TEXAS
WATER
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BOARD

REPORT 68

GROUND-WATER RESOURCES OF AUSTIN AND WALLER COUNTIES, TEXAS

DECEMBER 1967

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GROUND-WATER RESOURCES OF AUSTIN AND WALLER COUNTIES, TEXAS

By

Clyde A. Wilson
United States Geological Survey

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Total pumpage of ground water in 1965 was 46,000 acre-feet (42 mgd) in Waller County and 10,000 acre-feet (8.9 mgd) in Austin County. Eighty-two percent of the total pumpage in Austin County and 85 percent in Waller County was for rice irrigation. Approximately 3.1 acre-feet of ground water was required to raise 1 acre of rice in 1965.

The largest concentration of wells is in the Katy rice-growing area of southern Waller County. Due to large withdrawals, the water levels in the Evangeline aquifer are declining in that area at a rate of about 1.5 feet per year. As pumpage continues, water levels in wells will decline more, and in some places, upward movement of water from the zone of slightly saline water may occur.

Approximately 73 million acre-feet of fresh ground water and 38 million acre-feet of slightly saline water are in storage in the two counties. However, only a small part of the water in storage is available for use. More than 63,000 acre-feet per year of water can probably be pumped in the two-county area on a perennial basis.

The areas most favorable for ground-water development are in the southern parts of both counties. In these areas, transmissibilities of the entire fresh-water section range from 50,000 to over 150,000 gpd per foot. Substantial development of the available ground water has already occurred in the southern part of Waller County, but southern Austin County has had little development.

GROUND-WATER RESOURCES OF AUSTIN AND WALLER COUNTIES, TEXAS

INTRODUCTION

Austin and Waller Counties are in southeast Texas on the Gulf Coastal Plain (Figure 1). The counties are separated by the Brazos River which flows southward into the Gulf of Mexico. Physiographically, the southern half of each county is a nearly featureless plain of pasture land and cultivated fields. The northern parts of the counties have a gently rolling to rugged terrain.

Austin County has an area of 662 square miles and a population (1960) of 13,777; Waller County has an area of 507 square miles and a population (1960) of 12,071.

The economy of each county is dependent principally upon agriculture and the production and refining of oil and gas. One-third to one-half of the annual income is from farm and ranch products, chiefly livestock, poultry, rice, peanuts, corn, and cotton. Oil production during 1963 was 1,736,000 barrels in Austin County and 610,000 barrels in Waller County.

Ground water is extremely important to the economy of both counties. It is used by all of the municipalities and large industries, and for the irrigation of rice, the most valuable farm crop. In 1965, about 13,000 acres of rice was irrigated in Waller County and about 2,800 acres in Austin County.

Purpose and Scope

Because of the importance of ground water to the economy of the counties, this study was undertaken by the United States Geological Survey in cooperation with the County Commissioners Courts of Austin and Waller Counties, the Texas Water Development Board, and the Brazos River Authority. The purpose of the study was to determine the occurrence, availability, dependability, and quality of the ground-water resources, with special emphasis on sources of water suitable for public supply, industrial, and irrigation uses. The general scope of the study included the collection, compilation, and analysis of data related to the ground-water resources and the preparation of a comprehensive report.

Methods of Investigation

The investigation of the ground-water resources of Austin and Waller Counties, begun in April 1965, included an inventory of 404 water wells. These wells are all of the public-supply, industrial, and irrigation wells, and a

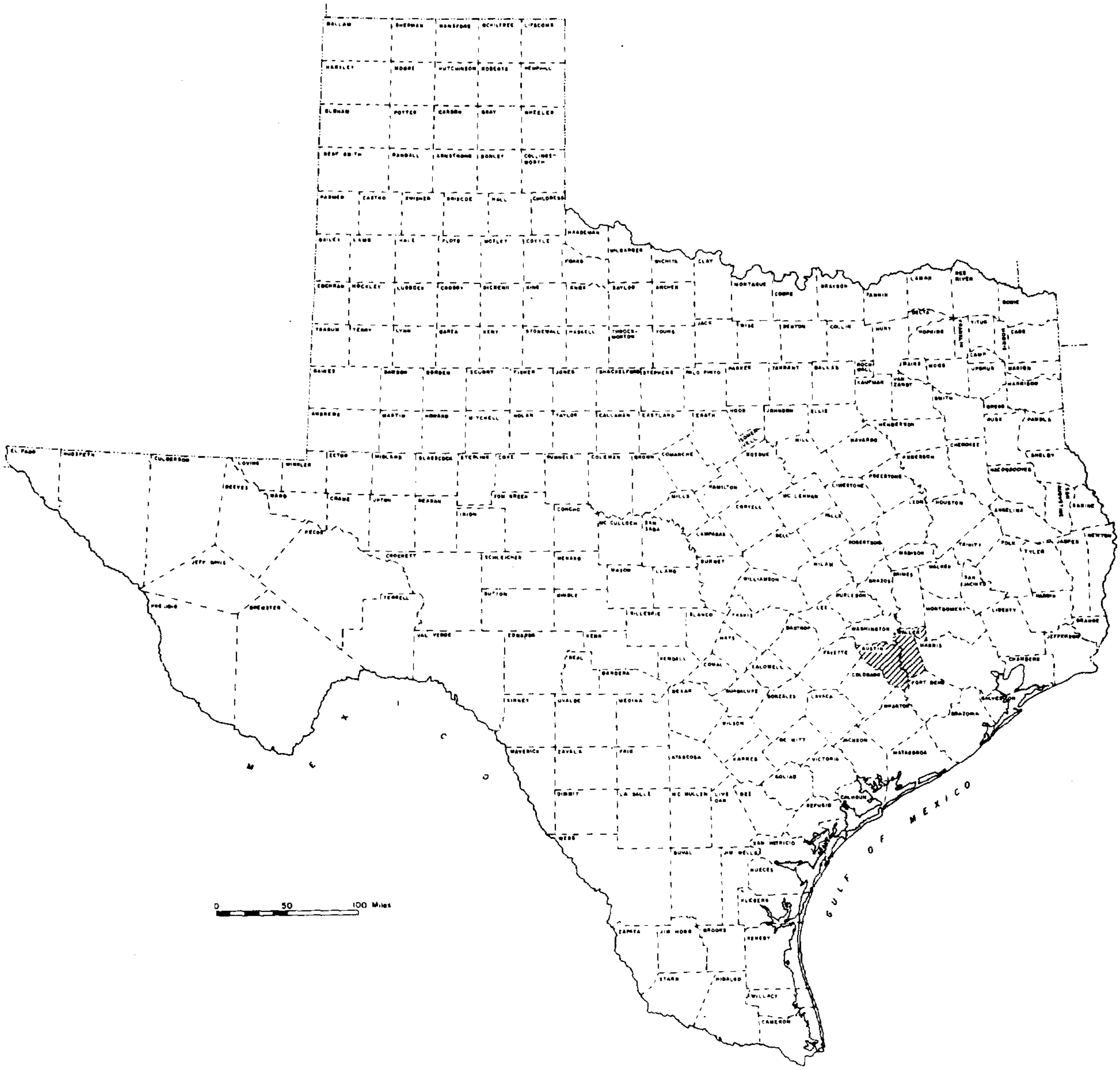

Figure 1

Location of Austin and Waller Counties

U. S. Geological Survey in cooperation with the Texas Water Development Board and others

minute quadrangle 64, in the 2-1/2 minute quadrangle 2, and was the first well inventoried, 01. Table 9 is a cross index of current and previously used well numbers.

Definition of Terms

Acre-foot.--The volume of water required to cover 1 acre to a depth of 1 foot (43,560 cubic feet), or 325,851 gallons. The term is commonly used in measuring volume of water in storage in an aquifer, in a surface reservoir, or volume used.

Aquifer.--A formation, group of formations, or part of a formation that is water bearing.

Aquifer test, pumping test.--The test consists of the measurement at specific intervals of the discharge and water level of the well being pumped and the water levels in nearby observation wells. Formulas have been developed to show the relationship of the yield of a well, the shape and extent of the cone of depression, and the properties of the aquifer (such as the specific yield, porosity, and coefficients of permeability, transmissibility, and storage).

Aquifer test, recovery test.--The test consists of the measurement at specific intervals of the water level in the previously pumped well and the observation wells. (See definition: Aquifer test, pumping test.) Measurements are begun shortly after the pump is stopped and are continued until the water levels rise to (or recover) their positions previous to the start of the test.

Artesian aquifer, confined aquifer.--Artesian (confined) water occurs where an aquifer is overlain by rock of lower permeability (e.g., clay) that confines the water under pressure greater than atmospheric. The water level in an artesian well will rise above the top of the aquifer. The well may or may not flow.

Artesian well.--One in which the water level rises above the top of the aquifer, whether or not the water flows at the land surface.

Electrical log.--A graph log showing the relation of the electrical properties of the rocks and their fluid contents when penetrated in a well. The electrical properties are natural potentials and resistivities to induced electrical currents, some of which are modified by the presence of the drilling mud.

Evapotranspiration.--Water withdrawn by evaporation from a land area, a water surface, moist soil, or the water table, and the water consumed by transpiration of plants.

Hydraulic gradient.--The slope of the water table or piezometric surface, usually given in feet per mile.

Permeability of an aquifer.--The capacity of an aquifer for transmitting water under pressure.

Piezometric surface.--An imaginary surface that everywhere coincides with the static level of the water in the aquifer. The surface to which the water from a given aquifer will rise under its full head.

Recharge of ground water.--The process by which water is absorbed and is added to the zone of saturation. Also used to designate the quantity of water that is added to the zone of saturation, usually given in acre-feet per year or in million gallons per day.

Specific capacity.--The rate of yield of a well per unit of drawdown, usually expressed as gallons per minute per foot of drawdown. If the yield is 250 gpm and the drawdown is 10 feet, the specific capacity is 25 gpm per foot.

Specific yield.--The quantity of water that an aquifer will yield by gravity if it is first saturated and then allowed to drain; the ratio expressed in percentage of the volume of water drained to volume of the aquifer that is drained.

Storage, coefficient of.--The volume of water that an aquifer releases from or takes into storage per unit surface area of the aquifer per unit change in the component of head normal to that surface. Storage coefficients of artesian aquifers may range from about 0.00001 to 0.001; those of water-table aquifers may range from about 0.05 to 0.30.

Transmissibility, coefficient of.--The rate of flow of water in gallons per day through a vertical strip of the aquifer 1 foot wide extending through the vertical thickness of the aquifer at a hydraulic gradient of 1 foot per foot and at the prevailing temperature of the water. The coefficient of transmissibility from a pumping test is reported for the part of the aquifer tapped by the well.

Water level.--Depth to water, in feet below the land surface, where the water occurs under water-table conditions (or depth to the top of the zone of saturation). Under artesian conditions the water level is a measure of the pressure on the aquifer, and the water level may be at, below, or above the land surface.

Acknowledgments

Appreciation is expressed to the following individuals and firms for their assistance during the study: Katy Drilling Co., Katy, Texas; Pomykal Drilling Co., Brenham, Texas; J & S Well Service, Bellville, Texas; Charles Ressmann, well driller, New Ulm, Texas; R. J. LeBlanc, Shell Oil Co., Houston, Texas; H. A. Bernard, Shell Development Co., Houston, Texas; and E. P. Mosley, W. E. Bryan, and C. J. DeLancy, Humble Oil and Refining Co., Katy, Texas. The cooperation of many other individuals, industrial firms, farmers, ranchers, property owners, and governmental officials in Austin and Waller Counties is gratefully acknowledged.

General Geology and Physiography

The geologic units that contain fresh to slightly saline water in Austin and Waller Counties are, from oldest to youngest: the Catahoula Sandstone, Fleming Formation, Goliad Sand, Willis Sand, Bentley Formation, Montgomery Formation, Beaumont Clay, and the Recent alluvium of the Brazos River flood plain. These units range in age from Miocene to Recent.

The geologic formations of the Gulf Coast region are exposed on the surface in belts that approximately parallel the coast. The younger units crop out near the coast and form an almost featureless plain; the older units, which crop out further inland at higher elevations, are more eroded and dissected. Figure 2 shows the exposures of the geologic units throughout Austin and Waller Counties and adjacent areas.

The geology of the area is discussed in more detail by Deussen (1914), Sellards, Adkins, and Plummer (1932), Doering (1935), Metcalf (1940), Weeks (1945), Bernard, LeBlanc, and Major (1962), and Bernard and LeBlanc (1965). The Fleming Formation as shown on Figure 2 is equivalent to the Oakville Sandstone and Lagarto Clay as shown on the geologic map of Texas (Darton, Stephenson, and Gardner, 1937) and in Cronin and Wilson (1967). Fisk (1940) mapped several units in Louisiana including an underlying Bentley Formation and an overlying Montgomery Formation, which, in effect, are equivalent to the Lissie Formation as shown on the geologic map of Texas (Darton, Stephenson, and Gardner, 1937). Bernard and LeBlanc (1965) accepted the division but refer to the Montgomery Formation as the Montgomery terrace and to the Bentley Formation as the Lissie Formation. The nomenclature in this report is modified from Bernard and LeBlanc (1965); however, the name Bentley Formation is used rather than the term Lissie Formation, and Montgomery Formation is used rather than Montgomery terrace. Table 1 describes the physical and water-bearing properties of the various geologic formations. The geologic units are difficult to distinguish in the subsurface; therefore, the thickness values given in Table 1 are only approximate.

The formations dip toward the Gulf at an angle greater than the slope of the land surface; therefore, they occur at progressively greater depths in a gulfward direction. Bernard, LeBlanc, and Major (1962, p. 219) suggest the following rates of dip for the Pliocene(?) and Pleistocene formations in the vicinity of the Brazos River: Willis Sand, 10 feet per mile; Bentley Formation, 3 feet per mile; Montgomery Formation, 2.5 feet per mile; and the Beaumont Clay, 1.8 feet per mile. The Fleming Formation dips toward the Gulf at a rate of approximately 40 to 60 feet per mile. The base of the Goliad Sand dips gulfward at a rate of about 40 feet per mile, but the top of the Goliad dips at a rate of only about 10 feet per mile. This difference in dip within the Goliad Sand creates a wedge-shaped unit which thickens gulfward. The scattered, small outcrops of the Goliad suggest that the formation was mostly overlapped by the Willis Sand. The limy character noted throughout the drillers' logs (Table 6) of wells YW-65-02-706, YW-65-09-502, YW-65-09-505, YW-65-09-802 and YW-65-09-803 is representative of the Goliad in the subsurface of southern Waller County.

Table 1.--Geologic description and water-bearing properties of the geologic units forming the aquifers in Austin and Waller Counties

System	Series	Stratigraphic unit	Estimated thickness in area (feet)	General composition in Austin and Waller Counties	Surface expressions	Water-bearing properties in Austin and Waller Counties	Hydrologic unit
Quaternary	Recent	Tributary alluvium and flood-plain alluvium of the Brazos River	0- 80	Unconsolidated gray, brown, and reddish-brown clay, silt, and sandy clay, commonly overlying light-colored sand or coarser-grained sand and gravel.	Occurs along the banks of smaller streams and in the flood plain of the Brazos River. Nearly flat plain. Forms reddish- to dark-brown and black soils.	Yields small to large amounts of fresh water in the flood plain of the Brazos River.	Alluvium of Brazos River
	Pleistocene	Beaumont Clay	0- 75	Mottled red, reddish-brown, brown and gray, dense clay with white calcareous nodules. May contain lenses of fine- and medium-grained sand or sand and gravel in places.	Occurs only along the fringes of the Brazos River flood plain. Forms nearly flat, narrow plain. Soils are gray to black, blocky.	Yields small to moderate amounts of water to scattered shallow wells less than 100 feet deep along the edge of the Brazos River flood plain.	Zone 7; Evangeline aquifer (0-1,840 ft); (May contain unidentifiable parts of basal Chicot aquifer along edges of Brazos River flood plain or along southern part of both counties.)
		Montgomery Formation	0- 40?	Light gray to light brown, fine-grained sand, silt, and clay, probably grading with depth to darker-colored coarser sand and in places basal sand and gravel.	Nearly flat, featureless plain; soils are light colored, fine-grained sandy. Occurs only along southern edge of area.	Yields small amounts of water to scattered shallow wells.	
		Bentley Formation	0- 50?	Alternating beds of reddish-brown to yellow and gray, mottled clay interbedded with grayish, fine- to coarse-grained sand and gravel lenses. Scattered lentils of lime-cemented sandstone. Clay, sandy clay, and fine sand predominate in the upper part, darker-colored, coarser sand and gravel in the lower part.	Forms flat plains in the southern one-third of the counties; most of the rice-growing area is on the outcrop. Forms light-colored sandy loamy soils.	Contributes small to moderate amounts of fresh water to domestic wells in the southern part of the area; probably represented by the uppermost sands screened in these wells.	
Tertiary(?)	Pliocene(?)	Willis Sand	0- 240?	Alternating beds of mottled red, yellow, brown, and gray clay and sand with scattered lenses of unsorted sand and quartz gravel. Ferruginous nodules common. Packed and hard in fresh exposures. Basal part is usually a hard, gravelly sand and clay.	Forms the gently-rolling sand hills of northern Waller County and central Austin County. Most of the gravel pits in Austin County are in the basal Willis. Forms tan sandy soils.	Yields small to large amounts of fresh water to wells.	
Tertiary	Pliocene	Goliad Sand	0- 840?	White to gray, sticky, calcareous clay with interbedded lenses of light-colored, gravelly sand and lime-cemented sandstone. Black chert grains in the whitish sand give a salt and pepper effect.	Occurs as isolated surface exposures because the Goliad is overlapped by the Willis Sand or is easily removed by erosion. Forms gray, sticky soils. Usually occurs along valley bottoms and walls.	Yields large amounts of fresh water to wells.	Zone 6; Zone 5
	Miocene	Fleming Formation	0-1,700	Interbedded clay and sand; clay predominantly in the upper part. The blocky, dense clay is various shades of gray, yellow, olive, and brown. White calcareous nodules are common. Sand is gray to brown, interbedded with gray clay. Sand is medium to fine grained and often cross-bedded.	Forms the rolling and dissected topography of northern Austin County. Forms gray to black loam and sandy loam soils.	Yields small to large amounts of fresh to slightly saline water.	Zone 4; Zone 3; Zone 2; Burkeville aquiclude (0-480 ft)
		Catahoula Sandstone	?	Alternating beds of gray clay, tuff, and sand. Lower sands may be hard, white, and have opaline appearance.	Does not crop out in Austin or Waller Counties. Difficult to distinguish from overlying Fleming Formation in both surface exposures and in well logs.	May yield small amounts of fresh water in the most northern part of Austin County. Generally water is at least slightly saline.	Zone 1; Jasper aquifer
	Eocene	Undifferentiated	--	Alternating beds of gray sand, sandstone, and shale.	Does not crop out in Austin or Waller Counties	Would yield only saline water.	

Jasper aquifer in Austin, Waller, and parts of adjacent counties. The downdip extent of fresh-water occurrence in the Jasper aquifer is shown on Figure 16. Figures 23-26 indicate that less than 350 feet of the upper part of the Jasper aquifer contains fresh water; a zone of slightly saline water underlies the fresh water in the aquifer.

The upper part of the aquifer correlates with Lang, Winslow, and White's (1950) zone 1 of the Houston area. The top of the Jasper is the top of zone 1. The dip of the top of the Jasper is between 40 and 60 feet per mile. Stratigraphically, the Jasper includes the lower part of the Fleming Formation and possibly part of the Catahoula Sandstone. Because the base was not defined, no thickness is given for the Jasper aquifer.

The electrical logs on Figures 23, 24, 25, and 26 show that in general the Jasper is composed of sand beds at the base and top which are separated by a thicker clay unit. The sand beds are of varying thickness and are interfingered with the clay unit.

In Austin and Waller Counties very few large-capacity wells obtain water from the Jasper; therefore, little information is available on its hydraulic properties. Two short-term pumping tests were conducted on well AP-59-61-803 tapping the Jasper aquifer. The data from the tests were analyzed by using the non-equilibrium method of Theis (1935) or the Theis recovery method as described by Wenzel (1942). The test results (Table 2) suggest that the transmissibility of the 51-foot sand section screened in the well is between 10,800 gpd (gallons per day) per foot and 13,900 gpd per foot. The permeability of the sand would be between 212 gpd per square foot and 272 gpd per square foot. The range in permeability is lower than that obtained by Wesselman (1967) for the same aquifer in Jasper and Newton Counties.

Burkeville Aquiclude

The Jasper aquifer is overlain by a continuous, dense, predominantly clay unit called the Burkeville aquiclude (Figures 23, 24, 25, and 26). Stratigraphically the Burkeville is equivalent to part of the Fleming Formation. The thickness of the Burkeville ranges from 200 to 480 feet and averages about 320 feet. The aquiclude dips southeastward at a varying rate of about 40 to 55 feet per mile. The Burkeville correlates with zone 2 of Lang, Winslow, and White (1950). Although the unit is predominantly clay, the Burkeville does contain thin sand lenses. A few domestic wells produce water from these beds, and several irrigation and municipal wells include the thin sand lenses of the Burkeville in their screened sections.

Evangeline Aquifer

The Evangeline aquifer is composed of a thick sequence of alternating beds of sand and clay which overlie the Burkeville aquiclude. Figure 3 shows the altitude of the base of the Evangeline aquifer in Austin and Waller Counties. The base of the Evangeline dips gulfward from the outcrop in northern Austin County at an average rate of about 60 feet per mile, although locally the dip is more than 100 feet per mile. In areas of salt domes, such as the Racoon

Bend oil field in northeast Austin County and the San Felipe oil field in southern Waller County, the base of the Evangeline is extremely irregular probably due to the upthrust of the salt domes.

Wesselman (1967) states that the Chicot aquifer overlies the Evangeline aquifer in Jasper and Newton Counties, Texas. The separation of these two aquifers is based on differences in lithology, permeability, water levels in wells, and stratigraphic position. Wesselman correlates the Evangeline aquifer of Jasper and Newton Counties with the upper part of the Fleming Formation and with the Goliad Sand; in the overlying Chicot aquifer, he includes all geologic formations above the Goliad except the Recent flood-plain alluvium.

A thin section of the Chicot aquifer may be present at or near the surface in the most southern part of Austin and Waller Counties. However, little or no information is available on it because the large-capacity wells in that area tap both the Chicot (if present) and the underlying Evangeline aquifer. The basal part of the Chicot may be represented by the clay, sand, and gravel interval from 0 to 148 feet shown on the driller's log of well YW-65-09-803 (Table 6). For the purposes of this report, the Evangeline aquifer includes all water-bearing units between the Burkeville aquiclude and the land surface, except the Recent flood-plain alluvium of the Brazos River. Geologically then, the Evangeline aquifer of Austin and Waller Counties includes the upper part of the Fleming Formation, the Goliad Sand, the Willis Sand, the Bentley Formation, and parts of the Montgomery Formation and the Beaumont Clay. The Evangeline includes zone 3 through the lower part of zone 7 as described by Lang, Winslow, and White (1950) in the Houston area. The thickness of the Evangeline aquifer ranges from 0 in northern Austin County to about 1,840 feet in the southern part of Waller County.

The electrical logs on Figures 23, 24, 25, and 26 show the discontinuous character of the interfingering sand and clay units of the Evangeline aquifer. The upper part (zone 7) contains the greatest amount of sand, but this zone is present only in the southern parts of the two counties. Zone 7 contains very little clay. Zones 3 and 5 contain many alternating beds of sand and clay, but individual sand beds are rarely more than 50 feet thick.

Sand samples collected by the driller from well AP-66-23-204 were examined and logged in detail. The driller's log (Table 6) shows the comparative grain size and distribution of sand units in the well. Most of the sands penetrated were light colored, fine and medium grained, with scattered occurrences of gravel. Samples taken at intervals between 530 and 592 feet in well YW-65-09-509 contained light-colored, fine to coarse sand with scattered gravel particles about half an inch or less in diameter.

Hydraulic properties of the Evangeline aquifer were determined from pumping tests made on 25 wells in Austin and Waller Counties. Twenty-two of the wells tested were screened only in the Evangeline aquifer; two of the wells also included thin sand lenses in the Burkeville aquiclude. However, the contribution of water to the wells from the Burkeville sand lenses was probably very small. Table 2 lists the results obtained during the pumping tests.

The transmissibility of the Evangeline aquifer ranged from a low of 7,900 gpd per foot in a 47-foot sand section in well AP-66-15-903 at Sealy to a high of 99,000 gpd per foot in 203 feet of sand in well YW-65-09-803, 3 miles southeast of Brookshire. Generally the higher transmissibilities were measured in

Table 2.--Coefficients of transmissibility, storage, and permeability in the Jasper and Evangeline aquifers in Austin and Waller Counties

Well	Depth of well (ft)	Water-bearing unit	Date of test	Total sand thickness included in screened interval (ft)	Coefficient of transmissibility (gpd per ft)	Coefficient of storage	Field coefficient of permeability (gpd per ft²)	Remarks
				Austin County				
AP-59-61-803	725	Jasper	Nov. 29, 1965	51	10,800	--	212	Drawdown test. 1-hr specific capacity 1.3 gpm/ft.
803	725	do	do	51	13,900	--	272	Recovery test.
66-06-602	740	Evangeline	Jan. 6, 1966	70	12,500	1.5×10^{-4}	178	Interference test. Well AP-66-06-603 pumping. 1-hr specific capacity 4.4 gpm/ft.
603	900	Evangeline & Burkeville	do	105	14,500	--	138	Recovery test. 1-hr specific capacity 7.4 gpm/ft.
603	900	do	do	105	10,300	7×10^{-4}	98	Interference test. Well AP-66-06-602 pumping.
15-903	411	Evangeline	Jan. 17, 1966	47	7,900	--	168	Recovery test. 1-hr specific capacity 3.1 gpm/ft.
22-301	752	do	July 29, 1955	268	38,300	--	143	Recovery test.
23-402	890	do	July 14, 1965	447	62,500	--	140	Do.
801	822	do	do	282	70,800	--	251	Do.
902	556	do	Sept. 1, 1965	224	56,900	--	254	Do.
				Waller County				
YW-59-64-201	728	Evangeline	Jan. 10, 1966	100	26,100	--	261	Drawdown test. 1-hr. specific capacity 8.0 gpm/ft.
202	745	do	do	90	24,900	8×10^{-5}	277	Interference test. Well YW-59-64-201 pumping.
65-01-402	806	do	May 5, 1965	227	40,000	--	176	Drawdown test. 1-hr specific capacity 25.9 gpm/ft.
402	806	do	do	227	42,100	--	185	Recovery test.
502	828	do	June 24, 1965	325	56,300	--	173	Do.
805	1,670	Evangeline & Burkeville	May 17, 1965	360	18,300	--	51	Recovery test. 30-minute specific capacity 8.1 gpm/ft on Apr. 27, 1965.
806	905	Evangeline	June 28, 1965	245	39,600	6×10^{-4}	161	Interference test. Well YW-65-01-803 pumping.
02-706	650	do	Sept. 30, 1965	227	40,300	--	178	Recovery test.
09-201	832	do	June 7, 1965	310	62,400	9×10^{-4}	201	Interference test. Well YW-65-09-204 pumping.
209	482	do	do	182	44,200	1.3×10^{-3}	243	Do.
501	550	do	Sept. 23, 1965	215	30,300	--	141	Recovery test.
502	530	do	do	276	93,800	--	340	Do.

Table 2.--Coefficients of transmissibility, storage, and permeability in the Jasper and Evangeline aquifers in Austin and Waller Counties--Continued

Well	Depth of well (ft)	Water-bearing unit	Date of test	Total sand thickness included in screened interval (ft)	Coefficient of transmissibility (gpd per ft)	Coefficient of storage	Field coefficient of permeability (gpd per ft^2)	Remarks
Waller County								
YW-65-09-504	760	Evangeline	Sept. 23, 1965	340	64,200	--	189	Recovery test. 10-day specific capacity 19.4 gpm/ft on May 3, 1965.
803	358	do	June 21, 1965	203	99,000	--	487	Recovery test. 3-day specific capacity 22.7 gpm/ft on June 9, 1965.
904	256	do	July 21, 1965	103	45,400	5×10^{-4}	440	Interference test. Well YW-65-09-902 pumping.
10-102	585	do	July 11, 1965	251	67,300	--	268	Recovery test.
66-08-604	1,008	do	June 15, 1965	291	43,800	--	151	Do.
16-905	233	do	Aug. 18, 1965	91	28,300	--	311	Recovery test. 90-minute specific capacity 12.9 gpm/ft.

the rice irrigation wells in the southern part of the counties as these wells are slotted and gravel packed to include the entire sand sections penetrated by the wells. Municipal wells screen only selected sands and thus produce from relatively thin sections of the aquifer which have correspondingly lower transmissibilities, ranging from about 8,000 to 26,000 gpd per foot.

The estimated transmissibility of the entire fresh-water (less than 1,000 parts per million dissolved solids) section in the Evangeline and Jasper aquifers in Austin and Waller Counties is shown in Figure 20 and discussed in the section on the availability of water.

The coefficient of storage for the Evangeline aquifer was determined in seven tests (Table 2). The values obtained ranged from a low of 0.00008 at well YW-59-64-202 at Hempstead to a high of 0.0013 at well YW-65-09-209, a multi-screened irrigation well about 8 miles north of Brookshire. The average value for the coefficient of storage of the Evangeline aquifer in Austin and Waller Counties is about 0.0007.

The coefficient of permeability is a value which is more representative of the water-conducting ability of individual sand units. The value applies only to a 1-foot square section of the aquifer, and therefore, unlike the transmissibility, is not dependent on the total amount of saturated thickness screened. Table 2 shows the coefficients of permeability as determined from pumping tests conducted in both Austin and Waller Counties. The permeability ranged from a low of 51 gpd per square foot for the sands screened in well YW-65-01-805, about 7 miles north of Brookshire, to a high of 487 gpd per square foot for the sands tapped by well YW-65-09-803, 3 miles southeast of Brookshire. The average permeability for the Evangeline aquifer is 215 gpd per square foot. This compares favorably with the average coefficient of permeability of 260 gpd per square foot for the Evangeline in Jasper and Newton Counties, Texas (Wesselman, 1967).

The greater permeabilities generally occur in the near-surface sands because the compaction of the water-bearing sand is less than at greater depths. The higher values of permeability in Austin and Waller Counties are in the most southern parts of the area where thick sand beds and scattered sand and gravel lenses are present at shallow depths. In an area near well YW-65-01-805, in the south-central part of Waller County, the near-surface sand units thin out and permeabilities decrease; therefore, the wells in this area must be drilled to greater depths to obtain sufficient water.

The specific capacities measured in wells in the Evangeline aquifer in Austin and Waller Counties ranged over wide limits. Measured specific capacities ranged from a few gallons per minute per foot of drawdown to 42.3 gpm per foot (well YW-65-09-805).

The yields of the large-capacity wells varied widely as shown by the measurements given in the remarks column of Table 5. In general, the yields of the large-capacity rice irrigation wells, which pump continuously for many days during the irrigation season, decrease as the pumping season continues. Because power consumption is directly related to lift, more power is required in the latter part of the season to produce the same amount of water.

The average yield of irrigation wells was computed from measurements made during four separate periods of the 1965 pumping season. From the start of the season to June 21, the average yield of all wells measured was 1,403 gpm; from June 21 to August 2, 1,320 gpm; from August 2 to September 4, 1,300 gpm; and from September 4 to the end of the season, 1,190 gpm. Many wells were idle during the harvest of the first crop of rice in mid-July and early August, allowing partial recovery of water levels. This is probably the reason the average yield declined only slightly from the second to the third period. The figures show a decrease of about 15 percent in well yields during the pumping season. However, additional power was used in many instances to increase the discharges of wells late in the season, and wells which were pumped at a constant power input throughout the season showed about a 20 percent decrease in yield during the irrigation period.

Alluvium of the Brazos River

The alluvium of the Brazos River is the Recent flood-plain material which lies adjacent to the Brazos River (Figure 2). Figure 27 shows the lithology of the alluvium as recorded on drillers' logs of test holes drilled in 1963 and 1964 by the U.S. Geological Survey (Cronin and Wilson, 1967).

Generally, the alluvium, which is 0 to 75 feet thick, is composed of red-brown to brown clay and silt, fine- to coarse-grained sand, and gravel. The beds and lenses of the various types of sediments pinch out or grade laterally and vertically into finer or coarser materials. Normally, the finer-grained materials are found in the upper part of the alluvium, while sand and lenses of sand and gravel occur near the base. The gravel may be well sorted and evenly distributed or a heterogeneous mixture of sand, silt, and gravel.

The alluvium of the Brazos River is not a widely used aquifer in Austin and Waller Counties; only about eight large-capacity wells pump water from the alluvium, but it contains a large volume of available water. Water in the alluvium usually occurs under water-table conditions, though locally it may be under artesian conditions. Most of these wells are used for supplemental irrigation of pastures, cotton, and grain.

No pumping tests to determine the hydraulic properties of the alluvium could be conducted in the two counties. However, during the irrigation season of 1965, specific capacities of two irrigation wells pumping water from the alluvium in Austin and Waller Counties were measured. Well AP-66-07-301 had a specific capacity of 28.6 gpm per foot of drawdown, and well AP-66-08-401 had a specific capacity of 17.2 gpm per foot of drawdown. The estimated transmissibility based on these two specific capacity values is about 38,000 and 22,000 gpd per foot, respectively.

Cronin and Wilson (1967) made 351 drawdown and discharge measurements in 1963 and 1964 in wells pumping from the alluvium. Most of these measurements were made in Falls, Robertson, Brazos, and Burleson Counties, where the alluvium is similar to that in Austin and Waller Counties. The measured specific capacities ranged from 6 to 134 gpm per foot of drawdown. The transmissibilities estimated from the specific capacities ranged from about 7,300 to about 208,000 gpd per foot. The average estimated transmissibility found by Cronin and Wilson was 42,000 gpd per foot; 21 percent of the measured specific capacities indicated transmissibilities of less than 20,000 gpd per foot, 42 percent were from 20,000 to 40,000 gpd per foot, 19 percent were from 40,000 to 60,000 gpd per foot, and 18 percent were over 60,000 gpd per foot.

Cronin and others (1963, p. 119) and Cronin and Wilson (1967) used a coefficient of storage (specific yield) of 0.15 for alluvium of the Brazos River. This figure is probably applicable to the alluvium in Austin and Waller Counties.

CHEMICAL QUALITY OF THE GROUND WATER

The chemical substances present and their concentration in the ground water depend on the source of water, the environment of the water-bearing unit, and the rate of the ground-water movement. Most dissolved substances originate primarily from the solution of constituents in the geologic formations.

Table 8 shows tabulations of 164 chemical analyses of water samples from wells in Austin and Waller Counties. The wells sampled are identified on Figure 22 by a bar over the well number. In Table 8 the concentration of the chemical constituents is reported in ppm (parts per million). One ppm is one part by weight of a constituent to a million parts by weight of water.

The factors which determine the suitability of a water for a particular use are the chemical quality of the water and the limitations imposed by the use. Various criteria used in setting limitations are bacterial content, temperature, color, taste, odor, and concentration of chemical constituents in the water. No bacterial analyses were made in this study.

For many purposes, the dissolved-solids content is a major limitation on the use of water. A general classification of water based on the dissolved-solids content is as follows (Winslow and Kister, 1956, p. 5):

Description	Dissolved-solids content (ppm)
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

Standards Which Determine Suitability for Use

The U.S. Public Health Service (1962, p. 7) has established standards for the chemical quality of water to be used by common carriers engaged in interstate commerce. These standards are useful in evaluating domestic and public water supplies. According to the standards, chemical substances should not be present in a water supply in excess of the listed concentrations whenever more suitable supplies are available or can be made available at reasonable cost. The following are the limits of concentration for some of the constituents.

Substance	Concentration (ppm)
Chloride (Cl)	250
Fluoride (F)	.7*
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 depends on the climatic conditions because the amount of water drunk is influenced primarily by the air temperature. The optimum value of 0.7 ppm in the report area is based on the annual average of daily maximum air temperatures of 80.2°F at Sealy.

In addition to the desired standards of the U.S. Public Health Service, the water should be free of odor and turbidity, and it should not contain color to the extent that it is objectionable to the user. The water should not be excessively corrosive to the water-supply system.

Water containing concentrations of chloride exceeding 250 ppm, and an equivalent amount of sodium, may have a salty taste. The optimum amount of fluoride in drinking water is believed to reduce the incidence of tooth decay, especially in young children. Excessive iron and manganese in the water supply tends to stain utensils and discolor laundry and fixtures. Water having a nitrate content over 45 ppm is potentially dangerous for infant feeding as it has been related to infant cyanosis or "blue baby" disease. Large nitrate concentrations may also indicate pollution by sewage or organic material. Excessive sulfate concentrations often produce a laxative effect.

The hardness of water, caused mainly by calcium and magnesium, is important in a water supply although no limits have been established by the U.S. Public Health Service. Excessive hardness causes an increase in the consumption of soap and induces the formation of scale in hot water heaters and water pipes. A common classification of water hardness is given in the following table.

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

The chemical quality necessary for industrial water depends on the intended use. Three principal categories of industrial use of ground water are cooling, boiler, and process. Each of these categories has different water-quality requirements. Hem (1959, p. 253) and Todd (1959, p. 186-187) summarize water-quality tolerances for a number of industries.

Corrosiveness is one of the main objectionable features in industrial use. Sodium chloride, acids, oxygen, and carbon dioxide are among substances that make water corrosive. Scale, another undesirable result, may be caused by excessive calcium, magnesium, iron, or silica in the water. Water to be used for cooling should have a rather constant temperature. Process water should remain at a constant chemical quality to insure a uniform product.

The suitability of water for irrigation depends upon the chemicals present in the water and the effect of these chemicals on the growing plant and on the structure, permeability, and aeration of the soil. Thus, suitability is affected by the type of crop, soil structure and composition, irrigation and drainage methods used, and climate. Some of the more important chemical characteristics which are considered in the evaluation of water for irrigation use are (1) the sodium concentration, an index of the sodium or alkali hazard; (2) the concentration of soluble salts, an index of the salinity hazard; (3) the amount of residual sodium carbonate; and (4) the concentration of boron in the water.

A classification frequently used for judging the quality of water for irrigation was proposed by the U.S. Salinity Laboratory Staff (1954, p. 69-82). The classification is based primarily 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). Figure 4 shows a diagram of this classification and the results of 68 chemical analyses plotted according to the aquifer from which the water was pumped. A high percentage of sodium in the soil or in the irrigation water tends to make the soil impermeable to water movement.

The classification of irrigation water proposed by the U.S. Salinity Laboratory may not be strictly applicable in Austin and Waller Counties. Wilcox (1955, p. 15-16) stated that the classification was not applicable to supplemental irrigation water used in areas of high rainfall. He further suggested that, generally, water would be safe for supplemental irrigation if its conductivity was less than 2,250 micromhos per centimeter at 25°C and if its SAR was less than 14. In Austin and Waller Counties, where rainfall is high, the classification would probably not apply to row crops such as cotton, which are

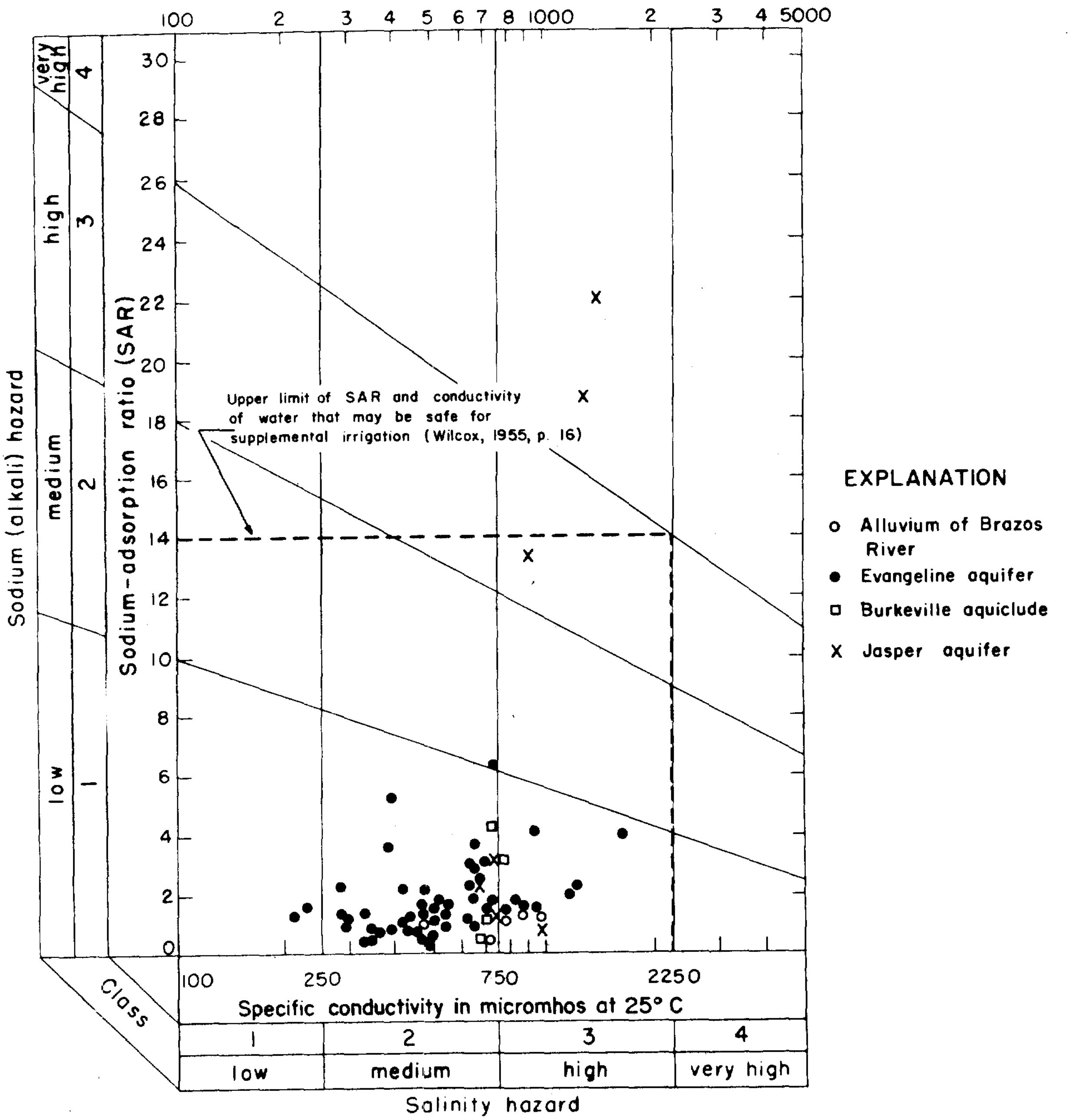

Figure 4

Classification of Irrigation Waters

U. S. Geological Survey in cooperation with the Texas Water Development Board and others

irrigated only when rainfall is deficient. Also, the rice-pasture rotational-planting system affords salinity control by allowing leaching of the collected salts from the soil during periods when rice is not grown.

The RSC (residual sodium carbonate) value is another factor used in judging the suitability of water for irrigation. Excessive RSC may cause the water to be alkaline, causing the organic material in the soil to dissolve. Wilcox (1955, p. 11) suggests the following limits for the RSC content of irrigation waters: more than 2.6 epm (equivalents per million), not suitable; 1.25 to 2.5 epm, marginal; and less than 1.25 epm, safe. The limits of RSC may be extended with good irrigation practices and leaching of the soil in areas of high rainfall.

Boron is essential to plant growth, but it is toxic at concentrations only slightly more than the optimum value. Scofield (1936, p. 286) indicated that a boron concentration of only 1 ppm is permissible for irrigating most boron-sensitive crops; a concentration of 3 ppm is permissible for the more boron-tolerant crops. Most small grains and cotton are considered semi-tolerant to boron.

Rice is moderately tolerant to salinity. According to Shutts (1953, p. 871-884), the commonly accepted tolerances of rice to sodium chloride are as follows:

Concentration of salts as sodium chloride (ppm)	Tolerance
600	Tolerant at all stages.
1,300	Rarely harmful and only to seedlings in dry, hard soil.
1,700	Harmful before tillering; tolerable for jointing to heading.
3,400	Harmful before booting; tolerable from booting to heading.
5,100	Harmful at all stages.

Quality of the Ground Water

Partial chemical analyses of 80 selected samples are shown in Figure 5 by means of patterns modified from a system suggested by Stiff (1951, p. 15). The concentration in epm of the six major ions in the water is plotted on either side of the horizontal axis of a graph, and the points are connected to form a closed figure or pattern whose shape is usually characteristic of the type of water. Thus, the pattern for the analysis of water which contains large concentrations of sodium and chloride would have a different shape than the pattern of an analysis of water containing excessive calcium and bicarbonate.

Jasper Aquifer

The upper part of the Jasper aquifer contains fresh water in the northern half of Austin County and in the northwest tip of Waller County. The downdip extent of fresh water in the Jasper aquifer is shown in Figure 16.

The patterns for analyses of water from the Jasper aquifer (Figure 5) vary from a typically calcium bicarbonate type water at well AP-59-60-702 (112 feet deep) to a sodium calcium bicarbonate type at well AP-59-61-402 (386 feet deep), to a distinctive sodium bicarbonate water at well AP-59-63-902 (1,228 feet deep). This change in water chemistry from a calcium bicarbonate to a sodium bicarbonate type water within about 1,100 feet in depth appears to be common in water pumped from wells tapping the Jasper aquifer. Water from wells more than 700 feet deep in the Jasper would probably be of the sodium bicarbonate type.

Wells YW-66-08-602 and YW-66-08-905 yield water from both the Evangeline and Jasper aquifers, while well YW-66-08-604, located about three-quarters of a mile north, yields water from only the Evangeline. The patterns of the water analyses of the two wells penetrating both the Evangeline and Jasper aquifers show a distinct sodium bicarbonate type water, while the pattern of the analysis of well YW-66-08-604, which taps only the Evangeline, shows a sodium calcium bicarbonate type water. A comparison of water from the Jasper and the Evangeline is difficult because the dissolved solids increase with depth in both aquifers, and because most deep wells in the Evangeline are screened opposite both shallow and deep sands, thus allowing the water to mix during pumping. In general, ground water in the shallow parts of the aquifers tends to be of a calcium bicarbonate type while water in the deeper parts of the aquifers contains more sodium than calcium.

Analyses of water from the Jasper aquifer were well below the U.S. Public Health Service limits in chloride and sulfate content. Chloride ranged from 37 to 71 ppm in samples from 6 wells. The iron content ranged from 0.08 to 5.1 ppm in 5 samples, and exceeded 0.3 in 4 of the 5 samples. Water from well AP-59-60-702 had an excessive nitrate content of 96 ppm. The fluoride content ranged from 0.3 to 0.9 ppm in the 6 samples analyzed. The dissolved solids ranged from 434 to 820 ppm, and were greater than the desired limit of 500 ppm in 3 of 6 samples. Water from the shallow part of the Jasper is moderately hard to very hard.

In summary, ground water for public supply from the Jasper aquifer may or may not be desirable, depending on the concentration of iron and dissolved solids. Water in the Jasper from a depth of about 500 to 700 feet below land surface may be low in iron and still not exceed the suggested limits of dissolved solids.

The quality of water for industrial purposes would depend on the limits imposed by the process using the water.

Water quality for irrigation varies with the depth of the producing well. Usually, if the depth of the well is under 500 feet, the water has a medium to high salinity hazard and a low sodium hazard (Figure 4). If well depths are greater than 1,000 feet, the water has a high salinity hazard and a medium to very high sodium hazard. RSC ranged from 0 to 11.7 and exceeded the 2.6 epm limit in 3 of 5 samples analyzed.

Water from well YW-66-08-602, producing from both the Evangeline and Jasper aquifers, has a high salinity hazard, a very high sodium hazard, and exceeds the limits of the desired RSC.

Evangeline Aquifer

Fresh ground water occurs in the Evangeline aquifer throughout most of Austin and Waller Counties. In general, this water is good for municipal, most irrigation, and most industrial purposes.

Figure 5 shows that fresh water from the Evangeline is predominantly of the calcium bicarbonate type, but contains varying amounts of sodium. A typical Evangeline water contains more calcium than sodium and more bicarbonate than chloride or sulfate. Depth of the producing well again appears to be related to the dissolved-solids and sodium content of the water, but probably not to the extent as in the Jasper. Wells AP-66-23-202 and YW-65-01-902 are two of the deeper Evangeline wells in Austin and Waller Counties. Patterns for water analyses from these wells show greater sodium concentration than calcium, but the dissolved-solids content is only slightly more than in water from much shallower wells in the Evangeline.

Analysis patterns of water from the majority of the large-capacity, multi-screened irrigation wells in the southern areas of the counties are distinctly of the calcium bicarbonate type.

The chloride content of water from 120 wells producing from the Evangeline aquifer ranged from 17 to 275 ppm. The U.S. Public Health Service limit of 250 ppm was exceeded in water from only two shallow wells, both of which are located near the New Ulm oil field. The cause of this high chloride content in the water is unknown. The chloride content exceeded 100 ppm in only 10 samples, most of which were from either very shallow or very deep wells.

Analyses of fluoride in water from 72 wells indicated the range to be from 0 to 0.6 ppm; the majority of analyses showed concentrations from 0.3 to 0.5 ppm. Thus, the amount of fluoride present in water from the Evangeline is less than the optimum value of 0.7 ppm.

The iron content of water from 57 wells ranged from 0 to 6.8 ppm, exceeding the limit of 0.3 in only 8 samples. The highest iron content was in water from well AP-66-08-105, about 11 miles east of Bellville. The owner of this well reported that the water had an undesirable taste and a sulfurous odor.

Sulfate concentrations in all analyses were far below the 250 ppm limit of the U.S. Public Health Service. The nitrate content ranged from 0 to 465 ppm and exceeded 45 ppm in only 2 of the samples analyzed. Both samples with excessive concentrations of nitrate were from very shallow wells.

The dissolved-solids content ranged from 128 to 1,190 ppm in water from wells completed in the Evangeline. In only 10 of the analyses did the dissolved-solids content exceed the Public Health Service limit of 500 ppm. The water from the Evangeline aquifer generally ranges from moderately hard to very hard.

In summary, ground water from the Evangeline aquifer generally meets all the chemical quality standards of the U.S. Public Health Service. However, it contains less fluoride than the recommended optimum amount.

The temperature of ground water usually increases slightly with depth. The temperature of water from 93 wells completed in the Evangeline ranged from 59 to 94°F; the temperature ranged from 68 to 76°F in 87 percent of the measurements.

Water from the Evangeline aquifer would be suitable for most industrial purposes. In general, the water is low in iron and sodium chloride, is of a rather uniform temperature and quality, and is usually slightly alkaline. The water, however, is hard. The silica content ranged from 10 to 44 ppm. The pH ranged from 6.1 to 7.9 and exceeded 7.0 in 75 percent of the samples.

The dissolved-solids content of water pumped for rice irrigation from the Evangeline aquifer was below 600 ppm. In general, the water has a medium to high salinity hazard and a low sodium hazard (Figure 4). The RSC of the water from 64 wells sampled was under 1.25 epm in 56 of the samples, ranged from 1.25 to 2.5 epm in 6 analyses, and exceeded 2.5 epm in only 2 samples. The boron content ranged from 0.02 to 0.48 ppm, well below the 1.0 ppm suggested limit.

Alluvium of the Brazos River

Water from the alluvium of the Brazos River is a distinct calcium bicarbonate type water. Development of this supply in Austin and Waller Counties is mostly for supplemental irrigation of row crops. Because of its shallow depth, water in the alluvium is subject to contamination from organic wastes and should be carefully checked before using for public supply. The dissolved-solids content in 5 samples ranged from 281 to 596 ppm. The iron content ranged from 0.17 to 2.6 ppm, and exceeded a desired limit of 0.3 ppm in 3 of the 4 analyses. Hardness ranged from 190 to 458 ppm.

The water from the alluvium of the Brazos River has a medium to high salinity hazard and a low sodium hazard. The RSC ranged from 0 to 0.61 epm, well within the desired limits. The boron content was less than 0.1 ppm. Cronin and Wilson (1967) found greater variations in the composition of water in other areas of the alluvium where irrigation has been extensively practiced for several years. In summary, water from the alluvium is safe for most irrigation purposes.

