UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

HYDROGEOLOGIC DATA FOR THE SOUTH CROSS BAYOU SUBSURFACE-INJECTION TEST SITE, PINELLAS COUNTY, FLORIDA

By John J. Hickey

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PINELLAS COUNTY, FLORIDA

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UNITED STATES DEPARTMENT OF THE INTERIOR

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GEOLOGICAL SURVEY

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CONVERSION FACTORS

For use of those readers who may prefer to use metric units rather than U.S. inch-pound units, the conversion factors for the terms used in this report are listed below:

U.S. inch-pound units	Multiply by	To obtain metric units
inch (in)	2.540×10^{1}	millimeter (mm)
inch squared (in^2)	6.452	centimeter squared (cm^2)
foot (ft)	3.048×10^{-1}	meter (m)
mile (mi)	1.609	kilometer (km)
gallon (gal)	3.785	liter (L)
	3.785×10^{-3}	cubic meter (m^3)
gallon per minute (gal/min)	6.309×10^{-1}	liter per second (L/s)
foot squared per day (ft^2/d)	9.290×10^{-2}	meter squared per day (m^2/d)
pound per square inch (lb/in^2)	6.894×10^{3}	Newton per square meter (N/m^2)
pound per square foot (lb/ft^2)	4.788×10^{1}	Newton per square meter (N/m^2)
foot per day (ft/d)	3.048×10^{1}	meter per day (m/d)
gallon per minute per foot of drawdown [(gal/min)/ft]	2.070×10^{1}	liter per second per meter [(L/s)/m]
microsecond per foot (ms/ft)	3.280	microsecond per meter (ms/m)
°F = 9/5(°C) + 32		°C = 5/9(°F - 32)

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ABSTRACT

One exploratory hole, a test injection well, and nine monitor wells were constructed at the South Cross Bayou test-injection site between January 1973 and October 1975. The exploratory hole was drilled to a depth of 3,280 feet below land surface. The test injection well, 856 feet distant from the exploratory hole, is uncased from 961 to 1,080 feet. Four of the monitor wells were constructed within the exploratory hole and range in depth from 520 to 1,224 feet and two of the monitor wells, within 140 feet of the exploratory hole, are 35 and 94 feet deep. The remaining three monitor wells are within 106 feet of the test injection well and range in depth from 250 to 800 feet.

At the test site, the first 125 feet below land surface is predominantly limestone and clay; from 125 to 3,280 feet it is mostly limestone and dolomite. Gypsum is also present below 1,260 feet.

During the 33-hour withdrawal test in which well A1 was pumped at a rate of 5,000 gallons per minute, the water level in well B2, uncorrected for environmental factors and 856 feet from the pumped well, declined 0.9 foot, from 1.5 to 2.4 feet below mean sea level. During the 96-hour injection test, injecting at an average rate of 4,350 gallons per minute, uncorrected water levels in well B2 rose 0.4 foot, from 2.0 feet to 1.6 feet below mean sea level. Well B2 is open to the injection test zone.

Water containing 19,000 milligrams per liter of chloride is estimated to be from a depth of about 370 feet below land surface. After completion of the injection test, the chloride concentration in water from well A2 decreased from 19,000 to 8,800 milligrams per liter. Chloride concentration in water from 16 additional wells near the test site and 25 to 302 feet deep, ranged from about 10 to 290 milligrams per liter.

INTRODUCTION

Pinellas County, in the Tampa Bay area, is experiencing a rapid population growth with an accompanying increase in environmental regulation. Limits have been placed on ground-water withdrawals, and standards regulating the quality of sewage treatment plant effluent that can be discharged to the Gulf of Mexico and Tampa Bay have been imposed. These limits and standards have resulted in a marked interest by Pinellas County in investigating subsurface storage of waste-treatment plant effluent. The benefits Pinellas County expects to gain are a reduction in the cost of their current waste-treatment plant expansion program and the creation of a potential water resource for future nonpotable reuse.

The U.S. Geological Survey, in cooperation with Pinellas County, is investigating storage of waste-treatment plant effluent in permeable saline water zones within the carbonate rocks that underlie the Pinellas County South Cross Bayou waste treatment plant (fig. 1). The U.S. Geological Survey's principal goal in this investigation is to better understand the hydrodynamic and chemical behavior of the stored water. This data for the South Cross Bayou test site will assist in that understanding.

Purpose and Scope

This report presents the hydrogeologic data collected during the drilling of wells and withdrawal and injection testing at the South Cross Bayou site. These data include lithologic descriptions and laboratory analyses of drill cuttings and cores, results of withdrawal and injection tests, hydrographs, geophysical logs, and chemical analyses.

