

# DEVELOPMENT OF GROUND-WATER RESOURCES IN ORANGE COUNTY, TEXAS, AND ADJACENT AREAS IN TEXAS AND LOUISIANA, 1971-80

*By C.W. Bonnet and R.K. Gabrysch*

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Commissioner's Court, the Sabine River Authority of  
Texas, and the Texas Department of Water Resources*

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UNITED STATES DEPARTMENT OF THE INTERIOR

JAMES G. WATT, Secretary

GEOLOGICAL SURVEY

Dallas L. Peck, Director

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## METRIC CONVERSIONS

For those readers interested in using the metric system, the metric equivalents of "inch-pound" units are given in parentheses. Factors for converting "inch-pound" units to metric equivalents are given in the following table:

From	Multiply by	To obtain
acre-foot	0.001233	cubic hectometer (hm <sup>3</sup> )
foot	0.3048	meter (m)
gallon per minute (gal/min)	0.06309	liter per second (L/s)
inch	25.4	millimeter (mm)
mile	1.609	kilometer (km)
million gallons per day (Mgal/d)	0.04381	cubic meter per second (m <sup>3</sup> /s)

National Geodetic Vertical Datum of 1929 (NGVD of 1929): A geodetic datum derived from a general adjustment of the first-order level nets of both the United States and Canada, formerly called "mean sea level."

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ABSTRACT

Pumpage in Orange County from the lower unit of the Chicot aquifer averaged 21.2 million gallons per day (0.93 cubic meter per second) and pumpage from the upper unit of the Chicot averaged about 2 million gallons per day (0.088 cubic meter per second) from 1971-79. Annual pumpage increased in municipal areas and decreased in industrial areas with little net change in total annual pumpage during the report period. The major water-bearing unit in the study area is the Chicot aquifer, which overlies the Evangeline aquifer. The Evangeline aquifer is undeveloped in Orange County, but is developed at Evadale in Jasper County, Texas, and at Silsbee in Hardin County, Texas. Both aquifers consist of unconsolidated and discontinuous layers of sand and clay that gently dip toward the Gulf of Mexico.

Water levels in Orange County tended to stabilize or rise in areas where ground-water withdrawals decreased. Elsewhere in Orange County, most water levels continued to decline, generally at a slower rate than before 1971. Bench-mark elevations determined during 1973 show regional land-surface subsidence from 1918-73, generally attributed to ground-water development, to be less than 0.5 foot (0.15 meter). Locally, subsidence due to production of oil, gas, saltwater, or sulfur was about 15 feet (4.6 meters) at Spindletop Dome, Jefferson County, Texas, and as much as 3 feet (1.0 meter) near Port Acres gas field, Jefferson County, Texas.

Although saltwater encroachment is evident in parts of southern Orange County, the encroachment is not expected to be detrimental if the ground-water pumping remains stable and the projected increase in demands for water is met with surface-water supplies.

## INTRODUCTION

### Location and Extent of the Area

The study area, as described in this report, includes Orange County, southern Jasper County, southern Newton County, eastern Jefferson County, and southeastern Hardin County, Texas, and western Calcasieu and Cameron Parishes, Louisiana. The location of the study area is shown in figure 1.

### Purpose and Scope of the Study

A program of continuing ground-water studies in Orange County, Texas, and adjacent areas in Texas and Louisiana in cooperation with the Texas Department of Water Resources and the Sabine River Authority of Texas began in March 1967 due to the need for systematic monitoring and appraisal of the changing ground-water conditions. Water levels were declining, and saltwater encroachment was suspected with a possibility of land-surface subsidence. In 1979, local cooperation was assumed by the Orange County Commissioner's Court. The continuing program includes the following items of work:

1. An inventory of all new large-capacity wells and the compilation of drillers' logs.
2. The establishment and maintenance of a network of observation wells for monitoring changes in water levels and changes in chemical quality, especially chlorides.
3. An annual inventory of pumpage for municipal supply and industrial use.
4. Determination of the extent of land-surface subsidence in Orange County.
5. The correlation of current data with previously collected data.

This report presents data collected since 1971, except for some of the data that were given in the 1971-74 progress report by Bonnet (1975), together with an analysis of the data. The location of wells for which data are included is shown in figure 2.

### Previous Investigations

The geology and ground-water resources of Orange County and adjacent areas are described in reports by Baker (1964) on the ground-water resources of Hardin County, Texas; Bonnet (1975) on ground-water data for Orange County and vicinity; Harder (1960) on the geology and ground-water resources of Calcasieu Parish, Louisiana; Jones and others (1954, 1956) on the geology of ground-water resources of southwestern Louisiana; McAdoo (1968, 1969, 1970) on ground-water data for Orange County and vicinity; Wesselman, on ground-water resources of Orange County (1965), Jasper and Newton Counties (1967), and Chambers and Jefferson Counties, Texas (1971); Zack (1971) updated the hydrologic studies in southwestern Louisiana; and Gabrysch and McAdoo (1972) on development of ground-water resources in the Orange County area, Texas and Louisiana, 1963-71.

### Acknowledgments

The authors gratefully acknowledge the cooperation of the many land owners and industrial and city officials who provided data and granted access to water wells. The assistance of Mr. Albert Gray, Sabine River Authority of Texas, also is gratefully acknowledged. Others who contributed measurably to

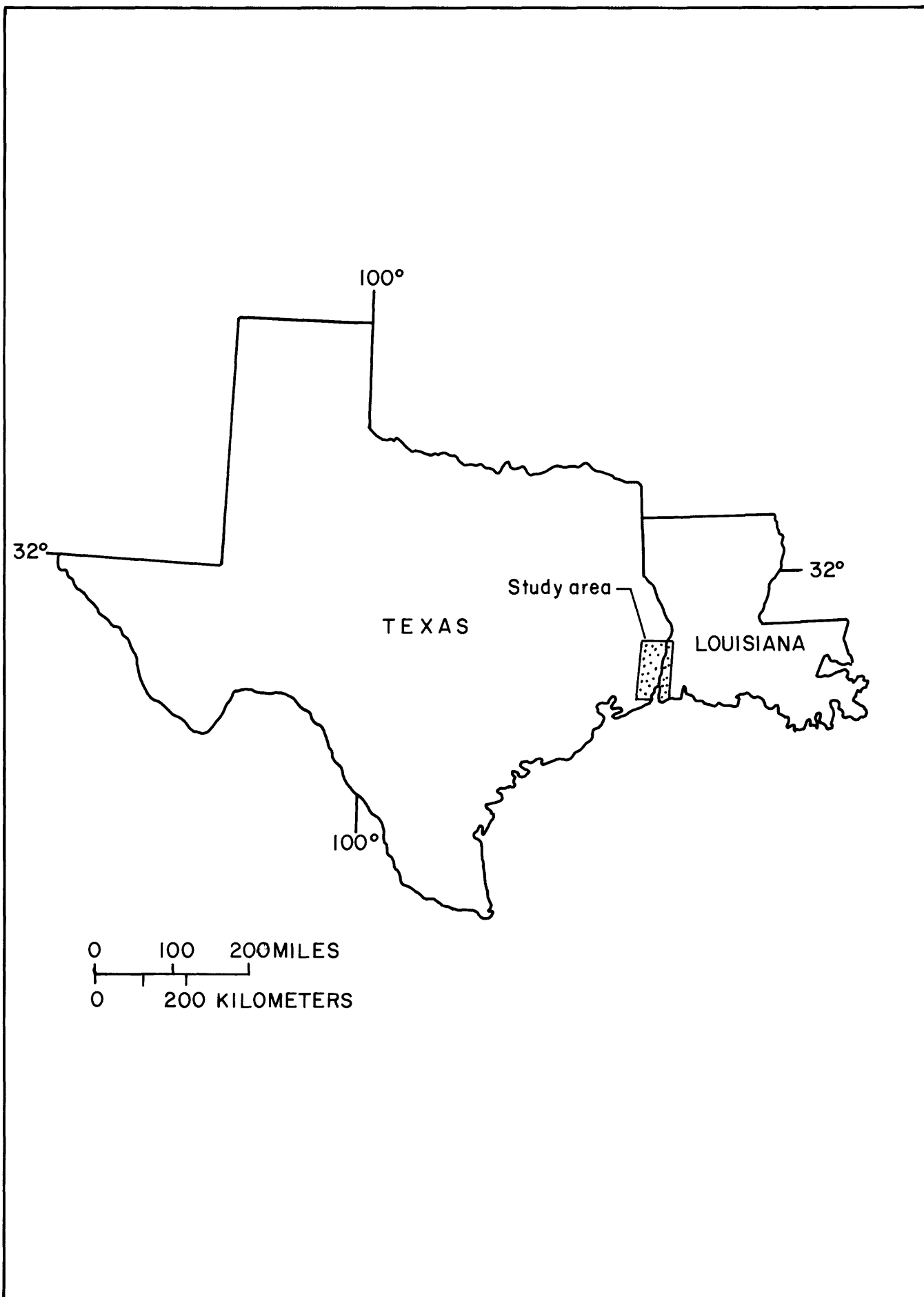


Figure 1.-Location of study area



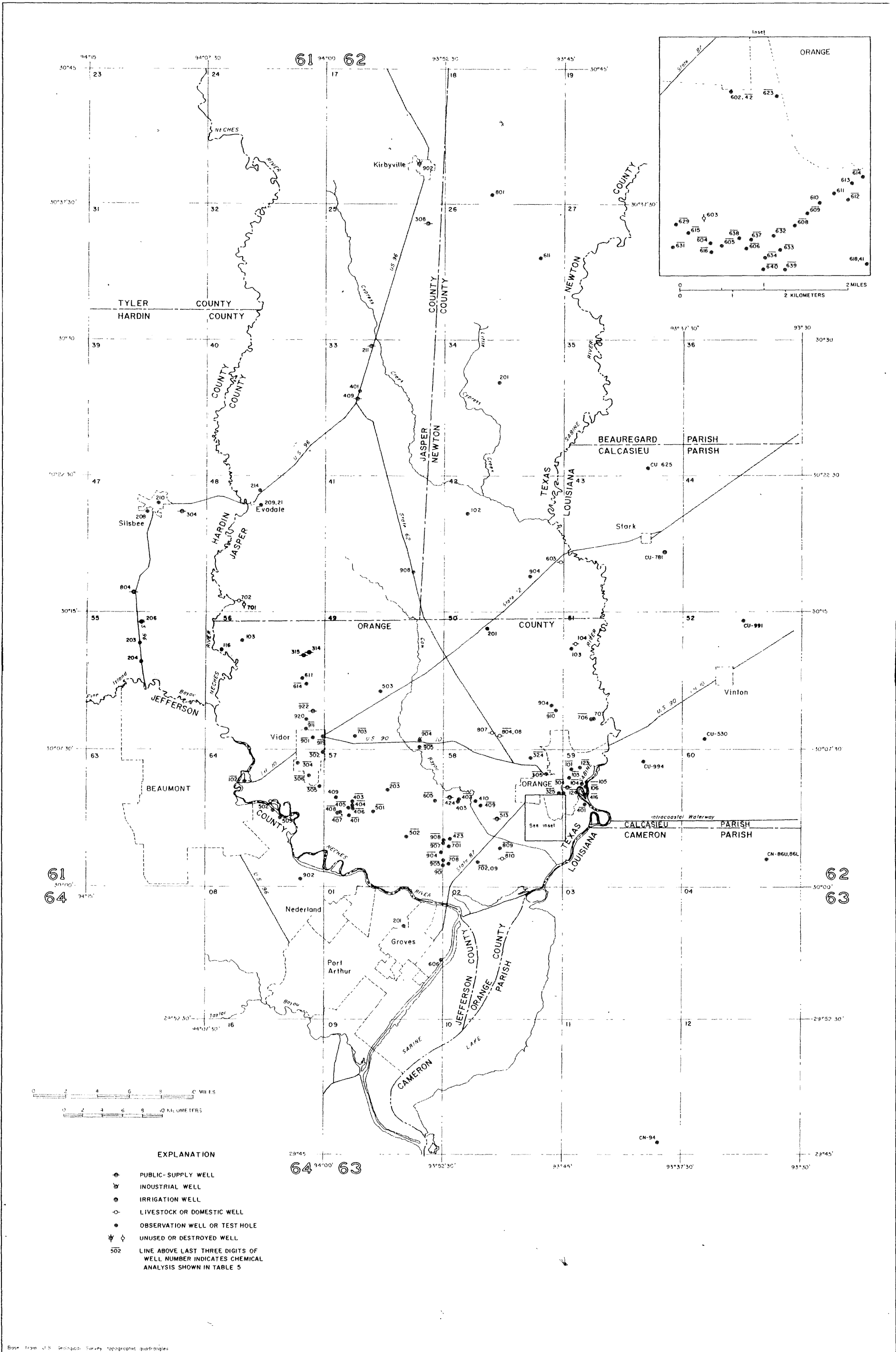


Figure 2. Location of wells in the study area

this report were: Mr. Carl Vincent and Mr. Bodie Pryor, Gulf Chemical Co.; Mr. R. A. Ogden and Mr. A. J. White, Firestone Petrochemical Center; Mr. E. L. Faulk, Mr. Jerry Black, and Mr. G. D. McWright, E. I. DuPont, Inc.; Mr. Clark Shupp, B. F. Goodrich Co.; Mr. Clarence Kite, Phillips Chemical Co.; and Mr. Louis Stough, Gulf States Utilities, Sabine Station.

### Well-Numbering System

The well-numbering system in Texas was developed by the Texas Department of Water Resources for use throughout the State. Under this system, each 1-degree quadrangle is given a number consisting of two digits. These are the first two digits in the well number. Each 1-degree quadrangle is divided into 7-1/2-minute quadrangles which are given a two-digit number from 01 to 64. These are the third and fourth digits of the well number. Each 7-1/2-minute quadrangle is divided into 2-1/2-minute quadrangles which are given a single-digit number from 1 to 9. This is the fifth digit of the well number. Finally, each well within a 2-1/2-minute quadrangle is given a 2-digit number in the order in which it was inventoried, starting with 01. These are the last two digits of the well number.

Only the last three digits of the well number are shown at each well location (fig. 2); the second two digits are shown in the northwest corner of each 7-1/2-minute quadrangle; and the first two digits are shown by the large block numerals in each 1-degree quadrangle.

In addition to the seven-digit well number, a two-letter prefix is used to identify the county. The prefixes for Orange County and adjacent counties are as follows: Orange, UJ; Jasper, PR; Jefferson, PT; Hardin, LH; and Newton, TZ.

Wells inventoried in Louisiana by the Geological Survey are assigned a number consisting of two parts, an abbreviation of the name of the parish in which the well is located and a consecutive well number. The number assigned does not indicate a specific location because the number is generally assigned in the order in which the well was inventoried. The prefix for Calcasieu Parish is CU; the prefix for Cameron Parish is CN.

### HYDROLOGIC AND GEOLOGIC UNITS

Descriptions of the hydrologic and geologic units have been thoroughly documented by Gabrysch and McAdoo (1972, p. 7-10) and Wesselman (1965, p. 12-19). This report is primarily concerned with the Chicot aquifer which consists of alternating layers of sand and clay. The aquifer is divided into two units by clay beds that in most instances separate an upper sand section from a lower sand section. Separation of these units is based on differences in permeability, water levels, and stratigraphic position. The lower unit of the Chicot aquifer is the principal source of ground water in Orange County and supplies about 94 percent of the ground water withdrawn. However, either unit could contain saltwater or be vulnerable to saltwater intrusion in the vicinity of the coast.

The Evangeline aquifer underlies the Chicot aquifer but yields freshwater only in the central and northern part of the study area. This is typical of a coastal aquifer where the inland area of the aquifer contains freshwater and the coastal area contains saltwater. Regionally, the Evangeline aquifer is undeveloped in the report area, however, there is substantial local development at Evadale in Jasper County, Texas, and at Silsbee in Hardin County, Texas.

#### GROUND-WATER DEVELOPMENT

##### Pumpage

Estimates of pumpage in the study area are based on questionnaires returned by major water users to the Texas Department of Water Resources. Estimated ground-water withdrawals from the lower unit of the Chicot aquifer during 1963-79 are given in table 1. The table shows that total ground-water pumpage in Orange County has changed little since 1963. Pumpage was 23.0 Mgal/d (million gallons per day) or 1.01 m<sup>3</sup>/s (cubic meters per second) for 1971 and 20.3 Mgal/d (0.89 m<sup>3</sup>/s) for 1979, with an average (1971-79) of 21.2 Mgal/d (0.93 m<sup>3</sup>/s). Pumpage from the upper unit of the Chicot aquifer (not included in table 1) averaged about 2 Mgal/d (0.088 m<sup>3</sup>/s) for 1971-79. Although the total yearly pumpage has changed little, the pumpage for municipal supply shows a generally steady increase while the pumpage for industrial use shows a generally steady decrease. The decrease in ground-water pumpage for industrial use primarily is due to the deterioration of ground-water quality from wells in the vicinity of freshwater-saltwater interfaces.

Although the Evangeline aquifer is undeveloped in Orange and Jefferson Counties, it is developed at Evadale in Jasper County and at Silsbee in Hardin County. During 1979, about 25 Mgal/d (1.1 m<sup>3</sup>/s) of water was pumped from the aquifer at Evadale.

##### Changes in Water Levels

Fluctuations of water levels throughout the study area have varied because of changes in pumping patterns. Long-term fluctuations are shown in hydrographs of two wells in the area (fig. 3), well UJ-62-59-105 in eastern Orange County and well CU-530 in western Calcasieu Parish, Louisiana. Well UJ-62-59-105 is located in an area that shows a water-level rise of about 1.6 feet (0.49 m) between 1971-80. Well CU-530 shows a water-level decline of 6.7 feet (2.0 m) for 1971-73, and a subsequent rise to reflect a net water-level decline of 4.7 feet (1.4 m) for the report period.

Measurements of water levels upon which regional changes are based are made in the early part of the year when pumpage is minimal. Measurements made during 1975-80 are presented in table 2 (at back of report); measurements for 1971-74 were given by Bonnet (1975). The approximate altitudes of water levels (spring 1980) in wells screened in the lower unit of the Chicot aquifer are shown in figure 4. Water levels for 1980 ranged from more than 40 feet (12.2 m) above sea level in the southern parts of Jasper and Newton Counties to about 50 feet (15.2 m) below sea level in the vicinity of the city of Orange to about 90 feet (27.4 m) below sea level in south-central Orange County. The altitudes of water levels for 1971 were presented by Gabrysch and McAdoo (1972, fig. 5).