Changes in Chemical Quality

Twenty-one wells in Austin and Waller Counties were sampled at two or more different times. Seven of these wells were sampled twice during the study period; the remaining 14 wells were sampled at periods several years apart. The chloride content decreased slightly over a span of several years in all the wells. Considerable increases in dissolved solids in water from 2 deep wells, AP-59-63-902 and YW-66-08-602, were noted. In general, however, very little change in chemical composition occurred between the periods of sampling.

RECHARGE, MOVEMENT, AND DISCHARGE OF GROUND WATER

Recharge to the Aquifers

The principal source of ground-water recharge to the aquifers is precipitation in Austin and Waller Counties and adjacent areas. Minor amounts of ground water come from the infiltration of water from surface reservoirs such as ponds, lakes, and irrigated fields, and from streams.

Many factors determine the amount of water received as recharge. Some of these are rainfall duration and intensity, permeability and composition of the soil, slope of the land surface in the recharge area, and the rates of evaporation and transpiration.

The climate of Austin and Waller Counties is predominantly maritime. Annual rainfall is usually abundant, but wide variations may occur from year to year. Figure 6 shows the annual precipitation recorded at Hempstead, Waller County, and at Sealy, Austin County. Figure 7 shows the average monthly evaporation, temperature, and precipitation at selected localities in Austin and Waller Counties.

The prevailing southeasterly winds carry moisture from the Gulf of Mexico. Rainfall occurs during the common summer thundershowers, during the passage of squall lines and fronts, and occasionally during tropical storm activity.

The type of precipitation affects the amount of recharge to the ground-water reservoir. The common thundershower and squall-line rains are usually of short duration and great intensity, resulting in a large percentage of runoff and a small amount of infiltration. Rain associated with the fronts passing in the late fall, winter, and early spring is usually of longer duration and more even intensity, thereby affording greater opportunity for the water to enter the ground. Evaporation and transpiration rates are much less in the fall, winter, and spring months.

The composition, form, and slope of the soil surfaces and geologic formations in the recharge area are related to the amount of recharge to the aquifers. The main area of replenishment to sands furnishing water to wells in Austin and Waller Counties is contingent upon the location and depth of the well. As an example, a sandy zone at a depth of 1,000 feet in an irrigation well near Katy would crop out in an area slightly southeast of Hempstead, assuming a continuous stratum and an average dip of 40 feet per mile for the zone.

Recharge to the Evangeline aquifer occurs on the outcrop areas in Austin and Waller Counties and in parts of nearby counties to the north and west. Recharge to the Jasper aquifer is mostly in the outcrop area of the Fleming Formation in central Washington and Grimes Counties.

Physiographically, the recharge areas in Austin and Waller Counties range from the relatively flat Willis, Bentley, and Montgomery outcrops in the southern parts of the counties to the more rugged topography of the Fleming Formation and Willis Sand in the northern parts. The outcrop areas of the Willis and Bentley are moderately sandy; the Fleming outcrop is composed of clay with some sand intervals. The Goliad Sand, which composes much of the Evangeline aquifer,

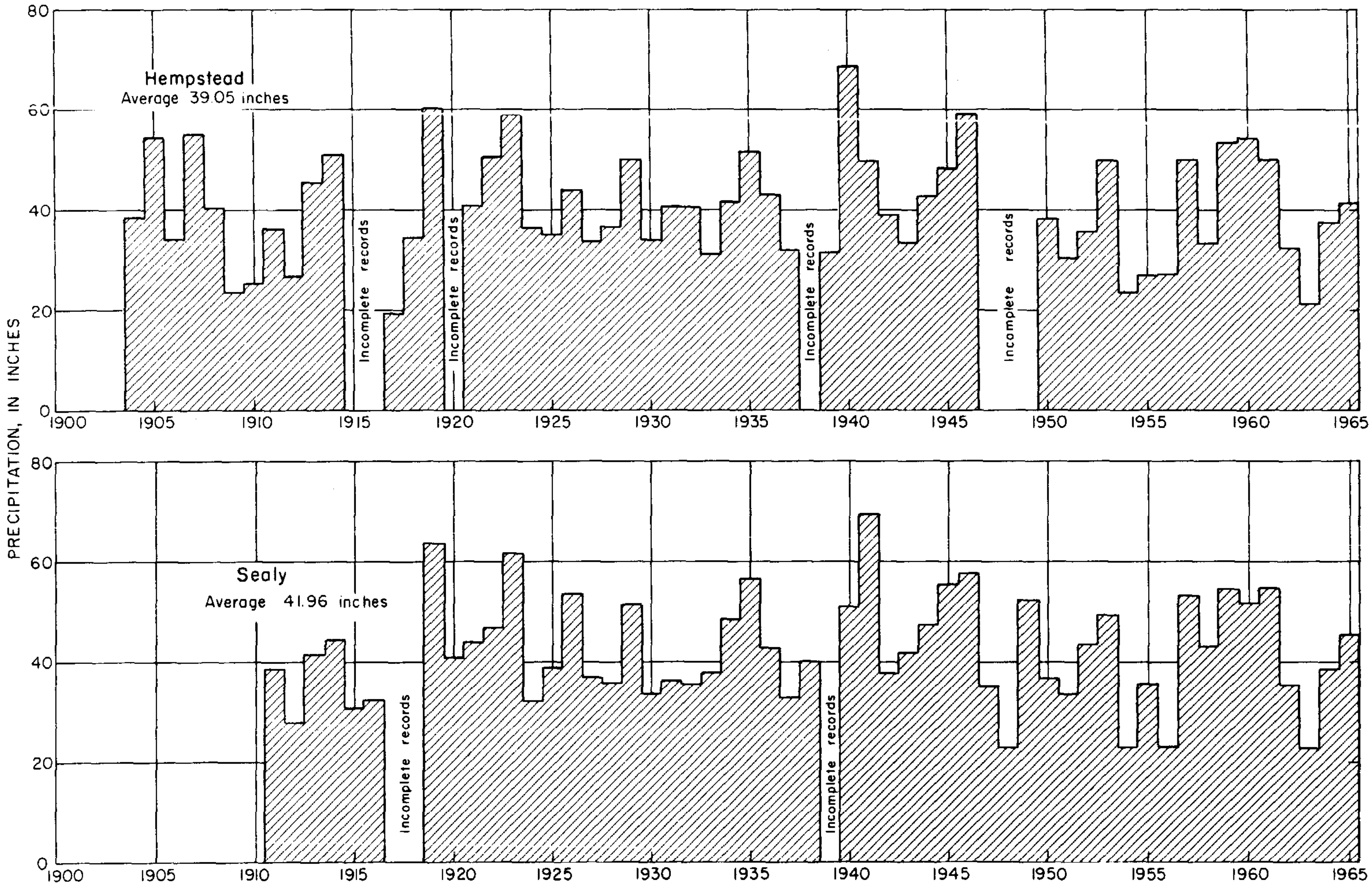

Figure 6

Annual Precipitation at Hempstead, Waller County, and at Sealy, Austin County

(Data from U.S. Weather Bureau)

U. S. Geological Survey in cooperation with the Texas Water Development Board and others

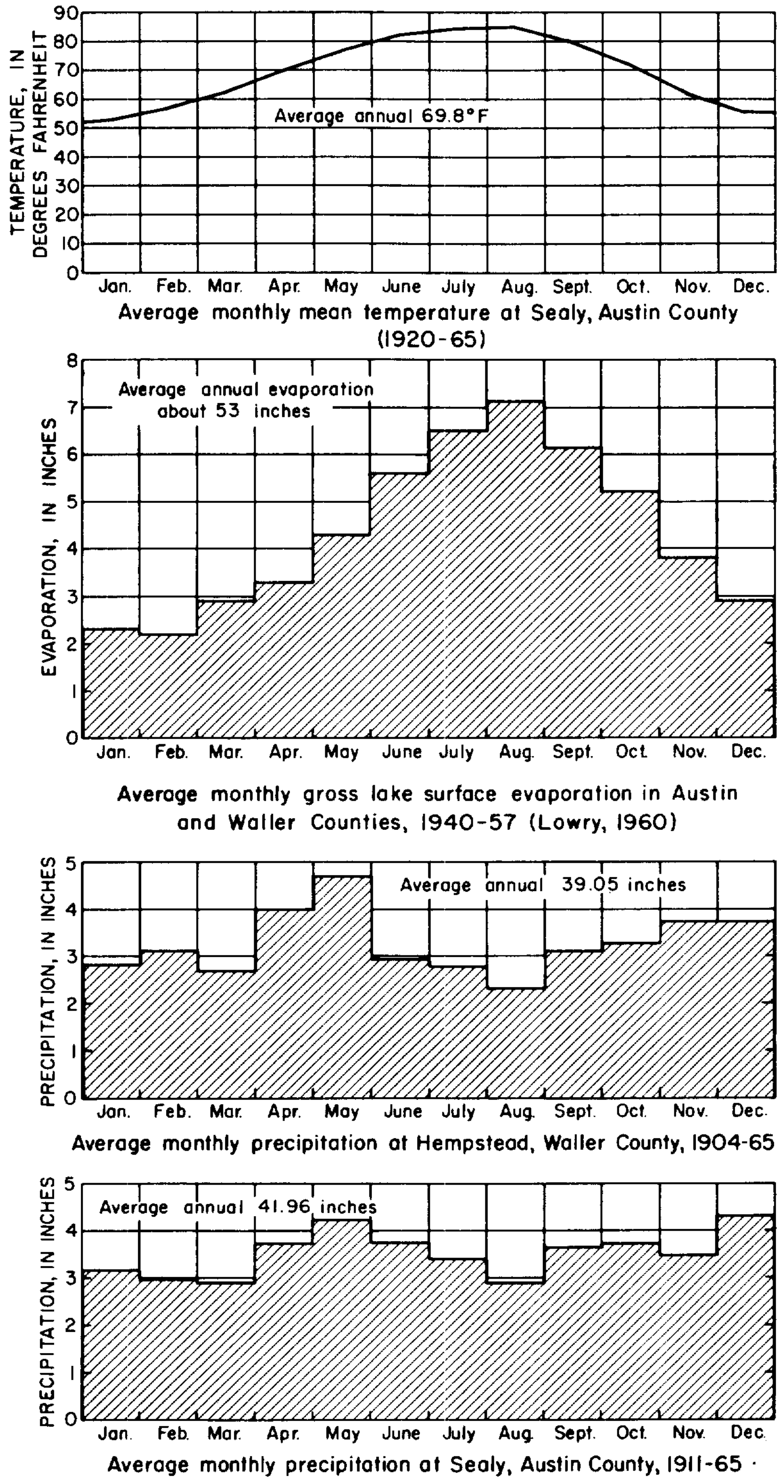

Figure 7

Average Monthly Evaporation, Temperature, and Precipitation at Selected Localities

(Data from U.S. Weather Bureau, and Lowry, 1960)

U.S. Geological Survey in cooperation with the Texas Water Development Board and others

is overlapped by the Willis Sand in most places. Recharge to the Goliad must occur by percolation of water through the Willis into the sandy units of the Goliad.

Only a small percentage of the precipitation enters the ground-water reservoir as recharge. Most precipitation runs off the land surface into streams or is removed by evaporation and transpiration. With the data at hand, it is not possible to calculate the rate of recharge in Austin and Waller Counties. However, if the amount of recharge entering the Evangeline aquifer outcrop in Austin, Waller, and adjacent counties were as much as 5 percent (1.95 inches) of the average rainfall at Hempstead, it would provide more than enough recharge to replace the water pumped for all uses in Austin and Waller Counties in 1965.

Cronin and Wilson (1967) indicate that recharge to the alluvium of the Brazos River is principally by precipitation on the flood plain itself. They found the average replenishment to be approximately 3 inches per year, based on estimates made at six locations in Falls, Robertson, and Burleson Counties. Calculations of discharge from the alluvium into the Brazos River in Austin and Waller Counties (p. 35) indicate that the recharge is about 2.3 inches.

Rate and Direction of Movement

Ground water is moving constantly from areas of recharge to areas of discharge. The general direction of movement is toward the Gulf of Mexico, except where the water table or piezometric surface has been drawn down by heavy pumpage, causing the water to move toward the areas of withdrawal.

The water-level map for 1966 (Figure 9) shows in a general way the direction of ground-water movement in Austin and Waller Counties. The map represents an imaginary surface or the level at which water stands in wells that tap the Evangeline aquifer. The general direction of movement is at right angles to the contours in the direction of decreasing altitude.

The rate of ground-water movement depends upon the permeability of the aquifer and the hydraulic gradient. The actual velocity of the water varies from point to point. Based on average slopes of the water-level surface in 1966 (Figure 9), the rate of ground-water movement in the Evangeline aquifer in the southern parts of Austin and Waller Counties during the spring months is about 20 to 50 feet per year. However, velocities in the vicinity of pumping wells are much greater because of the increased slope of the water-level surface toward the pumping well.

Ground water may move vertically across beds as well as horizontally, but interfingering and lensing of clay and sand beds restrict much of this vertical movement. Some water transfer may occur between units where differences in pressure exist. Transfer of water from portions of the aquifer that are lightly pumped to parts that are heavily pumped may occur within wells. Baker (1965, p. 9) found in Jackson County that some water was being transferred through idle wells from shallow beds to the underlying heavily-pumped zone.

Discharge from the Aquifers

The aquifers in Austin and Waller Counties discharge ground water by natural processes and through wells. The natural discharge is through seeps and springs, and by evaporation and transpiration.

In the outcrop area, the movement of ground water from seeps and springs into streams represents a significant loss of water from the aquifers. This seepage forms the base flow of the streams during periods of deficient rainfall. Much of this seepage might be considered rejected recharge--that is, water which has entered into the ground-water reservoir, but which cannot move downward into the main parts of the aquifers because the water table is intersected by the streams.

Many seeps, springs, and small streams were found in the recharge area in northern Austin County. There is much less natural discharge in the outcrop area in northern Waller County. This may be because alternating beds of sand and clay form much of the recharge area in Austin County while the area of recharge in Waller County is more sandy. Also, there are fewer large-capacity wells in Austin County that cause a change of gradient away from the streams.

The only information available on amounts of natural discharge into streams other than the Brazos River in Austin and Waller Counties is from the measured flow of Mill Creek. This stream, which has a drainage area of 377 square miles in Austin and adjacent counties, had an approximate base flow of 7,000 acre-feet during the 1965 water year (October 1964 through September 1965). Assuming that other areas in Austin County have similar losses of water from the aquifers, the average base flow in the county would be about 11,500 acre-feet per year. This is approximately equal to the total amount of water pumped for all uses in Austin County in 1965. Assuming similar conditions, 9,500 acre-feet per year is lost from the ground-water reservoir in Waller County. For comparison, 9,500 acre-feet per year is approximately one-fifth of the total amount of water pumped for all purposes in Waller County in 1965.

The above figures represent about one-third of an inch of rainfall infiltrating the aquifers as potential replenishment. This figure compares favorably with that obtained by Baker (1965, p. 12) in Jackson County (less than half an inch), but is somewhat lower than the 1-inch estimated by Wood (1956, p. 30-33) for the entire Gulf Coast area.

It is not known if the continuous withdrawal of ground water and the resulting decline in water levels has materially reduced the flow of streams in the outcrop area. It is possible that the aquifer could eventually capture the base flow of the streams by reducing the level of the water table in the outcrop below the level of the present stream channels.

According to records compiled by Lowry (1960), the gross lake surface evaporation in Austin and Waller Counties averaged about 53 inches per year during the period 1940-57 (Figure 7). The evaporation of ground water directly from the aquifers is much less than evaporation from a lake surface. The evaporation of water from the soil depends on the climate, soil type, and depth of the water table. In most places in Austin and Waller Counties, the water table is more than 10 feet below the surface; therefore, the discharge of water by evaporation directly from the water table is very small.

Evaporation does have a significant effect on the amount of ground water pumped, as in areas of rice irrigation. Assuming the fields are in a flood condition for 3-1/2 months during the growing season, the total evaporation from the 15,747 acres of rice irrigated in 1965 was about 25,000 acre-feet, or about 1.6 feet of water per acre.

The consumption of water by vegetation (transpiration) in Austin and Waller Counties represents a decrease in the potential recharge to the aquifers. In northern Waller County, woodlands cover approximately 58,000 acres. Raber (1937, p. 81-82) reported the maximum seasonal water consumption of hardwoods to be about 10 inches per acre. Assuming this rate of consumption applies to the forested area of Waller County, about 48,000 acre-feet of water per year is consumed by forest growth in Waller County alone. However, probably not all of this water would have entered the aquifers as recharge. This estimated transpiration about equals the amount of ground water pumped for all purposes in Waller County in 1965. There are lesser amounts of forested lands in Austin County, but transpiration losses probably exceeded the total pumpage of ground water in that county in 1965.

In summary, it is estimated that about 21,000 acre-feet of water per year is discharged from the ground-water reservoir in the form of rejected recharge, and over 48,000 acre-feet of water per year is consumed by transpiration. Part of this 69,000 acre-feet of water might be considered potential recharge if the water table were lowered below the level of stream channels and below the reach of trees. Water levels are declining in the southern areas of the counties, and as the effect of this water-level decline extends to the outcrop, there will be a gradual salvage of some of the water used by the forests or discharged into streams.

Ground water is discharged from the alluvium along the Brazos River by seepage into the river, by evapotranspiration losses, and by the discharge from wells. Some water may be lost by downward percolation into the underlying Evangeline aquifer; the magnitude is not known, but it is estimated to be small. The water table slopes toward the river (Figure 27), indicating that the ground water in the alluvium is discharging into the Brazos River. The average slope of the water table on the east side of the river in profiles F-F' and G-G' (Figure 27) is about 5.5 feet per mile. Assuming an average transmissibility of 20,000 gpd per foot for the alluvium adjacent to the river, the quantity of water discharging from the alluvium in Austin and Waller Counties into the river is about 19,000 acre-feet per year, or about 0.17 cfs (cubic foot per second) per mile of the river. Cronin and Wilson (1967) determined an average of 0.22 cfs per mile for other areas of the alluvium along the Brazos River where the slope of the water table is greater than in Austin and Waller Counties. The 19,000 acre-feet per year loss of ground water from the alluvium into the Brazos River is equivalent to about 2.3 inches of recharge from precipitation on the area of the flood plain in Austin and Waller Counties.

DEVELOPMENT AND USE OF GROUND WATER

Records of 404 water wells in Austin and Waller Counties are given in Table 5. The well inventory upon which these records are based includes all large-capacity public supply, industrial, and irrigation wells as well as a representative number of small domestic and livestock wells. The following is an approximate breakdown, by aquifer and use, of the large-capacity wells tabulated in Table 5.

County and aquifer	Number of wells		
	Irrigation	Industrial	Public supply
Austin County			
Alluvium of the Brazos River	6	0	0
Evangeline aquifer	29	3	8
Jasper aquifer	3	1	2
Waller County			
Alluvium of the Brazos River	5	0	0
Evangeline aquifer	101	8	14
Jasper aquifer	0	0	0

Pumpage of Ground Water

Table 3 shows the quantity of ground water that was pumped for irrigation, industrial, public supply, rural domestic, and livestock needs in Austin and Waller Counties in 1965. In that year, about 10,000 acre-feet was pumped in Austin County and about 46,000 in Waller County. The figures given for pumpage in mgd (million gallons per day) are averages based on the total annual withdrawal and are not representative of the actual daily withdrawal. Irrigation, the largest single use of water in both counties, is practiced during the growing season only, which is about 5 months a year.

Irrigation

Irrigation of rice with ground water began about 1900 in Waller County. Deussen (1914, p. 255) listed two rice irrigation wells north of Brookshire which were completed in 1903 and 1904. In Waller County, the number of acres of rice planted each year increased to about 800 acres in 1931 and to a total high of 18,304 acres in 1954; the acreage has since declined to about 13,112 acres in 1965. The number of actively used rice irrigation wells has increased from about 7 wells in 1931 to 30 wells in 1941, to 68 wells in 1954, and to about 79 wells in 1965. Little, if any, surface water has been used for rice irrigation in Waller County.

Rice irrigation began in Austin County in 1942 when only a few hundred acres was irrigated. A maximum of nearly 4,000 acres was reached in 1954. Since that time, the acreage has fluctuated considerably, and in 1965, less than 3,000 acres was irrigated. The number of rice irrigation wells in Austin County has increased from one well in 1942 to 13 in 1965. There was considerable use of surface water in the Wallis area in Austin County many years ago, but little or no surface water was used for rice irrigation in 1965.

Table 3.--Estimated pumpage of ground water in Austin and Waller Counties, 1965

Use	Pumpage by aquifer, acre-feet per year			*Total acre-feet per year	*Total (mgd)
	Jasper aquifer	Evangeline aquifer	Alluvium of the Brazos River		
		Austin County			
Irrigation	73	8,328	199	8,600	7.7
Industrial	0	26	0	26	.02
Public supply	2	672	0	670	.60
Rural domestic and livestock	175	438	87	700	.62
Totals*	250	9,500	290	10,000	8.9
		Waller County			
Irrigation	0	40,583	350	41,000	37.0
Industrial	0	3,201	0	3,200	2.9
Public supply	0	1,082	0	1,100	.98
Rural domestic and livestock	435	417	83	935	.84
Totals*	440	45,000	430	46,000	42

* Totals are rounded to two significant figures.

About 8,600 acre-feet (7.7 mgd) of ground water was pumped for irrigation in 1965 in Austin County and about 41,000 acre-feet (37 mgd) in Waller County. In Austin County, the irrigation pumpage accounted for 86 percent of all ground water withdrawn; in Waller County, it amounted to 89 percent. Rice is the principal crop irrigated; over 95 percent of the irrigation water used was used for this crop. The Evangeline aquifer furnished over 98 percent of all the irrigation water in both counties.

Figure 8 shows the relationship of the number of acres under irrigation and the amount of ground water pumped each year for growing rice.

The amount of ground water pumped each year will usually vary inversely with the rainfall during the growing season. Large amounts of evenly distributed, low-intensity rainfall will result in smaller amounts of ground water being withdrawn. The total amount of water (rainfall and ground water) applied to the rice during the growing season usually remains rather constant and is referred to as the "duty of water" for rice cultivation.

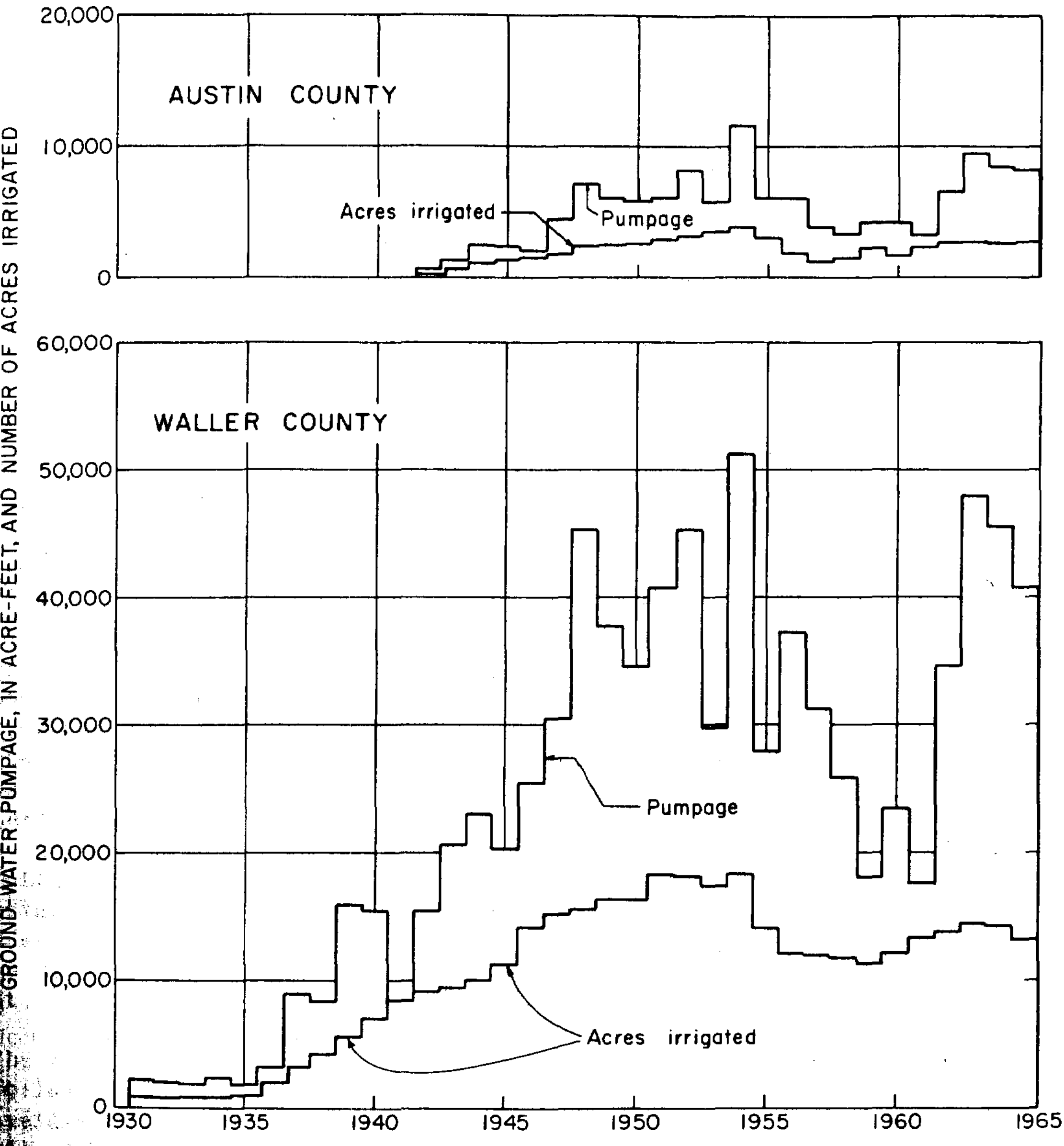

Figure 8

Approximate Acres Irrigated and Pumpage of Ground Water for Rice Irrigation

U.S. Geological Survey in cooperation with the Texas Water Development Board and others

Lang, Winslow, and White (1950, p. 25) reported the average duty of water for rice production in the Katy area to be 3.6 acre-feet of water per acre of rice. This figure was based on tests made during a 14-year period. From the early 1900's to about 1963, only one crop of rice was normally produced per season; the time of growth was about 140 to 160 days. This long period of growth permitted the farmer to plan his irrigation so that only part of the fields needed water at one time and that no sudden large demand for water occurred. Beginning in 1963, new varieties of rice, requiring only about 80 to 90 days of growing season, were planted. This shorter period of growth allowed two crops of rice to be produced in a year's growing season, but it also created a greater demand for water because continuous irrigation was required.

During the double-crop growing season of 1965, two methods were used to calculate the total amount of ground water withdrawn for rice irrigation. Power tests were conducted on 5 irrigation wells in Austin County and on 50 irrigation wells in Waller County. The power-test results indicated that an average of 3.06 acre-feet per acre of ground water was used in Waller County and 3.12 acre-feet per acre in Austin County.

As a check on the power-test method, a daily inventory of selected wells in Waller County was made to determine the percentage of wells pumping for each week. This percentage was then applied to the total number of actively used irrigation wells, their average discharge, and the total acreage watered. This method indicated that an average of 3.09 acre-feet of ground water was applied per acre of rice grown in Waller County.

The average rainfall for southern Waller County as measured at Sealy, Austin County, and Katy-Wolf Hill, Harris County, was 1.50 feet for the period of rice cultivation (May through September). Thus, during 1965, about 4.6 acre-feet of water per acre was used to raise two crops of rice in Waller County and 4.7 acre-feet per acre was used in Austin County (based on the rainfall measured at Sealy, 1.63 feet). Approximately 60 percent of the ground water pumped was applied to the first rice crop and about 40 percent was applied to the second crop. Considering rainfall, about 65 percent of the total duty of water was used to produce the first crop of rice.

Of all irrigation water pumped in 1965, only about 2 percent in Waller County and 5 percent in Austin County was used to supplement normal rainfall in growing cotton, corn, pasture, oats, and grain sorghum.

Industrial

About 26 acre-feet (0.02 mgd) of ground water pumped for industrial purposes in 1965 was in Austin County and 3,200 acre-feet (2.9 mgd) in Waller County, all of the withdrawals being from the Evangeline aquifer. This is less than 1 percent of all the water pumped in Austin County, and about 7 percent of all ground water pumped in Waller County. The oil and gas industries utilize most of this water for cooling purposes.

Public Supply

Approximately 670 acre-feet (0.6 mgd) of ground water was used for public supply in Austin County in 1965. This figure is about 7 percent of all ground water used in Austin County in that year. Waller County used about 1,100 acre-feet (0.98 mgd) of ground water in 1965, which is about 2 percent of all water pumped. Most of the public-supply wells obtain water from the Evangeline aquifer.

Table 4 shows the municipal pumpage of various towns in Austin and Waller Counties for the last 10 years.

Rural Domestic and Livestock

An estimated 700 acre-feet (0.6 mgd) of ground water was pumped for rural domestic and livestock use in Austin County in 1965 and 935 acre-feet (0.8 mgd) in Waller County. These figures are about 7 percent and 2 percent, respectively, of the total ground water pumped for all uses in the counties.

The large contribution of water from the Jasper aquifer for rural needs in Waller County (Table 3) is from three flowing wells in the northwest part of the county.

Construction of Wells

The construction of wells in Austin and Waller Counties depends on the desired capacity of the well, the intended use of the water, the allowable cost range of construction, and the methods employed by the individual drillers. Most of the recently constructed small-capacity wells, such as those used for rural domestic and livestock needs, are drilled by hydraulic-rotary or cable-tool drilling equipment. The diameter of the hole ranges from 3 to 6 inches, and 3- to 4-inch casing and screens are commonly used. The well is normally completed with a single interval of screen (4 to 20 feet in length) which is set opposite the water-bearing unit. Most of these wells are equipped with jet-type or submergible pumps powered by electric motors.

Large-capacity wells such as those used for irrigation, industry, or public supply are drilled by hydraulic-rotary or reverse-rotary methods. First a test hole (about 6 inches in diameter) is drilled and logged for depth and thickness of sand intervals. Water samples and formation samples may be collected for use in determining water quality and aquifer characteristics. If the test hole log and other data collected indicate that sufficient water-bearing sands are present, the test hole is then reamed out to make the well.

The construction of municipal or industrial wells usually differs from that used for rice irrigation wells. The public supply or industrial well may be screened opposite only certain selected sand units, while irrigation wells generally use slotted casing extending from a few hundred feet below the surface through the entire depth of the well. Slotting above the pumping level should be avoided as it will cause cascading of water into the well and may decrease the pump efficiency and durability.

The upper portion of the test hole of municipal and industrial wells is usually reamed out to 14 to 30 inches in diameter, and a slightly smaller surface casing is set and cemented in place to form the pump pit. The remaining portion of the test hole is then reamed to a diameter slightly less than that of the surface casing. The hole is then underreamed to 30 to 36 inches in

Table 4.--Municipal pumpage of ground water in Austin and Waller Counties, 1955-65 (In gallons*)

Austin County

Community	1955	1956	1957	1958	1959	1960
Bellville	67,974,000	91,749,000	83,302,000	88,452,500	84,848,000	93,899,600
Sealy	58,021,700	67,525,000	63,875,000	73,000,000	56,333,000	66,098,600
Wallis	--	--	--	10,950,000	--	12,700,000

Community	1961	1962	1963	1964	1965	Population 1/ 1950	Population 1/ 1960
Bellville	89,853,000	103,395,420	121,934,800	110,794,500	112,467,500	2,112	2,790
Sealy	65,533,000	80,621,200	98,907,000	83,895,400	87,873,800	1,942	2,758
Wallis	12,500,000	11,400,000	18,250,000	15,568,000	18,229,500	690	1,075

Waller County

Community	1955	1956	1957	1958	1959	1960
Brookshire	12,000,000	19,432,000	18,451,000	22,000,000	25,000,000	36,200,800
Hempstead	46,010,000	60,350,000	52,943,000	67,981,250	71,495,000	76,860,000
Prairie View† A&M College	188,163,000	179,076,750	185,855,700	239,265,700	181,143,125	207,075,800
Waller	15,237,400	21,230,000	17,262,000	18,616,000	18,903,000	21,204,000

Community	1961	1962	1963	1964	1965	Population 1/ 1950	Population 1/ 1960
Brookshire	36,000,000	40,000,000	23,304,000	19,958,000	27,325,000	1,015	1,339
Hempstead	77,295,000	89,160,000	100,474,000 e/	89,514,000	88,734,000	1,395	1,505
Prairie View† A&M College	196,856,100	144,275,950	195,747,604	175,731,800	196,443,100	500	2,326
Waller	23,490,000	28,520,000	29,770,000	31,736,000	29,604,000	715	900

1/ Source - U.S. Bureau of Census.
* Source - Figures submitted by the municipalities to the Texas Water Development Board.
† May include some water used for experimental crop irrigation.
e/ Estimated.

diameter opposite the sections to be screened. Eight- to 12-inch diameter wire-wrapped screens and blank casing are installed; the annular space between the screen or casing and the wall of the hole is filled with sorted gravel. This gravel pack stabilizes the hole and provides a transfer medium for water moving from the sand beds into the well, thus increasing the effective diameter.

The test hole for an irrigation well is usually reamed the entire depth of the well, and a complete string of slotted casing and surface casing is installed. The space between the casing and the wall of the hole is filled with gravel from the bottom of the well to the surface. Casing used in the irrigation wells in the alluvium along the Brazos River is slotted from the water level to the bottom of the well and enclosed in a gravel pack. After completion, the wells are developed and tested for several hours using large-capacity test pumps.

Large-capacity wells are usually fitted with deep-well turbine pumps powered by internal combustion engines or electric motors. Fawcett (1963, p. 16) discusses methods used for construction of such wells in the Houston area.

Water Levels and the Effects of Pumping

When ground water is withdrawn from an aquifer, a slope in the piezometric surface or hydraulic gradient is established toward the pumping well from all directions. This sloping surface, which surrounds the operating well (or group of wells) assumes the shape of an inverted cone that is called the cone of depression. As pumping continues, the cone of depression becomes larger until equilibrium is reached--that is, until the gradient is sufficient to force water through the aquifer at a rate equal to the discharge. Withdrawal from wells drilled close together creates cones of depression that may intersect and cause additional lowering of water levels. Intersecting cones of depression are occurring in the heavily pumped Katy area of southeast Waller County.

Before large ground-water withdrawals began, the water-level surface in the aquifer sloped naturally toward the Gulf of Mexico. The large ground-water pumpage in the Houston area has created a regional cone of depression, the center of which is located in the Galena Park and Pasadena areas of Harris County. The areas of greatest pumpage in Waller County, and to some extent in Austin County, are located on the outer rim of this regional cone of depression. Water levels in the southern parts of Austin and Waller Counties are affected by three major factors: (1) the local withdrawal by large-capacity wells; (2) the regional withdrawal in the Houston area; and (3) the natural slope of the water-level surface toward the Gulf of Mexico. If no water were withdrawn in Austin or Waller Counties, the present water-level surface would slope to the southeast toward the Gulf and, to a lesser extent, toward the Houston area of heavy pumpage.

Decline of Water Levels

The approximate altitude of the water-level surface in the multi-screened wells tapping the Evangeline aquifer in the southern half of Austin and Waller Counties is shown in Figure 9. The water levels were measured in February and

March 1966 when recovery from the previous seasonal pumping approached a maximum. Few measurements were made in the northern half of the counties because only a limited number of deep, multi-screened wells are located in that area.

Figure 9 shows a nearly even, moderately sloping water-level surface in Austin County. Ground-water pumpage from the Evangeline aquifer has not been as extensive there as in the southern part of Waller County.

The water-level surface in Waller County is very irregular and shows the effect of several large concentrations of wells withdrawing great quantities of water. Some of the group of 13 wells located about 3-1/2 miles northwest of Katy pump continuously throughout the year, creating a localized cone of depression. Elsewhere, the irregularity of the water-level contours is caused by the pumping of several groups of closely-spaced wells. In September of each year (at the end of the rice irrigation season), the water-level surface appears much more distorted, due to the many intersecting cones of depression, than in the spring.

Figure 10 shows the decline from 1956 to 1966 of water levels in wells completed in the Evangeline aquifer in the southern areas of Austin and Waller Counties. The range in water-level decline is due to differences in permeability of the sands, variations in the thickness of the zone most heavily pumped, and the amount of pumpage in the area.

The greatest decline has occurred along the belt which extends for about 9 miles northwestward from Katy. This belt includes the area of greatest well concentration and largest withdrawal of ground water. The belt is influenced by the continuous pumpage of some industrial wells located about 3-1/2 miles northwest of Katy.

The decline in water levels from 1956 to 1966 in Waller County ranged from a few feet in the northern part of the county to about 25 feet at Katy. The average annual decline ranged from about 1 foot per year to about 2.5 feet per year; the median decline is about 1.5 feet per year. In Austin County, the decline in water levels from 1956 to 1966 was 6 feet or less; the average annual decline was less than 0.6 foot per year.

The hydrographs in Figure 11 show the fluctuations of water levels in wells in the rice irrigation area in Austin County. The hydrographs show that in this area the decline during the period of record has been small. During the period 1955-60, there was an actual net rise in water levels; following 1960 there has been a steady decline. The hydrograph of well AP-66-22-301 includes records of water-level measurements taken during the pumping seasons in 1955 and 1965. These measurements show the effect of interference caused by pumping from nearby irrigation wells in the Austin County area.

The hydrographs in Figure 12 show that the water levels in wells in the irrigated area in Waller County have declined continually but at varying rates during the period of record. The net decline reflects not only the pumpage in the rice irrigation area in Waller County but also the pumpage in the Houston district to the east. The saw-tooth appearance of some of the hydrographs is caused by the inclusion of records of measurements taken in the spring and fall of each year. The measurements taken in the spring represent the nearly full recovery of water levels following the previous year's irrigation season. The measurements taken in the fall show the regional drawdown caused by the pumping during the irrigation season.

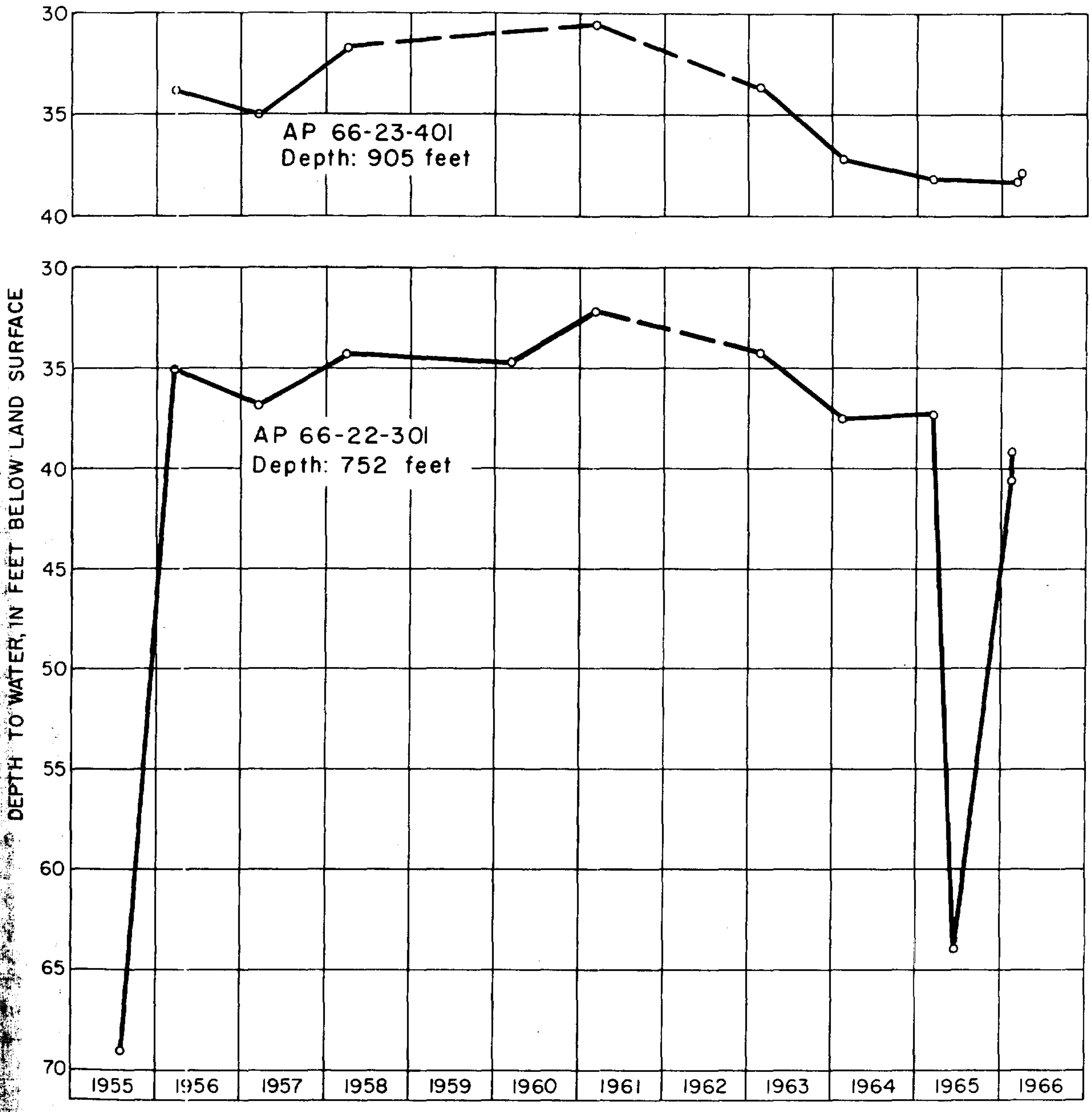

Figure 11

Fluctuations of Water Levels in Wells Tapping the Evangeline Aquifer in Austin County

U. S. Geological Survey in cooperation with the Texas Water Development Board and others

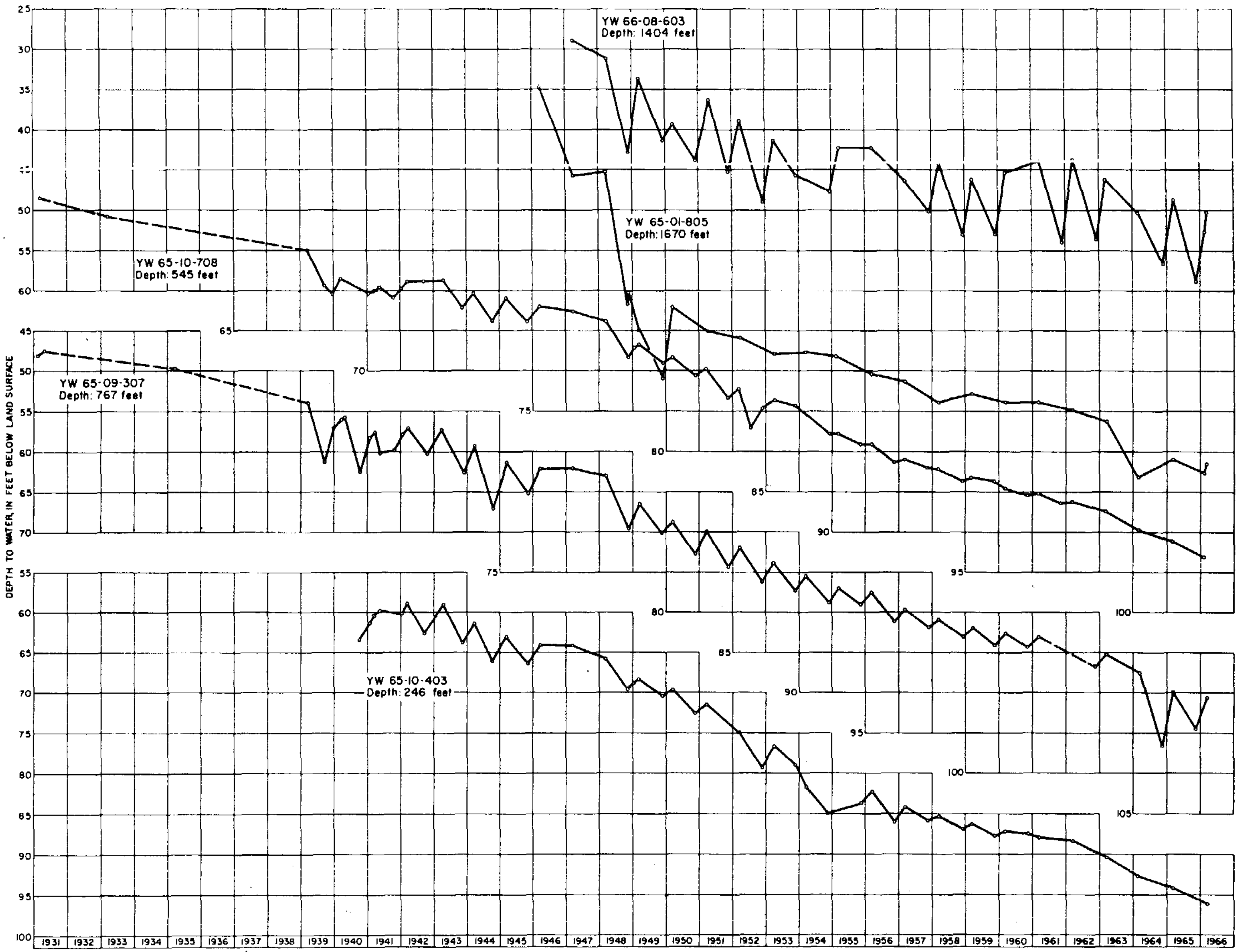

Figure 12

Fluctuations of Water Levels in Wells the Evangeline Aquifer in Waller County

U.S. Geological Survey in cooperation with the Texas Water Development Board and others

Few data are available on water-level changes in the deeper artesian wells tapping the Evangeline aquifer in northern Austin and Waller Counties. The water level in well AP-59-62-501, 132 feet deep, rose 0.2 foot net between January 1937 and November 1965 (Table 5). The water level in well AP-59-63-905, 565 feet deep, declined about 11-1/2 feet between 1937 and 1964. Measurements in well YW-59-56-501, 379 feet deep, show a decline of 16.8 feet between 1949 and 1966. The general decline indicated by the above measurements probably was caused by the irrigation pumpage in the southern parts of the counties and by the pumpage in the Houston district.

Few old records of water-level measurements in wells producing from the Jasper aquifer are available. Well AP-59-63-902 was flowing when observed in 1937 and again in 1966. Measurements in well AP-66-04-603 show a 20-foot decline between 1937 and 1965, although the well has not been used much in the past few years. Wells YW-59-56-103, YW-59-56-201, and YW-59-56-202 evidently were flowing when drilled in the mid-1950's and were still flowing in 1966. Data on changes, if any, in rates of flow or pressures are not available.

Figure 27 shows that the water level in the alluvium along the Brazos River slopes toward the river, indicating that the ground water moves toward the river. A reverse to this normal gradient might occur in a situation where a well, as YW-59-64-602, is located close to the river. If this well were to be pumped steadily for a long period of time, the cone of depression would extend to the river, and some river water could be induced to move into the alluvium and be discharged at the well. Short-term reverses to the normal water-level gradient in the alluvium may also occur during periods of rise in the river stage. During these high water peaks, the water in the river is at a higher level than the water in the alluvium, thereby creating a gradient from the river into the alluvium. However, when the river returns to its normal stage, the gradient near the river is reversed, and the river water which entered the alluvium will move back into the river.

Declines of water levels caused by pumping a well or group of wells may be predicted providing the hydraulic characteristics of the aquifer and rate and distribution of pumping are known. Figure 13 shows the relation, for different coefficients of transmissibility and storage, of the decline in the water level to the distance from the center of withdrawal. The graph is based on a discharge of 1,000 gpm (gallons per minute) for 180 days. As an example, a rice irrigation well discharging 1,000 gpm for 180 days is in a part of the aquifer where the transmissibility is 50,000 gpd per foot. Drawdown in a well located half a mile away would be 14 feet.

Where artesian conditions prevail in the aquifer, the relation of distance from the discharge point to the decline of water levels with time is shown in Figure 14 for a well or group of wells discharging at a total rate of 1,000 gpm. This graph shows that the rate of decline is a function of and decreases with time. As an example, an irrigation well in an aquifer having a transmissibility of 50,000 gpd per foot discharges at a rate of 1,000 gpm for 30 days. The water-level decline 500 feet away is 17 feet after the 30-day period. The decline after 1 year of pumpage would be about 23 feet, or an increase in drawdown of only 6 feet for the additional 335 days of pumping. Thus, as pumping continues over a span of time, the cone of depression widens, more water moves toward the discharge point, and the rate of drawdown of the water level decreases.

