Report 255

OCCURRENCE AND QUALITY OF GROUND WATER IN THE EDWARDS-TRINITY (PLATEAU) AQUIFER IN THE TRANS-PECOS REGION OF TEXAS

TEXAS DEPARTMENT OF WATER RESOURCES

September 1980

TEXAS DEPARTMENT OF WATER RESOURCES

REPORT 255

OCCURRENCE AND QUALITY OF GROUND WATER IN THE EDWARDS-TRINITY (PLATEAU) AQUIFER IN THE TRANS-PECOS REGION OF TEXAS

By

Rhys Rees
and
A. Wayne Buckner

September 1980

Published and distributed
by the
Texas Department of Water Resources
Post Office Box 13087
Austin, Texas 78711

TABLE OF CONTENTS

TABLE OF CONTENTS—Continued

TABLES

FIGURES

OCCURRENCE AND QUALITY OF GROUND WATER IN THE EDWARDS-TRINITY (PLATEAU) AQUIFER IN THE TRANS-PECOS REGION OF TEXAS

CONCLUSIONS

The Edwards-Trinity (Plateau) aquifer, which consists of limestones and sands of Cretaceous age, is one of the most important sources of water in Reeves, Pecos, and Terrell Counties. The aquifer has an areal extent of approximately 9,400 square miles (24,000 km^2). In small localized areas, the aquifer yields large quantities of water to wells, principally for irrigation use. However, throughout most of the aquifer's extent, it yields only small to moderate amounts of water to wells. The geology of the aquifer, particularly the structure, strongly influences both the yields of wells and the chemical quality of the water.

Computation of recharge to the aquifer and discharge from the aquifer has resulted in the estimation that on the order of 150,000 to 190,000 acre-feet (180 to 230 hm^3) of water is available from the aquifer on a sustained annual basis. However, it appears from the long-term water level declines that pumpage in the irrigated areas of the aquifer has, in many places, exceeded recharge. Total pumpage from the aquifer, primarily in the irrigation areas with lesser amounts by municipalities and industry, exceeds 130,000 acre-feet (160 hm^3) annually. Also, in those portions of the study area where there has been no irrigation development, strata are relatively impervious and aquifer yields are generally too low to support high-capacity wells.

Before extensive development of irrigation wells, the discharge from the aquifer was in equilibrium with recharge. However, with the development of large-scale irrigation, discharge has exceeded recharge in most of the irrigation areas and water has been withdrawn from storage. This has caused long-term water level declines. These declines are most pronounced in the central Reeves County irrigation area and in the north and south Coyanosa, and Fort Stockton-Leon-Belding irrigation areas of Pecos County. This decline in water levels has caused Comanche Springs and Leon Springs to stop flowing. In those parts of the aquifer that have not been developed for irrigation such as in Terrell and southern Pecos Counties, the recharge and discharge have remained almost in equilibrium and the aquifer contributes flow to the Rio Grande and the Pecos River through seeps and springs.

The quality of water within the aquifer varies from less than 500 to more than 5,000 milligrams per liter (mg/l) dissolved solids. The high amount of dissolved solids in water contained in the aquifer is primarily the result of recharge water from evaporite deposits of the Castile and Rustler Formations in Culberson County and northwestern Reeves County and from the Rustler Formation in north-central Pecos County. The high chloride content of water from wells in north-central Pecos County may be the result of contamination by oil-field brines from improperly plugged or cased oil wells.

INTRODUCTION

The Edwards-Trinity (Plateau) aquifer investigation was initiated in January 1973. The objective of this investigation is to update previous investigations into one report covering the extent of the Edwards-Trinity (Plateau) aquifer west of the Pecos River with particular emphasis on the chemical quality and occurrence of ground water within the aquifer.

The geology and occurrence of ground water in the Edwards-Trinity (Plateau) aquifer have been described in several reports listed in the "Selected References" section of this report. The reports have been used in this investigation, and data from them have been incorporated *per se* except in those cases where recent data collected in the field update previous data, such as water levels and chemical analyses.

The area of investigation is shown in Figure 1 and includes all of Terrell County and those portions of Reeves, Pecos, Culberson, Jeff Davis, Val Verde (west of the Pecos River), and Brewster Counties underlain by the Edwards-Trinity aquifer. West of the Pecos River, the aquifer covers an area of approximately 9,400 square miles (24,000 km^2). The topography ranges in elevation from approximately 8,000 feet (2,400 m) above sea level in the Davis Mountains on the northwest to 1,200 feet (366 m) above sea level near the confluence of the Rio Grande and the Pecos River in the southeast. The physiography ranges from the very rugged, high relief of the Davis Mountains to the broad, flat plain of the Pecos River valley and the highly dissected and relatively flat-lying plateaus and mesas of Terrell, Val Verde, and southern Pecos Counties. This area encompasses one of the most complex geologic and hydrologic regions of the State.

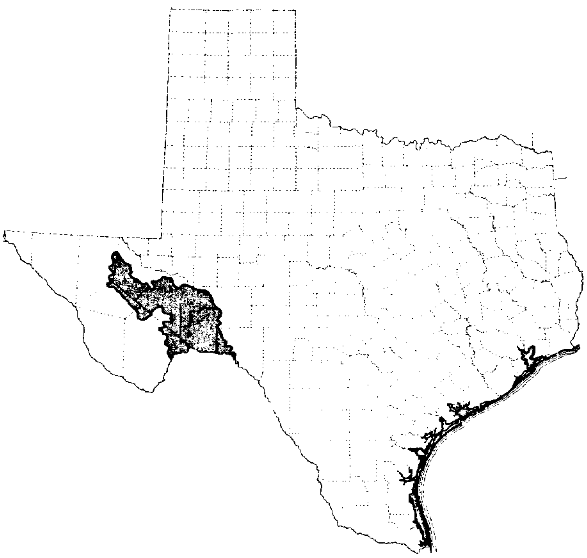

Figure 1.—Location of the Edwards-Trinity (Plateau) Aquifer in the Trans-Pecos Region

The area has an average annual rainfall of 12 inches (31 cm) and an annual evaporation rate of 70 to 80 inches (178 to 203 cm). Its average maximum daily air temperature in July is 95°F (35°C) while the average minimum in January is 33°F (0.6°C).

In conducting the regional ground-water investigation of the Edwards-Trinity aquifer, the following items of work were performed.

1. Available geologic and hydrologic data were compiled and reviewed.
2. Available subsurface data were compiled and correlated.
3. Water levels in wells were measured.
4. Water samples from wells were collected for chemical analysis.
5. Data were compiled, interpreted, and analyzed and illustrations prepared.

to show the geologic and hydrologic conditions within the study area.

Numerous people helped in many ways in the completion of this study, and their contribution of time, aid, and information is greatly appreciated. Special thanks are due Loyd Walker, who edited the manuscript and made many useful suggestions concerning the illustrations and conclusions contained within the report. General supervision was furnished by C. R. Baskin, director, Data and Engineering Services Division and Tommy R. Knowles, chief, Data Collection and Evaluation Section.

Well-Numbering System

The well-numbering system used in this report is one adopted by the Texas Department of Water Resources for use throughout the State and is based upon the divisions of latitude and longitude. This system facilitates the location of wells and prevents duplication of well numbers in present and future studies.

Under this system, each 1-degree quadrangle in the State is given a number consisting of two digits, from 01 to 89. These are the first two digits in the well number. Each 1-degree quadrangle is divided into 7½-minute quadrangles which are given 2-digit numbers from 01 to 64. These are the third and fourth digits of the well number. Each 7½-minute quadrangle is divided into 2½-minute quadrangles given single digit numbers from 1 to 9. This is the fifth digit of the well number. Finally, each well within a 2½-minute quadrangle is given a 2-digit number in the order in which it is inventoried, starting with 01. These are the last two digits of the well number.

In addition to the seven-digit well number, a two-letter prefix is used to identify the county. The prefixes for the counties entirely or partially covered by this report are:

Prefix	County
BK	Brewster
HL	Culberson
PS	Jeff Davis
US	Pecos
WD	Reeves
XX	Terrell
YR	Val Verde

On the well-location map in this report (Figure 9), the 1-degree quadrangles are numbered with large numerals. The 7½-minute quadrangles are numbered in the northwest corners where possible. The 3-digit number shown with the well symbol contains the number of the 2½-minute quadrangle in which the well is located and the number of the well within that quadrangle.

Metric Conversions

For those readers interested in using the International System (SI) of Units, the metric equivalents of English units of measurements are given in parentheses in the text. The English units used in this report may be converted to metric units by the following coversion factors:

From English units	Multiply by	To obtain metric units
acre	0.4047	square hectometers (hm^2)
acre-feet	0.00123	cubic hectometers (hm^3)
cubic feet per second (ft^3/s)	28.32	liters per second (l/s)
feet (ft)	0.3048	meters (m)
feet per mile (ft/mi)	0.189	meters per kilometer (m/km)
gallons (gal)	3.785	liters (l)
gallons per minute (gal/min)	0.0631	liters per second (l/s)
gallons per day per foot [(gal/d)/ft]	12.418	liters per day per meter [(l/d)/m]
inches (in)	2.540	centimeters (cm)
miles (mi)	1.609	kilometers (km)
square miles (mi^2)	2.590	square kilometers (km^2)

To convert degrees Fahrenheit to dregrees Celsius use the following formula:

$$^{\circ}C=0.556\ (^{\circ}F-32)$$

GEOLOGY

The Edwards-Trinity (Plateau) aquifer covers parts of the Delaware and Val Verde Basins and is composed of water-bearing lower Cretaceous sands and limestones of the Washita, Fredericksburg, and Trinity Groups. The upper part of the aquifer is made up of the Georgetown Formation and Edwards Limestone and the lower part is made up of sands and limestones of the Trinity Group. Table 1 briefly describes the lithology and water-bearing properties of the geologic units. Figure 2 shows the approximate altitude of the base of the Edwards-Trinity aquifer in the study area.

The quality and movement of ground water in the northwest one-third of the aquifer is influenced by the geologic structure of that area. Toward the end of Permian time the seas in the Delaware Basin became shallow and restricted, resulting in the deposition of vast amounts of evaporites. The Cretaceous seas advanced over these Permian evaporites depositing the Cretaceous rocks that are present in the area. Subsequent to the retreat of the Cretaceous seas, ground water began leaching the soluble gypsum and salt deposits of Permian age to such an extent that the overlying Cretaceous rocks lost their underlying support and were subjected to extensive faulting, folding, and subsidence. This folding and faulting is shown in Figure 3.

Prior to and following subsidence of the Cretaceous rocks, Tertiary volcanic rocks which formed the Davis Mountains were extruded onto the surface, and with each successive eruption created, in effect, a new base level of erosion. As a result, the eroded and degraded Cretaceous rocks in the subsidence area became an area of aggradation and deposition for the alluvial deposits of the mountain front. Within the area bounded by the Capitan Reef complex, the Edwards-Trinity (Plateau) aquifer is dissected by, and hydrologically connected to the overlying Quaternary alluvium, and water of the Edwards-Trinity is commingled with alluvial water (Figures 3 and 4).

Another feature affecting the quality of ground water in this area is the movement and solution action of water through the Permian outcrops of the Rustler (anhydrite) and Castile (gypsum) Formations northwest of the Edwards-Trinity (Plateau) aquifer. Ground water derived from the surface runoff and infiltration from this source contains a large amount of sulfate in solution from the evaporites.

The southeastern two-thirds of the Edwards-Trinity (Plateau) aquifer which lies outside the Delaware Basin, is a continuous unit and is relatively undisturbed from its original depositional position (Figure 4). The surface drainage generally follows the regional southeast dip which is approximately 30 feet per mile (5.7 m/km).

Table 1.—Geologic Units and Their Water-Bearing Properties

Yield: small, less than 50 gpm; moderate, 50-500 gpm; large, more than 500 gpm.

Era	System	Series or Group		Stratigraphic unit		Approximate maximum thickness (feet)	Character of rocks	Water-bearing properties
Cenozoic	Quaternary	Recent and Pleistocene Series		Alluvium		1,500	Unconsolidated sand, gravel, silt, gypsum, caliche, clay, boulders, and conglomerate.	Yields range from small to large quantities of fresh to moderately saline water.
	Tertiary			Volcanic rocks		600+	Lavas, pyroclastic tuffs, volcanic ash, tuff breccias, fragmental breccias, agglomerates, few thin beds of conglomerates, sandstones and fresh-water limestones.	Yields small amounts of good quality water to wells in the study area.
Mesozoic	Cretaceous	Gulf Series	Terlingua Group	Boquillas Formation		500+	Brown to red flaggy limestone interbedded with shale.	Not known to yield water to wells in the study area.
		Comanche Series	Washita Group	Buda Limestone		200	Soft nodular limestone, marl, and thin-bedded hard granular limestone.	Does not yield water in most of study area; however, may yield small amount in Reeves County.
				Georgetown Formation	Upper unit	125	Hard massive limestone, thin-bedded limestone, and soft nodular limestone with some clay.	Yields small quantities of water to wells in the study area.
					Lower unit	300	Soft nodular limestone, marl, and hard massive ledge-forming limestone.	Yields small to large quantities of water to wells in the study area.
			Fredericksburg Group	Edwards Limestone		600+	Massive ledge-forming limestone and soft nodular limestone.	Yields small to moderate amounts of water to wells in the study area.
			Trinity Group	"Trinity" sand (in the northern part of the aquifer)	Maxon sand	300	Fine to medium, loose sand.	Yields moderate to large amounts of water to wells in the study area.
					Glen Rose Formation	200+	Thin-bedded argillaceous limestone, calcareous shale, and limestone.	May yield some water in conjunction with overlying beds.
					"Basal" sand	100	Very fine to coarse, cemented to loose sand with some limestone and shale.	Yields small amount of water to wells in southern part of the study area.
	Triassic	Dockum Group		Santa Rosa Sandstone		350	Reddish-brown to gray sandstone.	Yields small to moderate amounts of water.
				Tecovas Formation		70	Red shale and siltstone.	Not known to yield water to wells in the study area.
Paleozoic	Permian	Ochoa Series		Dewey Lake red beds		600	Sand, shale, gypsum, and anhydrite.	Not known to yield water to wells in the study area.
				Rustler Formation		550	Dolomite, anhydrite, sandstone, conglomerate and varigated shale.	Yields small to large amounts of slightly to moderately saline water to livestock and irrigation wells.
				Salado Formation		1,750	Mostly halite, with anhydrite and some dolomite.	Not known to yield water to wells in the study area.
				Castile Formation		2,000	Mostly calcareous anhydrite, with halite and associated salts and some limestone.	Not known to yield water to wells in the study area.