EXPLANATION

- WINTER-SPRING WATER LEVEL
- SUMMER-FALL WATER LEVEL

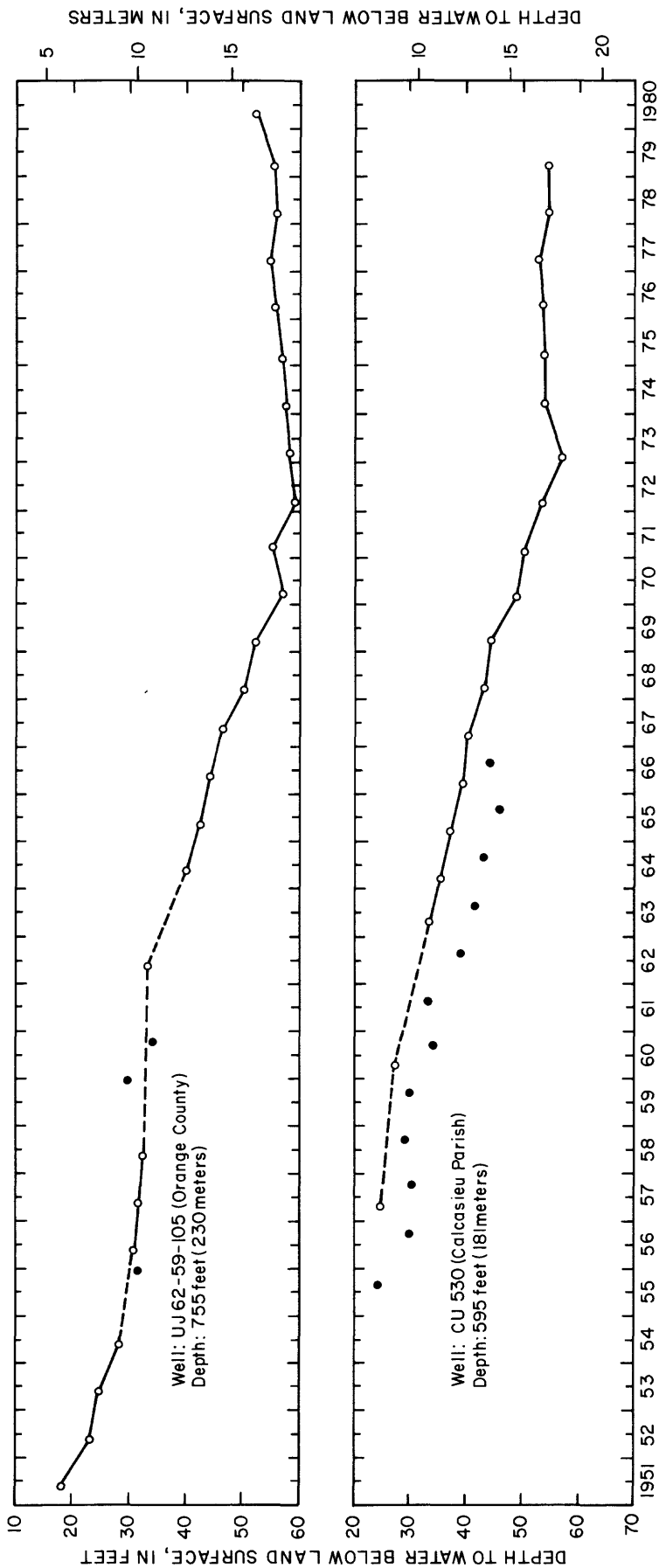


Figure 3.- Water levels in wells screened in the lower unit of the Chicot aquifer in Orange County, Texas, and Calcasieu Parish, Louisiana



Table 1.--Pumpage of ground water from the lower unit of the Chicot aquifer in Orange County, 1963-79

(million gallons per day)

Year	Municipal supply	Industrial use	Total
1963	3.8	14.7	18.5
1964	4.1	16.2	20.3
1965	4.5	16.3	20.8
1966	4.7	16.3	21.0
1967	5.8	14.7	20.5
1968	4.6	16.6	21.2
1969	4.8	16.0	20.8
1970	5.1	15.9	21.0
1971	5.4	17.6	23.0
1972	5.4	17.7	23.1
1973	5.3	15.8	21.1
1974	5.5	15.0	20.5
1975	5.7	12.8	18.5
1976	5.9	15.7	21.6
1977	6.1	16.2	22.3
1978	6.4	13.6	20.0
1979	7.0	13.3	20.3

Net changes in the altitudes of water levels for this report period (fig. 5) are a result of differences determined from measurements made during spring 1971 and spring 1980. The map and measurements show the greatest water-level declines occurred in the south-central part of Orange County and southeast of Vidor. Based on these measurements, water levels declined 17.7 feet (5.4 m) in well UJ-62-57-904 and 11.1 feet (3.4 m) in well UJ-62-57-404. Water-level rises resulting from decreases in ground-water pumpage are evident in the industrial area southwest of the city of Orange. The largest rises in water levels were 14.0 feet (4.3 m) in well UJ-62-58-633 and 11.6 feet (3.5 m) in well UJ-62-58-613.

### Subsidence

Regional subsidence in the study area has been small and is related primarily to the pumping of ground water with the consequent lowering of water levels and compaction of fine-grained sediments. The most widely used method to determine subsidence is comparison of bench-mark elevations for different time periods. Elevations of bench marks are not determined on a regular basis in the Orange County area. The latest elevations were determined during 1973 by the National Geodetic Survey. The location of bench marks and land-surface subsidence in the Orange County area for various time periods is shown in figure 6. Ratzlaff (1980) states that land-surface subsidence from 1953-55 to 1973 in Orange County generally was less than 0.5 foot (0.15 m). More than 0.5 foot (0.15 m) of subsidence occurred in the east-central area (city of Orange) and western area (city of Beaumont), where subsidence generally attributed to ground-water development ranged between 0.55 to 0.80 foot (0.17 to 0.24 m). Most future large-scale water needs probably will be met by surface-water supplies. If the use of surface water increases, additional regional subsidence is likely to be negligible.

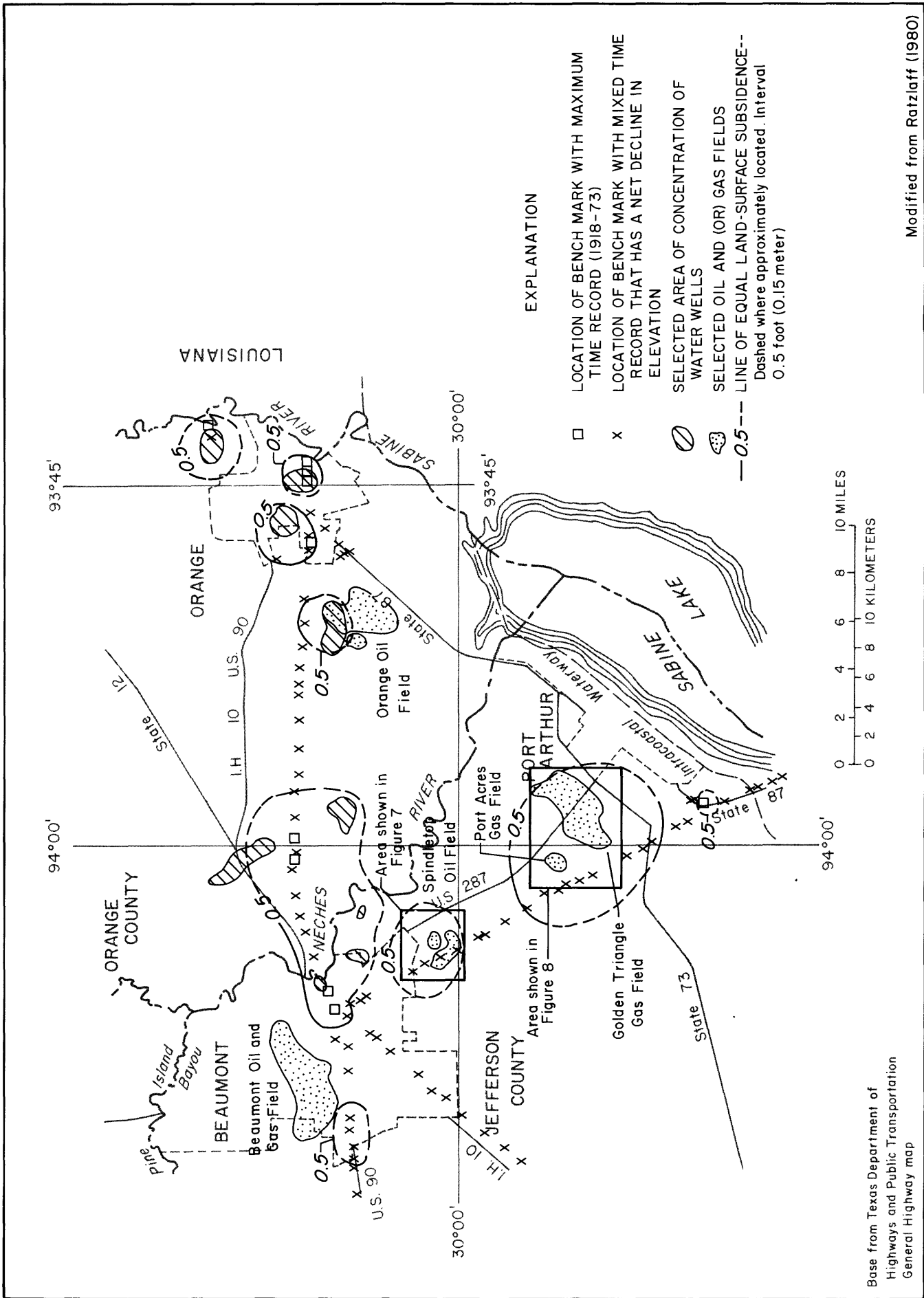
Contrasting with the regional subsidence of the area is the local subsidence associated with the production of oil, gas, saltwater, and sulfur which exceeded 0.5 foot (0.15 m) in the Spindletop Dome and Port Acres gas field areas in Jefferson County, Texas. The estimated subsidence for the Spindletop Dome area during 1925-77 is shown in figure 7 and for the Port Acres gas field area during 1959-77 is shown in figure 8. Subsidence was determined by comparing elevations on 1977 topographic maps with those on 1925 maps. At Spindletop (fig. 7), subsidence is related to oil and gas development as well as a collapse feature due to sulfur mining. Ratzlaff estimated that of the 15 feet (4.6 m) of subsidence at Spindletop, 10 feet (3.0 m) may be due to sulfur mining. In the Port Acres gas field area (fig. 8), as much as 3 feet (1.0 m) of subsidence has occurred, probably as a result of oil, gas, and saltwater production.

### Water-Quality Changes

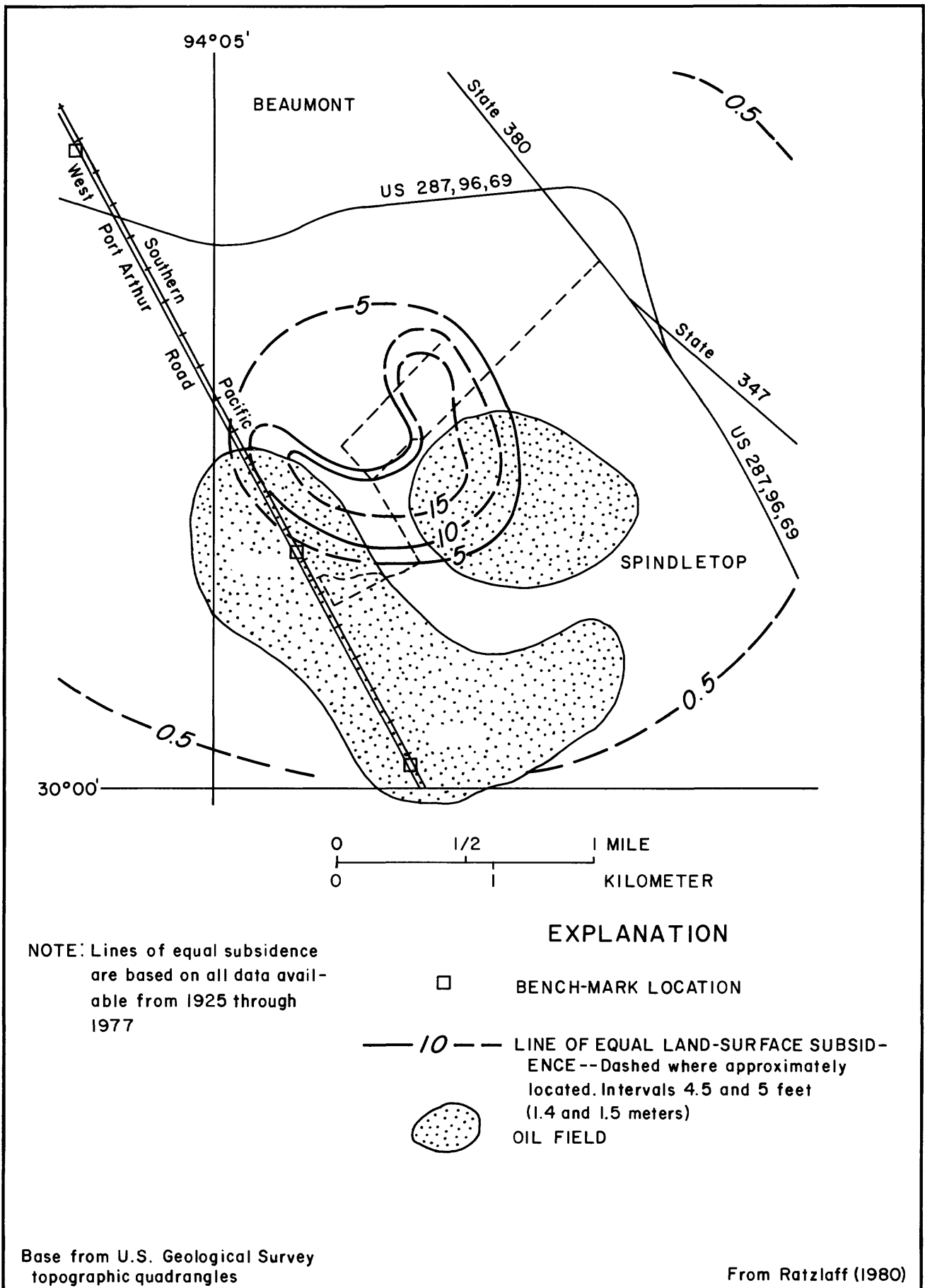
The greatest threat to fresh ground-water resources in the study area is contamination by saltwater encroachment. Saltwater occurs along the coast and downdip of the freshwater. Saltwater encroachment in the lower unit of the Chicot aquifer has been observed in very local areas of the southeastern, southwestern, and south-central areas of the county. This encroachment occurs as inland and vertical migration of saltwater in response to ground-water withdrawals. A vertical or "coning upward" movement is most likely to occur when sands that contain freshwater and saltwater are not separated by clay beds.



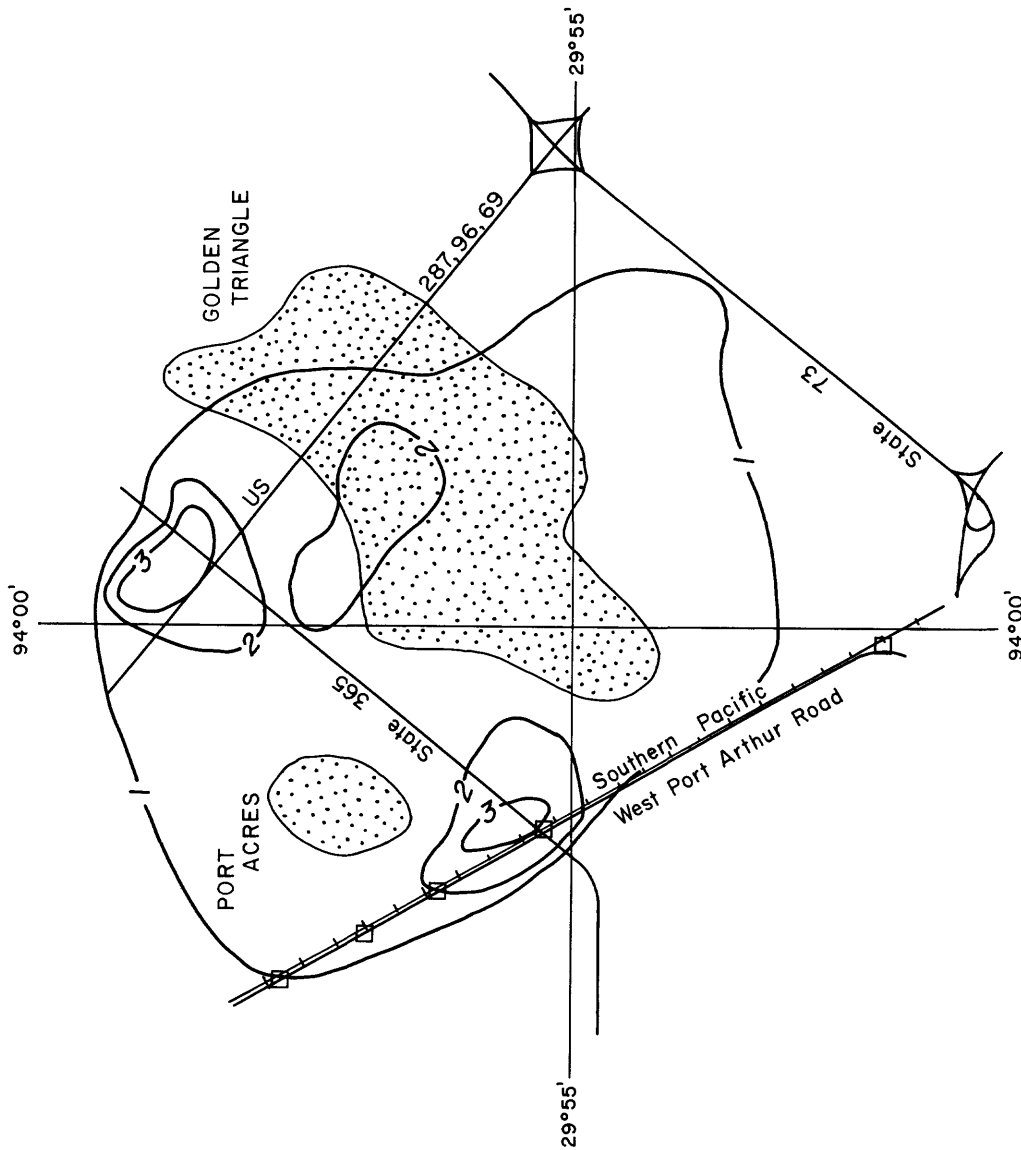




**Figure 6.-Location of bench marks and land-surface subsidence in the Beaumont, Orange, Port Arthur, Texas, area, 1953-55 to 1973**



**Figure 7.-Land-surface subsidence in the Spindletop Dome area, Jefferson County, Texas, area, 1925-77**

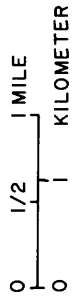


**EXPLANATION**

□ BENCH-MARK LOCATION

— 2 — LINE OF EQUAL LAND-SURFACE  
SUBSIDENCE -- Interval 1 foot  
(0.3 meter)

● GAS FIELD



NOTE: Lines of equal subsidence are based on all data available from 1925 through 1977

Base from U.S. Geological Survey topographic quadrangles

From Ratzlaff (1980)

Figure 8.-Land-surface subsidence in the Port Acres gas field area, Jefferson County, Texas, 1959-77

Two areas where saltwater encroachment has been documented by increases in chloride concentrations are in southwestern Orange County in the vicinity of Vidor (site A, fig. 9) and in southeastern Orange County south of the city of Orange (site B, fig. 11). Chemical analyses of water samples collected from 1975-79 are given in table 5 (at back of report). The location of the wells from which samples were collected are shown in figure 2.