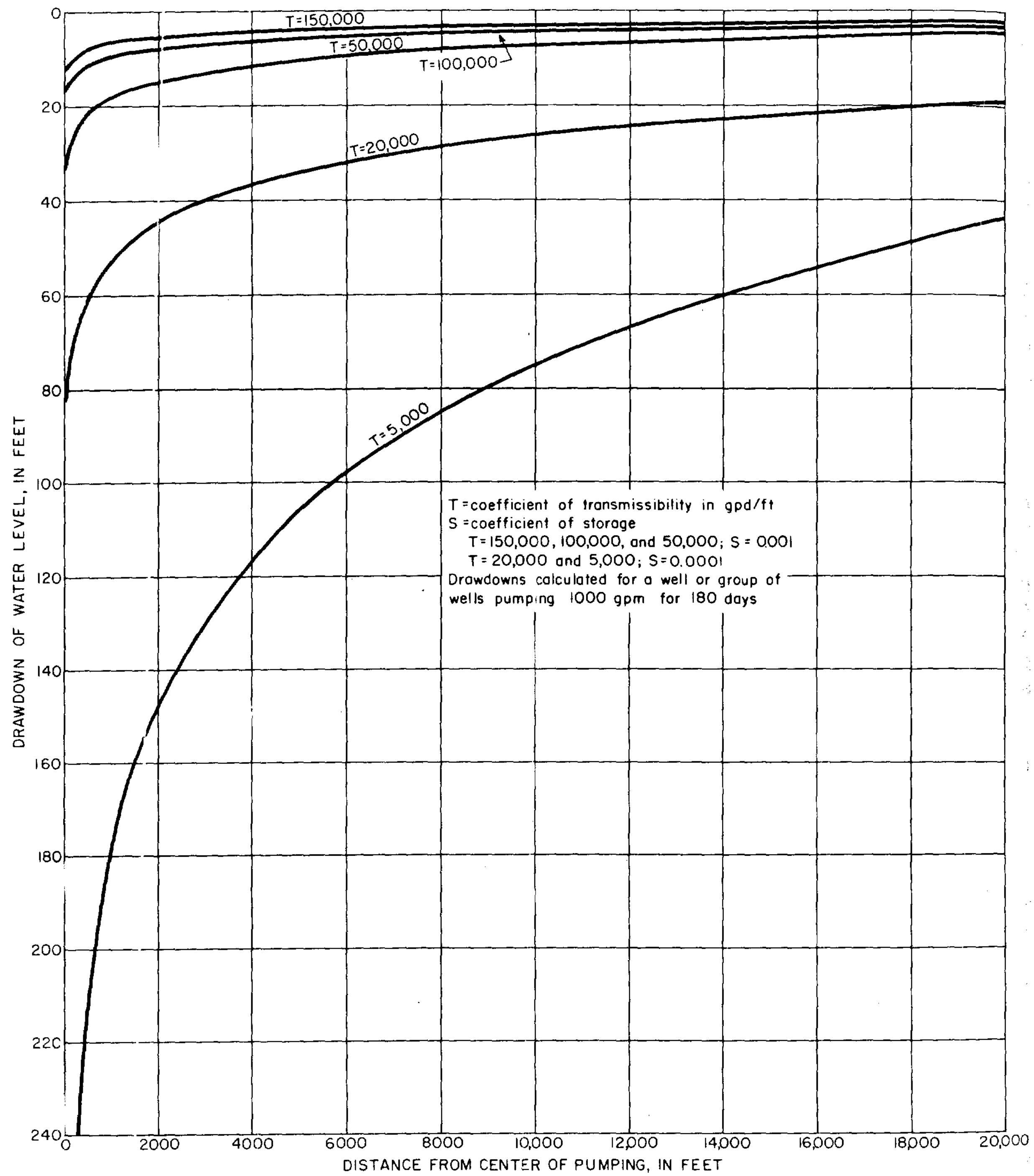

Figure 13

Relation of Drawdown to Transmissibility and Distance

U.S. Geological Survey in cooperation with the Texas Water Development Board and others

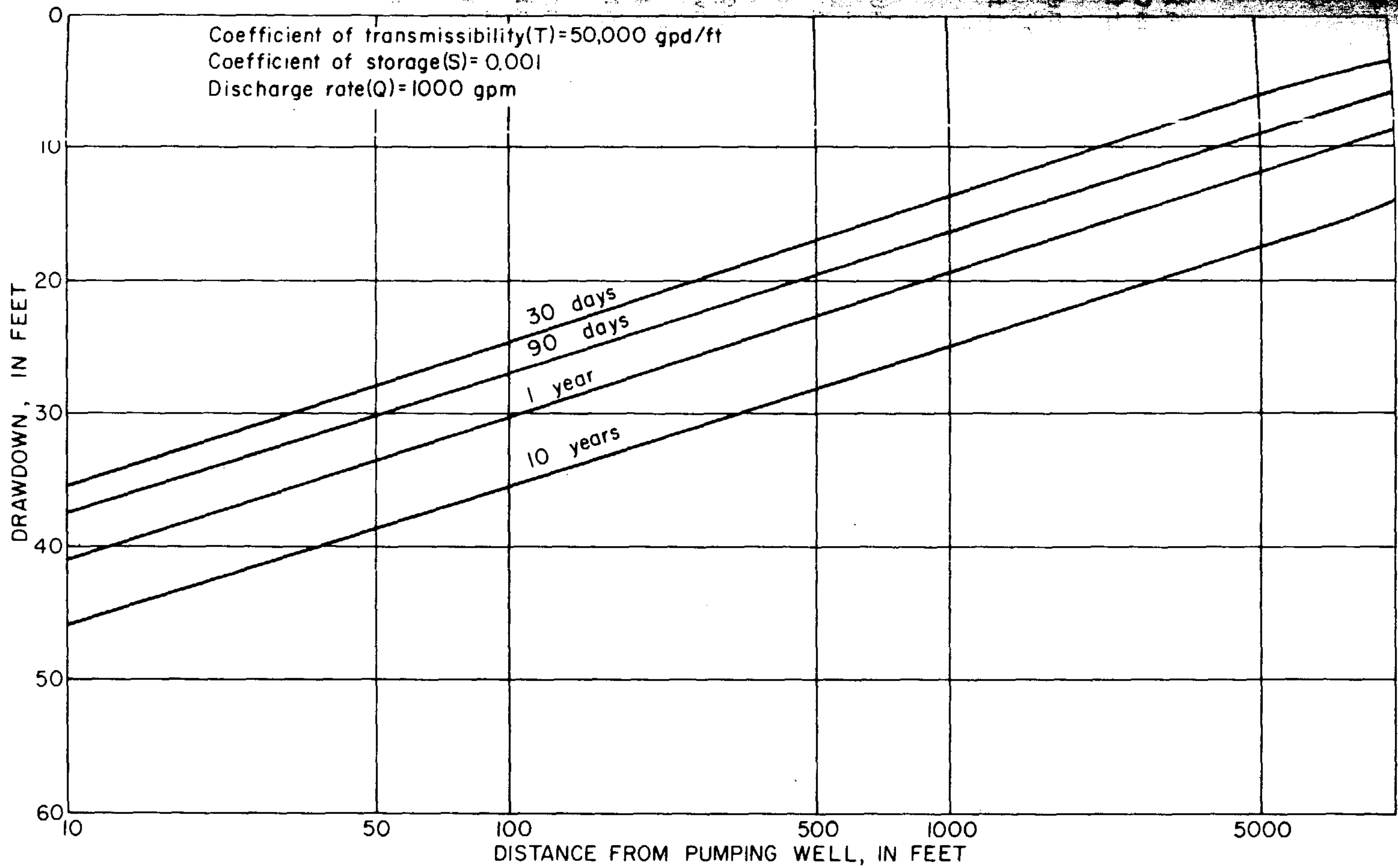

Figure 14

Relation of Drawdown to Time and Distance as a Result of Pumping Under Artesian Conditions

U. S. Geological Survey in cooperation with the Texas Water Development Board and others

Figure 15 shows the similar relation of time and distance to decline of water levels for a well pumping under water-table conditions, as are found in the shallow portions of the aquifers or in the alluvium along the Brazos River. The decline under water-table conditions for the same amount of pumping is less than under artesian conditions because the storage coefficient of a water-table aquifer is many times larger than that of an artesian aquifer.

Interrelation of Water Levels in the Evangeline Aquifer, Alluvium of the Brazos River, and the Brazos River

The altitude of the water-level surface in the Evangeline aquifer is higher than the water-level surface in the alluvium along the Brazos River at least in the central parts of Austin and Waller Counties. This is shown by a comparison of water-level measurements made in wells AP-66-07-301, AP-66-07-302, and AP-66-08-401 penetrating the alluvium with the water-level measurement in nearby well AP-66-07-303, which taps the Evangeline aquifer. This relationship of water levels indicates that some water is being discharged from the Evangeline aquifer into the alluvium along the Brazos River. The amount is not known, but it is probably small.

In the southern parts of Austin and Waller Counties, the water-level surface in the Evangeline aquifer is at about the same elevation as the water-level surface in the alluvium. In this area, there is probably very little exchange of water between the two aquifers.

The relation of the water surface in the Evangeline aquifer to the water level in the Brazos River is similar to that in the aquifers. Figure 9 shows the approximate elevation of the water surface at several points along the river as compared with the contours of the altitude of the water-level surface in the Evangeline aquifer. Here again in the central parts of the two counties, the level in the Evangeline is at a higher altitude than the river surface, and water from the Evangeline is discharging into the river. In the southern parts of the counties, the water level in the Evangeline is at or near the same altitude as the water surface in the river. As the ground-water development in the two counties increases, the water level in the Evangeline will no doubt decline below the water level in both the alluvium and the river. This difference of head will cause water to move from the river and the alluvium into the Evangeline aquifer.

GROUND-WATER PROBLEMS

Decline of Water Levels

The most apparent and probably the most serious problem concerning the development of ground water in Austin and Waller Counties is the decline of water levels in wells. Because of the large withdrawals of ground water in the southern part of Waller County, and to some extent the greater pumpage in the Houston district, water levels have declined and probably will continue to decline. The rate of decline will depend on the rate of pumpage.

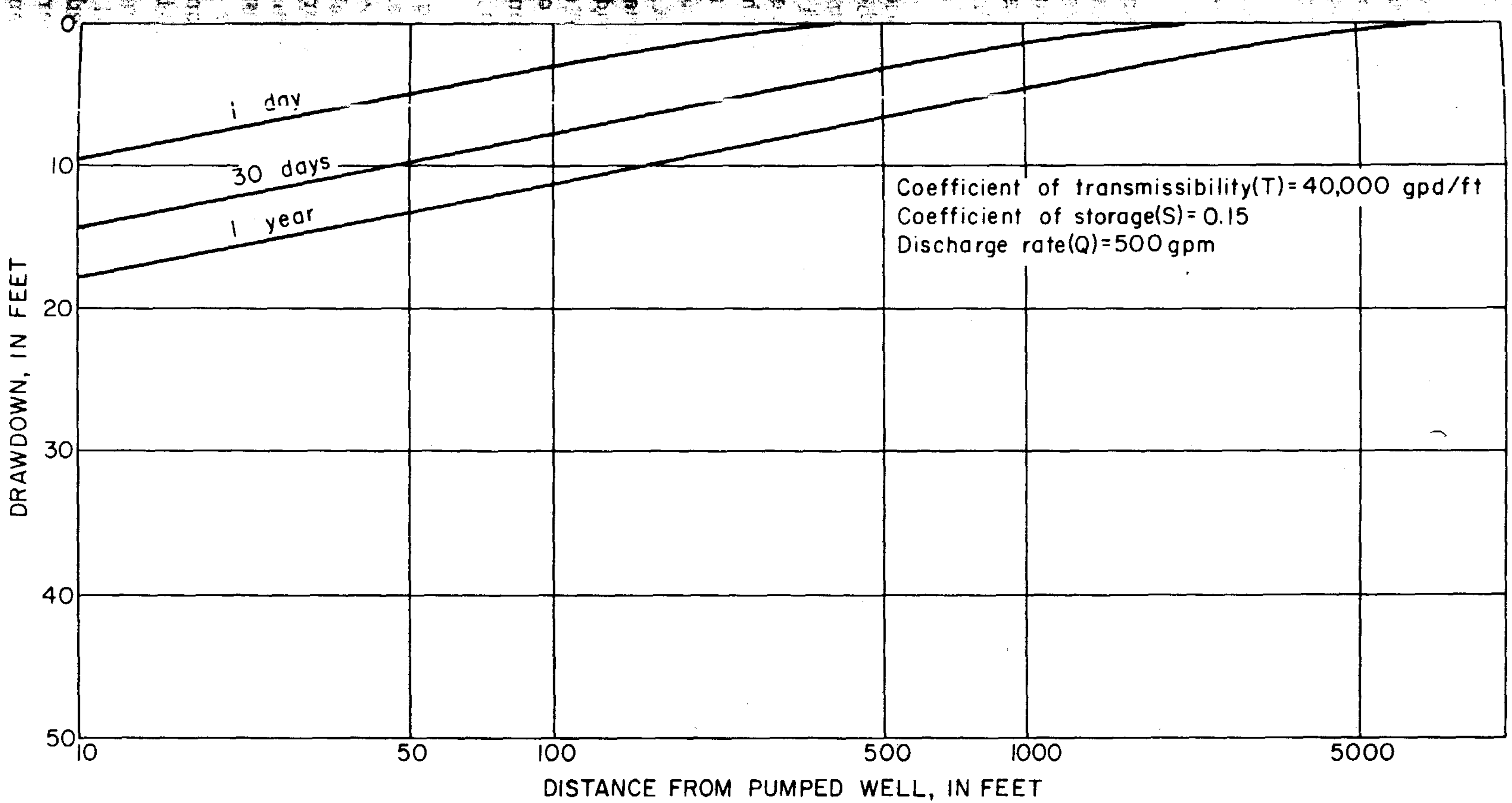

Figure 15

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

U.S. Geological Survey in cooperation with the Texas Water Development Board and others

The principal effect of the decline in water levels is economic. In recent years, many of the rice farmers in the southeast part of Waller County have had to lower pump intake settings in the rice irrigation wells in order to continue satisfactory yields of the wells. In 1955, pump intake settings of 200 feet were common. In 1965, most of the new wells have the surface casings and pump pits installed at 400 feet, and the pump intakes set at about 300 feet. As the water levels decline, pump settings have to be lowered, in some instances new wells have to be drilled to accommodate the lower settings, and larger engines and greater fuel consumption are needed to raise the water from the deeper pumping levels.

Subsidence of the Land Surface

According to Winslow and Doyel (1954), the removal of ground water and the accompanying lowering of artesian pressure have resulted in subsidence of the land surface in some areas of the Gulf Coast region of Texas. In an artesian aquifer, as the Evangeline, the artesian pressure helps to support the aquifer. The removal of water by pumping causes a reduction in this supporting pressure, allowing the aquifer to compact, and in turn, causing the land surface to subside.

Based on the results of releveling a line of bench marks by the U.S. Coast and Geodetic Survey, Winslow and Wood (1959, p. 1032) estimated that land subsidence in the southern parts of Austin and Waller Counties was less than 0.25 foot for the period 1943-54. Subsidence has continued since then. Based on releveling by the U.S. Coast and Geodetic Survey in 1964, total subsidence is probably less than 0.5 foot in the southern parts of the counties and much less elsewhere (Oral communication, R. K. Gabrysch, 1966).

Land-surface subsidence caused by the withdrawal of ground water has been a serious problem in parts of the Houston district and the Texas City area. However, it is unlikely that the problem will be troublesome in Austin and Waller Counties because the irrigation wells are widely dispersed and the subsidence caused by pumping has been on a broad regional scale with little or no local differential subsidence. Furthermore, the rate of subsidence per unit of water-level decline appears to be less in Austin and Waller Counties than in most of the Houston district.

Changes in Quality of Water

The zone of fresh ground water in Austin and Waller Counties is underlain by a zone of slightly saline water, which is, in turn, underlain by zones containing water of even higher salinity (Figure 23, 24, 25, and 26). As pumping from the fresh-water zone continues and the artesian pressure in the zone is reduced, the saline water will tend to move vertically upward into the zone of fresh water because of the pressure difference between the fresh- and saline-water zones.

Encroachment of saline water from the deeper horizons is not believed to be a major problem in Austin and Waller Counties, however, because the vertical permeabilities are, no doubt, much less than horizontal permeabilities, and the amount of water entering a well or group of wells from below will be small relative to the amount of water entering the wells laterally. Furthermore, the fresh and slightly saline water zones in much of the two counties are underlain by thick clay beds which partly protect them from movement of water from below.

A few of the large-capacity rice irrigation wells located about 10 miles north of Brookshire have been drilled deeper than most wells in order to tap as many water-bearing sand units as possible. By drilling very deep, these wells have penetrated parts of the slightly saline water zone, and the water produced has been somewhat poorer in quality than that produced from shallower wells. Well YW-65-01-805 was reported to have been drilled originally to a depth of 2,352 feet and was later plugged back to 1,670 feet. The two chemical analyses of water from this well (Table 8) show that the chloride and bicarbonate content decreased after the well was plugged back and that the specific conductance, an indication of total mineral content, decreased substantially.

Another example of a well drilled through the zone of fresh water is YW-66-08-602, which is 1,608 feet deep. The chemical analyses of water from the well (Table 8) show that the dissolved-solids content is much greater than the normal content for water from nearby shallower irrigation wells. Furthermore, there has been an increase in mineralization between the two sampling dates in 1952 and 1965. The dissolved-solids content increased 105 ppm (parts per million) in the 13-year period.

Some of the ground water from the slightly saline water zone can probably be added or mixed with the water pumped from the zone of fresh water for irrigation purposes without exceeding the desired limit of water quality. Before attempting to mix water from the two zones, however, chemical analyses should be made of samples of the water from the slightly saline water zone.

In a few localized areas in the two counties, the high iron content of the water makes it undesirable for household use; however, the iron content can be controlled by treatment. Testing may indicate that iron-free water can be obtained from levels above or below the depth of the high iron-content water. However, water from very shallow horizons often contains undesirable chemical and biological constituents and should be tested for both before using.

Contamination of Ground Water from Oil-Field Brine

A potential source of contamination of the shallow fresh water-bearing sands is by the percolation of oil-field brines from salt-water disposal pits. A salt-water disposal inventory conducted in 1961 (Texas Water Commission and Texas Water Pollution Control Board, 1963) showed a total brine production of 3,251,199 barrels (418 acre-feet) in Austin County and 1,220,527 barrels (157 acre-feet) in Waller County. Disposal of most of this brine was by means of salt-water injection wells, which return the brine to subsurface salt water-bearing units. However, in 1961, 238,300 barrels (36 acre-feet) of brine in Austin County and 57,438 barrels (7.4 acre-feet) of brine in Waller County was put into open surface pits for disposal. In 1961, open surface pits were used for disposal of oil-field brines in the following oil and gas fields in Austin and Waller Counties: New Ulm field, Nelsonville field, Sealy field, Clear Creek field, and Katy North field.

At least part of the salt water put into open surface pits in Austin and Waller Counties seeped into the ground because of incomplete evaporation. The average annual evaporation rate of about 53 inches is partly offset by a large amount of rainfall. Even if the water were completely evaporated, the salt residue would eventually be taken into solution during periods of rainfall and possibly move into the shallow fresh-water sands.

Another potential source of ground-water contamination exists where improperly cased oil or gas wells may allow upward movement of brine from the underlying salt water-bearing formations into the zones of fresh and slightly saline water. The Oil and Gas Division of the Texas Railroad Commission requires that all fresh water-bearing strata be protected by sufficient casing and cement or by alternative protection devices. As an aid to oil and gas operators, the Surface Casing Section of the Texas Water Development Board provides data on the depths to which the fresh-water zones should be protected. 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.

In certain oil and gas fields, the Railroad Commission has published field rules on the depth of surface casing necessary to protect the "fresh-water" sands. Only two fields in Austin and Waller Counties have definite surface-casing requirements. Surface casing set and cemented to a depth of 2,200 feet below land surface is required in the New Ulm 12,830-foot Midway field, and casing to a depth of 2,800 feet below land surface is required in the Katy North field. Both of these depths probably provide adequate protection of the fresh and slightly saline water.

AVAILABILITY OF GROUND WATER

Distribution and Quantity of Water in the Aquifers

Fresh and slightly saline ground water is available throughout Austin and Waller Counties although in varying amounts and at varying depths. Figure 16 shows the approximate altitude of the base of fresh water (less than 1,000 ppm dissolved solids) below sea level in the Evangeline and Jasper aquifers, as determined from an examination of electrical logs made in oil and gas tests. The base of fresh water ranges from less than 200 feet below sea level in two small areas in western Austin County to a maximum of about 2,000 feet below sea level in southwestern Waller County.

The depth to the base of fresh water is apparently affected by salt domes, such as those thought to occur at the Brenham, San Felipe, and Racoon Bend oil fields. For example, the base of fresh water at the San Felipe field (about 2 miles southwest of Brookshire) is about 500 feet below sea level, whereas the base in an area 9 miles to the northwest of the field is about 2,000 feet below sea level.

In places, tongues of fresh water in the Jasper aquifer extend below the general base of fresh water as shown on Figure 16. These tongues, which are overlain and underlain by slightly saline water, gradually thin downdip and the water in them becomes slightly saline.

The approximate total thickness of sands containing fresh water in the Evangeline and Jasper aquifers is illustrated on Figure 17. The thickness ranges from about 200 feet in the shallow fresh-water sections at Brenham and New Ulm oil fields, in western Austin County, to more than 600 feet in a small area in northern Waller County.

Based on the average sand thicknesses shown in Figure 17 and assuming a porosity of 25 percent, about 40 million acre-feet of fresh water in Austin County and 33 million acre-feet in Waller County is estimated to be in storage in the sands of the Evangeline and Jasper aquifers. However, only a small part of this water can be economically produced because of the great depth at which much of it occurs and because the sands cannot be completely drained.

The areal extent of the alluvium along the Brazos River is shown in Figure 2, and profiles illustrating the saturated thickness are shown on Figure 27. It is likely that all water in the alluvium in Austin and Waller Counties contains less than 1,000 ppm dissolved solids. Assuming a porosity of 30 percent, approximately 384,000 acre-feet of water is stored in the alluvium in Austin County and 614,000 acre-feet in Waller County. However, only about one-half of this amount is available for development. Cronin and Wilson (1967) estimated on the basis of a specific yield of 15 percent that the amount of water available for use from the alluvium in 1963 was about 192,000 acre-feet in Austin County and 307,000 acre-feet in Waller County.

Figure 18 shows the approximate base of the slightly saline water (1,000 to 3,000 ppm dissolved solids) zone, which underlies the fresh water throughout Austin and Waller Counties. The altitude of the base of slightly saline water ranges from about 900 feet below sea level near Racoon Bend oil field to about 3,200 feet below sea level in a small area about 4 miles east of Sealy. The configuration of the base of slightly saline water is similar but more irregular than that of the base of fresh water.

The total thickness of sands containing fresh and slightly saline water is shown in Figure 19. The thickness increases toward the southeast from less than 400 feet in northwestern Austin County to more than 1,200 feet in the extreme southeast corner of the county.

About 24 million acre-feet of slightly saline water is in storage in Austin County, and about 14 million acre-feet is in storage in Waller County. Only a very small percentage of the slightly saline water is available for use because of the great depth at which it occurs.

Quantity of Water Perennially Available for Development

Although a total of about 73 million acre-feet of fresh water is in storage in Austin and Waller Counties, as stated above, only a very small part of this is available for development. This large quantity of water is in transient storage--that is, it is moving through the aquifers in a general southeasterly direction. The water represents an accumulation of recharge of probably thousands of years, and the water moving out of the county is replaced by recharge from rainfall. The most important factor pertaining to the perennial availability of water then is the rate of recharge. It is impossible to determine the rate of recharge in Austin and Waller Counties with the data available. However, estimates can be made.

One method of estimating the amount of water that can be pumped indefinitely without depleting the supply is to assume a set of conditions of discharge that might reasonably be attained. For example, it may be assumed that a line of wells is installed across the southern part of Waller County in a line starting about 4 miles northwest of Katy and extending southwesterly to the Brazos River--a distance of about 13-1/2 miles. It is assumed that the wells are pumped so that the water levels along the line are lowered to a level of 400 feet below land surface and maintained at that level. It is further assumed that the recharge to the aquifer occurs along a line which is about midway in the outcrop of the aquifer. It is further assumed that the water level at the line of recharge remains constant--in other words, that the rate of recharge is sufficient to provide the water pumped. It is further assumed that the hydraulic gradient between the line of recharge and the line of discharge is a straight line. On the basis of these assumptions, about 32,000 acre-feet of water would be transmitted to the line of wells each year. A similar computation for conditions in Austin County indicates that about 31,000 acre-feet of water would be transmitted per year. Although the calculations given above are very crude, they are included merely to give an indication of the ability of the aquifer to transmit water. The total quantity of water pumped under the assumed conditions (63,000 acre-feet per year) is equivalent to about 2 inches of recharge on the outcrop of the Evangeline aquifer. This amount of recharge is not unreasonable considering estimates made for recharge to the aquifers in other parts of southeast Texas.

The above computations were made for the Evangeline aquifer in the southern parts of the two counties. Additional quantities of water could be pumped on a perennial basis from the aquifers in the northern parts of the counties. It seems reasonable then that quantities in excess of 63,000 acre-feet could be pumped annually in the two counties. This set of computations does not take into account the possibility of salvaging the rejected recharge which presently occurs in the form of base flow of the streams in the two counties. As the water levels decline, at least some of this base flow to the streams would be captured.

On the other hand, any development in Austin and Waller Counties is dependent on development in nearby areas. This is especially evident in Waller County where the water levels in the irrigation wells have been affected by pumpage in the Houston area to the east.

Areas Most Favorable for Development of Ground-Water Supplies

One of the major factors in determining the amount of water available to wells is the ability of the aquifer to transmit water. This property of the aquifer is measured by the coefficient of transmissibility. Figure 20 is a map showing the estimated transmissibility of the entire fresh-water section of the Evangeline and Jasper aquifers.

The areas considered most favorable for future development of fresh ground water are those where the transmissibility of the sands is greatest, such as in the southern parts of Austin and Waller Counties. However, as noted previously, the southern part of Waller County has had substantial well development, and large increases in well development could result in overdraft to the aquifer.

The amount of water a well will yield depends on many factors such as thickness and permeability of sands screened in the well, well construction, concentration of wells, the size of the pump and power unit, the duration of pumping, and the drawdown in the well. Figure 21 shows the estimated discharge in gallons per minute which might be expected from wells producing from the

Evangeline and Jasper aquifers in Austin and Waller Counties. Many assumptions were necessary in making the computations necessary for the construction of the map. It was assumed that each well would be at least 16 inches in diameter and gravel packed, and would be drilled and screened so as to include all of the sands in the fresh-water section at the chosen location. It was also assumed that no other pumping well would be located closer than half a mile. In the hypothetical well, the pumping level would be drawn down to 200 feet below the static water level and held constant there for 90 days. Thus, the discharges shown are those that might be expected at the end of 90 days of pumping with a drawdown of 200 feet in the well.

CONCLUSIONS

Fresh ground water (less than 1,000 ppm dissolved solids) suitable in quantity for irrigation, public supply, and most industrial needs can be found throughout Austin and Waller Counties. The zone of fresh water occurs in most parts of the Evangeline aquifer, in the alluvium of the Brazos River, and in the upper part of the Jasper aquifer in the northern areas of the counties. Underlying the zone of fresh water is a zone of slightly saline water (1,000 to 3,000 ppm dissolved solids).

The availability of fresh water is determined in general by the amount of recharge to the aquifer, the transmissibility of the sands, and the amount of well development. The areas of greatest transmissibility are in the southern parts of Austin and Waller Counties where thick sequences of permeable sands of the Evangeline aquifer contain fresh water. Thinner sand units of lower permeabilities are found in the northern parts of the counties, mostly in the Jasper aquifer. The ground-water resources of southern Austin County are relatively undeveloped; whereas, there is already substantial development in the southern half of Waller County in the Katy rice-growing area. The 1965 rate of ground-water withdrawal in the two-county area can probably be maintained indefinitely, and in some parts of the two counties, the rate could be increased.

In order to keep abreast of the results of ground-water development in the two counties, a program of basic-data collection similar to that done by the U.S. Geological Survey in the Houston district should be established in Austin and Waller Counties. Annual inventories of pumpage should be made. New large-capacity wells should be inventoried and additional pumping tests conducted to determine the hydraulic characteristics of the sands. Additional pumping-test data are needed especially for the fresh-water sands in the Jasper aquifer in the northern parts of the counties. Water levels in selected large-capacity wells in the counties should be measured annually. Water samples from selected wells should be collected and analyzed periodically to monitor quality-of-water changes and to determine if saline-water encroachment is occurring.

REFERENCES CITED

Baker, B. B., Dillard, J. W., Souders, V. L., and Peckham, R. C., 1963, Reconnaissance investigation of the ground-water resources of the Sabine River basin, Texas: Texas Water Comm. Bull. 6307, 57 p., 7 figs., 8 pls.

Baker, E. T., Jr., 1965, Ground-water resources of Jackson County, Texas: Texas Water Devel. Board Rept. 1, 225 p., 31 figs., 4 pls.

Bernard, H. A., and LeBlanc, R. J., 1965, Résumé of the Quaternary geology of the Northwestern Gulf of Mexico Province, in The Quaternary of the United States: New Jersey, Princeton Univ. Press, p. 137-185.

Bernard, H. A., LeBlanc, R. J., and Major, C. F., 1962, Recent and Pleistocene geology of southeast Texas, in Geology of the Gulf Coast and central Texas and guidebook of excursions: Houston Geol. Soc., Ann. Meeting Geol. Soc. of America and associated societies, Houston, Tex., p. 175-224.

Cronin, J. G., and others, 1963, Reconnaissance investigation of the ground-water resources of the Brazos River basin, Texas: Texas Water Comm. Bull. 6310, 152 p., 24 figs., 11 pls.

Cronin, J. G., and Wilson, C. A., 1967, Ground water in the flood-plain alluvium of the Brazos River, Whitney Dam to vicinity of Richmond, Texas: Texas Water Devel. Board Rept. 41, 223 p., 28 figs.

Darton, N. M., Stephenson, L. W., and Gardner, Julia, 1937, Geologic map of Texas: U.S. Geol. Survey map.

Deussen, Alexander, 1914, Geology and underground waters of the southeastern part of the Texas Coastal Plain: U.S. Geol. Survey Water-Supply Paper 335, 365 p., 9 pls.

Doering, John, 1935, Post-Fleming surface formations of southeast Texas and south Louisiana: Am. Assoc. Petroleum Geologists Bull., v. 19, no. 5, p. 651-688.

Fawcett, A. E., 1963, Hydraulic gravel packing for deep water wells: Natl. Water Well Assoc. Jour., Ground Water, v. 1, no. 1, p. 16.

Fisk, H. N., 1940, Geology of Avoyelles and Rapides Parishes: Louisiana Dept. Conserv. Bull. 18, 240 p., 50 figs., 12 pls.

Fluellen, T. R., and Goines, W. H., 1952, Water resources of Waller County, Texas: Texas Board Water Engineers Bull. 5208, 57 p., 8 figs.

Hem, J. D., 1959, Study and interpretation of the chemical characteristics of natural water: U.S. Geol. Survey Water-Supply Paper 1473, 269 p., 40 figs., 2 pls.

Lang, J. W., Winslow, A. G., and White, W. N., 1950, Geology and ground-water resources of the Houston district, Texas: Texas Board Water Engineers Bull. 5001, 55 p., 15 figs., 3 pls.

Lowry, R. L., Jr., 1960, Monthly reservoir evaporation rates for Texas, 1940 through 1957: Texas Board Water Engineers Bull. 6006, 95 p., 5 pls.

May, R. E., 1938, Records of wells, drillers' logs, water analyses, and map showing locations of wells in Austin County, Texas: Texas Board Water Engineers duplicated rept., 36 p., 1 fig.

Metcalf, R. J., 1940, Deposition of Lissie and Beaumont Formations of the Gulf Coast of Texas: Am. Assoc. Petroleum Geologists Bull., v. 24, no. 4, p. 693-700.

Raber, Oran, 1937, Water utilization by trees, with special reference to the economic forest species of the North Temperate zone: U.S. Dept. Agr. Misc. Pub. 257, p. 1-97.

Rayner, F. A., 1958, Records of water-level measurements in Brazoria, Fort Bend, and Waller Counties, Texas, 1931 through June 1958: Texas Board Water Engineers Bull. 5904, 67 p., 9 figs.

Scofield, C. S., 1936, The salinity of irrigation water: Smithsonian Inst. Ann. Rept., 1934-35, p. 275-287.

Sellards, E. H., Adkins, W. S., and Plummer, F. B., 1932, The geology of Texas, v. 1, Stratigraphy: Univ. Texas Bull. 3232, 1007 p., 54 figs., 11 pls.

Shutts, E. E., 1953, Rice irrigation in Louisiana: Am. Soc. Civil Engineers Trans., v. 118, p. 871-884.

Stiff, H. A., Jr., 1951, The interpretation of chemical water analysis by means of patterns: Jour. Petroleum Technology, p. 15.

Taylor, T. U., 1907, Underground waters of Coastal Plain of Texas: U.S. Geol. Survey Water-Supply Paper 190, 73 p., 3 pls.

Texas Water Commission and Texas Water Pollution Control Board, 1963, A statistical analysis of data on oil field brine production and disposal in Texas for the year 1961 from an inventory conducted by the Texas Railroad Commission: Railroad Comm. Dist. 3, v. 1 and 2.

Theis, C. V., 1935, The relation between the lowering of the piezometric surface and the rate and duration of discharge of a well using ground-water storage: Am. Geophys. Union Trans., pt. 2, p. 519-524.

Todd, D. K., 1959, Ground-water hydrology: New York, John Wiley and Sons, Inc. 336 p.

Turner, S. F., and Livingston, Penn, 1939, Records of wells, drillers' log, water analyses, and map showing location of wells in Waller County, Texas: Texas Board Water Engineers duplicated rept., 20 p., 1 fig.

U.S. Public Health Service, 1962, Public Health Service drinking water standards: Public Health Service Pub. 956, 61 p., 1 fig.

U.S. Salinity Laboratory Staff, 1954, Diagnosis and improvement of saline and alkali soils: U.S. Dept. Agriculture Handb. 60, 160 p., 32 figs.

Weeks, A. W., 1945, Oakville, Cuero, and Goliad Formations of Texas Coastal Plain between Brazos River and Rio Grande: Am. Assoc. Petroleum Geologists Bull., v. 29, no. 12, p. 1721-1732.

Wenzel, L. K., 1942, Methods for determining permeability of water-bearing materials with special reference to discharging well methods: U.S. Geol. Survey Water-Supply Paper 887, 192 p.

Wesselman, J. B., 1967, Ground-water resources of Jasper and Newton Counties, Texas: Texas Water Devel. Board Rept. 59, 186 p., 31 figs.

White, W. N., Rose, N. A., and Guyton, W. F., 1940, Progress report on the ground-water resources of the Houston district: Texas Board Water Engineers duplicated rept., 47 p., 10 figs.

Wilcox, L. V., 1955, Classification and use of irrigation waters: U.S. Dept. Agriculture Circ. 969, 19 p.

Winslow, A. G., and Doyel, W. W., 1954, Land-surface subsidence and its relation to the withdrawal of ground water in the Houston-Galveston region, Texas: Econ. Geology, v. 49, no. 4, p. 413-422.

Winslow, A. G., and Fluellen, T. R., Jr., 1952, The Houston district, Texas, pumpage and decline of artesian pressure during 1950-51: Texas Board Water Engineers Bull. 5201, 28 p., 17 figs.

Winslow, A. G., and Kister, L. R., Jr., 1956, Saline water resources of Texas: U.S. Geol. Survey Water-Supply Paper 1365, 105 p., 12 figs., 9 pls.

Winslow, A. G., and Wood, L. A., 1959, Relation of land subsidence to ground-water withdrawals in the upper Gulf Coast region, Texas: Mining Eng., p.1030-1034.

Wood, L. A., 1956, Availability of ground water in the Gulf Coast region of Texas: U.S. Geol. Survey open-file rept., 55 p., 26 pls.

______1958, Pumpage of ground water and fluctuations of water levels in the Houston district and Baytown-La Porte area, Texas, 1955-57: Texas Board Water Engineers Bull. 5805, 43 p., 27 figs.

Wood, L. A., and Gabrysch, R. K., 1965, Analog model study of ground water in the Houston district, Texas: Texas Water Comm. Bull. 6508, 103 p., 43 figs.

Wood, L. A., and Gabrysch, R. K., and Marvin, Richard, 1963, Reconnaissance investigation of the ground-water resources of the Gulf Coast region, Texas: Texas Water Comm. Bull. 6305, 123 p., 18 figs., 15 pls.

Table 5.--Records of wells and test holes in Austin and Waller Counties and adjacent areas

All wells are drilled unless otherwise noted in remarks column.
Water level : Reported water levels given in feet; measured water levels given in feet and tenths.
Method of lift and type of pump: 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 : B, Burkeville aquiclude; Ev, Evangeline aquifer; J, Jasper aquifer; Qal, Alluvium of the Brazos River.

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			
						Austin County						
AP-59-60-401	J. P. Houstoun, Jr.	--	--	24	30	J	432	20.0	Dec. 2, 1965	J,E	D	Dug well.
501	--	--	--	44	30	J	351	23.0	Dec. 1, 1965	B,H	N	Do.
502	Frank Bednar	--	--	57	30	J	337	48.2	do	J,E	D	Do.
503	do	-- Conklin	1963	94	--	J	293	+	1965	Flows	S	Reported flow 1 gpm. Screen from 73 ft to bottom.
504	J. R. McLure	Pomykal Drilling Co.	1964	448	4	J	373	50.2	Dec. 1, 1965	T,E	D	[1]
601	V. Bliznak	--	1957	22	30	J	315	15.3	do	J,E	D,S	Dug well.
* 702	Madeline Schmid	-- Sisler	1954?	112	4	J	439	90.6	Dec. 2, 1965	J,E	D,S	Cased to bottom.
801	W. Weinert	Pomykal Drilling Co.	1956	183	4	J	280	+	do	Flows	S	Measured flow 5 gpm, Dec. 2, 1965. Cased to 132 ft, open hole from 132 ft to bottom.
802	W. J. Knobdosdorff	do	1964	103	4	J	328	52.1	do	T,E	D	Screen from 86 ft to bottom.[1]
901	-- Polcak well 1	Woodley Petroleum Co.	1941	7,504	--	--	280	--	--	--	--	Oil test.[2]
* 61-402	John Pomykal	Joe Pomykal, Jr.	1958	386	4	J	332	74.2	Nov. 30, 1965	C,E	D,S	Casing slotted from 366 ft to bottom. Temp. 71°F.
403	-- Shul well 1	Phillips Petroleum Co.	1947	10,522	--	--	330	--	--	--	--	Oil test.[2]
404	R. C. Barnes well 1	Pan-American Petroleum Co.	1964	4,739	--	--	275	--	--	--	--	Do.
405	Joe Pomykal, Sr.	Pomykal Drilling Co.	1965	420	4	J	344	82.1	Nov. 30, 1965	T,E	S	[1]

See footnotes at end of table.

Table 5.--Records of wells and test holes in Austin and Waller Counties and adjacent areas--Continued

Austin 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
*AP-59-61-501	M. H. Dierking	Walter Rinn	1923	180	3	J	301	82.1	Nov. 30, 1965	C,E	D,S	Temp. 72°F.
502	-- Wittenben well 1	Adams & Haggarty	1954	9,151	--	--	250	--	--	--	--	Oil test.2/
601	S. W. Applewhite	Boehiem Iron Works	1957?	168	4	B	324	97.5	Nov. 22, 1965	T,E	D,S	
602	do	-- Conklin	1955?	330	10, 8	J	242	25.9	do	T,G	Irr	Casing: 10-in. to 150 ft, 8-in. from 150 ft to bottom. Reported discharge 160 gpm. Slotted pipe from 310 ft to bottom.
* 701	Otto Huebner	--	1900	98	30	B?	392	66.0 57.7	Mar. 10, 1937 Nov. 24, 1965	C,E	D	Dug well. Temp. 67°F.
702	C. Faift	--	--	24	24	B	338	16.3	Nov. 24, 1965	Cf,E	D	Dug well.
703	C. S. Faist	Pomykal Drilling Co.	1955?	189	4	J	361	87.7	do	T,E	D,S	Cased with slotted pipe from 179 ft to bottom.
704	do	--	--	52	--	B	361	44.4	do	N	N	Old well.
801	R. Warmke	R. Schultz	1947?	55	30	B	359	48.4	Nov. 23, 1965	C,W	D	
802	Eddie Broz	--	1935?	67?	3	Ev	362	50.1	do	J,E	D	
* 803	R. E. Leigh, Jr.	L. Patterson	1946	725	4	J	309	61.4	Nov. 29, 1965	T,E	Irr	Reported perforations between 674 and 725 ft. Pump set at 170 ft. Measured pumping level 132.7 ft after 1 hour pumping 91 gpm, Nov. 29, 1965. Temp. 80°F.1/
804	R. E. Leigh well 1	Pure Oil Co.	1946	9,347	--	--	310	--	--	--	--	Oil test.2/
901	Leroy Winkelmann	--	--	62	30	Ev	299	59.8	Nov. 22, 1965	C,W	D,S	Dug well. Perforated from 59 ft to bottom.
902	J. Mikeska	Pomykal Drilling Co.	1965	173	4	B	302	82.2	Nov. 23, 1965	T,E	D	Screen from 151 ft to bottom.1/
62-102	Fritz Haar	--	--	34	30	Ev	346	28.6	Nov. 19, 1965	J,E	D	Dug well. Pump set at 33 ft. Old well.
401	A. J. Le Blanc	Pomykal Drilling Co.	1965	156	4	B	348	80.9	do	T,E	D	Screen from 140 ft to bottom.1/
402	do	--	--	28	--	Ev	348	24.4	do	B,H	N	Old well.
* 501	-- Luhn	R. J. Luhn	--	132	3	Ev	391	80.5 80.3	Jan. 12, 1937 Nov. 19, 1965	C,E	D,S	Screen from 127 ft to bottom. Temp. 59°F.
502	W. M. Wright well 1	Holmes Drilling Co. & Robert Mosbacher	1957	900	--	J	287	54	Dec. 1965	T,G	Irr	Drilled as oil test to 10,516 ft; converted to water well, and plugged back to 900 ft. Reported perforated between 600 and 900 ft.2/
601	--	Rosco Wood	1962	300	4	Ev	204	18.2	Dec. 15, 1965	T,E	S	

See footnotes at end of table.

Table 5.--Records of wells and test holes in Austin and Waller Counties and adjacent areas--Continued

Austin 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
AP-59-62-602	E. B. Tieman	W. Rinn	1930	118	3	Ev	272	83 98	1930 Dec. 1965	C,E	D,S	Perforated from 108 ft to bottom.
701	Charles Laine	Pomykal Drilling Co.	1964	236	4	B	363	153.7	Nov. 19, 1965	T,E	D,S	Screen from 214 ft to bottom.1/
* 702	Dan Pulski	J & S Well Service	1965	313	4	B	268	70	July 1965	T,E	D,S	
703	do	do	1965	177	4	Ev	268	55 61.3	Oct. 1965 Nov. 22, 1965	T,E	S	
801	F. Mikesta well 1	Scurlock Oil Co.	1963	11,461	--	--	340	--	--	--	--	Oil test.2/
* 63-701	O. Schomburt	P. Wendt	--	140	4	Ev	257	81.0	Jan. 1, 1966	T,E	D	Temp. 68°F.
702	-- Zander well 1	Skelly Oil Co.	1949	11,102	--	--	275	--	--	--	--	Oil test.2/
* 901	J. J. Elick	Dunn Drilling Co.	1956	75	18	Ev	177	32.1 35.4 32.2	June 18, 1965 Aug. 2, 1965 Jan. 11, 1966	T,G	Irr	Measured pumping level 57.1 ft after pumping 63 hours at 310 gpm. Temp. 72°F.
* 902	Humble Oil & Refining Co.	Humble Oil & Refining Co.	1928	1,228	10-3/4, 6-5/8, 4-1/2	J	161	+ +	Jan. 7, 1937 Jan. 11, 1966	Flows	P	Screen from 1,107 ft to bottom. Temp. 84°F.
903	J. J. Elick	Dunn Drilling Co.	1965	69	16	Ev	175	31.8 31.5	Aug. 2, 1965 Jan. 11, 1966	N	Irr	
904	L. D. Reese	--	--	42	30?	Ev	180	40.6	Jan. 11, 1966	J,E	D	
* 905	Humble Oil & Refining Co.	E. H. Wayne	1930	565	15-1/2, 8	Ev	178	16.5 28	Jan. 6, 1937 Jan. 1964	T,E	Ind,S	Pump set at 152 ft. Screen from 439 to 472, 482 to 505, and 536 to 559 ft.
906	Max Bader well 1	Humble Oil & Refining Co.	1955	10,600	--	--	180	--	--	--	--	Oil test.2/
907	Emil Ueckert well 1	do	1952	6,730	--	--	176	--	--	--	--	Do.
908	E. B. Wilson well 1	do	1953	6,445	--	--	179	--	--	--	--	Do.
909	J. A. Walton well A-13	do	1952	4,220	--	--	169	--	--	--	--	Do.
910	J. C. Walton well 2-B	do	1953	6,274	--	--	173	---	--	--	--	Do.
911	-- Deutrich well 13	do	1954	6,800	--	--	176	--	--	--	--	Do.
64-701	--	--	--	102	4	Ev	147	23.0	Apr. 13, 1964	N	N	
704	Bellville School Land well 12	Humble Oil & Refining Co.	1953	6,030	--	--	172	--	--	--	--	Oil test.2/

See footnotes at end of table.

Table 5.--Records of wells and test holes in Austin and Waller Counties and adjacent areas--Continued

Austin 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			
AP-59-64-705	-- Sherrod well 20	Humble Oil & Refining Co.	1954	5,800	--	--	153	--	--	--	--	Oil test.[2]
706	Oil Unit 13, well 1	do	1953	6,524	--	--	147	--	--	--	--	Do.
707	L. A. Machemehl well 1-C	do	1956	8,005	--	--	145	--	--	--	--	Do.
66-04-204	Milton Raeke	--	--	90	3	J	370	83.1	Dec. 6, 1965	C,W	D,S	
301	Mile Knolle	Bailey & Goerner	1965	1,640	--	--	342	--	--	--	--	Oil test.[2]
601	Hawley Ray	Pomykal Drilling Co.	1963	119	4	J	334	70 69.1	1963 Dec. 6, 1965	C,E	D	Screen from 105 ft to bottom.[1]
602	A. C. Bering	--	--	80	6	J	392	34.2	Dec. 8, 1965	C,W	S	
603	E. Kruege	--	1924	185	3	J	372	116 136.0	Mar. 1937 Dec. 8, 1965	C,E	Ind	Reported screen from 181 to 184 ft. Supplies water for cotton gin.
901	E. H. Glaeser	--	1904?	80	24	B	394	50.1	Dec. 6, 1965	C,E	D,S	
902	New Ulm Fireman's Assn.	L & N Drilling Co.	1961	319	4	J	410	193.4	Dec. 10, 1965	T,E	P	Supplies water for community hall.
05-101	-- Rinn	Pomykal Drilling Co.	1965	201	4	J	336	--	--	T,E	D	
* 102	M. Wittner	Max Zepner	1905	91	3	B	333	90	July 1965	C,E	D	Screen from 81 to 90 ft.
201	W. Schimara	--	1902	72	30	Ev	300	69.3	Dec. 13, 1965	J,E	D	
301	A. J. Flentge	-- Flentge	--	88	30	Ev	293	59.7	do	T,E	D,S	Dug to 60 ft; bored from 60 to 88 ft. Casing: 60 ft of 30-in.; open hole from 60 to 88 ft.
302	E. Janesky	Charles Ressman	1965	62	4	Ev	284	34.9	do	T,E	D	
401	H. Wittneben	Pomykal Drilling Co.	1956?	112	4	B	315	74.6	Dec. 12, 1965	J,E	D	Reported screen from 106 ft to bottom.
402	do	--	--	50	30?	Ev	315	41.5	Dec. 8, 1965	C,W	N	Dug well.
501	W. A. McHattie	Charles Ressmann	1965	134	4	Ev	292	33.7	Dec. 13, 1965	T,E	S	Pump set at 46 ft.
502	do	J & S Well Service	1964	240	--	B	284	100.5	do	T,E	D	Water has natural gas oder.
601	--	--	--	135	3	Ev	255	50	1964	C,W	D	
602	-- Bartay well 1	Cockburn & Hargrove	1937	3,992	--	--	233	--	--	--	--	Oil test.[2]

See footnotes at end of table.

Table 5.--Records of wells and test holes in Austin and Waller Counties and adjcent areas--Continued

Austin 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
AP-66-05-603	-- Huebner well 1	Cockburn, Hargrove & Crown Central	1939	4,012	--	--	237	--	--	--	--	Oil test.[2]
701	R. Peschal	Pomykal Drilling Co.	1953?	126	4	Ev	412	104.1	Dec. 10, 1965	T,E	D	Pump set at 123 ft.
* 702	E. Lochrer	--	--	120	3	Ev	406	--	--	C,E	Ind	Open end at 120 ft. Temp. 71°F.
703	P. E. Reboeneman	L & N Drilling Co.	--	240	4	B	402	142.1	Dec. 10, 1965	T,E	D	
704	-- Foerster well 1	Cockburn Oil Co.	--	3,814	--	--	355	--	--	--	--	Oil test.[2]
* 801	A. Blezinger	--	1950	160?	4	Ev	314	--	--	C,E	D	Reported water has bad taste. Temp. 71°F.
802	--	--	--	600?	4	J	303	129.7	Dec. 14, 1965	N	N	Formerly used to supply water for drilling oil test.
803	-- Schiller well 1	McCarthy Oil & Gas Co.	1949	2,699	--	--	310	--	--	--	--	Oil test.[2]
804	-- Marik well 1	Phillips Petroleum Co.	1952	10,754	--	--	387	--	--	--	--	Do.
805	Lesikar Estate well 2	Magnolia Petroleum Co.	1951	10,600	--	--	360	--	--	--	--	Do.
806	Amelia Wangler well 1	do	1951	10,600	--	--	355	--	--	--	--	Do.
807	Allen Lesikar well 1	Gulf Oil Corp.	1948	10,017	--	--	323	--	--	--	--	Do.
* 901	A. Blezinger	--	--	80	30	Ev	349	64.1	Dec. 14, 1965	J,E	D,S	Pump set at 75 ft. Temp. 73°F.
06-101	George Mikaesta	--	1957	220	4	Ev	214	20.7	Dec. 16, 1965	J,E	D	Screen from 210 ft to bottom.
* 102	J. Krenek	--	1945?	110?	4	Ev	283	--	--	C,E	D	
103	Mikeska well 1	Sun Oil Co. & The Texas Co.	1951	10,505	--	--	245	--	--	--	--	Oil test.[2]
* 104	John Holda	Charles Ressmann	1944	121	3	Ev	282	--	--	J,E	D	Perforated from 101 ft to bottom. Temp. 67°F.
201	Fay Shultz	J & S Well Service	1960?	133	4	Ev	291	78.7	Dec. 15, 1965	T,E	D	
202	Edwin Ueckert	P. Wendt	1964	138	4	Ev	208	32.0	Dec. 16, 1965	T,E	S	
301	C. E. Goth	J & S Well Service	1965	158	4	Ev	280	82.9	Dec. 15, 1965	T,E	D	Screen from 148 ft to bottom.
302	do	do	1958	142	2	Ev	280	82.6	do	N	N	

See footnotes at end of table.

Table 5.--Records of wells and test holes in Austin and Waller Counties and adjcent areas--Continued

Austin 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
*AP-66-06-601	City of Bellville well 1	J. W. Jackson	1928	786	10	Ev	281	83	1941	T,E,G	P	Reported discharge 248 gpm in 1941. Screen from 487 to 509, 690 to 711, and 720 to 740 ft. Temp. 79°F.1/
602	City of Bellville well 4	Layne-Texas Co.	1952	740	12-3/4, 6-5/8	Ev	256	99.2 106.8	Oct. 14, 1959 Jan. 6, 1966	T,E, 30	P	Measured pumping level 188 ft while pumping 362 gpm for 2-1/2 hours on Jan. 6, 1966. Screen from 647 to 670 and 684 to 725 ft. Gravel-packed. Pump set at 250 ft.1/ 2/
* 603	City of Beelville well 5	do	1957	900	12-3/4, 6	Ev,B	270	117.9 117.1	Oct. 19, 1959 Jan. 6, 1966	T,E, 60	P	Screen from 653 to 684, 700 to 741, 820 to 850, and 855 to 866 ft. Pump set at 260 ft. Measured pumping level 206 ft after pumping 657 gpm for 2 hours, Jan. 6, 1966. Temp. 79°F.1/ 2/
604	R. U. Whiteside	J & S Well Service	1960	112	4	Ev	242	20.2	Jan. 16, 1965	T,E	D	Screen from 102 to 112 ft. Pump set at 110 ft.
605	do	do	--	222	--	Ev	162	+	Dec. 16, 1965	Flows, T,E	S	Screen from 202 to 220 ft. Pump on well to allow use on hillside. Estimated flow 10 gpm.
606	do	do	1964	108	8	Qal	162	12.8	do	T,E	Irr	Casing slotted from 86 ft to bottom. Discharge reported 180 gpm. Water-bearing unit is probably Recent stream alluvium of Mill Creek.
* 607	City of Bellville well 3	J. W. Jackson	1937	754	8	Ev	280	83	1941	N	N	Well destroyed. Was screened from 355 to 369, 472 to 500, 700 to 730, and 740 to 754 ft. Reported discharge 242 gpm in 1941.1/
608	City of Bellville	do	1936	1,742	10	Ev,J	280	--	--	N	N	Destroyed. Reported dry hole.1/
701	J. K. Hancock	--	--	--	--	Ev	342	--	--	--	Irr	Used very little. Reported small well.
801	Batla well 1	Dillard & Waltermire	1945	9,000	--	--	275	--	--	--	--	Oil test.2/
901	W. Schneider well 1	G. S. Hammond	1950	11,062	--	--	158	--	--	--	--	Do.
902	Huber well 1	Commercial Petroleum & Transmission Co.	1950	10,665	--	--	175	--	--	--	--	Do.
07-101	V. Graf	J & S Well Service	1963	90	4	Ev	186	35.1	Jan. 13, 1966	T,E	D	
201	Clinton well 1	Derring & Kayser	1935	4,864	--	--	172	--	--	--	--	Oil test.2/
* 301	James Waak	Dunn Drilling Co.	1956	53	18	Qal	140	29.8 22.6 27.1	Apr. 13, 1964 June 18, 1965 Jan. 12, 1966	T,G	Irr	Measured pumping level 51 ft while pumping 815 gpm, July 21, 1965; measured discharge 767 gpm, July 22, 1965. Used for cotton and grain irrigation. Temp. 70°F.
302	H. Waak	do	1956	69	18	Qal	139	20.8 22.8	Jan. 12, 1960 Jan. 12, 1966	T,G	Irr	Reported used for irrigation of cotton and grains.3/

See footnotes at end of table.