Data were collected at the test site to assist in the evaluation of the following objectives: (1) Determine if transmissive zones exist in the subsurface which can accept large volumes of waste effluent; (2) determine the water-quality profile at the site; (3) evaluate local effects of well injection on freshwater; and (4) design a long-term monitoring program. These and other determinations will be given in a subsequent interpretive report.

To provide data for these objectives, one exploratory hole and 10 wells were constructed; withdrawal and injection tests were performed; and water from the wells at the test site and from selected wells near the site were sampled and analyzed.

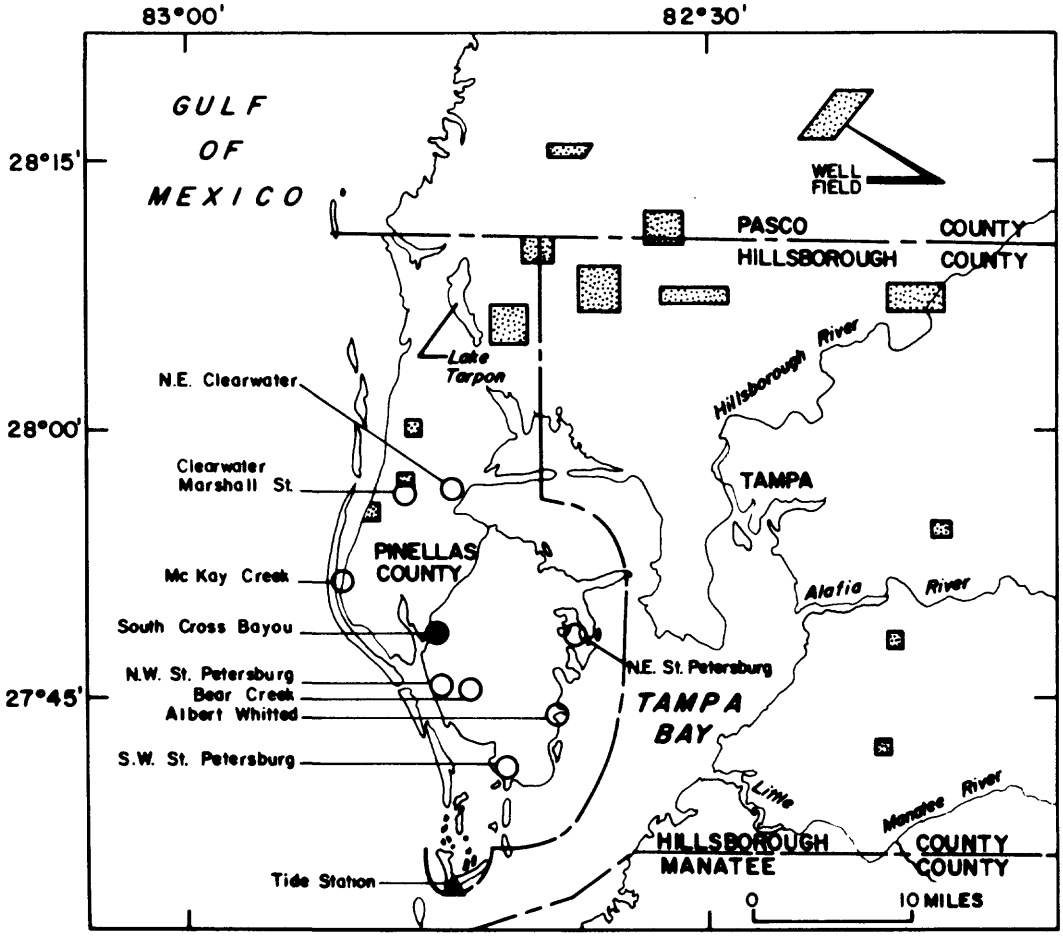

Figure 1.--Location of the South Cross Bayou test injection site, other proposed injection sites, and Tampa Bay area municipal well fields.

Previous Investigations

The geology and hydrology of Pinellas County have been the subjects of several investigations. Chen (1965) described the lithology penetrated from 500 to 5,000 ft below land surface by an oil test hole in Pinellas County as part of his regional stratigraphic analysis of the Paleocene and Eocene rocks of Florida. Heath and Smith (1954) and Black, Crow and Eidsness (1970) analyzed the upper carbonate rock section to depths seldom exceeding 400 ft, mostly from a water-supply point of view. Black, Crow and Eidsness (1974) investigated the potential for storing stormwater runoff and recovering it from saline zones within the carbonate rocks for the city of St. Petersburg and the Florida Department of Natural Resources. As part of their investigation, a test hole was drilled to a depth of 3,504 ft. They concluded from their investigation that most of the transmissive zones capable of accepting large volumes of stormwater runoff were less than 1,270 ft below land surface. In addition to other tests, two injection tests, each lasting 1 day, were run on a zone between 1,180 and 1,270 ft. Black, Crow and Eidsness (1974) reported a transmissibility of 107,000 ft^2/d for the test-injection zone. Greenleaf and Telesca (1975) described the well construction at the South Cross Bayou test-injection site. Rosenshein and Hickey (1977) discussed the vertical distribution of permeable zones within the carbonate strata underlying the Pinellas peninsula and their potential use for storing treated sewage effluent and stormwater. Hickey (1977) presented hydrogeologic data collected at the McKay Creek injection test site.