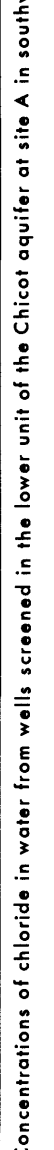
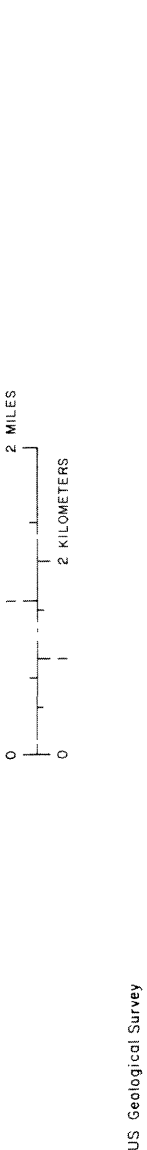
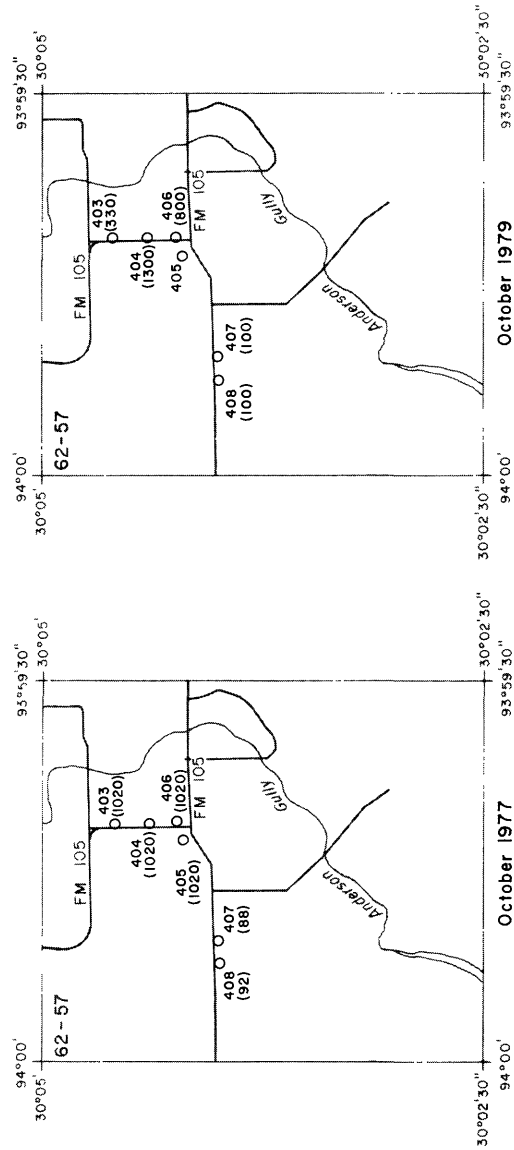
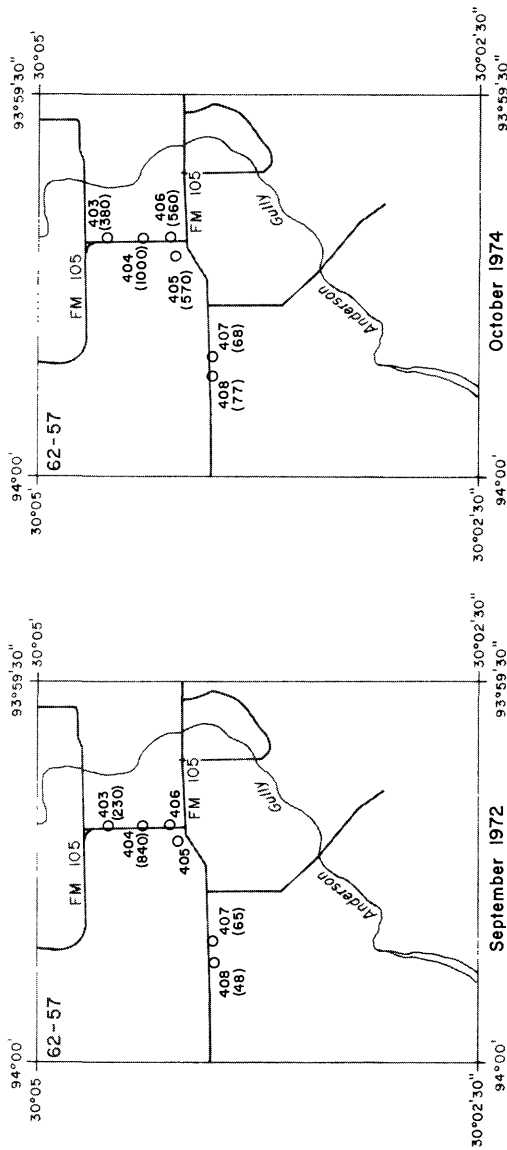
Concentrations of chloride in water from six wells at site A that were drilled during 1961 to supply water for industrial use in the southwestern part of the county are shown in figure 9. Analysis of water from one of the four deep wells, UJ-62-57-404, show that the chloride concentrations increased from 840 to 1,300 mg/L (milligrams per liter) between September 1972 and October 1979. The irregular chloride concentrations in water from the four deep wells indicate a "coning-up" of the saline water. Frequent sampling and analysis are used to monitor chloride concentrations of water from these wells. At the current (1980) level of development, the chloride concentrations are controlled by alternating well usage. Wells UJ-62-57-407 and UJ-62-57-408, which are drilled to a lesser depth, yield water with smaller chloride concentrations. The gradual increase in chloride concentrations in water from both wells between 1971-79 is shown in figure 10. Because of the regular pattern of slowly increasing chloride concentrations, the movement of saltwater is thought to be lateral toward the center of pumping as well as periodic "coning up" near the center of pumping. Pumpage from this southwest location averaged 3.2 Mgal/d ( $0.14 \text{ m}^3/\text{s}$ ) between 1971-79.

The approximate concentrations of chloride in water from the lower unit of the Chicot aquifer at site B in 1972, 1974, 1976, and 1979 are shown in figure 11. Analysis of the data along the margin of the well field generally indicates a fluctuating of chloride concentrations. Water from well UJ-62-58-605, which is near the center of the well field, also had a fluctuating chloride concentration of 820 mg/L in September 1972, 1,500 mg/L in October 1974, 1,400 mg/L in October 1976, and 1,300 mg/L in October-November 1979. This fluctuating trend in chloride concentrations is probably due to "coning up" of deeper saltwater and is in response to changing rates of ground-water pumping in the area. This is the same pattern that was observed at site A.

In south-central Orange County there is a network of seven industrial wells that sometimes yield water containing excessive concentrations of chloride. Water from well UJ-62-57-901 (fig. 2), that is used only for emergencies, had a chloride concentration of 1,180 mg/L on December 27, 1979 (table 5). The irregular pattern of chloride concentrations in water from the seven wells indicates vertical movement of saline water. Pumpage from this south-central industrial location averaged 1.3 Mgal/d ( $0.057 \text{ m}^3/\text{s}$ ) from 1971-79.

#### Ground-Water Problems and Future Development

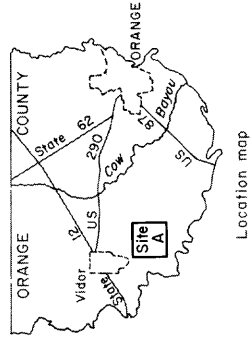
Saltwater encroachment is the principal ground-water problem in the study area. Fortunately, it is limited to the coastal area and generally to deeper wells. In this area, the chloride concentrations can be expected to increase due to lateral encroachment and vertical "coning up" if a well field is pumped continually and has a concentrated center of pumping. However, if the withdrawals are moderate or decreased, as needed to control the chloride concentrations, substantial quantities of fresh ground water can be pumped near the



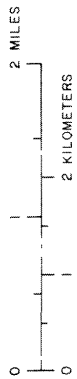
**EXPLANATION**

OBSERVATION WELL AND WELL NUMBER --  
 Number in parentheses is chloride concentration, in milligrams per liter

408  
 (77)



Location map



Base from US Geological Survey  
 1:24,000 quadrangles

**Figure 9.-Concentrations of chloride in water from wells screened in the lower unit of the Chicot aquifer at site A in southwestern Orange County**

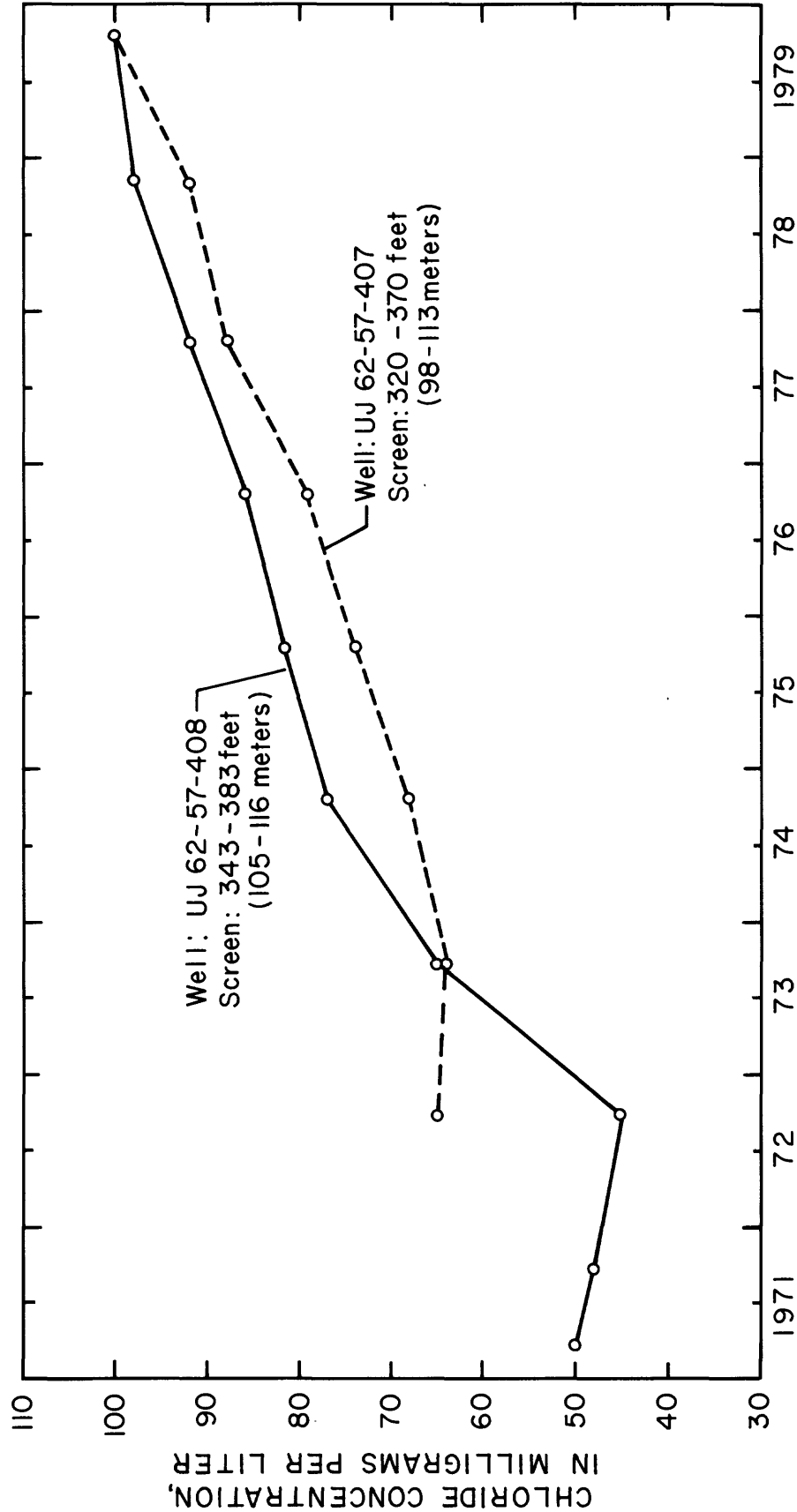
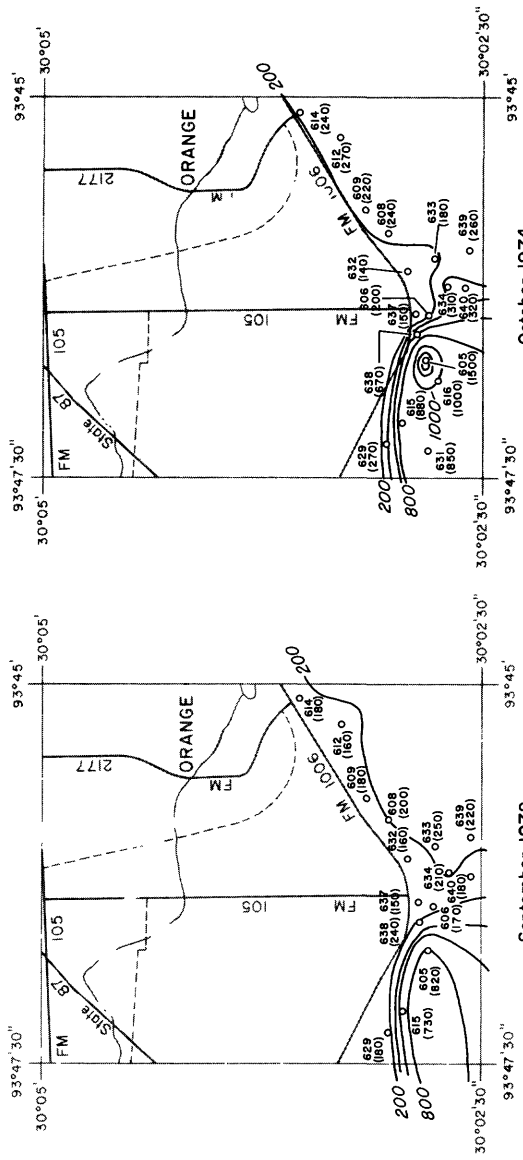
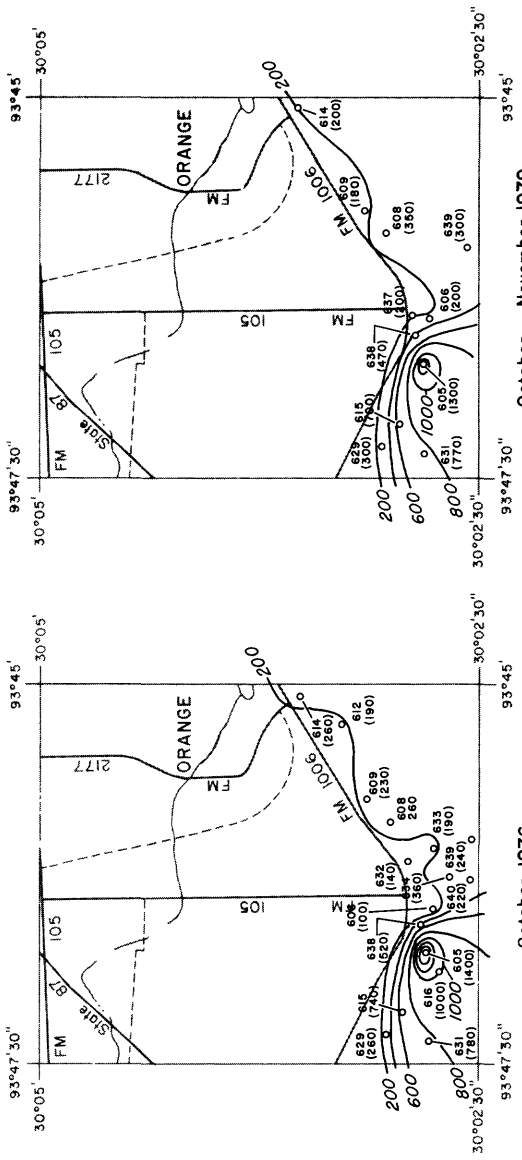


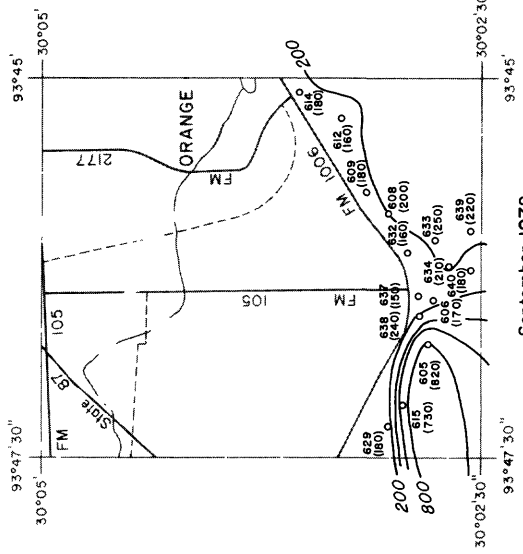
Figure 10.-Chloride concentration in water from wells screened in the lower unit of the Chicot aquifer in southwestern Orange County



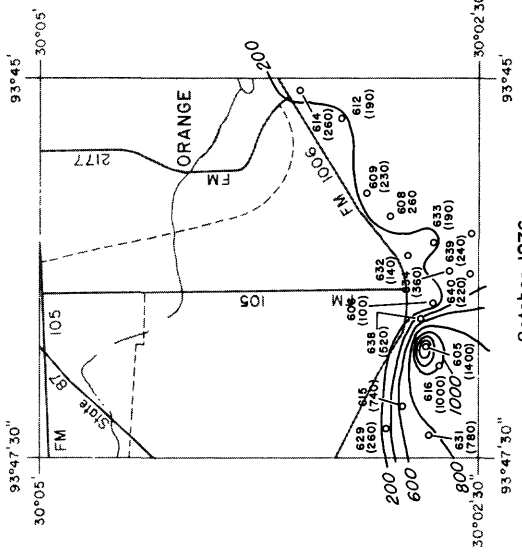
September 1972



October 1974



October - November 1979



October 1976

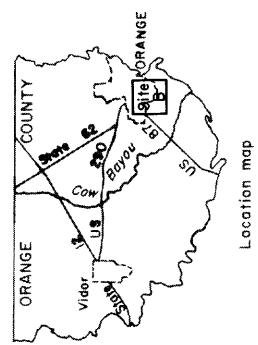
EXPLANATION

OBSERVATION WELL AND WELL NUMBER--  
 Number in parentheses is chloride concentration, in milligrams per liter

LINE OF EQUAL CHLORIDE CONCENTRATION--  
 Interval 200 milligrams per liter

614  
(240)

—200—



Location map

Base from U.S. Geological Survey  
 1:24,000 quadrangles

Figure 11.—Concentrations of chloride in water from wells screened in the lower unit of the Chicot aquifer at site B in southeastern Orange County

coast. Monitoring the movement of saltwater in the aquifer, adjusting the pumping rates and pattern, and distributing the pumping throughout large areas are of primary importance in keeping the chloride concentrations less than unacceptably large values.