GROUND-WATER USE

Irrigation

Development of irrigation water supplies from the Edwards-Trinity (Plateau) aquifer is limited by the availability and quality of the water. With the exception of that part of the Reeves County irrigation area which has been abandoned and the Bakersfield irrigation area, the irrigated areas show moderate to large water-level declines within the last 15 years. Irrigation surveys conducted by the Texas Department of Water Resources indicate that approximately 100,000 acre-feet (120 hm^3) of water is pumped annually from the Edwards-Trinity (Plateau) aquifer in the major irrigation areas (Figure 5). This pumpage for the most part is concentrated in the limited areas of irrigation, thus resulting in localized long-term water level declines when ground water is withdrawn from the aquifer at a faster rate than it can be replaced by recharge. In many of these areas, maximum safe development by irrigation wells has been accomplished and in some cases exceeded.

The water generally contains more than 1,000 mg/l dissolved solids, and much of it contains more than 2,000 mg/l (Figure 6).

Municipal

The development of public water supplies from the Edwards-Trinity (Plateau) aquifer is limited; however, Fort Stockton, McCamey, Iraan, Sheffield, and Sanderson obtain all or part of their water from the Edwards-Trinity and have a combined annual pumpage of approximately 3,700 acre-feet (4.6 hm^3). All these towns with the exception of Fort Stockton meet the quality standards established by the Texas Department of Health (1977). The Fort Stockton water supply contains chloride in excess of 500 mg/l and a sulfate content of approximately 500 mg/l; thus the water has a salty taste and laxative effect. However, water of better chemical quality is available in several areas west of Fort Stockton where ground water contains less than 1,000 mg/l dissolved solids and the concentration of chloride and sulfate is less than 200 mg/l each (Figure 6).

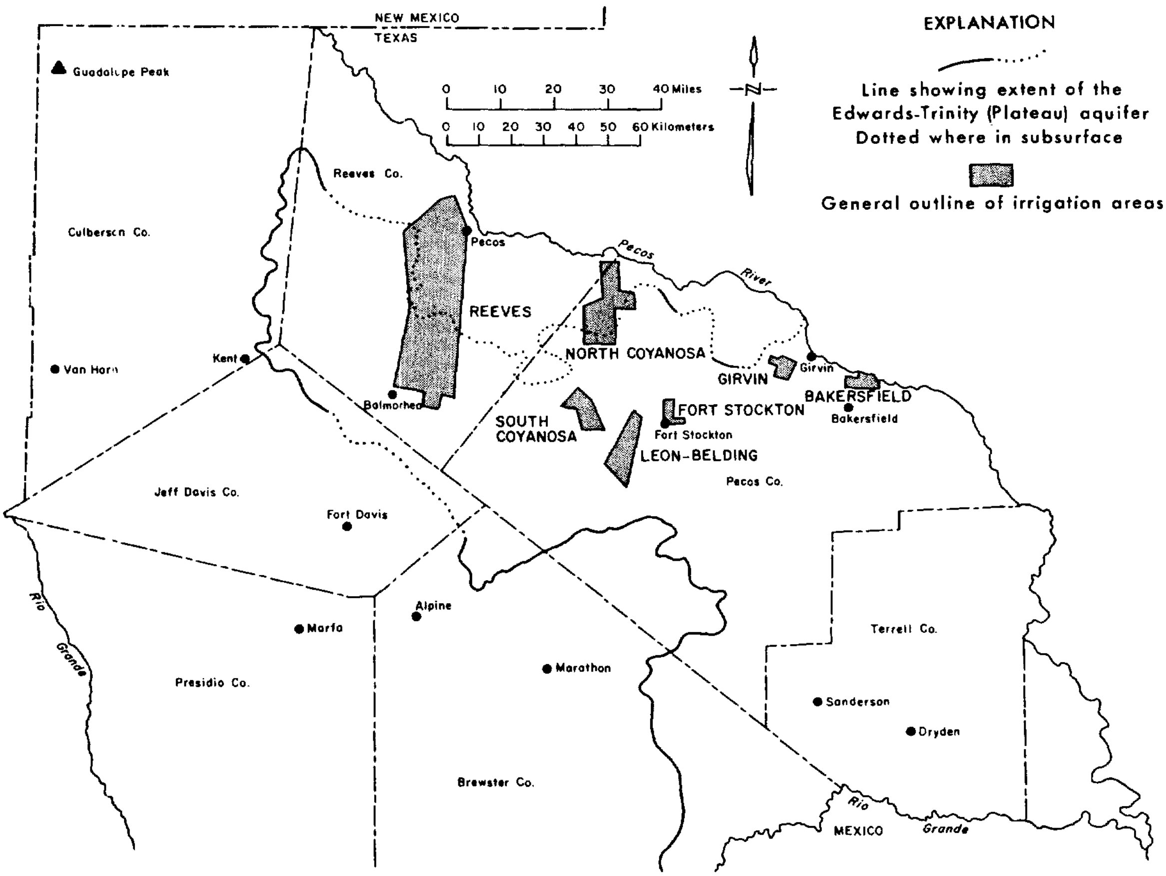

Figure 5.—Major Irrigation Areas

Industrial

Nearly all of the water pumped from the Edwards-Trinity (Plateau) aquifer for industrial purposes is used in the production of oil and gas, electricity, and sulfur. About 700 acre-feet (0.9 hm^3) of water used in the production of oil and gas is for cooling purposes by the natural gas plants in the area. A minor amount is used by oil rigs during the drilling of oil tests with an average of 42 gallons (159 l) of water being required for each foot (0.3 m) drilled. Water-supply wells for oil test drilling generally are considered adequate if they can furnish as much as 30 gallons per minute (1.9 l/s). The total amount of water used by wells of this type is estimated to be a few hundred acre-feet a year, but use of the well is usually short and the long-term effect on the water table is negligible.

The West Texas Utilities Company operates the Rio Pecos generating plant near Girvin and a smaller station near Fort Stockton and the combined annual pumpage is approximately 1,660 acre-feet (2.0 hm^3).

The Duval Corporation in Reeves County and the Atlantic Richfield Company in Pecos County operate sulfur recovery plants which have a combined annual pumpage of approximately 8,300 acre-feet (10.2 hm^3).

Domestic and Livestock

Domestic and livestock wells pump water from the Edwards-Trinity over the entire extent of the aquifer; however, they do not pump enough to affect the quantity or quality of the water in the aquifer. These wells are generally equipped with windmills or small electric submersible pumps and their yields range from less than 1 to 20 gallons per minute (<0.1 to 1.3 l/s). This type of well is predominant in Terrell and southeast Pecos County.

GROUND-WATER AVAILABILITY

Ground-water availability for the purposes of this study is defined in terms of effective recharge or sustainable annual yield. The sustainable annual yield is defined as the amount of ground water which can be safely withdrawn perennially throughout the extent of the aquifer without reducing the amount of water in storage. The sustainable annual yield of the Edwards-Trinity (Plateau) aquifer in the study area is determined from spring flow and base flow gain data (Peckham, 1963, p. 8) to be on the order of 150,000 to 190,000 acre-feet (180 to 230 hm^3) annually.

OCCURRENCE AND QUALITY OF GROUND WATER WITHIN THE MAJOR IRRIGATION AREAS

Reeves County Irrigation Area

The depth to water in the Edwards-Trinity (Plateau) aquifer in this area varies greatly. Water levels range from 29 feet (8.8 m) below land surface in the artesian area to 330 feet (101 m) below land surface in the water-table area (Figure 7). The wells range in depth from 600 to 1,400 feet (180 to 430 m). Water levels in this area have generally declined; however, part of the area has experienced a rise in water levels. In the area north of Balmorhea and west of State Highway 17, the water levels have declined from 0 to 70 feet (0 to 21 m). East of State Highway 17 and north of Interstate Highway 10, water levels have risen (Figure 8). The rises in water levels are the result of a decline in use of water for irrigation since 1959; thus the water levels are recovering significantly in some areas. For example, the water level in well 46-60-902, located about 13 miles (21 km) east of Balmorhea, rose 187 feet (57 m) from 1959 to 1973 and has remained fairly constant. The coefficient of transmissibility of the Edwards-Trinity (Plateau) aquifer in Reeves County ranges from a few thousand to 10,000 gallons per day per foot [124,180 (l/d)/m].

The dissolved solids content of ground water pumped for irrigation generally exceeds 1,000 mg/l and in some water exceeds 3,000 mg/l (Figure 6). When ground water was initially used for irrigation in this area, the chemical quality of the water was not a problem because of the permeable alluvial soils and the raising of salt-tolerant crops. However, due to repeated infiltration of irrigation water, heavy applications of fertilizers, and perching of water, the soils became more saturated with minerals which resulted in low crop yield. In 1974, approximately 20,000 acre-feet (25 hm^3) of ground water was pumped from the Edwards-Trinity aquifer for irrigation of crops.

Pecos County Irrigation Areas

Pecos County is divided into the following major irrigation areas: north Coyanosa, south Coyanosa, Fort Stockton-Leon-Belding, Girvin, and Bakersfield (Figure 5).

North Coyanosa Area

The north Coyanosa irrigation area is near the lower reaches of Coyanosa Draw in the northwestern part of Pecos County. The Edwards-Trinity (Plateau) aquifer contributes little water directly to wells in this part of the area; however, it is an important factor in the recharge to the alluvium. Water levels in wells that are known to be tapping the Edwards-Trinity around the margin of the alluvial trough range from 96 feet to 275 feet (29 to 84 m) below land surface (Figure 7). Depths of these wells range from 500 to 700 feet (150 to 210 m). Water levels have declined significantly in this area. The water level in one well has declined 106 feet (32 m) in 12 years (Figure 8).

Water quality is generally suitable for irrigation and industrial use; however, dissolved solids and fluoride concentrations are higher than that recommended by the Texas Department of Health in regard to public water supply. Approximately 6,000 acre-feet (7.4 hm^3) of ground water was pumped from the Edwards-Trinity (Plateau) aquifer in the north Coyanosa area during 1974.

South Coyanosa Area

The south Coyanosa irrigation area lies along Coyanosa Draw, 15 miles (24 km) west of Fort Stockton. About 3,000 acres (1,200 hm^2) of land is irrigated in this area. Most of the ground water is pumped from the Edwards-Trinity (Plateau) aquifer which is 500 to 700 feet (152 to 213 m) thick. The Trinity sand portion of the aquifer is about 200 feet (61 m) thick and yields a large part of the water. Although the overlying limestones contain many fractures and reach a thickness of 500 feet (152 m), the permeability and storage capacity are low because the fractures are small. According to Figures 7 and 8, water levels range from about 200 to 280 feet (61 to 85 m) below land surface with declines of as much as 149 feet (45 m). Depths of wells in this area range from 450 to 600 feet (137 to 183 m).

Water quality in the western part of the area is generally less than 500 mg/l dissolved solids which is suitable for most uses. However, most of the water in the eastern part of the area contains more than 1,000 mg/l dissolved solids which would limit it to irrigation of sandy soils and certain industrial uses such as production of hydrocarbons. Approximately 9,000 acre-feet (11 hm^3) of water was pumped from the Edwards-Trinity (Plateau) aquifer in the south Coyanosa area during 1974.

Fort Stockton-Leon-Belding Area

This irrigation area includes Leon Springs and Leon Lake, Fort Stockton, and Belding railroad siding. The Edwards-Trinity in this area has been faulted and contains a highly permeable zone created by interconnected solution cavities in the limestone. The system of solution cavities apparently extends from the Belding Fault zone to Leon Springs and Comanche Springs. During the period 1959 to 1973, water levels declined 59 feet (18 m) in the Leon area and 83 feet (25 m) in the Belding area (Figure 8). Although a considerable amount of water is still pumped from the Edwards-Trinity (Plateau) aquifer near Leon Lake and Fort Stockton, wells completed in the Rustler Formation have been developed to supplement the Edwards-Trinity wells in the Belding area. This increased pumpage from the Rustler has resulted in stable water levels in some Edwards-Trinity wells in the area. Depths of the Edwards-Trinity wells in the Fort Stockton-Leon-Belding irrigation area range from 300 to 600 feet (91 to 183 m).

The chemical quality of the water in the area ranges from about 2,000 mg/l to almost 4,000 mg/l dissolved solids (Figure 6). This limits use of the water to irrigation of salt-tolerant crops grown on porous soils and to selected industries. During 1974, approximately 45,000 acre-feet (55 hm^3) of ground water was pumped from the Edwards-Trinity (Plateau) aquifer.

