	1960	55	4	J	265	--	--	T,E	N	Abandoned.
802	-- Bryce	do	1951	129	2	J	320	100	July 1951	C,E	D,S	Cased to 123 ft.
803	Durl Patrick	H. A. & W. C. Crews	1952	150	2	J	220	--	--	J,E	D	Cased to 142 ft.
804	H. J. Hurst	Mitchell Bros.	1964	735	2-1/2	J	245	88	Sept. 1964	A,E	D,S	Cased to 705 ft.[2]
805	A. C. Howell	Jody Stovall	1955	35	30	J	240	31.7	Nov. 25, 1964	J,E	D	Dug well. Cased to bottom.
806	W. G. Allison	Bernice Crawford	1964	84	2	J	275	60	July 1964	J,E	D	Cased to 76 ft.[2]
807	Louis Ogden	W. C. Crews	1962	190	4	J	308	100	Dec. 1962	T,E	D,S	
* 808	C. S. Fortenberry	Ben Blithwood	1964	48	4	J	267	--	--	T,E	P	Cased to 38 ft. Temp. 73°F.
* 809	do	W. C. Crews	1955	48	8	J	267	--	--	T,E	P	Temp. 73°F.
901	Edgar Mott	H. A. & W. C. Crews	1952	96	2	J	300	48	1964	J,E	D,S	Cased to 86 ft.
902	J. Barto Mann	do	1951	103	2-1/2	J	210	71	July 1951	J,E	D	Cased to 97 ft. Reported sand from surface to bottom of well.
903	Mrs. Mattie Milsted	do	1951	87	2	J	315	63	June 1951	C,E	D	Cased to 81 ft. Reported sand from surface to bottom of well.
* 06-101	T.N. & N.O. of Southern Pacific	--	1920	Spring	--	--	210	+	June 15, 1965	Flows	P	Estimated flow 25 gpm. Supplies water for 20 houses. Flows into Sugar Creek. Temp. 80°F.
102	Denman-Kountze well 2-B	Humble Oil & Refining Co.	1945	8,487	--	--	232	--	--	--	--	Oil test.[1]
103	F. F. Skinner	W. C. Crews	1960	160	2	Tcs	340	--	--	N	N	Abandoned.
201	Ben Stewart	-- Marshall	1961	133	2	Tcs	220	60	1961	J,E	D,S	Cased to 128 ft.
202	Charles Abbott	-- Mitchell	1964	30	24	Tcs	150	26.3	Nov. 23, 1964	B,H	D	Dug well. Cased to bottom.
203	Ben Stewart	W. C. Crews	1958	700	--	Tcs	220	--	--	N	N	Reported salt water. Abandoned.[2]
301	Matt Owens	E. L. Owens	1900	25	24	J	162	18.7	Nov. 24, 1964	B,H	D,S	Dug well. Cased to bottom.
302	Clarence Nash	Horace Barley	1964	21	8	--	118	17.4	Nov. 23, 1964	B,H	D	
401	Kirby Lumber Co.	W. C. Crews	1940	145	2	J	355	--	--	J,E	D,S	

See footnotes at end of table.

Table 3.--Records of wells and springs in Tyler County and adjacent areas--Continued

Tyler County

Well	Owner	Driller	Date completed	Depth of well (ft)	Diameter of well (in.)	Water-bearing unit	Altitude of land surface (ft)	Water level: Below land-surface datum (ft)	Water level: Date of measurement	Method of lift	Use of water	Remarks
YJ-61-06-501	Herbert Neyland	-- Davidson, et al.	1960	12,020	--	--	364	--	--	--	--	Oil test.[1]
601	C. B. McAllister Estate	Will Wigley	1921	62	10	J	175	51.8	Nov. 23, 1964	B,H	D	Bored well. Cased to 14 ft.
* 602	do	E. M. Simmons	1964	487	2	Tcs	176	30	July 1964	J,E	D,S	
603	A. N. Owens well 1	J. B. Goodhue	1957	3,997	--	--	187	--	--	--	--	Oil test.[1]
701	Ellis Fowler	W. C. Crews	1957	322	2	J	330	165	Jan. 1965	J,E	D,S	Cased to 312 ft.
702	do	-- Morgan	1940	75	30	J	330	62.2	Feb. 16, 1965	B,H	N	Cased to bottom. Unused.
703	C. C. Meadows	W. C. Crews	1962	112	2	J	310	--	--	J,E	D,S	Cased to 106 ft.
704	E. G. Rawls	do	1948	91	2	J	360	60	1948	J,E	D,S	Cased to 81 ft.
901	W. T. Gardner	do	1957	90	3	J	205	50	1957	C,E	D,S	Cased to 80 ft.
* 07-103	B. F. Snyder	-- Merritt	1961	212	2	Tcs	95	+	1965	Flows, J,E	D	Cased to 206 ft. Temp. 74°F.
401	Hurbert Sutton	W. C. Crews	1950	187	2	J	119	17.8	Nov. 23, 1964	N	N	
402	do	do	1963	210	2	J	120	--	--	J,E	D,S	Cased to 205 ft.
701	Mrs. Lacy Bohler	William Lewis	1935	18	30	J	115	6.7	Nov. 23, 1964	B,H	D,S	Dug well. Cased to bottom.
702	June Day	H. A. & W. C. Crews	1951	122	2	J	95	+	1965	Flows, J,E	D	Temp. 68°F.
703	June Fleming	do	1954	163	2	J	95	+	1965	Flows, Cf,E	D	Do.
* 704	U.S. Army Corps of Engineers	Simmons Water Well Service	1963	320	4-1/2	J	920	+ 55.5 + 52.9	Nov. 20, 1964 July 1, 1965	Flows	P	Cased to 300 ft.[2]
12-101	W. T. Carter Bros. well A-1	Justiss-Mears Oil Co.	1964	9,779	8-5/8	--	449	--	--	--	--	Oil test.[1]
* 201	Pure Transportation Co.	English Drilling Co.	1953	420	4	J	285	90	Aug. 1953	C,E	D	Cased to bottom. Screen from 377 to 398 ft.[2]
202	W. T. Carter & Bros. well H-1	Justiss-Mears Oil Co.	1965	4,001	--	--	362	--	--	--	--	Oil test.[1]
301	L. E. Oates	H. A. & W. C. Crews	1948	176	2	J	330	--	--	N	N	Abandoned.
302	do	-- Tidwell	1962	176	2	J	330	--	--	C,E	D,S	
303	J. D. Spurlock, Sr.	H. A. & W. C. Crews	1950	350	2	J	365	--	--	A,E	D,S	Cased to bottom.

See footnotes at end of table.

Table 3.--Records of wells and springs in Tyler County and adjacent areas--Continued

Tyler County

Well	Owner	Driller	Date completed	Depth of well (ft)	Diameter of well (in.)	Water-bearing unit	Altitude of land surface (ft)	Water level: Below land-surface datum (ft)	Water level: Date of measurement	Method of lift	Use of water	Remarks
YJ-61-12-304	W. T. Carter & Bros. well P-1	Justiss-Mears Oil Co.	1965	4,012	--	--	361	--	--	--	--	Oil test.[1]
401	W. T. Carter & Bros. well B-1	do	1964	10,261	8-5/8	--	355	--	--	--	--	Do.
402	W. T. Carter & Bros. well M-1	do	1965	4,002	--	--	355	--	--	--	--	Do.
501	J. E. Wheat, et al. well 1	Wheat & Reid	1953	3,496	--	--	370	--	--	--	--	Oil test.[1]
502	Ed Mitchell	--	1910	50	30	B	340	45	Oct. 1953	B,H	D,S	Dug well. Cased to bottom.
503	W. B. Grimes	--	1917	30	32	B	320	3.0	Nov. 13, 1964	B,H	D	Do.
601	Hugh Johnson	Bernice Crawford	1964	255	2	B	390	138	Nov. 8, 1964	J,E	D,S	Cased to bottom.
602	do	Hugh Johnson	1918	14	24	B	390	11.5	Nov. 13, 1964	B,H	D	Dug well. Cased to bottom.
603	C. M. Fortenberry	H. A. & W. C. Crews	1956	401	2	J	345	150	1956	J,E	D	
604	Mrs. H. G. Tucker	H. G. Tucker	1939	75	24	B	370	66.5	Nov. 13, 1964	J,E	D,S	
605	Y. G. Stanley	--	1925	32	30	B	362	24.8	do	J,E	D,S	Dug well. Cased to bottom. Supplies water for 3,000 chickens and some cows.
606	J. T. Walston	W. C. Crews	1960	400	4	J	330	121.6	Dec. 8, 1964	T,E	D,S	Cased to bottom.
607	Earl Kirkland	do	1954	126	2	B	290	124	July 1954	J,E	D,S	Cased to 116 ft.
701	W. T. Carter & Bros. well E-1	Justiss-Mears Oil Co.	1965	4,007	--	--	403	--	--	--	--	Oil test.[1]
801	Joe E. Smith	H. A. & W. C. Crews	1951	165	2	B	400	144	July 1951	C,E	S	Cased to 159 ft. Supplies water for chickens.[2]
802	Watson Dickens	W. C. Crews	--	176	3	B	315	--	--	N	N	Abandoned.
803	Oceanus Tucker	John Sanders	1948	35	30	B	350	30	Oct. 1953	J,E	D,S	Dug well. Cased to bottom.
804	W. T. Carter	Seismograph Crew	1952	160	3	B	365	--	--	J,E	D	Seismograph shot hole.
805	W. T. Carter & Bros. well K-1	Justiss-Mears Oil Co.	1965	4,010	--	--	397	--	--	--	--	Oil test.[1]
806	E. N. Dickens	--	1959	35	30	B	315	25.1	Mar. 26, 1965	J,E	D	Dug well. Cased to bottom.
807	Jeff B. Rhodes	Simmons Water Well Service	1964	94	4	B	280	47.8	do	T,E, I	D	Cased to bottom. Screen from 84 ft to bottom.
901	Camp Niwana	Amelia Water Supply Co.	1957	559	6	J	350	--	--	J,E, 5	P	Cased to bottom. Estimated discharge 10,000 gpd during summer months.

See footnotes at end of table.

Table 3.--Records of wells and springs in Tyler County and adjacent areas--Continued

Tyler County

Well	Owner	Driller	Date completed	Depth of well (ft)	Diameter of well (in.)	Water-bearing unit	Altitude of land surface (ft)	Water level: Below land-surface datum (ft)	Water level: Date of measurement	Method of lift	Use of water	Remarks
*YJ-61-12-902	J. C. Means, Jr.	Pitre Water Well Drilling Co.	1948	629	4	J	350	164 166.8	Sept. 1948 Apr. 18, 1960	J,E	N	Cased to 605 ft.2/
903	W. W. Mitcham	--	1908	26	30	B	390	--	--	C,E	D,S	Dug well. Cased to bottom.
904	E. W. Lilley	--	1939	30	48	B	250	17.5	Oct. 22, 1964	B,H	D	Dug well. Cased to 6 ft.
905	J. A. Weeks	--	1891	36	30	B	390	24.1	do	J,E	D	Dug well. Cased to bottom.
906	-- Bond	--	--	17	30	B	395	13.1	Oct. 21, 1953	N	N	Dug well. Unused.
907	W. T. Carter & Bros.	Shorty Richards	1948	63	30	B	380	44 53.5	July 1948 Oct. 22, 1964	J,E	D,S	Dug well. Cased to bottom.
908	do	Amelia Drilling Co.	1960	176	2	B	380	--	--	J,E	N	Cased to 164 ft.
909	Len Brown	--	--	58	6	B	270	--	--	J,E	D	Bored well. Old well.
910	E. J. Collins	Woodrum & Brown	1949	51	24	B	275	45.4 47.6	Oct. 21, 1953 Oct. 22, 1964	J,E	N	Dug well. Unused.
* 911	Camp Niwana	--	--	Spring	--	Ch	290	+	--	Flows	N	Reported unfit for camp use.
13-101	Lester Cruse	H. A. & W. C. Crews	1951	188	2	J	365	155	Sept. 1951	N	N	Abandoned.
102	Lou Cruse	do	1951	130	2	J	270	80	do	J,E	D	2/
103	Douglas Frazier	Maude Frazier	1940	35	24	B	355	32.2	Nov. 25, 1964	B,H	D	Dug well. Cased to bottom. Temp. 68°F.
104	Eddie Frank	--	1950	40	24	B	342	36.3	do	B,H	D	
105	Clyde J. Cruse	Ted Tidwell	1956	214	2	J	330	--	--	J,E	D,S	Cased to 204 ft.
106	Lester Cruse	W. C. Crews	1958	183	2	J	365	90	1958	C,E	D,S	Cased to bottom.
201	Rex I. Belt	Alvin Crews	1945	157	2	J	345	149.5	Nov. 25, 1964	N	N	Abandoned.
202	do	W. C. Crews	1960	187	2	J	345	--	--	C,E	D,S	Cased to 175 ft.
203	Woodrow Davis	do	1956	165	2	J	320	--	--	C,E	D,S	
204	L. V. Davis	Frank Samples	1959	32	24	B	350	29.4	Dec. 16, 1964	J,E	D,S	Dug well. Cased to bottom.
205	L. H. Mathews	J. T. Snowden	1964	270	2	J	355	98.0	do	A,E	D	
301	J. U. Hopson Estate	do	1964	135	2	J	260	--	--	J,E	D	
401	Wiley Hales	--	1900	18	30	B	300	13 10.0	Oct. 1953 Nov. 13, 1964	Cf,E	D,S	Dug well. Cased to bottom. Reported never goes dry.
501	W. N. Christian	W. C. Crews	1958	357	4	J	325	149.5	Apr. 13, 1960	N	N	Abandoned.

See footnotes at end of table.