The ground-water resources of Orange County are only partly developed. Wesselman (1965) states that abundant, accessible water underlying Orange County is equal to about four times the present (1980) daily pumpage. To properly manage future ground-water development, the continued collection of hydrologic data is needed. These data will provide information for predicting future water levels and developing plans to minimize saltwater encroachment and land-surface subsidence.

#### SUMMARY

Water-quality data indicate that the chloride concentration of the ground water is increasing in the southeastern, southwestern, and south-central areas of Orange County. The chloride concentration increased as the saltwater interface moved toward the areas of heaviest withdrawal.

Ground-water withdrawals of 20 Mgal/d ( $0.88 \text{ m}^3/\text{s}$ ) during 1980 were about equal to that reported in 1965. Municipal ground-water use has increased from 4.5 Mgal/d ( $0.20 \text{ m}^3/\text{s}$ ) during 1965 to 7.0 Mgal/d ( $0.31 \text{ m}^3/\text{s}$ ) during 1979, while industrial use has decreased from 16.3 Mgal/d ( $0.71 \text{ m}^3/\text{s}$ ) during 1965 to 13.3 Mgal/d ( $0.58 \text{ m}^3/\text{s}$ ) during 1979.

Comparison of elevations of bench marks determined during 1973 and 1918 show regional land-surface subsidence was less than 0.5 foot (0.15 m). Because water-level declines have been small, there has been little, if any, additional land-surface subsidence since 1973.

Water levels declined in most of the study area during 1971-80, generally at a slower rate than before 1971. Water levels tended to stabilize in areas where ground-water withdrawals decreased, and in eastern Orange County, water levels rose as much as 14 feet (4.3 m).



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SUPPLEMENTAL INFORMATION

Table 2.--Water levels in observation wells in the study area, 1975-80  
(feet below land surface)

ORANGE COUNTY, TEXAS

Date	Water level	Date	Water level	Date	Water level
WELL UJ-61-56-103 Owner: B. H. Thibodeau Depth: 76 feet Elevation: 23 feet		WELL UJ-61-56-315--Cont.		WELL UJ-61-56-919 Owner: Orange County WC&ID No. 1, well 3 Screen: 385-420 feet Elevation: 21 feet	
Mar. 10, 1975	12.40	Mar. 28, 1977	39.96	Mar. 12, 1975	50.13
Mar. 17, 1976	11.09	Apr. 3, 1978	41.31	Mar. 23, 1976	52.27
Mar. 28, 1977	11.83	Mar. 31, 1980	41.63	Apr. 1, 1977	50.42
Apr. 3, 1978	12.54	WELL UJ-61-56-611 Owner: B&B Water System Screen: 441-457 feet Elevation: 22 feet		Apr. 7, 1978	51.57
Mar. 27, 1979	10.66	Mar. 24, 1976	43.96	Mar. 30, 1979	51.67
Mar. 31, 1980	7.31	Mar. 28, 1977	46.18	Apr. 8, 1980	54.34
WELL UJ-61-56-116 Owner: H. H. Houseman Depth: 800 feet Elevation: 21 feet		Apr. 3, 1978	48.40	WELL UJ-61-56-920 Owner: B&B Water System Depth: 380 feet Elevation: 11 feet	
Mar. 10, 1975	38.11	Mar. 27, 1979	51.20	Mar. 10, 1975	44.82
Mar. 24, 1976	38.38	WELL UJ-61-56-901 Owner: Orange County, WC&ID No. 1, well 2 Screen: 350-400 feet Elevation: 21 feet		Mar. 23, 1976	45.40
Mar. 28, 1977	38.93	Mar. 12, 1975	42.02	Mar. 28, 1977	45.35
Apr. 3, 1978	40.56	Mar. 23, 1976	46.13	Mar. 27, 1978	45.49
Mar. 27, 1979	41.73	Apr. 1, 1977	49.04	Mar. 27, 1979	48.13
Mar. 31, 1980	41.28	Apr. 7, 1978	47.15	Apr. 1, 1980	46.53
WELL UJ-61-56-314 Owner: L. B. Williamson Screen: 375-385 feet Elevation: 27 feet		Mar. 30, 1979	44.81	WELL UJ-62-49-503 Owner: G. L. Linscomb Depth: 117 feet Elevation: 26 feet	
Mar. 10, 1975	39.48	Apr. 8, 1980	50.02	Mar. 12, 1975	8.98
Mar. 26, 1976	38.95	WELL UJ-61-56-911 Owner: B&B Water Systems Screen: 468-486 feet Elevation: 12 feet		Mar. 25, 1976	8.44
Mar. 28, 1977	39.90	Mar. 10, 1975	39.04	Mar. 23, 1977	8.58
Apr. 3, 1978	41.48	Mar. 23, 1976	39.30	Mar. 31, 1978	9.40
Mar. 27, 1979	42.29	Mar. 22, 1977	40.10	Mar. 27, 1979	9.08
Mar. 31, 1980	41.33	Apr. 3, 1978	40.30	Apr. 1, 1980	7.83
WELL UJ-64-56-315 Owner: Iwanda Trailer Park Screen: 356-380 feet Elevation: 29 feet		Mar. 27, 1979	41.65	WELL UJ-62-49-904 Owner: Texas Dept. of Highways & Public Transportation Screen: 399-415 feet Elevation: 16 feet	
Mar. 10, 1975	39.50	WELL UJ-62-49-904 Owner: Texas Dept. of Highways & Public Transportation Screen: 399-415 feet Elevation: 16 feet		Mar. 10, 1975	42.61
Mar. 24, 1976	38.69	Mar. 10, 1975	39.04	Mar. 23, 1976	43.00

Table 2.--Water levels in observation wells in the study area, 1975-80--Continued

Date	Water level	Date	Water level	Date	Water level
WELL UJ-62-49-904--Cont.		WELL UJ-62-50-904		WELL UJ-62-51-707--Cont.	
Mar. 21, 1977	43.24	Owner: George Glidden Depth: 566 feet Elevation: 12 feet		Mar. 30, 1979	51.97
Mar. 27, 1978	43.36	Mar. 12, 1975	6.83	Apr. 3, 1980	50.96
Mar. 26, 1979	44.48	Mar. 26, 1976	6.45	WELL UJ-62-57-203	
Apr. 3, 1980	43.90	Mar. 23, 1977	6.28	Owner: K. Kishi Depth: 740 feet Elevation: 18 feet	
WELL UJ-62-50-201		Mar. 28, 1978	6.41	Mar. 18, 1975	46.89
Owner: Boyce Ward Screen: 476-586 feet Elevation: 26 feet		Mar. 30, 1979	6.83	Mar. 24, 1976	47.29
Mar. 12, 1975	44.60	Apr. 1, 1980	5.65	Mar. 22, 1977	48.00
Mar. 4, 1976	44.61	WELL UJ-62-51-103		Mar. 28, 1978	47.89
Mar. 23, 1977	44.42	Owner: Owens Illinois, Inc. Screen: 445-515 feet Elevation: 25 feet		Mar. 28, 1979	49.38
Apr. 4, 1978	45.25	Mar. 12, 1975	46.38	Apr. 9, 1980	48.90
Mar. 27, 1979	46.00	Mar. 25, 1976	45.51	WELL UJ-62-57-401	
Apr. 1, 1980	44.50	Mar. 23, 1977	45.55	Owner: Texas Eastern Trans. Co. Screen: 448-468 feet Elevation: 16 feet	
WELL UJ-62-50-807		Mar. 28, 1978	46.41	Mar. 18, 1975	46.58
Owner: Frank Michell Screen: 442-454 feet Elevation: 20 feet		Apr. 3, 1980	45.05	Mar. 24, 1976	52.30
Mar. 11, 1975	49.01	WELL UJ-62-51-104		Mar. 22, 1977	47.82
Mar. 23, 1976	49.29	Owner: Owens Illinois, Inc. Screen: 460-470 feet Elevation: 25 feet		Mar. 28, 1978	49.09
Mar. 25, 1977	49.19	Mar. 12, 1975	48.66	Mar. 28, 1979	49.57
Mar. 30, 1978	49.41	Mar. 25, 1976	48.20	Apr. 2, 1980	48.91
Mar. 28, 1979	50.41	Mar. 23, 1977	47.02	WELL UJ-62-57-403	
Apr. 3, 1980	50.02	Mar. 28, 1978	49.03	Owner: Gulf States Util. Co. Screen: 433-483 feet Elevation: 15 feet	
WELL UJ-62-50-808		Mar. 30, 1979	49.39	Mar. 21, 1975	43.73
Owner: H. D. Womack Depth: 643-655 feet Elevation: 21 feet		Apr. 3, 1980	47.60	Mar. 25, 1976	45.66
Mar. 11, 1975	51.90	WELL UJ-62-51-707		Mar. 30, 1977	46.16
Mar. 23, 1976	52.45	Owner: Phillips Chemical Co. Screen: 428-488 feet Elevation: 12 feet		Apr. 25, 1977	45.2
Mar. 25, 1977	52.06	Mar. 12, 1975	52.56	Mar. 28, 1978	41.43
Mar. 30, 1978	52.3	Mar. 25, 1976	49.93	Mar. 28, 1979	48.02
Mar. 28, 1979	53.28	Mar. 23, 1977	49.65	Apr. 11, 1980	45.30
Apr. 3, 1980	51.90	Mar. 28, 1978	50.76		

Table 2.--Water levels in observation wells in the study area, 1975-80--Continued

Date	Water level	Date	Water level	Date	Water level
WELL UJ-62-57-404 Owner: Gulf States Util. Co. Screen: 430-481 feet Elevation: 16 feet		WELL UJ-62-57-408--Cont.		WELL UJ-62-57-907 Owner: Gulf States Util. Co., Sabine Station, well 7 Screen: 604-654 feet Elevation: 10 feet	
Mar. 21, 1975	27.96	Mar. 30, 1977	39.34	Mar. 20, 1975	43.42
Apr. 25, 1977	49.4	Apr. 25, 1977	52.0	Mar. 26, 1976	43.74
WELL UJ-62-57-405 Owner: Gulf States Util. Co. Screen: 430-480 feet Elevation: 18 feet		WELL UJ-62-57-409 Owner: L. N. Michael Screen: 550-640 feet Elevation: 13 feet		Mar. 31, 1977	43.16
Mar. 19, 1975	49.43	Mar. 18, 1975	44.99	Apr. 7, 1978	45.28
Mar. 26, 1976	50.93	Mar. 24, 1976	45.45	May 2, 1979	44.80
Apr. 25, 1977	45.0	Mar. 22, 1977	46.12	Apr. 9, 1980	45.59
Apr. 3, 1978	42.41	Mar. 28, 1978	46.98	WELL UJ-62-57-908 Owner: Gulf States Util. Co., Sabine Station, well 8 Screen: 573-623 feet Elevation: 10 feet	
Mar. 28, 1979	45.45	Mar. 28, 1979	47.82	Mar. 20, 1975	42.42
Apr. 2, 1980	41.76	Apr. 2, 1980	47.72	Mar. 26, 1976	42.76
WELL UJ-62-57-406 Owner: Gulf States Util. Co. Screen: 430-480 feet Elevation: 15 feet		WELL UJ-62-57-501 Owner: Florida Gas Co. Screen: 405-435 feet Elevation: 16 feet		Mar. 31, 1977	43.17
Mar. 21, 1975	43.10	Mar. 18, 1975	44.47	Apr. 7, 1978	43.11
Mar. 30, 1977	36.45	Mar. 25, 1976	44.82	May 2, 1979	43.74
Apr. 25, 1977	39.9	Mar. 22, 1977	45.50	WELL UJ-62-58-304 Owner: Orange County WC&ID No. 2 Screen: 626-706 feet Elevation: 10 feet	
Mar. 28, 1978	44.57	Mar. 28, 1978	45.26	Mar. 11, 1975	57.10
WELL UJ-62-57-407 Owner: Gulf States Util. Co. Screen: 320-370 feet Elevation: 6 feet		Mar. 28, 1979	46.86	Mar. 23, 1976	58.39
Mar. 26, 1975	40.9	Apr. 2, 1980	46.40	Mar. 22, 1977	58.40
Mar. 26, 1976	39.31	WELL UJ-62-57-904 Owner: Gulf States Util. Co., Sabine Station, well 4 Screen: 432-455 feet Elevation: 10 feet		Mar. 30, 1978	55.18
Apr. 25, 1977	44.5	Mar. 20, 1975	94.88	Apr. 10, 1980	54.31
Apr. 3, 1978	40.13	Mar. 31, 1977	107.61	WELL UJ-62-58-305 Owner: City of Orange Screen: 520-610 feet Elevation: 11 feet	
Apr. 11, 1980	40.35	Apr. 7, 1978	102.59	Mar. 11, 1975	53.01
WELL UJ-62-57-408 Owner: Gulf States Util. Co. Screen: 343-383 feet Elevation: 6 feet		May 2, 1979	105.05	Mar. 23, 1976	53.66
Mar. 21, 1975	44.42	Apr. 8, 1980	101.23	Mar. 22, 1977	53.86
Mar. 25, 1976	39.70			Mar. 30, 1978	52.65

Table 2.--Water levels in observation wells in the study area, 1975-80--Continued

Dater	Water level	Date	Water level	Date	Water level
WELL UJ-62-58-305--Cont.		WELL UJ-62-58-410		WELL UJ-62-58-605--Cont.	
Mar. 30, 1979	53.59	Owner: Orangefield Rec. Park Screen: 110-120 feet Elevation: 5 feet		Mar. 28, 1979	60.46
Apr. 4, 1980	51.80	Mar. 18, 1975	4.25	Apr. 10, 1980	55.04
WELL UJ-62-58-324		Mar. 24, 1976	4.24	WELL UJ-62-58-608	
Owner: City of Pinehurst Screen: 365-445 feet Elevation: 14 feet		Mar. 22, 1977	7.20	Owner: Allied Chemical Co. Screen: 620-735 feet Elevation: 8 feet	
Mar. 11, 1975	55.81	Mar. 28, 1978	4.25	Mar. 29, 1978	55.02
Mar. 25, 1976	55.18	Mar. 28, 1979	6.28	Mar. 27, 1979	55.90
Mar. 22, 1977	54.76	Apr. 3, 1980	6.89	Apr. 4, 1980	54.43
Mar. 29, 1978	56.35	WELL UJ-62-58-602		WELL UJ-62-58-609	
Mar. 30, 1979	55.65	Owner: Donnar Corp. Depth: 711 feet Elevation: 14 feet		Owner: E. I. DuPont Co. well 103-3 Screen: 634-723 feet Elevation: 5 feet	
Apr. 9, 1980	55.31	Mar. 18, 1975	58.65	Apr. 6, 1978	55.26
WELL UJ-62-58-325		Mar. 23, 1976	60.87	Mar. 28, 1979	55.87
Owner: Orange County WC&ID No. 2, well 2 Screen: 620-670 feet Elevation: 12 feet		Mar. 30, 1977	56.28	Apr. 11, 1980	51.90
Mar. 11, 1975	57.92	Mar. 28, 1978	57.85	WELL UJ-62-58-610	
Mar. 23, 1976	57.39	Mar. 28, 1979	59.13	Owner: E. I. DuPont Co., well 103-3.1 Depth: 715 feet Elevation: 7 feet	
Mar. 22, 1977	56.47	Apr. 3, 1980	57.12	Mar. 21, 1975	60.05
Mar. 30, 1978	56.80	WELL UJ-62-58-603		Mar. 24, 1976	64.22
Mar. 28, 1979	55.60	Owner: W. H. Stark Est. Depth: 204 feet Elevation: 8 feet		Apr. 1, 1977	59.95
Apr. 9, 1980	53.21	Mar. 18, 1975	8.40	Apr. 6, 1978	55.19
WELL UJ-62-58-403		Mar. 22, 1976	8.60	Mar. 28, 1979	55.56
Owner: Orangefield Ind. School Dist. Screen: 460-480 feet Elevation: 15 feet		Mar. 21, 1977	8.51	Apr. 11, 1980	51.85
Mar. 18, 1975	39.85	Mar. 27, 1978	8.76	WELL UJ-62-58-611	
Mar. 24, 1976	41.02	Mar. 27, 1979	8.82	Owner: E. I. DuPont Co., well 103-2 Depth: 715 feet Elevation: 8 feet	
Mar. 22, 1977	41.40	Apr. 4, 1980	8.28	Mar. 18, 1975	59.16
Mar. 28, 1978	41.57	WELL UJ-62-58-605		Mar. 23, 1976	62.83
Mar. 28, 1979	41.61	Owner: Gulf Chemical Co., well 4 Screen: 604-717 feet Elevation: 7 feet		Mar. 21, 1977	60.81
Apr. 3, 1980	42.45	Mar. 21, 1975	58.09	Mar. 27, 1978	55.90
		Mar. 23, 1976	63.13	Mar. 26, 1979	55.36
		Mar. 24, 1977	61.30	Mar. 26, 1980	53.4
		Mar. 31, 1978	59.91		

Table 2.--Water levels in observation wells in the study area, 1975-80--Continued