Table 5.--Records of wells and test holes in Austin and Waller Counties and adjacent areas--Continued

Austin 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
AP-66-07-303	--	--	--	360	5	Ev	136	+	Jan. 12, 1966	Flows	Irr	Measured discharge 13 gpm, Jan. 12, 1966.
304	Joe Golovislay	P. C. Bundy	1959	3,220?	--	--	167	--	--	--	--	Oil test.[2]
305	Austin College well 1	Pan-American Petroleum Co.	1943	9,503	--	--	135	--	--	--	--	Do.
306	J. W. Ueckert well 1	Hawkins & Hawkins, et al.	1963	10,753	--	--	141	--	--	--	--	Do.
307	A. Grawunder well C-9	Humble Oil & Refining Co.	1960	2,405	--	--	155	--	--	--	--	Do.
308	Paulus Estate well 1	M. T. Grubb & R. N. Rangers	1950	5,851	--	--	132	--	--	--	--	Do.
401	Santa Fe Railroad	Layne-Wells, Inc.	1943?	750?	10-3/4	Ev	209	41.3	Jan. 13, 1966	A,-	N	Reported discharge 500 gpm. Unused in recent years.
402	do	Santa Fe Railroad	1926	735	10	Ev	201	56.7	Jan. 19, 1966	A,-	N	Reported cased to 727 ft.[1]
*501	A. E. Mewis	--	--	28	30	Ev	264	17.4 16.3	Feb. 18, 1937 Jan. 13, 1966	J,E	D,S	
601	-- Waak	--	--	200?	6	Ev	137	--	--	T,G	Irr	
602	A. Brandt	J & S Well Service	1961	158	4	Ev	182	57.1	Jan. 13, 1966	T,E	S	Screen from 152 ft to bottom.
701	-- Johnson	do	1964	82	10	Qal	151	15.6	do	T,G	Irr	Water-bearing unit is Recent stream alluvium (sand and small gravel) of Mill Creek. Reported discharge 600 gpm. Pump set at 75 ft.[1]
901	U.S. Geological Survey	U.S. Geological Survey	1964	72	--	Qal	149	30	Jan. 1964	N	N	Test hole.[1]
*08-105	Ray T. Paine	J & S Well Service	1952?	210?	3	Ev	162	--	--	J,E	D	Reported water stains, tastes bad, and smells bad. Temp. 66°F.
106	Austin College well 14	Humble Oil & Refining Co.	1950	4,262	--	--	144	--	--	--	--	Oil test.[2]
107	Paine well 22-Y	do	1948	7,005	--	--	152	--	--	--	--	Do.
108	Minnie Brown well 2	do	1950	--	--	--	145	--	--	--	--	Do.
401	H. Waak	Dunn Drilling Co.	1956	59	18	Qal	142	24.0 33.5 25.7 30.4	Jan. 12, 1960 Apr. 13, 1964 June 18, 1965 Jan. 12, 1966	T,G	Irr	Measured pumping level 46.2 ft after pumping 3 days at 354 gpm, July 14, 1965.

See footnotes at end of table.

Table 5.--Records of wells and test holes in Austin and Waller Counties and adjacent areas--Continued

Austin 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
AF-66-08-704	U.S. Geological Survey	U.S. Geological Survey	1964	77	--	Qal	139	34	Jan. 1964	N	N	Test hole.[1/]
13-201	W. A. Schweke well 1	Sinclair Prairie Oil Co.	--	10,013	--	--	347	--	--	--	--	Oil test.[2/]
601	Yellow Creek Ranch	--	--	180?	4	Ev	311	62.8	Dec. 14, 1965	T,E	D,S	
602	do	--	--	400?	6	Ev?	306	73.8	do	T,E	D,S, Irr	Reported used mostly for livestock watering.
14-101	E. Witte	--	--	75	--	Ev	308	55.8	Dec. 17, 1965	B,H	N	Old well.[1/]
201	C. Himly	P. Wendt	1964	91	4	Ev	288	64.9	do	T,E	D	Reported screen from 81 ft to bottom, in white sand and clay.
* 202	E. Michaelis	Tipps Bros. Drilling Co.	1965	113	4	Ev	309	76.4	do	T,E	D	Reported screen from 103 ft to bottom, in a white coarse sand. Temp. 69°F.
203	-- Herring well 1	Kirby Petroleum Co.	1939	--	--	--	272	--	--	--	--	Oil test.[2/]
301	M. Swearingen	P. Wendt	1960	150?	4	Ev	278	90.3	Dec. 20, 1965	T,E	D,S	Reported very poor well; pumped recently before water level measurement. Well completed in fine white sand.
302	Charles Ulrich	J & S Well Service	1965	118	8	Ev	174	10.2	do	T,G	Irr	Estimated discharge 350 gpm. Reported irrigates 50 acres of grain or pasture.
501	John Coffee	L. Mickelson	1954	452	12	Ev	304	78.6 79.1	May 13, 1965 Dec. 17, 1966	T,G	Irr	Used very little. 184 ft of slotted pipe at intervals between 110 and 453 ft.[1/]
502	-- Vogt	P. Wendt	1964	190?	4	Ev	285	56.9	Dec. 17, 1965	T,E	Irr	Reported irrigates lawns and fills pond.
601	Frank Tipp	do	1961?	136	4	Ev	263	66.7	do	T,E	D	
602	-- Kollatschny well 1	The Texas Co.	1949	11,027	--	--	255	--	--	--	--	Oil test.[2/]
* 801	A. Konesheck	--	1910?	74	4	Ev	262	51.5	Dec. 17, 1965	J,E	D	Bored well. Screen from 70 ft to bottom. Temp. 66°F.
901	E. J. Bubak	P. Wendt	1963	200?	4	Ev	215	25.6	Dec. 21, 1965	T,E	D	
* 15-101	B. W. Popnoe	Floyd Blakely	1964	164	4	Ev	243	109.0	Jan. 14, 1966	T,E	D	Screen from 160 ft to bottom. Temp. 67°F.[1/]
201	C. W. Schroeder	J & S Well Service	1956?	120?	4	Ev	168	45.5	do	T,E	D	
202	do	P. Wendt	--	36	4	Ev	162	7.0	do	J,E	D,S	

See footnotes at end of table.

Table 5.--Records of wells and test holes in Austin and Waller Counties and adjacent areas--Continued

Austin 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
AP-66-15-301	--	--	--	--	4	Ev	132	18.1 17.6	Apr. 14, 1964 Jan. 14, 1966	C,W	S	Shallow well.
302	Carl Slolarski	--	1954	90	3	Ev	161	70	1954	J,E	D,S	
401	J. K. Hillboldt	J & S Well Service	1956?	150?	4	Ev	263	109	Jan. 1966	T,E	S	
501	-- Sens	--	--	60	24?	Ev	240	16.7	Jan. 14, 1966	C,E	D,S	Dug well. Reported open end casing finish. Old well.
601	W. Pechance	J & S Well Service	1963	75?	4	Ev	186	19.6	do	T,E	D	
602	Meyer Estate well 1	H. L. Dillon, Jr.	1961	4,134	--	--	171	--	--	--	--	Oil test.2/
701	Shell Oil Co.	--	--	--	4	Ev	203	--	--	T,E	Ind	
702	Hintz Unit well 2	Shell Oil Co.	1960	10,653	--	--	205	--	--	--	--	Oil test.2/
703	Kulow-Bielefeld unit well 1	Scurlock Oil Co.	1961	10,225	--	--	227	--	--	--	--	Do.
704	Ida Bielefeld well 1	British-American Oil Producing Co.	1958	6,415	--	--	255	--	--	--	--	Do.
801	W. A. Virnau	--	1964	350?	--	Ev	197	53.3	Feb. 18, 1966	T,Ng	Irr	Measured discharge 1,176 gpm on May 13, 1965; 1,080 gpm on June 16, 1965; 1,104 gpm on Aug. 10, 1965; and 1,102 gpm on Sept. 8, 1965.
802	D. C. Hillboldt well 1	Shell Oil Co.	1958	10,884	--	--	200	--	--	--	--	Oil test.2/
901	City of Sealy well 5	Layne-Texas Co.	1956	600	16, 10	Ev	203	75.8	Jan. 17, 1966	T,E	P,-	Casing: 16-in. to 160 ft, 10-in. from 160 ft to bottom. Screen from 233 to 266, 300 to 329, and 388 to 449 ft. Gravel-packed. Pump set at 200 ft. Reported to pump 614 gpm.1/ 2/
* 902	City of Sealy well 3	do	1930	304	10, 8	Ev	204	81.8 77.5	Dec. 17, 1936 Jan. 17, 1966	T,E, 15	P	Screen from 245 to 268 and 277 to 301 ft. Gravel-packed. Reported to pump about 200 gpm.1/ 3/
903	City of Sealy well 4	do	1945	411	10-3/4, 8-5/8	Ev	204	71	1948	T,E	P	Casing: 10-3/4 in. to 251 ft, 8-5/8 in. from 251 ft to bottom. Screen from 251 to 267 and 284 to 315 ft. Straight-wall well. Measured pumping level of 127 ft after pumping 134 gpm for 75 minutes.1/
16-106	C. A. Mervis	--	--	65	3	Qal	135	31.5	Apr. 13, 1964	N	N	Abondoned.
* 405	State of Texas	Pomykal Drilling Co.	1965	102	4	Ev	150	--	--	T,E	P	Screen from 95 ft to bottom. Temp. 72°F.1/

See footnotes at end of table.

Austin 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
AP-66-16-406	Lillie Balkey well 1	McKeen Oil Co.	1960	7,958	--	--	153	--	--	--	--	Oil test.[2]
701	Edgar Frank	-- Frank	1958	142	4	Ev	156	50	1958	J,E	D	Screen from 130 ft to bottom. Pump set at 63 ft.
801	V. L. Boyd	--	--	100	1-1/2	Ev	142	46.3	Apr. 14, 1964	N	N	
803	--	--	--	46?	3	Qal	128	39.9	do	N	N	
805	Felix Sowa well 1	Magnolia Petroleum Co.	1949	9,980	--	--	148	--	--	--	--	Oil test.[2]
* 22-301	W. A. Ferris	Katy Drilling Co.	1948	752	26, 20	Ev	206	69.1	July 29, 1956	T,G	Irr	Measured discharge 1,557 gpm on June 16, 1965, and 1,592 gpm on Sept. 1, 1965. 370 ft of slotted pipe from 80 to 752 ft. Pump set at 140 ft. Measured pumping level 154 ft on July 29, 1955 while pumping 1,525 gpm. Temp. 74°F.[3]
303	E. Ludwid	P. Wendt	1964	70?	4	Ev	213	30.5	Dec. 21, 1965	C,W	S	
601	Gene Beckendorf	Gend Beckendorf	1942	401	20, 12	Ev	198	15 29.4 31.8	1942 Jan. 13, 1960 Feb. 14, 1966	T,G, 110	Irr	Measured discharge 1,537 gpm on May 12, 1965.
602	do	Katy Drilling Co.	1966	1,255	20, 12-3/4	Ev	198	35.5	Feb. 25, 1966	T,G	Irr	Gravel-packed.[1]
23-101	W. A. Ferris	do	1954	622	20, 12	Ev	208	35.5 75.5 38.9	Mar. 21, 1956 May 12, 1965 Feb. 14, 1966	T,G	Irr	Cased to bottom. 437 ft of slotted pipe. Gravel-walled. Measured discharge 1,794 gpm on June 16, 1965; 1,770 gpm on Sept. 1, 1965.[1] [3]
* 102	--	do	1956	598	20, 12	Ev	197	41.6	Feb. 14, 1966	T,Ng	Irr	Cased to bottom. 423 ft of slotted pipe. Measured discharge 1,712 gpm on June 16, 1965.[1]
* 201	W. A. Virnau	Layne-Texas Co.	1944	941	20, 12-3/4	Ev	197	36 45.3	May 1944 Feb. 26, 1962	T,Ng	Irr	Slotted from 182 to 206, 210 to 407, 465 to 501, 644 to 681, 693 to 709, and 718 to 902 ft. Measured discharge 1,288 gpm on May 12, 1965; 1,263 gpm on June 16, 1965; 1,212 gpm on Aug. 10, 1965; and 1,158 gpm on Sept. 8, 1965. Temp. 73°F.[3]
* 202	Ralph Bollinger	Katy Drilling Co.	1947	1,326	--	Ev	188	36.7 42.7	Mar. 21, 1956 Feb. 18, 1966	T,Ng	Irr	Reported sulfur in water between 1,100 and 1,300 ft when drilled. Measured discharge 1,350 gpm on May 12, 1965; 1,410 gpm on June 16, 1965; 1,294 gpm on Aug. 10, 1965; and 1,322 gpm on Sept. 8, 1965. Temp. 79°F.[2] [3]

See footnotes at end of table.

Table 5.--Records of wells and test holes in Austin and Waller Counties and adjacent areas--Continued

Austin 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
AP-66-23-203	Ralph Bollinger	Ray Wood	1943	400	--	Ev	182	52.8 43.8	July 29, 1955 Feb. 9, 1966	T,G	Irr	Measured discharge 503 gpm on June 16, 1965.[3]
204	do	L. Mickelson	1964	620	--	Ev	181	--	--	T,Ng	Irr	Measured discharge 1,521 gpm on May 13, 1965; 1,486 gpm on June 16, 1965; 1,243 gpm on Aug. 10, 1965; and 1,261 gpm on Sept. 8, 1965.[1]
* 205	Sammy Cass	P. Wendt	1960	116	3	Ev	200	47	1960	J,E	D,S	Screen from 106 ft to bottom.
206	J. K. Hillboldt well 1	Mound Co.	1959	10,850	--	--	197	--	--	--	--	Oil test.[2]
* 301	Henry Reznick	Leon Nahler	1964	120	--	Ev	175	--	--	T,E	D	
401	C. R. & J. England	--	1945	905	18, 12	Ev	190	33.9 37.8	Mar. 21, 1956 Feb. 17, 1966	T,G	Irr	Slotted from 60 to 190, 220 to 250, 270 to 290, 320 to 390, 480 to 540, 560 to 590, and 650 to 700 ft. Measured discharge 1,760 gpm on June 16, 1965.[3]
* 402	Charlie Kaechele	A. H. Justman	1951	890	24, 12	Ev	187	29.2 32.7	Mar. 21, 1956 Feb. 23, 1966	T,G	Irr	Casing: 24-in. to 234 ft; 12-in. from 234 to 890 ft. Gravel-walled. Measured discharge 2,015 gpm on May 13, 1965; 1,860 gpm on July 13, 1965. Temp. 74°F.[1] [3]
403	do	Humble Oil & Refining Co.	1962	12,000	--	--	164	--	--	--	--	Oil test.[2]
502	A. L. Carter	J & S Well Service	1955	138	--	Ev	160	--	--	T,G	Irr	Reported discharge 250 gpm. Small well.
503	Charles Moek well 1	Mound Co.	1955	2,700	--	--	167	--	--	--	--	Oil test.[2]
601	Charles Tomlinson	F. Hammer	1959	143	12	Ev	157	45	Feb. 1966	C,W	S	Reported supplied water for irrigation of peanuts.
* 602	Alois Sodolak	P. Wendt	1964	120	4	Ev	162	40.0	Feb. 18, 1966	C,W	S	Cased to 100 ft; open hole from 100 ft to bottom. Temp. 71°F.
801	Charles Kaechele	Katy Drilling Co.	1957	822	18, 12	Ev	158	30 27.9	Jan. 1957 Feb. 2, 1966	T,G, 150	Irr	Casing: 18-in. to 310 ft; 12-in. from 310 ft to 822 ft. 675 ft slotted pipe. Measured discharge 1,457 gpm on June 16, 1965; 1,388 gpm on July 13, 1965.[1]
802	do	Superior Oil Co.	1952	9,000	--	--	156	--	--	--	--	Oil test.[2]
803	C. S. Hillboldt well 1	Humble Oil & Refining Co.	1947	7,102	--	--	156	--	--	--	--	Do.
901	J. F. Johnson	Katy Drilling Co.	1948	556	--	Ev	152	33.5 31.7	Mar. 21, 1956 Apr. 2, 1958	N	N	Abandoned and destroyed.[1]

See footnotes at end of table.

Austin 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
*AP-66-23-902	J. F. Johnson	Katy Drilling Co.	1960?	556	--	Ev	152	35	Mar. 1963	T,E	Irr	Measured discharge 2,019 gpm on May 13, 1945; 1,900 gpm on June 16, 1965; 1,995 gpm on Sept. 1, 1965, and 1,995 gpm in Sept. 1965. Deep well. Temp. 73°F.
24-101	H. Billig	B & D Drilling Co.	1956	210?	5	Ev	117	14.1	June 18, 1965	T,G	Irr	Measured discharge 254 gpm on July 22, 1965. Reported used in irrigation of row crops.
102	do	Norman Ginn	1957	210?	12	Ev	105	11.9 12.2	June 18, 1965 Feb. 17, 1966	T,G	Irr	
202	F. Ward	--	--	40	3	Qal	117	32.0	Apr. 14, 1964	N	N	
203	Joe Siska	--	1926	70	4	Ev	143	62	1965	C,W,H	D	Screen from 62 ft to bottom.
401	H. Billig	B & D Drilling Co.	1956	65	8	Qal	99	5.0 3.7	Apr. 15, 1964 June 17, 1965	Cf,G	Irr	
402	-- Kolodziejczyk	--	--	20?	8	Qal	103	7.3	Apr. 15, 1964	Cf,G	Irr	Reported small supply well.
501	Virgil Gordon	Norman Ginn	1955	108?	8	Qal	110	28.3 21.5 24.6	Apr. 14, 1964 June 18, 1965 Feb. 17, 1966	T,G	Irr	Measured pumping level 38.7 ft on July 22, 1965 after pumping 2 hours at 964 gpm. Reported used to irrigate pasture and row crops.
502	-- York	do	1956	200?	10	Ev	98	--	--	T,G	Irr	Reported seldom used.
504	--	--	--	--	3	Qal	105	24.1	Apr. 15, 1964	C,W	S	Reported shallow well.
603	--	--	--	--	4	--	110	33.5	Apr. 14, 1964	Cf,E	D,S	
701	R. Sarbsula	W. Gallie	--	85	3	Ev	136	--	--	J,E	D	
702	F. Uhyrek well 1	Southern Natural Gas Co.	1961	13,019	--	--	138	--	--	--	--	Oil test.[2]
* 801	City of Wallis	Katy Drilling Co.	1957	610	12, 7	Ev	125	44 38.0 41.6	Oct. 1957 Oct. 14, 1959 Jan. 20, 1966	T,E	P	Casing: 12-in. to 429 ft, 7-in. from 429 to 610 ft. Screen from 431 to 433, 474 to 502, and 586 to 606 ft. Gravel-packed from 425 to 609 ft. Pump set at 100 ft. Estimated discharge 350 gpm on Jan. 20, 1965. Temp. 68°F.[1] [2]
* 802	Joe Blazek	-- Sommers	1933	96	2	Ev	132	--	--	C,W	D	Temp. 70°F.
32-102	W. S. Kilroy	P. Patterson, Inc.	1964	618	18	Ev	128	35.9	Feb. 17, 1966	T,G	Irr	Pump set at 240 ft. Reported discharge 2,200 gpm.[1]

See footnotes at end of table.

Table 5.--Records of wells and test holes in Austin and Waller Counties and adjacent areas--Continued

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
						Waller County						
YW-59-55-601	A. A. Reichardt	--	1955	64	18	Qal	168	24.4 24.1	June 13, 1963 Jan. 3, 1966	N	N	Reported not used recently. Probably could be used again.
602	Solomon D. David	J & S Well Service	1954	396	6	Ev	168	+	Jan. 3, 1966	Flows	S	Reported flowed in 1959.
* 603	A. A. Reichardt	do	1964?	106	3	Ev	215	41	1964	-,E	D,S	Screen from 91 ft to bottom. Temp. 68°F.
* 604	do	P. Falkenberry	1950?	178	3	Ev	197	--	--	T,E	S	Temp. 66°F.
* 605	Duane Sheridan	--	1963	60	4	Qal	170	35 39.2	1963 Jan. 31, 1966	C,W	S	Temp. 68°F.
803	W. J. Looks	P. Falkenberry	1957	80?	18	Qal	158	31	1956	N	N	Screen from 56 ft to bottom.
807	Texas Highway Department	Texas Highway Department	1953	75	--	Qal	159	--	--	N	N	Test hole.1/
901	W. J. Looks	P. Falkenberry	1955	481	6	Ev	161	+	Jan. 3, 1966	Flows	S	Screen from 465 to 480 ft.
903	A. M. Askew	-- Sowder	1959	170?	12	Ev	159	21.4 10.4 11.7	Aug. 16, 1963 June 17, 1965 Jan. 3, 1966	T,G	Irr	Measured discharge 466 gpm on July 23, 1964. Perforated from 141 to 167 ft.
* 904	do	do	1959	350?	12	Ev	160	40 10.4 11.5	1959 June 16, 1965 Jan. 3, 1966	T,G	Irr	Measured discharge 379 gpm on July 23, 1964. Perforated from 320 ft to bottom.
905	C. Wilson	--	1956	56	18	Qal	155	26.6 24.7	June 14, 1963 Jan. 3, 1966	N	N	Reported unused in several years. Casing caved.
908	Dan W. Ansler	P. Falkenberry	--	175?	4	Ev	182	44.2	Jan. 3, 1966	T,E	S	
909	U.S. Geological Survey	U.S. Geological Survey	1963	22	--	Qal	173	--	--	N	N	Test hole.1/
910	do	do	1963	64	--	Qal	159	23.9	Dec. 10, 1963	N	N	Do.
911	do	do	1963	65	--	Qal	161	30.1	do	N	N	Do.
56-102	L. F. Rothermal	P. Falkenberry	1957	73	14	Qal	172	35.8 28.1	June 5, 1964 June 17, 1965	T,G	Irr	Reported to irrigate pasture.
* 103	Mrs. R. H. Goodrich	do	1957	850?	4	J?	170	+	Feb. 1, 1966	Flows	S,Irr	Reported flow 125 gpm. Screen from 790 ft to bottom. Temp. 80°F.
201	do	do	1955	850?	4	J?	170	+	do	Flows	S,Irr	Estimated flow 100 gpm on Feb. 1, 1966. Screen from 790 ft to bottom.

See footnotes at end of table.

Table 5.--Records of wells and test holes in Austin and Waller Counties and adjacent areas--Continued

Waller 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
YW-59-56-202	Mrs. R. H. Goodrich	P. Falkenberry	1954	850?	4	J?	185	+	Feb. 1, 1966	Flows	S,Irr	Measured flow 81 gpm on Feb. 1, 1966. Screen from 790 ft to bottom.
* 204	F. H. Heise	do	1959	147	4	Ev	244	73.4	Jan. 28, 1966	T,E	D,S	Screen from 137 ft to bottom. Temp. 67°F.
401	A. L. Seets	do	1956	318	4	Ev	265	105	1959	T,E	D,S	Screen from 298 ft to bottom.
402	G. A. Chapman well 1	Shell Oil Co.	1961	20,800	--	--	235	--	--	--	--	Oil test.[2]
* 501	Mrs. H. C. Stephens	Gratehouse Bros.	1945	379	4	Ev	245	78.2 95.0	May 12, 1949 Feb. 1, 1966	T,E	D,S	
801	Solomon David	--	--	--	4	Ev	258	78.0	Jan. 28, 1966	T,E	D,S	
802	--	--	--	42	30	Ev	265	36.6	do	N	N	Unused; reported unsafe for domestic use. Dug well.
803	Solomon David well well 1	Nelson & Edward Morris	1955	6,000	--	--	220	--	--	--	--	Oil test.[2]
901	E. L. Scheffer	P. Falkenberry	1963	238	4	Ev	272	86.8	Jan. 27, 1966	T,E	D	
902	Kelly & McMillian	J & S Well Service	1963	220	4	Ev	255	59.0	Jan. 28, 1966	T,E	D	Screen from 190 to 200 ft. Pump set at 180 ft.
903	R. C. McDade well 1	Sinclair Oil & Gas Co.	1956	10,982	--	--	264	--	--	--	--	Oil test.[2]
904	-- Kelly well 1	-- Blumenthal	1937	4,785	--	--	260	--	--	--	--	Do.
63-201	A. M. Askew	--	1959	167	14	Ev, Qal?	159	40 27.0 16.1 16.5	1959 June 14, 1963 June 16, 1965 Jan. 3, 1966	T,G	Irr	
202	do	--	1959	87	12	Qal	160	29.1 31.8 23.9 23.8	June 14, 1963 Apr. 6, 1964 June 17, 1965 Jan. 3, 1966	T,G	Irr	Perforated from 41 to 67 ft.
203	do	--	1951	750?	8	J	159	+	Jan. 3, 1966	Flows	S	
301	-- Giddings well 1	H. E. Williams	1937	4,409	--	--	1963	--	--	--	--	Oil test.[2]
302	J. J. Menke well 1	Floyd L. Karsten	1946	10,003	--	--	209	--	--	--	--	Do.
601	J. Jones	--	--	80	4	Qal	153	35.3 31.8	Apr. 6, 1964 Jan. 11, 1966	C,W	S	

See footnotes at end of table.

Table 5.--Records of wells and test holes in Austin and Waller Counties and adjacent areas--Continued

Waller 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
YW-59-63-602	J. Jones	P. Falkenberry	1964	95	12	Qal	150	34.3 19.9 28.2	Apr. 6, 1964 June 17, 1965 Jan. 11, 1966	T,G	Irr	Pump set at 80 ft.
603	do	J. Siegert Drilling Co.	1964	90	4	Qal	151	39.1	Apr. 6, 1964	N	S	
604	do	--	--	400?	4	Ev	235	37.5 40.3	Aug. 3, 1965 Jan. 11, 1966	T,E	D	
64-101	Jack W. Frazier	Jack W. Frazier	1943	5,036	--	--	222	--	--	--	--	Oil test.[2]
201	City of Hempstead well 3	Texas Water Wells Inc.	1956	728	14	Ev	235	94 90 93.5	1956 Mar. 1963 Jan. 10, 1966	T,E	P	Screen from 476 to 516, 634 to 664, and [illegible] to 724 ft. Pump set at 160 ft. Measured pumping level 125.9 ft on Jan. 10, 1966 after pumping 246 gpm for 2-1/2 hours. Temp. 80°F.[1,2]
* 202	City of Hempstead well 2	Layne-Texas Co.	1939	745	10, 5-1/2	Ev	235	56 90 91.7	Feb. 1939 Mar. 1963 Jan. 10, 1966	T,E	P	Screen from 487 to 515 and 669 to 709 ft. Pump set at 160 ft. Measured discharge 318 gpm on Jan. 10, 1966. Temp. 80°F.[1]
* 203	City of Hempstead well 1	do	1928	868	10, 8, 6	Ev	235	50.6 55.4 76.2	Feb. 2, 1938 Oct. 24, 1938 Nov. 4, 1948	N	N	Abandoned and destroyed. Screen from 482 to 514 and 681 to 716 ft. Formally called city well 1.[1]
204	City of Hempstead	--	1900?	1,100	--	Ev, B?	235	+ 3.8	1927 Feb. 2, 1938	Flowed, N	N	Destroyed. Reported stopped flowing in 1928.[3]
205	E. D. Sorsby well 1	Kirby-Southworth Drilling Co.	1956	6,010	--	--	201	--	--	--	--	Oil test.[2]
301	American Legion Club	Big State Water Wells, Inc.	1950	592	--	Ev	235	99.1	Jan. 26, 1966	T,E	P	[2]
302	J. Hollyfield	J & S Well Service	--	78?	4	Ev	263	42.1	do	T,E	D,S	
303	T. J. Day well 1	Cerro De Pasco & C & S Oil Co.	1956	6,020	--	--	231	--	--	--	--	Oil test.[2] [3]
401	-- Rossi	Pomykal Drilling Co.	1965	89?	4	Ev	203	43.5	Jan. 27, 1966	T,E	D,S	Screen from 77 to 87 ft.
501	Billy Di Ioria	P. Falkenberry	1957	72?	18	Ev	232	48 50.4 50.5	1959 July 1, 1965 Jan. 27, 1966	T,G	Irr	Reported supplied water for irrigation of crops and vegetables.
502	Boyd Mullen	--	1959	185	4	Ev	215	64.6	Jan. 26, 1966	T,E	S	
503	do	--	--	73	4	Ev	215	54.5	do	N	N	
601	F. T. Baethe	G. Petry	1957	182	--	Ev	234	68.8	Jan. 27, 1966	T,E	D,S	Screen from 172 ft to bottom.

See footnotes at end of table.

Table 5.--Records of wells and test holes in Austin and Waller Counties and adjacent areas--Continued

Waller 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
YW-59-64-602	J. J. Menke well 1	Sumas Production Co.	1937	5,092	--	--	232	--	--	--	--	Oil test.[2]
702	T. G. Trammell	J & S Well Service	--	122	4	Ev	178	34.2	Jan. 27, 1966	T,E	D	Screen from 117 ft to bottom.
703	do	P. Falkenberry	1952	396	4	Ev	178	37.2	do	N	N	Screen from 386 ft to bottom. Reported water has gas odor.
801	Diemer Fife well 1	E. J. Gray & Black Bear Consolidated Mining Co.	1959	9,510	--	--	160	--	--	--	--	Oil test.[2]
802	Mildred Hardy Taggart well 1	L. D. French	1956	8,280	--	--	153	--	--	--	--	Do.
*901	M. A. Dodd	Katy Drilling Co.	--	900?	--	Ev	193	72.8 53.1	Aug. 31, 1965 Feb. 22, 1966	T,G	Irr	Measured discharge 1,239 gpm on June 14, 1965. Temp. 72°F.
902	do	Roy Turner	--	1,000	26	Ev	198	56.6 44.1	Aug. 31, 1965 Feb. 22, 1966	N	N	Abandoned. Old well.
903	-- Menke	P. Falkenberry	1951	83	4	Ev	179	10	Aug. 1951	T,E	D	[1]
904	do	do	1960	116	4	Ev	168	21	1960	T,E	S	
905	C. M. Menke well 1	H. L. Hunt	1948	8,012	--	--	225	--	--	--	--	Oil test.[2]
*60-49-201	Mrs. W. F. Cook	C. Petry	1941	218	4	Ev	303	50 45.0	Mar. 1949 Feb. 2, 1966	N	N	Screen from 208 ft to bottom. Temp. 73°F.
202	Corrine Connell well 1	J. M. Huber Corp.	1962	6,015	--	--	293	--	--	--	--	Oil test.[2]
401	A. Mellman	J & S Well Service	1965	100	4	Ev	301	53	Aug. 1965	-,E	D,S	
402	Jet Oil Producers	--	1951?	400	4	Ev	283	134.2	Feb. 1, 1966	N	N	Formerly used to supply water for drilling oil test.
403	D. W. Wallace	--	1956?	650?	6	Ev	321	166.9	do	T,G	Irr	Reported small supply. Used very little for pasture irrigation.
404	M. O. Sledge Unit well 1	Brazos Oil & Gas Co.	1952	11,008	--	--	282	--	--	--	--	Oil test.[2]
501	C. O. Beeler	--	--	600?	6	Ev	266	121.1	Feb. 2, 1966	T,E	Irr,D	Estimated discharge 350 gpm.
*502	W. W. Bunting	W. J. Swinehart	1944	66	--	Ev	275	34.8	do	T,E	D,S	Screen from 60 ft to bottom. Temp. 80°F.
601	W. M. Rice Institute well 1	Starr Oil & Gas Co.	1955	6,222	--	--	283	--	--	--	--	Oil test.[2]

See footnotes at end of table.

Table 5.--Records of wells and test holes in Austin and Waller Counties and adjacent areas--Continued

Waller 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
*YW-60-49-701	E. E. Leverkuhn	--	1954	212	4	Ev	318	152	1954	T,E	D	Reported water rusts pipes, stains, and tastes bad. Temp. 68°F.
801	G. T. Bundick	--	1964	598?	--	Ev	283	49.5	Feb. 2, 1966	T,E	Irr	Reported discharge 300 gpm.
802	do	--	--	131	3	Ev	279	45.7	do	N	N	
803	Steger well 1	C. W. Weaver	1954	6,193	--	--	300	--	--	--	--	Oil test.[2]
* 901	Johnson Lumber Co.	W. J. Swinehart	1948	111	4	Ev	304	75 83.5	May 1949 Feb. 2, 1966	T,E	D	Temp. 76°F.
50-101	Rice Institute well 1	J. Bryan Eby	1937	5,043	--	--	275	--	--	--	--	Oil test.[2]
201	H. Phillips	--	1964	175	4	Ev	290	95	1964	A,E	D	Screen from 166 ft to bottom.
401	Urban Estate well 1	Diadem Oil Co.	--	4,905	--	--	267	--	--	--	--	Oil test.[2]
501	South Texas Development Co.	W. C. Dunlap, Jr. & F. S. Crockett	1955	6,310	--	--	275	--	-- --	--	--	Do.
* 701	A. L. Hosmer	F. Emhoff	1945	75?	4	Ev	271	--	--	J,E	S	Temp. 73°F.
702	do	C. Petry	1964	136	4	Ev	265	47.5	Feb. 2, 1966	T,E	D,S	Screen from 126 ft to bottom.
* 703	L. A. Hoover	do	1963	94	4	Ev	248	56.7	Feb. 3, 1966	T,E	D	Screen from 88 ft to bottom. Temp. 69°F.
801	Lakeview Club	do	1957	670	--	Ev	230	104.3	Feb. 2, 1966	T,E	P	Pump set at 180 ft.
802	I. B. Snow	do	1957	673	--	Ev	243	--	--	T,E	D,S	Screen from 340 to 360 and 653 to 673 ft. Pump set at 220 ft.
* 57-101	Prairie View A & M College well 4	Layne-Texas Co.	1955	570	14, 8	Ev	257	--	--	T,E	P	Casing: 14-in. to 398 ft, 8-in. from 398 to 570 ft. Screen from 404 to 419, 459 to 515, and 538 to 559 ft. Gravel-packed. Pump set at 270 ft. Measured discharge 547 gpm on Jan. 28, 1966. Original test hole drilled to 1,100 ft; plugged back to 570 ft. Temp. 75°F.[1] [2]
* 103	Prairie View A & M College well 3	do	1930	576	12, 10	Ev	276	117 143.1 171 168.2	1930 Nov. 4, 1948 July 1964 Jan. 28, 1966	T,E, 50	P	
* 104	Prairie View A & M College well 2	do	1920	571	6	Ev	274	180	Nov. 1948	T,E, 25	P	Screen from 519 to 529 and 550 to 571 ft. Reported discharge 200 gpm.[1]
105	Prairie View A & M College	--	--	600?	--	--	278	--	--	N	N	Abandoned. Old well.

See footnotes at end of table.

Waller 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
YW-60-57-106	Charles Flukinger	W. J. Swinehart	1923?	176	4	Ev	275	56.7	Jan. 26, 1966	T,E	D,S	Screen from 166 ft to bottom.[1]
401	L. Wilson	C. Petry	--	100?	4	Ev	260	54.1	do	T,E	D	
505	City of Waller well 1	Texas Water Wells Inc.	1950	603	10-3/4, 6-5/8	Ev	248	100	1950	T,E, 40	D	Casing: 10-3/4 in. to 450 ft; remainder 6-5/8 in. Screen from 450 to 483 and 495 to 530 ft. Pump set at 270 ft. Reported pumping level 250 ft in 1950 while pumping 300 gpm.[1] [2]
* 506	City of Waller well 2	Layne-Texas Co.	1962	558	10-3/4, 6-5/8	Ev	250	119.9	Jan. 26, 1966	T,E	P	Casing: 10-3/4 in. to 412 ft; 6-5/8 in. 146 ft. Screen from 420 to 485, 505 to 515, and 540 to 545 ft. Pump set at 300 ft. Reported discharge 350 gpm. Temp. 73°F.[1] [2]
507	A. Shields	W. J. Swinehart	1951?	315	--	Ev	266	--	--	T,E	Ind, D,S	Reported discharge 75 gpm.
508	Mrs. G. O. Vaught	--	--	30	12	Ev	245	17.4 19.4	June 16, 1960 Sept. 17, 1965	T,E	D	[3] -
701	C. L. Haley	C. Petry	1956?	222	3	Ev	257	97	1956	Cf,E	D,S	
702	do	do	1956	73	4	Ev	260	38 37.3	1956 Jan. 25, 1966	C,W	S	[1]
801	W. C. Boland	--	--	60	3	Ev	242	30	1964	T,E	D,S	Screen from 52 ft to bottom.
802	H. L. Williams	Bud Rheman	1962	274	3	Ev	250	80	1962	Cf,E	D	Screen from 263 ft to bottom. Pump set at 120 ft.
58-101	-- Hamil well 1	P. Flakenberry	1950	208?	--	Ev	237	--	--	T,E	D,S	Reported discharge 175 gpm.
102	-- Hamil well 2	do	1953	800?	4	Ev	233	--	--	T,E	D	Reported screen from 780 ft to bottom. Mesured discharge 61 gpm on June 30, 1965.
103	-- Hamil well 3	McMasters & Pomeroy	1955	1,200?	6, 4, 3	Ev	234	--	--	T,E	Irr	Measured discharge 205 gpm on June 30, 1965.
104	Tennessee Gas & Transmission Co.	do	1951	713	8	Ev	235	--	--	T,E, 7-1/2	P	Screen from 592 to 640 and 680 to 713 ft. Reported discharge 100 gpm.[1]
* 105	do	do	1955	715	10	Ev	256	134.5	Feb. 3, 1966	T,E, 25	Irr	Screen from 624 to 706 ft. Measured discharge 202 gpm on June 30, 1965.[1]
106	R. Robertson	J. C. Bland	--	196?	8	Ev	243	75.3	do	T,E	Irr,S	Measured discharge 143 gpm on June 30, 1965; and 189 gpm on Feb. 3, 1966. Slotted from near surface to 190 ft.
* 107	--	J. H. Turpin	1925	40	36	Ev	254	4.5	May 10, 1949	N	N	Destroyed. Temp. 73°F.

See footnotes at end of table.

Table 5.--Records of wells and test holes in Austin and Waller Counties and adjacent areas--Continued

Waller 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
YW-60-58-201	Cameron Iron Works Club	P. Falkenberry	1955	400?	6	Ev	258	87.7 93.2 89.2	Dec. 11, 1959 June 30, 1965 Feb. 3, 1966	T,E	P	
202	do	A & L Pump Service	1963	177	1-1/2	Ev	255	74 80	Jan. 1963 July 1965	T,E	D	Screen from 167 ft to bottom.[1]
* 203	M. Hart	Gratehouse Bros.	1946	300	4	Ev	261	72	1946	T,E	D,S	Temp. 74°F.
204	-- Dinkins well 1	D. B. McDaniels	1936	6,898	--	--	257	--	--	--	--	Oil test.[2]
65-01-101	M. A. Dodd	Katy Drilling Co.	1952	939	20, 12-3/4	Ev	205	40.8	Feb. 14, 1966	T,G	Irr	Casing: 20-in. to 280 ft, 12-3/4 in. from 280 to 939 ft. Gravel-packed. 794 ft of slotted casing. Unused in recent years. Water reported mineralized and poor for irrigation.[1]
102	-- Menke	P. Falkenberry	1950	109	4	Ev	223	60 75.5	1950 Jan. 27, 1966	C,W	S	
103	J. G. McCrary	--	1952?	65?	4	Ev	241	49.5	Feb. 22, 1966	J,E	D	
201	Sky Lakes Addition	--	--	--	--	Ev	232	--	--	T,E	P	Originally used to supply water for housing development. Not used much now.
* 202	J. V. Rochen	--	1930	85	4	Ev	236	41.5 48.8	Mar. 18, 1949 Feb. 22, 1966	C,W	D,S	
306	-- Tucker	--	--	--	--	Ev	196	--	--	T,G	Irr	Reported supplies water for pond.
307	John Staman	C. Petry	1965	120	4	Ev	216	20.6	Feb. 22, 1966	T,E	S	
401	A. A. Pfeffer & Sons	A. H. Justman	1950	1,177	20, 12-3/4	Ev, B	217	109.2 95.2	May 5, 1965 Feb. 14, 1966	T,Ng	Irr	Casing: 20-in. to 240 ft, 12-3/4 in. from 249 to 1,177 ft. Pump set at 200 ft. Measured discharge 1,320 gpm on May 26, 1965; and 1,052 gpm on Aug. 11, 1965.
402	do	Katy Drilling Co.	1959	804	16, 12	Ev	213	116 96.8	May 1965 Feb. 14, 1966	T,Ng	Irr	Casing: 397 ft of 16-in.; 409 ft of 12-in.; 636 ft of perforations from 170 ft to 806 ft. Gravel-packed. Pump set at 240 ft. Measured pumping level 167.8 ft on May 5, 1965.
* 403	do	do	1951	824	24, 16, 12	Ev	213	120.3 97.4	May 5, 1965 Feb. 14, 1966	T,Ng	Irr	Casing: 260 ft of 24-in., 300 ft of 16-in., 264 ft of 12-in. Gravel-packed. Pump set at 240 ft. Measured pumping level 187.6 ft on May 6, 1965, pumping 3-1/2 hours at 1,141 gpm. Measured discharge 1,588 gpm on Aug. 11, 1965. Temp. 75°F.[1]
404	do	do	--	618	8, 6	Ev	211	--	--	T,J,E	D	Casing: 8-in. to 428 ft, 6-in. from 428 to 618 ft. Pump set at 112 ft. Screen from 498 to 532, and 593 to 618 ft.

See footnotes at end of table.

Table 5.--Records of wells and test holes in Austin and Waller County and adjacent areas--Continued

Waller 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
*YW-65-01-405	A. A. Pfeffer & Sons	Ray Wood	1940	846	24, 12-3/4	Ev	213	66.6 93.7	Jan. 22, 1941 Feb. 14, 1966	T,Ng	Irr	Casing: 24-in. to 175 ft, 12-3/4 in. from 175 to 846 ft, 550 ft of slotted pipe between 50 and 838 ft. Pumping level below 155 ft while discharging 804 gpm on Aug. 11, 1965. Temp. 76°F.[1/] [3/]
406	Pfeffer	Pfeffer & Hogue	1957	7,482	--	--	213	--	--	--	--	Oil test.[2/]
* 501	Lynn Hebert	Katy Drilling Co.	1951	842	24, 16, 12, 10	Ev	188	46.3 72.3	Nov. 14, 1951 Mar. 10, 1966	T,E, 150	Irr	Casing: 240 ft of 24-in., 104 ft of 16-in., 373 ft of 12-in., 125 ft of 10-in. 722 ft slotted. Gravel-packed. Reported pump set at 160 ft. Pumping level below 157 ft on May 12, 1965, while pumping 2,400 gpm. Other measured discharges: 2,160 gpm on June 23, 1965; 2,028 gpm on July 19, 1965; 1,880 gpm on Aug. 19, 1965; 1,820 gpm on Sept. 8, 1965. Temp. 74°F.[3/]
* 502	do	Norman Ginn	1939	828	30	Ev	202	55.0 85.2	Mar. 15, 1941 Mar. 10, 1966	T,Ng	Irr	Reported pump set at 180 ft. Pumping level below 165 ft on June 23, 1965 while discharging 1,183 gpm. Temp. 75°F.[3/]
* 503	A. A. Pfeffer & Sons	Roy Turner	1945	845	20, 18, 12	Ev	212	61.8	Mar. 4, 1949	N	N	Casing: 250 ft of 20-in., 112 ft of 18-in., 210 ft of 12-in., remainder 10-in. Gravel-packed. Abandoned. Temp. 76°F.
504	C. Nelson	--	--	--	--	Ev	204	--	--	N	N	
601	Roy Southard	Katy Drilling Co.	1951	599	24, 12	Ev	186	--	--	T,E	N	Casing: 24-in. to 200 ft, 12-in. from 200 to 599 ft. Screen 349 ft. Gravel-packed. Unused well.
* 602	Clyde Nelson	do	1954	959	20, 12	Ev	174	--	--	T,E	Irr	Casing: 20-in. to 320 ft, 12-in. from 320 to 959 ft; 779 ft slotted. Gravel-packed. Pump set at 190 ft. Measured discharge 2,122 gpm on July 2, 1965; 2,065 gpm on Aug. 31, 1965. Temp. 73°F.[1/]
701	G. P. Nelson	do	1964	1,355	20, 12	Ev	190	85.3	Feb. 25, 1966	T,Ng	Irr	Casing: 20-in. to 464 ft, 12-in. from 464 to 1,355 ft; 1,112 ft slotted. Pump set at 300 ft. Measured discharge 2,727 gpm on Apr. 27, 1965; 3,510 gpm on June 22, 1965; 2,815 gpm on Aug. 10, 1965; 2,858 gpm on Aug. 30, 1965; 2,735 gpm on Sept. 8, 1965.
702	-- Muske well 1	Providence Oil Corp.	1939	6,607	--	--	160	--	--	--	--	Oil test.[1/]
703	Z. A. Peters well 1	R. O. Mangum, et al.	1954	8,022	--	--	172	--	--	--	--	Oil test.[1/] [2/]

See footnotes at end of table.

Table 5.--Records of wells and test holes in Austin and Waller Counties and adjacent areas--Continued

Waller 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
YW-65-01-801	W. R. Bollinger & Sons	Katy Drilling Co.	1949	1,330	20	Ev	202	84.8	Dec. 3, 1959	T,Ng	Irr	Measured discharge 682 gpm on May 5, 1965.
802	Perry Robertson	do	1959	1,030	24, 12, 8	Ev	191	--	--	T,Ng	Irr	Casing: 24-in. to 350 ft, 12-in. from 350 to 850 ft, 8-in. from 850 to 1,030 ft; 902 ft slotted. Gravel-packed. Original test hole drilled to 1,328 ft, plugged back to 1,030 ft. Measured discharge 1,540 gpm, June 25, 1965.1/
* 803	W. R. Bollinger & Sons	do	1954	1,330	20, 14, 10, 8	Ev	197	90 90.3 95.3	1954 Dec. 3, 1959 Feb. 14, 1966	T,Ng	Irr	Casing: 360 ft of 20-in., 460 ft of 14-in., 200 ft of 10-in., 310 ft of 8-in. 1,077 ft of slotted pipe, from 252 ft to bottom. Measured discharge 1,630 gpm on May 5, 1965; 2,510 gpm on May 27, 1965; 1,999 gpm on Aug. 12, 1965. Original test hole drilled to 1,345 ft; plugged back to 1,330 ft. Temp. 76°F.1/ 2/
804	George Nelson	A. H. Justman	1950	1,279	20, 12	Ev	189	82.3	Dec. 3, 1959	T,E	Irr	Casing: 20-in. to 313 ft, 12-in. from 313 to 1,279 ft. Pump set at 300 ft. Measured discharge 1,879 gpm on Apr. 27, 1965; 1,280 gpm on June 22, 1965; 1,145 gpm on Sept. 7, 1965.1/
* 805	do	Layne-Texas Co.	1945	1,670	24	Ev, B	191	34.6 81.5	Mar. 28, 1946 Mar. 10, 1966	T,Ng	Irr	Well drilled to 2,352 ft; plugged back to 1,670 ft. Measured pumping level 196.5 ft on Apr. 27, 1965 while pumping 936 gpm for 30 minutes. Other measured discharges: 1,051 gpm on May 17, 1965; 720 gpm on June 22, 1965; 473 gpm on Aug. 30, 1965; 473 gpm on Sept. 8, 1965. Pump set at about 300 ft. Temp. 80°F.2/ 3/
* 806	W. R. Bollinger	Ray Wood	1938	905	18, 12, 10, 8	Ev	195	72.7 74.6	Dec. 3, 1959 Mar. 10, 1966	N	N	Casing: 18-in. to 140 ft, 12-in. from 140 to 447 ft, 10-in. from 447 to 577 ft, remainder 8-in. Slotted pipe between 260 and 903 ft. Abandoned. Temp. 74°F.3/
* 807	George Nelson	A. H. Justman	1949	1,200	24	Ev	191	67.9 88.9	June 13, 1949 Feb. 15, 1966	T,E	Irr	Pump set at about 300 ft. Measured pumping level 221.6 ft on Apr. 27, 1965 while pumping 2,442 gpm. Other measured discharges: 2,245 gpm on June 22, 1965; 2,245 gpm on Aug. 10, 1965. Temp. 74°F.
808	Perry Robertson	do	1949	1,279	24, 12, 8	Ev	195	--	--	T,Ng	Irr	Casing: 24-in. to 240 ft, 12-in from 240 to 919 ft, remainder 8-in. Measured discharge 890 gpm on June 25, 1965.1/
809	J. Buller	P. Falkenberry	1951?	100?	4	Ev	198	65.6	Feb. 14, 1966	C,W	S	Reported water level declines during irrigation periods.

See footnotes at end of table.

Table 5.--Records of wells and test holes in Austin and Waller Counties and adjacent areas--Continued

Waller 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
*YW-65-01-810	George Nelson	Delta-Shurwell	1941	990	20, 13, 10-3/4	Ev	189	50	1941	N	N	Casing: 200 ft of 20-in., 306 ft of 13-in., 484 ft of 10-3/4 in.; 396 ft of slotted pipe from 74 to 990 ft. Well destroyed.
811	T. H. Hubbard well 1	F. A. Gillespie & Sons	1952	7,709	--	--	197	--	--	--	--	Oil test.[2]
812	do	J. S. Abercrombie	1948	7,515	--	--	205	--	--	--	--	Do.
813	J. W. Harris well 1	James R. Buck, et al.	1955	7,925	--	--	194	--	--	--	--	Oil test.[2] [3]
901	Perry Robertson	Katy Drilling Co.	1954	1,150	26, 12-3/4	Ev	186	--	--	T,G	Irr	Casing: 26-in. to 358 ft, 12-3/4 in. from 358 to 1,150 ft. 930 ft of slotted pipe. Gravel-packed. Temp. 77°F.[1]
* 902	Eba Hebert	do	1951	1,332	24, 13, 10	Ev	181	96.5	Feb. 17, 1966	T,E	Irr	Casing: 24-in. to 298 ft, 13-in. from 298 to 762 ft, 10-in. from 762 to 1,332 ft. 1004 ft of slotted pipe from about 115 ft to 1,332 ft. Gravel-packed. Pump set at 260 ft. Measured pumping level 239.3 ft on May 12, 1965 while pumping 1,615 gpm. Other measured discharges: 1,545 gpm on June 22, 1965; 1,520 gpm on Aug. 11, 1965; 1,755 gpm on Sept. 8, 1965. Temp. 76°F.
* 903	do	Layne-Texas Co.	1941	884	20, 13, 10-3/4	Ev	180	--	--	T,E	Irr	Casing: 202 ft of 20-in., 302 ft of 13-in., remainder 10-3/4 in. 362 ft of slotted pipe from 102 to 828 ft. Gravel-packed.[1]
* 904	A. E. Thompson	do	1937	926	18-5/8, 12-3/4, 8-5/8	Ev	184	57.1 80.5	Oct. 7, 1940 Mar. 15, 1966	N	N	Casing: 151 ft of 18-5/8 in., 379 ft of 12-3/4 in., 396 ft of 8-5/8 in. 161 ft of slotted pipe from 45 to 908 ft. Gravel-packed. Well abandoned.[1] [3]
* 905	Clyde Nelson	Ray Woods	1939	810	18, 13	Ev	187	44.5 60.7	Mar. 15, 1941 Mar. 15, 1966	N	N	Abandoned.[3]
906	Eba Hebert	Harry Hebert	1930	524	16, 12	Ev	180	44.8 78.5	Feb. 10, 1931 Mar. 25, 1959	-,E	D	Converted from irrigation to domestic use.[1] [3]
907	J. W. Harris well B-2	Humble Oil & Refining Co.	1949	7,500	--	--	188	--	--	--	--	Oil test.[2]
908	Katy Field Gas Unit 2 well 35	do	1950	7,276	--	--	180	--	--	--	--	Do.

See footnotes at end of table.