Table 3.--Records of wells and springs in Tyler County and adjacent areas--Continued

Tyler County

Well	Owner	Driller	Date completed	Depth of well (ft)	Diameter of well (in.)	Water-bearing unit	Altitude of land surface (ft)	Water level: Below land-surface datum (ft)	Water level: Date of measurement	Method of lift	Use of water	Remarks
YJ-61-13-502	City of Woodville	Simmons Water Well Service	1959	310	4	J	310	125	1959	T,E	Ind	Cased to 300 ft. Supplies water for cooling and general plant use.[2]
* 503	International Paper Co.	J. T. Snowden	1953	318	6	J	318	134.5	Apr. 14, 1965	T,E	Ind	
504	W. N. Christian	Paul Acheson	--	334	6	J	325	143	Oct. 1941	C,E	N	
505	do	H. A. & W. C. Crews	1952	305	3	J	325	140	1952	N	N	
506	Macy Owens	do	1951	300	2-1/2	J	260	90	Aug. 1951	J,E	D	Cased to 288 ft.[2]
507	Long Bell Lumber Co.	--	1915	447	8	J	330	51.9	Oct. 21, 1953	N	N	Destroyed.
508	do	--	1915	--	8	--	330	51.3	do	N	N	Do.
509	do	--	1915	--	8	--	330	52.1	do	N	N	Do.
510	Mrs. H. O. Preston	Bernice Crawford	1964	226	2	B	330	--	--	A,E	D	Cased to 218 ft.
511	Eli Hart	-- Foxworth	1962	60	2	B	330	20.1	Nov. 13, 1964	A,E	D	Cased to 54 ft.
512	do	Bernice Crawford	1964	59	2	B	330	--	--	J,E	D	
* 513	W. N. Christian	W. C. Crews	1958	316	4	J	325	146.5	June 16, 1965	T,E	P	Temp. 74°F.
601	Lincolm Barlow	--	1954	30	24	B	305	27.1	Dec. 14, 1964	J,E	D,S	Cased to bottom.
602	Tom Barlow	Bernice Crawford	1964	292	2	J	310	--	--	J,E	D,S	Cased to 284 ft.
701	Alan Shivers	Layne-Texas Co.	1953	450	6	B	265	78 76.0	1955 Apr. 15, 1965	T,E	D,S	Supplies water for houses and 2 acres of lawn.
702	C. A. Howell	Miller Drilling Co.	1964	477	4	J,B	315	112.6 113.4	Oct. 22, 1964 Apr. 16, 1965	N	N	Destroyed.[2]
703	C. A. Howell well 1	Humble Oil & Refining Co.	1964	21,400	--	--	324	--	--	--	--	Oil test.[1]
704	W. A. Williford	John Sanders	1947	50	24	B	365	44	Oct. 1953	J,E	D,S	Dug well.
705	H. G. Brandin	do	--	75	--	B	360	70 67.3	Oct. 1953 Jan. 26, 1965	J,E	D,S	Dug well. Reported never goes dry.
706	Hugo Debidine	H. A. Crews	1949	57	3	B	260	--	--	C,E	D	
707	E. C. Cheek	do	1947	67	3	B	265	30	1947	C,E	D,S	
708	W. S. Brandin	do	1961	99	2	B	355	62	1961	J,E	D	
* 801	City of Woodville well 4	Layne-Texas Co.	1958	600	12-3/4	J	300	149.6 148.2	Apr. 21, 1960 Oct. 21, 1964	J,E, 30	P	Cased to bottom. Drawdown 44 ft after pumping 380 gpm.[2]

See footnotes at end of table.

Table 3.--Records of wells and springs in Tyler County and adjacent areas--Continued

Tyler County

Well	Owner	Driller	Date completed	Depth of well (ft)	Diameter of well (in.)	Water-bearing unit	Altitude of land surface (ft)	Water level		Method of lift	Use of water	Remarks
								Below land-surface datum (ft)	Date of measurement			
*YJ-61-13-802	City of Woodville well 3	Layne-Texas Co.	1951	582	12	J	326	153.2 155.3	Nov. 23, 1955 Nov. 21, 1964	T,E, 30	P	Cased to bottom. Screen from 425-460, 470-505, and 530-560 ft. Drawdown 50 ft after pumping 405 gpm. Temp. 74°F.
* 803	City of Woodville well 1	do	1934	404	8	J	270	168	Oct. 1950	T,E, 10	N	Cased to 393 ft. Drawdown 25 ft after pumping 199 gpm. Temp. 71°F. Abandoned.[2]
* 804	City of Woodville well 2	do	1944	398	10-3/4	J	270	103.5 104.3 107.0	Oct. 19, 1950 Nov. 23, 1955 Oct. 21, 1964	T,E, 15	P	Cased to bottom. Drawdown 7 ft after pumping 40 gpm. Temp. 71°F.[2]
805	Allen Riley	W. C. Crews	--	80	--	B	380	--	--	C,E	D	
806	do	H. A. Crews	--	108	--	B	390	--	--	C,E	D,S	
807	do	do	--	--	2	B	380	44.2	Oct. 13, 1952	N	N	
* 808	Mulligan Grimes	--	--	25	--	B	230	21.0 21.7	Feb. 12, 1953 Mar. 26, 1965	Cf,E	D	Dug well.
809	J. W. Blakeney	John Sanders	1948	61	24	B	330	60	Oct. 1963	N	N	Destroyed.
810	S. A. Powell	do	1951	44	24	Ch	375	40 38.4	Oct. 1953 Oct. 20, 1964	B,H	D	Cased to bottom.
811	A. W. Cook	D & M Water Well Service	1956	225	4	B	310	54	1956	T,E	D	Cased to 205 ft.
812	J. W. Blakeney	Ben Blithwood	1964	89	2	B	330	--	--	J,E	D	Cased to 83 ft. Supplies water for house and garden.
813	John J. Best	T. J. Snowden	1963	147	2	B	290	105	1963	J,E	D,S	Cased to 141 ft.
814	W. E. Kirkland	Simmons Water Well Service	1963	275	2	B	330	100	1962	J,E	D,S	
901	Troy Harrison	--	--	50	24	B	295	33.5	Nov. 12, 1964	N	N	Old well.
902	A. B. Horton	Mitchell Bros.	1963	281	2	B	330	116	Oct. 1963	J,E	D	
903	H. E. Jones	-- Bell	1954	365	2	B	325	140	1952	C,E	D	
904	Mrs. W. C. Martin	W. C. Martin	1919	35	8	B	305	15.3	Dec. 8, 1964	Cf,E	D	Bored well. Cased to bottom.
905	Lee Holden	W. C. Crews	1960	312	2	B	325	--	--	A,E	D	Cased to 306 ft.
906	L. N. Feagin	--	1964	366	4	B	305	--	--	T,E	D	Cased to bottom.
907	Irene Eaves	Bernice Crawford	1963	60	2	B	300	--	--	J,E	D	Do.
14-101	Long Bell Lumber Co. well 1	Pan American Petroleum Corp.	1962	14,510	--	--	296	--	--	--	---	Oil test.[1]

See footnotes at end of table.

Table 3.--Records of wells and springs in Tyler County and adjacent areas--Continued

Tyler County

Well	Owner	Driller	Date completed	Depth of well (ft)	Diameter of well (in.)	Water-bearing unit	Altitude of land surface (ft)	Water level: Below land-surface datum (ft)	Water level: Date of measurement	Method of lift	Use of water	Remarks
YJ-61-14-201	James H. Dean	W. C. Crews	1955	200	2	J	240	--	--	A,E	D,S	Cased to bottom.
301	Roy Crosby	Roy Crosby	1942	16	1-1/4	J	130	6	1942	Cf,E	D,S	Driven well. Cased to 10 ft.
* 302	Glenn Callis	J. T. Snowden	1964	178	2	J	222	--	--	J,E	D	Cased to 172 ft. Temp. 73°F.
303	R. E. Grammer	Simmons Water Well Service	1951	265	2	J	245	--	--	J,E	N	Abandoned because of iron 5 years ago.
304	do	--	1958	9	6	B	215	2.8	Dec. 8, 1964	J,E	D,S	Dug well. Cased to bottom.
401	Charlie Rich	Charlie Rich	1941	6	30	B	305	+	Nov. 11, 1964	Flows, Cf,E	P,D	Dug well. Cased to bottom. Supplies drinking water for 10 families.
402	Joe E. Woods	W. C. Crews	1963	275	2	B	240	--	--	A,E	D	Cased to 265 ft.
501	Johnny Porter	Bernice Crawford	1964	139	2	B	245	60	July 1964	J,E	D	Cased to 124 ft.
502	Pete Mitchell	--	1964	368	2	J	240	--	--	A,E	D,S	Cased to bottom.
503	Ida Mae Scott	Frank Samples	1952	20	30	B	235	11.1	Nov. 11, 1964	B,H	D	Dug well. Cased to bottom.
701	Bill Read	--	--	Spring	--	B	215	+	Jan. 29, 1964	Flows	D	Curbed with wooden box.
702	Frank Read	John Sanders	--	23	28	B	225	18	Feb. 1953	B,H	D	
703	Jim Wright	Jim Wright	--	30	30	B	225	24.3	Jan. 29, 1964	B,H	D	
801	Floyd Sanders	John Sanders	1947	45	28	B	255	40	1947	B,H	D	Dug well.
802	do	do	1952	30	30	B	235	18	1953	Cf,E	D	Dug well. Cased to bottom.
803	R. M. Birdwell	J. T. Snowden	1960	115	2	B	280	--	--	A,E	D,S	Cased to 105 ft.
804	Corbit Holmes	Corbit Holmes	1932	21	30	B	265	15.6	Jan. 29, 1965	J,E	D	Dug well. Cased to bottom.
805	Vernon M. Dean	Frank Samples	1954	38	24	B	290	33.7	Feb. 2, 1965	J,E	D	Cased to bottom.
901	R. L. Read	R. L. Read	1963	51	2	B	290	22	1963	J,E	D	Cased to 42 ft.
* 902	Bergen Dean	Sam Gore	1965	398	2	J	275	180	Feb. 1965	A,E	D,S	Cased to 390 ft.[2]
903	Clifton Shepherd	W. C. Crews	1961	420	2	J	255	120	Sept. 1961	J,E	D,S	Cased to 412 ft.
904	do	do	1951	226	2	B	255	90	Sept. 1951	N	N	Destroyed.[2]
905	Beuford Hatton	do	1955	540	2	J	318	--	--	C,E	D,S	Cased to bottom.
906	H. Best	J & R Drilling Co.	1965	443	2	J	260	--	--	A,E	D,S	Do.
15-101	Frank Grimes	J. T. Snowden	1964	68	4	B	260	31.6	Nov. 24, 1964	T,E	Ind	Cased to 60 ft. Supplies water for laundry.[2]

See footnotes at end of table.

Table 3.--Records of wells and springs in Tyler County and adjacent areas--Continued

Tyler County

Well	Owner	Driller	Date completed	Depth of well (ft)	Diameter of well (in.)	Water-bearing unit	Altitude of land surface (ft)	Water level: Below land-surface datum (ft)	Water level: Date of measurement	Method of lift	Use of water	Remarks
YJ-61-15-102	C. A. Buckles	Green Bros.	--	75	2	B	120	12	1953	N	N	Destroyed.
103	U.S. Army Corps of Engineers	--	--	87	3	B	90	+ 7.4	July 29, 1965	Flows	P	Cased to bottom. Temp. 70°F.
* 104	Lloyd Habard	Simmons Water Well Service	1962	470	2	J	397	+ 45	July 1965	Flows	Ind	Cased to 454 ft. Supplies water for fish pond. Temp. 76°F.
* 105	Johnny Baker & Jack Houston	-- Atchison	1954	364	2	J	102	18.0 25.0	Nov. 11, 1964 June 18, 1965	A,E	P	Cased to 344 ft. Temp. 73°F.[2]
106	do	J. T. Snowden	1965	472	2	J	105	+ 24.4	June 29, 1965	Flows	Ind	Cased to 452 ft. Supplies water for minnow pond. Temp. 76°F.
107	R. P. Marshall	--	1956	460	2	J	110	+ 20.0	do	Flows, C,E	D,P	Cased to bottom.
108	C. A. Buckles	--	1952	350	2	J	120	+	Dec. 16, 1964	Cf,E, Flows	D,P	Cased to bottom. Temp. 74°F.
109	A. L. Lloyd	Mitchell Bros.	1953	71	2	B	95	3	1953	J,E	D	Cased to 65 ft.
110	H. R. Herrington	Eli Campanelli	1962	35	1-1/4	B	97	2	1962	Cf,E	D	Cased to 29 ft.
111	C. A. Williams	George Belanger Water Well Service	1961	460	2	J	95	+ 25	June 1965	Flows	D,P	Cased to 452 ft. Temp. 76°F.
112	R. A. Meyer, et al. well 1	Black Creek Oil Co.	1921	1,061	--	Tcs,J	85	+	1965	Flows	N	Oil test. Abandoned.
113	U.S. Army Corps of Engineers	Texas Water Wells Inc.	1961	354	4-1/2	J	87	+	1965	Flows	P	Cased to 341 ft. Temp. 72°F.[2]
114	Angelina Lumber Co. well 1	Dishman & Lucas	1942	6,510	--	--	165	--	--	--	--	Oil test.[1]
115	C. A. Buckles	--	--	824	4	Tcs	98	--	--	--	--	Oil test.
401	Angelina County Land Co. well 1	Chapman Minerals Inc.	1938	3,878	--	--	143	--	--	--	--	Oil test.[1]
* 501	U.S. Army Corps of Engineers	Layne-Texas Co.	1948	384	8-5/8	B	219	104.0 105.0 106.7 107.9	Feb. 22, 1949 Feb. 13, 1953 Nov. 24, 1964 July 23, 1965	T,E	P	Cased to bottom. Screen from 330 to 360 ft.[2]
502	J. B. Barlow	W. C. Crews	1954	180	2	B	95	+	--	Flows	D,P	Cased to bottom. Reported flow 5 gpm. Temp. 73°F.
* 503	U.S. Army Corps of Engineers	Simmons Water Well Service	1962	365	4-1/2	J	94	+ 26.2 + 24.0	Nov. 20, 1964 July 8, 1965	Flows	P	Reported flow 3 gpm. Shut-in. 30 minutes before measurement.[2]

See footnotes at end of table.