Date	Water level	Date	Water level	Date	Water level
WELL UJ-62-58-612 Owner: E. I. DuPont Co., well 103-4 Depth: 735 feet Elevation: 9 feet		WELL UJ-62-58-616 Owner: Gulf Chemical Co., well 2 Depth: 718 feet Elevation: 7 feet		WELL UJ-62-58-633 Owner: B. F. Goodrich Co., well 2 Screen: 625-725 feet Elevation: 5 feet	
Mar. 21, 1975	60.78	Mar. 21, 1975	55.92	Mar. 21, 1975	51.81
Mar. 24, 1976	62.40	Mar. 23, 1976	60.51	Mar. 25, 1977	51.78
Apr. 1, 1977	61.23	Mar. 24, 1977	58.85	Mar. 30, 1978	49.44
Apr. 6, 1978	54.90	Mar. 31, 1978	56.79	Mar. 27, 1979	47.61
Mar. 28, 1979 (well destroyed)	55.18	Mar. 28, 1979	56.91	Apr. 9, 1980	43.90
		Apr. 10, 1980	53.75		
WELL UJ-62-58-613 Owner: E. I. DuPont Co., well 103-1.1 Depth: 723 feet Elevation: 10 feet		WELL UJ-62-58-618 Owner: E. I. DuPont Co., well 103.6 Screen: 637-682 feet Elevation: 5 feet		WELL UJ-62-58-634 Owner: B. F. Goodrich Co., well 3 Screen: 614-715 feet Elevation: 5 feet	
Mar. 21, 1975	58.96	Mar. 21, 1975	53.16	Mar. 21, 1975	52.88
Mar. 24, 1976	62.90	Mar. 24, 1976	55.82	Mar. 23, 1976	57.57
Apr. 1, 1977	59.61	Apr. 6, 1978	51.56	Mar. 25, 1977	55.34
Apr. 6, 1978	55.03	Mar. 28, 1979	51.26	Mar. 30, 1978	53.48
Mar. 28, 1979	55.35	Apr. 11, 1980	48.57	Mar. 27, 1979	52.84
Apr. 11, 1980	52.39			Apr. 9, 1980	49.35
WELL UJ-62-58-614 Owner: E. I. DuPont Co., well 103.1 Depth: 726 feet Elevation: 11 feet		WELL UJ-62-58-631 Owner: Firestone Petrochemical Center, well P-826 Screen: 585-680 feet Elevation: 6 feet		WELL UJ-62-58-639 Owner: B. F. Goodrich Co., well 4 Screen: 620-725 feet Elevation: 5 feet	
Apr. 6, 1978	57.50	Mar. 19, 1975	55.32	Mar. 25, 1977	50.07
Mar. 28, 1979	57.89	Mar. 24, 1976	57.98	Mar. 27, 1979	37.08
Apr. 11, 1980	55.17	Mar. 25, 1977	56.85		
		Mar. 31, 1978	55.69		
WELL UJ-62-58-615 Owner: Firestone Petrochemical Center, well P-817 Depth: 700 feet Elevation: 9 feet		WELL UJ-62-58-632 Owner: B. F. Goodrich Co., well 1 Screen: 640-710 feet Elevation: 8 feet		WELL UJ-62-58-640 Owner: B. F. Goodrich Co., well 5 Screen: 612-718 feet Elevation: 5 feet	
Mar. 19, 1975	53.98	Mar. 27, 1979	55.53	Mar. 21, 1975	55.93
Mar. 24, 1976	56.74	Apr. 10, 1980	52.39	Mar. 23, 1976	59.90
Mar. 25, 1977	55.40			Mar. 25, 1977	60.16
Mar. 31, 1978	54.53	Mar. 23, 1976	57.31	Mar. 30, 1978	56.04
Mar. 27, 1979	54.08	Mar. 25, 1977	52.75	Apr. 9, 1980	55.81
Apr. 10, 1980	50.76	Mar. 30, 1978	51.02		

Table 2.--Water levels in observation wells in the study area, 1975-80--Continued

Date	Water level	Date	Water level	Date	Water level
WELL UJ-62-58-641 Owner: E. I. DuPont Co., well 103-6 Screen: 697-702 feet Elevation: 5 feet		WELL UJ-62-58-810--Cont.		WELL UJ-62-59-123 Owner: City of Orange, well 9 Screen: 529-643 feet Elevation: 10 feet	
Mar. 21, 1975	53.68	Mar. 27, 1979	9.74	Mar. 11, 1975	53.93
Mar. 24, 1976	56.36	Apr. 9, 1980	9.02	Mar. 23, 1976	55.86
Apr. 1, 1977	54.00	WELL UJ-62-59-101 Owner: City of Orange, well 7 Screen: 555-666 feet Elevation: 10 feet		Mar. 22, 1977	55.78
Apr. 6, 1978	51.89	Mar. 11, 1975	58.66	Mar. 30, 1978	53.55
Mar. 28, 1979	52.1	Mar. 23, 1976	62.52	Mar. 30, 1979	53.89
Apr. 11, 1980	49.08	Mar. 22, 1977	59.65	Apr. 10, 1980	50.45
WELL UJ-62-58-702 Owner: Orange County WC&ID No. 3, well 2 Screen: 600-672 feet Elevation: 10 feet		Mar. 30, 1978	61.61		
Mar. 19, 1975	48.38	Mar. 30, 1979	65.70		
Mar. 26, 1976	48.17	Apr. 10, 1980	61.36		
Mar. 30, 1977	47.48	WELL UJ-62-59-103 Owner: City of Orange, well 2 Screen: 565-685 feet Elevation: 9 feet			
Mar. 29, 1978	46.30	Mar. 11, 1975	60.19		
Mar. 27, 1979	47.76	Mar. 23, 1976	60.42		
Apr. 3, 1980	45.67	Mar. 14, 1977	57.1		
WELL UJ-62-58-809 Owner: Orange County WC&ID No. 3, well 3 Screen: 570-650 feet Elevation: 7 feet		Mar. 30, 1978	58.29		
Mar. 19, 1975	45	Mar. 30, 1979	61.93		
Mar. 26, 1976	46	Apr. 4, 1980	62.63		
Mar. 3, 1977	47	WELL UJ-62-59-105 Owner: Livingston Shipyard Screen: 672-737 feet Elevation: 9 feet			
Mar. 29, 1978	49	Mar. 11, 1975	56.94		
Mar. 27, 1979	50.54	Mar. 22, 1976	56.93		
WELL UJ-62-58-810 Owner: H. H. Silkwood Screen: 160-170 feet Elevation: 5 feet		Mar. 21, 1977	55.70		
Mar. 19, 1975	9.40	Mar. 27, 1978	54.40		
Mar. 23, 1976	9.28	Mar. 26, 1979	56.39		
Mar. 30, 1977	9.75	Apr. 1, 1980	53.24		
Mar. 29, 1978	9.80				



Table 2.--Water levels in observation wells in the study area, 1975-80--Continued

<u>HARDIN COUNTY, TEXAS</u>				<u>JASPER COUNTY, TEXAS</u>	
Date	Water level	Date	Water level	Date	Water level
WELL LH-61-47-208 Owner: City of Silsbee Screen: 442-842 feet Elevation: 80 feet		WELL LH-61-55-203 Owner: City of Beaumont Screen: 301-775 feet Elevation: 27 feet		WELL PR-61-48-209 Owner: East Texas Pulp and Paper Co. Screen: 213-594 feet Elevation: 45 feet	
Mar. 25, 1975	93.14	Mar. 25, 1975	64.70	Dec. 6, 1975	35.40
Mar. 18, 1976	99.30	Mar. 17, 1976	55.58	Dec. 8, 1976	36.00
Mar. 29, 1977	97.13	Apr. 5, 1978	58.79	Dec. 8, 1977	39.60
Apr. 4, 1978	100.40	Mar. 29, 1979	61.45	Dec. 6, 1978	39.14
Mar. 29, 1979	101.42	Apr. 7, 1980	58.32	June 17, 1980	33.30
Apr. 7, 1980	97.90				
WELL LH-61-47-210 Owner: City of Silsbee Depth: 900 feet Elevation: 87 feet		WELL LH-61-55-204 Owner: City of Beaumont Screen: 311-780 feet Elevation: 25 feet		WELL PR-61-48-214 Owner: Southern Pine Co. Depth: 226 feet Elevation: 42 feet	
Mar. 25, 1975	107.10	Mar. 25, 1975	48.93	Mar. 25, 1975	32.58
Feb. 18, 1976	117.22	Mar. 26, 1976	49.82	Mar. 17, 1976	35.48
Mar. 29, 1977	104.86	Mar. 29, 1977	56.42	Mar. 28, 1977	34.40
Apr. 4, 1978	112.52	WELL LH-61-55-206 Owner: Lumberton Water Supply Corp., well 1 Screen: 380-443 feet Elevation: 35 feet		Apr. 4, 1978	36.25
Mar. 29, 1979	115.65	Apr. 4, 1978	55.24	Mar. 29, 1979	35.10
Apr. 7, 1980	114.03	Mar. 29, 1979	65.00	Apr. 8, 1980	35.60
WELL LH-61-47-304 Owner: City of Silsbee, well 4 Screen: 595-905 feet Elevation: 80 feet		Apr. 7, 1980	59.21	WELL PR-61-48-221 Owner: East Texas Pulp and Paper Co. Screen: 723-1,264 feet Elevation: 45 feet	
Mar. 29, 1979	92.92			Dec. 6, 1975	189.61
Apr. 7, 1980	90.61			Dec. 8, 1976	185.90
WELL LH-61-47-804 Owner: Lumberton Water Supply Corp. Screen: 395-458 feet Elevation: 55 feet				Dec. 8, 1977	187.45
Apr. 4, 1978	45.02			Dec. 6, 1978	192.09
Mar. 29, 1979	44.44	WELL PR-61-48-701 Owner: Larkin Franklin Screen: 1,210-1,250 feet Elevation: 35 feet		Mar. 10, 1975	95.80
Apr. 7, 1980	58.10	Mar. 17, 1976	97.52	Mar. 29, 1979	103.50
		Mar. 29, 1979	103.50	Mar. 31, 1980	100.85

Table 2.--Water levels in observation wells in the study area, 1975-80--Continued

JEFFERSON COUNTY, TEXAS

Date	Water level	Date	Water level	Date	Water level
WELL PR-61-48-702 Owner: J. C. Chance Screen: 448-468 feet Elevation: 30 feet		WELL PR-62-33-401 Owner: City of Buna Screen: 230-375 feet Elevation: 72 feet		WELL PT-61-64-502 Owner: Gulf States Util. Co. Screen: 306-435 feet Elevation: 10 feet	
Mar. 10, 1975	40.88	Mar. 24, 1975	31.70	Mar. 19, 1975	38.42
Mar. 17, 1976	40.75	Mar. 18, 1976	32.56	Mar. 19, 1976	81.88
Apr. 4, 1978	42.98	Mar. 29, 1977	32.46	Mar. 23, 1977	70.55
Mar. 29, 1979	43.92	Apr. 4, 1978	33.23	Apr. 6, 1978	34.19
Mar. 31, 1980	43.21	Mar. 29, 1979	35.24	May 2, 1979	35.52
WELL PR-62-17-902 Owner: W. S. Gillespie Screen: 300-325 feet Elevation: 119 feet		WELL PR-62-33-409 Owner: City of Buna Depth: 803 feet Elevation: 70 feet		WELL PT-61-64-509 Owner: Gulf States Util. Co. Screen: 380-542 feet Elevation: 8 feet	
Feb. 13, 1975	29.13	Mar. 24, 1975	79.85	Mar. 19, 1975	34.81
Dec. 8, 1976	31.15	Mar. 18, 1976	82.39	Mar. 19, 1976	42.24
Dec. 7, 1977	32.45	Mar. 29, 1977	82.17	Mar. 23, 1977	41.25
Dec. 6, 1978	32.93	Apr. 4, 1978	83.53	Apr. 6, 1978	34.38
WELL PR-62-33-211 Owner: Cougar Country Subdiv. Screen: 495-535 feet Elevation: 68 feet		WELL PR-62-41-908 Owner: Farm Market Depth: 70 feet Elevation: 42 feet		WELL PT-61-64-902 Owner: Air Reduction Co. Screen: 497-550 feet Elevation: 20 feet	
Mar. 25, 1975	62.73	Mar. 29, 1979	85.52	Mar. 19, 1975	45.10
Mar. 29, 1977	64.1	Apr. 8, 1980	86.30	Mar. 19, 1976	46.42
Apr. 5, 1978	69.4	WELL PR-62-41-908 Owner: Farm Market Depth: 70 feet Elevation: 42 feet		Mar. 23, 1977	45.61
Mar. 29, 1979	68.70	Mar. 24, 1975	25.16	Apr. 6, 1978	45.81
Apr. 8, 1980	70.14	Mar. 22, 1976	24.37	WELL PT-63-01-201 Owner: City of Groves Screen: 520-540 feet Elevation: 9 feet	
WELL PR-62-33-401 Owner: City of Buna Screen: 230-375 feet Elevation: 72 feet		Mar. 29, 1977	23.69	Sept. 25, 1975	39.06
Mar. 24, 1975	31.70	Apr. 4, 1978	23.94	Mar. 19, 1976	40.42
Mar. 18, 1976	32.56	Mar. 29, 1979	24.09	Mar. 23, 1977	40.92
Mar. 29, 1977	32.46	WELL PR-62-41-908 Owner: Farm Market Depth: 70 feet Elevation: 42 feet		Apr. 6, 1978	41.02
Apr. 4, 1978	33.23	Mar. 24, 1975	25.16	May 1, 1979	41.51
Mar. 29, 1979	35.24	Mar. 22, 1976	24.37	WELL PT-63-01-201 Owner: City of Groves Screen: 520-540 feet Elevation: 9 feet	
Apr. 8, 1980	30.52	Mar. 29, 1977	23.69	Sept. 25, 1975	39.06
WELL PR-62-33-401 Owner: City of Buna Screen: 230-375 feet Elevation: 72 feet		Apr. 4, 1978	23.94	Mar. 19, 1976	40.42
Mar. 24, 1975	31.70	Mar. 29, 1979	24.09	Mar. 23, 1977	40.92
Mar. 18, 1976	32.56	WELL PR-62-41-908 Owner: Farm Market Depth: 70 feet Elevation: 42 feet		Apr. 6, 1978	41.02
Mar. 29, 1977	32.46	Mar. 24, 1975	25.16	May 1, 1979	41.51
Apr. 4, 1978	33.23	Mar. 22, 1976	24.37	WELL PT-63-01-201 Owner: City of Groves Screen: 520-540 feet Elevation: 9 feet	
Mar. 29, 1979	35.24	Mar. 29, 1977	23.69	Sept. 25, 1975	39.06
Apr. 8, 1980	30.52	Apr. 4, 1978	23.94	Mar. 19, 1976	40.42
WELL PR-62-33-401 Owner: City of Buna Screen: 230-375 feet Elevation: 72 feet		Mar. 29, 1979	24.09	Mar. 23, 1977	40.92
Mar. 24, 1975	31.70	WELL PR-62-41-908 Owner: Farm Market Depth: 70 feet Elevation: 42 feet		Apr. 6, 1978	41.02
Mar. 18, 1976	32.56	Mar. 24, 1975	25.16	May 1, 1979	41.51
Mar. 29, 1977	32.46	Mar. 22, 1976	24.37	WELL PT-63-01-201 Owner: City of Groves Screen: 520-540 feet Elevation: 9 feet	
Apr. 4, 1978	33.23	Mar. 29, 1977	23.69	Sept. 25, 1975	39.06
Mar. 29, 1979	35.24	Apr. 4, 1978	23.94	Mar. 19, 1976	40.42
Apr. 8, 1980	30.52	Mar. 29, 1979	24.09	Mar. 23, 1977	40.92

Table 2.--Water levels in observation wells in the study area, 1975-80--Continued

NEWTON COUNTY, TEXAS

Date	Water level	Date	Water level	Date	Water level
WELL PT-63-01-606 Owner: City of Groves Depth: 814 feet Elevation: 5 feet		WELL TZ-62-18-801 Owner: Texas Forest Service Screen: 186-210 feet Elevation: 115 feet		WELL TZ-62-42-603 Owner: L. S. Arrendell Screen: 184-190 feet Elevation: 22 feet	
Mar. 19, 1975	34.75	Mar. 24, 1975	40.53	Mar. 12, 1975	6.28
Mar. 19, 1976	35.04	Mar. 22, 1976	42.63	Mar. 22, 1976	7.12
Mar. 23, 1977	35.53	Mar. 29, 1977	40.67	Mar. 23, 1977	6.75
Apr. 6, 1978	35.06	Apr. 5, 1978	42.97	Mar. 28, 1978	6.89
May 1, 1979	35.61	Mar. 29, 1979	40.78	Mar. 27, 1979	4.84
Apr. 4, 1980	35.79	Apr. 8, 1980	39.49	Apr. 1, 1980	4.80
		WELL TZ-62-26-611 Owner: Cecil Lazanbee Screen: 637-647 feet Elevation: 62 feet		WELL TZ-62-42-904 Owner: L. A. Whidden Depth: 270 feet Elevation: 34 feet	
		Mar. 24, 1975	4.24	Mar. 12, 1975	39.23
		Mar. 3, 1976	4.86	Mar. 22, 1976	39.22
		Mar. 29, 1977	4.90	Mar. 23, 1977	38.88
		Apr. 5, 1978	6.08	Mar. 28, 1978	39.32
		Mar. 29, 1979	6.29	Mar. 27, 1979	40.12
		Apr. 8, 1980	6.62	Apr. 1, 1980	38.75
		WELL TZ-62-34-201 Owner: Adolph Ebner Screen: 252-332 Elevation: 45 feet			
		Mar. 24, 1975	14.43		
		Mar. 29, 1978	14.65		
		WELL TZ-62-42-102 Owner: Joe Heinen Screen: 179-429 feet Elevation: 37 feet			
		Mar. 3, 1976	32.49		
		Mar. 29, 1978	33.13		
		Mar. 29, 1979	34.29		
		Apr. 1, 1980	31.94		

Table 2.--Water levels in observation wells in the study area, 1975-80--Continued

<u>CALCASIEU PARISH, LOUISIANA</u>				<u>CAMERON PARISH, LOUISIANA</u>	
Date	Water level	Date	Water level	Date	Water level
WELL CU-530 Owner: M. Gray Depth: 595 feet Elevation: 9.3 feet		WELL CU-994 Owner: U.S. Geological Survey Screen: 755-760 feet Elevation: 5 feet		WELL CN-86L Owner: U.S. Geological Survey Screen: 631-641 feet Elevation: 3.66 feet	
Mar. 5, 1975	54.33	Mar. 2, 1976	52.13	Mar. 5, 1975	49.85
Mar. 31, 1976	54.23	Mar. 10, 1977	52.39	Mar. 3, 1976	48.63
Mar. 10, 1977	53.34	Feb. 28, 1978	53.27	Feb. 23, 1977	48.82
Feb. 28, 1978	55.44			Feb. 14, 1978	49.74
Feb. 19, 1979	55.34			Feb. 28, 1979	50.14
				Feb. 12, 1980	47.79
WELL CU-625 Owner: Stine and Kinney Depth: 460 feet Elevation: 48.6 feet				WELL CN-86U Owner: U.S. Geological Survey Screen: 525-535 feet Elevation: 3.66 feet	
Mar. 14, 1975	46.37			Mar. 5, 1975	49.71
Mar. 8, 1977	48.41			Mar. 3, 1976	48.52
Mar. 1, 1978	47.55			Feb. 23, 1977	48.67
Feb. 27, 1979	48.04			Feb. 14, 1978	49.62
				Feb. 28, 1979	50.16
				Feb. 12, 1980	47.66
WELL CU-781 Owner: Edgerly Rice Dryer Depth: 460 feet Elevation: 35 feet				WELL CN-94 Owner: U.S. Geological Survey Screen: 1,112-1,118 feet Elevation: 6.2 feet	
Mar. 1, 1976	52.17			Feb. 20, 1975	40.68
Mar. 9, 1977	51.48			Mar. 2, 1976	41.38
Mar. 1, 1978	52.17			Mar. 9, 1977	40.82
Feb. 27, 1979	53.24			Mar. 28, 1978	41.02
				Feb. 28, 1979	41.80
WELL CU-991 Owner: Geological Survey Screen: 310-315 feet Elevation: 20 feet					
Feb. 12, 1976	48.00				
Mar. 9, 1977	42.58				
Mar. 1, 1978	43.18				

Table 3.--Records of selected wells in the study area, 1968-80  
(All wells are drilled unless otherwise noted in remarks column; gal/min - gallons per minute)

Water level : Reported water levels given in feet; measured water levels given in feet and tenths.  
Method of lift and type of power: E, electric; J, jet; Sub, submersible; T, turbine. Number indicates horsepower.  
Use of water : C, commercial; D, domestic; Ind, industrial; P, public supply.  
Water bearing unit : C, Chicot aquifer; CU, upper unit of Chicot aquifer; CL, lower unit of Chicot aquifer;  
E, Evangeline aquifer.