Regional Hydrogeologic Setting

The Tampa Bay area, including the South Cross Bayou test site, is underlain by carbonate strata to a depth of about 10,000 ft below land surface (Applin, 1951), with a surficial cover of sand, marl, and clay. The upper 1,300 ft of the carbonate strata has a number of very permeable zones, which together, constitute one of the most productive aquifers in the world--the Floridan aquifer (Parker, 1955). The transmissivity of the aquifer where it is tapped for water supplies--east and north of Tampa Bay--is estimated to range from about 32,000 ft^2/d to more than 270,000 ft^2/d (Rosenshein and Hickey, 1977). The permeable zones within the aquifer are thought to be separated by carbonate strata of relatively low permeability (Rosenshein and Hickey, 1977). In general, the flow of potable ground water in the Floridan aquifer is westward toward the Gulf of Mexico and Tampa Bay.

The upper part of the carbonate strata in the Tampa Bay area generally is overlain by less than 200 ft of surficial sand, marl, and clay. The clay commonly forms the basal strata of these surficial deposits and, in northwest Hillsborough County, is in part a weathered residue of the underlying carbonate rock. There, according to Sinclair (1974, p. 24-26), the clay has a vertical hydraulic conductivity of less than 0.003 ft/d.

The surficial sand in the study area is less than 35 ft thick. During dry weather it is generally saturated to within 5 to 10 ft of the land surface. During wet weather, the water table in the sand is at or near land surface. In the northwest Hillsborough County area, the sand has a horizontal hydraulic conductivity of about 13 ft/d and a vertical hydraulic conductivity ranging from 0.36 to 13 ft/d (Sinclair, 1974, p. 13).

Summary of South Cross Bayou Test Site Data

Depth of exploratory hole	3,280 ft
Injection test well	cased to 961 ft; open hole to 1,080 ft
Observation wells	1 within injection zone 1 below injection zone 7 above injection zone
Lithology	0 to 125 ft, sand, clay and limestone; 125 to 3,280 ft, limestone and dolomite; below 1,260 ft, gypsum is also present
Cored intervals	670 to 719 ft 910 to 920 ft
Vertical intrinsic permeability of cores	2.37×10^{-10} to 6.12×10^{-10} cm^2
Effective porosity of cores	0.1 to 30 percent
Compressibility of cores	3.1×10^{-7} to 1.6×10^{-6} in^2/lb
Hydraulic tests	1 withdrawal test at 5,000 gal/min 1 injection test at 4,350 gal/min
Chloride concentrations	31 to 35 ft, 25 mg/L; 90 to 94 ft, 52 mg/L; 200 to 250 ft, 450 mg/L; 370 to 2,100 ft, 1,900 mg/L; 2,100 to 3,280 ft, 25,000 to 31,000 mg/L

WELL CONSTRUCTION

One exploratory hole, a test injection well, and nine observation wells were drilled between January 1973 and October 1975 at the South Cross Bayou test site (table 1). The exploratory hole and the test injection well are 856 ft apart. Of the nine observation wells, four are within the exploratory hole and three are within 140 ft of it. All three remaining observation wells are within 106 ft of the test injection well. Greenleaf and Telesca (1975) describe in detail the construction history of the wells.

Exploratory Hole

An exploratory hole (well E1) was drilled to a depth of 3,280 ft below land surface for provisional identification of permeable and semipermeable strata at the South Cross Bayou test site. Location of this well and other wells at the site are shown on figure 2. Conventional and air-reverse rotary drilling methods were used to drill well E1. The upper 450 ft of hole was drilled with conventional rotary mud circulation because experience indicated that this section of carbonates had the potential for collapse when drilled with the air-reverse method. After placing a 16-in casing to 374 ft and cementing the annulus to land surface, drilling continued to 2,176 ft using the air-reverse method. An 8-in casing was installed to 1,863 ft and cemented back to 1,620 ft; well E1 was then drilled to 3,280 ft.