Table 3.--Records of wells and springs in Tyler County and adjacent areas--Continued

Tyler County

Well	Owner	Driller	Date completed	Depth of well (ft)	Diameter of well (in.)	Water-bearing unit	Altitude of land surface (ft)	Water level: Below land-surface datum (ft)	Water level: Date of measurement	Method of lift	Use of water	Remarks
*YJ-61-15-504	Stanley J. Head	--	1965	246	4	B	190	85.3 87.5	Jan. 25, 1965 June 25, 1965	T,E	P	Cased to 236 ft. Supplies water for 60 to 70 families. Temp. 73°F.
505	do	--	1957	254	4	B	195	85.3	Jan. 25, 1965	T,E	P	
506	do	--	1960	242	2	B	195	--	--	J,E	P	
507	do	--	1955	150	2	B	95	--	--	J,E	P	
508	G. F. Crow	--	1959	248	2	B	195	90	1959	J,E	D	Cased to 242 ft.
509	L. M. Hamm	W. C. Crews	--	112	2	B	105	+ 2.4	June 24, 1965	Flows, Cf,E	D	Cased to 105 ft. Reported flows when lake is full.
510	do	do	1955	80	4	B	95	+ +	Apr. 13, 1956 June 24, 1965	Flows, J,E	D	Cased to 70 ft. Estimated flow 15 to 20 gpm. Supplies water for fishing camp.
511	J. B. Barlow	George Belanger Water Well Service	1955	390	4	B	210	105.8	Feb. 2, 1965	N	N	Unused.
512	Barney Wiggins	Manuel E. Miller	1963	184	4	B	95	+	do	Flows	P	Estimated flow 40 gpm. Temp. 73°F.
701	E. L. Rawls	E. L. Rawls	1964	12	26	Ch	203	6.2	do	J,E	S	Dug well. Cased to bottom.
702	E. L. Rawls, Sr.	Frank Samples	1920	25	26	Ch	205	18.7	do	J,E	D,S	Do.
703	V. L. Segrest	Roger Hardgrove	1955	25	30	Ch	215	19.1	Feb. 3, 1965	Cf,E	D,S	Do.
704	Henry L. Crosby	John Cowart	1895	30	36	Ch	222	23.6	do	B,H	D,S	Do.
801	International Paper Co. well 1	A. A. Spidle	1960	4,448	--	--	210	--	--	--	--	Oil test.1/
802	T. O. Sutton Estate	--	1945	192	4	B	95	+ 51	1963	Flows	D,P	Cased to 60 ft; open hole from 60 ft to bottom. Supplies water for 7 families. Temp. 73°F.
803	J. B. Barlow	Frank Samples & Steve Mitchell	1963	33	24	Ch	221	27.8	Feb. 2, 1965	J,E	D	Dug well. Cased to bottom.
* 804	Barney Wiggins	Manuel E. Miller	1963	290	4	B	97	+ 24.7 26.6	Feb. 3, 1965 Aug. 27, 1965	Flows	P	Cased to 280 ft. Temp. 75°F.
805	W. D. Barclay	J. D. Die	1965	218	2	B	95	+	1965	Flows, Cf,E	D	Cased to 210 ft. Estimated flow 15 gpm. Temp. 75°F.
806	Murphy Smith	-- Gore	1965	282	2	B	100	+ 24.8	Aug. 27, 1965	Flows, J,E	D	Cased to 276 ft. Reported flow 10 gpm. Temp. 75°F.
807	Joseph A. Capiel	Simmons Water Well Service	1953	520	3	J	218	75	1953	J,E	D,S	Cased to bottom.

See footnotes at end of table.

Table 3.--Records of wells and springs in Tyler County and adjacent areas--Continued

Tyler County

Well	Owner	Driller	Date completed	Depth of well (ft)	Diameter of well (in.)	Water-bearing unit	Altitude of land surface (ft)	Water level: Below land-surface datum (ft)	Water level: Date of measurement	Method of lift	Use of water	Remarks
YJ-61-15-902	Long Bell Lumber Co. well 1	Lew Wentz	1931	4,205	--	--	290	--	--	--	--	Oil test.
20-301	C. W. Pate	W. C. Crews	1953	64	2-1/2	Ch	255	--	--	J,E	D,S	Cased to 56 ft.
302	Vernon Platt	-- Jones	1961	88	2	Ev	215	--	--	J,E	D,S	Cased to 80 ft.
* 601	Sun Pipeline Co.	Paul Acheson	1940	222	4	Ev	340	43	Apr. 1940	N	N	Destroyed.
602	do	W. C. Crews	1956	158	4	Ev	340	90	Jan. 1960	J,E	D,Ind	Cased to bottom.
603	The Texas Co.	do	1958	600	4	B	340	--	--	J,E	Ind	Do.
801	A. L. Lloyd	--	--	37	24	Ch	342	33.9	Jan. 27, 1965	N	N	Dug well.
802	W. A. Booth	Clarence R. Shard	1938	28	36	Ch	350	15.7	do	N	N	Dug well. Cased to bottom.
* 901	The Texas Pipeline Co.	The Texas Pipeline Co.	1940	101	6	Ev	222	50 53.7	1953 Jan. 27, 1965	N	N	Abandoned.
* 21-101	B. R. Williams	H. A. Crews	1944	107	2	Ev	300	73	1944	N	N	Do.
102	do	--	--	125	2	Ev	300	68	1963	J,E	D,S	Cased to 117 ft.
103	J. E. Brandin	J. E. Brandin	1949	38	24	Ev	250	30 25.8	Aug. 1953 Jan. 26, 1965	J,E	D,S	Dug well. Cased to bottom.
104	J. V. Estes	H. A. Crews	1950	90	--	Ev	253	--	--	N	N	Abandoned.
105	Alton Philen	--	1935		30	Ev	250	8 22.9	May 1953 Jan. 26, 1965	J,E	D	Dug well. Cased to bottom. Reported never goes dry.
106	Ray Dean	W. O. Dean	1934	35	30	Ev	230	28 23.0	Oct. 1953 Jan. 26, 1965	B,H	D	Dug well. Cased to 8 ft. Reported never goes dry. Temp. 66°F.
107	H. H. Hays	--	--	300	2	B	285	--	--	A,E	D,S	Cased to bottom.
108	S. D. O'Brian	W. C. Crews	1961	107	2	B	305	--	--	J,E	D,S	Cased to 97 ft.
109	J. V. Estes	Ben Blithwood	1961	88	2	Ev	253	--	--	J,E	D,S	Cased to 82 ft.
* 201	Beaumont Council, Boy Scouts of America	Mitchell Bros.	--	605	4	B	320	161.2	Apr. 18, 1960	T,E	P,D	Cased to bottom.
202	Frank L. Mott	W. A. Crews	1959	130	2	B	240	--	--	J,E	D	Do.
203	Albert Abbott	W. C. Crews	--	140	2	B	320	--	--	C,-	N	Abandoned.
204	do	Bernice Crawford	1964	250	2	B	320	100	Sept. 1964	J,E	D	Cased to 242 ft.
205	Robert Matkin	W. C. Crews	1961	236	2	B	330	--	--	A,E	D	Cased to bottom.

See footnotes at end of table.

Table 3.--Records of wells and springs in Tyler County and adjacent areas--Continued

Tyler County

Well	Owner	Driller	Date completed	Depth of well (ft)	Diameter of well (in.)	Water-bearing unit	Altitude of land surface (ft)	Water level		Method of lift	Use of water	Remarks
								Below land-surface datum (ft)	Date of measurement			
YJ-61-21-206	State Forest Service	H. A. & W. C. Crews	1951	93	3	Ev	355	93	1951	N	N	Reported dry in 1965.
207	do	Gussendorf & Belling	1949	262	3	B	355	140	1949	J,E	D,P	Cased to bottom.
208	Clyde Smith, Jr.	Bernice Crawford	1964	120	2	B	333	--	--	J,E	D,S	
209	Rupert Childress	do	1964	98	2	B	320	69	Mar. 1964	A,E	D	Cased to 88 ft.
210	do	Simmons Water Well Service	1958	110	2	B	320	--	--	A,E	D	Cased to 100 ft.
* 211	C. A. Deichel	H. A. & W. C. Crews	1951	69	2	Ev	345	50	July 1951	J,E	D	Cased to 63 ft.
* 212	do	Pitre Water Well Drilling Co.	1941	643	4	B	340	165	Nov. 1951	T,E	D,S	Cased to 630 ft.[2/]
213	State Forest Service	John Frye	1954	323	4	B	355	140	Dec. 1964	T,E	D	Cased to 290 ft.[2/]
* 214	Beaumont Council, Boy Scouts of America	--	--	Spring	--	Ch	220	+	Feb. 10, 1965	Flows	N	No longer used. Abandoned.
401	W. H. Risinger	W. H. Risinger	1937	100	8	Ev	235	40	1937	J,E	D	Bored well. Cased to 84 ft.
402	T. B. Boyd	--	--	180	--	Ev	245	--	--	C,E	S	
501	Ethyl Sawyer well 1	Nebo Oil Co., Inc.	1950	9,512	--	--	220	--	--	--	--	Oil test.[1/]
502	Brewster & Bartle Drilling Co.	Pitre Water Well Drilling Co.	1941	184	4	Ev	215	27	Aug. 1941	N	N	Destroyed.
503	J. B. Reid well 1	Navarro Oil Co.	1941	7,711	--	--	225	--	--	--	--	Oil test.[1/]
504	do	Irwin Miller, et al.	1946	7,630	--	--	119	--	--	--	--	Do.
* 601	Timber Lake Development Co.	-- Gay	1964	456	4	B	210	25.8	Nov. 12, 1964	T,E	P	Cased to bottom.
602	Richardson Chevrolet Co., Inc.	W. A. Crews	1950	75	2	Ev	220	--	--	J,E	D	Do.
603	do	do	1960	85	4	Ev	280	64.7	Nov. 12, 1964	T,E	S	Do.
604	J. P. Tolar	--	1958	350	2	B	205	--	--	A,E	D	Do.
605	Timber Lake Development Co.	-- Gay	1964	459	4	B	233	69.1	Aug. 12, 1965	T,E	P	Cased to 328 ft.
606	J. W. DeRamus	M & M Well Service	1961	379	2	B	195	22	1961	A,E	D,S	Cased to 371 ft.
607	H. L. Carter	W. C. Crews	1957	104	2	Ev	195	43	1957	A,E	D,S	Cased to 96 ft.

See footnotes at end of table.

Table 3.--Records of wells and springs in Tyler County and adjacent areas--Continued

Tyler County

Well	Owner	Driller	Date completed	Depth of well (ft)	Diameter of well (in.)	Water-bearing unit	Altitude of land surface (ft)	Water level: Below land-surface datum (ft)	Water level: Date of measurement	Method of lift	Use of water	Remarks
*YJ-61-21-608	J. P. Tollar	W. C. Crews	1947	96	2	Ev	190	43	1955	C,E	D	Cased to 84 ft. Temp. 72°F.
609	Mrs. A. W. Rock	do	1940	95	2	Ev	190	40	1940	C,E	D,P	Cased to 84 ft. Supplies water for service station.
701	C. A. Dollinger	--	1953	--	2-1/2	--	245	--	--	J,E	D	
702	-- Spurlock	-- Crews?	--	80	2	Ev	245	--	--	J,E	D	Cased to bottom.
703	F. H. Drunagel well 1	North-Central Oil Co. & Sinclair Oil Co.	1959	9,481	--	--	156	--	--	--	--	Oil test.[1]
* 801	Achy Hines	H. A. Crews	1947	75	4	Ch	245	--	--	C,E	D,S	
802	Humble Oil & Refining Co.	Pitre Water Well Drilling Co.	1943	266	4	Ev	175	46	Aug. 1943	N	N	Cased to 259 ft.[2]
803	R. J. Findley	R. J. Findley	1937	32	30	Ch	230	26 27.0	Oct. 1953 Oct. 21, 1964	J,E	D,S	Dug well. Cased to bottom.
804	I. C. Read	Bernice Crawford	1964	76	2	Ev	230	36	July 1964	A,E	D,S	Cased to bottom.
805	Fellowship Primitive Baptist Church	W. A. Crews	1958	95	2	Ev	220	--	--	J,E	N	Abandoned.
806	-- Goolsbee well 1	P. H. Welder	1956	8,325	--	--	200	--	--	--	--	Oil test.[1]
807	Humble Oil & Refining Co.	Pitre Water Well Drilling Co.	1943	462	4	Ev	180	37	Nov. 1943	N	N	Cased to 280 ft. Supplied water for drilling oil test. Unused.[2]
901	do	do	1942	332	4	Ev	160	18	Apr. 1942	N	N	Destroyed.[2]
902	C. E. Goolsbee, Warren Gas Unit well 1	Humble Oil & Refining Co.	1952	10,335	--	--	175	--	--	--	--	Oil test.[1]
903	Ella Goolsbee Estate well 1	do	1954	8,800	--	--	198	--	--	--	--	Do.
904	Humble Oil & Refining Co.	B. & L. Water Well Service	1952	287	4	Ev	160	--	--	N	N	Cased to 261 ft. Supplied water for drilling oil test.[2]
905	W. L. Davis	--	--	25	30	Ch	203	20 19.3	Oct. 1953 Jan. 12, 1965	Cf,E	D	Dug well. Reported gets low, but never goes dry.
906	J. O. Noland	--	1958	125	2	Ev	190	--	--	A,E	D	Cased to bottom.
907	Pat Bobbitt	--	1955	137	2	Ev	190	--	--	A,E	D	Do.
908	Beech Creek Lumber Co.	Mitchell Bros.	1950	210	3	Ev	188	--	--	J,E	Ind	Do.