Girvin Area

The Girvin irrigation area is about 4 to 8 miles (6.4 to 13 km) southwest of the town of Girvin. It consists of approximately 3,400 acres (1,380 hm^2) of irrigated land. Almost all wells in this area produce from the Edwards-Trinity (Plateau) aquifer and range in depth from 150 to 400 feet (46 to 122 m). Figures 7 and 8 show water levels in this area that range from about 110 feet to 180 feet (34 to 43 m) below land surface, with declines of as much as 43 feet (13 m).

Dissolved-solids concentrations of water produced from the Edwards-Trinity (Plateau) aquifer in this area range from 3,250 mg/l to more than 5,000 mg/l (Figure 6). This limits use of the water to irrigation and industrial purposes. Approximately 9,000 acre-feet (11 hm^3) of ground water was pumped from the Edwards-Trinity (Plateau) aquifer during 1974.

Bakersfield Area

The Bakersfield irrigation area comprises about 5,000 acres (2,020 hm^2) north of the town of Bakersfield. Most of the wells in this area produce water from the alluvium; however, a few wells on the perimeter of the alluvial trough tap the Edwards-Trinity (Plateau) aquifer. Wells in the Cretaceous Formations are

300 to 400 feet deep (91 to 122 m). Depths to water in this area range from 90 to 100 feet (27 to 30 m) below land surface (Figure 7). According to Figure 8, the maximum recorded decline during the period from 1959 to 1973 was 16 feet (4.9 m).

Figure 6 shows one well (53-06-501) in this area with water containing 1,740 mg/l dissolved soldis. Approximately 5,000 acre-feet (6.2 hm^3) of ground water was pumped from the Edwards-Trinity (Plateau) aquifer in the Bakersfield area during 1974.

The coefficient of transmissibility of the Edwards-Trinity (Plateau) aquifer in Pecos County ranges upward from a few thousand to 10,000 gallons per day per foot [124,180 (l/d)/m].

Reeves County Ranch Area

The western section of Reeves County and the parts of Culberson and Jeff Davis Counties underlain by the Edwards-Trinity (Plateau) aquifer are devoted primarily to ranching. Water for cattle and domestic use is obtained from wells equipped principally with windmills. Depths to water in this area range from 30 to 360 feet (9.1 to 110 m) below land surface (Figure 7). Except for the area just north of Balmorhea where a decline as much as 70 feet (21 m) is recorded, water levels have been stable (Figure 8).

Water quality varies greatly with dissolved solids ranging from less than 500 mg/l in the southwestern part to more than 3,000 mg/l in the northern part of this area (Figure 6).

Pecos County Ranch Area

That part of southeastern Pecos County known as the Stockton Plateau is overlain by relatively flat-lying Cretaceous formations and is devoted entirely to ranching since the land surface is too rough for cultivation. Water is obtained from wells equipped with windmills and electric pumps. Water levels in this area range in depth from 120 to 600 feet (37 to 183 m) below land surface and have not changed significantly during the period of record (Figure 7).

Water quality in this area is good with dissolved solids generally less than 500 mg/l (Figure 6).

Terrell County Ranch Area

Terrell County is devoted almost entirely to ranching with a small amount of irrigation from the alluvium in the Pecos River valley. Practically all livestock, domestic, and public supply wells in the county obtain their water from the Edwards-Trinity (Plateau) aquifer. The same holds for those parts of Brewster and Val Verde Counties that are underlain by the Edwards-Trinity (Plateau) aquifer. Because of low permeabilities, well yields are small in this area and water levels range from less than 50 to almost 800 feet (61 to 274 m) below land surface (Figure 7). Changes in water levels have been insignificant during the period of record.

Except for a small area in the northern part of the county just south of Sheffield, water quality is good with dissolved solids less than 500 mg/l (Figure 6).

RECOMMENDATIONS

The existing water level monitoring program for the Edwards-Trinity (Plateau) aquifer should be updated periodically to reflect changes in the distribution of pumping wells. The network of observation wells that are used to monitor water levels in the aquifer should be reevaluated periodically with the purpose of getting adequate data for the aquifer from a minimum number of strategically located wells. Using essentially the same criteria, an effective long-term chemical quality monitoring program should be established for the aquifer. The monitor wells should be located in critical areas, such as public supply and irrigation areas. The wells should be sampled periodically depending on the amount of change in chemical quality. Also, any oil-field brine disposal or injection wells that may be contaminating the aquifer should be located and plugged. Before planning additional large-scale development of ground water, the chemical quality of the water and anticipated well yields in each area should be evaluated.

SELECTED REFERENCES

Adams, J. E., 1944, Upper Permian Ochoa Series of Delaware Basin, west Texas and southeastern New Mexico: Am. Assoc. Petroleum Geologists Bull., v. 28, no. 11, pp. 1596-1625.

____1965, Stratigraphic-tectonic development of Delaware Basin: Am. Assoc. Petroleum Geologists Bull., v. 49, no. 11, pp. 2140-2148.

Armstrong, C. A., and McMillion, L. G., 1961, Geology and ground-water resources of Pecos County, Texas: Texas Board Water Engineers Bull. 6106, v. 1 and 2.

Audsley, G. L., 1956, Reconnaissance of ground-water development in the Fort Stockton area, Pecos County, Texas: U.S. Geol. Survey open-file rept.

Brand, J. P., and DeFord, R. K., 1962, Geology of eastern half of Kent quadrangle, Culberson, Reeves, and Jeff Davis Counties, Texas: Univ. Texas Bur. Econ. Geology, Geol. quad. map 24.

Broadhurst, W. L., Sundstrom, R. W., and Weaver, D. E., 1951, Public water supplies in western Texas: U.S. Geol. Survey Water-Supply Paper 1106.

Brown, J. B., Rogers, L. T., and Baker, B. B., 1965, Reconnaissance investigation of the ground-water resources of the middle Rio Grande basin, Texas: Texas Water Comm Bull. 6502, pt. 2.

Cartwright, L. D., Jr., 1930, Transverse section of Permian Basin, west Texas and southeast New Mexico: Am. Assoc. Petroleum Geologists Bull., v. 14, no. 8, pp. 969-981.

Christner, D. D., and Wheeler, O. C., 1918, The geology of Terrell County: Univ. Texas Bull. 1819.

Core Laboratories, Inc., 1972, A survey of the subsurface saline water of Texas: Texas Water Devel. Board Rept. 157, v. 1-8.

Dante, J. H., 1947, Records of wells and springs in northern Pecos County, Texas: Texas Board Water Engineers duplicated rept.

Dean, H. T., Arnold, F. A., and Elvove, Elias, 1942, Domestic water and dental caries: Public Health Repts., v. 57, pp. 1155-1179.

Dean, H. T., Dixon, R. M., and Cohen, Chester, 1935, Mottled enamel in Texas: Public Health Repts., v. 50, pp. 424-442.

Dennis, P. E., and Lang, J. W., 1941a, Records of wells and springs and analyses of water in Loving, Ward, Reeves, and northern Pecos Counties *in* Water resources of the Pecos River basin, Texas: Texas Board Water Engineers duplicated rept., v. 2.

____1941b, Records of auger holes including logs, records of fluctuations of water levels, water analyses, and maps showing locations of wells *in* Water resources of the Pecos River basin, Texas: Texas Board Water Engineers duplicated rept., v. 3.

____Edson, D. J., Jr., 1951, Comanche Series, Lancaster Hill, Crockett County, Texas: Univ. Texas at Austin thesis.

Eifler, G. K., Jr., 1951, Geology of the Barrilla Mountains, Texas: Geol. Soc. America Bull., v. 62, pp. 339-353.

Flawn, P. T., Goldstein, August, Jr., King, P. B., and Weaver, C. E., 1962, The Quachita System: Univ. Texas Bur. Econ. Geology Pub. 6120.

Follett, C. R., 1954, Records of water-level measurements in Reeves County, Texas: Texas Board Water Engineers Bull. 5414.

Freeman, V. L., 1968, Geology of the Comstock-Indian Wells area, Val Verde, Terrell, and Brewster Counties, Texas: U.S. Geol. Survey Prof. Paper 594-K.

Groat, C. G., 1972, Presidio Bolson, Trans-Pecos Texas and adjacent Mexico—Geology of a desert basin aquifer system: Univ. Texas Bur. Econ. Geology, Rept. No. 76.

Haynie, R. B., 1948, Preliminary geologic studies—San Francisco Creek to Indian Creek: Internat. Boundary and Water Comm. Field Inv., Rept. No. G-4.

____1951, Preliminary geologic studies—Reagan Canyon to San Francisco Creek: Internat. Boundary and Water Comm. Field Inv., Rept. No. G-3.

Hood, J. W., 1950, Phenomenal increase in irrigation with ground water near Pecos, Texas, described: U.S. Geol. Survey open-file rept.

Hood, J. W., and Knowles, D. B., 1952, Summary of ground-water development in the Pecos area, Reeves and Ward Counties, Texas, 1947-51: Texas Board Water Engineers Bull. 5202.

Iglehart, H. H., 1967, Occurrence and quality of ground water in Crockett County, Texas: Texas Water Devel. Board Rept. 47.

International Boundary and Water Commission, United States and Mexico, 1959, Flow of the Rio Grande and related data from Elephant Butte Dam, New Mexico, to the Gulf of Mexico: Internat. Boundary and Water Comm. Water Bull. 29.

Jones, C. T., 1938, Cretaceous and Eocene stratigraphy of Barrilla and eastern Davis Mountains of Trans-Pecos Texas: Am. Assoc. of Petroleum Geologists Bull., v. 22, no. 10, pp. 1423-1439.

Kiersch, G. A., and Hughes, P. W., 1952, Structural localization of ground water in limestones—Big Bend district, Texas-Mexico (abs.): Geol. Soc. America Bull., v. 63, no. 12, pt. 2, pp. 1334-1335.

Knowles, D. B., and Lang, J. W., 1947, Preliminary report on the geology and ground-water resources of Reeves County, Texas: Texas Board Water Engineers duplicated rept.

Lang, J. W., 1941, Results of plugging a leaky artesian well at Pecos Junior High School, Pecos, Texas: U.S. Geol. Survey open-file rept.

_____1942a, Available supplies of ground water of low mineral content in vicinity of Fort Stockton, Texas: U.S. Geol. Survey open-file rept.

_____1942b, Ground water available for emergency landing fields near flying school at Pecos, Texas: U.S. Geol. Survey open-file rept.

_____1943, Ground-water resources of the Toyah area, Reeves County, Texas: U.S. Geol. Survey open-file rept.

Lang, W. B., 1937, Permian formations of the Pecos Valley of New Mexico and Texas: Am. Assoc. Petroleum Geologists Bull., v. 21, no. 7, pp.833-898.

Lee, Frank, 1954, Records of test holes along the Rio Grande in Terrell and Val Verde Counties: U.S. Geol. Survey open-file rept.

Livingston, Penn, and Bennett, R. R., 1940, Ground water in the vicinity of Sanderson, Texas: U.S. Geol. Survey open-file rept.

Maxcy, K. F., 1950, Report on the relation of nitrate concentrations in well waters to the occurrence of methemoglobinemia: Natl. Research Council Bull. Sanitary Engineering and Environment, app. D, pp. 265-271.

Muse, W. R., 1965, Water-level data from observation wells in Pecos and Reeves Counties, Texas: Texas Water Comm. Bull. 6507.

_____1966, Water-level data from observation wells in Culberson, Jeff Davis, Presidio, and Brewster Counties, Texas: Texas Water Devel. Board Rept. 16.

Nye, S. S., and Rupp, V. W., 1941, Partial records of wells in southeastern part of Reeves County, Texas: U.S. Geol. Survey open-file rept.

Ogilbee, William, Wesselman, J. B., and Irelan, Burdge, 1962, Geology and ground-water resources of Reeves County, Texas: Texas Water Comm. Bull. 6214, v. I and II.

Peckham, R. C., 1963, Summary of the ground-water aquifers in the Rio Grande basin: Texas Water Comm. Circ. 63-05.

Rayner, F. A., 1959, Records of water-level measurements in Crockett, Glasscock, Reagan, Upton, and Terrell Counties, Texas, 1937 through 1957: Texas Board Water Engineers Bull. 5903.

Reeves, R. D., and Small, T. A., 1973, Ground-water resources of Val Verde County, Texas: Texas Water Devel. Board Rept. 172.

Sellards, E. H., Adkins, W. S., and Plummer, F. B., 1932, the geology of Texas, v. I, Stratigraphy: Univ. Texas Bull. 3232.

Stevens, J. C., 1957, Ground-water geology of Hovey area, Brewster and Pecos Counties, Texas: Univ. Texas at Austin thesis.

Texas Department of Health, 1977, Drinking water standards governing drinking water quality and reporting requirements for public water supply systems: Texas Dept. of Health, Div. of Water Hygiene rept.

Texas Water Development Baord, 1975, Inventories of irrigation in Texas, 1958, 1964, 1969, and 1974: Texas Water Devel. Board Rept. 196.

Tighe, R. W., 1946, Geologic reconnaissance—Agua Verde Reservoir on the Rio Grande: International Boundary and Water Comm. rept.

_____1947, Diamond drilling, Agua Verde dam site, Axis no 2: International Boundary and Water Comm. rept.

Tighe, R. W., and Bustamante, J. R., 1947, Agua Verde Reservoir ground-water investigation, measurement of static water level in drilled wells: International Boundary and Water Comm. rept.

U.S. Bureau of Reclamation, 1956, Reconnaissance report on Fort Stockton project, Texas: U.S. Bur. of Reclamation, Region 5, Amarillo, Texas, duplicated rept.

U.S. Public Health Service, 1962, Drinking-water standards, 1962: Public Health Service Pub. 956, U.S. Dept. Health, Education, and Welfare.