Well	Owner	Driller	Date completed	Depth of well (feet)	Casing Diameter (inches)	Water bearing unit	Altitude of land surface (feet)	Above (+) or below land surface (feet)	Date of measurement	Method of lift	Use of water	Remarks
ORANGE COUNTY, TEXAS												
UJ-61-56-314	L. B. Williamson	Reel & Elder Water Well Service	1971	385	4 2	CL	27	40.2	June 29, 1972	Sub,E	P	10 feet of screen from 375 to 385 feet. <u>1/</u>
315	Iwanda Trailer Park	Paskell's Water Well Service	1971	380	4 2	CL	40.2	40.2	June 29, 1972	Sub,E	P	24 feet of screen from 356 to 380 feet. <u>1/</u>
922	Orange County WC&ID No. 1	Alsay-Pippin	1979	495	16 10	CL	26	57.4	Nov. 30, 1979	T,E	P	161 feet of screen from 284 to 490 feet. Reported yield 1,100 gal/min with 70 feet of drawdown when drilled. <u>2/3/</u>
62-50-807	Frank Michell	Frank Michell	1972	454	4 2	CL	20	51.2	June 30, 1972	Sub,E	S	12 feet of screen from 442 to 454 feet. <u>1/</u>
808	H. D. Womack	do.	1973	655	4 2	CL	20	54.5	Mar. 20, 1974	Sub,E	S	12 feet of screen from 643 to 655 feet. <u>1/3/</u>
51-104	Owens Illinois, Inc.	Holmes Water Well Service	1971	470	4 2	CL	24	53.0	June 28, 1972	Sub,E	C	10 feet of screen from 460 to 470 feet. Reported yield after pumping 1.5 hours, 60 gal/min with 12 feet of drawdown when drilled. <u>1/2/</u>
58-424	Orangefield Elementary School	H&K Well Service	1970	500	4 2	CL	14	45.4	June 29, 1970	Sub,E	P	10 feet of screen from 490 to 500 feet
513	Bayou Pines Trailer Park	Chesser	1972	215	4 2	CU	10	--	--	Sub,E	P	10 feet of screen from 205 to 215 feet. <u>3/</u>
642	Domnar Corp.	Mosier Water Well Drilling	1971	426	2	CL	14	--	--	J,E	D	6 feet of screen from 420 to 426 feet. <u>2/3/</u>
709	Orange County WC&ID No. 3, well 3	Franks Engine Service, Inc.	1980	708	14 8	CL	10	50.9	July 23, 1980	T,E 75	P	81 feet of screen from 617 to 698 feet. Reported yield after pumping 4 hours, 1,200 gal/min with 23 feet of drawdown when drilled.
810	H. H. Silkwood	Mosier Water Well Drilling	1970	170	4	CU	5	15.1	June 29, 1972	J,E	D	10 feet of screen from 160 to 170 feet. <u>1/2/3/</u>
59-416	Levingston Shipyard	Stamm-Scheele	1973	730	14 10	CL	5	--	--	T,E 125	Ind	80 feet of screen from 650 to 730 feet. <u>3/</u>

See footnotes at end of table.

Table 3.--Records of selected wells in the study area, 1968-80--Continued

Well	Owner	Driller	Date completed	Depth of well (feet)	Casing Diameter (inches)	Casing Depth (inches)	Water bearing unit	Altitude of land surface (feet)	Water levels		Method of lift	Use of water	Remarks
									Above (+) or below land surface (feet)	Date of measurement			
<u>HARDIN COUNTY, TEXAS</u>													
LH-61-47-302	Apache Core	Layne-Texas Co.	1971	552	10 6	412 552	E	32	21.7	Feb. 18, 1976	T,E	Ind	6-inch casing from 319 to 552 feet. Screen from 419 to 535 feet.
303	do.	Bellenger Well Service	1971	105	4	105	C	34	8.7	Feb. 18, 1976	Sub,E	--	21 feet of screen from 84 to 105 feet.
304	City of Sillsbee, well 4	Layne-Texas Co.	1978	920	16 10	-- 920	E	80	92.9	Mar. 29, 1979	T,E	P	130 feet of screen from 595 to 905 feet. Reported yield 1,023 gal/min with 76 feet draw-down when drilled. <u>1/2/</u>
804	Lumberton Water Supply Corp., well 2	Lanford Drilling Co.	1977	463	16 8	395 463	C	55	78	July 19, 1977	Sub,E 50	P	63 feet of screen from 395 to 458 feet. Reported yield 600 gal/min with 130 feet of draw-down when drilled. <u>1/2/</u>
55-206	Lumberton Water Supply Corp., well 1	do.	1977	448	16 8	380 448	C	35	92	July 5, 1977	Sub,E 40	P	63 feet of screen from 380 to 443 feet. Reported yield 602 gal/min with 61 feet of drawdown when drilled. <u>1/2/</u>
<u>JASPER COUNTY, TEXAS</u>													
PR-62-25-308	South Kirbyville Rural Water Supply Corp.	Layne-Texas Co.	1968	640	8 4	568 640	E	101	28.0	Mar. 7, 1969	Sub,E	P	Screen from 575 to 625 feet. <u>2/</u>
33-211	Cougar Country Subdivision	Joe Castlebury	1974	535	8 4	-- 535	E	85	42.0	Mar. 27, 1974	Sub,E	P	40 feet of screen from 495 to 535 feet. <u>1/</u>
409	Jasper County WC&ID No. 1, City of Buna	Katy Drilling Co.	1970	785	12 6	506 785	E	70	81.5	Mar. 22, 1973	T,E	P	130 feet of screen from 576 to 780 feet. <u>1/2/</u>

1/ For water levels in wells, see table 2.

2/ For drillers' logs of wells, see table 4.

3/ For chemical analyses of water from wells, see table 5.

Table 4.--Drillers' logs of selected wells in the study area, 1968-80

ORANGE COUNTY, TEXAS

	<u>Thickness (feet)</u>	<u>Depth (feet)</u>		<u>Thickness (feet)</u>	<u>Depth (feet)</u>
WELL UJ-61-56-922 OWNER: Orange County WC&ID No. 1 DRILLER: AIsay-Pippin Corp.			WELL UJ-62-58-642 OWNER: Donnar Corp. DRILLER: Mosier Water Well Drilling		
clay, sandy	15	15	topsoil	8	8
sandy	5	20	sand	13	21
shale	17	37	mud	61	82
sand	103	140	sand	19	101
shale	145	285	mud	5	106
sand	30	315	sand	56	162
shale	25	340	mud	8	170
sand	50	390	sand	14	184
shale	10	400	mud	76	260
sand	90	490	sand	4	264
shale	110	600	mud	120	384
shale, sandy	150	750	sand	42	426
WELL UJ-62-51-104 OWNER: Owens-Illinois, Inc. DRILLER: Holmes Water Well Service			WELL UJ-62-58-810 OWNER: H. K. Silkwood DRILLER: Mosier Water Well Drilling		
clay	42	42	clay	12	12
sand	59	101	sand	30	42
clay	84	185	mud	17	59
sand	5	190	sand	7	66
clay	6	196	mud	2	68
sand	11	207	sand	39	107
clay	12	219	mud	15	122
sand	16	235	sand and rock	3	125
clay	80	315	mud	23	148
sand	50	365	sand	22	170
clay	25	390			
sand	80	470			

Table 4.--Drillers' logs of selected wells in the study area, 1968-80--Continued

HARDIN COUNTY, TEXAS

	<u>Thickness</u> <u>(feet)</u>	<u>Depth</u> <u>(feet)</u>		<u>Thickness</u> <u>(feet)</u>	<u>Depth</u> <u>(feet)</u>
WELL LH-61-47-304 OWNER: City of Silsbee, well 4 DRILLER: Layne-Texas Co.			WELL LH-61-47-804 OWNER: Lumberton Water Supply Corp. DRILLER: Lanford Drilling Co.		
topsoil	4	4	clay and sand	2	2
clay	42	46	clay	6	8
sand	275	321	sand	20	28
shale, sandy	20	341	sand and clay streaks	87	115
sand	36	377	sand	95	210
shale, sandy	41	418	clay	8	218
sand	50	468	sand	62	280
shale	24	492	clay and shale	50	330
shale, sandy	70	562	sand	40	370
sand (broken)	49	611	shale	15	385
shale	98	709	shale, sandy	10	395
sand	61	770	sand	70	465
shale	10	780	shale	10	475
sand	11	791	sand	45	520
shale	11	802	shale	5	525
shale, sandy	13	815	sand	35	560
sand	27	842	shale and sand	30	590
shale	55	897	sand	10	600
sand and shale	39	936	shale, sandy, and sand streaks	100	700
shale	50	986	shale	30	730
sand and shale	62	1,048	shale, sandy, and sand	50	780
shale and sand streaks	52	1,100			



Table 4.--Drillers' logs of selected wells in the study area, 1968-80--Continued

	<u>Thickness</u> (feet)	<u>Depth</u> (feet)
WELL LH-61-55-206 OWNER: Lumberton Water Supply Corp. DRILLER: Lanford Drilling Co.		
sand	2	2
clay	5	7
sand	13	20
clay	90	110
sand	40	150
clay	10	160
sand	50	210
shale	40	250
sand	20	270
shale	30	300
sand, brown, fine	30	330
shale	50	380
sand, white, coarse	70	450
shale	5	455
shale, sandy, and sand streaks	75	530
shale	40	570
shale, sandy	100	670
shale	40	710
sand, sandy shale, and sand streaks	63	773

Table 4.--Drillers' logs of selected wells in the study area, 1968-80--Continued

JASPER COUNTY, TEXAS

	Thickness (feet)	Depth (feet)		Thickness (feet)	Depth (feet)
WELL PR-62-25-308 OWNER: South Kirbyville Rural Water Supply Corp. DRILLER: Layne-Texas Co.			WELL PR-62-33-409 OWNER: Jasper County WC&ID No. 1, City of Buna DRILLER: Katy Drilling Co.		
topsoil	4	4	clay	10	10
clay	42	46	sand	5	15
sand	275	321	clay	25	40
shale, sandy	20	341	sand, clay streaks	170	210
sand	36	377	clay, sand streaks	70	280
shale, sandy	41	418	sand, thin clay streaks	85	365
sand	50	468	tree	10	375
shale	24	492	clay, hard	82	457
shale, sandy	70	562	sand	42	499
sand (broken)	49	611	shale, hard	13	512
shale	98	709	sand	46	558
sand	61	770	shale	10	568
shale	10	780	sand	11	579
sand	11	791	shale, hard	51	630
shale	11	802	shale, sandy, sand streaks	87	717
shale, sandy	13	815	sand, thin streaks clay	28	745
sand	27	842	clay	3	748
shale	55	897	sand	37	785
sand and shale	39	936	sand streaks and clay	18	803
shale	50	986			
sand and shale	62	1,048			
shale and sand streaks	52	1,100			

Table 5.--Chemical analyses of water from wells in Orange County, 1975-79  
 (ft = feet; mg/L = milligrams per liter; ug/L = micrograms per liter; microhhos = microhhos per centimeter at 25° Celsius;  
 °C = degrees Celsius)

WELL	OWNER	DEPTH OR PRODUCING INTERVAL (ft)	WATER-BEARING UNIT	DATE	DIS-SOLVED SILICA (SiO <sub>2</sub> ) (mg/L)	DIS-SOLVED IRON (FE) (ug/L)	DIS-SOLVED CALCIUM (CA) (mg/L)	DIS-SOLVED MAGNESIUM (MG) (mg/L)	DIS-SOLVED SODIUM (NA) (mg/L)	BICARBONATE (HCO <sub>3</sub> ) (mg/L)	CARBONATE (CO <sub>3</sub> ) (mg/L)	DIS-SOLVED SULFATE (SO <sub>4</sub> ) (mg/L)	DIS-SOLVED CHLORIDE (CL) (mg/L)	DIS-SOLVED SOLIDS (SUM OF CONSTITUENTS) (mg/L)	SPECIFIC CONDUCTANCE (MICROHOS) (MICROHOS)	PH (UNITS)	TEMPERATURE (°C)
UJ-61-56-614	Pine Forest School District	453-483	CL	11-12-75 <sup>1/</sup> 10-18-76 10-17-77 11-1-78 10-16-79	--	--	--	--	--	282 293 290 290 290	0 0 0 0 0	0.8 0 .2 3.5 3.5	52 52 53 55 56	--	618 606 626 609 630	7.6 8.0 7.9 7.6 8.1	--
901	Orange County WC&ID No. 1, well 2	350-400	CL	11-21-75 10-27-76 10-21-77 11-3-78 10-26-79	--	--	--	--	--	270 280 280 280 290	0 0 0 0 0	0.2 .8 .4 0 3.5	320 310 330 330 340	--	1,450 1,440 1,510 1,490 1,540	7.2 8.1 7.6 7.7 7.8	22.5 22.5 23.0 23.0 21.0
911	B&B Water System	468-486	CL	11-12-75 <sup>1/</sup> 10-18-76 10-17-77 11-1-78 10-16-79	--	--	--	--	--	256 266 270 310 270	0 0 0 0 0	0 .4 0 .8 2.7	88 87 87 88	--	695 678 699 690 682	7.4 8.0 7.9 7.7 7.9	--
919	Orange County WC&ID No. 1, well 3	385-420	CL	11-21-75 10-27-76 10-21-77 11-3-78 10-26-79	--	--	--	--	--	228 235 240 240 240	0 0 0 0 0	.2 0 0 .4 3.0	170 180 180 190 200	--	923 925 975 960 1,000	7.4 8.0 7.7 7.6 7.8	23.0 23.0 23.0 23.0 21.5
922	Orange County WC&ID No. 1	284-490	CL	12-6-79 <sup>2/</sup>	9.0	0.1	5.1	1.2	--	220	0	--	55	414	418	7.2	--
64-102	G&W Marine	54-60	CU	11-12-75 <sup>1/</sup> 10-20-77 11-3-78 10-29-79	--	--	--	--	--	444 430 430 510	0 0 0 0	0 2.0 2.8 8.7	880 980 970 950	--	3,400 3,630 3,700 3,780	6.4 6.5 7.5 6.6	--
302	Vidor Independent School District	521	CL	11-12-75 <sup>1/</sup> 10-27-76 10-21-77 11-3-78 10-17-79	--	--	--	--	--	282 288 290 290 260	0 0 0 0 0	0 0 0 .4 3.3	420 420 440 440 470	--	1,840 1,790 1,870 1,840 1,250	7.3 8.1 7.7 7.7 7.7	--
304	Go-Inc.	385-400	CL	11-12-75 <sup>1/</sup> 10-27-76	--	--	--	--	--	292 295	0 0	0 0	300 290	--	1,430 1,440	7.4 8.0	--
305	David Wilkerson	462-472	CL	11-12-75 10-20-76 10-21-77 10-31-78 10-16-79	--	--	--	--	--	226 232 240 230 230	0 0 0 0 0	0 .4 0 .4 2.2	130 140 140 140 140	--	802 787 819 780 816	7.4 7.9 7.9 7.9 7.9	--
306	B&B Water System	525-545	CL	11-14-75 <sup>1/</sup> 10-27-76 10-21-77 11-3-78 10-16-79	--	--	--	--	--	268 274 280 270 270	0 0 0 0 0	.4 0 0 .4 3.3	330 310 260 310 320	--	1,460 1,420 1,470 1,460 1,440	7.4 8.2 7.7 7.8 7.7	--

See footnotes at end of table.