See footnotes at end of table.

Table 3.--Records of wells and springs in Tyler County and adjacent areas--Continued

Tyler County

Well	Owner	Driller	Date completed	Depth of well (ft)	Diameter of well (in.)	Water-bearing unit	Altitude of land surface (ft)	Water level: Below land-surface datum (ft)	Water level: Date of measurement	Method of lift	Use of water	Remarks
YJ-61-21-909	Beech Creek Lumber Co.	Mitchell Bros.	1950	300	4	Ev	190	--	--	A,G	Ind	Cased to bottom.
910	L. D. Hatton	L. D. Hatton	1963	23	24	Ch	163	14.3	Feb. 4, 1965	Cf,E	D,S	Dug well. Cased to 16 ft.
911	T. A. Mills	Bernice Crawford	1957	240	2	Ev	163	--	--	J,E	D,S	Cased to bottom.
912	Leon Hatton	W. C. Crews	1948	100	2	Ev	167	--	--	J,E	S	Do.
913	Ella Goolsbee Estate well 1	B. & L. Water Well Service	1954	290	5-1/2	Ev	180	--	--	N	N	
* 22-401	Geo. P. Kirkpatrick	Mitchell Bros.	1960	315	6	Ev	160	+ 7.0 + 6.8	Feb. 18, 1965 Aug. 19, 1965	Flows	S	Cased to bottom. Reported flow 20 gpm. Temp. 74°F.
402	do	do	1956	320	3	B	160	+ 15.2 + 15.3	Aug. 19, 1965 Aug. 26, 1965	Flows	D	
403	do	do	1952	320	2	B	160	+ 13.5	Aug. 19, 1965	Flows	S	Cased to bottom. Reported produces combustable gas.
404	do	do	1951	330	2	B	190	--	--	J,E	D	Cased to bottom.
502	Humble Oil & Refining Co.	B. & L. Water Well Service	1952	347	4	B	192	15.5	Feb. 18, 1952	N	N	Abandoned.
503	do	do	1951	346	4	B	175	--	--	N	N	Destroyed.
504	Marvin Ivy	do	1952	364	4	B	180	19.0 20.0	Feb. 18, 1965 Aug. 11, 1965	N	D	Cased to 335 ft. Screen from 335 ft to bottom. Unused.[2]
505	Humble Oil & Refining Co.	do	1952	380	4	B	138	+ 16.5	Aug. 11, 1965	Flows	N	Cased to 358 ft. Supplied water for drilling oil test.
506	R. L. Pope well 1	Kent Exploration Co.	1956	8,011	--	--	164	--	--	--	--	Oil test.[1]
507	C. N. Housh	Silsbee Water Well Service	1951	379	4	B	142	+	1964	Flows	N	Cased to 354 ft. Screen from 354 ft to 377 ft. Supplied water for drilling oil test.[2]
508	Mrs. W. L. Tucker	--	--	21	36	Ch	210	19.6	Feb. 20, 1953	N	N	
509	Luther Scoggins	Luther Scoggins	1963	32	22	Ch	200	--	--	J,E	D	Bored well. Cased to bottom.
510	Teel & Scoggins	H. A. & W. C. Crews	1951	245	2	Ev	210	42	1951	A,E	D	Cased to 239 ft.
511	O. W. Sheffield	Geo. Belanger Water Well Service	1957	342	2	Ev	210	33	1952	J,E	D	Cased to 332 ft. Supplies water for irrigation of garden.
512	Walter Lee	Walter Lee	1940	38	30	Ch	250	32.5 33.7	Jan. 28, 1965 Aug. 11, 1965	J,E	D	Dug well. Cased to bottom.

See footnotes at end of table.

Table 3.--Records of wells and springs in Tyler County and adjacent areas--Continued

Tyler County

Well	Owner	Driller	Date completed	Depth of well (ft)	Diameter of well (in.)	Water-bearing unit	Altitude of land surface (ft)	Water level		Method of lift	Use of water	Remarks
								Below land-surface datum (ft)	Date of measurement			
YJ-61-22-601	Wm. Rice Institute well 1	Atlantic Refining Co.	1945	9,509	--	--	177	--	--	--	--	Oil test.1/
602	East Texas Oil Co. well 2	Humble Oil & Refining Co.	1949	5,200	--	--	212	--	--	--	--	Do.
603	Humble Oil & Refining Co.	B. & L. Water Well Service	1952	272	4	Ev	167	--	--	N	N	
604	do	do	1952	536	4	B	200	--	--	N	N	2/
605	Wm. Rice Institute well 5	--	--	--	4	--	185	19.2 22.5 24.9	July 31, 1953 Feb. 18, 1965 Aug. 11, 1965	N	Ind	Unused.
606	Alice Kimball	--	--	24	30	Ch	185	11.6	Jan. 28, 1965	N	N	
607	Wm. Rice Institute wells 1 and 3	--	1950	350	4	Ev	182	36.8 37.9	Feb. 18, 1965 Aug. 11, 1965	N	Ind	Unused.
608	East Texas Oil Co. well 1	Humble Oil & Refining Co.	1949	9,500	--	--	198	--	--	--	--	Oil test.1/
701	M. L. Davis well 1	do	1956	13,002	--	--	148	--	--	--	--	Do.
702	O. E. Elliott well 1	do	1951	10,630	--	--	159	--	--	--	--	Do.
703	C. L. Dickerson well 1	B. & L. Water Well Service	1951	478	4	Ev	152	9.5 10.7	Feb. 17, 1965 Aug. 11, 1965	N	Ind	Unused.
704	H. N. Williams	Simmons Water Well Service	1960	350	2	Ev	152	--	--	J,E	D	Cased to 342 ft.
705	M. L. Davis well 1	B. & L. Water Well Service	1956	453	4	Ev	138	+	Mar. 18, 1965	Flows	N	Temp. 68°F.
706	Leon Hatton	W. C. Crews	1948	70	3	Ch	155	--	--	J,E	D,S	
801	E. J. Hodges well 2	B. & L. Water Well Service	1952	355	4	Ev	137	+ 3.1	Feb. 18, 1965	Flows	Ind	Unused.
* 802	Shell Oil Co., & Kirby Tract 87A well 1	George Belanger Water Well Service	1952	350	4	Ev	155	+ 7.5 + 6.3	June 24, 1965 Aug. 10, 1965	Flows	D,Ind	Cased to 330 ft.
803	Charles G. Hooks well 1	Amarada Petroleum Corp.	1947	9,504	--	--	136	--	--	--	--	Oil test.1/
804	Wm. Rice Institute well "C" 1	B. & L. Water Well Service	1952	505	4	B	181	--	--	N	N	Destroyed.2/

See footnotes at end of table.

Table 3.--Records of wells and springs in Tyler County and adjacent areas--Continued

Tyler County

Well	Owner	Driller	Date completed	Depth of well (ft)	Diameter of well (in.)	Water-bearing unit	Altitude of land surface (ft)	Water level: Below land-surface datum (ft)	Water level: Date of measurement	Method of lift	Use of water	Remarks
YJ-61-22-805	East Texas Fee "E" well 1	B. & L. Water Well Service	1951	292	4	Ev	162	--	--	N	N	Destroyed.[2]
806	C. N. Housh	Silsbee Water Well Service	1951	270	4	Ev	152	18	1951	N	N	Destroyed.
807	do	do	1951	311	4	Ev	161	5.7	Feb. 18, 1953	N	N	Do.
808	do	R. H. Snyder	1949	268	4	Ev	145	+ +	1950 1965	Flows	N	[2]
809	do	Mitchell Bros.	1949	171	4	Ev	148	14.4	Feb. 18, 1953	N	N	Destroyed.
810	do	R. H. Snyder	1949	281	4	Ev	145	15.0	do	N	N	Do.
811	Kirby Lumber Co. well 2	Shell Oil Co.	1952	5,005	--	--	160	--	--	--	--	Oil test.[1]
812	Mrs. E. M. Goolsbee well 2	B. & L. Water Well Service	1953	287	4	Ev	140	+ 9.2 + 7.7	Feb. 18, 1965 Aug. 12, 1965	Flows	Ind	Unused.
813	Wm. Rice Institute well C-4	do	1954	470	4	B	165	5.5 7.4	Feb. 18, 1965 Aug. 12, 1965	N	Ind	Do.
814	C. H. Housh	Silsbee Water Well Service	1951	255	4	Ev	162	19.8	Feb. 18, 1953	N	N	Destroyed.
815	Wm. Rice Institute well 8	B. & L. Water Well Service	1953	404	4	Ev	172	13.2 15.2	Feb. 18, 1965 Aug. 11, 1965	N	Ind	Unused.
816	Wm. Rice Institute	George Belanger Water Well Service	1965	170	3	Ev	165	32.2	Aug. 20, 1965	N	N	Destroyed.
817	S. E. Hillister well 1	B. & L. Water Well Service	1951	271	4	Ev	160	--	--	N	N	Do.
818	-- Goolsbee well 1	Amarada Oil Co.	--	7,820	--	--	147	--	--	--	--	Oil test.[1]
819	East Texas Oil Co.	B. & L. Water Well Service	1952	271	4	Ev	158	15.7	Aug. 11, 1965	N	Ind	Unused.
820	Wm. Rice Institute well G-3	do	1954	481	4	B	165	--	--	N	N	Destroyed.
821	Wm. Rice Institute well 7	do	1953	315	4	Ev	180	--	--	N	N	Do.
901	Wm. Rice Institute well 1	Humble Oil & Refining Co.	1948	10,005	--	--	192	--	--	--	--	Oil test.[1]
902	Wm. Rice Institute well 2	do	--	--	--	--	168	--	--	--	--	Do.

See footnotes at end of table.

Table 3.--Records of wells and springs in Tyler County and adjacent areas--Continued

Tyler County

Well	Owner	Driller	Date completed	Depth of well (ft)	Diameter of well (in.)	Water-bearing unit	Altitude of land surface (ft)	Water level: Below land-surface datum (ft)	Water level: Date of measurement	Method of lift	Use of water	Remarks
YJ-61-22-903	Wm. Rice Institute well 2	American Republic Oil Co.	1947	6,403	--	--	127	--	--	--	--	Oil test.[1]
* 23-101	L. I. DeCordova	Layne-Texas Co.	1956	692	--	B	250	116 113.5	1956 Apr. 19, 1960	T,E	D,S, Irr	
102	Ernest Hight	Ernest Hight	1954	28	24	Ch	190	17.4	Feb. 3, 1965	J,E	D,S	Dug well. Cased to bottom.
103	I. W. Tanton	-- Jordan	1933	25	2	Ch	205	20.2	do	J,E	D,S	Do.
201	J. M. Brown	W. C. Crews	1958	100	2	Ev	180	20	1958	J,E	D,S	Cased to 92 ft.
202	Willie Lee Gill	do	1960	157	2	Ev	191	10	1960	J,E	D,S	Cased to 149 ft.
203	J. W. Cain well 1	San Patricio	1957	4,812	--	--	185	--	--	--	--	Oil test.[1]
401	Frank Collier, Jr.	-- Sample	1953	30	24	Ch	175	18.3	Jan. 28, 1965	J,E	D,S	Dug well. Cased to bottom.
402	do	Willis Pate	1964	60	2	Ch	185	--	--	J,E	S	Cased to bottom.
403	H. R. Heeler	W. C. Crews, Jr.	1955	117	2	Ev	180	--	--	J,E	D,S	Do.
501	L. D. Frazee	--	--	35	24	Ch	165	19.0	Jan. 28, 1965	B,H	D	Dug well. Cased to bottom.
502	do	Willis Pate	1964	46	4	Ch	165	19.0	do	J,E	D	Cased to 38 ft.
503	Joe S. Beck	George Belanger Water Well Service	1945	306	2	B	170	--	--	J,E	D,S	Temp. 71°F.
504	do	W. C. Crews	1955	226	4	Ev	170	32.9 35.6	Jan. 29, 1965 June 24, 1965	N	N	Unused.
505	J. C. Barlow	do	1951	76	2	Ev	164	--	--	J,-	N	Cased to 70 ft.
506	Hicks Store	Green Bros.	--	90	2	Ev	165	--	--	N	N	Destroyed.
507	Tyron McInnis	W. C. Crews	1964	70	2	Ch	160	23	Aug. 1964	A,E	D,S	
508	C. C. Hicks	C. C. Hicks	1964	112	2	Ch	165	30	1964	J,E	D	Replaced well YJ-61-23-506.[2]
601	Lodwick Lumber Co. well 1	Commerce Oil Co.	1940	4,804	--	--	98	--	--	--	--	Oil test.[1]
602	Kirby Lumber Co. well 1	Grubb & Hawkins Oil Co.	1948	7,512	--	--	80	--	--	--	--	Do.
603	Kirby Lumber Co.	Turnbull & Irwin	1934	4,818	--	--	88	--	--	--	--	Oil test.
701	Wm. Rice Institute well 1	Falcon Seaboard Drilling Co.	1959	8,231	--	--	150	--	--	--	--	Oil test.[1]

See footnotes at end of table.