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

West Texas Geological Society, 1959, Geology of the Val Verde Basin: West Texas Geol. Soc. Guidebook, 1959 field trip.

_____1961, Shallow formations and aquifers of the west Texas area *in* Geologic sections: West Texas Geol. Soc. Pub. 61-45.

_____1965, Geology of the Big Bend area, Texas: West Texas Geol. Soc. Pub. 65-51.

_____1968, Delaware basin exploration, guidebook: West Texas Geol. Soc. Pub. 68-55.

_____White, W. N., Gale, H. S., and Nye, S. S., 1941, Geology and ground-water resources of the Balmorhea area, western Texas: U.S. Geol. Survey Water-Supply Paper 849-C.

Winslow, A. G., and Kister, L. R., 1956, Saline-water resources of Texas: U.S. Geol. Survey Water-Supply Paper 1365.

Table 2.--Records of Selected Wells and Springs in the Edwards-Trinity (Plateau) Aquifer

All wells are drilled unless otherwise noted in remarks column.

Water Level : Reported water levels are given in feet; measured water levels are given to the nearest tenth or hundredth of a foot.
Method of lift and type of power: E, electric; G, gasoline, butane, or diesel engine; N, none; C, cylinder; S, submersible; T, turbine; W, windmill.
Use of water : D, domestic; Ind, industrial; Irr, irrigation; P, public supply; S, livestock; N, none.

Well	Owner	Driller	Date completed	Depth of well (ft)	Casing: Diameter (in.)	Casing: Depth (ft)	Altitude of land surface (ft)	Water level: Below land-surface datum (ft)	Water level: Date of measurement	Method of lift	Use of water	Remarks
							Brewster County					
* BK-52-29-801	J. D. Strauss	--	--	1,700	7	500	3,950±	500 650	Apr. 21, 1961 June 6, 1973	S, E	D, S	Oil test; converted to water well. Temp. 84°F on June 6, 1973.
* 30-501	R. W. Sims and McMullen	-- Pruett	1950	650	6	100	3,750±	600	1958	C, W	D, S	Temp. 80°F on June 6, 1973.
* 53-58-302	C. F. Cox	Johnny Cox	1942	720	4	720	3,643	695	May 16, 1973	C, E	D, S	Pump set at approximately 710 ft. Temp. 78°F on May 16, 1973.
* 802	Jim O'Neal Land Company	Bill Haynes	1950's	790	8	--	3,517	192	do	C, G	D, S	Temp. 78°F on May 16, 1973.
72-03-301	Monroe Estate	--	--	--	--	--	2,655	796.5	July 17, 1947	C, W	S	--
11-701	W. J. Fields	Buck Jones Drilling Company	1961	1,193	7	--	2,625	1,075	Apr. 20, 1961	C, E	D, S	Temp. 78°F on April 20, 1961
* 12-101	Bullis Gap Ranch	-- Lambert	--	857	8	--	2,427	802	Mar. 5, 1951	C, W	S	Water reported at 835 ft.
13-101	C. Roark	do	--	800	6	--	2,099	636.5	Jan. 10, 1950	C, G	D, S	--
18-601	F. Roark	do	--	940	6	--	2,445	890	Aug. 30, 1949	C, W	S	Water reported at 905 ft.
							Culberson County					
* HL-47-47-901	Palafox Exploration Company	--	--	450	7	--	3,575	--	--	C, W	S	--
* 55-604	TXL Land Company	--	1920	--	8-5/8	--	3,717	269.5	Oct. 6, 1970	C, W	S	Oil test; converted to water well.
* 901	John Yearwood	--	--	1,150	9	--	3,926	173.8	Aug. 12, 1970	C, W	S	--
* 56-103	Palafox Exploration Co.	--	--	--	--	--	3,446	17.5 19.3	Sept. 17, 1959 Aug. 6, 1970	C, W	--	--
* 64-101	Banky Stocks	Johnson Drilling Company	1963	1,300	20 12	30 348	3,872	359.58	Mar. 13, 1970	T, G	D, S, Irr	2/ 3/
							Jeff Davis County					
* PS-52-01-401	J. T. Rounsaville	--	--	314	5-1/2	--	3,973	277.4	Oct. 22, 1969	C, W	S	Temp. 72°F on April 20, 1961
* 902	Shannon Ranch	Billy Bruce/Pat Taylor	1968	623	5-1/2	490	3,900	315.9 334.9	June 27, 1969 Oct. 10, 1969	S, E	D, S	Deepened on Oct. 9, 1969 from 500 to 623 ft. Water reported at 585 to 588 ft. Temp. 75°F on Oct. 18, 1969. 2/
* 09-201	do	--	--	700	5	--	--	--	--	C, W	S	--
* 301	do	--	--	635	6	--	4,006	--	--	S, E	D, S	Pump set at 530 ft.
							Pecos County					
US-45-49-101	-- Church	--	--	555	16	20	2,574	48.3 66.2	Jan. 27, 1958 Jan. 20, 1959	N	N	Abandoned. Well B-77 in Texas Board of Water Engineers (TBWE) Bulletin 6106. 1/

See footnotes at end of table.

Table 2.--Records of Selected Wells and Springs in the Edwards-Trinity (Plateau) Aquifer--Continued

Well	Owner	Driller	Date completed	Depth of well (ft)	Casing Diameter (in.)	Casing Depth (ft)	Altitude of land surface (ft)	Water level Below land-surface datum (ft)	Water level Date of measurement	Method of lift	Use of water	Remarks
						Pecos County--Continued						
US-45-49-201	George Atkins Estate	L. B. Ryan	--	156	--	--	2,518	18.8 59.5	Mar. 2, 1950 Oct. 9, 1957	S, E	Ind	Well B-64 in TBWE Bulletin 6106. 1/
* 301	do	--	1948	--	6	--	--	23.3 26.5	Jan. 19, 1955 Jan. 26, 1959	C, W	S	Well B-66 in TBWE Bulletin 6106. 1/
* 901	D. C. Ogden Wilson	--	1907	300	6	--	2,607	42.8 76.03	Oct. 23, 1946 May 3, 1973	C, W	S	Well G-5 in TBWE Bulletin 6106.
* 57-601	Bill Hargis	--	--	96	6	--	2,722	54.6 91.08	Jan. 16, 1957 Dec. 7, 1972	C, W	S	Well G-16 in TBWE Bulletin 6106. 1/
* 901	Henry Wilbanks Estate	R. L. Cleveland	1942	470	8	--	2,751	54.9	Oct. 23, 1946	C, W	D, S	Water sands reported from 70 to 80 ft and 465 ft to bottom. Well G-31 in TBWE Bulletin 6106.
* 59-901	A. C. Hoover	--	--	259	6	--	2,545	177.8 167.3	Aug. 6, 1957 Oct. 16, 1957	C, W	S	Well J-41 in TBWE Bulletin 6106.
60-401	Neal and Ratliff	N. A. House	1946	200	8	--	2,475	132.1 110.6	Feb. 4, 1947 May 3, 1973	C, W	S	Well J-42 in TBWE Bulletin 6106.
* 902	Sher-Bar Land and Cattle Company	--	1957	400	16	--	2,446	--	--	T, E	Irr	Pump set at 230 ft.
61-601	West Texas Utilities Company	--	1930	--	--	--	2,348	117.0 140.60	Dec. 18, 1946 Dec. 8, 1972	N	N	Well K-30 in TBWE Bulletin 6106. 1/
701	-- Looney	--	--	--	12	--	2,409	83.65 107.80	July 25, 1957 Dec. 8, 1972	N	N	Well K-55 in TBWE Bulletin 6106. 1/
* 702	do	--	--	--	14	--	2,405	114.0 87.7	July 25, 1957 Feb. 5, 1958	T, G	Irr	Well K-56 in TBWE Bulletin 6106. Temp. 71°F on May 2, 1973.
63-701	D. S. Warren	Lee Bullock	1946	138	16	9	2,303	53.6 90.90	Dec. 9, 1946 Dec. 8, 1972	T, G	Irr	Well L-57 in TBWE Bulletin 6106. 1/
46-63-302	Sy Stafford	--	1957	464	16	410	2,772	180.67 275.15	Nov. 20, 1957 Dec. 1, 1971	T, G	Irr	Well F-76 in TBWE Bulletin 6106. 1/
* 601	Mrs. H. D. Mendel	--	--	203	6	--	2,873	163.44 172.99	Aug. 15, 1957 Dec. 6, 1972	C, W	S	Well F-93 in TBWE Bulletin 6106. 1/
901	Billy Sol Estes	Billy Sol Estes	1957	--	16	--	2,919	202.15 150.7	Aug. 15, 1957 Jan. 22, 1959	T, E	Irr	Well F-94 in TBWE Bulletin 6106. 1/
64-201	Nelson Lethco	L. Walker	1957	500	12	--	2,746	181.30 221.10	Aug. 6, 1957 Dec. 6, 1972	T, E	Irr	Well F-50 in TBWE Bulletin 6106. 1/
* 302	Yarbrough and Crow	Earl Fisher	--	690	16	690	2,743	--	--	T, G	Irr	Well F-48 in TBWE Bulletin 6106. Temp. 76°F on May 3, 1973. 2/
801	D. J. Sibley	--	1939	381	7	381	2,868	153.01 178.35	July 5, 1957 Dec. 6, 1972	C, W	S	Well F-89 in TBWE Bulletin 6106. 1/
52-06-501	James Ensor	Charlie Langlite	1953	351	16	250	3,063±	176.70 182.44	Feb. 20, 1956 Dec. 6, 1972	C, W	N	Well N-16 in TBWE Bulletin 6106. 1/ 3/
* 502	Texas Highway Department	--	1938	225	6	--	3,076	172.5 178.4	June 18, 1942 Jan. 21, 1959	S, E	P	Well N-19 in TBWE Bulletin 6106. Temp. 66°F on May 3, 1973.
* 07-302	Bennie Downing	Perry Jones	1957	501	16	501	2,964	126.70 276.38	Jan. 15, 1958 Dec. 6, 1972	S, E	Irr	Discharge estimated at 750 gal/min. Well P-3 in TBWE Bulletin 6106. Temp. 75°F on June 7, 1973. 1/ 3/

See footnotes at end of table.

Table 2.--Records of Selected Wells and Springs in the Edwards-Trinity (Plateau) Aquifer--Continued

Well	Owner	Driller	Date completed	Depth of well (ft)	Casing: Diameter (in.)	Casing: Depth (ft)	Altitude of land surface (ft)	Water level: Below land-surface datum (ft)	Water level: Date of measurement	Method of lift	Use of water	Remarks
						Pecos County--Continued						
US-52-07-601	A. J. Sitton, Jr.	Gray Brothers	1957	616	16	350	3,026	135.24 140.6	Jan. 17, 1958 Jan. 21, 1959	N	N	Well P-38 in TBWE Bulletin 6106. 1/ 2/
701	M. R. Kennedy	--	--	455	--	--	3,129	160.49 238.88	Sept. 6, 1957 Dec. 16, 1971	S, E	S	Deepened in 1961 from 175 to 455 ft. Well N-30 in TBWE Bulletin 6106. 1/
901	D. C. McAteer	R. T. Millican	1957	612	--	--	3,076	136.96 136.0	Jan. 12, 1958 Jan. 17, 1959	N	N	Well P-43 in TBWE Bulletin 6106. 1/ 3/
* 902	George Baker	Richardson Brothers	1957	550	16	365	3,080	132.1 140.8	Jan. 17, 1958 Dec. 21, 1959	T, E	Irr	Well P-52 in TBWE Bulletin 6106. Temp. 75°F on June 7, 1973. 3/
* 08-301	D. J. Sibley	Lawrence Ryan	1943	401	7	401	2,946	44.3 72.8	Mar. 23, 1946 Jan. 22, 1959	C, W	S	Well P-17 in TBWE Bulletin 6106.
902	Leon Farms	--	--	290	10	--	3,008	25.82 87.33	Dec. 31, 1956 Dec. 4, 1972	N	N	Well P-79 in TBWE Bulletin 6106. 1/
* 908	Chandler Company	S. H. Parker	1957	346	16	346	3,002	129.55	Oct. 29, 1962	T, G	Irr	Perforated from 100 to 346 ft.
* 13-201	Mrs. Ralph Lindsey	--	--	500	8	500	3,312	316.4 323.8	June 18, 1947 Oct. 15, 1957	S, E	D, S	Well M-20 in TBWE Bulletin 6106. Temp. 74°F on June 6, 1973.
* 301	J. H. Hayter	Lignon Brothers	--	360	7	--	3,295	334.3 342.0	June 14, 1947 Oct. 3, 1957	C, W	S	Well M-14 in TBWE Bulletin 6106. Temp. 75°F on June 6, 1973.
901	Gene Cartledge	--	1941	240	4	--	3,488	212.1 218.0	June 17, 1947 May 9, 1958	C, W	D	Well X-24 in TBWE Bulletin 6106.
* 14-201	Malcomb Almond	--	--	375	--	--	3,319	339.1	Mar. 16, 1958	C, W	S	Well N-35 in TBWE Bulletin 6106. Temp. 72°F on June 6, 1973.
52-14-901	M. R. Kennedy	--	--	240	--	--	3,227	210.3	Sept. 30, 1957	C, W	S	Well Y-3 in TBWE Bulletin 6106.
16-101	George Baker	R. A. Cleveland	1946	294	8	272	3,165	168.83 197.3	June 16, 1947 Jan. 22, 1959	C, W	S	Well P-135 in TBWE Bulletin 6106. 1/
301	Wesley Whitman	Joe Gray	1957	559	--	--	3,099	97.29	Jan. 29, 1958	T, G	Irr	Well P-131 in TBWE Bulletin 6106. 1/
* 401	Pete McIntyre	Cleveland & Stone	--	396	6	--	3,292	300.4 295.9	June 16, 1947 June 25, 1950	C, W	S	Deepened in 1956 from 330 to 396 ft. Well Z-1 in TBWE Bulletin 6106.
* 801	City of Fort Stockton	Gray Brothers	1957	450	16	--	3,254	270.22	Dec. 4, 1975	T, G	Irr	--
901	L. P. Williams	do	1957	420	16	270	3,194	169.88 170.0	Jan. 13, 1957 Jan. 23, 1959	T, G	Irr	Well Z-12 in TBWE Bulletin 6106. 1/
* 21-301	M. M. Evridge	--	1941	350	6	--	3,517	318 324.5	May 1947 May 8, 1958	C, W	S	Well X-34 in TBWE Bulletin 6106. Temp. 74°F on June 6, 1973.
* 22-801	Graeff Brothers	Eural Jones	1955	450	14	410	--	343.25	Oct. 30, 1962	T, G	Irr	--
* 802	David McGill	Royce Hemmeline	1956	421	16 12-3/4	191 419	3,484	120.00 160.19	Mar. 5, 1956 Dec. 7, 1972	T, G	Irr	Well HH-15 in TBWE Bulletin 6106. Temp. 73°F on June 6, 1973. 1/ 3/
* 23-101	M. R. Kennedy	Sullivan and James	1952	650	7	--	--	80	Oct. 1957	C, W	S	Well X-12 in TBWE Bulletin 6106. 3/
601	Elsinore Cattle Company	--	--	400	8	--	--	300	July 1958	C, W	S	Well Y-22 in TBWE Bulletin 6106. Temp. 70°F.
* 24-801	do	--	1918	700	8	--	--	450	1958	C, W	S	Well Z-82 in TBWE Bulletin 6106. Temp. 74°F on June 5, 1973.