Table 5.--Records of wells and test holes in Austin and Waller Counties and adjacent areas--Continued

Waller 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
YW-65-01-909	E. C. Stockdick	Humble Oil & Refining Co.	1944	7,375	--	--	178	--	--	--	--	Oil test.[2]
* 02-701	J. H. Longenbaugh	A. H. Justman	1950	392	20, 12-3/4	Ev	177	94.2	Feb. 21, 1966	T,Ng	Irr	Casing: 200 ft of 20-in., 192 ft of 12-3/4 in. Screen 210 ft. Pump set at 160 ft. Measured discharge 595 gpm on June 14, 1965; 637 gpm on June 22, 1965; 512 gpm on Aug. 8, 1965; 508 gpm on Sept. 8, 1965.[1]
702	Clyde Nelson	Katy Drilling Co.	1949	950	--	Ev	172	69.5	Feb. 17, 1966	T,G	Irr	
706	J. H. Longenbaugh	do	1963	650	20, 12	Ev	177	100.4	Feb. 16, 1966	T,Ng	Irr	Casing: 20-in. to 347 ft, remainder 12-in.; 301 ft slotted. Pump set at 200 ft. Pumping level below 195 ft on Aug. 9, 1965, while pumping 910 gpm. Other measured discharges: 841 gpm on June 14, 1965; 951 gpm on June 22, 1965; 807 gpm on Sept. 8, 1965; 862 gpm on Sept. 29, 1965.[1]
* 707	do	Ray Woods	1941	554	--	Ev	178	65.3	Feb. 2, 1949	T,Ng	Irr	Slotted opposite all sands below 80 ft.
709	Henry Abert well 1	Humble Oil & Refining Co.	1958	8,012	--	--	173	--	--	--	--	Oil test.[2]
09-101	G. E. Lognebaugh	Norman Ginn	1941	585	--	Ev	187	93.6	Feb. 18, 1966	T,Ng	Irr	Measured discharge 1,450 gpm on June 11, 1965; 1,347 gpm on Aug. 16, 1965; 1,427 gpm on Sept. 8, 1965.
* 102	Lognebaugh & Beckendorff	A. H. Justman	1946	936	24, 13-3/4	Ev	188	88.6	do	T,Ng	Irr	Casing: 24-in. to 250 ft, 13-3/4 in. from 250 to 686 ft. Measured discharge 1,433 gpm on June 11, 1965; 1,060 gpm on June 22, 1965; 1,041 gpm on Aug. 16, 1965; 995 gpm on Sept. 8, 1965. Temp. 74°F.
201	George Nelson	Katy Drilling Co.	1951	832	24, 13	Ev	186	69.6 84.5	Mar. 13, 1952 Mar. 10, 1966	N	N	Casing: 24-in. to 300 ft, 13-in. from 300 to 832 ft. Screen 599 ft. Abandoned.[3]
202	C. J. Freeland, Jr.	do	1954	1,019	20, 12	Ev	179	88.4	Nov. 27, 1959	T,Ng	Irr	Casing: 20-in. to 321 ft, 12-in. from 321 to 1,019 ft; 826 ft slotted. Gravel-packed. Measured discharge 1,785 gpm on May 12, 1965; 1,188 gpm on June 23, 1965; 1,438 gpm on Aug. 18, 1965; 1,257 gpm on Sept. 8, 1965.[1]
* 203	A. Robichaux	do	1951	1,020	24, 16, 10, 8	Ev	181	90.7 99.3	Nov. 2, 1959 Feb. 21, 1965	T,E, 125	Irr	Casing: 258 ft of 24-in., 121 ft of 16-in., 374 ft of 10-in., 268 ft of 8-in. Screened 882 ft. Pump set at about 200 ft. Pumping level approximately 185 ft on May 10, 1965 while pumping 1,842 gpm. Other measured discharges: 1,577 gpm on June 22, 1965; 1,498 gpm on Aug. 4, 1965; 1,531 gpm on Aug. 30, 1965; 1,498 gpm on Sept. 8, 1965. Temp. 76°F.

See footnotes at end of table.

Table 5.--Records of wells and test holes in Austin and Waller Counties and adjacent areas--Continued

Waller 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
*YW-65-09-204	George Nelson	Katy Drilling Co.	1964	839	20, 12	Ev	185	90.5	Feb. 15, 1966	T,Ng	Irr	Casing: 20-in. to 434 ft, 12-in. from 434 to 839 ft; 639 ft slotted. Pump set at 300 ft. Measured discharge 2,063 gpm on Apr. 27, 1965; 1,705 gpm on June 22, 1965; 1,712 gpm on Aug. 10, 1965; 1,681 gpm on Sept. 8, 1965. Temp. 75°F.[1]
205	C. J. Freeland, Jr.	do	1963	973	20, 12	Ev	181	--	--	T,Ng	Irr	Measured discharge 754 gpm on May 12, 1965; 902 gpm on June 23, 1965; 855 gpm on Aug. 18, 1965; 784 gpm on Sept. 8, 1965.[1]
* 206	do	Layne-Texas Co.	1943	644	20, 12-3/4	Ev	181	65.2	Mar. 15, 1949	T,Ng	Irr	Casing: 20-in. to 264 ft, 12-3/4 in. from 264 to 644 ft. 328 ft of slotted pipe between 124 and 641 ft. Test hole drilled to 1,000 ft; plugged back to 644 ft. Measured discharge 1,028 gpm on May 12, 1965; 862 gpm on June 23, 1965; 935 gpm on Aug. 18, 1965; 886 gpm on Sept. 8, 1965.[1] [2]
* 207	do	A. H. Justman	1949	--	--	Ev	--	66.8	Mar. 4, 1949	T,Ng	Irr	Measured discharge 966 gpm on May 12, 1965; 843 gpm on June 23, 1965; 877 gpm on Aug. 18, 1965; 626 gpm on Sept. 8, 1965. Temp. 75°F.
* 208	A. Robichaux	Layne-Texas Co.	1944	739	18, 13-3/8	Ev	181	76.5 91.6	Mar. 15, 1949 Feb. 21, 1966	T,E	Irr	Test hole drilled to 900 ft; plugged back to 739 ft. Casing: 18-in. to 270 ft; 13-3/8 in. from 270 to 739 ft. 346 ft of slotted pipe from 98 to 734 ft. Gravel-packed. Pump set at about 200 ft. Measured discharge 828 gpm on May 10, 1965; 634 gpm on June 22, 1965; 718 gpm on Aug. 16, 1965; 566 gpm on Sept. 8, 1965.[1]
209	George Nelson	Ray Woods	1939	482	20, 16, 12	Ev	186	59.5 79.9	Jan. 22, 1941 Mar. 10, 1966	N	N	Casing: 148 ft of 20-in., 169 ft of 16-in., 159 ft of 12-in. 288 ft of slotted pipe from 51 to 482 ft. Abandoned.[3]
* 210	C. J. Freeland, Jr.	Layne-Texas Co.	1943	765	20, 12-3/4, 10-3/4	Ev	178	71.0 87.9	Mar. 15, 1949 Feb. 21, 1966	N	N	Test hole drilled to 1,005 ft; plugged back to 765 ft. Casing: 207 ft of 20-in., 405 ft of 12-3/4 in., 153 ft of 10-3/4 in. 367 ft of slotted pipe from 104 to 761 ft.[1]
211	A. Robichaux	Ray Woods	1939	555	18, 12, 8	Ev	179	63.2 81.8	Oct. 27, 1941 Mar. 19, 1963	N	N	Casing: 130 ft of 18-in., 277 ft of 12-in., 148 ft of 8-in. 207 ft slotted pipe from 60 to 555 ft. Temp. 70°F.[3]
301	L. E. Morrison	Layne-Texas Co.	1951	450	20	Ev	173	86.1	Dec. 2, 1959	T,E, 75	Irr	Slotted pipe. Gravel-packed.[3]
302	do	do	1954	630	20	Ev	174	112.0	Feb. 21, 1966	T,E, 125	Irr	Measured discharge 1,486 gpm on June 8, 1965; 1,425 gpm on June 23, 1965; 1,306 gpm on Aug. 9, 1965; 1,132 gpm on Sept. 7, 1965. Slotted casing. Gravel-packed.

See footnotes at end of table.

Table 5.--Records of wells and test holes in Austin and Waller Counties and adjacent areas--Continued

Waller 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
YW-65-09-303	TUBA Partnership	Katy Drilling Co.	1961	1,593	20, 12, 8	Ev	178	94.4	Feb. 16, 1966	T,E, 200	Irr	Casing: 428 ft of 20-in., 789 ft of 12-in., 376 ft of 8-in. 1,413 ft of slotted casing. Gravel-packed. Pump set at 320 ft. Measured discharge 2,207 gpm in May, 1965; 1,923 gpm on June 22, 1965.
304	John Bollinger	do	1964	1,050	20, 12	Ev	181	--	--	T,Ng	Irr	Test hole to 1,369 ft; plugged back to 1,050 ft. Pump set at 300 ft. Measured discharge 1,895 gpm on May 12, 1965; 1,955 gpm on July 1, 1965; 2,500 gpm on Aug. 10, 1965; 1,890 gpm on Sept. 8, 1965.
305	TUBA Partnership	do	1964	759	20, 12	Ev	178	106.1	Feb. 16, 1966	T,Ng	Irr	Casing: 20-in. to 410 ft, 12-in. from 410 to 759 ft. 459 ft slotted from 300 to 759 ft. Pump set at 307 ft. Gravel-packed. Measured discharge 2,642 gpm on May, 12, 1965; 2,450 gpm on June 22, 1965; 2,280 gpm on Aug. 9, 1965; 2,250 gpm on Sept. 13, 1965.
* 306	do	Layne-Texas Co.	1949	920	16, 10	Ev	177	64.7 94.4	Apr. 13, 1949 Feb. 16, 1966	T,Ng	Irr	Casing: 16-in. to 200 ft, 10-in. remainder. Gravel-packed. Measured discharge 809 gpm on May 12, 1965; 664 gpm on June 22, 1965; 955 gpm on Aug. 30, 1965; 796 gpm on Sept. 13, 1965. Temp. 75°F.[2]
* 307	do	do	1928	767	16, 12, 8	Ev	176	48.2 90.7	Feb. 10, 1931 Mar. 15, 1966	N	N	Casing: 16-in. to 115 ft, 12-in. from 115 to 208 ft, remainder 8-in. 196 ft of screened intervals from 117 to 714 ft. Temp. 72°F.[3]
* 308	do	Ray Woods	1938	641	18, 12, 6	Ev	175	55.6 90.0	Mar. 15, 1939 Mar. 11, 1964	N	N	Original casing 18-in. to 120 ft, 12-in. from 120 to 198 ft, 8-in. from 198 to 641 ft. 6-in. liner inside old casing. 181 ft of slotted intervals from 75 to 630 ft. Temp. 72°F.[3]
* 309	L. E. Morrison	Layne-Texas Co.	1946	800?	--	Ev	173	--	--	T,E	Irr	Measured discharge 903 gpm on June 8, 1965; 828 gpm on June 22, 1965; 799 gpm on Aug. 9, 1965; 828 gpm on Sept. 7, 1965. Temp. 72°F.
* 310	do	do	1939	213	20, 12	Ev	172	--	--	T,E	Irr,S	Measured discharge 499 gpm on June 22, 1965; 455 gpm on Aug. 9, 1965. 120 ft of screen between 56 and 212 ft.[1]
311	do	do	1929	643	24, 12	Ev	172	76.9 91.2	Oct. 7, 1940 Dec. 3, 1958	J,E	D	Casing: 24-in. to 125 ft, remainder 12-in. 166 ft slotted between 155 and 628 ft. Formerly used as irrigation well. Temp. 75°F.[1] [3]
* 312	John Bollinger	American Water Co.	1946	907	20	Ev	182	66.3	Mar. 15, 1949	T,E	Irr	Measured discharge 1,432 gpm on June 23, 1965; 1,252 gpm on Aug. 10, 1965; 1,002 gpm on Sept. 13, 1965. Pump set 300 ft.

See footnotes at end of table.

Waller 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
YW-65-09-313	E. H. Wilpitz well B-1	Humble Oil & Refining Co.	1947	6,905	--	--	174	--	--	--	--	Oil test.[2]
401	L. L. Bienski	--	1961	185	4	Ev	171	71.4	Feb. 23, 1966	T,E	D	
* 402	H. P. Donigan	-- Bennett	1910?	100	4	Ev	171	39.6 69.6	Nov. 15, 1949 Feb. 23, 1966	C,W	D	Screen from 94 to 100 ft.
501	John & C. R. England	Roy Turner	1952	550	20	Ev	176	80.9 86.8	Dec. 3, 1959 Feb. 15, 1966	T,Ng	Irr	Measured discharge 1,030 gpm on May 3, 1965; 1,050 gpm on May 27, 1965; 1,010 gpm on June 22, 1965; 987 gpm on June 28, 1965; 964 gpm on Aug. 9, 1965; 998 gpm on Aug. 30, 1965; 1,010 gpm on Sept. 8, 1965; 935 gpm on Sept. 22, 1965.
* 502	do	Katy Drilling Co.	1954	530	20, 12-3/4	Ev	177	77.0 83.7	Dec. 3, 1954 Feb. 15, 1966	T,E	Irr	Casing: 20-in. to 300 ft, 12-3/4 in. from 300 to 530 ft. Slotted 430 ft. Pump set at 160 ft. Pumping level below 150 ft on Aug. 18, 1965 while pumping 1,045 gpm. Other measured discharges: 1,066 gpm on May 3, 1965; 1,063 gpm on June 21, 1965; 1,019 gpm on Sept. 8, 1965; 1,021 gpm on Sept. 22, 1965. Temp. 73°F.[1]
503	do	Ray Woods	1939	428	18, 12	Ev	176	89.0	Feb. 15, 1966	T,Ng	Irr	Casing: 18-in. to 130 ft, 12-in. remainder. Measured discharge 842 gpm on May 27, 1965; 725 gpm on June 27, 1965; 754 gpm on Aug. 30, 1965; 928 gpm on Sept. 8, 1965.
* 504	do	--	1945	760	20	Ev	171	58.6 84.5	Mar. 15, 1941 Feb. 15, 1966	T,G	Irr	Pump set at 200 ft. Measured pumping level 129.8 ft on May 3, 1965 while pumping 915 gpm. Other measured discharges: 794 gpm on June 21, 1965; 629 gpm on Aug. 9, 1965; 763 gpm on Sept. 8, 1965; 811 gpm on Sept. 23, 1965. Temp. 72°F.[3]
* 505	do	Layne-Texas Co.	1941	600	18-5/8, 13	Ev	176	58.6 81.7	Mar. 15, 1941 Feb. 15, 1966	T,E	Irr	Casing: 18-5/8 in. to 166 ft, 13-in. remainder. Slotted opposite all sands from 86 to 485 ft. Gravel-packed. Pump set at 160 ft. Measured discharge 699 gpm on May 3, 1965; 704 gpm on June 28, 1965. Temp. 74°F.[1] [3]
* 506	J. U. Cardiff & Sons	do	1940	586	18-5/8, 13	Ev	167	67.4 90.2	Mar. 15, 1949 Mar. 15, 1966	T,Ng	Irr	Measured discharge 511 gpm on May 27, 1965; 436 gpm on June 21, 1965; 424 gpm on Aug. 19, 1965; 400 gpm on Sept. 8, 1965. 261 ft of screen between 151 and 576 ft. Pump set at 190 ft. Temp. 74°F.[3]

See footnotes at end of table.

Table 5.--Records of wells and test holes in Austin and Waller Counties and adjacent areas--Continued

Waller 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
*YW-65-09-507	J. D. Wood	A. H. Justman	--	--	--	Ev	165	78.6 85.8 84.0	Nov. 12, 1948 Apr. 26, 1965 Feb. 15, 1966	T,Ng	Irr	Measured discharge 785 gpm on May 27, 1965; 800 gpm on June 2, 1965; 682 gpm on Aug. 30, 1965; 690 gpm on Sept. 8, 1965. Pump set at 185 ft.
508	John & C. R. England	--	--	200?	4	Ev	--	--	--	C,E	S	
509	J. U. Cardiff & Sons	Katy Drilling Co.	1966	842	20, 12-3/4	Ev	167	--	--	T,Ng	Irr	Test hole drilled to 972 ft; plugged back to 842 ft.[1]
510	W. W. Ainsworth, et al. well 1	Houston Natural Gas Production Co. & M. T. Halbouty	1963	16,532	--	--	170	--	--	--	--	Oil test.[2] [3]
* 601	J. U. Cardiff & Sons	Katy Drilling Co.	1953	697	20, 12	Ev	167	75.7 84.2	Mar. 17, 1954 Mar. 19, 1961	T,Ng	Irr	Casing: 20-in. to 239 ft, 12-in. from 239 to 697 ft. 567 ft slotted from 130 to 697 ft. Gravel-packed. Pump set at 235 ft. Measured discharge 2,140 gpm on Apr. 27, 1965; 2,040 gpm on May 3, 1965; 2,040 gpm on June 21, 1965; 1,720 gpm on Aug. 9, 1965; 1,575 gpm on Sept. 8, 1965. Temp. 73°F.[1] [3]
602	do	do	1962	697	20, 12	Ev	165	--	--	T,Ng	Irr	Casing: 20-in. to 370 ft, 12-in. from 370 to 697 ft. Test hole drilled to 991 ft; plugged back to 697 ft. Pump set at 250 ft. Measured discharge 2,729 gpm on Apr. 27, 1965; 2,579 gpm on May 3, 1965; 2,575 gpm on June 21, 1965; 2,662 gpm on Aug. 9, 1965; 2,775 gpm on Sept. 8, 1965.
603	Humble Oil & Refining Co. well 9	Texas Water Well Drilling Co.	1954	503	18	Ev	163	101	Mar. 1964	T,G, 75	Ind	Screen intervals from 357 to 397 and 430 to 475 ft. Pump set at 300 ft.
* 604	J. U. Cardiff & Sons	Layne-Texas Co.	1949	478	12	Ev	165	66.3 96.2	Apr. 16, 1949 Mar. 15, 1965	T,Ng	Irr	Measured discharge 1,130 gpm on Apr. 27, 1965; 1,100 gpm on May 3, 1965; 1,078 gpm on June 21, 1965; 987 gpm on Aug. 19, 1965; 1,031 gpm on Sept. 7, 1965. Gravel-packed. Pump set at 190 ft. Temp. 75°F.[3]
* 605	do	do	1925	653	24, 12, 10	Ev	165	72.3 97.2	Mar. 31, 1953 Feb. 15, 1966	T,E	Irr	Measured discharge 847 gpm on May 3, 1965; 725 gpm on Aug. 19, 1965; 737 gpm on Sept. 8, 1965. 141 ft of screen between 136 and 623 ft. Pump set at 180 ft.[3]
606	Humble Oil & Refining Co. well 10	Katy Drilling Co.	1961	860	16, 8	Ev	163	212	Feb. 1965	T,E	Ind	Reported discharge 530 gpm on Mar. 30, 1964. Screen intervals from 640 to 676 and 745 to 825 ft. Gravel-packed.[1]

See footnotes at end of table.

Table 5.--Records of wells and test holes in Austin and Waller Counties and adjacent areas--Continued

Waller 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
YW-65-09-607	Humble Oil & Refining Co. well 1	Layne-Texas Co.	1942	812?	10, 8, 6	Ev	163	187	June 1965	T,E, 75	Ind	Casing: 168 ft of 10-in., 492 ft of 8-in., 262 ft of 6-in. 80 ft of screen between 652 and 805 ft. Gravel-packed. Pump set at 400 ft.1/
608	Humble Oil & Refining Co. well 2	do	1942	819?	10-3/4, 8, 6	Ev	163	--	--	N	N	Casing: 211 ft of 10-3/4 in., 333 ft of 8-in., 215 ft of 6-in. 95 ft of screen between 607 and 802 ft. Gravel-packed. Original test hole drilled to 1,510 ft; reported plugged back to 819 ft. Abandoned.1/
609	Humble Oil & Refining Co. well 8	do	1951	480	18	Ev	163	--	--	T,E, 75	Ind	Screen intervals from 360 to 390 and 449 to 480 ft.2/
610	Humble Oil & Refining Co. well 4	do	1943	808	10, 8, 6	Ev	163	74	Jan. 1944	N	N	Casing: 267 ft of 10-in., 278 ft of 8-in., 289 ft of 6-in. Screen intervals from 557 to 588, 607 to 628, 652 to 682, and 765 to 795 ft.1/ 2/
611	Humble Oil & Refining Co. well 3	do	143	812	10, 8, 6	Ev	163	82	Jan. 1944	N	N	Casing: 255 ft of 10-in., 300 ft of 8-in., 298 ft of 6-in. Screen intervals from 555 to 585, 604 to 624, 664 to 684, and 768 to 790 ft.1/
612	Humble Oil & Refining Co. well 7	Katy Drilling Co.	1948	858	16, 8	Ev	163	186	May 1965	T,E, 100	Ind	Casing: 598 ft of 16-in., 324 ft of 8-in. Screen intervals from 611 to 631, 646 to 686, and 761 to 821 ft. Gravel-packed. Pump set at 400 ft.1/
613	Humble Oil & Refining Co. well 5	do	1948	812	13-3/8	Ev	163	190	1965	T,E, 100	Ind	Test hole drilled to 850 ft; plugged back to 812 ft. Screen intervals from 600 to 618, 639 to 678, and 743 to 810 ft. Pump set at 400 ft. Reported discharge 662 gpm in March 1965.
614	Katy Gas Field Unit 1, well 26	Humble Oil & Refining Co.	1958	6,880	--	--	168	--	--	--	--	Oil test.2/
615	J. W. Thorp	Stanolind Oil & Gas Co.	1934	7,643	--	--	167	--	--	--	--	Do.
702	George Rheman	Katy Drilling Co.	1956	291	16, 12	Ev	120	30.0	Feb. 22, 1966	T,G	Irr	Casing: 16-in. to 182 ft, 12-in. from 182 to 291 ft. 222 ft slotted. Gravel-packed. Measured pumping level 61.2 ft on Sept. 3, 1965 while discharging 1,132 gpm for 3 hours. Irrigates pasture.1/
703	John & C. R. England	do	1951	265	--	Ev	120	30.3 29.6	June 25, 1965 Feb. 23, 1966	T,G	Irr	Measured discharge 768 gpm on July 3, 1965. 198 ft of screen. Gravel-packed. Irrigates pasture.

See footnotes at end of table.

Table 5.--Records of wells and test holes in Austin and Waller Counties and adjacent areas--Continued

Waller 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
YW-65-09-704	-- Bailer	Norman Ginn	--	65	--	Qal	123	23.9 25.6 24.6	Apr. 16, 1964 June 17, 1965 Feb. 23, 1966	T,G	Irr	Irrigates pasture and row crops.
705	-- Baines	--	1960?	400?	12	Ev?	121	29.7	Apr. 16, 1964	N	N	Well destroyed.
706	Brookshire Oil Unit 1, well 1	Humble Oil & Refining Co.	1953	8,500	--	--	114	--	--	--	--	Oil test.[2]
707	P. H. Donigan well 2	do	1953	7,501	--	--	120	--	--	--	--	Do.
801	J. D. Woods	Katy Drilling Co.	1952	736	20, 12	Ev	162	85.1 95.2	Dec. 2, 1959 Feb. 17, 1966	T,Ng	Irr	Casing: 20-in. to 218 ft, 12-in. from 218 to 736 ft. 637 ft screened. Pump set at 150 ft. Measured discharge 1,420 gpm on June 15, 1965; 1,320 gpm on June 24, 1965; 1,263 gpm on Aug. 30, 1965; 1,239 gpm on Sept. 10, 1965.[1]
* 802	City of Brookshire well 2	do	1955	540	14, 8	Ev	162	--	--	T,E	P	70 ft of screen. Gravel-packed. Temp. 76°F.[1] [2]
803	Chester Jordan	do	1954	358	20, 12-3/4	Ev	158	93.3	Apr. 27, 1965	T,Ng	Irr	Casing: 20-in. to 301 ft, 12-3/4 in. from 301 to 358 ft. Pump set at 200 ft. Test hole drilled to 410 ft; plugged back to 358 ft. Measured pumping level 159.1 ft on May 3, 1965 while pumping 1,615 gpm for 3 days. Other measured discharges: 1,596 gpm on June 9, 1965; 1,611 gpm on June 21, 1965; 1,517 gpm on Aug. 9, 1965; 1,472 gpm on Sept. 13, 1965.[1]
804	B. Ray Woods	do	1961	508	20, 12	Ev	160	90	Jan. 1961	T,Ng	Irr	Casing: 20-in. to 291 ft, 12-in. from 291 to 508 ft. Gravel-packed. Pump set at 170 ft. Measured discharge 1,470 gpm on May 4, 1965. Test hole drilled to 625 ft; plugged back to 508 ft.[1]
* 805	do	do	1964	860	20, 12	Ev	155	82.9 91.2	Mar. 16, 1965 Feb. 17, 1966	T,Ng	Irr	Casing: 20-in to 253 ft, 12-in. from 253 to 860 ft. Measured pumping level 136.4 ft in May 1965 while discharging 2,347 gpm for 3 days. Other measured discharge of 2,227 gpm on Aug. 30, 1965. Temp. 72°F.
806	J. D. Woods	Ray Woods	1937	311	16, 8	Ev	162	58	1937	J,E	D	Casing: 16-in. to 147 ft, 8-in. from 147 to 311 ft. 146 ft screened between 81 and 305 ft. Formerly used for irrigation.
* 807	do	do	1935	165	12, 8	Ev	161	90.0 90.1	Apr. 26, 1965 Feb. 7, 1966	T,Ng	Irr	85 ft of screen. Pump set at 135 ft. Pumping level below 132 ft on Aug. 30, 1965 while pumping 868 gpm. Measured discharge 622 gpm on Sept. 2, 1965.

See footnotes at end of table.

Table 5.--Records of wells and test holes in Austin and Waller Counties and adjacent areas--Continued

Waller 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
*YW-65-09-808	Chester Jordan	Ray Woods	1936	335	16, 12	Ev	158	--	--	T,Ng	Irr	Casing: 16-in. to 178 ft, 12-in. from 178 to 335 ft. Slotted opposite all sands below 84 ft. Pump set at 150 ft. Measured discharge 1,785 gpm on Aug. 29, 1965; 1,671 gpm on Sept. 7, 1965.
809	Ray Woods	do	1947	910	22	Ev	159	67.8 92.1	Apr. 13, 1949 Feb. 17, 1966	T,Ng	Irr	Measured discharge 1,268 gpm on July 2, 1965; 1,249 gpm on Sept. 13, 1965.
* 810	City of Brookshire	Texas Water Wells Inc.	1950	297	12-3/4, 6-5/8	Ev	162	--	--	T,E, 30	P	Casing: 12-3/4 in. to 223 ft, 6-5/8 in. from 223 to 297 ft. 60 ft slotted between 222 and 294 ft. Gravel-packed. Reported discharge 300 gpm. Temp. 72°F.
* 811	do	A. H. Justman	1946	147	8	Ev	162	--	--	N	N	Well destroyed.
* 812	Ray Woods	Ray Woods	1939	290	20, 14	Ev	160	60.9 81.3	Oct. 2, 1940 Feb. 26, 1964	N	N	[3]
901	J. D. Wood	do	1947?	400?	18	Ev	159	--	--	T,Ng	Irr	Measured discharge 1,641 gpm on May 4, 1965; 1,521 gpm on June 23, 1965; 1,512 gpm on Aug. 16, 1965; 1,438 gpm on Sept. 7, 1965.
* 902	Pete Pederson	Katy Drilling Co.	1953	530	20, 12	Ev	158	95 97.4	Mar. 1965 Feb. 11, 1966	T,Ng	Irr	Casing: 20-in. to 240 ft, 12-in. from 240 to 530 ft. 441 ft slotted. Gravel-packed. Pump set at 160 ft. Measured discharges starting at 90 ft: 1,251 gpm on Apr. 26, 1965; 1,680 gpm on June 22, 1965; 1,762 gpm on July 21, 1965; 1,811 gpm on Aug. 10, 1965. Temp. 72°F.[1]
903	do	do	1964	539	--	Ev	155	97.8	Feb. 17, 1966	T,Ng	Irr	Pumping level below 208 ft on July 9, 1965 while pumping 1,220 gpm. Other measured discharges: 1,445 gpm on May 27, 1965; 1,220 gpm on June 22, 1965; 1,330 gpm on Aug. 29, 1965; 1,239 gpm on Sept. 7, 1965.
* 904	do	--	1927	256	12	Ev	158	95 94.0 96.6	Apr. 1965 Feb. 11, 1965 July 19, 1965	N	N	Screen 86 ft between 130 and 256 ft. Abandoned.
* 905	Chester Jordan	Texas Water Wells	1943	305?	18, 16	Ev	155	--	--	T,Ng	Irr	Casing: 18-in. to 200 ft, 16-in. from 200 to about 305 ft. Screen opposite all sands below 80 ft. Pump set at 190 ft. Measured discharge 1,390 gpm on May 3, 1965; 1,737 gpm on June 9, 1965; 936 gpm on June 21, 1965; 1,428 gpm on Sept. 13, 1965. Temp. 72°F.

See footnotes at end of table.

Table 5.--Records of wells and test holes in Austin and Waller Counties and adjacent areas--Continued

Waller 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
*YW-65-10-101	Andrews Bros.	Katy Drilling Co.	1958	982	20, 12-3/4	Ev	171	97 101.2	1958 Feb. 16, 1966	T,Ng	Irr	Casing: 20-in. to 320 ft, 12-3/4 in. from 320 to 982 ft. Gravel-packed. Pump set at 240 ft. Measured discharge 2,023 gpm on June 15, 1965; 1,425 gpm on June 28, 1965. Temp. 74°F.[1]
* 102	Metzger & Campbell	do	1953	585	20, 16	Ev	164	90.3 101.2	Dec. 2, 1959 Feb. 16, 1966	T,E	Irr	Casing: 20-in. to 246 ft, 16-in. from 246 to 585 ft. 485 ft of slotted casing below 98 ft. Pump set at 230 ft. Pumping level below 210 ft on July 9, 1965 while discharging 1,233 gpm. Other measured discharges: 1,510 gpm on May 24, 1965; 1,382 gpm on June 22, 1965; 1,268 gpm on Sept. 2, 1965; 1,131 gpm on Sept. 8, 1965. Temp. 72°F.[1]
* 107	do	A. H. Justman	1930	470	16, 12	Ev	164	--	--	T,E	Irr	Measured discharge 1,154 gpm on June 8, 1965; 1,181 gpm on June 22, 1965; 1,129 gpm on Aug. 30, 1965. Pump set at 150 ft. Temp. 72°F.
108	do	-- Clapp	--	148	4	Ev	166	94.4	Feb. 23, 1966	T,E	D	
401	Dale Minze	A. H. Justman	1950	493	20, 13-3/8, 12-3/4	Ev	157	--	--	T,G	Irr	Casing: 239 ft of 20-in., 148 ft of 13-3/8 in., 106 ft of 12-3/4 in.[1]
* 402	Cecil Beckendorff	--	1946	400?	--	Ev	162	96.6	Feb. 15, 1966	T,Ng	Irr	Measured discharge 1,454 gpm on May 14, 1965; 1,341 gpm on June 21, 1965; 1,451 gpm on Aug. 9, 1965; 1,404 gpm on Sept. 17, 1965. Temp. 71°F.
* 403	Dale Minze	Layne-Texas Co.	1936	246	24, 13	Ev	157	63.4 96.2	Oct. 4, 1941 Mar. 11, 1966	T,E	Irr	114 ft of screen between 90 and 246 ft. Gravel-packed. Temp. 73°F.[3]
* 404	Louis Young	Ray Wood	1936	280	12	Ev	160	64.2	Oct. 4, 1940	T,G	Irr	Measured discharge 890 gpm in May 1965; 993 gpm on June 21, 1965; 935 gpm on July 9, 1965; 934 gpm on Aug. 16, 1965; 964 gpm on Sept. 12, 1965. Temp. 72°F.[3]
* 405	do	-- Olsen	1922	273	26, 12	Ev	159	--	--	N	N	Casing: 26-in. to 68 ft, remainder 12-in.
406	Cecil Beckendorff	Layne-Texas Co.	1944	402	14	Ev	162	68.9 97.4	Mar. 15, 1949 Feb. 16, 1966	T,Ng	Irr	Measured discharge 1,002 gpm on Sept. 7, 1965. Pump set at 160 ft.
407	Humble Oil & Refining Co. well 6	Katy Drilling Co.	1948	871	16, 8	Ev	163	221	Apr. 1964	T,E	Ind	Reported discharge 598 gpm. Gravel-packed.[1]
408	--	Humble Oil & Refining Co.	1957	6,921	--	--	140	--	--	--	--	Oil test.[1]
704	Katy Field Unit well 25	do	1957	7,470	--	--	157	--	--	--	--	Do.

See footnotes at end of table.

Table 5.--Records of wells and test holes in Austin and Waller Counties and adjacent areas--Continued

Waller 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
YW-65-10-705	-- Alt well 1	Sun Oil Co.	1943	7,319	--	--	150	--	--	--	--	Oil test.[1]
707	Louis Young	--	--	120	4	Ev	153	93.2 93.2 93.4 93.5	July 20, 1965 Sept. 30, 1965 Nov. 15, 1965 Feb. 17, 1966	N	D	Screen from 110 to 120 ft.
* 708	J. Bartlett	--	1932?	545	--	Ev	151	48.5 88.2	Mar. 12, 1931 Mar. 11, 1966	T,E	N	Unused. Temp. 72°F.[1] [3]
17-104	C. Frost	--	--	73	4	Qal	115	28.6	Apr. 20, 1964	C,W	N	Windmill broke, needs repairing.
105	John & C. R. England	Katy Drilling Co.	1956	260	16	Ev	120	28.3 30.8 29.9	Mar. 17, 1964 June 25, 1965 Feb. 23, 1966	T,G	Irr	Measured discharge 1,432 gpm on Sept. 3, 1965. Used for pasture irrigation.
107	J. H. England	Mound Co.	1962	13,511	--	--	120	--	--	--	--	Oil test.[2]
108	Frances N.C.T. well 1	The Texas Co.	1956	8,290	--	--	115	--	--	--	--	Do.
66-08-101	Den Worchesik	--	1926	33	30	Qal	149	32.4	Apr. 6, 1964	N	N	Dug well. Reported caved in after seismograph shot.
* 102	do	--	--	67?	4	Qal	150	--	--	C,W	D,S	
* 103	Joe Sebesta	--	1949	337	4	Ev	146	39 42	1957 Apr. 1964	J,E	D,S	
109	Rufus Hardy well B-14	Humble Oil & Refining Co.	1949	7,502	--	--	135	--	--	--	--	Oil test.[2]
* 201	M. A. Dodd	Katy Drilling Co.	1956	583	14, 12	Ev	178	--	--	T,G	Irr	Casing: 14-in. to 381 ft, 12-in. from 381 to 583 ft. 439 ft screened. Measured discharge 546 gpm on June 14, 1965. Temp. 74°F.[1]
* 202	--	--	--	75?	4	Qal	146	22.8	Apr. 6, 1964	C,W	S	Temp. 71°F.
203	-- Mickey	--	--	75	4	Qal	144	20.0	do	C,W	S	
204	E. P. Menke, et al. well 1	Humble Oil & Refining Co.	1950	8,513	--	--	143	--	--	--	--	Oil test.[2]
301	-- Menke	Pat Falkenberry	1950	59	4	Ev	191	31	1950	C,W	S	
302	M. A. Dodd well 1	M. K. Culver	1939	1,734	--	--	185	--	--	--	--	Oil test.[2]
402	-- Young well 1	Falcon-Seaboard Drilling Co.	1954	7,727	--	--	140	--	--	--	--	Do.

See footnotes at end of table.

Table 5.--Records of wells and test holes in Austin and Waller Counties and adjacent areas--Continued

Waller 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
YW-66-08-403	I. H. Stahlman well 1	Sam H. Harper	1946	5,454	--	--	135	--	--	--	--	Oil test.[2]
404	Young-Fife well 1	Goldston Oil Corp.	1958	4,515	--	--	144	--	--	--	--	Do.
501	E. F. Fillip	--	--	50?	4	Ev	153	41.7	Apr. 9, 1964	C,W	S	
502	-- Stefka	--	1957?	--	12	Ev	175	--	--	N	N	Unused.
* 602	George Nelson	Katy Drilling Co.	1952	1,608	20, 12, 10	Ev, J	173	56.1	Dec. 1, 1959	T,E	Irr	Casing: 20-in. to 300 ft, 12-in. from 300 to 900 ft, 10-in. from 900 to 1,608 ft. Screened 1,023 ft. Pump set 160 to 180 ft. Measured discharge 1,790 gpm on June 11, 1965; 1,650 gpm on July 7, 1965; 1,555 gpm on Aug. 30, 1965; 1,483 gpm on Sept. 17, 1965. Temp. 94°F.[1]
* 603	W. A. Bollinger	Layne-Texas Co.	1946	--	20	Ev?	176	28.9 50.2	Mar. 28, 1947 Mar. 10, 1966	T,G	Irr	Test hole drilled to 1,404 ft. Measured discharge 1,375 gpm on May 27, 1963. Gravel-packed. Temp. 75°F.[2] [3]
* 604	George Nelson	Roy Turner	1945	1,008	24	Ev	174	38.5 57.2	Mar. 4, 1949 Feb. 21, 1966	T,E	Irr	Measured discharge 1,112 gpm on June 11, 1965; 1,188 gpm on July 1, 1965; 966 gpm on Aug. 31, 1965; 909 gpm on Sept. 17, 1965. Gravel-packed. Pump set at 200 ft.
605	Fred Bell	Norman Ginn	1951?	60	--	Ev	177	46.3	Feb. 2, 1966	J,E	D	
701	--	--	--	32	4	Qal	137	27.3	Apr. 8, 1964	N	N	Old well.
702	W. Stewart	--	--	55	3	Qal	135	26.5	do	C,W	S	
703	--	--	--	--	4	Qal	142	36.7	do	J,E	S	
705	U.S. Geological Survey	U.S. Geological Survey	1963	87	--	Qal	137	31	Dec. 11, 1963	N	N	Test hole.[1]
706	do	do	1963	77	--	Qal	142	39.0	do	N	N	Do.
707	do	do	1963	47	--	Qal	137	30.2	Dec. 12, 1963	N	N	Do.
801	do	do	1963	22	--	Ev	170	--	--	N	N	Do.
802	E. S. Crocker	--	--	--	--	Ev	168	--	--	T,E	Irr	Reported irrigates pasture.
803	John Ueckert	Norman Ginn	1954?	100	4	Ev	162	46.5	Feb. 22, 1966	J,E	D	
901	E. S. Crocker	Katy Drilling Co.	1952	520	14, 12	Ev	167	--	--	T,E	Irr	Casing: 14-in. to 343 ft, 12-in. from 343 to 520 ft. Slotted from 156 to 520 ft. Gravel-packed. Measured discharge 1,056 gpm on July 23, 1965.[1]

See footnotes at end of table.

Table 5.--Records of wells and test holes in Austin and Waller Counties and adjacent areas--Continued

Waller 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
*YW-66-08-902	G. H. Laas	Norman Ginn	--	176	--	Ev	164	--	--	T,E	Irr	Temp. 72°F.
903	do	--	1922	734	6	Ev	163	71.9 55.3	May 27, 1965 Feb. 22, 1966	N	N	Abandoned. Reported flowed in 1931.
904	-- Vaughn	--	--	210	--	Ev	162	--	--	N	N	Unused. Reported was for irrigation.
*905	O. M. Pederson, Jr.	Katy Drilling Co.	1947	1,602	20, 13-3/8, 12, 8	Ev, J	--	37.9	Mar. 4, 1949	T,G	Irr	Casing: 200 ft of 20-in., 400 ft of 13-3/8 in., 500 ft of 12-in., remainder 8-in. Measured discharge 2,002 gpm on May 25, 1965.
16-101	Brick Diemer	do	1956	369	16, 12	Ev	132	29.0 30.5 28.9	Mar. 18, 1964 June 17, 1965 Feb. 23, 1966	T,G	Irr	Casing: 16-in. to 279 ft, 12-in. from 279 to 369 ft. 246 ft of screen between 123 and 369 ft. Test hole drilled to 435 ft; plugged back to 369 ft. Reported used for irrigation of row crops.1/
103	-- Taylor	--	--	60	2-1/2	Qal	134	--	--	N	N	
*104	-- Diemer	--	--	64	4	Qal	134	28.7	Apr. 9, 1964	C,W	S	
*105	Upton Diemer	Norman Ginn	1954	210	--	Ev	132	31.3	do	J,E	D,S	Screen from 190 ft to bottom.
107	A. H. Robichaux	Katy Drilling Co.	1956	409	14	Ev	132	24.1 26.0	Mar. 18, 1964 June 17, 1965	T,G	Irr	Test hole drilled to 425 ft; plugged back to 409 ft. 261 ft of screen. Irrigates pasture and row crops.1/
*201	Clement School	Norman Ginn	--	120	4	Ev	138	--	--	-,E	P,D	Supplies water for school.
203	-- Diemer	do	1957	59	12	Qal	131	23.5	Apr. 9, 1964	N	N	Reported to be used for irrigation of row crops in the future.
204	J. Saddler	--	1957	64	12	Qal	126	--	--	T,G	Irr	
205	U.S. Geological Survey	U.S. Geological Survey	1963	72	--	Qal	130	23	Dec. 1963	N	N	Test hole.1/
206	do	do	1964	78	--	Qal	129	19	Jan. 1964	N	N	Do.
207	T. J. Bake well 1	C. B. Webster	1957	9,014	--	--	137	--	--	--	--	Oil test.2/ 3/
301	U.S. Geological Survey	U.S. Geological Survey	1964	27	--	Qal	137	--	--	N	N	Test hole; dry Jan. 13, 1964.1/
302	L. F. Fuqua well 1	-- Mound Co.	1958	8,150	--	--	155	--	--	--	--	Oil test.2/
*303	H. F. Perez	Norman Ginn	1960?	85	4	Ev	133	18	1960	T,E	D	Temp. 70°F.
404	U.S. Geological Survey	U.S.Geological Survey	1964	54	--	Qal	124	31?	Jan. 20, 1964	N	N	Test hole.1/

See footnotes at end of table.

Table 5.--Records of wells and test holes in Austin and Waller Counties and adjacent areas--Continued

Waller 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
YW-66-16-501	George Nelson	Norman Ginn	--	300?	18	Ev	128	28.1 27.7 27.5	Mar. 18, 1964 June 17, 1965 Feb. 23, 1966	T,G, 50	Irr	Reported irrigates pasture and row crops.
502	--	--	1943	45?	6	Qal	131	31.7	Apr. 9, 1964	C,H	D,S	
503	U.S. Geological Survey	U.S. Geological Survey	1964	66	--	Qal	126	28	Jan. 1964	N	N	Test hole.[1]
504	do	do	1964	47	--	Qal	219	25	do	N	N	Do.
505	Rapsiluer, et al. unit 1	C. Howard Phifer	1963	5,113	--	--	130	--	--	--	--	Oil test.[2]
601	Guy T. Pattison	The Superior Oil Co.	1950	5,053	--	--	125	--	--	--	--	Do.
602	-- Harrison well 1	Humble Oil & Refining Co.	1955	9,000	--	--	123	--	--	--	--	Do.
901	--	--	--	69?	3	Qal	123	26.0	Apr. 16, 1964	C,W	N	
902	S. Gainer	Katy Drilling Co.	--	250?	--	Ev	123	34.3 26.6 28.9	Apr. 16, 1964 June 17, 1965 Feb. 25, 1966	T,G	Irr	Measured discharge 420 gpm on Sept. 1, 1965. Irrigates pasture.
903	do	do	--	250?	12?	Ev	122	24.6 23.7	Apr. 16, 1964 June 17, 1965	T,G	Irr	
904	-- Kilinger	--	--	50?	3	Qal	131	25	Apr. 1964	C,W	S	
905	George Rheman	Katy Drilling Co.	1954	233	12-3/4	Ev	126	28.4 28.7 28.0	Apr. 16, 1964 June 17, 1965 Feb. 24, 1966	T,G	Irr	Measured pumping level 78.3 ft on Aug. 18, 1965 while pumping 639 gpm for 90 minutes. 140 ft of slotted casing. Gravel-packed. Irrigates pasture and row crops.[1]
907	--	--	--	53	4	Qal	120	22.5	Apr. 16, 1964	N	N	
908	Robert Kellner well 1	H. J. Strief	1951	3,159	--	--	117	--	--	--	--	Oil test.[2]
909	Lenora Johnson well 1	Oil Production Maintenance Inc.	1952	3,260	--	--	120	--	--	--	--	Do.
24-301	Chambers Estate	Bud Rheman	--	120	2	Ev?	120	--	--	C,W	S	
302	C. J. Rheman well 1	John Mayo	1940	6,018	--	--	115	--	--	--	--	Oil test.

See footnotes at end of table.

Table 5.--Records of wells and test holes in Austin and Waller Counties and adjacent areas--Continued

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
							Colorado County					
DW-66-14-401	Kinkler well 1	Moore & Akeen	1940	5,009	--	--	310		--	--	--	Oil test.[2]
31-103	--	--	--	--	--	Ev	160	20.1	Feb. 24, 1966	--	Irr	
							Fort Bend County					
JY-65-10-702	E. MacMillian	Bud Southard	1938	346	15	Ev	144	57.8 93.9	Mar. 15, 1939 Mar. 8, 1966	T,E	--	Screened 170 ft. Gravel-packed. Observation well.[3]
703	P. V. Cook	--	1929	170?	28	Ev	140	55.5 92.0	Aug. 11, 1932 Feb. 17, 1966	T,E	Irr	[3]
808	Clyde Nelson well 1	Sunray Oil Co.	1952	7,280	--	--	130	--	--	--	--	Oil test.[2]
17-201	R. Wood	Katy Drilling Co.	1957	335	20	Ev	157	84.7 89.8	Mar. 19, 1958 Mar. 14, 1966	T,Ng	--	Observation well.[3]
203	L. D. Ware	Texas Water Wells, Inc.	--	840	18, 13, 8, 6	Ev	155	83.7 86.2	Feb. 2, 1960 Feb. 18, 1966	N	N	
204	R. Wood	--	1945	330	20	Ev	158	91.9	Feb. 18, 1966	T,E	Irr	
							Harris County					
LJ-65-01-302	Tom Jordan	Layne Bros.	1949	1,007	18	Ev	222	70.9 102.3	Mar. 10, 1949 Mar. 10, 1966	T,E	Irr	Casing slotted below 400 ft. Gravel-packed.[3]
02-401	M. D. Freeman, Jr.	A. Justman	1948	790	22, 12, 10	Ev	174	37.2 62.5	May 10, 1950 Feb. 17, 1966	T,E	Irr	
705	E. B. Longenbaugh	Layne-Texas Co.	1934	514	24, 12	Ev	171	95.3	Feb. 16, 1966	T,G	Irr	Casing: 24-in. to 180 ft, remainder 12-in. Screen intervals from 100 to 120, 178 to 197, 318 to 341, 392 to 432, and 470 to 509 ft.
10-202	A. W. Thompson	Katy Drilling Co.	1951	618?	24, 13, 12-3/4	Ev	161	101.5	do	T,E	Irr	Screened 515 ft. Gravel-packed.
501	Mrs. Mae Kemp	Layne-Texas Co.	1943	529	18, 12-3/4	Ev	154	57.7 98.6	Mar. 28, 1946 Mar. 11, 1966	N	N	Test hole drilled to 622 ft; plugged back to 529 ft. Gravel-packed.[3]
502	do	do	1954	645	18, 12-3/4	Ev	155	100.9	Feb. 17, 1966	T,Ng	Irr	Slotted intervals: 170 to 210, 220 to 270, 285 to 315, 335 to 380, 410 to 525, and 575 to 645 ft.

See footnotes at end of table.

Table 5.--Records of wells and test holes in Austin and Waller Counties and adjacent areas--Continued

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
LJ-65-10-511	W. A. Stanberry	L. Patterson	1952	452	4	Ev	147	98.1	Feb. 25, 1966	T,E	D,Irr	Slotted from 422 to 452 ft. Supplied water for irrigation of golf course.
802	Mrs. J. A. Tucker	Katy Drilling Co.	1954	729	20, 12-3/4	Ev	138	111.8	Feb. 17, 1966	T,E	Irr	Casing: 20-in. to 304 ft, 12-3/4 in. from 304 to 729 ft. 549 ft slotted.
					Washington County							
YY-59-56-107	-- James well 1	David C. Bintliff	1952	11,000	--	--	210	--	--	--	--	Oil test.[2]
61-201	H. F. Hueske	-- Conklin	1955	187	4	J	291	61.7	Nov. 30, 1965	T,E	D	Screen from 177 to 187 ft.
202	do	--	--	38	26	J	285	30.3	do	C,W	D	
					Wharton County							
ZA-66-31-201	--	--	--	--	--	Ev	150	32.2	Feb. 24, 1966	--	Irr	

* See Table 8 for chemical analyses of water from wells.
1/ See Table 6 for drillers' logs of wells and test holes.
2/ Electric logs in files of Texas Water Development Board or U.S. Geological Survey offices, Austin, Texas.
3/ See Table 7 for water levels in wells.

Table 6.--Drillers' logs of wells and test holes in Austin and Waller Counties

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

Austin County

Well AP-59-60-504

Owner: J. R. McLure. Driller: Pomykal Drilling Co.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Sand --------------	38	38	Sand, coarse -------	1	107
Shale --------------	7	45	Rock, hard ---------	4	111
Shale and rock -----	10	55	Shale --------------	309	420
Shale --------------	51	106	Sand ---------------	28	448

Well AP-59-60-802

Owner: W. J. Knobdosdorff. Driller: Pomykal Drilling Co.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Soil ---------------	6	6	Shale --------------	15	60
Sand ---------------	14	20	Sand ---------------	5	65
Shale --------------	22	42	Shale --------------	19	84
Sand ---------------	3	45	Sand ---------------	19	103

Well AP-59-61-405

Owner: Joe Pomykal, Sr. Driller: Pomykal Drilling Co.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Clay ---------------	30	30	Sandrock -----------	15	315
Sand ---------------	25	55	Shale --------------	62	377
Shale --------------	35	90	Sand, hard ---------	23	400
Sand, hard, no water ------------	40	130	Sand ---------------	15	415
Shale --------------	170	300	Shale --------------	5	420

Austin County

Well AP-59-61-803

Owner: F. E. Leigh, Jr. Driller: L. Patterson.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Surface ------------	26	26	Shale --------------	22	485
Rock ---------------	21	47	Shale, sandy -------	22	507
Shale and rock -----	23	70	Rock ---------------	22	529
Sand ---------------	43	113	Shale --------------	22	551
Sand and rock ------	22	135	Rock ---------------	23	574
Shale --------------	22	157	Rock and shale -----	23	597
Sand and shale -----	42	199	Shale --------------	46	643
Shale --------------	91	290	Rock and shale -----	23	666
Sand and shale -----	64	354	Shale and sand, boulders ---------	13	674
Shale --------------	43	397	Sand and shale -----	51	725
Shale and rock -----	44	441			
Shale, sandy -------	22	463			

Well AP-59-61-902

Owner: J. Mikeska. Driller: Pomykal Drilling Co.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Shale and rock, sandy ------------	30	30	Shale and rock, sandy ------------	25	140
Shale --------------	92	112	Sand ---------------	33	173
Sand ---------------	3	115			

Table 6.--Drillers' logs of wells and test holes in Austin and Waller Counties--Continued

Austin County

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

Well AP-59-62-401

Owner: A. J. LeBlanc. Driller: Pomykal Drilling Co.

Sand and rock ------	50	50	Shale --------------	25	135
Shale --------------	45	95	Sand ---------------	20	155
Rock ---------------	10	105	Shale --------------	1	156
Sand ---------------	5	110			

Well AP-59-62-701

Owner: Charles Laine. Driller: Pomykal Drilling Co.

Clay ---------------	15	15	Sand ---------------	10	105
Sand ---------------	25	40	Shale --------------	105	210
Shale --------------	55	95	Sand ---------------	26	236

Well AP-66-04-601

Owner: Hawley Ray. Driller: Pomykal Drilling Co.

Clay ---------------	84	84	Sand ---------------	11	115
Sand ---------------	18	102	Shale --------------	4	119
Shale --------------	2	104			

Well AP-66-06-601

Owner: City of Bellville well 1. Driller: J. W. Jackson.