Table 3.--Records of wells and springs in Tyler County and adjacent areas--Continued

Tyler County

Well	Owner	Driller	Date completed	Depth of well (ft)	Diameter of well (in.)	Water-bearing unit	Altitude of land surface (ft)	Water level: Below land-surface datum (ft)	Water level: Date of measurement	Method of lift	Use of water	Remarks
YJ-61-23-801	M. L. Hosford et al. well 1	American Republic Co. & Houston Oil Co.	1950	8,016	--	--	130	--	--	--	--	Oil test.1/
802	Mary L. Hosford well 1	Neil W. Stewart	1951	8,451	--	--	125	--	--	--	--	Do.
803	Kirby Lumber Co. well 1	Oil Production & Maintenance Co.	1954	6,605	--	--	161	--	--	--	--	Do.
804	-- Wiess well 1	American Republic Co. & Houston Oil Co.	1949	9,401	--	--	147	--	--	--	--	Do.
805	H. B. Hicks	--	1960	285	2	Ev	160	--	--	A,E	D	Cased to bottom.
901	A. Sterne Fee well 9	Atlantic Refining Co. & Sinclair Oil & Gas Co.	1963	6,218	--	--	170	--	--	--	--	Oil test.1/
902	Martin R. Ramer Estate	Green Bros.	1952	92	2	Ev	162	45	1952	J,E	D	Cased to bottom. Rock at 90 ft.
903	Paul Castro	Willis Pate	1964	100	2	Ev	155	--	--	J,E	D,S	
904	Higgins Fee well 1	American Republic Co. & Houston Oil Co.	1943	8,400	--	--	85	--	--	--	--	Oil test.1/
24-402	P. L. Moye	Simmons Water Well Service	1963	364	4	B	65	+	Jan. 11, 1965	Flows, T,E	D	Cased to 344 ft. Reported flow 5 gpm. Supplies water for fish pond. Temp. 71°F.
403	W. M. Hart	--	1961	332	1-1/2	B	65	+	do	Flows, Cf,E	D	Cased to 328 ft. Reported flow 1 gpm. Temp. 71°F.
* 404	F. C. Hicks	F. C. Hicks	1961	332	2	B	65	+ 6.9 + 7.0	Jan. 11, 1965 June 23, 1965	Flows	D	Cased to 318 ft. Slotted pipe from 318 ft to bottom. Temp. 71°F.
* 405	East Texas Water & Sewerage Co.	Layne-Texas Co.	--	590	6	B	65	+	Jan. 11, 1965	Flows, J,E	P	Cased to 570 ft. Screen from 570 ft to bottom. Temp. 72°F.
406	W. D. Radmer	Ben Blithwood	1962	111	2	Ev	105	46	Jan. 1962	J,E	D,S	Cased to 105 ft.
407	North Fletcher Lumber Co. well 1	Jack Frazier	1940	7,758	--	--	77	--	--	--	--	Oil test.1/
701	B. H. Hooks well 1	American Republic Co. & Houston Oil Co.	1941	4,976	--	--	70	--	--	--	--	Do.
702	Sinclair Oil Co.	--	1956	65	4	Ch	65	10.9	Mar. 17, 1965	A,Ng	D	Cased to 46 ft. Reported discharge 45 gpm in 1956; 30 gpm in 1964.

See footnotes at end of table.

Table 3.--Records of wells and springs in Tyler County and adjacent areas--Continued

Tyler County

Well	Owner	Driller	Date completed	Depth of well (ft)	Diameter of well (in.)	Water-bearing unit	Altitude of land surface (ft)	Water level: Below land-surface datum (ft)	Water level: Date of measurement	Method of lift	Use of water	Remarks
YJ-61-24-703	Sinclair Oil Co.	--	1951	65	4	Ch	65	14.3	Mar. 17, 1965	A,Ng	N	
704	do	--	1940	475	4	Ev	65	+	do	Flows	Ind	Cased to bottom. Reported flow 10 gpm in 1965. Supplies water for cooling purposes.[2]
705	Norman Hurd well 50	American Republic Co. & Houston Oil Co.	1941	7,711	--	--	70	--	--	--	--	Oil test.[1]
706	T. R. Cushing well 6	Sinclair Oil & Gas Co. & Atlantic Refining Co.	--	9,002	--	--	65	--	--	--	--	Do.
707	Sinclair Oil & Gas Co.	--	1940	475	4	Ev	65	+	Mar. 17, 1965	Flows	Ind	Cased to 470 ft. Reported flow 70 gpm in 1940; 10 gpm in 1965.[2]
801	N. Hurd well 1	Houston Oil Co. & Republic Producing Co.	--	8,039	--	--	67	--	--	--	--	Oil test.[1]
28-301	A. J. Richey	--	--	38	36	Ch	185	28.0	Oct. 12, 1953	N	N	Dug well. Caved in 1965.
302	J. M. Frizzell	--	--	50	30	Ch	185	45	Oct. 1953	N	N	Destroyed.
601	T. W. Chambers well 1	Sinclair Oil & Gas Co. & Atlantic Refining Co.	--	10,506	--	--	134	--	--	--	--	Oil test.[1]
* 602	E. C. Weaver	Simmons Water Well Service	1958	585	2	Ev	170	--	--	J,E	D,S	Cased to 575 ft. Temp. 70°F.
603	Shell-Kirby Lumber Co. well 2	Shell Oil Co.	1956	11,007	--	--	143	--	--	--	--	Oil test.[1]
604	Kirby-Gant well 1	Oil Reserves Corp.	1958	10,042	--	--	175	--	--	--	--	Do.
805	Allen Dowden	Allen Dowden	1943	22	24	Ch	145	20	Oct. 1953	B,H	D	Dug well.
901	H. T. Emerson well 1	Sinclair Oil & Gas Co.	1959	9,644	--	--	130	--	--	--	--	Oil test.[1]
29-101	Charles Snowden well 1	Killam, Huro & Butler Drilling Co.	1963	--	--	--	176	--	--	--	--	Do.
102	C. W. Dean	H. A. Crews	1952	280	2	Ev	215	--	--	J,E	N	Abandoned.
103	-- Linsey Estate	--	--	35	36	Ch	205	30 19.7	Oct. 1953 Jan. 27, 1965	B,H	D	Dug well. Unused.
104	Mac Sheffield	Mac Sheffield	1950	27	30	Ch	205	24 21.0	Oct. 1953 Jan. 27, 1965	B,H	D,S	Dug well. Reported never goes dry.

See footnotes at end of table.

Table 3.--Records of wells and springs in Tyler County and adjacent areas--Continued

Tyler County

Well	Owner	Driller	Date completed	Depth of well (ft)	Diameter of well (in.)	Water-bearing unit	Altitude of land surface (ft)	Water level: Below land-surface datum (ft)	Water level: Date of measurement	Method of lift	Use of water	Remarks
YJ-61-29-105	George Moye	George Moye	1938	30	36	Ch	215	25.6	Jan. 27, 1965	J,E	D,S	Dug well. Cased to bottom.
106	E. E. Mullins	E. E. Mullins	1927	25	36	Ch	177	14.6	Feb. 5, 1965	Cf,E	D,S	Do.
107	do	John Snowden	--	337	4	Ev	180	31.8	do	J,E	Irr	Cased to 331 ft. Unused.
* 201	William Rice Estate	--	1937	500	4	Ev	160	+ 2.5	Mar. 19, 1965	Flows	S	Reported flow 5 gpm. Temp. 72°F.
202	A. M. Raimer	Evans Gardiner	--	--	24	Ch	175	--	--	J,E	D,S	Dug well.
* 203	do	do	--	30	30	Ch	190	22.7 23.8 19.0	Oct. 12, 1953 Nov. 17, 1953 Feb. 5, 1965	B,H	S	Dug well. Cased to bottom.
204	Jim Sheffield	Allen McMillen	1942	28	8	Ch	190	--	--	B,H	D	Bored well.
205	Mrs. Mary Parvin	Mitchell Bros.	1947	76	2-1/2	Ch	175	--	--	J,E	D,S	Cased to bottom. Reworked in spring of 1953 by H. A. Cruse.
206	do	--	--	24	24	Ch	175	18	Oct. 1953	N	N	Dug well. Abandoned.
207	Wm. Rice Institute well 1	J. W. Pace	1965	286	5-1/2	Ev	170	27.2	Jan. 27, 1965	N	N	Abandoned.
208	do	Navarro Oil Co.	1937	5,186	--	--	171	--	--	--	--	Oil test.1/
* 301	Warren High School	McMasters & Pomeroy	--	478	4	Ev	160	+	Mar. 19, 1965	Flows, T,E	P	Cased to 438 ft. Reported flow 10 gpm. Temp. 78°F.
302	Robert Martin	Mitchell Goyns	1946	18	24	Ch	175	13	Oct. 1953	B,H	D	Dug well. Cased to bottom.
303	E. D. Morelock	--	1946	25	24	Ch	170	12.3	Mar. 25, 1965	J,E	D	Do.
401	Albert Reese	Roy Frye	1957	204	2	Ev	141	--	--	J,E	D,S	Cased to 194 ft.
501	T. K. Goolsbee	H. A. Crews	1953	112	3	Ev	145	--	--	J,E	D	Supplies water for 30 head of cattle.
502	W. H. Crosby well 1	Jimmie Owens	1960	10,410	--	--	145	--	--	--	--	Oil test.1/
* 601	Houston American well 2	B. & L. Water Well Service	1948	382	4	Ev	116	+	Feb. 5, 1965	Flows	Ind,S	
602	do	Atlantic Refining Co.	1948	11,597	--	--	128	--	--	--	--	Oil test.1/
603	East Texas Oil Co. Fee F	B. & L. Water Well Service	1951	337	4	Ev	117	+	1951	N	N	Destroyed.
604	Kirby Lumber Co.	Humble Oil & Refining Co.	1954	9,356	--	--	110	--	--	--	--	Oil test.1/
605	Atlantic-Houston well 1	--	1945	360	4	Ev	122	+	1945	Flows	N	Well is plugged.

See footnotes at end of table.

Table 3.--Records of wells and springs in Tyler County and adjacent areas--Continued

Tyler County

Well	Owner	Driller	Date completed	Depth of well (ft)	Diameter of well (in.)	Water-bearing unit	Altitude of land surface (ft)	Water level: Below land-surface datum (ft)	Water level: Date of measurement	Method of lift	Use of water	Remarks
YJ-61-29-606	Texas Forestry Service	--	1950	28	30	Ch	136	7.6	Mar. 18, 1965	J,E	P	Dug well. Cased to bottom.
607	Kirby Lumber Co. well C-4	B. & L. Water Well Service	1954	444	4	Ev	100	+	Feb. 19, 1965	Flows	N	Temp. 70°F.
608	Wm. Rice Institute well 8-B	do	1956	324	4	Ev	103	--	--	N	N	Destroyed.
703	East Texas Oil Co. Fee 1	do	1954	361	4	Ev	144	13.5 14.0 15.3	Feb. 19, 1965 May 25, 1965 July 15, 1965	A,-	N	
704	East Texas Oil Co. Fee 2	do	1955	369	4	Ev, Ch	134	3.7 4.4 5.5	Feb. 19, 1965 May 25, 1965 July 15, 1965	A,-	N	
705	East Texas Oil Co. Fee 3	do	1956	363	4	Ev	134	4.2 4.3 4.1	Feb. 19, 1965 May 25, 1965 July 15, 1965	A,-	N	
706	Kirby Lumber Tract well 1	Shell Oil Co.	1953	10,501	--	--	155	--	--	--	--	Oil test.1/
707	Kirby Tract	George Belanger Water Well Service	1965	180	3	Ch	137	25.5	May 25, 1965	A,Ng	N	Destroyed.
30-101	C. N. Housh	Silsbee Water Well Service	--	278	4	Ev	142	--	--	N	N	2/
102	W. H. Adams	Adams & Sons	1946	35	24	Ch	150	16.6	Feb. 4, 1965	Cf,E	D,S	Dug well. Cased to 6 ft.
103	E. F. Nolan	E. F. Nolan	1923	33	36	Ch	150	13.0	Feb. 17, 1965	J,E	D,S	Dug well.
104	W. E. Bozeman	W. C. Crews	1958	166	2	Ev	155	18	1958	J,E	D,S	Cased to 158 ft.
201	C. A. Young well 3	--	--	--	4	--	162	+	July 31, 1953	Flows	N	Destroyed.
202	C. A. Young well 2	--	--	--	4	--	105	+ 4.0 - 0.6 - 1.8	July 31, 1953 Feb. 18, 1965 Aug. 11, 1965	--	Ind	Unused.
203	T. Ard Fee well 1	American Republic & Houston Oil Co.	1950	6,604	--	--	137	--	--	--	--	Oil test.1/
204	D. D. Swearingen et al. well 1	B. & L. Water Well Service	1954	220	4	Ev	150	21.5	Mar. 16, 1965	N	N	
301	Jim Berwick	Fred Swearingen	--	20	30	Ch	130	20.1	Feb. 13, 1953	N	N	Dug well. Abandoned.
* 302	C. N. Housh	B. & L. Water Well Service	1950	286	4	Ev	105	+ 3.5 + 1.0 - 0.4	Feb. 13, 1953 Feb. 18, 1965 Aug. 12, 1965	--	Ind	Unused. Temp. 68°F.

See footnotes at end of table.