See footnotes at end of table.

Table 2.--Records of Selected Wells and Springs in the Edwards-Trinity (Plateau) Aquifer--Continued

Well	Owner	Driller	Date completed	Depth of well (ft)	Casing: Diameter (in.)	Casing: Depth (ft)	Altitude of land surface (ft)	Water level: Below land-surface datum (ft)	Water level: Date of measurement	Method of lift	Use of water	Remarks
							Pecos County--Continued					
US-53-01-402	Ernest Riggs	Earl Holloway	1947	381	18	--	2,888	14.2 57.99	June 6, 1947 Dec. 14, 1971	C, W	S	Well Q-130 in TBWE Bulletin 6106. 1/
* 704	L. A. Taliaferro	Lawrence Ryan	--	319	5	--	3,037	46.7 63.12	Jan. 25, 1952 Jan. 4, 1961	C, W	D, S	Well Q-315 in TBWE Bulletin 6106.
* 02-102	Harrison Dyche	Carmine Drilling Company	1947	260	14	240	2,858	38.45 77.51	Apr. 14, 1947 Dec. 8, 1972	T, G	Irr	Casing perforated from 60 to 80 ft. Well Q-40 in TBWE Bulletin 6106. 1/
* 703	Burney Ligon	Eural James	1947	642	8	100	2,945	61.55 88.09	Jan. 25, 1952 Dec. 8, 1972	T, E	D	Well Q-286 in TBWE Bulletin 6106. Temp. 66°F on May 3, 1973. 1/ 2/
03-201	University of Texas	--	--	185	8	--	2,801	138 180.47	1957 May 3, 1973	C, W	S	Well R-19 in TBWE Bulletin 6106.
901	Texas Highway Department	--	--	462	--	--	2,877	136.2 136.69	Jan. 17, 1948 Dec. 8, 1972	C, W	P	Well S-36 in TBWE Bulletin 6106. 1/
* 05-902	University of Texas	--	--	200	--	--	2,542	106.1	Feb. 1, 1947	C, W	S	Well T-31 in TBWE Bulletin 6106. Temp. 70°F on June 5, 1973.
* 06-501	Roy McDonald	--	1948	425	16	300	2,410	78.10 100.23	Apr. 23, 1948 Dec. 13, 1971	T, G	Irr	Casing perforated from 80 to 170 ft. Well U-50 in TBWE Bulletin 6106. Temp. 72°F on May 2, 1973. 1/
* 07-701	Mary Lea McKenzie	--	--	535	6	--	2,767	500	Apr. 1947	C, W	D, S	Well U-79 in TBWE Bulletin 6106.
* 08-401	City of McCamey	Layne-Texas Company	1929	354	16	284	2,365	148.1 168.9	Feb. 10, 1947 May 24, 1957	T, E	P	Well V-13 in TBWE Bulletin 6106. Temp. 71°F on May 2, 1973.
801	L. E. Wilson	Permian Oil Company	--	2,002	--	--	2,853	--	--	--	--	Oil test. 2/
901	S. H. Murray	--	--	180	8	--	2,318	125	1958	C, W	S	Well V-23 in TBWE Bulletin 6106.
09-301	Page Carson	Perry Jones	1954	210	16	--	3,010	64 80.8	Apr. 9, 1956 Jan. 23, 1959	T, G	N	Discharge reported 400 gal/min Apr. 9, 1956. Well Q-306 in TBWE Bulletin 6106. Abandoned. 1/
* 402	C and C Farms	Stevens Drilling Company	1955	520	16 12	-- --	3,196	158.5 255.89	Dec. 15, 1955 Dec. 15, 1971	T, G	Irr	Discharge measured 1,171 gal/min on March 30, 1956. Perforated from 250 to 280 ft. Well AA-4 in TBWE Bulletin 6106. 1/
* 10-502	Jeff B. Wade	F. M. Gorman	1942	400	8	--	3,123	217.0 224.11	Nov. 13, 1946 June 4, 1973	C, W	S	Well BB-1 in TBWE Bulletin 6106. Temp. 71°F on June 4, 1973.
* 12-203	Laro B. McKenzie	--	1951	--	--	--	2,798	35.00 36.31	Dec. 7, 1953 Dec. 16, 1971	T, G	N	Well S-25 in TBWE Bulletin 6106. 1/
* 801	G. W. McKenzie	--	--	375	6	--	2,998	202.7 206	July 11, 1957 June 4, 1973	C, W	D, S	Questionable 1973 water-level measurement. Well CC-10 in TBWE Bulletin 6106.
* 14-501	Bill McKenzie	--	--	278	5	--	2,910	334.6	June 5, 1973	C, W	S	Well EE-2 in TBWE Bulletin 6106. Temp. 72°F on June 5, 1973.
* 15-601	Roy Priest	R. L. Cleveland	1939	503	6	--	2,924	440	May 1947	C, W	S	Well FF-2 in TBWE Bulletin 6106. Temp. 71°F on June 5, 1973.
16-101	Texas Highway Department	--	--	289	--	--	2,636	248.9	Apr. 16, 1957	C, W	P	Well V-43 in TBWE Bulletin 6106.
401	Frank A. Perry	Donnell-Bell-Dansfield	--	2.348	--	--	3.024	--	--	--	--	Oil test. 2/

See footnotes at end of table.

Table 2.--Records of Selected Wells and Springs in the Edwards-Trinity (Plateau) Aquifer--Continued

Well	Owner	Driller	Date completed	Depth of well (ft)	Casing: Diameter (in.)	Casing: Depth (ft)	Altitude of land surface (ft)	Water level: Below land-surface datum (ft)	Water level: Date of measurement	Method of lift	Use of water	Remarks
							Pecos County--Continued					
US-53-17-201	Dow Puckett	R. L. Cleveland	1940	400	--	--	3,389	410.7	May 19, 1958	C, W	S	Well AA-30 in TBWE Bulletin 6106.
* 19-101	Clay Adams Estate	Hugh Gray	1925	450	--	--		400	Nov. 1946	C, W	S	Well BB-30 in TBWE Bulletin 6106.
901	R. Henderson	do	1928	575	--	--	3,472	525	1957	C, W	S	Well MM-4 in TBWE Bulletin 6106.
* 21-701	M. C. Puckett	Layne-Texas Company	1956	864	16 12	40 746	3,292	600	Feb. 1957	T, E	D, P, Ind	Discharge reported 315 to 376 gal/min. Well DD-33 in TBWE Bulletin 6106. Temp. 73°F on June 4, 1973.
22-401	Fred P. Montgomery	North Central Oil Corp. and Bell and Dansfield	--	2,844	--	--	3,190	--	--	--	--	Oil test. 2/
501	do	--	1924	515	6	--	2,965	--	--	S, E	S	Well EE-32 in TBWE Bulletin 6106.
502	Will Harral Estate	-- Ryan	1946	450	--	--	2,980	375	June 1957	C, W	D	Well EE-34 in TBWE Bulletin 6106.
23-201	Arthur Harral	R. L. Cleveland	1946	600	--	--	3,097	525	May 1947	C, G	S	Well EE-20 in TBWE Bulletin 6106.
24-301	H. A. Wimberly	--	--	280	--	--	2,495	175	Apr. 1947	C, W	D, S	Well FF-20 in TBWE Bulletin 6106.
501	Blackstone & Slaughter	Humble Oil & Refining Company	--	3,553	--	--	2,630	--	--	--	--	Oil test. 2/
26-101	J. E. Allison	A. N. Yockey	--	240	8	240	3,677	153.1	Apr. 4, 1958	C, W	S	Well KK-19 in TBWE Bulletin 6106.
* 28-801	Republic National Bank of Dallas, Trust	Hugh Cox	1940	585	--	--	3,470	570	Feb. 1957	C, W	S	Well MM-24 in TBWE Bulletin 6106. Temp. 73°F on June 4, 1973.
29-501	W. M. Edwards	Humble Oil & Refining Company	--	17,876	--	--	3,194	--	--	--	--	Oil test. 2/
502	Joe Bynum	--	--	425	--	--	3,046	402	Oct. 1958	C, W	D, S	Pump set at 420 ft. Well NN-5 in TBWE Bulletin 6106.
35-101	West-Pyle Cattle Company	Lawrence Ryan	1921	550	7	--	3,844	460	Nov. 1957	C, W	S	Well SS-3 in TBWE Bulletin 6106.
801	do	--	--	200	--	200	3,609	119.8	Nov. 7, 1957	C, W	S	Discharge estimated 6 gal/min. Well SS-8 in TBWE Bulletin 6106.
* 37-501	C. R. Downie	Clyde Word	1941	650	--	--	3,130	560	Feb. 1957	C, W	S	Well UU-13 in TBWE Bulletin 6106. Temp. 76°F on June 4, 1973.
801	N. M. Mitchell	do	1948	370	--	--	3,150	300	1957	C, W	S	Well UU-16 in TBWE Bulletin 6106.
* 43-901	Faith Cattle Company	--	--	300	--	--	3,655	300	Nov. 1957	C, W	S	Well VV-24 in TBWE Bulletin 6106.
45-101	Etta Downie Patteson	Pan American Production Corp.	--	6,007	--	--	3,207	--	--	--	--	Oil test. 2/
* 501	C. C. Mitchell	--	--	525	--	--	3,150	400 345	1957 June 4, 1973	C, W	D, S	Well UU-32 in TBWE Bulletin 6106. Temp. 74°F on June 4, 1973.
51-401	S. L. Strumberg	--	1915	250	6	--	3,702	198.1	Nov. 13, 1957	C, W	S	Discharge reported 45 gal/min. Well VV-28 in TBWE Bulletin 6106.
* 52-701	Joe N. Brown	--	--	630	8	--	3,287	350	Oct. 1958	C, W	S	Well WW-16 in TBWE Bulletin 6106.

See footnotes at end of table.