Sand, red ----------	27	27	Clay, sandy --------	11	96
Sand ---------------	32	59	Gumbo --------------	92	188
Clay, sandy --------	9	68	Rock ---------------	5	193
Sand ---------------	17	85	Sand, hard ---------	16	209

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[illegible]
Austin and Waller Counties--Continued

Austin County

Well AP-66-06-601--Continued

	Thickness (feet)	Depth (feet)
Rock	5	214
Gumbo	63	277
Rock	1	278
Gumbo	54	332
Sand	2	334
Rock	5	339
Sand	6	345
Gumbo	14	359
Rock	5	364
Sand	18	382
Gumbo	66	448
Shale, sandy	12	460
Gumbo	28	488
Sand, water	20	508
Shale, sandy	6	514
Gumbo	61	575
Shale, sandy	15	590
Gumbo	91	681
Sand	7	688
Rock	2	690
Sand, water	21	711
Gumbo	9	720
Sand, water	40	760
Sand and black gumbo	26	786

Well AP-66-06-602

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

	Thickness (feet)	Depth (feet)
Clay	20	20
Sand	12	32
Clay	39	71
Sand	10	81
Clay	84	165
Sand and clay streaks	41	206
Rock	3	209
Clay	60	269
Sandrock	6	275
Clay	30	305
Sand	14	319
Rock	1	320

(Continued on next page)

Table 6.--Drillers' logs of wells and test holes in Austin and Waller Counties--Continued

Austin County

Well AP-66-06-602--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Sand	9	329	Sand	15	587
Clay	6	335	Shale	43	630
Sand and rock layers	20	355	Sand and shale streaks	20	650
Shale	74	429	Sand, hard	27	677
Sand	11	440	Rock	1	678
Shale and rock layers	106	546	Sand	30	708
Rock	1	547	Rock	1	709
Sand and shale layers	14	561	Sand	20	729
Shale, sandy	11	572	Shale	11	740

Well AP-66-06-603

Owner: City of Bellville well 5. Driller: Layne-Texas Co.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Surface	3	3	Clay, sandy	15	155
Clay	23	26	Clay	20	175
Sand	8	34	Sand	24	199
Clay	6	40	Sand and rock layers	13	212
Sand	24	64	Clay, broken	99	311
Clay and sandy clay	43	107	Sand and rock layers	21	332
Clay	18	125	Shale	9	341
Sand, fine	15	140			

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Table 6.--Drillers' logs of wells and test holes
in Austin and Waller Counties--Continued

Austin County

Well AP-66-06-603--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Sand and rock layers -----------	11	352	Sand ---------------	23	684
Rock and sand ------	12	364	Sand and rock layers, hard -----	9	693
Shale, broken ------	66	430	Sand ---------------	36	729
Sand ---------------	17	447	Sand and shale -----	12	741
Shale and rock layers -----------	20	467	Shale --------------	29	770
Sand ---------------	22	489	Shale, sandy -------	14	784
Shale, sandy -------	54	543	Sand ---------------	15	799
Sand, broken -------	23	566	Shale --------------	25	824
Shale, sandy -------	11	577	Shale, sandy -------	10	834
Sand ---------------	15	592	Sand, hard, broken -----------	60	894
Shale, broken ------	10	602	Shale --------------	6	900
Shale --------------	50	652			
Sand and rock layers, hard -----	9	661			

Well AP-66-06-607

Owner: City of Bellville well 3. Driller: J. W. Jackson.

Shale and lime -----	48	48	Rock and lime ------	8	189
Sand and shale -----	11	59	Sand, hard ---------	5	194
Shale, hard --------	45	104	Shale and rock, hard -------------	22	216
Shale, tough, gummy ------------	77	181			

(Continued on next page)

Table 6.--Drillers' logs of wells and test holes in Austin and Waller Counties--Continued

Austin County

Well AP-66-06-607--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Shale, gummy, tough	62	278	Sand	13	454
Shale, rocky	7	285	Shale and rock, tough	18	472
Rock and sand, hard	4	289	Sand, hard	28	500
Shale and lime, tough	38	327	Shale, tough	62	562
Rock and lime, hard	7	334	Rock	16	578
Sand and boulders	8	342	Shale, tough, hard	44	622
Shale, tough	10	352	Shale, sandy, hard	18	640
Shale and rock, tough	3	355	Shale, rocky, tough	38	678
Sand, good	14	369	Sand, hard	27	705
Rock	4	373	Sand	49	754
Shale, tough	68	441			

Well AP-66-06-608

Owner: City of Bellville. Driller: J. W. Jackson.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Clay	40	40	Clay	40	178
Sand	8	48	Rock and lime	36	214
Clay, tough	42	90	Gumbo and boulders	12	226
Sand, hard	16	106	Gumbo	34	260
Clay, tough	9	115	Rock	3	263
Shale	23	138	Gravel	73	336

(Continued on next page)

Table 6.--Drillers' logs of wells and test holes in Austin and Waller Counties--Continued

Austin County

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well AP-66-06-608--Continued					
Sand, hard ---------	5	341	Sand and rock ------	6	676
Sand, loose --------	4	345	Sand, hard ---------	8	684
Rock ---------------	13	358	Sand and rocks -----	5	689
Sand ---------------	6	364	Gumbo --------------	6	695
Gravel -------------	7	371	Sand, water --------	65	760
Rock ---------------	5	376	Shale, sandy -------	17	777
Shale, hard --------	9	385	Gumbo --------------	23	800
Rock and lime ------	5	390	Shale, sandy -------	21	821
Shale, tough -------	14	404	Gumbo and shale ----	19	840
Gumbo --------------	33	437	Shale, hard --------	28	868
Sand ---------------	13	450	Rock ---------------	3	871
Gumbo --------------	24	474	Gumbo --------------	54	925
Sand and gravel ----	22	496	Shale, hard --------	21	946
Gumbo --------------	34	530	Shale, tough -------	18	964
Shale, hard --------	28	558	Shale, hard --------	31	995
Gumbo --------------	25	583	Shale, tough -------	41	1,036
Shale, hard --------	19	602	Gumbo --------------	14	1,050
Gumbo --------------	4	606	Shale, tough -------	62	1,112
Shale, sandy -------	22	628	Gumbo --------------	10	1,122
Shale, tough -------	10	638	Shale, tough -------	58	1,180
Rock and lime ------	4	642	Limestone, gypsum, and sand ---------	12	1,192
Shale, tough -------	28	670			

(Continued on next page)

Table 6.--Drillers' logs of wells and test holes in Austin and Waller Counties--Continued

Austin County

Well AP-66-06-608--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Shale, tough	15	1,207	Shale	57	1,560
Shale, crusty	5	1,212	Gumbo	38	1,598
Shale, hard	58	1,270	Shale, hard, tough	72	1,670
Rock	13	1,300	Gumbo	16	1,686
Gumbo	73	1,373	Shale, tough	56	1,742
Shale, hard	81	1,454			
Gumbo	49	1,503			

Well AP-66-07-402

Owner: Santa Fe Railroad. Driller: Santa Fe Railroad.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Clay, jointed, blue	16	16	Sandstone	4	165
Sand, water, white	31	47	Sand, fine	5	170
Clay	2	49	Sandstone	6	176
Sand, coarse, white	40	89	Clay	5	181
Clay	10	99	Rock, hard	1	182
Sand, coarse, white	20	119	Sand, fine	10	192
Clay	25	144	Sandstone	1	193
Gumbo	6	150	Gumbo	6	199
Sandstone	1	151	Rock	2	201
Clay	7	158	Gumbo	2	203
Sand, fine	3	161	Rock	4	207
			Gumbo	5	212

(Continued on next page)

Austin County

Well AP-66-07-402--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Rock	2	214	Gumbo, tough	19	373
Shale, hard	26	240	Rock	9	382
Gumbo, tough	10	250	Sand	2	384
Rock	2	252	Rock	9	393
Gumbo	1	253	Gumbo, tough	20	413
Rock	6	259	Rock	1	414
Gumbo	32	291	Sand and rock, packed	6	420
Rock	2	293	Sand, hard	21	441
Sand, hard	3	296	Gumbo, tough	11	452
Rock	7	303	Sand, packed	17	469
Sand, hard, fine	11	314	Shale, streaked with gumbo	181	650
Gumbo	6	320	Rock	1	651
Rock	1	321	Shale, hard	16	667
Sand	3	324	Rock	5	672
Rock, hard	1	325	Gumbo	16	688
Gumbo, tough	7	332	Rock	1	689
Rock, hard	2	334	Sand and rock, hard	9	698
Shale	1	335	Sand, water, coarse	37	735
Rock, hard	2	337			
Shale, sticky	17	354			

Table 6.--Drillers' logs of wells and test holes
in Austin and Waller Counties--Continued

Austin County

Well AP-66-07-701

Owner: -- Johnson. Driller: J & S Well Service.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Clay with little sand -------------	15	15	Sand, with some small gravel -----	67	82

Well AP-66-07-901

Owner: U.S. Geological Survey. Driller: U.S. Geological Survey.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Clay, and soil -----	2	2	Clay, plastic, with white calcareous nodules, yellow --	½	65½
Clay, sandy, silty, brownish ---------	5	7	Sand, with clay, medium-grained, hard, gray -------	6½	72
Sand with clay and silt, medium- to fine-grained, wet at 25 ft ---------	58	65			

Well AP-66-08-704

Owner: U.S. Geological Survey. Driller: U.S. Geological Survey.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Soil ---------------	2	2	Sand with gravel ---	37	74
Clay, sandy, silty, brown and reddish-brown ------------	9	11	Clay, with calcareous nodules, gray with red and yellow streaks ---	3	77
Sand, silty, with clay, fine grained, reddish-brown, wet --------------	26	37			

Well AP-66-14-101

Owner: E. Witte. Driller: --

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Clay, reddish ------	56	56	Clay ---------------	--	75
Sand, reddish ------	19	75			

Austin County

Well AP-66-14-501

Owner: John Coffee. Driller: L. Mickelson.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Soil and clay ------	29	29	Sand, rocky --------	6	246
Sand ---------------	25	54	Shale --------------	9	255
Clay ---------------	12	66	Sand, rocky --------	30	285
Sand ---------------	5	71	Shale --------------	15	300
Clay ---------------	15	86	Sand ---------------	4	304
Sand, rocky --------	42	128	Shale --------------	48	352
Shale --------------	13	141	Sand, rocky --------	43	395
Sand ---------------	15	156	Shale --------------	22	417
Shale --------------	8	164	Sand ---------------	5	422
Sand, rocky --------	27	191	Shale --------------	6	428
Shale --------------	9	200	Sand ---------------	4	432
Sand ---------------	22	222	Shale --------------	8	440
Shale --------------	18	240	Sand ---------------	12	452

Well AP-66-15-101

Owner: B. W. Popnoe. Driller: Floyd Blakely.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Sand ---------------	60	60	Sand, with streaks of limestone, white ------------	24	164
Clay, white, slick -	80	140			

Table 6.--Drillers' logs of wells and test holes in Austin and Waller Counties--Continued

Austin County

Well AP-66-15-901

Owner: City of Sealy well 5. Driller: Layne-Texas Co.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Soil	2	2	Shale	8	243
Clay, yellow	25	27	Sand	25	268
Sand	10	37	Shale	9	277
Rock and sand	16	53	Sand, broken	25	302
Clay, pink	30	83	Sand	28	330
Sand with clay breaks	40	123	Rock	1	331
Shale	7	130	Clay	12	343
Sand	17	147	Sand, broken	19	362
Shale	3	150	Shale	10	372
Sand	3	153	Sand and sandy shale	78	450
Shale	44	197	Shale and sandy shale	30	480
Shale, sandy	20	217	Shale broken	120	600
Shale	8	225			
Sand	10	235			

Well AP-66-15-902

Owner: City of Sealy well 3. Driller: Layne-Texas Co.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Surface soil	3	3	Sand	2	72
Clay, yellow	50	53	Clay	18	90
Rock	17	70	Sand	41	131

(Continued on next page)

Austin County

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well AP-66-15-902--Continued					
Gumbo ---------------	6	137	Sand ---------------	22	265
Sand ---------------	21	158	Clay ---------------	10	275
Gumbo ---------------	40	198	Sand ---------------	24	299
Sand ---------------	21	219	Clay ---------------	5	304
Clay ---------------	24	243			

Well AP-66-15-903

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

Soil ---------------	2	2	Clay, sandy with clay breaks ------	51	251
Clay, yellow -------	18	20	Sand, gray ---------	19	270
Sand and clay ------	60	80	Shale and sand -----	3	273
Sand, white --------	30	110	Sand, white --------	45	318
Sand and clay breaks -----------	60	170	Clay and sandy clay -------------	93	411
Clay ---------------	30	200			

Well AP-66-16-405

Owner: State of Texas. Driller: Pomykal Drilling Co.

Clay ---------------	50	50	Sand ---------------	75	102
Shale and rock -----	25	75			

Table 6.--Drillers' logs of wells and test holes in Austin and Waller Counties--Continued

Austin County

Well AP-66-22-602

Owner: Gene Beckendorff. Driller: Katy Drilling Co.

	Thickness (feet)	Depth (feet)
Surface and clay	40	40
Clay with sand strips	30	70
Rock with sand strips	24	94
Sand and rock	26	120
Clay, tough	14	134
Sand with small rock and clay	55	189
Clay	19	208
Sand, rocky	27	235
Clay	17	252
Sand and rock	33	285
Clay	19	304
Sand with clay strips	24	328
Clay	16	344
Sand	18	362
Shale, sandy	8	370
Clay	18	388
Sand and rock	34	422
Shale, hard	33	445
Clay	52	497
Clay and sand strips	15	512
Rock, rocky	13	525
Rock and sand, hard	15	540
Rock, very hard	3	543
Rock and sand	2	545
Rock and sand strips	15	560
Sand	37	597
Shale and sand	19	616
Shale, hard	8	624
Sand, rocky	55	679
Clay	22	701
Sand and rock	11	712
Shale, sandy	42	754
Clay	75	829
Sand	22	851
Clay	24	875
Sand	10	885
Clay	20	905
Sand, rocky	10	915

(Continued on next page)

Austin County

Well AP-66-22-602--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Clay	8	923	Sand and shale	27	1,057
Sand	17	940	Clay	32	1,089
Shale	50	990	Sand	15	1,104
Sand	11	1,001	Clay	4	1,108
Clay	8	1,009	Sand	109	1,214
Sand	11	1,020	Clay	23	1,240
Clay	10	1,030	Sand, rocky	15	1,255

Well AP-66-23-101

Owner: W. A. Ferris. Driller: Katy Drilling Co.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Soil	34	34	Sand	22	242
Clay	14	48	Clay	12	254
Sand	12	60	Sand, rocky	104	338
Clay	15	75	Clay	50	388
Sand	29	104	Sand and rock	15	403
Sand and rock	13	117	Clay, rocky	35	438
Clay	27	144	Sand	33	471
Sand and rock	18	162	Clay, rocky	27	498
Clay	22	184	Sand	11	509
Sand, rocky	27	208	Clay and rock	65	574
Clay	10	218	Sand	48	622

Table 6.--Drillers' logs of wells and test holes
in Austin and Waller Counties--Continued

Austin County

Well AP-66-23-102

Owner: -- Driller: Katy Drilling Co.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Soil and clay ------	35	35	Clay --------------	14	312
Quicksand ---------	22	57	Sand --------------	11	323
Clay --------------	17	74	Clay --------------	7	330
Sand --------------	23	97	Sand --------------	28	358
Clay with sand strips and rock --	34	131	Clay --------------	74	432
			Sand --------------	21	453
Sand --------------	5	136	Clay --------------	14	467
Clay with sand strips ----------	28	164	Sand and rock ------	26	493
Sand --------------	3	167	Clay --------------	14	507
Clay --------------	33	200	Sand, fine with clay strips ------	23	530
Sand and rock ------	30	230	Sand and rock ------	68	598
Clay and rock ------	48	278	Shale -------------	--	598
Sand and rock ------	20	298			

Well AP-66-23-204

Owner: Ralph Bollinger. Driller: L. Mickelson.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Clay --------------	89	89	Sand, medium- to coarse-grained ---	53	213
Sand, medium-grained ---------	27	116	Clay --------------	5	218
Clay --------------	28	144	Sand, fine- to medium-grained ---	9	227
Sand, medium-grained ---------	16	160	Clay --------------	21	248

(Continued on next page)

Table 6.--Drillers' logs of wells and test holes in Austin and Waller Counties--Continued

Austin County

Well AP-66-23-204--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Sand, fine- and medium-grained ---	25	273	Clay ---------------	7	396
Clay ---------------	5	278	Sand, fine-grained -	9	405
Sand, coarse- and medium-grained, scattered small gravel -----------	14	292	Clay ---------------	15	420
Clay ---------------	10	302	Sand, fine-grained -	25	445
Sand, medium-grained ----------	23	325	Clay ---------------	6	451
Clay ---------------	12	337	Sand, fine-grained -	27	478
Sand, fine-grained -	52	389	Clay ---------------	29	507
			Sand, fine- and medium-grained ---	11	518
			No record ----------	102	620

Well AP-66-23-402

Owner: Charlie Kaechele. Driller: A. H. Justman.

Soil and clay ------	60	60	Clay ---------------	16	504
Sand and rock ------	146	206	Sand ---------------	27	531
Clay ---------------	35	241	Clay ---------------	17	548
Sand and rock ------	12	253	Sand and rock ------	107	655
Clay ---------------	42	295	Clay ---------------	16	671
Sand ---------------	19	314	Sand ---------------	31	702
Clay ---------------	18	332	Clay ---------------	8	710
Sand ---------------	46	378	Sand ---------------	12	722
Clay ---------------	97	475	Clay ---------------	11	733
Sand ---------------	13	488	Sand ---------------	21	754

(Continued on next page)

Table 6.--Drillers' logs of wells and test holes in Austin and Waller Counties--Continued

Austin County

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

Well AP-66-23-402--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Clay ---------------	12	766	Clay ---------------	22	842
Sand and rock ------	19	785	Sand ---------------	15	857
Clay ---------------	25	810	Clay ---------------	11	868
Sand ---------------	10	820	Sand and clay ------	22	890

Well AP-66-23-801

Owner: Charles Keachele. Driller: Katy Drilling Co.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Soil and clay ------	26	26	Sand ---------------	37	231
Sand ---------------	17	43	Clay ---------------	36	267
Clay ---------------	44	87	Sand ---------------	30	297
Sand ---------------	9	96	Clay ---------------	20	317
Clay ---------------	10	106	Sand ---------------	24	341
Sand and clay strips -----------	11	117	Clay ---------------	16	357
Clay ---------------	8	125	Sand ---------------	23	380
Rock ---------------	3	128	Clay ---------------	13	393
Sand and clay strips -----------	25	153	Sand and rock ------	58	451
Rock ---------------	2	155	Rock, lime and gravel -----------	30	481
Sand ---------------	13	168	Clay ---------------	62	543
Rock ---------------	4	172	Sand ---------------	32	575
Sand ---------------	20	192	Clay ---------------	23	598
Rock ---------------	2	194	Sand ---------------	7	605

(Continued on next page)

Austin County

Well AP-66-23-801--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Clay ---------------	86	691	Rock ---------------	4	743
Rock ---------------	2	693	Clay ---------------	30	773
Clay ---------------	25	718	Rock and sand ------	49	822
Sand and rock ------	21	739			

Well AP-66-23-901

Owner: J. F. Johnson. Driller: Katy Drilling Co.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Topsoil ------------	37	37	Sand ---------------	20	300
Sand ---------------	8	45	Clay and sand strips -----------	55	355
Clay ---------------	25	70	Sand ---------------	9	364
Sand ---------------	8	78	Clay ---------------	49	413
Clay ---------------	17	95	Sand ---------------	20	433
Sand ---------------	31	126	Clay ---------------	15	448
Clay ---------------	24	150	Sand ---------------	27	475
Sand ---------------	22	172	Clay ---------------	5	480
Clay ---------------	8	180	Sand ---------------	19	499
Sand ---------------	30	210	Clay ---------------	9	508
Clay ---------------	8	218	Sand and clay ------	48	556
Sand ---------------	28	246			
Clay ---------------	34	280			

Table 6.--Drillers' logs of wells and test holes
in Austin and Waller Counties--Continued

Austin County

Well AP-66-24-801

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Clay	64	64	Sand, rocky with clay strips	21	279
Sand	21	85	Clay	10	289
Clay	15	100	Sand, rocky	14	303
Sand and gravel	14	114	Clay	83	386
Clay	14	128	Sand	15	401
Sand, rocky	26	154	Clay	22	423
Rock, hard	2	156	Sand	19	442
Sand	8	164	Clay	17	459
Clay	7	171	Sand, with small clay strips	41	500
Sand, rocky	24	195	Clay	41	541
Clay	13	208	Sand, with small clay strips	27	568
Sand, rocky	16	224	Clay	19	587
Clay	7	231	Sand	23	610
Sand	16	247			
Clay	11	258			

Well AP-66-32-102

Owner: W. S. Kilroy. Driller: L. Patterson, Inc.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Soil and clay	31	31	Gravel	36	102
Sand	34	65	Shale	2	104
Shale	1	66	Sand	25	129

(Continued on next page)

Austin County

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well AP-66-32-102--Continued					
Shale	7	136	Sand	33	360
Sand	17	153	Shale	20	380
Shale	12	165	Sand	12	392
Sand	7	172	Shale	4	396
Shale	1	173	Sand	21	417
Sand	4	177	Sandrock	2	419
Shale	9	186	Sand	8	427
Sand	18	204	Shale	2	429
Shale	27	231	Sand	21	450
Sand	10	241	Shale	9	459
Sandrock	16	257	Sandrock	3	462
Sand	18	275	Shale	25	487
Shale	1	276	Sandrock	30	517
Sand	24	300	Shale	31	548
Sandrock	2	302	Sand	18	566
Sand	10	312	Shale	28	594
Shale	15	327	Sand	24	618

Table 6.--Drillers' logs of wells and test holes in Austin and Waller Counties--Continued

Waller County

Well YW-59-55-807

Owner: Texas Highway Dept. Driller: Texas Highway Dept.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Silt, with clay and tan sand ---------	36	36	Silt, with clay, yellowish --------	10	75
Sand, gray to tan --	14	50			
Sand and gravel, with clay streaks -----	15	65			

Well YW-59-55-909

Owner: U.S. Geological Survey. Driller: U.S. Geological Survey.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Soil ---------------	2	2	Clay, Lagarto clay, silty with sand streaks, calcareous and iron nodules, gray, weathers olive-tan --------	8½	22
Clay, silty, sand, olive-gray and reddish-brown ----	11½	13½			

Well YW-59-55-910

Owner: U.S. Geological Survey. Driller: U.S. Geological Survey.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Soil and rock fill -------------	2	2	Sand and gravel, coarse-grained ---	8	55
Clay, silty, brown -	5	7	Clay, Lagarto clay, black with calcareous nodules, gray, weathers tan --------------	9	64
Sand with silt and clay, reddish-brown ------------	10	17			
Clay, sandy, silty, plastic, reddish-brown ------------	30	47			

Waller County

Well YW-59-55-911

Owner: U.S. Geological Survey. Driller: U.S. Geological Survey.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Soil, sandy	2	2	Clay, Lagarto clay, hard, calcareous nodules, gray and tan	13	65
Clay, sandy, silty, reddish-brown	38	40			
Sand with silt and clay, brown	12	52			

Well YW-59-64-201

Owner: City of Hempstead well 3. Driller: Texas Water Wells, Inc.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Surface material	45	45	Shale	34	426
Sand	45	90	Sand	24	450
Clay	60	150	Shale	4	454
Coal	8	158	Shale, sandy	24	478
Shale	27	185	Sand, broken	38	516
Sand	30	215	Shale	123	639
Shale	5	220	Shale, sandy	24	663
Sand	20	240	Sand	2	665
Shale	8	248	Shale	21	686
Sand	10	258	Sand	3	689
Shale	7	265	Shale	4	693
Sand, hard	20	285	Sand	21	714
Shale	57	342	Shale	3	717
Sand	28	370	Sand	7	724
Shale	8	378	Shale	4	728
Sand	14	392			

Table 6.--Drillers' logs of wells and test holes in Austin and Waller Counties--Continued

Waller County

Well YW-59-64-202

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Clay --------------	38	38	Sand, white --------	12	393
Sand, red ----------	15	53	Gumbo --------------	36	429
Shale, sandy -------	13	66	Sand ---------------	30	459
Sand, coarse -------	9	75	Shale, sandy -------	27	486
Gumbo --------------	45	120	Rock and lime ------	1	487
Shale, sandy -------	24	144	Sand ---------------	28	515
Gumbo --------------	16	160	Shale --------------	74	589
Shale, sandy -------	8	168	Sand ---------------	7	596
Sand ---------------	27	195	Shale --------------	73	669
Gravel -------------	10	205	Sand ---------------	40	709
Shale, sticky ------	7	212	Rock and lime ------	1	710
Sand and gravel ----	37	249	Shale, sandy -------	15	725
Gumbo --------------	2	251	Gumbo --------------	20	745
Shale --------------	130	381			

Well YW-59-64-203

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Soil ---------------	2	2	Sand, fine ---------	12	119
Clay ---------------	47	49	Clay ---------------	8	127
Sand ---------------	38	87	Rock, soft ---------	9	136
Clay ---------------	20	107	Clay ---------------	34	170

(Continued on next page)

Table 6.--Drillers' logs of wells and test holes in Austin and Waller Counties--Continued

Waller County

Well YW-59-64-203--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Rock	1	171	Gumbo	12	388
Clay	8	179	Sand	14	402
Rock	1	180	Gumbo	26	428
Sand	31	211	Sand	19	447
Rock	1	212	Gravel	34	481
Sand	60	272	Sand	33	514
Rock	1	273	Gumbo	169	683
Gumbo	84	357	Sand	36	719
Sand	19	376	Gravel	149	868

Well YW-59-64-903

Owner: -- Menke. Driller: P. Falkenberry.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Surface soil	10	10	Clay	20	50
Clay	14	24	Sand, water	28	78
Sand	6	30	Clay, hard	5	83

Well YW-60-57-101

Owner: Prairie View A&M College well 4. Driller: Layne-Texas Co.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Surface soil	2	2	Clay, sandy	50	130
Clay	18	20	Clay	41	171
Sand	38	58	Sand	12	183
Clay, broken	17	75	Clay, sandy	17	200
Sand	5	80			

(Continued on next page)

Table 6.--Drillers' logs of wells and test holes in Austin and Waller Counties--Continued

Waller County

Well YW-60-57-101--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Clay and sand, broken -----------	48	248	Sand ---------------	31	491
Sand ---------------	59	307	Sand, broken -------	24	515
Clay, broken -------	59	366	Shale and sand, broken -----------	26	541
Clay ---------------	32	398	Sand ---------------	19	560
Sand ---------------	23	421	Shale --------------	10	570
Shale --------------	10	431			
Clay and hard layers -----------	29	460			

Well YW-60-57-104

Owner: Prairie View A&M College well 1. Driller: Layne-Texas Co.

Surface soil -------	20	20	Rock, hard ---------	1	355
Sand, red ----------	60	80	Clay ---------------	90	445
Clay ---------------	220	300	Rock ---------------	38	483
Rock, soft ---------	1	301	Sand ---------------	50	533
Sand, packed -------	30	331	Clay ---------------	17	550
Clay ---------------	23	354	Sand ---------------	21	571

Well YW-60-57-106

Owner: Charles Flukinger. Driller: W. J. Swinehart.

Soil ---------------	20	20	Clay ---------------	40	70
Sand, red ----------	10	30	Sand, red ----------	15	85

(Continued on next page)

Table [illegible].--Drillers' logs of wells and test holes in Austin and Waller Counties--Continued

Waller County

Well YW-60-57-106--Continued

	Thickness (feet)	Depth (feet)
Clay	25	110
Sand, coarse, white	8	118
Clay	48	166
Sand, medium-grained, white	10	176

Well YW-60-57-505

Owner: City of Waller well 1. Driller: Texas Water Wells, Inc.

	Thickness (feet)	Depth (feet)
Surface soil	11	11
Sand	6	17
Sandstone	4	21
Rock	11	32
Clay	26	58
Clay	31	89
Shale	22	111
Sand	28	139
Rock	3	142
Shale, soft	21	163
Sand	49	212
Shale	70	282
Rock	3	285
Sand	15	300
Shale	10	310
Sand	58	368
Shale, sticky	30	398
Sand	4	402
Sandstone	12	414
Sand	37	451
Rock	11	462
Sand	17	479
Rock	3	482
Shale, sticky	12	494
Rock	2	496
Sand	33	529
Rock	3	531
Shale, sticky	7	538
Rock	1	539
Sandstone	6	545
Shale, sandstone, and rock	58	603

Table 6.--Drillers' logs of wells and test holes in Austin and Waller Counties--Continued

Waller County

Well YW-60-57-506

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Surface soil	10	10	Sand and clay streaks	31	349
Soil and clay	5	15	Clay	71	420
Clay and sand	12	27	Sand and shale streaks, brown	19	439
Clay and hard streaks	23	50	Sand, fine-grained, brown	21	460
Sand, fine-grained, brown	38	88	Sand and shale streaks	14	474
Clay	25	113	Sand, fine-grained, brown	10	484
Clay and sand streaks	18	131	Clay	12	496
Clay	28	159	Sand with shale streaks	5	501
Sand, with clay streaks, white	48	207	Clay with sand streaks	17	518
Clay	22	229	Shale and hard streaks	2	520
Sand	11	240	Sand and shale, fine-grained, brown	30	550
Clay	6	246	Shale	8	558
Sand	11	257			
Clay	14	271			
Sand, fine-grained, brown	32	303			
Clay	15	318			

Table 6.--Drillers' logs of wells and test holes in Austin and Waller Counties--Continued

Waller County

Well YW-60-57-702

Owner: C. L. Haley. Driller: C. Petry.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Soil	10	10	Gravel with brown sand	18	56
Sand, red	6	16	Rock, soft	2	58
Clay, red	22	38	Sand, white	15	73

Well YW-60-58-104

Owner: Tennessee Gas & Transmission Co. Driller: McMasters & Pomeroy.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Surface soil	5	5	Sand	2	320
Clay	15	20	Rock	2	322
Sand	5	25	Clay	37	359
Clay	4	29	Clay and boulders	23	382
Sand	31	60	Sand	19	401
Clay	30	90	Clay	6	407
Clay and boulders	10	100	Sand and boulders	17	424
Clay	18	118	Shale and boulders	104	525
Sand	69	187	Clay	64	592
Clay	41	228	Sand	48	640
Sand	15	243	Shale	40	680
Shale, sandy	74	317	Sand	32	713
Rock	1	318	Clay	--	713

Table 6.--Drillers' logs of wells and test holes in Austin and Waller Counties--Continued

Waller County

Well YW-60-58-105

Owner: Tennessee Gas & Transmission Co. Driller: McMasters & Pomeroy.

	Thickness (feet)	Depth (feet)
Soil	2	2
Clay	16	18
Sand	22	40
Clay, red	15	55
Sand	10	65
Clay, white	17	82
Clay, sandy	30	112
Clay, red	13	125
Sand, hard	5	130
Sand, soft	40	170
Sand and clay	12	182
Sand	34	216
Clay	7	223
Sand	2	225
Clay	15	240
Sand and clay, streaks	55	295
Clay, sandy	97	392
Sand and rocks	8	400
Sand	8	408
Clay	27	435
Clay	60	495
Clay, sandy	54	549
Clay	62	611
Clay, sandy	14	625
Sand	82	707
Clay	8	715

Well YW-60-58-202

Owner: Cameron Iron Works Club. Driller: A & L Pump Service.

	Thickness (feet)	Depth (feet)
Sand	10	10
Clay, reddish	20	30
Clay, sandy, red	30	60
Sand	10	70
Clay, white	20	90
Clay, red	30	120
Clay, yellow	10	130
Clay, blue	25	155
Sand	22	177

Waller County

Well YW-65-01-101

Owner: M. A. Dodd. Driller: Katy Drilling Co.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Topsoil	25	25	Rock	1	407
Sand	39	64	Clay	13	420
Clay	6	70	Sand	23	443
Sand	5	75	Clay	42	485
Clay	70	145	Sand	45	530
Sand	71	216	Clay	5	535
Rock	1	217	Sand	8	543
Clay	30	247	Clay	28	571
Sand	26	273	Sand	17	588
Rock	1	274	Clay	9	597
Clay	15	289	Sand	8	605
Sand	14	303	Rock	3	608
Clay	25	328	Shale	48	656
Sand	6	334	Sand	26	682
Clay	26	360	Clay	154	836
Sand	10	370	Sand	24	860
Clay	17	387	Clay	29	889
Rock	1	388	Sand and clay	50	939
Clay	18	406			

Table 6.--Drillers' logs of wells and test holes in Austin and Waller Counties--Continued

Waller County

Well YW-65-01-402

Owner: A. A. Pfeffer & Sons. Driller: Katy Drilling Co.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Topsoil	15	15	Clay with sandy shale	57	570
Sand and gravel	80	95	Sandrock	31	601
Clay	69	164	Shale, sandy	47	648
Sand, rocky	52	216	Sand and rock	19	667
Clay	6	222	Shale, sandy	59	726
Sand	10	232	Sand	34	760
Clay and sand strips	143	375	Shale	31	791
Sand, rocky	46	421	Sand, rocky	13	804
Clay	70	491			
Sand	22	513			

Well YW-65-01-403

Owner: A. A. Pfeffer & Sons. Driller: Katy Drilling Co.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Topsoil	23	23	Sand	24	230
Sand	26	49	Clay	68	298
Clay	5	54	Sand	16	314
Sand	31	85	Clay	6	320
Clay	16	101	Sand	5	325
Sand	20	121	Clay	73	398
Rock	5	126	Rock	1	399
Clay	80	206	Sand	40	439

(Continued on next page)

Waller County

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

Well YW-65-01-403--Continued

Clay ---------------	61	500	Sand, rocky --------	63	736
Sand ---------------	45	545	Clay ---------------	22	758
Clay ---------------	8	553	Sand ---------------	34	792
Rock ---------------	4	557	Rock ---------------	1	793
Clay ---------------	33	590	Clay ---------------	4	797
Sand and rock ------	39	629	Sand ---------------	27	824
Shale --------------	44	673			

Well YW-65-01-405

Owner: A. A. Pfeffer & Sons. Driller: Ray Wood.

Soil ---------------	10	10	Shale --------------	8	278
Quicksand and dry gravel -----------	35	45	Shale, sandy -------	15	293
Clay ---------------	5	50	Clay ---------------	12	305
Sand and gravel ----	34	84	Sand ---------------	20	325
Clay ---------------	101	185	Clay ---------------	15	340
Sand ---------------	31	216	Shale, sandy -------	29	369
Clay ---------------	9	225	Sand ---------------	22	402
Shale, hard --------	12	237	Shale --------------	12	414
Shale, sandy -------	7	244	Sand ---------------	16	430
Sand ---------------	6	250	Gumbo --------------	12	442
Clay ---------------	6	256	Sand, hard ---------	8	450
Sand ---------------	14	270	Shale --------------	12	462

(Continued on next page)

Table 6.--Drillers' logs of wells and test holes in Austin and Waller Counties--Continued

Waller County

Well YW-65-01-405--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Sand	11	473	Sand	21	722
Gumbo	11	484	Clay	16	738
Sand	14	498	Sand and boulders	18	756
Clay	17	515	Shale	28	784
Sandstone	11	526	Sand	21	805
Clay	50	576	Gumbo	12	817
Sandstone	30	606	Sand, fine	18	835
Clay	43	649	Sandstone	3	838
Sandstone	23	672	Shale	8	846
Shale	29	701			

Well YW-65-01-602

Owner: Clyde Nelson. Driller: Katy Drilling Co.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Topsoil	65	65	Sand and rock	23	309
Clay	8	73	Clay	26	335
Sand	66	139	Sand, rocky	60	395
Clay	4	143	Clay	18	413
Rock	2	145	Sand	21	434
Sand, rocky	28	173	Clay	25	459
Clay	6	179	Rock	4	463
Sand	24	203	Sand and rock	50	513
Clay	83	286	Clay	71	584

(Continued on next page)

Well YW-65-01-602--Continued

	Thickness (feet)	Depth (feet)
Sand and rock ------	11	595
Clay --------------	205	800
Rock and shale -----	10	810
Clay --------------	10	820
Sand, rocky --------	23	843
Clay --------------	11	854
Rock and sand ------	52	906
Clay --------------	20	926
Sand, rocky, and clay ---------	33	959

Well YW-65-01-802

Owner: Perry Robertson. Driller: Katy Drilling Co.

	Thickness (feet)	Depth (feet)
Topsoil ------------	21	21
Sand --------------	13	34
Clay --------------	22	56
Sand and clay ------	43	99
Clay --------------	29	128
Sand --------------	40	168
Clay --------------	113	281
Sand --------------	76	357
Clay --------------	68	425
Sand --------------	25	450
Shale -------------	75	525
Sand and clay strips -----------	49	574
Shale -------------	17	591
Sand --------------	12	603
Shale -------------	90	693
Sand, rocky --------	15	708
Shale -------------	30	738
Sand --------------	10	748
Shale -------------	22	766
Sand, fine-grained -	27	793
Shale -------------	20	813
Sand --------------	74	887
Shale and sand strips -----------	16	903
Sand --------------	10	913
Shale -------------	46	959
Sand --------------	5	964
Shale -------------	31	995
Sand and shale -----	35	1,030

Table 6.--Drillers' logs of wells and test holes in Austin and Waller Counties--Continued

Waller County

Well YW-65-01-803

Owner: W. R. Bollinger & Sons. Driller: Katy Drilling Co.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Topsoil ------------	20	20	Clay --------------	91	706
Sand ---------------	10	30	Sand --------------	35	741
Clay ---------------	32	62	Clay --------------	42	783
Sand and gravel ----	28	90	Shale, sandy -------	99	882
Rock ---------------	8	98	Sand, rocky --------	21	903
Sand ---------------	9	107	Shale -------------	10	913
Clay ---------------	23	130	Sand, rocky --------	18	931
Sand ---------------	20	150	Shale -------------	25	956
Clay ---------------	102	252	Shale, sandy -------	55	1,011
Sand ---------------	40	292	Shale -------------	12	1,023
Clay ---------------	23	315	Rock --------------	2	1,025
Sand and rock ------	13	328	Shale -------------	85	1,110
Clay ---------------	18	346	Sand, fine-grained -	4	1,114
Sand, rocky --------	16	362	Shale, hard --------	96	1,210
Clay ---------------	19	381	Sand --------------	6	1,216
Sand, rocky --------	89	470	Rock, hard ---------	6	1,222
Clay ---------------	32	502	Sand, rocky --------	14	1,236
Sand and rock ------	16	518	Shale and sand-stone ------------	32	1,268
Clay ---------------	35	553	Rock, sand, and hard shale -------	62	1,330
Rock ---------------	4	557			
Clay and rock ------	44	601			
Sand and rock ------	14	615			

Waller County

Well YW-65-01-804

Owner: George Nelson. Driller: A. H. Justman.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Soil and clay ------	75	75	Clay --------------	91	606
Sand and gravel ----	40	115	Shale --------------	13	619
Rock, soft ---------	16	131	Clay --------------	8	627
Rock ---------------	3	134	Sand and rock ------	37	664
Clay ---------------	18	152	Clay --------------	22	686
Sand ---------------	30	182	Sand and rock ------	6	692
Clay ---------------	46	228	Shale --------------	30	722
Sand and rock ------	16	244	Rock and sand ------	26	748
Rock ---------------	2	246	Shale --------------	31	779
Clay ---------------	48	294	Sand and rock ------	47	826
Sand and rock ------	38	332	Shale --------------	19	845
Clay ---------------	56	388	Sand and rock ------	28	873
Sand ---------------	27	415	Shale --------------	267	1,140
Clay ---------------	21	436	Sand ---------------	10	1,150
Sand ---------------	49	485	Shale --------------	93	1,243
Clay ---------------	16	501	Sand and rock ------	36	1,279
Sand ---------------	14	515			

Well YW-65-01-808

Owner: Perry Robertson. Driller: A. H. Justman.

Topsoil ------------	77	77	Clay ---------------	3	103
Gravel -------------	23	100	Sand ---------------	14	117

(Continued on next page)

Table 6.--Drillers' logs of wells and test holes in Austin and Waller Counties--Continued

Waller County

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well YW-65-01-808--Continued					
Clay	31	148	Rock and sand	18	772
Sand	14	162	Shale	45	817
Clay	38	200	Sand	23	840
Sand	14	214	Shale	37	877
Clay	39	253	Sand	13	890
Sand	55	308	Shale	4	894
Clay	26	334	Sand	24	918
Sand	14	348	Shale	11	929
Clay	44	392	Sand	15	944
Sand	71	463	Shale	9	953
Clay	13	476	Sand	22	975
Sand	18	494	Shale	28	1,003
Clay	12	506	Shale, sandy	15	1,018
Sand	35	541	Shale	14	1,032
Clay	37	578	Sand	14	1,046
Sand	10	588	Shale	44	1,090
Clay	67	655	Shale, sandy	18	1,108
Sand	19	674	Shale	56	1,164
Shale	36	710	Shale, sandy	14	1,178
Sand	22	732	Shale	32	1,210
Shale	22	754	Sand and rock	69	1,279

Waller County

Well YW-65-01-901

Owner: Perry Robertson. Driller: Katy Drilling Co.

	Thickness (feet)	Depth (feet)
Topsoil ------------	20	20
Clay ---------------	44	64
Sand ---------------	68	132
Clay ---------------	6	138
Sand, rocky --------	16	154
Clay ---------------	17	171
Rock ---------------	5	176
Clay ---------------	68	244
Rock ---------------	4	248
Clay ---------------	26	274
Sand ---------------	7	281
Clay ---------------	37	318
Sand ---------------	18	336
Clay ---------------	16	352
Sand ---------------	9	361
Clay ---------------	85	446
Sand ---------------	51	497
Clay ---------------	58	555
Rock, clay and sand strips ------	14	569
Rock ---------------	1	570
Sand ---------------	8	578
Clay ---------------	92	670
Sand and rocks -----	36	706
Clay ---------------	30	736
Sand ---------------	21	757
Clay ---------------	38	795
Sand ---------------	29	824
Clay ---------------	26	850
Sand, rocky --------	58	908
Shale --------------	25	933
Sand ---------------	12	945
Shale, hard --------	47	992
Sand ---------------	10	1,002
Shale --------------	61	1,063
Sand, rocky --------	7	1,070
Shale --------------	35	1,105
Sand and shale -----	45	1,150

Table 6.--Drillers' logs of wells and test holes in Austin and Waller Counties--Continued

Waller County

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well YW-65-01-903					
Owner: Eba Hebert. Driller: Layne-Texas Co.					
Clay ---------------	12	12	Rock ---------------	1	569
Sand ---------------	14	26	Sand ---------------	10	579
Clay ---------------	14	40	Rock ---------------	1	580
Sand ---------------	43	83	Sand ---------------	20	600
Clay ---------------	18	101	Gumbo --------------	5	605
Sand ---------------	36	137	Rock ---------------	1	606
Clay ---------------	86	223	Gumbo --------------	28	634
Rock ---------------	1	224	Sand ---------------	25	659
Sand ---------------	10	234	Gumbo --------------	28	687
Rock ---------------	2	236	Rock ---------------	1	688
Sand ---------------	32	268	Gumbo --------------	37	725
Clay ---------------	28	296	Rock ---------------	1	726
Sand ---------------	12	308	Sand ---------------	2	728
Clay ---------------	24	332	Gumbo --------------	10	738
Sand ---------------	58	390	Shale --------------	18	756
Gumbo --------------	80	470	Rock ---------------	1	757
Sand ---------------	10	480	Shale --------------	6	763
Gumbo --------------	23	503	Rock and sand ------	25	788
Sand ---------------	33	536	Shale --------------	17	805
Gumbo --------------	24	560	Sand ---------------	23	828
Sand ---------------	8	568	Shale --------------	56	884

Waller County

Well YW-65-01-904

Owner: A. E. Thompson. Driller: Layne-Texas Co.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Soil	3	3	Sand, white	27	498
Clay	8	11	Sand and clay	30	528
Clay, sandy, and sand	26	37	Clay	5	533
Clay, red	40	77	Shale	29	562
Sand and gravel	33	110	Sand and shale	32	594
Clay	7	117	Shale, tough	50	644
Sand and clay	27	144	Shale, sandy	8	652
Sand and gravel, coarse	8	152	Shale, tough	96	748
Clay	4	156	Shale, tough, brown	22	770
Sand and gravel, coarse	12	168	Sand, fine-grained, hard	8	778
Rock	1	169	Shale, tough	26	804
Clay, tough	38	207	Sand, fine-grained, hard	7	811
Clay, red	22	229	Shale	17	828
Clay with sand	38	267	Sand	4	832
Sand, fine-grained, yellow	20	287	Shale	14	846
Clay, sandy	157	444	Sand	37	883
Sand and clay	13	457	Shale	7	890
Sand, white	4	461	Sand	24	914
Clay	10	471	Shale, tough	12	926

Table 6.--Drillers' logs of wells and test holes in Austin and Waller Counties--Continued

Waller County

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

Well YW-65-01-905

Owner: Eba Hebert. Driller: Harry Hebert.

Topsoil and clay ---	80	80	Gumbo --------------	10	383
Sand and gravel ----	70	150	Sand ---------------	22	405
Gumbo --------------	136	286	Gumbo --------------	73	478
Sand ---------------	40	326	Sand ---------------	43	521
Gumbo --------------	32	358	Gumbo --------------	3	524
Sand ---------------	15	373			

Well YW-65-02-701

Owner: J. H. Longenbaugh. Driller: A. H. Justman.

Surface material ---	73	73	Sand ---------------	10	275
Sand ---------------	55	128	Clay ---------------	10	285
Clay ---------------	17	145	Sand ---------------	27	312
Sand ---------------	20	165	Clay ---------------	9	321
Clay ---------------	8	173	Sand ---------------	24	345
Sand ---------------	52	225	Clay ---------------	17	362
Clay ---------------	40	265	Sand ---------------	30	392

Well YW-65-02-706

Owner: J. H. Longenbaugh. Driller: Katy Drilling Co.

Topsoil ------------	45	45	Clay ---------------	16	116
Clay, soft ---------	30	75	Sand and gravel ----	16	132
Sand ---------------	25	100	Clay ---------------	8	140

(Continued on next page)

Well YW-65-02-706--Continued

	Thickness (feet)	Depth (feet)
Sand	10	150
Rock and lime	7	157
Sand	5	162
Rock and lime	22	184
Sand	24	208
Clay	92	300
Rock, hard	2	302
Rock and lime with some sand	40	342
Clay	15	357
Sand	23	380
Clay	17	397
Sand	23	420
Clay with sand strips	35	455
Sand	28	483
Clay	23	506
Sand, rocky	32	538
Clay	19	557
Sand	46	603
Clay	47	650

Well YW-65-09-202

Owner: C. J. Freeland, Jr. Driller: Katy Drilling Co.

	Thickness (feet)	Depth (feet)
Clay	37	37
Sand	101	138
Rock	2	140
Clay	18	158
Sand	37	195
Clay	13	208
Sand	35	243
Clay	32	275
Sand	30	305
Clay	30	335
Sand	83	418
Clay	90	508
Sand	50	558
Clay	25	583
Sand	15	598
Clay	102	700
Sand and rock	70	770
Clay	12	782

(Continued on next page)

Table 6.--Drillers' logs of wells and test holes in Austin and Waller Counties--Continued

Waller County

Well YW-65-09-202--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Sand, rocky --------	18	800	Clay ---------------	24	878
Clay ---------------	13	813	Sand, rocky --------	12	890
Sand and rock ------	18	831	Clay ---------------	79	969
Clay ---------------	17	848	Sand, rock and clay -------------	50	1,019
Sand and rock ------	6	854			

Well YW-65-09-204

Owner: George Nelson. Driller: Katy Drilling Co.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Clay ---------------	15	15	Sand ---------------	19	458
Sand and gravel ----	34	49	Rock ---------------	2	460
Clay ---------------	5	54	Sand, rocky --------	8	468
Sand and gravel with clay strips ------	69	123	Clay ---------------	43	511
Clay ---------------	7	130	Sand ---------------	20	531
Sand ---------------	15	145	Clay ---------------	15	546
Clay with sand breaks -----------	139	284	Sand and rock ------	10	556
Sand ---------------	55	339	Rock ---------------	1	557
Clay ---------------	9	348	Clay ---------------	3	560
Sand ---------------	27	375	Sand and rock ------	16	576
Clay ---------------	16	391	Clay, sandy --------	50	626
Sand, rocky --------	27	418	Shale, sandy -------	14	640
Clay ---------------	21	439	Clay ---------------	3	643
			Rock and sand ------	21	664

(Continued on next page)

[illegible] test holes
in Austin and Waller Counties--Continued

Waller County

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well YW-65-09-204--Continued					
Clay	26	690	Clay	17	777
Shale, sandy	22	712	Sand and rock	13	790
Clay	43	755	No record	49	839
Sand and clay	5	760			

Well YW-65-09-205

Owner: C. J. Freeland, Jr. Driller: Katy Drilling Co.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Soil and clay	70	70	Clay	104	560
Sand, fine-grained, with gravel	74	144	Sand	56	616
Rock	1	145	Clay with sand strips	19	635
Clay	13	158	Sand with hard rocks	25	660
Sand	16	174	Clay with sand strips	18	678
Clay	61	235	Sand, rocky	72	750
Sand	14	249	Clay	40	790
Clay	20	269	Clay with sand strips	47	837
Sand	4	273	Clay, tough	94	931
Clay	47	320	Sand	33	964
Sand	50	370	Clay	6	970
Clay	5	375	Sand	3	973
Sand	30	405			
Clay	45	450			
Sand	6	456			

Table 6.--Drillers' logs of wells and test holes in Austin and Waller Counties--Continued

Waller County

Well YW-65-09-206

Owner: C. J. Freeland, Jr. Driller: Layne-Texas Co.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Clay ---------------	20	20	Sand ---------------	55	538
Sand ---------------	9	29	Clay, sandy --------	32	570
Clay ---------------	10	39	Sand ---------------	21	591
Sand ---------------	13	52	Rock ---------------	4	595
Sand, coarse -------	105	157	Clay, sandy --------	33	628
Sand ---------------	2	159	Rock ---------------	3	631
Rock ---------------	1	160	Clay ---------------	9	640
Sand ---------------	22	182	Clay, tough --------	44	684
Clay ---------------	83	265	Clay ---------------	40	724
Gravel and clay ----	25	290	Clay, tough --------	43	767
Sand ---------------	28	318	Clay ---------------	13	780
Clay ---------------	20	338	Rock ---------------	5	785
Sand ---------------	55	393	Clay ---------------	215	1,000
Clay ---------------	90	483			

Well YW-65-09-208

Owner: A. Robichaux. Driller: Layne-Texas Co.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Clay and topsoil ---	12	12	Clay, sandy --------	5	65
Sand, fine-grained -	10	22	Sand, coarse-grained, with gravel ------	59	124
Clay, sandy --------	13	35	Rock ---------------	6	130
Clay, tough --------	25	60			

(Continued on next page)

Waller County

Well YW-65-09-208--Continued

	Thickness (feet)	Depth (feet)
Clay and sand	16	146
Sand, clay, and gravel	29	175
Sand	10	185
Clay	24	209
Sand	5	214
Clay and sand	18	232
Clay	5	237
Clay, tough, with sand	95	332
Rock and gravel	2	334
Sand	80	414
Clay	10	424
Sand	25	449
Clay	62	511
Sand	11	522
Clay	52	574
Sand	27	601
Clay, hard	93	694
Sand	38	732
Clay, tough	37	769
Shale, sandy	7	776
Shale and sandy shale	43	819
Shale, tough, sticky	81	900

Well YW-65-09-210

Owner: C. J. Freeland, Jr. Driller: Layne-Texas Co.

	Thickness (feet)	Depth (feet)
Clay, sandy	15	15
Sand	17	32
Sand and fine gravel	45	77
Sand	23	100
Sand and gravel	55	155
Sand	17	172
Clay	28	200
Sand	33	233
Clay	33	266
Sand	23	289
Clay	21	310
Sand, gravel, and lime	60	370
Clay	16	386

(Continued on next page)

Table 6.--Drillers' logs of wells and test holes in Austin and Waller Counties--Continued

Waller County

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

Well YW-65-09-210--Continued

Sand, fine-grained, with gravel ------	20	406	Sand ---------------	67	747
Clay ---------------	64	470	Clay ---------------	65	812
Clay, sandy --------	28	498	Clay, tough --------	40	852
Clay ---------------	56	554	Clay ---------------	45	897
Sand ---------------	58	612	Clay, tough --------	33	930
Clay ---------------	31	643	Clay ---------------	5	935
Rock ---------------	2	645	Sand ---------------	22	957
Sand ---------------	7	652	Clay ---------------	48	1,005
Clay ---------------	28	680			

Well YW-65-09-310

Owner: L. E. Morrison. Driller: Layne-Texas Co.