Table 3.--Records of wells and springs in Tyler County and adjacent areas--Continued

Tyler County

Well	Owner	Driller	Date completed	Depth of well (ft)	Diameter of well (in.)	Water-bearing unit	Altitude of land surface (ft)	Water level: Below land-surface datum (ft)	Water level: Date of measurement	Method of lift	Use of water	Remarks
*YJ-61-30-303	American Republic Corp.	Layne-Texas Co.	1953	477	8	Ev	115	+ - 7.3	July 31, 1953 Aug. 12, 1965	--	Ind	Unused.[2]
304	C. A. Young well 1	American Republic & Houston Oil Co.	1950	8,451	--	--	124	--	--	--	--	Oil test.[1]
305	C. N. Housh	Silsbee Water Well Service	1960	315	4	Ev	120	6.9	July 31, 1953	N	N	Destroyed.[2]
306	Dallas P. Read	Dallas P. Read	1948	37	30	Ch	143	27.6	Jan. 18, 1965	J,E	D,S	Dug well. Cased to 5 ft.
307	H. W. Meyers	--	1950	20	30	Ch	135	--	--	Cf,E	D	Dug well. Cased to bottom.
401	East Texas Oil Co. Fee 1	Humble Oil & Refining Co.	1951	9,002	--	--	132	--	--	--	--	Oil test.[1]
402	J. E. Campbell well 1	Timberland Exploration Co.	1958	8,707	--	--	120	--	--	--	--	Do.
403	East Texas Fee G-1	B. & L. Water Well Service	1951	408	4	Ev	118	9.4	Aug. 22, 1965	A,-	Ind	Unused.
404	East Texas Fee G-2	do	1952	464	4	Ev	123	--	--	N	N	Destroyed.[2]
* 405	Wm. Rice Institute well B-2	do	1951	423	4	Ev	110	+ 8.5 + 8.3 + 8.1	Feb. 17, 1965 June 6, 1965 Aug. 25, 1965	Flows	D,Ind	Temp. 70°F.[2]
406	Wm. Rice Institute well B-3	do	1952	415	4	Ev	123	7.5 9.9	Feb. 17, 1965 Aug. 25, 1965	N	N	
407	Wm. Rice Institute well B-4	do	1952	405	4	Ev	125	7.5 8.9	Feb. 17, 1965 Aug. 25, 1965	N	N	
408	Wm. Rice Institute well B-5	do	1952	411	4	Ev	110	+ 0.4 - 0.9	Feb. 17, 1965 Aug. 25, 1965	N	N	
409	I. J. Campbell Estate well 2	Geo. Belanger Water Service	1953	260	4	Ev	118	5.5	Mar. 23, 1965	C,H	S	
410	I. J. Cambell	--	1959	463	2	Ev	125	16	1959	A,E	D,S	
411	Travis L. Nolan	--	1931	28	24	Ch	125	--	--	--	N	
412	do	M & M Well Service	1954	253	2	Ev	125	+	23, 1965	Flows, J,E	D,S	
413	Wm. Rice Institute well B-1	B. & L. Water Well Service	1952	314	4	Ev	118	14.6 16.7	Mar. 16, 1965 Aug. 25, 1965	--	N	
414	J. E. Dixon	G. Belanger Water Well Service	1963	530	2	Ev	108	+ +	Mar. 16, 1965 Aug. 25, 1965	Flows, J,E	P	

See footnotes at end of table.

Table 3.--Records of wells and springs in Tyler County and adjacent areas--Continued

Tyler County

Well	Owner	Driller	Date completed	Depth of well (ft)	Diameter of well (in.)	Water-bearing unit	Altitude of land surface (ft)	Water level: Below land-surface datum (ft)	Water level: Date of measurement	Method of lift	Use of water	Remarks
YJ-61-30-415	East Texas Oil Co. well G-3	B. & L. Water Well Service	1953	400	4	Ev	115	--	--	N	N	Destroyed.
416	East Texas Oil Co. well G-4	do	1953	328	4	Ev	119	--	--	N	N	Do.
417	Wm. Rice Institute well B-6	do	1953	365	--	Ev	126	--	--	N	N	Do.
418	Wm. Rice Institute well B-7	do	1953	426	4	Ev	110	+	Aug. 25, 1965	Flows	N	Do.
501	Southwestern Lumber Co. of New Jersey	Simmons Water Well Service	1959	280	6	Ev	112	--	--	Cf,E	Ind	
502	E. W. Tubbs well 1	C. W. Weaver, et al.	1959	8,528	--	--	123	--	--	--	--	Oil test.[1]
503	Nelva Dies Real et al. well 1	W. O. Harris, Trustee	1958	8,650	--	--	105	--	--	--	--	Do.
504	S. S. & D. C. et al.	Geo. Belanger Water Well Service	1965	160	3	Ch	110	18.5	Aug. 17, 1965	N	N	Destroyed.
601	Kirby Lumber Co. well 1	Shell Oil Co.	1953	9,207	--	--	90	--	--	--	--	Oil test.[1]
602	T. Ard	--	1950	104	2	Ch	102	17	1963	A,E	D,S	
603	Sarah Fields well 1	G. Belanger Water Well Service	1953	360	4	Ev	75	+ 10.3	Mar. 24, 1965	Flows	N	Unused.
604	Kirby Lumber Co.	B. & L. Water Well Service	1958	476	4	Ev	120	13.7	Mar. 19, 1965	A,Ng	Ind	
605	do	Simmons Water Well Service	1958	275	4	Ev	120	--	--	T,E	Ind	Unused.
703	Kirby Lumber Co. well 1-C	B. & L. Water Well Service	1954	339	4	Ev	117	13.2	Mar. 19, 1965	--	N	Do.
704	Kirby Lumber Co. well 5-C	Humble Oil & Refining Co.	1955	9,504	--	--	127	--	--	--	--	Oil test.[1]
705	Kirby Lumber Co. well 2-C	B. & L. Water Well Service	1954	329	4	Ev	115	14.3	Mar. 19, 1965	N	N	
706	Kirby Lumber Co. well 3-C	do	1954	325	4	Ev	110	--	--	N	N	Destroyed.
707	Kirby Lumber Co. well C-5	do	1954	326	4	Ev	112	--	--	N	N	Do.
804	Lee A. Adams well 1	H. B. Lively	1961	9,015	--	--	106	--	--	--	--	Oil test.[1]

See footnotes at end of table.

Table 3.--Records of wells and springs in Tyler County and adjacent areas--Continued

Tyler County

Well	Owner	Driller	Date completed	Depth of well (ft)	Diameter of well (in.)	Water-bearing unit	Altitude of land surface (ft)	Water level: Below land-surface datum (ft)	Water level: Date of measurement	Method of lift	Use of water	Remarks
YJ-61-31-101	Wm. Rice Institute well 1	J. W. Frazier	1944	9,012	--	--	125	--	--	--	--	Oil test.[1]
102	Robert Hooks, et al. well 1	B. & L. Water Well Service	1953	303	4	Ev	128	--	--	N	N	Destroyed.
103	Wm. Rice Institute well 1-D	Humble Oil & Refining Co.	1954	8,180	--	--	153	--	--	--	--	Oil test.[1]
201	Atlantic Refining Co.	G. Belanger Water Well Service	--	150	4	Ch	118	43.2	May 12, 1965	J,E	D	
202	O. J. Gordon	-- Tannerhill	1955	87	2	Ch	130	31.1	Feb. 4, 1965	N	N	Abandoned.
203	do	Sears-Roebuck	1963	97	2	Ch	130	35	1963	J,E	D	
204	Lela Byerly well 1	Meredith & Co.	1962	9,436	--	--	146	--	--	--	--	Oil test.[1]
205	Norman McInnis	W. C. Crews	1964	110	2	Ch	135	36	May 1964	J,E	D	
206	-- McShane well 1	Glen McCarthy	1938	8,341	--	--	122	--	--	--	--	Oil test.
207	V. Wiess Fee 1	Sinclair Oil Co.	1955	6,800	--	--	110	--	--	--	--	Oil test.[1]
301	Kirby-Milhome well 1-K	Oil Reserves Corp.	1957	9,646	--	--	75	--	--	--	--	Do.
* 302	do	Geo. Belanger Water Well Service	1957	380	4	Ev	60	+ 10.9 + 10.8	Apr. 8, 1965 July 22, 1965	Flows	Ind	
303	Grady Lester	Sears-Roebuck	1965	407	2	Ev	62	+ 10.5 + 10.5	July 20, 1965 July 21, 1965	Flows	D,S	
304	-- Parker, et al.	Geo. Belanger Water Well Service	1943	280	4	Ev	53	+	1965	Flows	N	
401	Mt. Nebo Church	--	--	30	36	Ch	125	--	--	B	D	
402	Shell-Kirby well 170	Shell Oil Co.	1953	9,829	--	--	105	--	--	--	--	Oil test.[1]
403	Mrs. Winnie Graham	Jack Spurlock	1887	28	36	Ch	125	24.0	Feb. 13, 1953	B,H	N	Abandoned.
404	Mack Baker	do	1913	36	36	Ch	125	25.9	do	B,H	D,S	
* 501	Uel Owens	Geo. Belanger Water Well Service	1962	533	4	Ev	115	31.6	June 22, 1965	J,E	D	[2]
502	R. V. Shelton	Sam Gore	1965	117	2	Ch	120	--	--	J,E	D	
804	C. A. Carroway	Kelton-Easton	1964	100	2	Ch	127	--	--	J,E	D,S	
32-101	-- Williams well 1	Chance Drilling Co., Inc.	1956	8,150	--	--	70	--	--	--	--	Oil test.

See footnotes at end of table.

Table 3.--Records of wells and springs in Tyler County and adjacent areas--Continued

Tyler County

Well	Owner	Driller	Date completed	Depth of well (ft)	Diameter of well (in.)	Water-bearing unit	Altitude of land surface (ft)	Water level: Below land-surface datum (ft)	Water level: Date of measurement	Method of lift	Use of water	Remarks
YJ-61-32-102	J. F. Parker	Geo. Belanger Water Well Service	1950	270	4	Ev	55	+ 11.3 + 10.7	Mar. 17, 1965 July 20, 1965	Flows	N	
103	L. L. Williams well 1	do	1956	190	4	Ev	58	2.2 2.2	Mar. 17, 1965 July 20, 1965	A,-	N	
104	J. F. Parker well 5	Stanolin Oil & Gas Co.	1950	9,004	--	--	70	--	--	--	--	Oil test.[1]
105	-- Cushing well 1	American Republic Corp. & Houston Oil Co.	1942	5,406	--	--	70	--	--	--	--	Do.
401	John Fisher well 1	Sinclair Oil Co.	1956	7,400	--	--	52	--	--	--	--	Do.
Jasper County												
PR-61-32-501	C. C. Kelly well 1	-- Meredith	1956	7,413	--	--	60	--	--	--	--	Oil test.[1]
Hardin County												
LH-61-31-703	H. & T. C. Fee well 2	American Refining Corp. & Houston Oil Co.	1955	7,401	--	--	113	--	--	--	--	Oil test.[1]
801	H. & T. C. Fee well 5	do	1951	6,902	--	--	126	--	--	--	--	Do.
32-702	Kirby Lumber Co.	--	--	--	--	--	42	2.7	Mar. 24, 1965	--	N	Well flowed in 1964.
703	Doty-Jackson well well E-1	J. P. Owens Oil Co.	1953	7,465	--	--	51	--	--	--	--	Oil test.
Polk County												
UT-61-03-801	W. T. Carter & Bros. well R-1	Justiss-Mears Oil Co.	1965	324	--	--	324	--	--	--	--	Oil test.[1]
901	Cader Powell	H. A. & W. C. Crews	1952	189	2	J	345	--	--	J,E	N	Abandoned.
902	do	-- Gay	1956	176	2	J	345	--	--	A,E	D	
11-301	W. T. Carter & Bros. well Q-1	Justiss-Mears Oil Co.	1965	4,002	--	--	460	--	--	--	--	Oil test.[1]
601	W. T. Carter & Bros. well L-1	do	1965	4,005	--	--	420	--	--	--	--	Do.
20-401	W. T. Carter & Bros. well J-1	do	1965	4,350	--	--	290	--	--	--	--	Do.
701	-- Lapham well 1	Jordan Drilling Co.	1951	7,515	--	--	403	--	--	--	--	Do.

See footnotes at end of table.

Table 3.--Records of wells and springs in Tyler County and adjacent areas--Continued

Polk County

Well	Owner	Driller	Date completed	Depth of well (ft)	Diameter of well (in.)	Water bearing unit	Altitude of land surface (ft)	Water level: Below land-surface datum (ft)	Water level: Date of measurement	Method of lift	Use of water	Remarks
UT-61-28-101	W. T. Carter & Bros. well C-1	Oil reserve	1961	10,505	--	--	246	--	--	--	--	Oil test.[1]
702	Carter-Quinn well 1	Continental Oil Co.	1953	10,522	--	--	181	--	--	--	--	Do.

* For chemical analyses of water from wells and springs, see Table 5.
[1] For electric log see files of Texas Water Development Board or U.S. Geological Survey, Austin, Texas.
[2] For drillers' logs of wells, see Table 4.

Table 4.--Drillers' logs of wells in Tyler County

Well YJ-37-61-910

Owner: -- Kountze well 1-A. Driller: Humble Oil & Refining Co.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Sand, surface	1	1	Sand, loose	10	164
Sandstone, hard	2	3	Shale and sand, green	6	170
Sand, yellow	9	12	Sand, white, water	51	221
Shale, sandy, green	11	23	Shale, blue	8	229
Sandstone, hard	19	42	Clay, hard, sandy	15	244
Boulders and packsand	13	55	Shale, hard, sandy	15	259
Sand, blue-gray, water and gas	15	70	Sandstone, hard	7	266
Sandstone, hard	6	76	Shale, bedded, gray-green	32	298
Sand, blue-green, loose	12	88	Sand, tough, green, shale, dark streaks	27	325
Shale-lignitic, blue, sandy	9	97	Sandstone, hard	5	330
Sand, white	17	114	Sandstone, gray, bedded, shale partings	34	364
Sandstone, hard	3	117	Sandstone, hard	3	367
Sand, salt and pepper	9	126	Shale, blue-green	36	403
Shale, blue	2	128	Shale, lignitic, green, brittle	7	410
Sand, white, water	12	140	Lignite, brown	1	411
Shale, and sand, blue	5	145	Shale, lignitic, green, brittle	8	419
Shale, green-blue	8	153			
Sandstone, hard	1	154			

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)

Well YJ-61-04-407

Owner: L. N. Feagan. Driller: Cordril Corp.

Surface soil and sandy ash	36	36	Sand, ash, and shale	95	196
			Shale, broken	16	212
Sandstone, very porous	65	101	Sand, water	24	236

Well YJ-61-04-601

Owner: T. V. Seamons. Driller: H. A. and W. C. Crews.

Clay, red, sandy	20	20	Shale, sandy	14	76
Shale, sandy, fine, white and blue	38	58	Sand, salt and pepper	6	82
Sand, fine, blue	4	62	Sand, blue, gray, coarse at bottom	32	114

Well YJ-61-05-302

Owner: J. L. Crews. Driller: H. A. and W. C. Crews.