Table 2.--Records of Selected Wells and Springs in the Edwards-Trinity (Plateau) Aquifer--Continued

Well	Owner	Driller	Date completed	Depth of well (ft)	Casing: Diameter (in.)	Casing: Depth (ft)	Altitude of land surface (ft)	Water level: Below land-surface datum (ft)	Water level: Date of measurement	Method of lift	Use of water	Remarks
							Pecos County--Continued					
* US-54-01-701	M. A. Smith	Gulf Oil Company	--	432	--	--	2,590	370 285	Apr. 1947 May 2, 1973	C, W	D, S	Sand reported from 395 ft to bottom. Questionable 1973 water-level measurement. Well W-17 in TBWE Bulletin 6106.
09-601	Herbert Holmes	O. A. Smith	1944	250	--	--	--	229.4	Mar. 25, 1957	C, W	S	Well GG-9 in TBWE Bulletin 6106.
801	J. N. Thigpin	--	--	210	6	--	2,270	93.6 95.5	Apr. 29, 1947 Mar. 20, 1957	C, W	D, S	Well GG-40 in TBWE Bulletin 6106.
17-401	Blackstone & Slaughter	J. M. Huber Corp.	--	11,282	--	--	2,764	--	--	--	--	Oil test. 2/
* 18-401	H. C. Noelke, Jr.	Gibbs Bros.	1953	255	14	--	2,160±	99.13 94.53	Jan. 25, 1954 Dec. 8, 1972	T, G	Irr	Pump set at 205 ft. Well GG-84 in TBWE Bulletin 6106. 1/
							Reeves County					
WD-46-33-501	Buck Miller	--	--	--	5	--	3,084	30.00 29.33	Aug. 3, 1959 May 1, 1973	C, W	S	Well G-5 in Texas Water Commission (TWC) Bulletin 6214.
* 801	Mackie McAlpin	--	--	36	8	--	3,107	24.38	Aug. 6, 1970	C, W	S	--
* 41-202	do	--	--	Spring	--	--	3,132	--	--	Flows	D, S	Estimated yield 25 to 30 gal/min in 1970.
401	Doug Miller	--	1900's	50	12	--	3,188	48.5 34.51	Sept. 11, 1959 Aug. 24, 1970	C, W	S	--
* 601	do	--	--	104	8-5/8	--	3,084	68.5 75.38	Aug. 27, 1959 Aug. 12, 1970	C, W	S	Well N-9 in TWC Bulletin 6214. Temp. 76°F on Aug. 12, 1970.
701	do	--	1960's	50	6	--	3,216	31.21	Aug. 24, 1970	C, W	S	--
* 42-401	Warren Wright, Jr.	--	--	175	12-1/2	--	3,003	33.6 34.14	Aug. 13, 1959 Aug. 26, 1970	C, W	S	--
* 402	Doug Miller	--	--	76	5-1/2	--	3,029	63.1 65.8	Sept. 20, 1940 Aug. 12, 1970	C, W	S	--
* 603	H. B. Foster, Jr.	--	--	102	8-5/8	--	2,894	23.7 28.94	July 28, 1959 Oct. 1, 1970	C, W	S	Well H-46 in TWC Bulletin 6214
804	L. A. Richards	--	1969	160	4	90	2,972	40.97	Aug. 27, 1970	S, E	D, S, Irr	First water reported in gravel at 126 ft.
901	Raymond Williams	Earl Fisher	1956	920	16 12-1/2	350 350-954	2,724	91.30 81.64	Nov. 22, 1963 Dec. 18, 1973	T, G	Irr	Well P-29 in TWC Bulletin 6214. 1/
* 49-101	Palafox Exploration Co.	--	1932	300	7	--	3,376	267.36	Oct. 22, 1970	C, W	S	--
* 401	H. A. Haier	--	--	338	5-1/2	--	3,415	214.50 214.10	Aug. 6, 1970 Mar. 11, 1971	--	--	--
* 603	Cedarville Farms, Inc.	--	1962	680	14	--	3,218	--	--	T, G	Irr	--
* 50-401	do	--	1962	--	14	--	3,215	--	--	T, G	Irr	--
402	do	--	1962	1,141	14	955	3,215	32.00 88.81	Sept. 18, 1970 Dec. 6, 1972	N	N	1/ 2/

See footnotes at end of table.

Table 2.--Records of Selected Wells and Springs in the Edwards-Trinity (Plateau) Aquifer--Continued

Well	Owner	Driller	Date completed	Depth of well (ft)	Casing: Diameter (in.)	Casing: Depth (ft)	Altitude of land surface (ft)	Water level: Below land-surface datum (ft)	Water level: Date of measurement	Method of lift	Use of water	Remarks
							Reeves County--Continued					
* WD-46-51-401	Robert F. Goddard	Stafford and Fisher	--	600	6	--	2,948	281.7 330.12	July 13, 1958 Sept. 2, 1970	C, W	S	Pump set at 420 ft. Well P-82 in TWC Bulletin 6214. Temp. 79°F on Sept. 2, 1970.
601	Swain Thomas	L. Walker	1957	1,400	16	1,400	2,790	213.62 289.54	Feb. 5, 1958 Dec. 6, 1972	N	N	Casing perforated from 250 to 1,400 ft. Well Q-256 in TWC Bulletin 6214. 1/
* 57-103	Nelson Lethco	H. E. Stanton	1969	667	12-3/4	667	3,742	322.8	Mar. 15, 1970	T, G	Ind	Slotted from 318 to 474, 509 to 551 and 592 to 667 ft.
* 104	do	--	--	--	6	--	3,568	229.3	Aug. 4, 1959	C, W	S	Pump set at approximately 300 ft.
* 401	do	--	--	--	--	--	3,676	--	--	C, W	S	Do.
* 501	J. T. Rounsaville	Rodenbaugh Oil	--	340	9	--	3,648	216.2 223.1	June 26, 1959 Mar. 12, 1970	C, W	S	Originally drilled to 840 ft; plugged back to 340 ft.
* 503	Border Road Construction	H. E. Stanton	1972	900	--	--	3,587	175.44	May 4, 1973	T, G	Ind	3/
58-403	W. D. Johnson Estate	Tom Simmons	1927	303	6	--	3,315	233.4 94.17	Sept. 7, 1940 June 16, 1970	N	N	Pump set at 200 ft in 1959. Well T-18 in TWC Bulletin 6214. 1/ 2/
* 803	Border Road Construction	H. E. Stanton	1972	750	--	--	3,364	132.5	May 4, 1973	T, G	Ind	Temp. 80°F on May 4. 1973. 3/
59-401	J. R. Clark and R. E. Roberts	--	1953	620	18	620	3,054	262.0 327.67	Jan. 21, 1959 Dec. 14, 1971	T, E	Irr	Pump set at 250 ft in 1953. Well U-45 in TWC Bulletin 6214. 1/
60-201	F. F. Bradley	Rich and Pate	1951	720	16 12	300 300-720	2,828	171.17 122.77	Jan. 19, 1959 Dec. 6, 1972	T, G	Irr	Casing perforated from 100 to 720 ft. Well V-89 in TWC Bulletin 6214. Temp. 78°F on Apr. 16. 1970. 1/
* 203	J. J. Bush Estate	--	1956	444	8	325	2,803	132.7	Apr. 14, 1959	C, W	S	Well V-96 in TWC Bulletin 6214. 3/
902	Chandler Company	Russ Williams	1954	1,450	16	1,450	2,949	439.20 251.53	Aug. 6, 1959 Dec. 6, 1972	N	N	Well V-147 in TWC Bulletin 6214. 1/ 2/ 3/
* 61-402	Balmorhea Ranches, Inc.	C. and H. Drilling Company	1956	410	7	410	2,947	184.4	Mar. 26, 1959	C, W	S	Drilled to 181 ft; deepened to 410 ft in 1956. Well W-114 in TWC Bulletin 6214. 3/
47-32-901	Shelby Brooks	--	--	68	6	--	3,242	59.6 53.20	Oct. 5, 1939 May 1, 1973	N	N	Abandoned. Well D-16 in TWC Bulletin 6214.
40-902	A. B. Tinnin	--	--	260	6	--	--	83.5 84.93	July 23, 1959 May 1, 1973	C, W	N	Well G-18 in TWC Bulletin 6214.
* 48-701	Palafox Expoloration Co.	--	--	280	7	--	3,407	59.8 62.4	Sept. 11, 1959 Aug. 6, 1970	C, W	S	Pump set at 140 ft.
* 801	do	--	--	170	6	--	--	49.7 59.8	Sept. 11, 1959 Aug. 5, 1970	C, W	S	Well N-2 in TWC Bulletin 6214.
* 901	TXL Land Company	--	--	--	8-5/8	--	--	194.09	Aug. 7, 1970	C, W	S	Pump set at 220 ft.
* 56-301	Palafox Exploration Co.	--	--	--	--	--	3,429	119.4 133.09	Sept. 17, 1959 do	C, W	S	--
* 503	TXL Land Company	David Fasken	1968	482	7	--	3,592	209.26	Oct. 22, 1970	--	--	--
* 901	Banky Stocks	M. W. Tatum	1900's	381	5	381	3,560	274.1	Mar. 13, 1970	C, W	S	Pump set at 250 ft in 1959. Cleaned out and deepened from 340 to 381 ft in Feb. 1964. Well T-8 in TWC Bulletin 6214. 3/

See footnotes at end of table.

Table 2.--Records of Selected Wells and Springs in the Edwards-Trinity (Plateau) Aquifer--Continued

Well	Owner	Driller	Date completed	Depth of well (ft)	Casing: Diameter (in.)	Casing: Depth (ft)	Altitude of land surface (ft)	Water level: Below land-surface datum (ft)	Water level: Date of measurement	Method of lift	Use of water	Remarks
						Reeves County--Continued						
* WD-47-56-902	Banky Stocks	Thompson Drilling Company	1965	1,285	10-5/8 9-5/8	5 575	3,619	332.91	Oct. 22, 1970	--	--	Originally drilled to 3,540 ft.
* 52-02-601	H. Weinacht Estate	--	1930's	500	6	200?	3,380	79.5 84.5	Sept. 21, 1959 Mar. 16, 1970	C, W	D, S	Well X-20 in TWC Bulletin 6214.
* 610	Reeves County Water Improvement District No. 1	--	--	Spring	--	--	3,306	--	--	Flows	Irr	Giffin Springs.
611	State of Texas	--	--	Spring	--	--	3,306	--	--	Flows	Irr	San Solomon Springs. X-21 in TWC Bulletin 6214.
* 04-205	Mrs. Oscar Graef	Royce Hemmeline	1954	536	16	428	2,964±	307.66	Nov. 3, 1958	T, G	Irr	Well Y-26 in TWC Bulletin 6214. Temp. 75°F on July 14, 1970.
* 301	Rudolf Hoefs	L. W. Stratton	--	615	16 12	440 540	2,979	320.3 289.8	Nov. 3, 1958 Jan. 21, 1960	--	N	--
* 303	do	--	1960's	--	8	--	--	--	--	C, W	S	--
* 503	John A. Moore	C. C. Calvert	1955	930	16 14	512 930	2,980	328.61	Nov. 4, 1958	T, G	Irr	Pump set at 500 ft.
* 05-201	Agricultural-Livestock Finance Corp.	--	--	--	6	--	3,125	--	--	C, W	--	--
* 401	Mrs. Oscar Graef	--	--	445	--	--	3,109	--	--	C, W	S	--
* 402	do	--	--	--	8	--	3,142	264.2 285.8	Mar. 27, 1959 July 29, 1970	--	S	Well Y-38 in TWC Bulletin 6214.
* 502	do	--	--	--	6	--	3,192	--	--	C, W	S	--
* 12-301	Agricultural-Livestock Finance Corp.	--	--	314	5	--	3,300	239.1 241.98	Sept. 1, 1959 July 16, 1970	S, E	D, S	Well Y-51 in TWC Bulletin 6214.
						Terrell County						
* XX-53-30-501	Abilene Christian Univ.	--	--	400	6	--	2,774	--	--	S, E	S	Temp. 74°F on May 17. 1973.
801	J. C. Mitchell	Humble Oil & Refining Company	--	12,074	--	--	2,909	--	--	--	--	Oil test. [2]
901	J. M. Corder	Mobil Oil Company	--	15,713	--	--	2,848	--	--	--	--	Do.
31-601	David Mitchell	--	1906	250	8	--	2,680±	196.2	Nov. 16, 1960	C, W	D, S	--
32-101	Marathon-Pure University	Marathon Oil Company, Pure Oil Company	--	14,027	--	--	2,450	--	--	--	--	Oil test. [2]
* 601	Mary Mitchell	--	--	--	8	--	2,402	210.27	May 17, 1973	C, W	S	--
* 38-501	Sid Haskins	"Curly" Seareg	1950	500	--	--	2,900±	438.7	Nov. 15, 1960	C, W	D, S	--
* 39-301	N. M. Mitchell	--	--	600+	--	--	2,830	> 500	Nov. 16, 1960	S, E	S	--
40-101	George K. Mitchell	Mobil Oil Company	--	14,442	--	--	2,681	--	--	--	--	Oil test. [2]

See footnotes at end of table.

Table 2.--Records of Selected Wells and Springs in the Edwards-Trinity (Plateau) Aquifer--Continued

Well	Owner	Driller	Date completed	Depth of well (ft)	Casing: Diameter (in.)	Casing: Depth (ft)	Altitude of land surface (ft)	Water level: Below land-surface datum (ft)	Water level: Date of measurement	Method of lift	Use of water	Remarks
							Terrell County--Continued					
* XX-53-44-801	Mrs. W. T. Bondurant	--	1945	257	5	--	3,350±	232.5 235.45	June 1956 Nov. 1, 1960	C, W	S	--
* 46-901	Mrs. Lee Dudley	--	--	425	--	--	2,620±	381.24	Nov. 15, 1960	--	S	--
* 48-101	R. W. Prosser	--	--	450	8	--	2,530±	426.5	Nov. 16, 1960	C, W	D, S	--
* 801	McMullen Estate	--	--	500	8	--	2,420	360.7	Nov. 17, 1960	S, E	D, S	--
* 53-801	Terrell County Water Improvement District No. 1	--	--	840	7	--	2,848	400 356.4	Jan. 1940 May 15, 1973	C, E	P	Pump set at 480 ft. Temp. 73°F on May 15, 1973.
54-101	Beulah McCue	Gulf Oil Corp.	--	12,751	--	--	3,162	--	--	--	--	Oil test. 2/
* 55-501	F. M. Wood	--	--	680	--	--	2,480	550	Nov. 1960	C, G	D, S	--
56-501	John Williams	--	--	1,814	--	--	2,200	387.9 386.3	July 14, 1947 May 15, 1973	C, W	D, S	--
* 63-101	Pinky Caruthers	--	--	> 800	6	--	2,470	--	--	C, W	S	--
* 64-402	Southern Pacific Railroad	--	1900	1,800	8	--	2,100	536.2 531.0	July 11, 1947 Nov. 5, 1951	S, E	D, P	Water reported at about 600 ft.
901	Barksdale	R. E. Freeman	--	6,977	--	--	2,067	--	--	--	--	Oil test. 2/
54-18-702	-- Smith	Shell-Humble	--	3,377	--	--	2,317	--	--	--	--	Do.
* 902	W. E. White Estate	--	--	--	--	--	2,042	26.42 27.10	Feb. 8, 1961 Dec. 5, 1972	C, W	S	1/
25-501	Annie Spencer	Humble Oil & Refining Company	--	14,616	--	--	2,322	--	--	--	--	Oil test. 2/
26-501	-- Allison	Texas Crude Oil Company and the Superior Oil Company	--	13,102	--	--	2,658	--	--	--	--	Do.
27-801	-- Graham	Humble Oil & Refining Company	--	--	--	--	1,964	--	--	--	--	Do.
33-401	Alma H. Poulter	Honolulu Oil Corp.	--	6,389	--	--	2,326	--	--	--	--	Do.
* 901	Sallie Packanham Estate	Wesley Young	--	660	4	644	2,450±	525	1960	C, G	Ind	Well used to drill oil test.
34-202	L. H. Hicks	--	1955	> 200	10	--	--	79.78 56.51	Jan. 26, 1955 Dec. 5, 1972	N	N	1/
701	Avis C. Scott	Sinclair Oil and Gas Company	--	14,748	--	--	2,431	--	--	--	--	Oil test. 2/
43-101	-- Mitchell	Shell Oil Company	--	14,427	--	--	1,905	--	--	--	--	Do.
49-201	Austin Chriesman	A. F. Holdeman	1926	550	8	--	2,320±	476.1	Nov. 17, 1960	C, W	D, S	--
701	Adams Brothers	--	--	669	--	--	2,125	382.1	July 15, 1947	--	D, S	--
901	Bassett Mineral Trust	Standard Oil Company of Texas	--	6,307	--	--	2,021	--	--	--	--	Oil test. 2/

See footnotes at end of table.