Topsoil ------------	5	5	Clay, hard ---------	13	153
Clay, sandy --------	15	20	Gravel -------------	35	188
Sand ---------------	7	27	Clay ---------------	6	194
Clay, red ----------	29	56	Rock ---------------	2	196
Sand ---------------	44	100	Clay, hard ---------	10	206
Gravel -------------	22	122	Sand ---------------	6	212
Clay ---------------	18	140	Clay ---------------	1	213

[illegible]--Drillers' Logs [illegible] Holes
in Austin and Waller Counties--Continued

Waller County

Well YW-65-09-311

Owner: L. E. Morrison. Driller: Layne-Texas Co.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Soil, sandy --------	2	2	Sand, fine-grained -	18	331
Clay ---------------	15	17	Rock ---------------	1	332
Sand ---------------	10	27	Sand, fine-grained -	17	349
Clay ---------------	27	54	Gumbo, tough -------	8	357
Sand, coarse-grained ----------	25	79	Rock ---------------	1	358
Clay ---------------	10	89	Gumbo --------------	27	385
Sand and gravel ----	12	101	Sand ---------------	60	445
Gumbo and clay -----	35	136	Gumbo --------------	6	451
Rock ---------------	3	139	Shale --------------	12	463
Gumbo, tough -------	21	160	Gumbo, tough -------	24	487
Sand, with coarse gravel -----------	11	171	Sand ---------------	12	499
Rock ---------------	1	172	Gumbo --------------	8	507
Clay ---------------	20	192	Sand ---------------	10	517
Rock ---------------	2	194	Gumbo --------------	10	527
Clay ---------------	10	204	Sand, coarse-grained ----------	48	575
Sand, coarse-grained ----------	10	214	Gumbo and shale ----	30	605
Gumbo, tough -------	76	290	Sand ---------------	15	620
Sand ---------------	8	298	Rock ---------------	1	621
Gumbo, tough -------	15	313	Sand and rock ------	22	643

Table 6.--Drillers' logs of wells and test holes in Austin and Waller Counties--Continued

Waller County

Well YW-65-09-502

Owner: John and C. R. England. Driller: Katy Drilling Co.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Soil and clay	20	20	Sand, rocky	15	306
Clay	25	45	Clay	33	339
Sand	21	66	Sand and rock, and lime	24	363
Clay	9	75	Clay	28	391
Sand	39	114	Sand	40	431
Rock, hard	5	119	Rock, hard	4	435
Sand, rocky	28	147	Sand	17	452
Rock, hard	14	161	Clay	5	457
Clay, rock, and lime	43	204	Sand and clay strips	39	496
Rock and lime	20	224	Clay	16	512
Sand, rock, and lime	26	250	Sand, fine-grained	18	530
Clay	41	291	Clay	--	530

Well YW-65-09-505

Owner: John and C. R. England. Driller: Layne-Texas Co.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Soil	3	3	Sand and gravel	35	106
Clay, red and white	11	14	Sand, gravel, and clay with lime	17	123
Sand, fine-grained, red	31	45	Sand	26	149
Clay, red and white	26	71	Clay and lime	21	170

(Continued on next page)

Waller County

Well YW-65-09-505--Continued

	Thickness (feet)	Depth (feet)
Sand with white clay	11	181
Clay, white	17	198
Clay, sandy, and sand	24	222
Clay	23	245
Clay, lime, and sand	12	257
Clay	52	309
Sand and clay	5	314
Sand, clay, and lime	19	333
Clay, pink and white	20	353
Shale, tough, brown	23	376
Sand	32	408
Sand, hard	19	427
Sand and lime	11	438
Clay, white	27	465
Sand, hard	18	483
Clay	24	507
Sand, hard, and clay	19	526
Sand	37	563
Clay	3	566
Sand	5	571
Clay, hard, sandy	8	579
Shale and sand	6	585
Shale	15	600

Well YW-65-09-509

Owner: J. U. Cardiff & Sons. Driller: Katy Drilling Co.

	Thickness (feet)	Depth (feet)
Clay and sand	65	65
Sand	105	170
Sand and rock	29	199
Clay and sand breaks	19	218
Sand and rock	26	244
Clay	26	270
Sand and rock	10	280
Clay	9	289
Sand and clay streaks	11	300
Clay	29	329

(Continued on next page)

Table 6.--Drillers' logs of wells and test holes
in Austin and Waller Counties--Continued

Waller County

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Well YW-65-09-509--Continued					
Clay and sand strips	10	339	Clay	18	610
Sand and rocks	5	344	Sand	55	665
Sand, rock, and clay strips	36	380	Clay, tough	51	716
Clay	11	391	Sand	18	734
Sand	51	442	Clay, tough	36	770
Sand and small rocks	23	465	Sand and clay strips	34	804
Clay, tough	65	530	Sand, rocky	38	842
Sand with small gravel	62	592	Clay, tough	118	960
			Sand and clay	12	972

Well YW-65-09-601

Owner: J. U. Cardiff & Sons. Driller: Katy Drilling Co.

Clay	45	45	Clay	12	451
Sand	50	95	Sand	17	468
Clay	10	105	Clay	10	478
Sand	15	120	Sand	21	499
Clay	11	131	Clay	28	527
Sand and rock	92	223	Sand	18	545
Clay	134	357	Clay	31	576
Rock	1	358	Sand	46	622
Clay	62	420	Clay	25	647
Sand	19	439	Sand and clay	50	697

Waller County

Well YW-65-09-606

Owner: Humble Oil & Refining Co. Driller: Katy Drilling Co.

	Thickness (feet)	Depth (feet)
Clay	74	74
Sand and gravel	32	106
Clay	13	119
Sand and gravel	17	136
Clay	25	161
Sand and gravel	60	221
Rock	3	224
Sand and rock	36	270
Clay	13	283
Sand	7	290
Clay	41	331
Rock	2	333
Clay	12	345
Sand and rock with clay strips	55	400
Clay	15	415
Sand and small clay strips	62	477
Clay, tough	31	508
Clay with small sand strips	40	548
Sand, rocky	75	623
Clay with sandy shale	19	642
Sand, rocky	34	676
Clay	68	744
Sand	81	825
Clay, tough	35	860

Well YW-65-09-607

Owner: Humble Oil & Refining Co. Driller: Layne-Texas Co.

	Thickness (feet)	Depth (feet)
Topsoil	2	2
Clay	65	67
Sand and clay	30	97
Sand and gravel	39	136
Clay and sand	23	159
Sand and gravel	46	205
Sand and clay	19	224
Sand and boulders	4	228
Sand and clay	34	262
Clay	91	353

(Continued on next page)

Table 6.--Drillers' logs of wells and test holes in Austin and Waller Counties--Continued

Waller County

Well YW-65-09-607--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Sand	41	394	Clay	17	604
Clay	37	431	Sand	23	627
Sand	52	483	Clay	19	646
Clay	29	512	Sand	39	685
Clay, sandy	25	537	Clay	72	757
Sand	50	587	Sand	55	812

Well YW-65-09-608

Owner: Humble Oil & Refining Co. well 2. Driller: Layne-Texas Co.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Soil	1	1	Clay	28	515
Clay, sandy	37	38	Clay, sandy	22	537
Clay	25	63	Sand	53	590
Clay, sandy	10	73	Clay	13	603
Sand and gravel	55	128	Sand	26	629
Sand and clay	20	148	Clay	18	647
Sand and gravel	53	201	Sand	38	685
Rock	1	202	Clay	75	760
Sand and clay	59	261	Sand	50	810
Clay	89	350	Sand, hard, and boulders	8	818
Sand	40	390	Gumbo	74	892
Clay	39	429	Sand, hard	7	899
Sand	58	487			

(Continued on next page)

Well YW-65-09-608--Continued

	Thickness (feet)	Depth (feet)
Shale, sandy, hard	26	925
Shale, hard, tough	117	1,042
Shale, sandy	8	1,050
Gumbo	38	1,088
Shale	28	1,116
Sand	12	1,128
Shale	58	1,186
Sand, hard, with shale	17	1,203
Shale	62	1,265
Shale and sand	8	1,273
Gumbo	30	1,303
Shale	84	1,387
Sand, hard	12	1,399
Shale	8	1,407
Sand, hard	7	1,414
Gumbo	54	1,468
Shale and sand	24	1,492
Shale	18	1,510

Well YW-65-09-610

Owner: Humble Oil and Refining Co. well 4. Driller: Layne-Texas Co.

	Thickness (feet)	Depth (feet)
Clay, red	21	21
Sand, red	10	31
Clay	40	71
Sand, coarse-grained, with gravel	46	117
Clay	8	125
Sand, coarse-grained	61	186
Sand, coarse-grained, with clay	33	219
Clay, sandy	10	229
Clay and sandy clay	50	279
Clay, sandy	11	290
Rock	3	293
Clay	63	356
Clay, sandy	10	366
Sand	15	381
Rock	5	386

(Continued on next page)

Table 6.--Drillers' logs of wells and test holes in Austin and Waller Counties--Continued

Waller County

Well YW-65-09-610--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Clay and sandy clay	17	403	Clay	8	634
Sand	22	425	Clay and sandy clay	16	650
Clay	7	432	Sand	31	681
Sand, blue	46	478	Clay, sandy	5	686
Clay	59	537	Clay	21	707
Clay, sandy	8	545	Clay, sandy	7	714
Sand	7	552	Clay and sandy clay	46	760
Clay	2	554	Sand	32	792
Sand	27	581	Clay and sand	12	804
Clay	21	602	Clay	4	808
Sand	24	626			

Well YW-65-09-611

Owner: Humble Oil & Refining Co. well 3. Driller: Layne-Texas Co.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Clay, red	16	16	Sand and clay	32	217
Sand, fine-grained, red	10	26	Clay	67	284
Clay, red	40	66	Clay, sandy	13	297
Sand, coarse-grained with fine gravel	52	118	Clay	12	309
Clay	6	124	Clay and sandy clay	28	337
Sand, coarse, with gravel	61	185	Clay	13	350
			Sand	32	382

(Continued on next page)

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

Well YW-65-09-611--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Rock ---------------	2	384	Sand ---------------	30	625
Clay and sandy clay -------------	20	404	Sand and sandy clay -------------	21	646
Sand ---------------	17	421	Sand ---------------	39	685
Clay and sand ------	15	436	Clay ---------------	7	692
Sand, blue ---------	46	482	Clay and sandy clay -------------	69	761
Clay ---------------	54	536	Rock ---------------	1	762
Sand ---------------	48	584	Sand ---------------	42	804
Clay ---------------	11	595	Clay ---------------	8	812

Well YW-65-09-612

Owner: Humble Oil & Refining Co. well 7. Driller: Katy Drilling Co.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Topsoil ------------	80	80	Clay ---------------	13	609
Sand ---------------	153	233	Sand ---------------	22	631
Clay and rock ------	7	240	Clay ---------------	15	646
Sand ---------------	32	272	Sand ----------------	42	688
Clay and rock ------	153	425	Clay ---------------	74	762
Sand ---------------	41	466	Sand ---------------	73	835
Clay ---------------	94	560	Clay ---------------	23	858
Sand ---------------	36	596			

Table 6.--Drillers' logs of wells and test holes in Austin and Waller Counties--Continued

Waller County

Well YW-65-09-702

Owner: George Rheman. Driller: Katy Drilling Co.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Topsoil ------------	18	18	Sand and rock ------	19	206
Sand ---------------	39	57	Clay ---------------	4	210
Sand and rock ------	92	149	Sand with clay strips -----------	81	291
Sand with clay strips -----------	28	177	Clay ---------------	--	291
Clay ---------------	10	187			

Well YW-65-09-801

Owner: J. D. Woods. Drillers: Katy Drilling Co.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Topsoil and clay ---	50	50	Sand ---------------	19	453
Clay with lime and rocks --------	5	55	Clay ---------------	45	498
Sand and gravel ----	81	136	Sand ---------------	4	503
Sand with clay strips -----------	36	172	Clay ---------------	65	568
Sand, rocky --------	10	182	Sand, rocky --------	30	598
Sand and rock ------	21	203	Clay ---------------	21	619
Sand, rocky --------	77	280	Rocks with clay ----	31	650
Clay ---------------	118	398	Rock ---------------	1	651
Rock ---------------	1	399	Clay ---------------	15	666
Clay ---------------	34	433	Sand ---------------	70	736
Rock ---------------	1	434	Clay ---------------	--	736

	Thickness (feet)	Depth (feet)

Well YW-65-09-802

Owner: City of Brookshire well 2. Driller: Katy Drilling Co.

	Thickness (feet)	Depth (feet)
Topsoil and clay ---	12	12
Sand ---------------	18	30
Clay ---------------	15	45
Sand and gravel ----	70	115
Sand ---------------	22	137
Clay and limerock --	22	159
Clay ---------------	16	175
Sand ---------------	22	197
Clay and sand strips -----------	29	226
Clay and limerock --	83	309
Clay and sand strips -----------	77	386
Clay ---------------	25	411
Rock ---------------	1	412
Clay ---------------	5	417
Rock ---------------	2	419
Clay ---------------	8	427
Rock and sand, fine-grained -----	34	461
Clay ---------------	9	470
Sand ---------------	70	540
Clay ---------------	--	540

Well YW-65-09-803

Owner: Chester Jordan. Driller: Katy Drilling Co.

	Thickness (feet)	Depth (feet)
Topsoil and clay ---	79	79
Sand ---------------	47	126
Clay and gravel ----	22	148
Rock ---------------	3	151
Clay ---------------	12	163
Sand and limerock --	9	172
Limerock, hard -----	3	175
Limerock and sand --	10	185
Limerock, hard -----	2	187
Sand and limerock --	8	195
Limerock -----------	4	199
Clay ---------------	9	208
Sand ---------------	21	229

(Continued on next page)

Table 6.--Drillers' logs of wells and test holes in Austin and Waller Counties--Continued

Waller County

Well YW-65-09-803--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Limerock, clay and sand strips ------	32	261	Limerock and sand --	31	308
Sand and limerock --	16	277	Sand and clay ------	50	358

Well YW-65-09-804

Owner: B. Ray Woods. Driller: Katy Drilling Co.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Clay --------------	22	22	Sand and rock ------	36	291
Sand --------------	18	40	Clay --------------	13	404
Clay --------------	22	62	Sand and rock ------	10	414
Sand --------------	12	74	Sand --------------	15	429
Clay --------------	11	85	Clay --------------	20	449
Sand --------------	12	97	Sand --------------	22	471
Rock and sand ------	66	163	Sand and shale -----	6	477
Clay --------------	4	167	Sand --------------	31	508
Rock and sand ------	40	207	Shale -------------	83	591
Clay --------------	13	220	Sand --------------	5	596
Sand --------------	26	246	Clay --------------	29	625
Clay --------------	9	255			

Well YW-65-09-902

Owner: Pete Pederson. Driller: Katy Drilling Co.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Topsoil -----------	43	43	Sand --------------	50	114
Clay --------------	21	64	Rock --------------	2	116

(Continued on next page)

Well YW-65-09-902--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Clay ---------------	13	129	Clay ---------------	15	245
Sand ---------------	11	140	Sand ---------------	20	265
Clay ---------------	20	160	Sand and rock ------	16	281
Sand ---------------	8	168	Clay ---------------	105	386
Rock ---------------	2	170	Sand ---------------	14	400
Sand ---------------	18	188	Rock ---------------	7	407
Rock ---------------	1	189	Sand ---------------	7	414
Sand ---------------	5	194	Clay ---------------	26	440
Rock ---------------	2	196	Sand ---------------	19	459
Sand ---------------	2	198	Clay ---------------	7	466
Rock ---------------	2	200	Sand ---------------	54	520
Sand ---------------	6	206	Rock ---------------	3	523
Clay ---------------	10	216	Sand and clay ------	7	530
Sand ---------------	14	230			

Well YW-65-10-101

Owner: Andrews Bros. Driller: Katy Drilling Co.

Topsoil and clay ---	74	74	Sand, clay strips, and limerock -----	52	176
Sand ---------------	26	100	Clay ---------------	8	184
Clay ---------------	10	110	Rock and clay strips -----------	62	246
Sand and rock ------	12	122	Clay ---------------	34	280
Rock ---------------	2	124			

(Continued on next page)

Table 6.--Drillers' logs of wells and test holes in Austin and Waller Counties--Continued

Waller County

Well YW-65-10-101--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Sand	31	311	Clay	27	593
Clay	13	324	Rock and sand	26	619
Sand and rock	8	332	Clay	71	690
Clay	13	345	Sand and rock	14	704
Sand and rock	17	362	Clay	88	792
Clay	10	372	Sand	5	797
Sand	76	448	Shale	9	806
Clay	11	459	Sand and rock	19	825
Sand	14	473	Shale	100	925
Clay and thin sand strips	66	539	Sand, rocky and shale	57	982
Sand	27	566			

Well YW-65-10-102

Owner: Metzner & Campbell. Driller: Katy Drilling Co.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Topsoil	12	12	Rock and clay	19	359
Sand	12	24	Rock and hard clay	7	365
Clay	51	75	Clay	48	413
Sand	123	198	Sand	56	469
Clay	16	214	Clay	62	531
Sand and rock	6	220	Rock	9	540
Rock and clay	30	250	Sand and clay	45	585
Clay	90	340			

Well YW-65-10-401

Owner: Dale Minze. Driller: A. H. Justman.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Topsoil and clay ---	61	61	Rock ---------------	2	318
Clay and limerock --	7	68	Sand ---------------	6	324
Clay ---------------	8	76	Rock ---------------	1	325
Sand ---------------	114	190	Sand ---------------	31	356
Clay ---------------	15	205	Clay ---------------	9	365
Sand ---------------	63	268	Sand ---------------	6	371
Clay ---------------	43	311	Clay ---------------	43	414
Sand ---------------	5	316	Sand and clay ------	79	493

Well YW-65-10-407

Owner: Humble Oil & Refining Co. well 6. Driller: Katy Drilling Co.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Topsoil ------------	20	20	Sand ---------------	48	595
Sand ---------------	16	36	Clay ---------------	11	606
Clay ---------------	45	81	Sand ---------------	23	629
Clay and limerock --	174	255	Clay ---------------	13	642
Clay ---------------	91	346	Sand ---------------	42	684
Sand ---------------	45	391	Clay ---------------	68	752
Clay ---------------	33	424	Sand ---------------	80	832
Sand ---------------	61	485	Clay ---------------	39	871
Clay ---------------	62	547			

Table 6.--Drillers' logs of wells and test holes in Austin and Waller Counties--Continued

Waller County

Well YW-65-10-708

Owner: J. Bartlett. Driller: --

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Soil and clay ------	18	18	Clay with boulders -	6	228
Sand ---------------	27	45	Rock, honeycombed --	32	260
Clay ---------------	6	51	Sand ---------------	10	270
Sand ---------------	21	72	Rock, honeycombed, with clay --------	86	356
Clay, red ----------	26	98	Sand ---------------	29	385
Sand and gravel ----	47	145	Shale --------------	54	439
Clay ---------------	9	154	Sand, hard, with rock -------------	32	471
Sand ---------------	12	166	Sand and gravel ----	44	515
Clay, tough --------	6	172	Gumbo --------------	30	545
Sand and gravel ----	50	222			

Well YW-66-08-201

Owner: M. A. Dodd. Driller: Katy Drilling Co.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Topsoil and clay ---	35	35	Sand and rock ------	9	232
Sand ---------------	2	37	Clay ---------------	8	240
Clay ---------------	11	48	Sand ---------------	25	265
Sand, rock and clay strips ------	53	101	Clay ---------------	7	272
Sand ---------------	48	149	Sand and rock ------	29	301
Clay ---------------	11	160	Clay ---------------	27	328
Sand and rock ------	7	167	Sand and rock ------	23	351
Clay ---------------	56	223	Clay ---------------	20	371

(Continued on next page)

Well YW-66-08-201--Continued

	Thickness (feet)	Depth (feet)
Sand and rock ------	6	377
Clay ---------------	8	385
Sand and rock ------	21	406
Clay ---------------	84	490
Sand, fine-grained -	15	505
Clay ---------------	25	530
Sand, fine-grained -	18	548
Clay ---------------	9	557
Sand, rock, and clay ------------	26	583

Well YW-66-08-602

Owner: George Nelson. Driller: Katy Drilling Co.

	Thickness (feet)	Depth (feet)
Topsoil ------------	39	39
Sand ---------------	51	90
Clay ---------------	14	104
Sand ---------------	8	112
Clay ---------------	128	240
Sand ---------------	26	266
Clay ---------------	127	393
Sand, rocky --------	13	406
Clay ---------------	94	500
Sand, rocky --------	24	524
Clay ---------------	83	607
Sand, rocky --------	33	640
Clay ---------------	10	650
Shale, sandy -------	33	683
Rock ---------------	2	685
Sand, rocky --------	55	740
Shale --------------	27	767
Rock ---------------	1	768
Sand, rocky --------	30	798
Shale --------------	39	837
Sand ---------------	22	859
Shale --------------	91	950
Sand ---------------	7	957
Shale --------------	13	970
Sand, rocky --------	76	1,046
Shale --------------	12	1,058
Sand, rocky --------	17	1,075
Shale --------------	55	1,130

(Continued on next page)

Table 6.--Drillers' logs of wells and test holes in Austin and Waller Counties--Continued

Waller County

Well YW-66-08-602--Continued

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Sand, rocky --------	33	1,163	Shale --------------	43	1,385
Rock ---------------	2	1,165	Sand ---------------	13	1,398
Sand, rocky --------	31	1,196	Shale --------------	22	1,420
Shale --------------	16	1,212	Sand, rocky --------	38	1,458
Sand ---------------	42	1,254	Rock ---------------	1	1,459
Shale --------------	32	1,286	Sand, rocky --------	76	1,515
Shale, sandy -------	24	1,310	Rock ---------------	4	1,519
Shale --------------	21	1,331	Shale, sandy -------	56	1,575
Rock ---------------	11	1,342	Sand ---------------	33	1,608

Well YW-66-08-705

Owner: U.S. Geological Survey. Driller: U.S. Geological Survey.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Soil and clay, black ------------	2	2	Clay with calcareous nodules, tight, gray and reddish-brown ------------	2	76
Clay, sandy, silty, reddish-brown ----	30	32	Clay, hard, tight, reddish-brown, dry --------------	11	87
Sand, fine-grained, silty, clayey, reddish-brown ----	20	52			
Sand and gravel, medium- and coarse-grained ---	22	74			

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

Well YW-66-08-706

Owner: U.S. Geological Survey. Driller: U.S. Geological Survey.

Soil ---------------	2	2	Sand and gravel ----	9	66
Clay, sandy, silty, blocky, reddish-brown ------------	40	42	Clay, hard, with calcareous nodules, reddish-brown with gray streaks -----	11	77
Sand, fine- and medium-grained, silty and with tan clay ---------	15	57			

Well YW-66-08-707

Owner: U.S. Geological Survey. Driller: U.S. Geological Survey.

Soil ---------------	2	2	Clay, hard gray with reddish-brown streaks ----	4	44
Clay, sandy, silty, reddish-brown ----	5	7	Clay, hard, with calcareous nodules and sand streaks, reddish-brown, dry --------------	3	47
Clay, slightly sandy, silty, reddish-brown and brown --	30	37			
Clay, sandy, silty, reddish-brown ----	3	40			

Well YW-66-08-801

Owner: U.S. Geological Survey. Driller: U.S. Geological Survey.

Soil, sandy, silty clay -------------	2	2	Clay, hard, tan with red streaks ------	3	7
Clay, hard, with calcareous nodules, gray ----	2	4	Clay, hard, reddish-brown, streaked --	15	22

Table 6.--Drillers' logs of wells and test holes in Austin and Waller Counties--Continued

Waller County

Well YW-66-08-901

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

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Topsoil and clay ---	15	15	Clay and sand streaks ----------	92	392
Quicksand ----------	25	40	Sand and rock ------	10	402
Clay ---------------	75	115	Clay ---------------	6	408
Sand ---------------	23	138	Sand, rocky --------	12	420
Clay ---------------	22	160	Clay ---------------	35	455
Sand ---------------	15	175	Sand and shale -----	23	478
Clay ---------------	90	265	Sand, rock, and clay -------------	42	520
Sand ---------------	35	300			

Well YW-66-16-101

Owner: Brick Diemer. Driller: Katy Drilling Co.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Topsoil and sand ---	24	24	Clay ---------------	8	205
Sand and gravel ----	45	69	Sand ---------------	47	252
Clay ---------------	18	87	Clay ---------------	11	263
Sand ---------------	2	89	Sand ---------------	27	290
Clay and clay strips -----------	30	119	Rock ---------------	1	291
Sand and gravel ----	4	123	Clay ---------------	6	297
Sand ---------------	20	143	Sand, rocky --------	43	340
Clay and sand strips -----------	27	170	Clay ---------------	14	354
Sand ---------------	27	197	Sand, rock, and clay -------------	15	369

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

Well YW-66-16-106

Owner: A. H. Robichaux. Driller: Katy Drilling Co.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Topsoil and clay ---	35	35	Clay ---------------	76	245
Sand and gravel ----	45	80	Sand and rock ------	18	263
Clay ---------------	22	102	Clay ---------------	36	299
Rock ---------------	2	104	Rock and sand ------	34	333
Clay ---------------	38	142	Clay ---------------	14	347
Sand, fine-grained -	27	169	Sand and clay ------	62	409

Well YW-66-16-205

Owner: U.S. Geological Survey. Driller: U.S. Geological Survey.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Sand, with clay and silt, fine- and medium-grained, brown and reddish-brown, wet at 22-27 ft ---------	42	42	Sand with clay, limonite stains, gray -------------	9	72
Sand, with small scattered gravel, medium- and coarse-grained, silty ------------	21	63			

Well YW-66-16-206

Owner: U.S. Geological Survey. Driller: U.S. Geological Survey.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Soil, black clay ---	3	3	Sand, fine- and medium-grained ---	4	74
Sand with clay and silt, fine- and medium-grained, tan --------------	39	42	Clay, compact, calcareous, gray and white ---	4	78
Sand with gravel ---	28	70			

Table 6.--Drillers' logs of wells and test holes
in Austin and Waller Counties--Continued

Waller County

Well YW-66-16-301

Owner: U.S. Geological Survey. Driller: U.S. Geological Survey.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Clay, sandy, silty, yellowish-gray ---	2	2	Sand, fine- and medium-grained with small scattered gravel -----------	8	25
Clay, sandy, silty, reddish-brown ----	7	9	Clay, sandy, silty, with calcareous nodules, gray ----	2	27
Sand, silty, with clay streaks; fine- and medium-grained tan sand and reddish-brown to gray clay -----	8	17			

Well YW-66-16-404

Owner: U.S. Geological Survey. Driller: U.S. Geological Survey.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Silt, with clay and calcareous nodules ----------	7	7	Sand, with clay and silt, coarse- to fine-grained --	6	25
Clay, silty, soft calcareous nodules, dark colors, with streaks of gray and tan sand -----	12	19	Sand with gravel ---	29	54
			Clay, sandy, calcareous, hard, light-gray -------	½	54½

Well YW-66-16-503

Owner: U.S. Geological Survey. Driller: U.S. Geological Survey.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Clay, sandy, silty, soft calcareous nodules at 17-22 ft, brown with occasional streaks of gray and yellow -------	24	24	Sand and gravel ----	41	65
			Clay ---------------	1	66

Waller County

Well YW-66-16-504

Owner: U.S. Geological Survey. Driller: U.S. Geological Survey.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Soil, sandy --------	2	2	Sand with silt, fine- to medium-grained, occasional gravel at depth of 37 ft ---	17	42
Sand, with clay and silt, reddish-brown ----	13	15	Clay and sand, hard, gray -------	5	47
Clay, silty, sandy -	10	25			

Well YW-66-16-905

Owner: George Rheman. Driller: Katy Drilling Co.

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
Soil, sandy --------	25	25	Sand, fine-grained -	25	90
Clay ---------------	10	35	Clay ---------------	73	163
Sand and gravel ----	19	54	Sand ---------------	4	167
Clay ---------------	5	59	Rock ---------------	4	171
Rock and sand strips -----------	6	65	Sand, rock, and clay -------------	62	233

Table 7.--Water levels in wells in Austin and Waller Counties and adjacent areas

Date	Water level	Date	Water level	Date	Water level

<u>Austin County</u>

Well AP-66-07-302

Owner: H. Waak.

Jan. 12, 1959	20.8	June 19, 1965	19.5	Jan. 12, 1966	22.8
Apr. 13, 1964	25.6	July 16	22.7		

Well AP-66-15-902

Owner: City of Sealy.

Dec. 17, 1936	81.8	1942	52	Jan. 17, 1966	77.5
Jan. 8, 1937	62.6	Oct. 14, 1959	77.5		

Well AP-66-22-301

Owner: W. A. Ferris.

July 29, 1955	69.07	Mar. 16, 1960	34.82	Mar. 4, 1965	37.39
Mar. 21, 1956	35.03	Mar. 13, 1961	32.25	May 13	64.00
Mar. 20, 1957	36.84	Feb. 26, 1963	34.29	Feb. 9, 1966	40.60
Apr. 2, 1958	34.29	Feb. 17, 1964	37.15	Feb. 14	39.20

Well AP-66-23-101

Owner: W. A. Ferris.

Mar. 21, 1956	35.51	Mar. 13, 1961	33.54	Feb. 9, 1966	39.23
Mar. 20, 1957	36.81	- 26, 1963	34.48	Feb. 14, 1966	38.92
Apr. 12, 1958	34.75	Feb. 17, 1964	38.73		
Mar. 16, 1960	36.40	Mar. 4, 1965	37.86		

Tabl [illegible]

Austin County

Well AP-66-23-201

Owner: W. A. Virnau.

Date	Water level	Date	Water level	Date	Water level
1944	36	Mar. 20, 1957	47.37	Mar. 16, 1960	43.69
Mar. 21, 1956	45.03	Apr. 2, 1958	43.71	Feb. 26, 1962	45.28

Well AP-66-23-202

Owner: Ralph Ballinger.

Date	Water level	Date	Water level	Date	Water level
Mar. 21, 1956	36.66	Mar. 16, 1960	37.16	Mar. 4, 1965	41.07
Mar. 20, 1957	38.87	Feb. 26, 1963	38.35	Feb. 9, 1966	42.90
Apr. 2, 1958	35.58	Feb. 17, 1964	43.03	Feb. 18	42.70

Well AP-66-23-203

Owner: Ralph Ballinger.

Date	Water level	Date	Water level	Date	Water level
July 29, 1955	52.76	Mar. 16, 1960	39.88	Feb. 17, 1964	44.60
Mar. 21, 1956	39.78	Mar. 13, 1961	39.68	Mar. 4, 1965	42.68
Mar. 20, 1957	41.19	May 10, 1962	40.24	Feb. 9, 1966	43.82
Apr. 2, 1958	39.90	Feb. 26, 1963	41.44		

Well AP-66-23-401

Owner: C. R. & J. England.

Date	Water level	Date	Water level	Date	Water level
Mar. 2, 1956	33.88	Mar. 13, 1961	30.50	Mar. 4, 1965	38.10
Mar. 20, 1957	35.01	Feb. 26, 1963	33.59	Feb. 9, 1966	38.23
Apr. 2, 1958	31.70	Feb. 17, 1964	37.13	Feb. 17	37.76

Table 7.--Water levels in wells in Austin and Waller Counties and adjacent areas--Continued

Austin County

Date	Water level	Date	Water level	Date	Water level
		Well AP-66-23-402			
Owner: Charlie Kaechele.					
Mar. 21, 1956	29.16	Mar. 13, 1961	27.15	Feb. 9, 1966	33.21
Apr. 2, 1958	28.24	Feb. 26, 1963	29.07	Feb. 23	32.71

Ta[illegible]ls in wells in Austin and Waller Counties and adjacent areas--Continued

Waller County

Well YW-59-64-204

Owner: City of Hempstead.

Date	Water level	Date	Water level	Date	Water level
1927	Flows	June 19, 1931	5.92	Feb. 2, 1938	3.80
Apr. 14, 1931	5.11	July 14	6.02		
May 28	5.55	Sept. 24	5.68		

Well YW-60-57-508

Owner: Mrs. G. O. Vaught.

Date	Water level	Date	Water level	Date	Water level
June 16, 1960	17.41	June 15, 1962	14.10	Sept. 22, 1964	20.01
Sept. 16	15.94	Oct. 1	17.28	Dec. 7	19.32
Feb. 13, 1961	14.63	Feb. 27, 1963	12.97	Feb. 15, 1965	18.27
June 14	16.92	June 18	16.40	June 14	16.59
Sept. 21	13.90	Dec. 19	19.11	Sept. 17	19.39
Dec. 19	14.04	Mar. 6, 1964	18.15		
Feb. 12, 1962	13.56	June 16	18.44		

Well YW-65-01-405

Owner: A. A. Pfeffer & Sons.

Date	Water level	Date	Water level	Date	Water level
Jan. 22, 1941	66.56	Jan. 20, 1942	65.61	Feb. 14, 1966	93.7
Oct. 27	71.09	Mar. 18	64.87		

Well YW-65-01-501

Owner: Lynn Hebert.

Date	Water level	Date	Water level	Date	Water level
Nov. 14, 1951	46.31	Nov. 26	69.75	Nov. 24	64.20
Mar. 13, 1952	36.60	Mar. 31, 1953	51.29	Mar. 16, 1954	52.57

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Table 7.--Water levels in wells in Austin and Waller Counties and adjacent areas--Continued

Waller County

Date	Water level	Date	Water level	Date	Water level
Well YW-65-01-501--Continued					
Dec. 6, 1954	66.42	Dec. 2	72.19	Nov. 29	80.91
Mar. 15, 1955	54.13	Mar. 12, 1959	59.81	Mar. 19, 1963	62.71
Nov. 17	69.40	Nov. 18	71.70	Feb. 26, 1964	70.62
Mar. 14, 1956	54.49	Mar. 9, 1960	57.97	Mar. 9, 1965	69.19
Nov. 20, 1956	81.94	Nov. 28	65.58	Nov. 15	94.58
Mar. 15, 1957	60.10	Mar. 28, 1961	55.37	Feb. 14, 1966	76.26
Nov. 29	70.48	Nov. 28, 1961	66.85	Mar. 10	72.34
Mar. 20, 1958	57.72	Mar. 21, 1962	56.71		

Well YW-65-01-502

Owner: Lynn Hebert.

Mar. 15, 1941	54.98	Mar. 28, 1947	54.01	Nov. 26	87.35
May 16	53.92	Mar. 18, 1948	58.20	Mar. 31, 1953	71.26
Nov. 27	60.16	Nov. 18	84.30	Nov. 24	85.14
Jan. 20, 1942	54.33	Jan. 25, 1949	68.37	Mar. 9, 1954	68.09
Mar. 18	53.00	Mar. 8	63.97	Mar. 16	67.83
Apr. 13, 1943	52.05	Nov. 28	74.62	Dec. 6	82.31
Nov. 9	65.90	Mar. 14, 1950	62.94	Mar. 15, 1955	70.46
Mar. 29, 1944	55.10	Nov. 20	79.74	Nov. 17	85.45
Oct. 6	84.55	Apr. 2, 1951	63.69	Mar. 14, 1956	70.05
Mar. 16, 1945	60.40	Nov. 14	82.59	Nov. 20	97.81
Mar. 28, 1946	58.50	Mar. 13, 1952	66.15	Mar. 15, 1957	75.12

(Continued on next page)

Waller County

Date	Water level	Date	Water level	Date	Water level
		Well YW-65-01-502--Continued			
Nov. 29, 1957	85.93	Nov. 28	81.71	Mar. 9, 1965	82.42
Mar. 20, 1958	72.79	Mar. 28, 1961	71.39	Nov. 15	105.50
Dec. 2	87.29	Mar. 21, 1962	72.08	Feb. 14, 1966	88.1
Mar. 12, 1959	74.18	Mar. 19, 1963	79.40	Mar. 10	85.20
Nov. 18	87.45	Feb. 26, 1964	86.85		
Mar. 9, 1960	72.49	Nov. 18	98.22		

Well YW-65-01-805

Owner: George Nelson.

Mar. 28, 1946	34.65	Apr. 2, 1951	64.97	Mar. 12, 1959	72.83
Mar. 28, 1947	45.73	Mar. 13, 1952	65.84	Mar. 9, 1960	73.7±
Mar. 18, 1948	45.20	July 29	137.5	Mar. 28, 1961	73.9±
Nov. 12	61.6	Mar. 31, 1953	67.80	Mar. 21, 1962	74.93
Nov. 15	60.14	Mar. 16, 1954	67.65	Mar. 19, 1963	76.31
Mar. 8, 1949	64.89	Mar. 15, 1955	68.24	Feb. 26, 1964	83.28
Nov. 28	70.92	Mar. 14, 1956	70.40	Mar. 9, 1965	80.97
Mar. 14, 1950	62.00	Mar. 15, 1957	71.4±	Feb. 15, 1966	82.62
Nov. 21	--	Mar. 20, 1958	73.84	Mar. 10	81.47

Well YW-65-01-806

Owner: W. R. Bollinger.

Dec. 3, 1959	72.69	Mar. 28, 1961	68.10	Nov. 29, 1962	76.24
Mar. 9, 1960	68.95	Mar. 21, 1962	69.67	Mar. 19, 1963	71.43

(Continued on next page)

Table 7.--Water levels in wells in Austin and Waller Counties and adjacent areas--Continued

Waller County

Date	Water level	Date	Water level	Date	Water level
Well YW-65-01-806--Continued					
Feb. 26, 1964	73.70	Mar. 9, 1965	73.23	Feb. 14, 1966	76.85
Nov. 18	79.80	Nov. 15	84.3	Mar. 10	74.55

Well YW-65-01-904

Owner: A. E. Thompson.

Oct. 7, 1940	57.41	Mar. 14, 1950	61.84	Nov. 16, 1959	77.51
Jan. 22, 1941	52.63	Nov. 21	68.49	Mar. 8, 1960	75.46
Mar. 15	51.90	Mar. 30, 1951	63.68	Nov. 22	77.22
May 21	51.67	Nov. 15	71.45	Mar. 27, 1961	75.58
Oct. 28	54.48	Mar. 14, 1952	66.07	Nov. 30	77.59
Jan. 20, 1942	52.03	Nov. 25	74.81	Mar. 21, 1962	75.99
Mar. 18	51.37	Mar. 31, 1953	68.41	Nov. 30	78.65
Oct. 21	55.42	Nov. 19	72.9	Mar. 20, 1963	77.52
Apr. 13, 1943	51.78	Mar. 17, 1954	69.45	Mar. 11, 1964	78.41
Nov. 9	59.03	Dec. 2	75.14	Nov. 18	79.35
Mar. 29, 1944	53.70	Mar. 15, 1955	71.31	Mar. 10, 1965	79.23
Oct. 6	66.45	Nov. 18	76.59	June 28	80.44
Mar. 17, 1945	55.18	Mar. 15, 1956	72.49	Aug. 2	80.18
Nov. 6	60.87	Nov. 19	81.15	Aug. 31	80.39
Mar. 26, 1946	55.61	Mar. 13, 1957	74.33	Nov. 15	80.88
Mar. 18, 1948	56.98	Dec. 2	78.82	Feb. 17, 1966	81.07
Nov. 16	69.13	Mar. 20, 1958	75.38	Mar. 15	80.47
Mar. 8, 1949	60.93	Dec. 3	77.32		
Nov. 28	65.90	Mar. 25, 1959	75.25		

Date	Water level	Date	Water level	Date	Water level

Well YW-65-01-905

Owner: Clyde Nelson.

Mar. 15, 1941	44.53	Dec. 3, 1958	57.56	Mar. 11, 1964	59.09
May 21	43.80	Mar. 25, 1959	56.99	Mar. 10, 1965	59.73
Oct. 28	47.33	Nov. 16	58.00	Aug. 10	62.55
Jan. 20, 1942	44.10	Mar. 8, 1960	57.43	Aug. 31	63.21
Mar. 18	43.85	Mar. 28, 1961	55.51	Nov. 15	61.41
Nov. 11, 1948	59.40	Mar. 21, 1962	56.77	Feb. 17, 1966	60.87
Mar. 15, 1949	50.45	Mar. 20, 1963	57.90	Mar. 15	60.71

Well YW-65-01-906

Owner: Eba Hebert.

Feb. 10, 1931	44.75	Mar. 9, 1954	70.60	Mar. 13, 1957	76.52
Mar. 17, 1933	46.03	Mar. 18	70.51	Mar. 20, 1958	73.23
Mar. 15, 1939	50.16	Nov. 3	76.89	Mar. 25, 1959	78.46
Nov. 16, 1948	72.30	Mar. 15, 1955	74.32		
Mar. 15, 1949	57.28	Nov. 19, 1956	79.22		

Well YW-65-09-201

Owner: George Nelson.

Mar. 13, 1952	69.64	Mar. 9, 1960	78.87	Feb. 26, 1964	88.23
Mar. 31, 1953	71.33	Mar. 28, 1961	77.38	Mar. 9, 1965	82.05
Mar. 15, 1957	78.29	Nov. 28	90.5±	Feb. 15, 1966	86.10
Mar. 20, 1958	77.74	Mar. 21, 1962	78.23	Mar. 10	84.45
Mar. 12, 1959	79.15	Mar. 19, 1963	82.18		

Table 7.--Water levels in wells in Austin and Waller Counties and adjacent areas--Continued

Waller County

Well YW-65-09-209

Owner: George Nelson.

Date	Water level	Date	Water level	Date	Water level
Jan. 22, 1941	59.5	Nov. 28	69.11	Mar. 20, 1958	70.77
Mar. 15	57.5	Mar. 14, 1950	63.96	Dec. 2	76.68
Oct. 27	63.21	Nov. 21	77.18	Mar. 12, 1959	72.74
Jan. 20, 1942	57.5	Apr. 2, 1951	65.49	Nov. 18	77.73
Mar. 18	56.75	Nov. 14	79.00	Mar. 9, 1960	72.84
Sept. 23	70.35	Mar. 13, 1952	67.98	Nov. 28	76.32
Apr. 13, 1943	56.40	Nov. 26	75.60	Mar. 28, 1961	72.67
Nov. 9	68.15	Mar. 31, 1953	64.42	Nov. 28	77.51
Mar. 29, 1944	58.30	Nov. 24	74.42	Mar. 21, 1962	73.26
Oct. 6	95.55	Mar. 16, 1954	64.48	Nov. 29	81.15
Mar. 16, 1945	61.40	Dec. 6	73.70	Mar. 19, 1963	75.40
Nov. 5	69.77	Mar. 15, 1955	67.92	Feb. 26, 1964	77.94
Mar. 28, 1946	59.98	Nov. 17	74.91	Nov. 18	87.36
Mar. 28, 1947	57.38	Mar. 14, 1956	68.70	Mar. 9, 1965	78.59
Mar. 18, 1948	59.35	Nov. 20	80.94	Nov. 15	90.08
Nov. 15, 1948	65.98	Mar. 15, 1957	68.68	Feb. 15, 1966	82.91
Mar. 8, 1949	66.40	Nov. 29, 1957	75.59	Mar. 10	79.93

Well YW-65-09-211

Owner: A. Robichaux.

Oct. 27, 1941	63.15	Mar. 18	58.76	Mar. 29, 1944	60.72
Jan. 20, 1942	60.25	Apr. 13, 1943	59.46	Oct. 6	77.54

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Date	Water level	Date	Water level	Date	Water level
Well YW-65-09-211--Continued					
Mar. 16, 1945	62.70	Apr. 2, 1951	65.23	Mar. 14, 1956	73.99
Nov. 5	64.45	Nov. 14	67.34	Nov. 20	80.21
Mar. 28, 1946	61.58	Mar. 13, 1952	67.14	Mar. 15, 1957	76.34
Mar. 24, 1947	61.23	July 29	69.28	Mar. 20, 1958	76.73
Mar. 18, 1948	61.78	Nov. 26	69.67	Mar. 12, 1959	79.23
Nov. 15	64.03	Mar. 31, 1953	68.71	Mar. 9, 1960	79.59
Mar. 8, 1949	63.09	Mar. 16, 1954	70.48	Mar. 28, 1961	80.20
Nov. 28	68.00	Dec. 6	72.72	Mar. 21, 1962	80.67
Mar. 14, 1950	66.23	Mar. 15, 1955	71.58	Mar. 19, 1963	81.77
Nov. 21	65.78	Nov. 17	74.83		

Well YW-65-09-301

Owner: L. E. Morrison.

Dec. 2, 1959	86.08	Mar. 21, 1962	85.40	July 19, 1965	105.2
Mar. 8, 1960	84.30	Mar. 20, 1963	87.11	Feb. 21, 1966	94.88
Nov. 22	87.69	Mar. 11, 1964	89.32	Mar. 15	93.14
Mar. 27, 1961	85.18	Mar. 10, 1965	91.06		

Well YW-65-09-307

Owner: TUBA Partnership.

Feb. 10, 1931	48.17	Mar. 15, 1939	54.01	Mar. 12, 1940	56.06
Apr. 28	47.53	Sept. 15	61.36	Apr. 27	55.84
Mar. 17, 1935	49.76	Dec. 21	57.11	Oct. 7	62.58

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Table 7.--Water levels in wells in Austin and Waller Counties and adjacent areas--Continued

Waller County

Date	Water level	Date	Water level	Date	Water level
Well YW-65-09-307--Continued					
Jan. 22, 1941	58.39	Jan. 25, 1949	68.08	Mar. 13, 1957	79.75
Mar. 15	57.62	Mar. 8	66.45	Dec. 2	81.88
May 21	60.20	Nov. 28	70.14	Mar. 20, 1958	80.91
Oct. 28	59.86	Mar. 14, 1950	68.70	Dec. 3	83.10
Jan. 15, 1942	57.87	Nov. 21	72.72	Mar. 25, 1959	81.98
Mar. 18	57.05	Mar. 30, 1951	69.98	Nov. 16	84.17
Oct. 21	60.29	Nov. 14	74.35	Mar. 8, 1960	82.73
Mar. 13, 1943	57.29	Mar. 14, 1952	72.00	Nov. 22	84.44
Nov. 9	62.62	Nov. 25	76.20	Mar. 27, 1961	83.05
Mar. 29, 1944	59.40	Mar. 31, 1953	73.83	Nov. 30, 1962	86.86
Oct. 6	67.15	Nov. 19	77.29	Mar. 20, 1963	85.38
Mar. 17, 1945	61.40	Mar. 17, 1954	75.50	Mar. 11, 1964	87.66
Nov. 6	65.18	Dec. 3	78.67	Nov. 18	96.67
Mar. 26, 1946	62.16	Mar. 15, 1955	77.00	Mar. 10, 1965	89.99
Mar. 24, 1947	62.03	Nov. 18, 1955	79.07	Nov. 15	94.59
Mar. 18, 1948	63.12	Mar. 15, 1956	77.56	Mar. 15, 1966	90.70
Nov. 15	69.69	Nov. 19	81.17		

Well YW-65-09-308

Owner: TUBA Partnership.

Mar. 15, 1939	55.57	Mar. 12, 1940	57.59	Mar. 15, 1941	59.01
Sept. 15	68.00	Apr. 27	57.47	Oct. 28	62.00
Dec. 21	58.90	Oct. 7	66.71	Jan. 20, 1942	59.12

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Well YW-65-09-308--Continued

Date	Water level	Date	Water level	Date	Water level
Mar. 18, 1942	58.35	Mar. 14, 1950	72.20	Nov. 19	84.01
Oct. 21	62.45	Nov. 21	76.10	Mar. 13, 1957	82.48
Nov. 9, 1943	64.91	Mar. 30, 1951	73.83	Mar. 20, 1958	83.40
Mar. 29, 1944	60.44	Nov. 14	78.30	Mar. 25, 1959	84.37
Oct. 6	71.90	Mar. 14, 1952	73.62	Nov. 16	86.7±
Mar. 17, 1945	62.73	Nov. 25	80.5	Mar. 8, 1960	84.83
Nov. 6	66.20	Mar. 31, 1953	76.06	Nov. 22	84.98
Mar. 26, 1946	62.71	Nov. 19	79.93	Mar. 27, 1961	84.32
Mar. 24, 1947	63.30	Mar. 17, 1954	77.58	Nov. 30	85.40
Mar. 18, 1948	65.04	Dec. 3	81.59	Mar. 21, 1962	84.20
Nov. 15	74.66	Mar. 15, 1955	79.02	Nov. 30	88.21
Mar. 8, 1949	67.87	Nov. 18	82.98	Mar. 20, 1963	85.76
Nov. 28	72.23	Mar. 15, 1956	79.92	Mar. 11, 1964	90.89

Well YW-65-09-311

Owner: L. E. Morrison.

Date	Water level	Date	Water level	Date	Water level
Oct. 7, 1940	76.91	Oct. 21	65.95	Nov. 6, 1945	78.34
Jan. 22, 1941	61.69	Apr. 13, 1943	58.69	Mar. 27, 1946	68.11
Mar. 15	59.97	Nov. 9	72.03	Mar. 24, 1947	64.81
Oct. 28	65.29	Mar. 29, 1944	61.85	Mar. 17, 1948	68.09
Jan. 20, 1942	59.41	Oct. 6	98.35	Nov. 15	89.36
Mar. 18	57.88	Mar. 17, 1945	67.29	Mar. 8, 1949	72.39

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Table 7.--Water levels in wells in Austin and Waller Counties and adjacent areas--Continued

Waller County

Date	Water level	Date	Water level	Date	Water level
Well YW-65-09-311--Continued					
Nov. 28, 1949	80.15	Nov. 25, 1952	93.08	Mar. 15, 1956	82.66
Mar. 14, 1950	74.82	Mar. 31, 1953	80.60	Nov. 19	89.01
Nov. 21	91.18	Nov. 19	85.96	Mar. 13, 1957	85.73
Mar. 30, 1951	77.22	Mar. 17, 1954	79.55	Dec. 3, 1958	91.21
Nov. 14, 1951	89.38	Dec. 3	88.69		
Mar. 14, 1952	78.59	Mar. 15, 1955	84.18		

Well YW-65-09-505

Owner: John and C. R. England.

Mar. 15, 1941	58.58	Jan. 20, 1942	58.80	Mar. 15, 1949	68.64
May 16	59.50	Mar. 18	57.71	Apr. 18, 1965	83.02
Oct. 27	60.38	Nov. 10, 1948	76.08	Feb. 15, 1966	81.71

Well YW-65-09-506

Owner: J. V. Cardiff & Sons.

Mar. 15, 1949	67.4	Mar. 20, 1958	78.25	Mar. 11, 1964	87.05
Mar. 31, 1953	69.46	Mar. 12, 1959	81.73	Mar. 10, 1965	87.98
Mar. 17, 1954	72.22	Mar. 9, 1960	81.35	Feb. 15, 1966	88.94
Mar. 14, 1955	74.87	Mar. 29, 1961	82.42	Mar. 15	90.18
Mar. 14, 1956	75.11	Mar. 22, 1962	82.92		
Mar. 13, 1957	77.53	Mar. 20, 1963	84.63		

Date	Water level	Date	Water level	Date	Water level

Well YW-65-09-601

Owner: J. V. Cardiff & Sons.

Mar. 17, 1954	75.68	Mar. 20, 1958	82.06	Mar. 22, 1962	25±
Mar. 14, 1955	77.05	Mar. 12, 1959	83.84	Mar. 20, 1963	25±
Mar. 14, 1956	78.21	Mar. 9, 1960	83.90		
Mar. 13, 1957	82.22	Mar. 29, 1961	84.21		

Well YW-65-09-604

Owner: J. V. Cardiff & Sons.