Sand	41	41	Sand, coarse	42	163
Shale, blue	61	102	Shale, blue	4	167
Sand, very fine, blue	19	121	Sand	16	183

Well YJ-61-05-504

Owner: E. P. Wallace well 1-A. Driller: Humble Oil & Refining Co.

Surface clay, lime nodules	10	10	Shale, dark-green	23	233
Shale, green, brown, and gray	18	28	Shale, and volcanic ash, dark streaks	28	261
Shale, green	122	150	Sand, gray, streaks of lignite and ash	38	299
Shale, light-green	60	210			

(Continued on next page)

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well YJ-61-05-504--Continued					
Shale and ash, light-green, sandy	64	363	Shale and ash, green, sandy	25	679
Shale, green	4	367	Sand	9	688
Shale, green, ash and sand	21	388	Shale and ash, gray	12	700
Shale, dark-green	9	397	Shale and ash, dark-gray	21	721
Sandstone	2	399	Sand, gray, water	36	757
Shale, light-green, sandy	25	424	Ash with black streaks	16	773
Sandstone	4	428	Sand	10	783
Shale and ash, green, sandy	22	450	Sandstone, hard	3	786
Shale, dark-green	13	463	Shale, dark-gray to green, sandy	58	844
Shale, gray, sandy, white specks	11	474	Shale, sandy and ash	19	863
Shale, white, sandy, streaks of ash	26	500	Sandstone, laminated, porous	17	880
Shale and ash, dark-green	20	520	Sandstone, hard	6	886
Shale, light-green, sandy	19	539	Shale and ash, sandy, olive green	42	928
Shale, dark-green, streaks of ash	38	577	Sandstone and ash	10	938
Ash, light-green	7	584	Shale and ash, sandy, olive green	11	949
Shale and limestone nodules, dark-green	24	608	Sand, sugar, loose	36	985
Ash, light-green	44	652	Shale, and ash, olive-green	20	1,005
Sand	2	654	Sand, water, sugary, green	72	1,077

(Continued on next page)

Table 4.--Drillers' logs of wells in Tyler County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well YJ-61-05-504--Continued					
Shale and ash, dark-green, sandy	66	1,143	Shale, lignitic, olive-green	14	1,234
Shale, lignitic, olive-green	17	1,160	Shale and ash, olive-green, lignitic	23	1,257
Shale, lignitic, olive-green, streaks of ash	30	1,190	Shale and shell fragments, olive-green	86	1,343
Shale and shell fragments, black micaceous	22	1,212	Shale, sandy, gray-green	12	1,355
Shale and ash, olive-green	8	1,220	Shale, sandy, green	68	1,423
			Shale, green	8	1,431

Well YJ-61-07-704

Owner: U.S. Army Corps of Engineers. Driller: Simmons Water Well Service.

Sand, red	50	50	Shale and sand, streaks, dry	110	290
Shale, blue	67	117	Sand, blue, fine, flowing water	30	320
Shale, gumbo, and rock	63	180			

Well YJ-61-12-201

Owner: Pure Transportation Co. Driller: English Drilling Co.

Sand	20	20	Sand, white	10	160
Clay	20	40	Clay, white	70	230
Sand	55	95	Sand, good	90	320
Sand and gravel	20	115	Sand, coarse, and pea gravel	20	340
Rock and sandstone	3	118	Sand	50	390
Sand	17	135	Clay	16	406
Clay, white	15	150	Sand	14	420

Table 4.--Drillers' logs of wells in Tyler County--Continued

Well YJ-61-12-902

Owner: J. C. Means, Jr. Driller: Pitre Water Well Drilling Co.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Sand	62	62	Clay	10	347
Clay	33	95	Sand	11	358
Sand	69	164	Shale	143	501
Clay	5	169	Sand	2	503
Sand	28	197	Sand	57	560
Clay	7	204	Sandrock, hard	5	565
Sand	15	219	Sand and sandrock	46	611
Clay	9	228	Clay	8	619
Sand	38	266	Sand	5	624
Clay	71	337	Clay	5	629

Well YJ-61-13-506

Owner: Macy Owens. Driller: H. A. and W. C. Crews.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Clay, sandy	60	60	Shale, yellow	162	272
Sand, fine	50	110	Sand, coarse at bottom	28	300

Well YJ-61-13-702

Owner: C. A. Howell. Driller: Miller Drilling Co.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Clay	77	77	Sand	65	475
Sand	48	125	Shale	2	477
Clay and shale	285	410			

Table 4.--Drillers' logs of wells in Tyler County--Continued

Well YJ-61-13-801

Owner: City of Woodville well 4. Driller: Layne-Texas Co.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Surface soil, sandy ----	5	5	Shale ----------------	54	362
Clay, sandy -----------	18	23	Sand, white, coarse --	29	391
Clay ------------------	30	53	Shale ----------------	14	405
Sand ------------------	19	72	Sand and streaked shale --------------	32	437
Shale -----------------	24	96	Sand, coarse ---------	81	518
Sand ------------------	44	140	Shale ----------------	9	527
Shale -----------------	29	169	Sand, coarse ---------	26	553
Sand, fine, and shale, streaked -----	78	247	Shale with hard streaks ------------	40	593
Shale -----------------	49	296	Sand, hard -----------	7	600
Sand ------------------	12	308			

Well YJ-61-13-803

Owner: City of Woodville well 1. Driller: Layne-Texas Co.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Soil ------------------	2	2	Lime and soapstone ---	71	274
Clay ------------------	17	19	Shale ----------------	28	302
Sand, coarse ----------	36	55	Shale, hard ----------	10	312
Clay ------------------	16	71	Shale, sandy ---------	27	339
Sand with clay streaks -------------	35	106	Sand and shale, fine ---------------	20	359
Clay ------------------	34	140	Sand, coarse, good ---	43	402
Sand and limestone ----	53	193	Clay -----------------	2	404
Clay ------------------	10	203			

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)

Well WJ-61-13-804

Owner: City of Woodville well 2. Driller: Layne-Texas Co.

Clay	20	20	Shale, sandy	91	309
Sand	10	30	Sand, fine	30	339
Clay, sandy	108	138	Sand	59	398
Sand, hard	80	218			

Well YJ-61-14-902

Owner: Bergen Dean. Driller: Sam Gore.

Clay, hard	21	21	Shale, crumbly, gray	30	190
Clay, sandy	2	23	Sand, hard	104	294
No record	82	105	Sandstone	21	315
Limestone, hard	5	110	Sand and fine sand	82	397
Shale with fine sandy streaks	50	160	Shale, gray	1	398

Well YJ-61-14-904

Owner: Clifton Shepherd. Driller: W. C. Crews.

Clay, sandy	30	30	Shale, bluish	176	216
Sand	10	40	Sand	10	226

Well YJ-61-15-101

Owner: Frank Grimes. Driller: J. T. Snowden.

Surface	4	4	Sand and lignite, coarse	40	68
Sand, fine	24	28			

Table 4.--Drillers' logs of wells in Tyler County--Continued

Well WJ-61-15-105

Owner: Johnny Baker and Jack Houston. Driller: -- Atchison.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Sand, thin, and clay and shale -----------	146	146	Shale, blue, and shell --------------	20	346
Sand -----------------	180	326	Sand -----------------	18	364

Well YJ-61-15-113

Owner: U.S. Army Corps of Engineers. Driller: Texas Water Wells, Inc.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Surface ---------------	20	20	Sand -----------------	12	180
Sand, fine ------------	10	30	Shale, wood, and rotten log ---------	4	184
Shale, blue, hard -----	17	47	Sand -----------------	36	220
Sand and boulders -----	1	48	Shale, sticky --------	8	228
Shale, hard -----------	25	73	Shale, sandy ---------	54	282
Sand, fine ------------	30	103	Sand, good -----------	18	300
Shale -----------------	10	113	Shale, sandy ---------	20	320
Sand, good ------------	9	122	Sand, good -----------	34	354
Shale -----------------	24	146			
Sand and gravel -------	22	168			

Well YJ-61-15-501

Owner: U.S. Army Corps of Engineers. Driller: Layne-Texas Co.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Surface sand ----------	2	2	Sand with shale breaks -------------	19	146
Clay and gravel -------	13	15	Shale, sandy ---------	20	166
Sand ------------------	53	68	Sand -----------------	24	190
Shale, sandy ----------	59	127			

(Continued on next page)

Table 4.--Drillers' logs of wells in Tyler County--Continued

Well YJ-61-15-501--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Sand and shale breaks	15	205	Sand	53	372
Shale, sandy	69	274	Sand and shale breaks	12	384
Shale and streaks of sandy shale	45	319			

Well YJ-61-15-503

Owner: U.S. Army Corps of Engineers. Driller: Simmons Water Well Service.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Clay	75	75	Shale	25	287
Sand, flows H_2S	90	165	Sand	23	310
Shale	55	220	Shale	4	314
Sand, flows poor quality	42	262	Sand, flows	51	365

Well YJ-61-21-212

Owner: G. A. Deichel. Driller: Pitre Water Well Co.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Clay, sandy	13	13	Sand, fine	23	212
Sand, coarse	9	22	Clay	9	221
Clay, hard	7	29	Sand, fine	19	240
Sand, medium	51	80	Clay	3	243
Clay	9	89	Sand	7	250
Gravel, fine	3	92	Sand and clay streaks	12	262
Clay	61	153	Clay	3	265
Sand, coarse	3	156	Sand, fine	16	281
Clay	33	189			

(Continued on next page)

Table 4.--Drillers' logs of wells in Tyler County--Continued

Well YJ-61-21-212--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Clay, fine	47	328	Clay, hard	73	596
Sand, fine	16	344	Sand, fine	13	609
Clay	30	374	Sand, coarse	23	632
Shale	77	451	Clay	6	638
Shale, blue	62	513	Sand, coarse	5	643
Sand, fine	10	523			

Well YJ-61-21-213

Owner: State Forest Service. Driller: John Frye.

Topsoil and red clay	12	12	Sand	13	193
Clay, sandy, red	101	113	Shale	10	203
Clay, hard and soft	30	143	Sand and shale	25	228
Clay and rocky shale	10	153	Sand	63	291
Shale, rocky	10	163	Limestone	2	293
Shale, heaving	10	173	Sand	20	313
Shale, sandy	7	180	Shale, hard	10	323

Well YJ-61-21-802

Owner: Humble Oil & Refining Co. Driller: Pitre Water Well Co.

Clay, sandy	23	23	Clay	5	146
Clay	16	39	Sand	26	172
Sand, fine	21	60	Clay	10	182
Sand, coarse	20	80	Sand	34	216
Clay	52	132	Clay	16	232
Sand, fine	9	141	Sand	34	266

Table 4.--Drillers' logs of wells in Tyler County--Continued

Well YJ-61-21-807

Owner: Humble Oil & Refining Co. Driller: Pitre Water Well Co.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Sand	5	5	Clay	15	204
Clay	15	20	Sand	74	278
Sand	5	25	Clay	91	369
Clay	126	151	Sand, fine	93	462
Sand, medium	38	189			

Well YJ-61-21-901

Owner: Humble Oil & Refining Co. Driller: Pitre Water Well Co.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Sand	6	6	Sand, soft	17	93
Clay, medium	29	35	Clay, soft	29	122
Clay, sandy, soft	21	56	Sand, soft	167	289
Sand, fine	4	60	Clay, medium	23	312
Clay, soft	16	76	Clay, hard	20	332

Well YJ-61-21-904

Owner: Humble Oil & Refining Co. Driller: B & L Water Well Service.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Sand	50	50	Shale	20	170
Shale	20	70	Sand	39	209
Sand	50	120	Shale	26	235
Shale	20	140	Sand	52	287
Sand	10	250			

Table 4.--Drillers' logs of wells in Tyler County--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)

Well YJ-61-22-504

Owner: Marvin Ivy. Driller: B & L Water Well Service.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Shale	35	35	Sand	27	150
Rock	5	40	Shale	32	182
Shale	15	55	Sand	21	203
Sand	38	93	Shale	133	336
Shale	30	123	Sand	28	364

Well YJ-61-22-507

Owner: C. N. Housh. Driller: Silsbee Water Well Service.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Clay	10	10	Clay	52	216
Sand	54	64	Sand	7	223
Clay	66	130	Clay	87	310
Sand	34	164	Sand	69	379

Well YJ-61-22-604

Owner: Humble Oil & Refining Co. Driller: B & L Water Well Service.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Shale, sandy	50	50	Sand	28	220
Rock	7	57	Shale	125	345
Shale	3	60	Sand	28	373
Rock	4	64	Shale	17	390
Sand	53	117	Sand	17	407
Shale	75	192	Shale	129	536

Table 4.--Drillers' logs of wells in Tyler County--Continued

Well YJ-61-22-804

Owner: Wm. Rice Institute well "C" 1. Driller: B & L Water Well Service.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Clay	50	50	Shale	229	379
Sand	20	70	Sand	25	404
Shale	50	120	Shale	75	479
Sand	30	150	Sand	26	505

Well YJ-61-22-808

Owner: C. N. Housh. Driller: R. H. Snyder.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Surface	30	30	Gravel	4	136
Clay	24	54	Shale	33	169
Rock	28	82	Sand	15	184
Clay	20	102	Shale	46	230
Sand, fine	18	120	Sand	37	267
Clay	12	132	Shale	1	268

Well YJ-61-23-508

Owner: C. C. Hicks. Driller: C. C. Hicks.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Clay, sandy	86	86	Clay	11	105
Gravel, has irony water	8	94	Sand, fine	7	112

Well YJ-61-24-704

Owner: Sinclair Oil Co. Driller: --

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Surface sand	150	150	Shale	123	415
Shale	88	238	Sand	55	470
Sand	54	292	Shale, sticky	5	475

Table 4.--Drillers' logs of wells in Tyler County--Continued

Well YJ-61-24-707

Owner: Sinclair Oil & Gas Co. Driller: --

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Sand	15	15	Shale, sticky	86	264
Sand and gravel	43	58	Sand	37	301
Shale	56	114	Shale	115	416
Sand	36	150	Sand	54	470
Shale	28	178	Shale	5	475

Well YJ-61-30-101

Owner: C. N. Housh. Driller: Silsbee Water Well Service.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Clay	27	27	Sand	28	141
Sand	25	52	Shale, sandy	87	228
Clay	61	113	Sand	50	278

Well YJ-61-30-303

Owner: American Republic Corp. Driller: Layne-Texas Co.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Surface soil	4	4	Sandstone	4	229
Clay, sandy	4	8	Clay, shaly	12	241
Sand	12	20	Sand	63	304
Sand and clay	34	54	Clay, sandy	34	338
Sand	33	87	Clay, shaly	79	417
Clay	4	91	Sand, thin clay layers	25	442
Sand	44	135	Sand	32	474
Clay and sand	65	200	Clay	3	477
Sand, hard	12	212			
Clay, sandy	13	225			

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)

Well YJ-61-30-305

Owner: C. N. Housh. Driller: Silsbee Water Well Service.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Clay	21	21	Sand	31	201
Sand	24	45	Clay	47	248
Clay	36	81	Sand	48	296
Sand	34	115	Clay	19	315
Clay	55	170			

Well YJ-61-30-404

Owner: East Texas Fee G2. Driller: B & L Water Well Service.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Clay	50	50	Shale	49	370
Shale	90	140	Sand	13	383
Sand	15	155	Shale	50	433
Shale	155	310	Sand	31	464
Sand	11	321			

Well YJ-61-30-405

Owner: Wm. Rice Institute well B-2. Driller: B & L Water Well Service.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Clay	30	30	Sand	16	236
Shale	160	190	Shale	160	396
Sand	12	202	Sand	27	423
Shale	18	220			

Well YJ-61-31-501

Owner: Uel Owens. Driller: George Belanger Water Well Service.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Clay, sandy	110	110	Shale	75	500
Sand	315	425	Sand	33	533

Table 5.--Chemical analyses of water from wells and springs in Tyler County

(Analyses given are in parts per million except specific conductance, pH, percent sodium, sodium adsorption ratio, and residual sodium carbonate.)