Table 2.--Records of Selected Wells and Spring in the Edwards-Trinity (Plateau) Aquifer--Continued

Well	Owner	Driller	Date completed	Depth of well (ft)	Casing: Diameter (in.)	Casing: Depth (ft)	Altitude of land surface (ft)	Water level: Below land-surface datum (ft)	Water level: Date of measurement	Method of lift	Use of water	Remarks
						Terrell County--Continued						
* XX-54-50-701	Bob White	--	--	550±	8	--	2,210±	491.0	Nov. 18, 1960	C, W	D, S	--
* 58-501	Austin Chriesman	--	--	--	6	--	--	--	--	C, W	S	--
* 71-01-501	Sam Bell	Cox and Wagonner	1946	1,000	8	--	1,915	599.4	Mar. 3, 1950	C, W	S	Temp. 73°F on May 14, 1973.
02-101	do	--	--	--	--	--	1,760	461.6	July 9, 1947	--	S	--
09-401	John A. Martin	--	--	275	6	--	1,443	191.8	June 23, 1947	C, W	S	Water reported at 240 ft.
10-101	Stoney M. Smith	--	--	--	--	--	1,720	496.7	July 12, 1947	--	S	Water reported at 594 ft.
* 72-05-301	T. A. Herring	--	--	--	--	--	2,162	517.4	July 19, 1947	--	D, S	Water reported at 517 ft.
06-401	Hinson and Stumberg	--	--	925	6	--	2,325	775	1950	C, W	S	--
07-101	H. E. Gatlin	--	1938	665	7	--	2,160	586.3	July 7, 1947	C, W	S	--
08-301	R. J. Barksdale	--	--	--	--	--	2,050	605.0	June 27, 1947	--	S	--
701	John Harrison	--	--	898	--	--	2,121	793.6	July 2, 1947	C, G	S	--
16-101	do	--	--	> 900	--	--	2,046	767.6	June 28, 1947	S, E	S	--
						Val Verde County						
* YR-54-51-801	Eastman Ranch	--	--	640	7	--	2,000	347.3	Oct. 18, 1968	C, W	D, S	--
903	-- Bassett	Western Natural Gas Company	1953	4,774	--	--	1,875	--	--	--	--	Oil test. 2/
* 59-801	Mrs. M. B. Cox	--	--	900	7	--	--	600	Oct. 25, 1968	C, W	S	Pump set at 800 ft.
60-304	W. Babb	O. W. Killam	1949	3,075	--	--	1,559	--	--	--	--	Oil test.
* 501	R. Cash	-- Snow	1925	574	6	--	--	480	Aug. 27, 1969	C, W	D	Pump set at 550 ft.
* 71-03-701	Clifford Owens	-- Crawford	1934	706	8	--	1,750	642.7 574.1	June 9, 1950 Nov. 29, 1966	C, W	S	Reported discharge 7 gal/min. Temp. 68°F on May 14, 1973.
* 04-402	I. B. Newman	Lonnie Crawford	1946	400	8	--	1,600	202.9 297.94	May 11, 1967 Nov. 20, 1969	C, W	S	Pump set at 400 ft.
501	I. F. Ingram	Phantom Oil Company	1930	3,010	--	--	1,487	--	--	--	--	Oil test.
11-502	Boye Babb, Jr.	Meek and Page	1953	2,605	--	--	1,704	--	--	--	--	Do.
* 601	J. H. Fisher	A. F. Holderman	1938	885	8	--	1,650	555.4 565.7	Mar. 7, 1952 Jan. 19, 1965	C, W	S	Temp. 74°F on May 14, 1973.
* 701	Ross Foster	E. B. Fuller	1949	250	8	--	1,240	200	Aug. 12, 1968	C, W	S	--
13-201	J. W. Ingram	C. A. Mauer	1947	2,030	--	--	1,564	--	--	--	--	Oil test.
* 401	A. L. Brown Estate	-- Snow	1920	750	8	--	1,450	397.8	May 22, 1939	C, W	D, S	--

* For chemical analysis of the water see Table 3.
1/ Water-level measurements from observation well in files of the Texas Department of Water Resources, Austin, Texas.
2/ Mechanical log of well in files of the Texas Department of Water Resources.
3/ Drillers' log of well in files of the Texas Department of Water Resources.

Table 3.--Chemical Analyses of Water From Selected Wells and Springs in the Edwards-Trinity (Plateau) Aquifer

Analyses are in milligrams per liter except percent sodium, specific conductance, pH, and sodium-adsorption ratio (SAR)
Analyses were performed by the Texas Department of Health unless indicated by footnote.

Well	Depth of well (ft)	Date of collection	Silica (SiO_2)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na) plus Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Total hardness as $CaCO_3$	Percent sodium	Specific conductance (micromhos at 25°C)	pH	Sodium adsorption ratio (SAR)
								Brewster County									
BK-52-29-801	1,700	June 6, 1973	21	139	17	163	207	457	61	2.1	15.0	980	419	45.8	1,380	7.2	3.5
30-501	650	do	19	130	52	277	254	334	389	2.1	< .4	1,330	539	52.8	2,100	7.5	5.2
53-58-302	720	May 16, 1973	17	48	21	26	232	31	24	.6	12.0	294	209	21.3	490	7.7	.8
802	790	do	14	69	20	10	276	17	12	.5	9.0	288	255	7.6	480	7.8	.3
72-12-101	857	do	16	62	27	53	259	89	36	1.1	19.0	430	265	30.3	692	7.8	1.4
								Culberson County									
HL-47-47-901	450	Aug. 5, 1970	10	338	105	140	189	1,100	224	2.2	< .4	2,010	1,280	19.2	2,420	7.5	1.7
55-604	--	Oct. 6, 1970	8	118	50	51	221	378	21	.5	< .4	740	500	18.2	996	7.6	1.0
901	1,150	Aug. 12, 1970	18	245	83	461	203	840	660	2.0	.4	2,409	950	51.3	3,400	7.8	6.4
56-103	--	Aug. 6, 1970	16	382	110	276	182	1,250	388	2.1	.4	2,513	1,410	29.9	3,050	7.3	3.2
64-101	1,300	Mar. 16, 1969	--	153	39	219	267	368	306	1.3	2.6	1,360	542	46.8	2,376	7.4	4.1
								Jeff Davis County									
PS-52-01-401	314	May 4, 1973	15	40	5	8	126	16	11	.2	2.7	160	121	12.6	270	7.2	.3
902	623	Oct. 18, 1969	18	49	20	23	245	39	12	1.3	< .4	282	204	19.7	469	7.7	.7
09-201	700	May 15, 1969	29	62	13	20	250	35	6	.8	1.0	290	207	17.4	451	7.9	.6
301	635	do	33	81	7	10	261	26	5	.5	< .4	291	232	8.8	460	7.6	.3
								Pecos County									
US-45-49-301	--	Dec. 13, 1971	10	116	77	890	336	970	890	3.4	< .4	3,120	610	76.2	4,360	7.6	15.7
901	300	May 3, 1973	19	336	255	1,260	145	1,630	1,900	3.5	< .4	5,500	1,890	59.1	6,270	7.7	12.6
57-601	96	Apr. 15, 1975	12	141	42	178	240	314	291	1.8	< .4	1,100	530	42.4	1,650	7.6	3.4
901	470	May 3, 1973	6	136	58	231	183	394	387	2.2	< .4	1,300	580	46.4	2,000	7.8	4.2
59-901	259	do	8	550	276	780	201	1,940	1,420	3.6	< .4	5,100	2,510	40.4	5,996	7.7	6.8
60-902	400	Apr. 15, 1975	14	500	110	420	238	1,340	720	2.2	22.0	3,250	1,710	34.8	3,200	7.3	4.4
61-702	--	May 2, 1973	13	600	140	530	256	1,650	910	2.7	2.9	3,980	2,080	35.7	4,630	7.6	5.1
46-63-601	203	Dec. 14, 1971	29	80	12	43	210	87	54	1.0	2.5	412	250	27.4	645	7.5	1.2
64-302	690	May 3, 1973	28	142	34	166	233	311	261	1.2	3.5	1,060	496	42.1	1,600	7.7	3.2
52-06-502	225	do	14	93	19	54	222	156	59	1.0	8.0	510	311	27.3	785	7.9	1.3
07-302	501	June 7, 1973	15	110	31	79	218	198	130	1.1	10.0	680	403	29.9	1,050	7.5	1.7

See footnotes at end of table.

Table 3.--Chemical Analyses of Water From Selected Wells and Springs in the Edwards-Trinity (Plateau) Aquifer--Continued

Well	Depth of well (ft)	Date of collection	Silica (SiO_2)	Cal-cium (Ca)	Magne-sium (Mg)	Sodium (Na) plus Potassium (K)	Bicar-bonate (HCO_3)	Sul-fate (SO_4)	Chlo-ride (Cl)	Fluo-ride (F)	Ni-trate (NO_3)	Dis-solved solids	Total hardness as $CaCO_3$	Percent sodium	Specific conductance (micromhos at 25°C)	pH	Sodium adsorp-tion ratio (SAR)
							Pecos County--Continued										
US-52-07-902	550	June 7, 1973	14	106	21	77	226	180	111	1.1	0.6	620	352	32.1	975	7.4	1.8
08-301	401	May 3, 1973	15	109	42	227	179	330	323	1.4	< .4	1,140	446	52.6	1,750	7.8	4.7
908	346	Dec. 14, 1971	23	257	101	399	239	770	630	2.0	28.0	2,330	1,060	45.0	3,250	7.3	5.3
13-201	470	June 6, 1973	27	79	18	9	317	15	5	.5	7.0	317	272	6.7	508	7.5	.2
301	360	do	21	90	15	37	244	92	52	.8	.4	428	289	21.9	675	7.6	.9
14-201	375	do	22	88	18	49	250	104	69	.9	.8	475	296	26.6	756	7.5	1.2
16-401	396	June 7, 1973	22	116	30	153	233	260	216	1.1	< .4	910	414	44.5	1,410	7.5	3.3
801	450	Apr. 10, 1958	27	145	45	268	267	384	380	--	--	1,395	547	50.7	2,200	7.5	4.9
21-301	350	June 6, 1973	22	56	14	20	205	44	17	1.4	5.1	280	196	18.0	442	7.7	.6
22-801	450	Apr. 28, 1975	30	91	20	115	251	167	126	1.2	1.3	670	311	44.5	1,070	7.7	2.8
802	421	June 6, 1973	36	59	7	26	216	24	17	.8	9.0	285	176	24.3	433	7.5	.9
23-101	650	June 7, 1973	25	106	27	147	233	232	200	1.1	.4	850	376	46.0	1,310	7.7	3.3
24-801	700	June 5, 1973	25	138	48	195	277	331	286	2.2	13.0	1,170	541	43.9	1,740	7.7	3.6
53-01-704	100	Aug. 19, 1970	25	316	237	530	242	1,580	740	2.7	38.0	3,592	1,760	39.6	4,390	7.7	5.4
02-102	260	Dec. 13, 1971	26	478	152	640	261	1,450	1,060	2.3	19.0	3,960	1,820	43.4	4,940	7.1	6.5
703	642	May 3, 1973	21	354	132	610	367	930	1,040	2.3	27.0	3,300	1,430	48.2	4,350	7.5	7.0
03-901	462	May 2, 1973	10	157	55	231	285	400	346	2.2	< .4	1,340	620	44.7	1,990	7.9	4.0
05-902	200	June 5, 1973	21	202	83	348	317	640	490	2.5	3.7	1,950	850	47.2	2,650	7.4	5.2
06-501	425	May 2, 1973	17	203	76	282	300	570	415	2.2	31.0	1,740	820	42.7	2,450	7.7	4.3
07-701	535	do	13	70	31	27	254	83	41	1.4	4.9	396	303	16.3	640	8.0	.7
08-401	354	do	14	68	29	52	216	106	81	1.8	6.0	464	292	27.7	758	7.9	1.3
09-402	520	June 5, 1973	20	262	84	289	211	720	474	2.4	38.0	1,990	1,000	38.6	2,660	7.4	4.0
10-502	400	June 4, 1973	13	163	55	210	249	466	280	2.0	< .4	1,310	630	41.9	1,860	7.5	3.6
12-203	--	Apr. 14, 1975	20	312	103	510	295	940	780	2.0	7.0	2,820	1,210	47.7	3,400	7.4	6.3
801	375	June 4, 1973	16	74	16	23	245	46	31	1.0	11.0	338	252	16.6	551	7.8	.6
14-501	387	June 5, 1973	13	62	14	13	212	33	18	1.4	4.9	263	212	11.8	434	7.8	.4
15-601	503	do	13	62	17	18	222	35	27	1.2	7.0	289	226	14.8	481	7.8	.5
19-101	450	June 4, 1973	17	44	15	21	189	30	22	1.5	< .4	244	170	21.0	435	7.3	.7
21-701	864	do	16	122	23	55	256	138	111	1.0	25.0	620	402	23.0	965	7.4	1.2
22-501	515	June 5, 1973	12	70	14	16	235	34	21	1.1	7.0	291	232	13.0	488	7.6	.5
28-801	585	June 4, 1973	16	62	17	18	242	31	20	.8	9.0	293	227	14.8	481	7.5	.5
37-501	650	do	16	60	11	14	218	20	16	.9	7.0	252	196	13.5	418	7.6	.4

See footnotes at end of table.