Apr. 16, 1949	66.3	Mar. 13, 1957	80.85	Mar. 22, 1962	87.9±
Mar. 31, 1953	74.23	Mar. 20, 1958	83.26	Mar. 20, 1963	89.93
Mar. 17, 1954	75.65	Mar. 12, 1959	85.90	Mar. 11, 1964	91.68
Mar. 14, 1955	78.54	Mar. 9, 1960	84.76	Mar. 10, 1965	92.80
Mar. 14, 1956	79.81	Mar. 29, 1961	87.8±	Mar. 15, 1966	96.22

Well YW-65-09-605

Owner: J. V. Cardiff & Sons.

Mar. 31, 1953	72.34	Mar. 20, 1958	81.21	Mar. 20, 1963	88.03
Mar. 17, 1954	73.72	Mar. 12, 1959	82.86	Mar. 11, 1964	90.44
Mar. 14, 1955	77.36	Mar. 9, 1960	83.41	Mar. 10, 1965	93.24
Mar. 14, 1956	77.93	Mar. 29, 1961	84.5±	Feb. 15, 1966	97.21
Mar. 13, 1957	80.24	Mar. 22, 1962	85.3		

Table 7.--Water levels in wells in Austin and Waller Counties and adjacent areas--Continued

Waller County

Well YW-65-09-812

Owner: Ray Woods.

Date	Water level	Date	Water level	Date	Water level
Oct. 2, 1940	60.90	Nov. 15, 1948	64.10	Nov. 21, 1956	76.83
Jan. 23, 1941	59.51	Mar. 8, 1949	62.09	Mar. 15, 1957	75.45
Mar. 15	59.05	Nov. 28	63.63	Nov. 27	77.54
Oct. 27	59.36	Mar. 13, 1950	63.79	Mar. 18, 1958	76.60
Jan. 15, 1942	58.86	Mar. 21, 1951	64.40	Dec. 2	79.52
Mar. 17	58.64	Nov. 14	66.39	Mar. 11, 1959	77.54
Sept. 23	59.59	Mar. 13, 1952	65.89	Nov. 16	79.03
Apr. 13, 1943	58.08	Nov. 21	68.77	Mar. 8, 1960	77.84
Nov. 9	59.76	Mar. 31, 1953	67.83	Mar. 15, 1961	77.72
Mar. 29, 1944	59.29	Nov. 20	70.09	Nov. 20	80.28
Oct. 6	61.45	Mar. 16, 1954	69.43	Mar. 19, 1962	78.17
Mar. 16, 1945	59.80	Dec. 6	71.98	Nov. 29	81.01
Nov. 5	61.30	Mar. 16, 1955	71.30	Mar. 19, 1963	79.37
Mar. 21, 1946	60.20	Nov. 17	73.99	Feb. 26, 1964	81.25
Mar. 19, 1948	60.53	Mar. 9, 1956	72.91		

Well YW-65-10-403

Owner: Dale Minze.

Date	Water level	Date	Water level	Date	Water level
Oct. 4, 1940	63.41	May 22	59.87	Sept. 24	62.58
Jan. 22, 1941	61.37	Jan. 15, 1942	60.19	Apr. 13, 1943	59.02
Mar. 15	60.45	Mar. 17	58.93	Nov. 9	63.84

(Continued on next page)

Date	Water level	Date	Water level	Date	Water level
Well YW-65-10-403--Continued					
Mar. 29, 1944	61.39	Nov. 16	72.54	Mar. 18, 1958	85.34
Oct. 6	66.15	Mar. 29, 1951	71.52	Dec. 3	86.91
Mar. 17, 1945	63.07	Mar. 12, 1952	75.05	Mar. 11, 1959	86.32
Nov. 5	66.46	Nov. 20	79.33	Nov. 13	87.74
Mar. 26, 1946	64.11	Apr. 2, 1953	76.61	Mar. 8, 1960	87.13
Mar. 24, 1947	64.16	Nov. 19	78.99	Nov. 22	87.49
Mar. 17, 1948	65.80	Mar. 17, 1954	81.69	Mar. 15, 1961	87.95
Nov. 10, 1948	69.57	Nov. 30	84.92	Mar. 20, 1962	88.33
Nov. 15	69.6	Nov. 21, 1955	83.72	Mar. 20, 1963	90.46
Jan. 20, 1949	68.79	Mar. 9, 1956	82.23	Feb. 26, 1964	92.70
Mar. 7	68.42	Nov. 21, 1956	85.97	Mar. 10, 1965	94.18
Nov. 29	70.47	Mar. 13, 1957	84.17	Mar. 11, 1966	96.15
Mar. 14, 1950	69.71	Nov. 26	85.89		

Well YW-65-10-404

Owner: Louis Young.

Oct. 4, 1940	64.18	Jan. 20, 1942	63.00	Mar. 15, 1949	70.90
Jan. 22, 1941	63.24	Mar. 17	62.48		
Oct. 28	63.89	Nov. 16, 1948	69.76		

Table 7.--Water levels in wells in Austin and Waller Counties and adjacent areas--Continued

Waller County

Date	Water level	Date	Water level	Date	Water level
		Well YW-65-10-708			
Owner: J. Bartlett.					
Mar. 12, 1931	48.55	Mar. 28, 1946	62.00	Mar. 9, 1956	79.02
Mar. 18, 1933	50.81	Mar. 28, 1947	62.62	Nov. 21	81.35
Mar. 15, 1939	55.02	Mar. 19, 1948	63.92	Mar. 15, 1957	80.97
Sept. 18	59.35	Nov. 10	68.40	Nov. 27	81.97
Dec. 21	60.45	Jan. 25, 1949	67.37	Mar. 18, 1958	82.19
Mar. 12, 1940	58.50	Mar. 8	66.80	Dec. 2	83.68
Jan. 23, 1941	60.32	Dec. 1	69.07	Mar. 11, 1959	83.21
Mar. 15	60.06	Mar. 13, 1950	68.40	Nov. 16	83.69
May 16	59.52	Nov. 22	70.69	Mar. 8, 1960	84.49
Oct. 28	60.88	Mar. 21, 1951	69.86	Nov. 28	85.44
Jan. 15, 1942	59.74	Nov. 16	73.48	Mar. 15, 1961	85.14
Mar. 17	58.88	Mar. 13, 1952	72.37	Nov. 20	86.34
Sept. 22	58.78	July 22	77.12	Mar. 19, 1962	86.23
Apr. 13, 1943	58.77	Nov. 21	74.60	Mar. 19, 1963	87.39
Nov. 9	62.14	Apr. 2, 1953	73.65	Mar. 11, 1964	89.72
Mar. 29, 1944	60.38	Nov. 27	74.30	Mar. 12, 1965	91.07
Oct. 4	63.70	Dec. 3, 1954	77.79	Feb. 11, 1966	92.98
Mar. 16, 1945	60.95	Mar. 14, 1955	77.84	Mar. 11	88.17
Nov. 1	63.82	Nov. 15	79.10		

Well YW-66-08-603

Owner: W. A. Bollinger.

Date	Water level	Date	Water level	Date	Water level
Mar. 28, 1947	28.86	Nov. 24, 1953	45.73	Nov. 28, 1961	54±
Mar. 18, 1948	31.15	Dec. 6, 1954	47.74	Mar. 21, 1962	43.74
Nov. 18	42.74	Mar. 15, 1955	42.20	Nov. 29	53.55
Mar. 8, 1949	33.56	Mar. 14, 1956	42.14	Mar. 19, 1963	46.18
Nov. 28	41.35	Mar. 15, 1957	46.29	Feb. 26, 1964	50.32
Mar. 15, 1950	39.31	Nov. 29	50.09	Nov. 18	56.60
Nov. 21	43.73	Mar. 20, 1958	44.19	Mar. 9, 1965	48.65
Apr. 21, 1951	36.24	Dec. 2	53.06	Nov. 15	58.79
Nov. 14	45.15	Mar. 12, 1959	46.19	Feb. 22, 1966	52.70
Mar. 13, 1952	38.69	Nov. 18	53.0±	Mar. 10	50.19
Nov. 26	48.89	Mar. 9, 1960	45.31		
Mar. 31, 1953	41.29	Mar. 28, 1961	43.88		

Table 7.--Water levels in wells in Austin and Waller Counties and adjacent areas--Continued

Date	Water level	Date	Water level	Date	Water level

Fort Bend County

Well JY-65-10-702

Owner: E. MacMillian.

Date	Water level	Date	Water level	Date	Water level
Mar. 15, 1939	57.77	Mar. 28, 1947	63.66	Mar. 18, 1957	81.37
Sept. 19	62.90	Mar. 19, 1948	64.85	Dec. 2	84.21
Dec. 21	60.25	Nov. 19	69.66	Mar. 19, 1958	83.08
Mar. 12, 1940	59.50	Mar. 7, 1949	67.56	Dec. 1	85.41
Apr. 26	59.40	Nov. 23	70.28	Mar. 11, 1959	85.60
Oct. 4	65.82	Mar. 15, 1950	68.43	Nov. 13	87.15
Jan. 23, 1941	61.57	Nov. 16	72.17	Mar. 7, 1960	85.78
Mar. 11	61.32	Mar. 21, 1951	70.31	Nov. 29	87.59
May 15	60.62	Nov. 13	74.10	Mar. 15, 1961	87.82
Oct. 24	62.35	Mar. 11, 1952	72.85	Nov. 20	89.2±
Jan. 19, 1942	60.95	July 22	76.76	Mar. 19, 1962	86.32
Mar. 17	60.30	Nov. 21	76.59	Mar. 18, 1963	87.77
Sept. 22	64.22	Mar. 25, 1953	74.62	Mar. 11, 1964	90.68
Apr. 12, 1943	60.05	Nov. 23	77.04	Nov. 23	95.52
Nov. 8	64.18	Mar. 15, 1954	76.26	Mar. 8, 1965	91.96
Mar. 29, 1944	63.10	Nov. 30	78.85	Nov. 16	95.79
Oct. 5	68.70	Mar. 11, 1955	77.64	Mar. 8, 1966	93.9±
Mar. 16, 1945	62.86	Nov. 15	80.7		
Nov. 1	64.57	Mar. 9, 1956	79.46		
Mar. 28, 1946	62.64	Nov. 16	83.67		

Date	Water Level	Date	Water Level	Date	Water Level

Well JY-65-10-703

Owner: P. V. Cook.

Date	Water Level	Date	Water Level	Date	Water Level
Aug. 11, 1932	55.56	Apr. 12, 1943	50.45	Nov. 13, 1951	71.22
Sept. 29	55.29	Nov. 8	55.74	Mar. 11, 1952	68.85
Mar. 18, 1933	46.46	Mar. 29, 1944	52.23	Nov. 21	72.51
Jan. 6, 1939	49.92	Oct. 4	58.95	Mar. 25, 1953	69.87
Mar. 10	48.81	Mar. 16, 1945	54.67	Nov. 23	73.19
Sept. 19	56.64	Nov. 1	57.97	Mar. 15, 1954	72.11
Dec. 21	52.44	Mar. 21, 1946	54.29	Mar. 11, 1955	73.83
Mar. 12, 1940	51.10	Mar. 28, 1947	54.43	Nov. 15	76.91
Oct. 4	58.86	Mar. 19, 1948	56.45	Mar. 9, 1956	75.45
Jan. 23, 1941	53.04	Nov. 16	65.57	Nov. 16	80.01
Mar. 11,	52.53	Jan. 25, 1949	63.34	Mar. 13, 1957	77.39
May 15	51.67	Mar. 7	62.50	Dec. 2	79.76
Oct. 24	53.52	Nov. 23	66.72	Mar. 19, 1958	79.19
Jan. 15, 1942	51.66	Mar. 13, 1950	65.14	Feb. 17, 1966	92.0
Mar. 17	50.57	Nov. 16	68.89		
Sept. 21	55.25	Mar. 21, 1951	65.92		

Table 7.--Water levels in wells in Austin and Waller Counties and adjacent areas--Continued

Fort Bend County

Date	Water level	Date	Water level	Date	Water level
		Well JY-65-17-201			
Owner: R. Woods.					
Mar. 19, 1958	84.65	Mar. 15, 1961	85.29	Nov. 17, 1964	91.09
Dec. 2	88.32	Nov. 20	86.96	Mar. 10, 1965	88.53
Mar. 11, 1959	85.80	Mar. 19, 1962	84.84	Nov. 16	91.61
Nov. 16	87.93	Nov. 29	87.72	Mar. 14, 1966	89.77
Mar. 8, 1960	85.98	Mar. 19, 1963	85.59		
Nov. 28	86.89	Feb. 26, 1964	87.78		

Harris County

Well LJ-65-01-302

Owner: Tom Jordan.

Date	Water Level	Date	Water Level	Date	Water Level
Mar. 10, 1949	70.87	Mar. 16, 1954	80.60	Nov. 18, 1959	99.48
Nov. 29	87.13	Dec. 6	102.75	Mar. 9, 1960	84.94
Mar. 16, 1950	71.90	Mar. 15, 1955	85.42	Nov. 28	93.38
Nov. 22	89.61	Nov. 17	102.19	Mar. 28, 1961	81.40
Apr. 3, 1951	75.77	Mar. 11, 1956	83.64	Nov. 28	94.51
Nov. 14	96.55	Nov. 20	120.98	Mar. 21, 1962	82.29
Mar. 13, 1952	79.71	Mar. 15, 1957	72.33	Mar. 19, 1963	94.26
July 28	197.5	Nov. 29	101.13	Feb. 26, 1964	101.75
Nov. 26	104.95	Mar. 25, 1958	83.42	Mar. 9, 1965	99.19
Mar. 31, 1953	79.13	Dec. 2	102.65	Feb. 7, 1966	105.1
Nov. 24	99.14	Mar. 12, 1959	88.47	Mar. 10	102.33

Well LJ-65-10-501

Owner: Mae Kemp.

Date	Water Level	Date	Water Level	Date	Water Level
Mar. 28, 1946	57.68	Nov. 11, 1950	75.77	Mar. 18, 1954	78.65
Mar. 26, 1947	57.78	Mar. 29, 1951	69.77	Nov. 30	83.64
Mar. 17, 1948	60.84	Nov. 13	77.39	Mar. 14, 1955	80.93
Nov. 9	74.77	Mar. 12, 1952	74.67	Nov. 15	85.15
Jan. 20, 1949	67.91	Nov. 20	81.48	Mar. 9, 1956	82.48
Mar. 7	65.14	Apr. 2, 1953	76.71	Nov. 22	88.22
Nov. 29	71.47	Nov. 20, 1953	81.45	Mar. 15, 1957	84.98

(Continued on next page)

Table 7.--Water levels in wells in Austin and Waller Counties and adjacent areas--Continued

Harris County

Date	Water level	Date	Water level	Date	Water level
Well LJ-65-10-501--Continued					
Nov. 26, 1957	87.86	Nov. 21	90.35	Mar. 10, 1964	94.69
Mar. 18, 1958	86.25	Mar. 15, 1961	88.76	Nov. 17	98.84
Dec. 1	88.75	Nov. 27	91.69	Mar. 12, 1965	96.33
Mar. 11, 1959	87.33	Mar. 20, 1962	89.95	Nov. 11	101.58
Nov. 17	90.17	Nov. 28	93.83	Mar. 11, 1966	98.62
Mar. 8, 1960	88.14	Mar. 20, 1963	91.97		

Table 8.--Chemical analyses of water from wells in Austin and Waller Counties

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

Water-bearing unit: B, Burkeville aquiclude; Ev, Evangeline aquifer; J, Jasper aquifer; Qal, Alluvium of the Brazos River.

Well	Depth of well (ft)	Date of collection	Water-bearing unit	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids	Hardness as $CaCO_3$	Percent sodium	Sodium-adsorption ratio (SAR)	Residual sodium carbonate (RSC)
								Austin County												
AP-59-60-702	112	Dec. 2, 1965	J	27	0.08	155	2.8	33.0	1.1	350	15	60	0.4	96	0.11	562	398	15	[illegible]	
61-402	386	Nov. 30, 1965	J	54	4.9	76	4.5	*73	--	364	15	37	.3	.2	--	439	208	43	2.2	[illegible]
501	180	do	J	30	5.1	96	8.9	*51	--	340	21	60	.4	.2	--	434	276	28	[illegible]	[illegible]
1/ 701	98	Mar. 10, 1937	B	--	--	--	--	--	--	293	40	54	--	110	--	526	--	--	--	--
2/ 803	725	1963	J	--	--	44	10	92	16	342	19	71	--	--	--	463	--	54	3.3	--
803	725	Nov. 23, 1965	J	49	.52	55	5.1	94	12	368	12	43	.3	0	.23	451	158	54	3.3	[illegible]
1/ 62-501	132	Jan. 12, 1937	Ev	--	--	--	--	--	--	287	40	36	--	a/	--	348	--	--	--	--
702	313	Nov. 11, 1965	B	27	.25	94	9.6	38	3.9	350	12	46	.3	0	.07	403	274	23	1.0	[illegible]
63-701	140	Apr. 21, 1966	Ev	27	.23	96	8.9	48	2.7	346	11.0	64	.3	.2	--	428	276	27	[illegible]	[illegible]
901	75	May 14, 1965	Ev	30	0	65	4.9	31	1.2	240	11	32	.3	.2	.02	294	182	27	1.0	[illegible]
1/ 902	1,228	Jan. 7, 1937	J	--	--	36	--	*280	--	695	32	68	--	a/	--	758	90	--	--	--
902	1,228	Apr. 13, 1964	J	49	.64	16	1.9	*310	--	770	.2	63	.9	0	--	820	48	93	19	[illegible]
1/ 905	565	Jan. 6, 1937	Ev	--	--	--	--	--	--	323	51	60	--	a/	--	432	--	--	--	--
66-05-102	91	Apr. 21, 1966	B	21	1.4	120	3.9	24	1.4	374	18	30	.4	9.6	--	412	316	14	[illegible]	[illegible]
702	120	Dec. 10, 1965	Ev	24	2.7	100	9.4	49	1.8	354	14	66	.6	0	.09	440	288	27	[illegible]	[illegible]
801	160	Dec. 14, 1965	Ev	--	--	--	--	--	--	292	22	250	--	--	--	--	410	--	--	[illegible]
801	160	Apr. 22, 1966	Ev	20	2.5	137	15	92	5.9	300	21	245	.5	.8	.06	685	404	--	2.0	[illegible]
901	80	Dec. 14, 1965	Ev	--	--	--	--	--	--	--	--	275	--	--	--	--	--	--	--	--
901	80	Apr. 22, 1966	Ev	25	.10	126	15	180	2.9	378	84	265	.6	2.0	--	886	376	51	[illegible]	[illegible]
06-102	110	Dec. 16, 1965	Ev	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
104	121	Apr. 21, 1966	Ev	28	.05	102	5.7	38	1.9	400	6.4	21	.4	.2	.06	401	278	23	1.0	[illegible]
3/ 601	786	Feb. 19, 1944	Ev	29	.08	68	12	92	9.1	367	46	58	.2	.2	--	495	219	--	--	--
603	900	Jan. 5, 1966	Ev,B	29	.13	46	11	100	5.2	311	50	52	.2	.2	.18	447	161	[illegible]	[illegible]	[illegible]
3/ 607	754	Feb. 19, 1944	Ev	28	.58	72	12	97	9.4	381	45	65	.2	.2	--	517	229	--	--	--

See footnotes at and of table.

Table 8.--Chemical analyses of water from wells in Austin and Waller Counties--Continued

Austin County

Well	Depth of well (ft)	Date of collection	Water-bearing unit	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids	Hardness as $CaCO_3$	Percent sodium	Sodium adsorption ratio (SAR)	Residual sodium carbonate (RSC)	Specific conductance (micromhos at 25°C)	pH
AP-66-07-301	53	July 22, 1965	Qal	24	1.4	96	13	*49	--	320	49	60	0.3	0	0.06	448	293	26	1.2	0.00	768	7.2
1/ 501	28	Feb. 18, 1937	Ev	--	--	--	--	--	--	12	10	34	--	72	--	173	--	--	--	--	--	--
08-105	210	Jan. 13, 1966	Ev	20	6.8	108	26	107	5.7	390	26	195	.2	.2	.12	680	376	38	2.4	.00	1,250	6.9
14-202	113	Apr. 22, 1966	Ev	26	.07	18	2.3	20	1.1	72	5.0	22	.3	4.8	.03	135	54	44	1.2	.09	210	6.4
801	74	Dec. 17, 1965	Ev	24	1.2	14	1.2	25	.9	41	5.6	39	.1	.2	.08	130	40	57	1.7	.00	223	6.1
15-101	164	Apr. 21, 1966	Ev	27	.04	52	2.2	24	.9	181	6.4	27	.2	.8	--	230	139	27	.9	.19	376	7.0
902	304	Feb. 19, 1944	Ev	22	.02	48	2.8	17	2.9	155	3.4	29	.2	1.2	--	203	131	--	--	--	--	7.6
16-405	102	Feb. 17, 1966	Ev	25	--	71	4.1	19	1.0	212	9.6	22	.2	25	.03	281	194	17	.6	.00	469	7.0
22-301	752	July 29, 1955	Ev	32	--	41	3.2	26	1.6	148	7.6	34	--	1.0	.09	246	115	--	--	--	--	7.5
301	752	June 16, 1965	Ev	--	--	--	--	--	--	152	7.8	32	--	--	--	--	121	--	--	--	358	7.3
23-102	598	do	Ev	28	0	41	3.3	23	1.3	148	6.6	29	.2	.5	.04	206	116	30	.9	.11	344	7.2
201	941	May 13, 1965	Ev	27	.01	30	3.2	53	1.5	161	10	47	.3	0	.09	251	88	56	2.5	.88	425	7.6
202	1,326	do	Ev	23	0	26	2.9	125	1.3	206	27	112	.8	.8	.48	420	77	78	6.2	1.84	724	7.5
205	116	Feb. 18, 1966	Ev	32	--	51	5.1	46	.9	184	6.8	66	.2	1.5	.04	300	148	40	1.6	.06	522	7.3
301	120	do	Ev	27	--	70	4.3	57	.7	216	9.2	88	.2	7.7	.05	370	192	39	1.8	.00	660	7.0
402	890	May 14, 1965	Ev	28	0	54	5.2	50	1.6	193	12	69	.2	0	.12	315	156	41	1.7	.04	537	7.2
602	120	Feb. 18, 1966	Ev	33	--	72	6.9	53	.5	208	8.8	103	.2	2.2	.02	382	208	36	1.6	.00	682	6.8
902	556	June 16, 1965	Ev	33	.0	58	4.9	38	.9	176	8.6	68	.2	1.0	.06	300	165	33	1.3	.00	519	7.3
24-801	610	Feb. 15, 1960	Ev	27	.07	48	3.2	19	1.5	151	6.0	33	.1	.8	.05	213	133	23	.7	--	353	7.4
801	610	Jan. 20, 1966	Ev	27	.02	50	3.2	17	1.4	149	6.6	32	.2	.5	.02	214	138	21	.6	.00	360	7.3
802	96	Feb. 18, 1966	Ev	23	--	74	12	54	1.5	324	12	58	.4	.2	.05	394	234	33	1.5	.63	689	7.1
Waller County																						
YW-59-55-603	106	Jan. 31, 1966	Ev	28	0.05	108	13	*57	--	232	14	168	0.3	7.7	--	510	324	28	1.4	0.00	948	7.0
604	178	do	Ev	--	.17	--	--	--	--	360	17	36	--	--	--	--	137	--	--	3.16	694	7.1
605	60	Jan. 31, 1966	Qal	19	2.6	108	20	56	2.0	420	36	61	.3	.2	0.07	510	350	26	1.3	9.99	882	6.9
904	350?	June 14, 1963	Ev	23	--	76	13	52	4.7	372	18	30	.4	.2	.07	400	243	31	1.5	1.2	682	6.6

See footnotes at end of table.

Table 8.--Chemical analyses of water from wells in Austin and Waller Counties--Continued

Waller County

Well	Depth of well (ft)	Date of collection	Water-bearing unit	Silica (SiO2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO3)	Sulfate (SO4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO3)	Boron (B)	Dissolved solids	Hardness as CaCO3	Percent sodium	Sodium adsorption ratio (SAR)	Residual sodium carbonate (RSC)	Specific conductance (micromhos at 25°C)	pH
YW-59-56-103	850?	June 13, 1963	J	46	--	11	1.3	*209	--	508	0.2	60	0.8	0.0	--	584	48	90	13	[illegible]	[illegible]	[illegible]
204	147	Jan. 28, 1966	Ev	21	0.01	46	11	45	3.4	264	18	22	.5	.2	0.07	297	162	37	1.5	[illegible]	[illegible]	[illegible]
4/ 501	379	June 11, 1949	Ev	34	--	78	21	*71	--	336	15	102	--	.2	--	480	281	24	--	--	[illegible]	[illegible]
501	379	Feb. 1, 1966	Ev	20	--	80	18	*65	--	318	15	98	.3	.2	--	452	274	34	1.7	.00	[illegible]	[illegible]
3/ 64-202	745	Apr. 5, 1944	Ev	19	.06	30	6.1	*124	--	370	6.0	39	.08	.2	.15	408	100	70	--	--	[illegible]	[illegible]
4/ 203	868	Jan. 2, 1930	Ev	29	--	40	11	*138	--	390	6.7	85	--	--	--	517	145	--	--	--	[illegible]	
203	868	Jan. 6, 1930	Ev	--	--	50	7.5	*115	--	372	10	66	--	--	--	451	156	--	--	--	--	--
901	900?	June 14, 1965	Ev	26	.02	28	5.4	23	1.5	129	7.2	21	.3	2.0	.06	177	92	35	1.0	.27	[illegible]	[illegible]
4/ 60-49-201	218	June 11, 1949	Ev	29	--	45	8.6	*18	--	192	4.3	17	--	.2	--	220	148	21	--	--	366	7.6
4/ 502	66	do	Ev	32	--	9.8	.7	*36	--	40	8.0	43	--	3.8	--	154	27	74	--	--	241	7.0
701	212	Apr. 21, 1966	Ev	24	4.0	26.0	3.6	22.0	2.2	86	4.6	42	.1	.2	.4	167	80	37	1.1	.00	290	6.6
4/ 901	111	June 11, 1949	Ev	32	--	8.4	1.2	*30	--	58	3.9	27	--	2.2	--	128	26	72	--	--	195	7.2
4/ 50-701	75	do	Ev	42	--	23	5.4	*38	--	73	4.1	70	--	.5	--	242	79	51	--	--	371	7.0
703	94	Feb. 3, 1966	Ev	43	.03	12	3.9	57	1.0	63	12	76	.3	.2	.02	236	46	72	3.7	.11	392	6.2
5/ 57-101	570	Jan. 28, 1966	Ev	20	.02	35	10	98	3.7	358	20	28	.4	.0	.08	391	130	61	3.7	3.27	664	7.4
4/ 103	576	1930	Ev	10	--	34	11	*70	--	255	23	36	--	--	--	309	130	--	--	--	--	--
103	576	Oct. 1942	Ev	28	3.8	14	2.6	*29	--	71	2	34	.2	0	--	169	46	55	--	--	--	7.7
4/ 104	571	Mar. 24, 1928	Ev	33	--	36	5.5	*111	--	336	30	34	--	--	--	113	--	--	--	--	--	--
506	558	Jan. 26, 1966	Ev	21	.53	31	8.2	60	2.5	240	15	22	.5	.2	.08	279	111	53	2.5	1.71	467	7.5
58-105	715	June 29, 1965	Ev	25	--	48	4.0	*32	--	176	6.8	38	.3	.2	--	241	136	34	1.2	.16	415	7.2
107	40	June 11, 1949	Ev	21	--	92	37	*220	--	108	95	210	--	465	--	1,190	382	56	--	--	1,940	6.9
4/ 203	300	do	Ev	44	--	35	4.5	*36	--	131	5.4	50	--	.5	--	247	106	42	--	--	384	7.5
65-01-202	85	Feb. 22, 1966	Ev	15	.21	11	3.8	37	.8	64	.4	44	.2	8.3	.03	152	43	65	2.5	.19	286	6.1
403	824	May 20, 1965	Ev	21	0	42	7.1	83	2.1	238	7.4	84	.3	.0	.08	364	134	57	3.1	1.22	635	7.3
403	824	Aug. 12, 1965	Ev	21	--	41	8.6	*88	--	248	8.6	83	.4	.2	--	373	138	58	3.3	1.30	660	7.4
4/ 405	846	Aug. 12, 1947	Ev	--	--	--	--	--	--	224	3	76	--	--	--	--	123	--	--	--	592	--

See footnotes at end of table.

Table 8.--Chemical analyses of water from wells in Austin and Waller Counties--Continued

Waller County

Well	Depth of well (ft)	Date of collection	Water-bearing unit	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids	Hardness as $CaCO_3$	Percent sodium	Sodium adsorption ratio (SAR)	Residual sodium carbonate (RSC)	Specific conductance (micromhos at 25°C)	pH
YW-65-01-501	842	Sept. 8, 1965	Ev	25	0	50	8.6	29	1.6	172	9.2	55	0.2	0.8	0.05	264	160	28	1.0	0.00	460	6.8
4/ 502	828	Aug. 11, 1947	Ev	--	--	--	--	--	--	202	3	50	--	--	--	128	--	--	--	--	--	--
4/ 503	845	June 7, 1949	Ev	14	--	42	6.6	*34	--	169	19	33	--	.2	--	232	132	36	--	--	383	7.7
602	959	July 2, 1965	Ev	22	--	48	15	65	3.9	320	17	35	.5	.2	.06	364	182	43	2.1	1.61	627	7.3
803	1,330	Aug. 12, 1965	Ev	23	.03	48	6.8	75	2.4	212	38	74	.4	.2	.15	372	148	52	2.7	.51	643	7.5
805	2,352	Aug. 11, 1947	Ev,B	--	--	--	--	--	--	512	50	110	--	.5	--	--	--	--	--	--	1,190	--
805	1,670	May 17, 1965	Ev,B	20	.02	40	3.9	110	1.6	202	72	87	.5	.2	.26	434	116	67	4.4	.99	730	7.2
4/ 806	905	Aug. 11, 1947	Ev	--	--	--	--	--	--	192	10	72	--	--	--	135	--	--	--	--	537	--
4/ 807	1,200	June 7, 1949	Ev	28	--	46	6	*55	--	199	13	59	--	.0	--	310	140	46	--	--	536	7.5
4/ 810	990	Aug. 11, 1947	Ev	--	--	--	--	--	--	222	7	70	--	.2	--	--	116	--	--	--	571	--
902	1,332	May 12, 1965	Ev	26	.01	52	4.0	91	1.3	182	24	120	.5	.2	.3	408	146	57	3.3	.06	735	7.7
4/ 903	884	Aug. 11, 1947	Ev	--	--	--	--	--	--	206	3	44	--	--	--	--	128	--	--	--	452	--
4/ 904	926	do	Ev	--	--	--	--	--	--	158	2	52	--	--	--	--	110	--	--	--	404	--
4/ 905	810	do	Ev	--	--	--	--	--	--	158	2	42	--	--	--	128	--	--	--	--	--	--
02-701	392	June 11, 1965	Ev	30	.0	71	4.6	20	1.0	226	.8	40	.2	.0	.06	279	196	18	.6	.00	489	7.7
701	392	Aug. 12, 1965	Ev	30	--	72	4.5	*21	--	226	.8	41	.2	.5	.06	281	198	19	.6	.00	483	7.5
4/ 707	554	Aug. 11, 1947	Ev	--	--	--	--	--	--	194	2	36	--	.5	--	--	135	--	--	--	408	--
4/ 09-102	936	Aug. 12, 1947	Ev	--	--	--	--	--	--	194	9	64	--	--	--	--	132	--	--	--	512	--
102	936	June 11, 1965	Ev	25	.04	47	6.5	34	1.1	180	5.6	41	.2	5.0	.03	254	144	34	1.2	.07	449	7.1
203	1,020	May 24, 1965	Ev	23	0	54	8.1	65	2.0	228	17	78	.3	.2	.04	360	168	45	2.2	.38	616	7.7
204	839	June 11, 1965	Ev	23	.02	50	9.5	44	2.2	200	15	59	.3	.2	.05	301	164	36	1.5	.00	541	7.4
204	839	Sept. 8, 1965	Ev	23	--	52	7.9	*47	--	196	17	61	.2	.2	.04	304	162	39	1.6	.0	538	7.0
4/ 206	644	Aug. 12, 1947	Ev	--	--	--	--	--	--	200	11	64	--	.4	--	--	122	--	--	--	518	--
4/ 207	--	June 7, 1949	Ev	26	--	58	18	*29	--	213	15	65	--	.2	--	325	218	29	--	--	557	7.8
4/ 208	739	Aug. 12, 1947	Ev	--	--	--	--	--	--	190	15	68	--	.2	--	--	128	--	--	--	526	--
4/ 210	765	do	Ev	--	--	--	--	--	--	204	10	64	--	.5	--	--	128	--	--	--	522	--

See footnotes at end of table.

Table 8.--Chemical analyses of water from wells in Austin and Waller Counties--Continued

Waller County

Well	Depth of well (ft)	Date of collection	Water-bearing unit	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids	Hardness as $CaCO_3$	Percent sodium	Sodium adsorption ratio (SAR)	Residual sodium carbonate (RSC)	Specific conductance (micromhos at 25°C)
4/ YW-65-09-306	920	June 7, 1949	Ev	33	--	43	4.9	*51	--	217	5.9	38	--	1.2	--	280	127	47	--	--	470
4/ 307	767	--	Ev	--	--	--	--	--	--	204	2	48	--	--	--	--	148	--	--	--	459
4/ 308	641	Aug. 11, 1947	Ev	--	--	--	--	--	--	202	3	50	--	--	--	--	176	--	--	--	473
4/ 309	800?	do	Ev	--	--	--	--	--	--	186	2	54	--	.8	--	--	189	--	--	--	462
309	800?	Aug. 11, 1965	Ev	28	0.1	60	6.4	32	1.0	200	4.0	52	0.3	.2	0.06	282	176	28	1.0	0.00	489
4/ 310	213	Aug. 11, 1947	Ev	--	--	--	--	--	--	188	2	58	--	--	--	--	162	--	--	--	[illegible]
4/ 312	907	June 7, 1949	Ev	22	--	44	11	*74	--	238	22	70	--	0	--	354	155	51	--	--	613
4/ 402	100	Nov. 5, 1948	Ev	23	--	77	6.2	*13	--	228	6.6	28	--	15	--	298	218	11	--	--	509
502	530	May 27, 1965	Ev	26	.02	49	6.3	36	1.2	176	4.8	53	.2	2.5	.04	266	148	34	1.3	.00	466
4/ 504	760	Aug. 12, 1947	Ev	--	--	--	--	--	--	192	2	80	--	1.0	--	--	128	--	--	--	[illegible]
4/ 505	600	June 7, 1949	Ev	28	--	54	3.9	*45	--	180	5.3	67	--	1.2	--	292	151	39	--	--	[illegible]
4/ 506	586	do	Ev	26	--	60	9.6	*41	--	214	11	64	--	.2	--	325	189	32	--	--	545
4/ 507	--	Aug. 14, 1947	Ev	--	--	--	--	--	--	208	5	80	--	.5	--	--	155	--	--	--	578
601	697	May 20, 1965	Ev	27	.00	60	7.4	40	1.3	200	8.6	67	.2	.2	.06	376	180	32	1.3	.00	580
601	697	Aug. 12, 1965	Ev	26	--	58	6.7	*45	--	204	11	64	.3	.2	.08	311	172	36	1.5	.00	537
4/ 604	478	June 7, 1949	Ev	28	--	48	7.1	*38	--	178	12	52	--	.2	--	271	149	36	--	--	[illegible]
604	478	May 17, 1965	Ev	30	--	50	5.2	*30	--	168	.2	51	.1	.5	--	250	146	31	1.1	.00	431
4/ 605	653	Aug. 14, 1947	Ev	--	--	--	--	--	--	190	3	54	--	--	--	--	135	--	--	--	464
802	540	June 22, 1960	Ev	22	.19	61	8.1	40	2.2	190	19	73	.4	.00	.05	334	186	32	1.3	--	555
805	860	Aug. 30, 1965	Ev	27	.02	78	9.1	40	1.3	232	8.6	81	.2	.2	.05	359	232	27	1.1	.00	633
4/ 807	165	Aug. 14, 1947	Ev	--	--	--	--	--	--	206	3	90	--	.5	--	--	196	--	--	--	600
4/ 808	335	do	Ev	--	--	--	--	--	--	218	2	54	--	--	--	--	152	--	--	--	503
810	297	June 8, 1951	Ev	28	.03	65	8.3	28	3.6	207	6.7	61	.0	.5	.01	304	176	25	--	--	[illegible]
4/ 811	147	June 7, 1946	Ev	26	--	67	8.3	*53	--	246	4.8	78	--	0	--	374	201	36	--	--	649
812	290	June 14, 1947	Ev	--	--	--	--	--	--	234	2	82	--	--	--	--	196	--	--	--	613

4/ See footnotes at end of table.

Table 8.--Chemical analyses of water from wells in Austin and Waller Counties--Continued

Waller County

Well	Depth of well (ft)	Date of collection	Water-bearing unit	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids	Hardness as $CaCO_3$	Percent sodium	Sodium adsorption ratio (SAR)	Residual sodium carbonate (RSC)	Specific conductance (micromhos at 25°C)	pH
YW-65-09-902	530	May 17, 1965	Ev	30	0	65	5.8	31	1.0	216	3.4	56	0.2	0.0	0.04	298	186	26	1.0	0.00	510	7.2
902	530	July 21, 1965	Ev	29	--	65	5.3	*32	--	216	2.4	52	.2	0	.06	292	184	27	1.0	.00	516	7.0
902	530	do	Ev	--	--	--	--	--	--	216	2.0	53	--	--	--	--	180	--	--	.00	512	7.0
4/ 904	256	Aug. 11, 1947	Ev	--	--	--	--	--	--	202	2	50	--	--	--	--	155	--	--	--	469	--
4/ 905	305?	Aug. 14, 1947	Ev	--	--	--	--	--	--	252	2	82	--	--	--	--	196	--	--	--	643	--
905	305?	June 9, 1965	Ev	29	--	66	7.7	*34	--	220	4.6	60	.2	.5	.07	310	196	28	1.1	.00	548	7.8
10-101	982	June 15, 1965	Ev	23	.00	45	5.3	46	1.5	217	8.2	38	.3	.2	.07	275	134	42	1.7	.88	475	7.5
102	585	May 24, 1965	Ev	29	.00	62	5.7	28	.9	210	3.2	46	.2	.8	.06	279	178	25	.9	.00	493	7.3
4/ 107	470	Aug. 11, 1947	Ev	--	--	--	--	--	--	202	3	46	--	--	--	--	142	--	--	--	449	--
4/ 402	400?	do	Ev	--	--	--	--	--	--	200	2	52	--	.8	--	--	135	--	--	--	456	--
4/ 403	246	June 7, 1949	Ev	32	--	64	7.9	*35	--	231	3.3	52	--	1.2	--	308	192	28	--	--	538	7.7
4/ 404	280	Aug. 11, 1947	Ev	--	--	--	--	--	--	206	2	52	--	--	--	--	142	--	--	--	476	--
404	280	May 24, 1965	Ev	30	.00	58	5.7	31	.8	204	3.0	47	.1	.5	.04	276	168	28	1.0	.00	469	7.1
5/ 405	273	Aug. 1, 1932	Ev	--	.02	63	5.9	*24	--	220	2	37	--	.15	--	240	182	--	--	--	--	--
4/ 708	545	Aug. 11, 1947	Ev	--	--	--	--	--	--	332	2	64	--	.5	--	--	155	--	--	--	554	--
66-08-102	67?	Apr. 8, 1964	Qal	19	.17	92	16	*34	--	342	34	36	.2	2.0	--	401	296	20	.9	.00	686	7.3
103	337	do	Ev	18	.08	54	16	*134	--	394	35	93	.3	.2	--	544	200	59	4.1	2.45	928	7.2
201	583	June 14, 1965	Ev	23	.17	46	12	74	2.8	256	14	72	.4	.0	.08	370	164	49	2.5	.91	640	7.9
202	75?	do	Qal	24	.72	65	6.8	24	1.4	230	18	28	.2	.2	--	281	190	21	.8	.00	475	7.7
602	1,608	July 30, 1952	Ev,J	32	--	19	2.4	*235	--	431	90	84	.8	.5	--	719	58	--	--	--	1,110	7.9
602	1,608	June 11, 1965	Ev,J	33	--	9.8	2.3	*300	--	504	145	84	1.1	.0	.84	824	34	95	2.2	7.58	1,330	7.9
4/ 603	--	June 7, 1949	Ev?	22	--	51	8.1	*32	--	200	9.3	39	--	.08	--	261	161	43	--	--	456	--
603	--	May 28, 1965	Ev?	27	--	54	7.1	*32	--	208	14	33	.3	1.8	.05	271	164	30	1.1	.13	456	7.3
4/ 604	1,008	Aug. 11, 1947	Ev	--	--	--	--	--	--	246	32	76	--	1.0	--	--	135	--	--	--	674	--
604	1,008	June 11, 1965	Ev	26	--	63	7.5	*73	--	280	24	64	.3	.5	.11	396	183	46	2.3	.83	686	7.3

See footnotes at end of table.

Table 8.--Chemical analyses of water from wells in Austin and Waller Counties--Continued

Waller County

Well	Depth of well (ft)	Date of collection	Water-bearing unit	Silica (SiO_2)	Iron (Fe)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na)	Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Boron (B)	Dissolved solids	Hardness as $CaCO_3$	Percent sodium	Sodium adsorption ratio (SAR)	Residual sodium carbonate (RSC)	[illegible]
YW-66-08-902	176	May 28, 1965	Ev	26	0.21	22	4.9	33	1.0	76	5.8	55	0.2	4.2	0.05	189	76	48	1.7	[illegible]	
4/ 905	1,602	June 7, 1949	Ev,J	22	--	37	14	*145	--	269	118	86	--	.2	--	557	150	68	--	-	
16-104	64	Apr. 9, 1964	Qal	21	--	134	30	*52	--	602	32	31	.3	.2	--	596	458	20	1.1	[illegible]	
105	210	Mar. 18, 1964	Ev	21	--	48	4.0	*25	--	176	8.4	26	.2	1.0	--	221	136	29	.9	[illegible]	
201	120	Apr. 9, 1964	Ev	42	.01	83	13	44	1.5	318	7.8	59	.3	.8	.06	407	260	27	[illegible]	[illegible]	
303	85	Feb. 24, 1966	Ev	24	--	106	8.6	67	1.1	390	1.0	80	.3	1.8	.05	491	300	33	1.7	[illegible]	

* Sodium and potassium calculated as sodium (Na).
a/ Nitrate less than 20 ppm.
1/ Analyses from Texas Board of Water Engineering mimeographed report on Austin County.
2/ Analyses by Texas A&M University.
3/ Analyses from U.S. Geological Survey Water-Supply Paper 1047, "Public Water Supplies in Eastern Texas."
4/ Analyses from Texas Board of Water Engineers Bull. 5208, "Water Resources of Waller County, Texas," 1952.
5/ Analyses from Texas Board of Water Engineers mimeographed report on Waller County, 1939.

Table 9.--Current well numbers used in this report and corresponding numbers used in previous reports in Austin, Waller, and adjacent counties[a]

Austin County

Current number	Number used by May (1938)	Current number	Number used by May (1938)
AP-59-61-701	7	66-06-601	98
62-501	107	608	97
63-902	148	07-402	65
905	146	501	134
66-04-603	17	15-902	228

Waller County

Current number	Number used by Turner and Livingston (1939)	Number used by White, Rose, and Guyton (1940)	Number used by Lang, Winslow, and White (1950)	Number used by Fluellen and Goines (1952)	Number used by Rayner (1958)
YW-59-56-501	--	--	--	A- 4	--
904	--	--	--	C- 3	--
64-101	--	--	--	C-23	--
202	--	--	--	C-21	--
203	108	--	--	C-22	--
204	109	--	--	--	C- 35
602	--	--	--	C-27	--
902	--	--	--	C-31	--
905	--	--	--	C-32	--
60-49-201	--	--	--	B- 1	--
502	--	--	--	B-12	--
901	--	--	--	D- 7	--
50-101	--	--	--	B-16	--
401	--	--	--	B-18	--
701	--	--	--	D-10	--
57-103	119	--	--	D-24	--
104	120	--	--	D-23	--
105	121	--	--	D-25	--
58-107	--	--	--	D-15	--
203	--	--	--	D-14	--
65-01-202	--	--	--	F- 4	--
405	--	250	--	F- 8	--
501	--	--	--	--	F- 48
502	239	239	239	F-10	239
503	--	--	--	F- 9	--
805	--	--	245a	F-17	F- 17
806	--	241	--	F-15	--
807	--	--	--	F-18	--
808	--	--	--	F-12	--
810	--	260	--	F-19	--
903	--	263	--	F-22	--
904	--	246	246	F-20	246
905	--	243	--	F-11	F- 11
906	221	221	--	F-21	F- 21
02-707	--	--	--	F-23	--

(Continued on next page)

Table 9.--Current well numbers used in this report and corresponding numbers used in previous reports in Austin, Waller, and adjacent counties--Continued[a]

Waller County--Continued

Current number	Number used by Turner and Livingston (1939)	Number used by White, Rose, and Guyton (1940)	Number used by Lang, Winslow, and White (1950)	Number used by Fluellen and Goines (1952)	Number used by Rayner (1958)
YW-65-09-101	--	261	--	F-28	--
102	--	--	--	F-29	--
206	--	--	--	F-30	--
207	--	--	--	F-31	--
208	--	--	--	F-36	--
209	--	245	245	F-27	245
210	--	--	--	F-32	--
211	--	242	--	F-39	242
306	--	--	--	--	--
307	223	223	223	F-25	223
308	--	247	247	F-33	247
309	--	--	--	F-41	--
310	--	257	--	F-42	--
311	225	225	225	F-43	225
312	--	--	--	F-26	--
402	--	--	--	H- 1	--
503	--	248	248	F-40	--
504	--	--	--	H- 4	--
505	--	269	--	H- 5	H- 5
506	--	249	--	H- 6	H- 6
507	--	--	--	H- 7	--
601	--	--	--	--	H- 39
604	--	--	--	H-11	H- 11
605	--	251	--	H- 9	H- 9
607	--	--	--	H-14	--
608	--	--	--	H-13	--
610	--	--	--	H-12	--
611	--	--	--	H-15	--
612	--	--	--	H-16	--
613	--	--	--	H-17	--
806	--	253	--	H-25	--
807	--	254	--	H-26	--
808	--	256	--	H-32	--
809	--	--	--	H-31	--
810	--	--	--	H-37	--
811	--	--	--	H-29	--
812	--	240	240	H-28	240
904	233	233	--	H-24	--
905	--	--	--	H-33	--
10-107	226	226	--	F-44	--
402	--	--	--	H-19	--
403	--	252	252	H-21	252
404	--	238	--	H-22	H- 22
405	230	230	--	H-38	--
406	--	--	--	H-20	--

(Continued on next page)

Table 9.--Current well numbers used in this report and corresponding numbers used in previous reports in Austin, Waller, and adjacent counties--Continued[a]

Waller County--Continued

Current number	Number used by Turner and Livingston (1939)	Number used by White, Rose, and Guyton (1940)	Number used by Lang, Winslow, and White (1950)	Number used by Fluellen and Goines (1952)	Number used by Rayner (1958)
YW-65-10-407	--	--	--	H-18	--
708	235	235	235	H-35	235
66-08-603	--	--	239a	E- 7	E- 7
604	--	--	--	E-10	--
903	179	--	--	--	--
905	--	--	--	E-12	--

Fort Bend County

Current number	Number used by White, Rose, and Guyton (1940)	Number used by Lang, Winslow, and White (1950)	Number used by Winslow and Fluellen (1952)	Number used by Wood (1958)	Number used by Rayner (1958)
JY-65-10-702	--	33	33	--	B- 33
703	--	11	11	--	B- 11

Harris County

Current number	Number used by White, Rose, and Guyton (1940)	Number used by Lang, Winslow, and White (1950)	Number used by Winslow and Fluellen (1952)	Number used by Wood (1958)	Number used by Rayner (1958)
LJ-65-01-302	--	--	40b	A-52	A- 52
02-705	155	--	--	--	--
10-501	--	346a	346a	A-63	A- 63

a/ Previous number is listed under report where the number was first used. Later-dated reports unlisted above have continued use of the former well numbers.

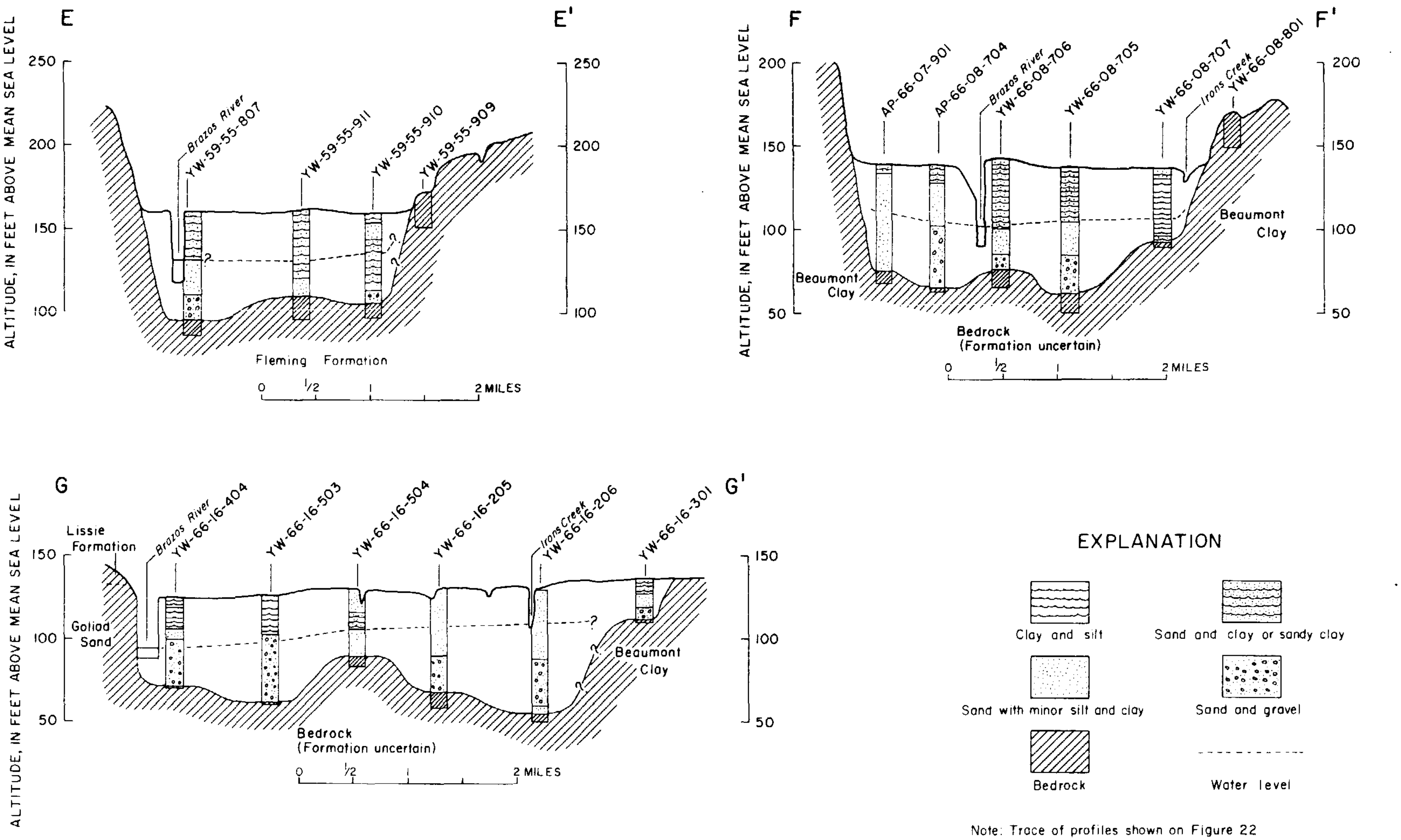

Figure 27

Profiles of Flood-Plain Alluvium Along the Brazos River

U. S. Geological Survey in cooperation with the Texas Water Development Board and others

After Cronin and Wilson 1967, Fig 28