Water-bearing unit: Tj, Jackson Group; Tcs, Catahoula Sandstone; J, Jasper aquifer; B, Burkeville aquiclude; Ev, Evangeline aquifer; Ch, Chicot aquifer.

Well	Depth of well (ft)	Date of collection	Water-bearing unit	Silica (SiO_2)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Phosphate (PO_4)	Boron (B)	Dissolved solids	Hardness as $CaCO_3$	Percent sodium	Sodium adsorption ratio (SAR)	Residual sodium carbonate (RSC)	Specific conductance (micromhos at 25° C)	pH
YJ-37-61-903	1,013	June 15, 1965	Tj	46	0.22	--	5.2	1.0	548	6.5	850	0.2	372	0.7	0.5	--	2.2	1,400	17	98	58	13.6	2,400	7.6
907	Spring	June 4, 1953	Tcs	41	.42	--	--	--	4.4	1.1	6	3.8	5.2	--	.2	--	--	78	3	58	1.1	.00	42	5.8
909	1,013	June 15, 1965	Tj	43	.48	--	2.0	.7	*342	--	356	.8	324	.9	.5	--	--	889	8	99	52	5.67	1,600	8.1
62-801	450	June 17, 1965	Tcs	48	.14	--	9.8	2.8	444	8.2	145	.6	630	.7	2.5	--	.70	1,220	36	95	32	1.66	2,300	6.8
1/ 61-04-201	485	Mar. --, 1963	Tcs	--	.03	--	--	--	--	--	--	--	--	--	--	--	--	--	16	--	--	--	--	7.2
410	244	June 22, 1965	J	39	.00	--	21	1.3	113	6.3	330	8.8	24	.3	.8	--	.10	377	58	79	6.5	4.25	592	7.9
05-603	610	June 17, 1965	Tcs	43	.02	--	48	4.4	446	8.1	480	.6	498	.4	8.3	--	.51	1,290	138	87	17	5.11	2,310	7.8
a/ 808 809	48	June 22, 1965	J	12	.06	0.02	2.0	.7	4.0	1.3	7	.4	5.4	.2	5.0	0.00	.04	34	8	48	.6	.00	44	6.2
06-101	Creek	June 15, 1965	--	19	.70	.00	6.2	1.1	4.1	1.3	20	4.8	5.7	.2	.2	.00	.03	53	20	29	.4	.00	61	6.4
602	487	June 18, 1965	Tcs	39	.52	--	129	16	1,000	24	392	9.4	1,590	.3	2.5	--	.81	3,000	388	84	22	.00	5,400	7.4
07-103	212	June 17, 1965	Tcs	50	.07	--	22	3.9	556	13	326	.4	720	.4	2.4	--	.73	1,530	71	93	29	3.92	2,770	7.4
2/ 704	320	May 16, 1964	J	--	1.41	.1	38	2	*18	--	149	19	8	.3	.4	--	--	235	103	--	.8	.38	296	7.5
12-201	420	Oct. 22, 1953	J	--	--	--	--	--	--	--	92	--	51	--	--	--	--	--	84	--	--	.00	425	7.1
902	629	do	J	48	17	--	30	1.7	*21	--	114	2	23	.1	.2	--	--	178	82	36	1.0	.25	260	6.8
911	Spring	do	Ch	11	.31	--	.7	1.3	--	--	5	--	4	.0	5.4	--	--	34	7	--	--	.00	38	5.5
13-503	318	Oct. 21, 1953	J	42	15	--	27	.4	*20	--	91	8	21	.1	.0	--	--	162	69	39	1.0	.11	228	7.8
513	316	June 16, 1965	J	40	1.2	.02	31	2.1	14	2.7	100	7.6	22	.2	.0	.00	.03	169	86	25	.7	.00	251	6.6
3/ 801	600	Dec. 22, 1958	J	44	2.1	--	39	1	--	--	128	16	25	--	--	--	--	282	99	--	--	.12	300	6.4
802	582	Feb. 12, 1953	J	49	2.6	--	32	3.3	*19	--	115	6.7	24	.0	.2	--	--	195	93	31	.9	.02	263	6.9
803	404	do	J	48	.09	--	38	3.5	*21	--	134	7.4	26	.0	.2	--	--	216	109	29	.9	.02	292	7.9
804	398	Feb. 11, 1953	J	54	.14	--	30	2.8	*21	--	110	7.1	24	.0	.2	--	--	194	86	34	1.0	.08	260	7.9
808	25	Feb. 12, 1953	B	16	.79	--	3.2	1.6	1.6	.5	20	2.3	5.0	--	7.2	--	--	65	15	18	.2	.03	68	6.9
14-302	178	June 18, 1965	J	45	17	--	30	2.7	19	3.2	123	6.4	18	.2	.2	--	--	185	86	31	.9	.30	263	6.7
902	398	June 25, 1965	J	19	.22	--	52	2.5	19	3.3	178	8.2	21	.2	.2	--	--	213	140	22	.7	.12	362	7.4
15-104	470	June 18, 1965	J	52	.01	--	28	3.6	171	7.7	302	13	140	.2	.2	--	.11	565	85	80	8.1	3.25	941	7.5

See footnotes at end of table.

Table 5.--Chemical analyses of water from wells and springs in Tyler County--Continued

Well	Depth of well (ft)	Date of collection	Water-bearing unit	Silica (SiO_2)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Phosphate (PO_4)	Boron (B)	Dissolved solids	Hardness as $CaCO_3$	Percent sodium	Sodium adsorption ratio (SAR)	Residual sodium carbonate (RSC)	Specific conductance (micromhos at 25° C)	pH
YJ-61-15-105	364	June 18, 1965	J	19	0.15	--	30	2.2	247	4.9	238	0.4	260	0.6	0.5	--	0.48	726	84	86	12	3.70	1,340	7.7
501	384	Feb. 13, 1953	B	17	.17	--	5.6	1.0	*58	--	152	9.5	6.0	.0	1.0	--	--	174	18	87	5.9	2.13	259	8.1
2/ 501	384	May 16, 1964	B	--	.1	< 0.1	--	--	*54	--	148	12	5	.2	.4	--	--	227	21	--	5.1	2.01	270	8.3
2/ 503	365	do	J	--	.02	< .01	--	--	*84	--	177	10	11	.4	.4	--	--	296	7	--	14	2.76	366	8.8
504	246	June 25, 1965	B	37	.03	.00	53	6.8	68	3.5	276	5.8	53	.3	.0	0.00	.04	363	160	47	2.3	1.32	600	7.4
804	290	do	B	25	.03	--	24	2.5	34	2.3	156	13	5.1	.1	.0	--	.01	183	70	50	1.8	1.15	287	7.2
20-601	222	Oct. 13, 1953	Ev	20	31	--	2.9	.1	*11	--	19	5	7.8	.0	.0	--	--	51	8	76	1.7	.15	59	5.8
901	101	Oct. 12, 1953	Ev	23	3.6	--	2.9	.4	*12	--	32	1	5.5	.1	.2	--	--	55	9	74	1.7	.34	67	6.3
21-101	107	Oct. 13, 1953	Ev	14	1.3	--	.9	.0	*10	--	8	5	6.0	.1	5.0	--	--	36	2	91	3.1	.09	42	6.3
201	605	Sept. 4, 1953	B	45	17	--	40	.8	*25	--	138	4	29	.1	.0	--	--	210	103	35	1.1	.20	317	6.8
211	69	do	Ev	7.5	2.8	--	--	--	2.7	.4	8	1.3	4.2	--	1.0	--	--	24	1	40	1.2	.11	31	6.3
212	643	do	B	45	10	--	38	1.4	*32	--	157	4	27	.1	.0	--	--	226	100	41	1.4	.57	338	7.0
214	Spring	do	Ch	8.7	.05	--	--	--	3.1	.8	5	1.8	6	--	.5	--	--	28	3	46	.8	.02	36	5.5
601	456	June 24, 1965	B	51	.10	.01	12	1.0	7.4	2.5	555	.4	5.3	.2	.0	.16	.01	107	34	30	.6	.22	110	6.8
608	96	do	Ev	13	.00	--	12	7.8	16	1.8	2	.6	21	.1	79	--	.18	152	62	35	.9	.00	251	5.8
801	75	Oct. 13, 1953	Ch	11	4.7	--	1.0	.5	*5.5	--	10	1	4.2	.1	1.5	--	--	26	5	73	1.1	.06	34	5.9
22-401	315	June 24, 1965	Ev	51	.00	--	21	2.3	10	3.3	82	2.0	12	.2	.2	--	.01	142	62	25	.6	.11	180	6.8
802	350	do	Ev	44	.15	--	60	4.0	13	4.4	220	4.6	11	.2	.2	--	.00	249	166	14	.4	.28	385	7.4
23-101	692	June 1, 1960	B	28	--	--	49	5.2	*55	--	276	11	18	--	.2	--	--	302	144	45	2.0	1.64	480	7.5
24-404	332	June 23, 1965	B	28	.70	.00	20	3.4	44	2.0	172	6.8	9.3	.2	.2	.00	.06	199	64	59	2.4	1.54	306	7.5
405	590	do	B	22	.30	.02	23	2.6	49	1.9	193	6.8	9.3	.4	.2	.00	.13	210	68	60	2.6	1.80	338	7.7
28-602	585	June 16, 1965	Ev	39	.23	--	63	6.0	14	3.9	230	4.4	16	.2	.0	--	.04	260	182	14	.5	.13	406	8.0
29-201	500	Oct. 21, 1953	Ev	44	.12	--	45	3.7	*17	--	178	5	9.2	.1	.2	--	--	210	128	22	.7	.36	303	7.9
203	30	Oct. 12, 1953	Ch	11	.00	--	--	--	38	46	36	12	113	.1	155	--	--	453	175	26	1.2	.00	748	6.4
301	478	June 1, 1960	Ev	38	.01	--	59	4.5	15	4.6	219	4.0	16	.0	.0	--	--	249	166	16	.5	.28	384	7.4
601	382	Oct. 23, 1954	Ev	30	.26	--	--	--	--	--	50	--	8.8	.1	.0	--	--	86	33	--	--	.18	115	6.5
30-302	286	Feb. 13, 1953	Ev	42	.02	--	7.4	1.7	*10	--	42	2.3	7.0	--	.5	--	--	90	25	46	.9	.19	89	6.9
303	477	July 31, 1953	Ev	25	.74	--	--	--	4.7	3.2	27	2.4	5.8	--	.2	--	--	61	12	31	.6	.20	67	6.4

See footnotes at end of table.

Table 5.--Chemical analyses of water from wells and springs in Tyler County--Continued

Well	Depth of well (ft)	Date of collection	Water-bearing unit	Silica (SiO_2)	Iron (Fe)	Manganese (Mn)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Phosphate (PO_4)	Boron (B)	Dissolved solids	Hardness as $CaCO_3$	Percent sodium	Sodium adsorption ratio (SAR)	Residual sodium carbonate (RSC)	Specific conductance (micromhos at 25° C)	pH
YJ-61-30-405	423	June 16, 1965	Ev	34	0.00	--	16	1.0	7.1	4.5	54	0.2	14	0.2	0.2	--	0.02	104	44	14	0.5	0.00	141	7.1
31-302	380	June 23, 1965	Ev	46	.00	--	6.5	.7	8.4	2.5	22	.4	16	.1	.2	--	.01	92	19	45	.8	.00	93	6.2
501	533	June 22, 1965	Ev	35	.00	--	29	2.1	7.7	2.8	108	1.8	7.7	.2	.2	--	.02	140	81	17	.4	.15	208	6.4

* Where no potassium (K) is reported, sodium (Na) and potassium (K) are calculated and reported as sodium (Na).
[a] Composite sample.
[1] Analyses by East Texas Pulp & Paper Co.
[2] Analyses by Texas State Department of Health.
[3] Analyses by Microbiology Service Laboratories, Houston, Texas.