Table 5.--Chemical analyses of water from wells in Orange County, 1975-79--Continued

WELL	OWNER	DEPTH OR PRODUCING INTERVAL (ft)	WATER-BEARING UNIT	DATE	DIS-SOLVED SILICA (SiO <sub>2</sub> ) (mg/L)	DIS-SOLVED IRON (FE) (µg/L)	DIS-SOLVED CALCIUM (CA) (mg/L)	DIS-SOLVED MAGNESIUM (MG) (mg/L)	DIS-SOLVED SODIUM (NA) (mg/L)	BICARBONATE (HCO <sub>3</sub> ) (mg/L)	CARBONATE (CO <sub>3</sub> ) (mg/L)	DIS-SOLVED SULFATE (SO <sub>4</sub> ) (mg/L)	DIS-SOLVED CHLORIDE (CL) (mg/L)	DIS-SOLVED SOLIDS (SUM OF CONSTITUENTS) (mg/L)	SPECIFIC CONDUCTANCE (MICROHMS)	PH (UNITS)	TEMPERATURE (°C)
UJ-62-49-703	James P. Wilson	693-703	CL	11-21-751/ 10-27-76 10-20-77	--	--	--	--	--	292	0	0	670	--	2,580	7.3	--
				11-2-78 10-29-79	--	--	--	--	--	296	0	0	780	--	2,550	8.1	--
				11-13-751/ 10-18-76 10-20-77	--	--	--	--	--	290	0	0	660	--	2,510	7.6	--
904	Texas Dept. of Highways and Public Transportation	399-415	CL	10-30-78 10-23-79	--	--	--	--	--	290	0	5.3	660	--	2,600	7.9	--
				11-12-751/ 10-18-76 10-17-77	--	--	--	--	--	119	0	0	30	--	290	7.2	--
				10-30-78 10-29-79	--	--	--	--	--	122	0	0	17	--	238	7.5	--
				11-12-751/ 10-18-76 10-17-77	--	--	--	--	--	130	0	0	16	--	262	7.6	--
				10-30-78 10-29-79	--	--	--	--	--	120	0	0	19	--	280	7.7	--
				11-12-751/ 10-18-76 10-17-77	--	--	--	--	--	130	0	2.2	20	--	264	7.4	--
905	do.	378-394	CL	11-12-751/ 10-18-76 10-17-77	--	--	--	--	--	118	0	0	18	--	252	6.9	--
				10-30-78 10-29-79	--	--	--	--	--	130	0	0	16	--	242	7.7	--
50-804	H. D. Womack	800	CL	11-20-751/ 10-18-76 10-18-77	--	--	--	--	--	149	0	0	160	--	768	7.0	--
				11-20-751/ 10-18-76 10-18-77	--	--	--	--	--	166	0	0	190	--	862	7.3	--
				10-30-78 10-29-79	--	--	--	--	--	150	0	0	15	--	756	7.2	--
808	do.	643-655	CL	11-20-751/ 10-18-76 10-18-77	--	--	--	--	--	145	0	0	160	--	765	6.7	--
				11-1-78 10-18-79	--	--	--	--	--	148	0	0	160	--	748	7.1	--
				11-20-751/ 10-22-76 10-18-77	--	--	--	--	--	150	0	0	160	--	759	7.1	--
				11-2-78 10-26-79	--	--	--	--	--	140	0	2.0	150	--	730	7.2	--
910	Little Cypress-Mauriceville Consolidated School District	450-500	CL	11-12-75 10-22-76 10-18-77	--	--	--	--	--	128	0	5.2	33	--	324	6.7	23.0
				11-2-78 10-26-79	--	--	--	--	--	132	0	3.6	23	--	312	7.3	23.0
51-706	Phillips Chemical Co.	428-488	CL	11-12-75 10-22-76 10-18-77	--	--	--	--	--	130	0	3.2	32	--	323	7.4	--
				11-1-78 10-17-79	--	--	--	--	--	130	0	5.6	32	--	321	7.5	--
				11-14-751/ 10-20-76 10-17-77	--	--	--	--	--	140	0	4.7	32	--	320	7.0	--
				11-1-78 10-17-79	--	--	--	--	--	172	0	6.4	27	--	359	7.1	--
57-203	K. Kiski	740	CL	11-14-751/ 10-20-76 10-17-77	--	--	--	--	--	177	0	2.0	27	--	348	7.5	--
				11-1-78 10-17-79	--	--	--	--	--	180	0	0	27	--	361	7.5	--
				11-14-751/ 10-20-76 10-17-77	--	--	--	--	--	180	0	2.8	25	--	352	7.6	--
				11-1-78 10-17-79	--	--	--	--	--	180	0	4.0	27	--	360	7.6	--
401	Texas Eastern Transmission Co.	448-468	CL	11-14-75 10-21-76 10-17-77	--	--	--	--	--	184	0	1.6	64	--	498	7.1	--
				10-31-78 10-17-79	--	--	--	--	--	186	0	1.2	60	--	486	8.1	--
				11-14-751/ 10-20-76 10-17-77	--	--	--	--	--	190	0	0	62	--	489	7.9	--
				11-1-78 10-17-79	--	--	--	--	--	190	0	0	60	--	480	7.8	--
				11-14-751/ 10-20-76 10-17-77	--	--	--	--	--	180	0	1.8	53	--	462	7.2	--
				10-31-78 10-17-79	--	--	--	--	--	177	0	0	67	--	505	7.3	--
				11-14-751/ 10-20-76 10-17-77	--	--	--	--	--	182	0	0	69	--	497	8.2	--
				10-31-78 10-17-79	--	--	--	--	--	180	0	0	72	--	511	8.0	--
				11-14-751/ 10-20-76 10-17-77	--	--	--	--	--	180	0	0	68	--	500	8.0	--
				10-31-78 10-17-79	--	--	--	--	--	180	0	1.8	68	--	512	8.0	--

See footnotes at end of table.

Table 5.--Chemical analyses of water from wells in Orange County, 1975-79--Continued

WELL	OWNER	DEPTH OR PRODUCING INTERVAL (ft)	WATER-BEARING UNIT	DATE	DIS-SOLVED SILICA (SiO <sub>2</sub> ) (mg/L)	DIS-SOLVED IRON (FE) (µg/L)	DIS-SOLVED CALCIUM (CA) (mg/L)	DIS-SOLVED MAGNESIUM (MG) (mg/L)	DIS-SOLVED SODIUM (NA) (mg/L)	BICARBONATE (HCO <sub>3</sub> ) (mg/L)	CARBONATE (CO <sub>3</sub> ) (mg/L)	DIS-SOLVED SULFATE (SO <sub>4</sub> ) (mg/L)	DIS-SOLVED CHLORIDE (CL) (mg/L)	DIS-SOLVED SOLIDS (SUM OF CONSTITUENTS) (mg/L)	SPECIFIC CONDUCTANCE (MICRO-MHOS)	PH (UNITS)	TEMPERATURE (°C)		
UJ-62-57-403	Gulf States Util. Co., Vidor, well 1	433-483	CL	11-14-75	--	--	--	--	--	208	0	8.0	370	--	1,500	7.0	23.5		
				10-21-76	--	--	--	--	--	212	0	0	0	360	--	1,490	7.6	24.0	
				10-21-77	--	--	--	--	--	250	0	0	0	1,020	--	3,840	7.5	24.0	
				11-1-78	--	--	--	--	--	220	0	0	0	350	--	1,480	7.7	--	
404	Gulf States Util. Co., Vidor, well 2	430-481	CL	10-23-79	--	--	--	--	--	220	0	2.2	330	--	1,400	7.5	22.5		
				10-21-77	--	--	--	--	--	250	0	0	0	1,020	--	3,550	7.4	24.0	
405	Gulf States Util. Co., Vidor, well 3	430-480	CL	11-1-78	--	--	--	--	--	250	0	6.5	1,300	--	4,400	7.5	22.5		
				10-31-79	--	--	--	--	--	250	0	0	0	1,300	--	4,400	7.5	22.5	
406	Gulf States Util. Co., Vidor, well 6	430-480	CL	11-14-75	--	--	--	--	--	230	0	.8	620	--	2,340	7.3	26.0		
				10-21-76	--	--	--	--	--	214	0	.4	360	--	1,470	7.7	23.5		
				10-21-77	--	--	--	--	--	250	0	0	0	1,020	--	3,550	7.6	25.0	
				11-1-78	--	--	--	--	--	220	0	0	0	530	--	2,100	7.8	24.0	
407	Gulf States Util. Co., Vidor, well 4	320-370	CL	10-23-79	--	--	--	--	--	230	0	9.2	800	--	2,900	7.3	22.5		
				11-14-75	--	--	--	--	--	212	0	.8	74	--	587	7.5	23.0		
408	Gulf States Util. Co., Vidor, well 5	343-383	CL	10-21-76	--	--	--	--	--	218	0	.4	79	--	585	8.1	23.0		
				10-21-77	--	--	--	--	--	220	0	0	0	88	--	623	7.9	23.0	
				11-1-78	--	--	--	--	--	220	0	0	0	92	--	620	8.0	23.0	
				10-23-79	--	--	--	--	--	220	0	2.7	100	--	676	7.4	21.5		
501	Florida Gas Co.	405-435	CL	11-14-75	--	--	--	--	--	246	0	1.2	82	--	655	7.6	22.5		
				10-21-76	--	--	--	--	--	253	0	0	0	86	--	688	8.1	23.0	
				10-21-77	--	--	--	--	--	250	0	0	0	92	--	692	7.7	23.0	
				11-6-78	--	--	--	--	--	250	0	.4	98	--	690	8.3	23.0		
502	The Texas Co.	478-528	CL	10-31-79	--	--	--	--	--	250	0	4.0	100	--	704	7.7	21.0		
				11-14-75	--	--	--	--	--	172	0	.4	32	--	377	7.3	--		
				10-20-76	--	--	--	--	--	176	0	1.6	33	--	386	8.0	--		
				10-17-77	--	--	--	--	--	180	0	0	33	--	383	7.8	--		
605	Paul Cormier	469-489	CL	11-1-78	--	--	--	--	--	180	0	.4	32	--	379	7.8	--		
				10-17-79	--	--	--	--	--	170	0	2.5	30	--	380	7.6	--		
				11-19-75	--	--	--	--	--	184	0	.8	29	--	375	7.2	--		
				10-20-76	--	--	--	--	--	188	0	.2	26	--	363	8.2	--		
901	Gulf States Util. Co., Sabine, well 1	575-625	CL	10-20-77	--	--	--	--	--	190	0	0	28	--	380	7.7	--		
				10-31-78	--	--	--	--	--	190	0	.4	27	--	370	7.7	--		
				10-18-79	--	--	--	--	--	190	0	2.2	23	--	372	7.9	--		
				11-14-75	--	--	--	--	--	144	0	0	31	--	324	7.3	--		
901	Gulf States Util. Co., Sabine, well 1	575-625	CL	10-20-76	--	--	--	--	--	148	0	.8	30	--	316	8.0	--		
				10-17-77	--	--	--	--	--	150	0	0	31	--	326	7.7	--		
				11-1-78	--	--	--	--	--	140	0	0	31	--	320	7.8	--		
				10-17-79	--	--	--	--	--	140	0	1.5	29	--	320	7.6	--		
901	Gulf States Util. Co., Sabine, well 1	575-625	CL	8-21-79	30	0.8	41	--	740	--	--	.6	940	--	2,900	7.6	--		
				12-13-79	22	--	--	--	--	--	--	--	--	--	--	--	--	--	--
				12-27-79	12	--	--	--	--	--	--	--	--	--	--	--	--	--	--

See footnotes at end of table.

Table 5.---Chemical analyses of water from wells in Orange County, 1975-79---Continued

WELL	OWNER	DEPTH OR PRODUCING INTERVAL (ft)	WATER-BEARING UNIT	DATE	DIS-SOLVED SILICA (SiO <sub>2</sub> ) (mg/L)	DIS-SOLVED IRON (FE) (µg/L)	DIS-SOLVED CALCIUM (CA) (mg/L)	DIS-SOLVED MAGNESIUM (MG) (mg/L)	DIS-SOLVED SODIUM (NA) (mg/L)	BICARBONATE (HCO <sub>3</sub> ) (mg/L)	CARBONATE (CO <sub>3</sub> ) (mg/L)	DIS-SOLVED SULFATE (SO <sub>4</sub> ) (mg/L)	DIS-SOLVED CHLORIDE (CL) (mg/L)	*DIS-SOLVED SOLIDS (SUM OF CONSTITUENTS) (mg/L)	SPECIFIC CONDUCTANCE (MICRO-MHOS)	PH (UNITS)	TEMPERATURE (°C)
UJ-62-57-904	Gulf States Util. Co., Sabine, well 4	432-455	CL	11-19-75	--	--	--	--	--	222	0	1.2	47	--	496	7.4	23.5
				10-20-76	--	--	--	--	--	228	0	.4	48	--	489	8.1	23.5
				10-20-77	--	--	--	--	--	230	0	0	48	--	500	7.9	23.5
				11-14-78	--	--	--	--	--	230	0	.4	47	--	498	8.0	23.5
				8-21-793/	26	0.15	1.9	0.9	88	--	--	.7	52	--	400	7.9	--
				11- 1-79	--	--	--	--	--	230	0	2.1	45	--	500	8.0	22.0
905	Gulf States Util. Co., Sabine, well 5	422-461	CL	11-19-75	--	--	--	--	--	254	0	0	48	--	548	7.5	23.5
				10-20-76	--	--	--	--	--	262	0	2.0	48	--	541	8.1	23.5
				10-20-77	--	--	--	--	--	270	0	0	49	--	558	7.8	23.5
				11-14-78	--	--	--	--	--	270	0	0	48	--	559	8.0	23.5
				8-21-793/	27	0.1	2.7	1.2	100	--	--	.5	44	--	450	7.9	--
				11- 1-79	--	--	--	--	--	270	0	2.5	47	--	560	8.0	22.5
907	Gulf States Util. Co., Sabine, well 7	604-654	CL	11-19-75	--	--	--	--	--	180	0	0	72	--	519	7.4	--
				8-22-793/	36	0.7	4.7	1.8	171	--	--	.5	192	--	630	7.4	--
908	Gulf States Util. Co., Sabine, well 8	573-623	CL	11-20-77	--	--	--	--	--	180	0	0	130	--	696	7.9	--
				11-14-78	--	--	--	--	--	180	0	0	160	--	700	7.6	--
				8-21-793/	39	0.7	4.1	1.6	140	--	--	.1	168	--	700	7.8	--
				12-27-793/	30	--	--	--	--	--	--	--	173	--	--	--	--
58-304	Orange County WC&ID No. 2, well 1	626-706	CL	11-12-75	--	--	--	--	--	174	0	0	200	--	941	7.1	24.0
				10-26-76	--	--	--	--	--	194	0	2.0	190	--	928	7.5	24.5
				10-18-77	--	--	--	--	--	190	0	0	190	--	944	7.4	24.5
				10-31-78	--	--	--	--	--	190	0	0	180	--	905	7.6	24.5
				10-30-79	--	--	--	--	--	200	0	1.8	170	--	880	7.5	23.0
305	City of Orange, well 8	520-610	CL	10-19-76	--	--	--	--	--	169	0	.4	60	--	657	7.5	24.0
				10-18-77	--	--	--	--	--	180	0	0	190	--	922	7.2	24.0
				11- 7-78	--	--	--	--	--	160	0	2.4	74	--	640	6.4	24.0
324	City of Pinehurst	365-445	CL	11-13-75	--	--	--	--	--	148	0	1.2	19	--	300	7.4	22.5
				10-20-76	--	--	--	--	--	150	0	1.6	17	--	290	7.6	22.5
				10-20-77	--	--	--	--	--	150	0	1.2	17	--	305	7.4	23.0
				10-31-78	--	--	--	--	--	150	0	.8	19	--	290	7.5	23.0
				10-18-79	--	--	--	--	--	150	0	3.5	17	--	300	7.0	21.5
325	Orange County WC&ID No. 2, well 2	620-670	CL	11-13-75	--	--	--	--	--	190	0	0	180	--	888	7.3	24.5
				10-26-76	--	--	--	--	--	194	0	.4	180	--	873	7.4	24.5
				10-18-77	--	--	--	--	--	200	0	0	180	--	889	7.5	24.5
				10-31-78	--	--	--	--	--	190	0	0	170	--	840	7.7	24.5
				10-19-79	--	--	--	--	--	190	0	2.6	150	--	820	7.6	23.0
402	Orangefield Independent School District	515-535	CL	11-14-751/	--	--	--	--	--	150	0	.4	32	--	340	7.3	--
				10-20-76	--	--	--	--	--	155	0	0	32	--	336	8.1	--
				10-17-77	--	--	--	--	--	160	0	0	40	--	404	7.6	--
				11- 1-78	--	--	--	--	--	160	0	.4	47	--	370	7.6	--
				10-17-79	--	--	--	--	--	150	0	2.4	27	--	340	7.4	--

See footnotes at end of table.

Table 5.--Chemical analyses of water from wells in Orange County, 1975-79--Continued

WELL	OWNER	DEPTH OR PRODUCING INTERVAL (ft)	WATER-BEARING UNIT	DATE	DIS-SOLVED SILICA (SiO <sub>2</sub> ) (mg/L)	DIS-SOLVED IRON (FE) (µg/L)	DIS-SOLVED CALCIUM (CA) (mg/L)	DIS-SOLVED MAGNESIUM (MG) (mg/L)	DIS-SOLVED SODIUM (NA) (mg/L)	BICARBONATE (HCO <sub>3</sub> ) (mg/L)	CARBONATE (CO <sub>3</sub> ) (mg/L)	DIS-SOLVED SULFATE (SO <sub>4</sub> ) (mg/L)	DIS-SOLVED CHLORIDE (CL) (mg/L)	DIS-SOLVED SOLIDS (SUM OF CONSTITUENTS) (mg/L)	SPECIFIC CONDUCTANCE (MICRO-MHOS)	PH (UNITS)	TEMPERATURE (°C)
UU-62-58-409	J. W. Phillips	564-651	CL	11-14-75	--	--	--	--	--	184	0	0	200	--	967	7.1	--
				10-20-76	--	--	--	--	--	186	0	.4	200	--	949	7.8	--
				10-17-77	--	--	--	--	--	190	0	0	210	--	985	7.5	--
				11-1-78	--	--	--	--	--	190	0	.4	210	--	980	7.6	--
				10-17-79	--	--	--	--	--	190	0	2.6	210	--	980	7.6	--
423	B&B Water System	208-218	CU	11-17-75 <sup>1/</sup>	--	--	--	--	--	386	0	.4	72	--	808	7.2	--
				10-20-76	--	--	--	--	--	392	0	0	68	--	791	7.7	--
				10-20-77	--	--	--	--	--	400	0	.8	70	--	817	7.6	--
				10-31-78	--	--	--	--	--	390	0	1.2	70	--	811	7.3	--
				10-18-79	--	--	--	--	--	390	0	2.4	67	--	820	7.8	--
513	Bayou Pines Trailer Park	205-215	CU	11-14-75 <sup>1/</sup>	--	--	--	--	--	378	0	12	68	--	888	7.4	--
				10-21-76	--	--	--	--	--	386	0	48	66	--	874	7.7	--
				10-17-77	--	--	--	--	--	390	0	40	68	--	898	7.7	--
				11-3-78	--	--	--	--	--	390	0	49	68	--	887	7.7	--
				10-18-79	--	--	--	--	--	390	0	49	64	--	900	7.5	--
604	Gulf Chemical Co.	633-707	CL	10-21-76	--	--	--	--	--	196	0	0	190	--	929	7.8	23.5
605	Gulf Chemical Co., well 4	604-717	CL	11-19-75	--	--	--	--	--	216	0	2.8	1,300	--	4,270	7.1	24.5
				10-21-76	--	--	--	--	--	220	0	.4	1,400	--	4,430	7.4	24.5
				11-9-78	--	--	--	--	--	220	0	4.4	1,230	--	4,200	7.4	24.5
				10-25-79	--	--	--	--	--	230	0	8.1	1,300	--	4,500	7.1	23.0
606	Gulf Chemical Co., well 3	630-710	CL	11-19-75	--	--	--	--	--	196	0	0	170	--	920	7.5	24.5
				10-21-76	--	--	--	--	--	203	0	0	160	--	822	7.8	24.5
				10-19-77	--	--	--	--	--	200	0	.4	180	--	953	7.5	25.0
				11-9-78	--	--	--	--	--	190	0	.4	220	--	1,040	7.3	25.0
				10-25-79	--	--	--	--	--	200	0	3.2	200	--	976	7.5	24.0
608	Allied Chemical Co.	620-735	CL	11-18-75	--	--	--	--	--	211	0	0	260	--	1,140	7.2	25.0
				10-19-76	--	--	--	--	--	213	0	0	260	--	1,180	7.8	25.0
				10-19-77	--	--	--	--	--	220	0	.4	340	--	1,460	7.4	25.0
				11-8-78	--	--	--	--	--	220	0	0	330	--	1,470	7.5	24.5
				10-30-79	--	--	--	--	--	220	0	3.2	350	--	1,480	7.8	24.0
609	E. I. DuPont Co., 103-3	634-723	CL	11-20-75	--	--	--	--	--	202	0	2.8	220	--	1,060	7.2	24.5
				10-22-76	--	--	--	--	--	202	0	0	230	--	1,070	7.7	24.5
				10-20-77	--	--	--	--	--	200	0	.4	200	--	1,160	7.5	25.5
				11-14-78	--	--	--	--	--	210	0	.4	170	--	910	7.7	24.5
				11-1-79	--	--	--	--	--	200	0	2.5	180	--	900	7.7	23.0
612	E. I. DuPont Co., 103-4	735	CL	11-20-75	--	--	--	--	--	200	0	.2	240	--	1,100	7.3	24.5
				10-22-76	--	--	--	--	--	210	0	0	190	--	945	7.9	24.5
				10-20-77	--	--	--	--	--	220	0	.4	440	--	1,770	7.5	--
				2-9-78 <sup>4/</sup>	--	--	--	--	--	--	--	--	639	--	--	--	--
				2-17-78 <sup>4/</sup>	--	--	--	--	--	--	--	--	468	--	--	--	--
				11-14-78	--	--	--	--	--	200	0	0	310	--	1,330	7.3	25.0

See footnotes at end of table.