Table 3.--Chemical Analyses of Water From Selected Wells and Springs in the Edwards-Trinity (Plateau) Aquifer--Continued

Well	Depth of well (ft)	Date of collection	Silica (SiO_2)	Calcium (Ca)	Magnesium (Mg)	Sodium (Na) plus Potassium (K)	Bicarbonate (HCO_3)	Sulfate (SO_4)	Chloride (Cl)	Fluoride (F)	Nitrate (NO_3)	Dissolved solids	Total hardness as $CaCO_3$	Percent sodium	Specific conductance (micromhos at 25°C)	pH	Sodium adsorption ratio (SAR)
							Pecos County--Continued										
US-53-43-901	300	May 17, 1973	17	69	15	14	261	16	16	0.4	13.0	288	234	11.5	481	7.4	0.4
45-501	350	June 4, 1973	15	59	9	9	207	12	12	.5	5.3	224	182	9.6	369	7.6	.3
52-701	630	May 17, 1973	16	43	18	25	210	24	19	.7	15.0	264	183	10.2	436	7.7	.8
54-01-701	432	May 2, 1973	16	62	24	27	235	61	39	1.2	4.9	351	255	18.8	572	8.3	.7
09-801	210	do	20	61	27	21	256	32	38	1.2	13.0	339	265	14.8	558	8.0	.6
18-401	255	Apr. 14, 1975	23	84	13	15	265	26	24	.7	16.0	332	264	10.8	542	7.7	.4
							Reeves County										
WD-46-33-801	36	Aug. 6, 1970	31	600	81	387	265	1,840	422	2.3	21.0	3,510	1,830	31.5	3,940	7.3	3.9
41-202	Spring	do	20	385	101	267	177	1,230	386	2.2	10.0	2,490	1,380	29.6	3,010	7.5	3.1
401	50	Aug. 24, 1970	15	394	117	404	182	1,520	450	2.5	< .4	2,990	1,470	37.5	3,530	7.6	4.6
601	104	Aug. 12, 1970	11	276	88	570	187	1,400	481	1.5	< .4	2,920	1,050	54.2	3,710	7.2	7.7
701	50	Aug. 24, 1970	24	472	128	391	240	1,580	540	2.6	< .4	3,260	1,710	33.2	3,800	7.2	4.1
42-401	175	Aug. 26, 1970	33	330	87	227	163	1,220	210	2.3	5.0	2,190	1,180	29.5	2,580	7.6	2.9
402	76	Aug. 12, 1970	48	235	95	510	212	1,150	500	2.2	36.0	2,680	980	53.2	3,470	7.4	7.0
603	102	Oct. 2, 1970	29	474	117	319	134	1,620	362	2.8	22.0	3,010	1,670	29.4	3,450	7.3	3.4
804	160	Aug. 27, 1970	31	183	32	410	189	1,030	198	1.8	< .4	1,980	590	60.1	2,500	7.7	7.3
49-101	300	Oct. 22, 1970	19	385	112	375	210	1,220	520	2.1	.4	2,736	1,420	36.5	3,470	7.3	4.3
401	338	do	2	104	78	1,050	61	660	1,520	.7	21.0	3,480	580	79.7	5,250	8.6	18.9
603	680	July 21, 1970	16	289	119	265	234	1,120	323	2.4	.4	2,249	1,210	32.3	2,850	7.4	3.3
50-401	--	do	16	257	111	267	246	920	332	2.6	< .4	2,030	1,100	34.6	2,690	7.2	3.5
51-401	600	Sept. 2, 1970	36	299	40	277	178	990	245	1.3	2.5	1,980	910	39.8	2,500	7.3	4.0
57-103	667	Mar. 19, 1970	15	185	63	351	272	560	510	1.6	< .4	1,820	720	51.4	2,640	7.3	5.6
104	--	Sept. 11, 1970	15	186	57	285	275	462	427	1.0	< .4	1,570	700	47.0	2,350	7.8	4.7
401	--	do	15	212	72	354	284	590	540	1.4	< .4	1,920	830	48.2	2,820	7.5	5.4
501	340	Mar. 12, 1970	25	97	16	11	338	44	13	.7	4.5	378	309	7.2	584	7.3	.3
503	900	May 4, 1973	15	149	56	291	242	422	421	1.2	< .4	1,470	600	51.3	2,220	7.7	5.2
58-803	750	do	13	79	43	268	272	381	216	2.8	< .4	1,140	375	60.9	1,750	7.9	6.1
60-203	444	do	36	224	51	359	190	700	458	1.1	5.7	1,930	770	50.3	2,650	7.8	5.6
61-402	410	do	29	102	21	147	270	216	147	.8	4.9	800	342	48.4	1,220	7.7	3.5
47-48-701	280	Aug. 6, 1970	18	331	78	147	182	960	211	1.9	7.0	1,840	1,150	21.8	2,300	7.4	1.9

See footnotes at end of table.

Table 3.--Chemical Analyses of Water From Selected Wells and Springs in the Edwards-Trinity (Plateau) Aquifer--Continued

Well	Depth of well (ft)	Date of collection	Silica (SiO_2)	Cal-cium (Ca)	Magne-sium (Mg)	Sodium (Na) plus Potassium (K)	Bicar-bonate (HCO_3)	Sul-fate (SO_4)	Chlo-ride (Cl)	Fluo-ride (F)	Ni-trate (NO_3)	Dis-solved solids	Total hardness as $CaCO_3$	Percent sodium	Specific conductance (micromhos at 25°C)	pH	Sodium adsorp-tion ratio (SAR)
							Reeves County--Continued										
WD-47-48-801	170	Aug. 5, 1970	20	448	119	364	218	1,490	500	2.4	< 0.4	3,050	1,610	33.0	3,620	7.1	4.0
901	--	Aug. 7, 1970	15	65	50	620	233	1,040	345	2.6	< .4	2,270	367	77.7	3,170	7.6	14.1
56-301	--	do	30	560	123	363	134	1,760	550	2.0	< .4	3,450	1,920	29.2	3,930	7.1	3.6
503	482	Oct. 22, 1970	9	212	68	141	394	550	155	.6	6.0	1,340	809	27.4	1,810	7.1	2.2
901	381	Mar. 13, 1970	16	234	68	319	304	640	469	1.4	< .4	1,900	870	44.5	2,700	7.2	4.7
902	1,245	Aug. 7, 1969	--	82	11	81	24	277	84	--	--	559	250	41.4	1,020	--	2.2
52-02-601	500	May 13, 1969	19	157	60	318	257	460	474	1.7	1.5	1,620	640	52.0	2,480	8.0	5.5
610	Spring	July 10, 1969	18	186	86	433	277	660	600	2.1	< .4	2,120	820	53.5	3,050	7.9	6.6
04-205	536	July 14, 1970	13	194	53	83	220	497	139	1.3	< .4	1,090	710	20.3	1,530	7.5	1.4
301	615	Sept. 13, 1959	14	172	48	75	196	436	142	--	0	991	626	20.4	1,450	6.9	1.3
303	--	July 29, 1970	14	112	27	72	272	153	113	.7	< .4	630	390	28.8	990	8.0	1.6
503	930	July 14, 1970	13	133	36	102	228	231	198	2.7	< .4	830	479	31.7	1,330	7.4	2.0
05-201	--	Apr. 3, 1959	--	102	19	55	336	153	27	.7	15.0	537	335	26.5	916	6.8	1.3
401	445	July 29, 1970	30	87	12	54	257	108	37	.7	5.0	460	269	30.2	703	7.5	1.4
402	--	do	18	127	25	104	248	201	164	.8	< .4	760	421	34.9	1,190	7.4	2.2
502	--	do	16	120	27	105	255	205	164	.7	< .4	760	412	35.7	1,175	7.6	2.2
12-301	314	July 16, 1970	18	7	4	399	475	168	218	4.4	< .4	1,060	36	96.1	1,720	8.6	29.1
							Terrell County										
XX-53-30-501	400	May 17, 1973	15	120	41	151	266	286	211	1.4	1.5	960	468	41.3	1,460	7.9	3.0
32-601	--	do	10	105	33	115	231	224	163	1.4	< .4	770	398	38.7	1,160	7.6	2.5
1/ 38-501	500	Nov. 1960	--	--	--	--	224	15	14	--	--	--	196	--	420	6.9	--
39-301	600±	May 17, 1973	10	49	22	32	190	64	37	1.3	< .4	308	214	24.6	533	7.5	1.0
1/ 44-801	257	Nov. 2, 1960	24	60	17	7.5	267	5	3	.5	10.0	259	220	7.0	434	7.1	.2
1/ 46-901	425	Nov. 15, 1960	--	--	--	--	226	12	14	--	--	--	198	--	422	6.9	--
1/ 48-101	450	Nov. 16, 1960	--	--	--	--	227	28	19	--	--	--	213	--	474	7.4	--
801	500	May 15, 1973	20	51	11	11	188	12	15	.5	8.0	221	174	12.2	370	7.5	.4
53-801	840	do	19	64	16	10	250	12	11	.5	13.0	269	225	8.9	447	7.6	.3
1/ 55-501	680	Nov. 16, 1960	--	--	--	--	217	15	16	--	--	--	189	--	407	7.4	--
63-101	> 800	May 17, 1973	12	50	27	22	214	51	30	1.0	16.0	314	239	16.5	529	7.5	.6

See footnotes at end of table.

Table 3.--Chemical Analyses of Water From Selected Wells and Springs in the Edwards-Trinity (Plateau) Aquifer--Continued

Well	Depth of well (ft)	Date of collection	Silica (SiO_2)	Cal-cium (Ca)	Magne-sium (Mg)	Sodium (Na) plus Potassium (K)	Bicar-bonate (HCO_3)	Sul-fate (SO_4)	Chlo-ride (Cl)	Fluo-ride (F)	Ni-trate (NO_3)	Dis-solved solids	Total hardness as $CaCO_3$	Percent sodium	Specific conductance (micromhos at 25°C)	pH	Sodium adsorp-tion ratio (SAR)
							Terrell County--Continued										
XX-53-64-402	1,800	May 15, 1973	11	42	28	87	261	65	88	1.5	< 0.4	451	221	46.1	781	7.7	2.5
54-18-902	--	do	16	215	94	437	205	363	920	1.1	2.7	2,150	930	50.6	3,310	7.3	6.2
1/ 33-901	660	Nov. 18, 1960	9.8	90	32	84	244	186	100	1.7	0	624	356	40.0	1,020	7.0	1.9
50-701	550	May 15, 1973	5	34	43	86	214	137	85	2.5	1.3	499	261	41.6	831	7.5	2.3
58-501	--	do	16	25	27	431	497	294	285	3.2	1.9	1,330	175	84.3	2,040	7.4	14.2
71-01-501	1.000	May 14, 1973	14	66	19	37	285	37	32	1.0	7.0	353	244	24.8	586	7.8	1.0
72-05-301	--	May 15, 1973	14	35	24	5	207	11	7	.4	3.3	201	185	5.4	351	8.0	.2
16-101	> 900	do	16	42	23	15	217	26	16	.7	3.9	250	202	13.7	429	7.7	.5
							Val Verde County										
2/ YR-54-51-801	640	Aug. 25, 1969	20	37	18	13	192	9	19	.4	1.5	212	166	14.6	373	7.4	.4
2/ 59-801	900	do	12	185	90	83	268	608	107	3.0	0	1,220	832	17.8	1,720	7.1	1.3
2/ 60-501	574	Aug. 27, 1969	13	48	25	16	238	27	18	3.5	0	268	223	13.6	477	7.3	.6
71-03-701	706	May 14, 1973	12	116	36	24	309	175	32	1.4	< .4	550	437	10.5	855	7.4	.5
04-402	400	do	17	62	21	14	228	22	29	.6	19.0	297	242	11.5	492	7.9	.4
11-601	885	do	13	93	33	28	284	113	45	1.5	8.0	475	369	14.3	763	7.8	.6
2/ 701	250	Aug. 12, 1969	15	70	17	22	218	79	19	.5	3.1	333	244	16.4	554	7.3	.6
2/ 13-401	750	Jan. 22, 1970	--	76	16	--	266	24	29	--	--	--	256	--	557	7.4	--

1/ Analysis conducted by U.S. Geological Survey laboratories.
2/ Analysis from Texas Water Development Board Report 172, "Ground-Water Resources of Val Verde County, Texas" (Reeves and Small, 1973).