Table 5.--Chemical analyses of water from wells in Orange County, 1975-79--Continued

WELL	OWNER	DEPTH OR PRODUCING INTERVAL (ft)	WATER-BEARING UNIT	DATE	DIS-SOLVED SILICA (SiO <sub>2</sub> ) (mg/L)	DIS-SOLVED IRON (FE) (µg/L)	DIS-SOLVED CALCIUM (CA) (mg/L)	DIS-SOLVED MAGNESIUM (MG) (mg/L)	DIS-SOLVED SODIUM (NA) (mg/L)	BICARBONATE (HCO <sub>3</sub> ) (mg/L)	CARBONATE (CO <sub>3</sub> ) (mg/L)	DIS-SOLVED SULFATE (SO <sub>4</sub> ) (mg/L)	DIS-SOLVED CHLORIDE (CL) (mg/L)	DIS-SOLVED SOLIDS (SUM OF CONSTITUENTS) (mg/L)	SPECIFIC CONDUCTANCE (MICRO-MHOS)	PH (UNITS)	PERATURE (°C)
UJ-62-58-614	E. I. DuPont Co., 103-1	726	CL	11-20-75	--	--	--	--	--	198	0	0	240	--	1,150	7.2	24.5
				10-22-76	--	--	--	--	--	204	0	.8	260	--	1,180	7.9	24.0
				10-20-77	--	--	--	--	--	200	0	.8	280	--	1,270	7.5	24.5
				2-15-78/4	--	--	--	--	--	--	--	--	426	--	--	--	--
				11-14-78	--	--	--	--	--	200	0	0	200	--	981	7.6	24.0
				11- 1-79	--	--	--	--	--	200	0	2.6	200	--	960	7.7	22.5
615	Firestone Petrochemical Center	611-700	CL	11-19-75	--	--	--	--	--	215	0	.4	780	--	2,890	7.2	23.5
				10-21-76	--	--	--	--	--	218	0	0	740	--	2,630	7.4	24.5
				10-19-77	--	--	--	--	--	220	0	.8	640	--	2,390	7.3	23.0
				7- -78/5	--	--	--	--	--	--	--	--	882	--	--	--	--
				9- -78/5	--	--	--	--	--	--	--	--	860	--	--	--	--
				11-15-78	--	--	--	--	--	220	0	.8	860	--	3,090	7.4	23.0
				2- -79/5	--	--	--	--	--	--	--	--	920	--	--	--	--
				7- -79	--	--	--	--	--	--	--	--	1,000	--	--	--	--
				10-31-79	--	--	--	--	--	220	0	4.0	700	--	2,600	7.4	21.5
616	Gulf Chemical Co.	718	CL	11-19-75	--	--	--	--	--	204	0	.4	1,030	--	3,570	7.2	24.5
				10-21-76	--	--	--	--	--	204	0	.8	1,000	--	3,460	7.5	23.0
623	A. Schulman Co.	440-460	CL	11-13-75	--	--	--	--	--	216	0	.4	22	--	432	7.5	23.5
				10-18-76	--	--	--	--	--	220	0	.4	21	--	399	8.1	22.0
				10-18-77	--	--	--	--	--	220	0	.8	22	--	427	8.0	25.0
				11- 2-78	--	--	--	--	--	220	0	.8	21	--	455	7.9	22.5
				10-18-79	--	--	--	--	--	220	0	2.1	18	--	400	7.8	--
629	Firestone Petrochemical Center	595-680	CL	11-19-75	--	--	--	--	--	196	0	.8	250	--	1,160	7.3	24.5
				10-21-76	--	--	--	--	--	194	0	0	260	--	1,160	7.5	24.5
				10-19-77	--	--	--	--	--	200	0	3.6	280	--	1,240	7.6	24.0
				5- -79/5	--	--	--	--	--	--	--	--	340	--	--	--	--
				8- -78/5	--	--	--	--	--	--	--	--	300	--	--	--	--
				11-15-78	--	--	--	--	--	200	0	.2	170	--	1,270	7.5	24.5
				4- -79/5	--	--	--	--	--	--	--	--	360	--	--	--	--
				7- -79/5	--	--	--	--	--	--	--	--	326	--	--	--	--
				10-31-79	--	--	--	--	--	200	0	2.6	300	--	1,300	7.5	23.0
631	do.	585-680	CL	11-19-75	--	--	--	--	--	222	0	0	800	--	2,878	7.1	24.0
				10-21-76	--	--	--	--	--	225	0	0	780	--	2,920	7.5	21.0
				10-19-77	--	--	--	--	--	220	0	.4	700	--	2,550	7.3	23.0
				4- -78/5	--	--	--	--	--	--	--	--	700	--	--	--	--
				7- -78/5	--	--	--	--	--	--	--	--	920	--	--	--	--
				11-15-78	--	--	--	--	--	230	0	.8	870	--	3,000	7.6	23.5
				5- -79/5	--	--	--	--	--	--	--	--	950	--	--	--	--
				7- -79/5	--	--	--	--	--	--	--	--	1,030	--	--	--	--
				10-31-79	--	--	--	--	--	220	0	5.0	770	--	2,800	--	--
632	B. F. Goodrich Co., well 1	640-710	CL	11-18-75	--	--	--	--	--	200	0	0	140	--	785	7.2	24.5
				10-20-76	--	--	--	--	--	202	0	0	140	--	778	7.8	24.5
				10-19-77	--	--	--	--	--	210	0	.4	150	--	830	7.5	25.0
				11- 8-78	--	--	--	--	--	200	0	0	160	--	894	8.0	24.5
				10-24-79	--	--	--	--	--	210	0	2.9	190	--	944	7.7	23.0

See footnotes at end of table.



Table 5.--Chemical analyses of water from wells in Orange County, 1975-79--Continued

WELL	OWNER	DEPTH OR PRODUCING INTERVAL (ft)	WATER-BEARING UNIT	DATE	DIS-SOLVED SILICA (SiO <sub>2</sub> ) (mg/L)	DIS-SOLVED IRON (FE) (ug/L)	DIS-SOLVED CALCIUM (CA) (mg/L)	DIS-SOLVED MAGNESIUM (MG) (mg/L)	DIS-SOLVED SODIUM (NA) (mg/L)	BICARBONATE (HCO <sub>3</sub> ) (mg/L)	CARBONATE (CO <sub>3</sub> ) (mg/L)	DIS-SOLVED SULFATE (SO <sub>4</sub> ) (mg/L)	DIS-SOLVED CHLORIDE (CL) (mg/L)	DIS-SOLVED SOLIDS (SUM OF CONSTITUENTS) (mg/L)	SPECIFIC CONDUCTANCE (MICRO-MHOS)	PH (UNITS)	TEMPERATURE (°C)
UJ-62-58-633	B. F. Goodrich Co., well 2	625-725	CL	11-18-75	--	--	--	--	--	215	0	0	200	--	990	7.7	24.5
				10-20-76	--	--	--	--	--	216	0	0	190	--	963	7.7	24.5
				10-19-77	--	--	--	--	--	200	0	.4	220	290	--	1,050	7.6
634	B. F. Goodrich Co., well 3	615-715	CL	11-8-75	--	--	--	--	--	220	0	.6	290	--	1,320	7.8	24.5
				11-18-75	--	--	--	--	--	211	0	0	380	--	1,550	7.3	24.5
				10-20-76	--	--	--	--	--	212	0	0	360	--	1,510	7.6	25.0
637	Gulf Chemical Co., well 5	630-670	CL	10-19-77	--	--	--	--	--	210	0	0	340	--	1,440	7.4	23.5
				11-8-78	--	--	--	--	--	210	0	.4	410	--	1,660	7.5	24.5
				8- -756/	37	--	6	3	--	198	0	1.0	150	--	771	7.6	--
638	Gulf Chemical Co., well 6	634-735	CL	11-19-75	--	--	--	--	--	193	0	0	160	--	836	7.7	24.5
				8- -766/	34	--	8	2	--	200	0	0	183	--	907	7.1	--
				8- -776/	34	--	8	3	--	201	0	0	189	--	926	8.1	--
				10-19-77	--	--	--	--	--	200	0	0	200	--	960	7.9	24.5
				8- -78	40	--	9	3	--	205	0	0	195	--	852	8.1	--
				11-9-78	--	--	--	--	--	190	0	0	200	--	995	7.8	24.0
				8- -79	47	--	9	3	--	201	0	0	198	--	940	8.0	--
				10-24-79	--	--	--	--	--	200	0	3.2	200	--	1,000	7.8	--
				8- -756/	37	--	34	8	--	198	0	0	578	--	2,080	7.4	--
				11-19-75	--	--	--	--	--	196	0	0	570	--	2,110	7.0	24.5
639	B. F. Goodrich Co., well 4	620-725	CL	8- -766/	33	--	36	5	--	200	0	0	565	--	2,120	7.3	--
				10-21-76/	34	--	32	9	--	198	0	1.6	560	--	2,070	7.4	24.5
				1- -776/	34	--	31	9	--	205	0	0	587	--	2,190	7.3	--
				8- -776/	34	--	31	9	--	205	0	0	582	--	2,130	7.5	--
				10-19-77	--	--	--	--	--	200	0	0	600	--	2,220	7.2	24.5
				8- -786/	40	--	30	8	--	204	0	0	574	--	1,940	7.5	--
640	B. F. Goodrich Co., well 5	612-718	CL	8- -796/	47	--	24	7	--	203	0	0	468	--	1,820	7.5	--
				10-25-79	--	--	--	--	200	0	4.0	470	--	1,760	7.4	23.0	
				11-18-75	--	--	--	--	214	0	0	260	--	1,150	7.6	24.5	
642	Donnar Corp.	420-426	CL	10-20-76	--	--	--	--	--	217	0	0	240	--	1,120	7.8	24.5
				10-18-77	--	--	--	--	--	220	0	0	260	--	1,210	7.7	25.0
				11-8-78	--	--	--	--	--	220	0	0	240	--	1,160	7.6	24.5
				10-24-79	--	--	--	--	--	220	0	2.8	300	--	1,340	7.3	23.0
701	The Texas Co.	704	CL	11-18-75	--	--	--	--	--	216	0	0	220	--	1,070	7.6	--
				10-20-76	--	--	--	--	--	216	0	.4	220	--	1,040	7.8	--
				10-24-79	--	--	--	--	--	220	0	2.0	260	--	1,210	7.4	23.0
642	Donnar Corp.	420-426	CL	11-13-761/	--	--	--	--	--	226	0	0	24	--	426	7.5	--
				10-18-76	--	--	--	--	--	228	0	0	23	--	406	8.1	--
				10-18-77	--	--	--	--	--	230	0	.4	24	--	421	8.1	--
				11-2-78	--	--	--	--	--	230	0	0	21	--	416	7.7	--
701	The Texas Co.	704	CL	10-18-79	--	--	--	--	--	230	0	2.2	21	--	424	7.8	--
				11-17-75	--	--	--	--	--	198	0	0	200	--	967	7.7	24.5
				10-19-76	--	--	--	--	--	199	0	0	200	--	945	7.9	25.0
				10-20-77	--	--	--	--	--	200	0	0	200	--	982	7.8	25.0
642	Donnar Corp.	420-426	CL	11-9-78	--	--	--	--	--	200	0	1.6	200	--	1,000	7.7	24.5
				10-31-79	--	--	--	--	--	200	0	2.0	200	--	990	7.8	24.0

See footnotes at end of table.

Table 5.--Chemical analyses of water from wells in Orange County, 1975-79--Continued

WELL	OWNER	DEPTH OR PRODUCING INTERVAL (ft)	WATER-BEARING UNIT	DATE	DIS-SOLVED SILICA (SiO <sub>2</sub> ) (mg/L)	DIS-SOLVED IRON (FE) (µg/L)	DIS-SOLVED CALCIUM (CA) (mg/L)	DIS-SOLVED MAGNESIUM (MG) (mg/L)	DIS-SOLVED SODIUM (NA) (mg/L)	BICARBONATE (HCO <sub>3</sub> ) (mg/L)	CARBONATE (CO <sub>3</sub> ) (mg/L)	DIS-SOLVED SULFATE (SO <sub>4</sub> ) (mg/L)	DIS-SOLVED CHLORIDE (CL) (mg/L)	DIS-SOLVED SOLIDS (SUM OF CONSTITUENTS) (mg/L)	SPECIFIC CONDUCTANCE (MICRO-MHOS)	PH (UNITS)	TEMPERATURE (°C)
UU-62-58-702	Orange County WC&ID No. 3	600-672	CL	11-20-75 10-18-76 10-19-77 11- 2-78 10-24-79	--	--	--	--	--	224 226 230 220 230	0 0 0 0 0	0 0 0 0 0	170 170 180 190 190	--	907 899 947 940 996	7.3 7.7 7.7 7.6 7.7	25.0 25.0 25.0 25.0 23.5
708	Gulf States Util. Co., Sabine, well 6	465	CL	10-20-77 11-14-78 11- 1-79	--	--	--	--	--	290 290 280	0 0 0	0 0 0	42 38 35	--	559 569 540	7.9 8.1 8.0	24.2 24.0 22.5
809	Orange County WC&ID No. 3, well 3	570-650	CL	11-20-75 10-19-76 10-19-77 11- 2-78 10-24-79	--	--	--	--	--	242 244 250 250 250	0 0 0 0 0	0 0 0 0 0	230 233 230 230 220	--	1,150 1,100 1,130 1,140 1,080	7.3 7.7 7.5 8.2 8.2	24.5 25.0 25.0 25.0 23.5
810	H. H. Silkwood	160-170	CU	11-17-75 <sup>1/</sup> 10-19-76 10-20-77 11- 2-78 10-24-79	--	--	--	--	--	380 382 390 380 390	0 0 0 0 0	0 0 0 0 0	210 210 210 230 220	--	1,260 1,210 1,260 1,310 1,280	7.3 7.6 7.8 7.5 7.5	-- -- -- -- --
59-101	City of Orange, well 7	555-666	CL	11-13-75 10-19-76 11- 7-78 10-23-79	--	--	--	--	--	192 194 180 200	0 0 0 0	0 0 0 0	140 140 130 130	--	770 734 757 720	7.6 7.6 6.9 7.2	24.0 24.0 24.0 22.5
103	City of Orange, well 2	565-685	CL	11-13-75 10-19-76	--	--	--	--	--	169 168	0 0	1.2 0.8	53 45	--	445 400	7.7 7.7	24.0 23.5
104	Levingston Shipyard	749	CL	11-18-75 10-26-76 10-18-77	--	--	--	--	--	214 212 230	0 0 0	0 0 0	80 84 86	--	594 587 636	7.1 7.5 7.5	25.0 25.0 26.0
106	do.	750	CL	11-18-75 10-18-77	--	--	--	--	--	210 200	0 0	0 0	100 230	--	651 1,070	7.3 7.5	-- --
123	City of Orange, well 9	529-643	CL	11-13-75 10-19-76 10-18-77 11- 7-78 10-23-79	--	--	--	--	--	211 211 220 140 220	0 0 0 0 0	0 0 0 0 0	130 130 140 140 140	--	759 746 784 720 800	7.2 7.8 7.8 7.6 7.1	23.5 24.0 24.5 23.5 22.0
124	Equitable Bag Co., Inc.	590-640	CL	11-20-75 10-27-76 10-20-77 11- 7-78 10-19-79	--	--	--	--	--	183 182 180 180 180	0 0 0 0 0	1.2 0.8 0 0 1.8	140 150 150 150 150	--	755 728 769 756 800	7.1 7.5 7.6 7.6 7.4	24.0 24.0 24.5 24.0 23.5

See footnotes at end of table.

Table 5.--Chemical analyses of water from wells in Orange County, 1975-79--Continued

WELL	OWNER	DEPTH OR PRODUCING INTERVAL (ft)	WATER-BEARING UNIT	DATE	DIS-SOLVED SILICA (SiO <sub>2</sub> ) (mg/L)	DIS-SOLVED IRON (FE) (µg/L)	DIS-SOLVED CALCIUM (CA) (mg/L)	DIS-SOLVED MAGNESIUM (MG) (mg/L)	DIS-SOLVED SODIUM (NA) (mg/L)	BICARBONATE (HCO <sub>3</sub> ) (mg/L)	CARBONATE (CO <sub>3</sub> ) (mg/L)	DIS-SOLVED SULFATE (SO <sub>4</sub> ) (mg/L)	DIS-SOLVED CHLORIDE (CL) (mg/L)	DIS-SOLVED SOLIDS (SUM OF CONSTITUENTS) (mg/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (°C)	
UJ-62-59-401	Marathon Oil Co.	580	CL	11-17-75	--	--	--	--	--	183	0	1.2	42	--	428	7.3	23.0	
				10-21-76	--	--	--	--	--	186	0	0	0	43	--	410	7.9	23.5
				10-17-77	--	--	--	--	--	190	0	0	0	43	--	430	7.9	24.0
				10-31-78	--	--	--	--	--	180	0	0	0	37	--	421	7.7	22.5
416	Levingston Shipyard	650-730	CL	10-26-79	--	--	--	--	--	190	0	2.5	47	--	456	8.2	--	
				11-18-75	--	--	--	--	--	203	0	0	0	220	--	1,020	7.3	24.5
				10-26-75	--	--	--	--	--	202	0	0	0	220	--	1,000	7.8	--
				10-18-77	--	--	--	--	--	190	0	0	0	230	--	1,090	7.4	--
				11-8-78	--	--	--	--	--	200	0	.4	240	--	1,040	7.5	--	
				10-30-79	--	--	--	--	--	210	0	0	1.8	270	--	1,210	7.7	--

- 1/ Water sampled from storage tank.
- 2/ Analyses from Curtis Laboratories.
- 3/ Analyses from Gulf States Utilities Co., Sabine Plant.
- 4/ Analyses from E. I. DuPont Co.
- 5/ Analyses from Firestone Petrochemical Co.
- 6/ Analyses from Gulf Chemical Co.