Observation Wells in the Exploratory Hole

Four observation wells (B1, B2, B3, and B4) were constructed in the exploratory hole (well E1) from 463 ft to 1,224 ft below land surface (fig. 3). The exploratory hole was plugged back with gravel and a cap of cement from 3,280 ft to 1,600 ft before these wells were constructed. Well B1 has a 2-in casing attached to a packer placed at 1,150 ft and monitors a perforated interval in the 8-in casing from 1,210 to 1,224 ft. Well B2 has an 8-in casing and monitors a perforated interval in the 8-in casing above the packer open to the interval from 1,025 to 1,055 ft. Wells B3 and B4 have 2-in casings and are screened and gravel packed from 780 to 815 ft and 463 to 520 ft. All of the wells are separated by cement in the annulus of the 8-in casing. Figure 3 and table 1 show the construction of these wells.

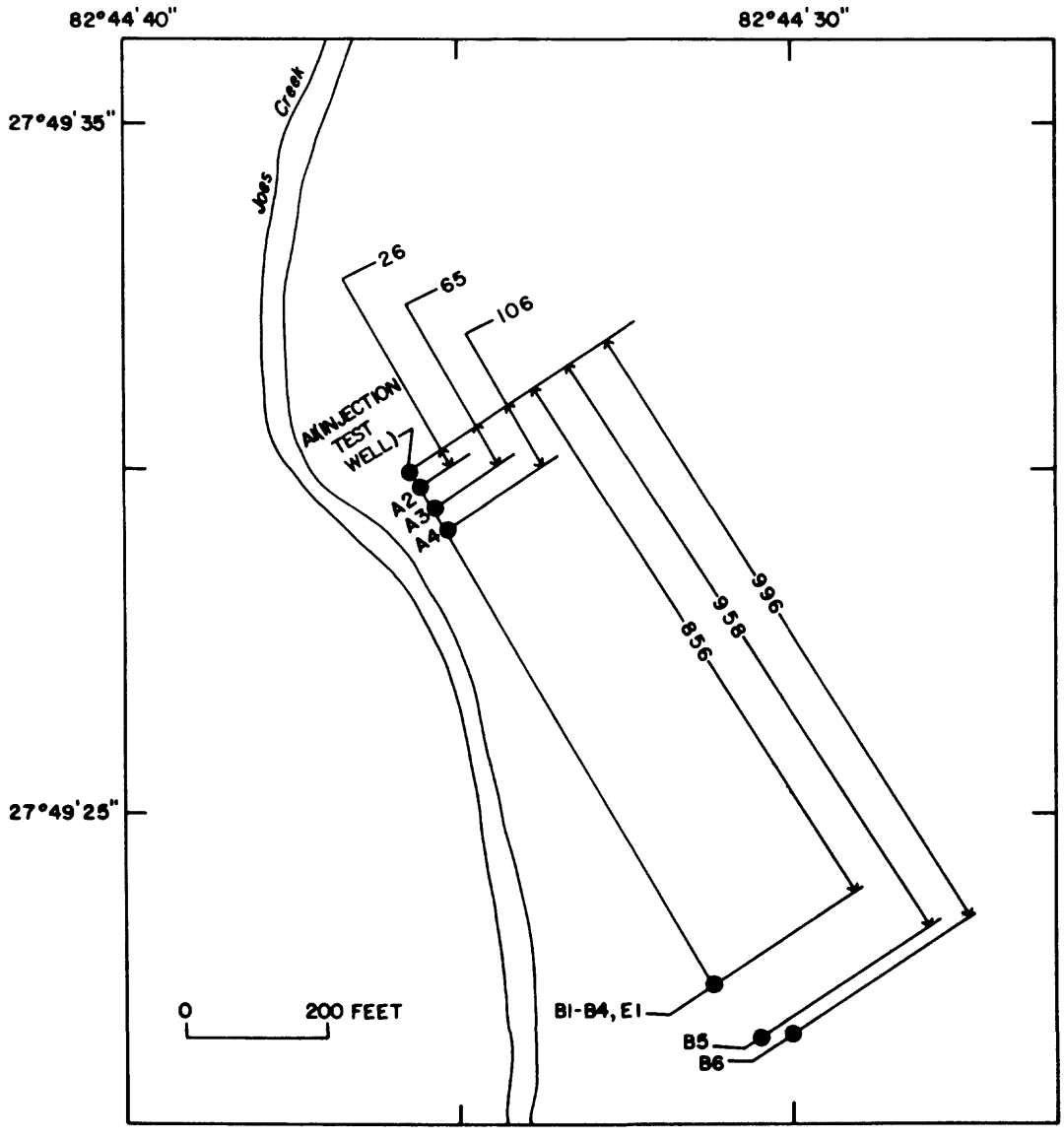

Figure 2.--Exploratory hole and wells at the test site.

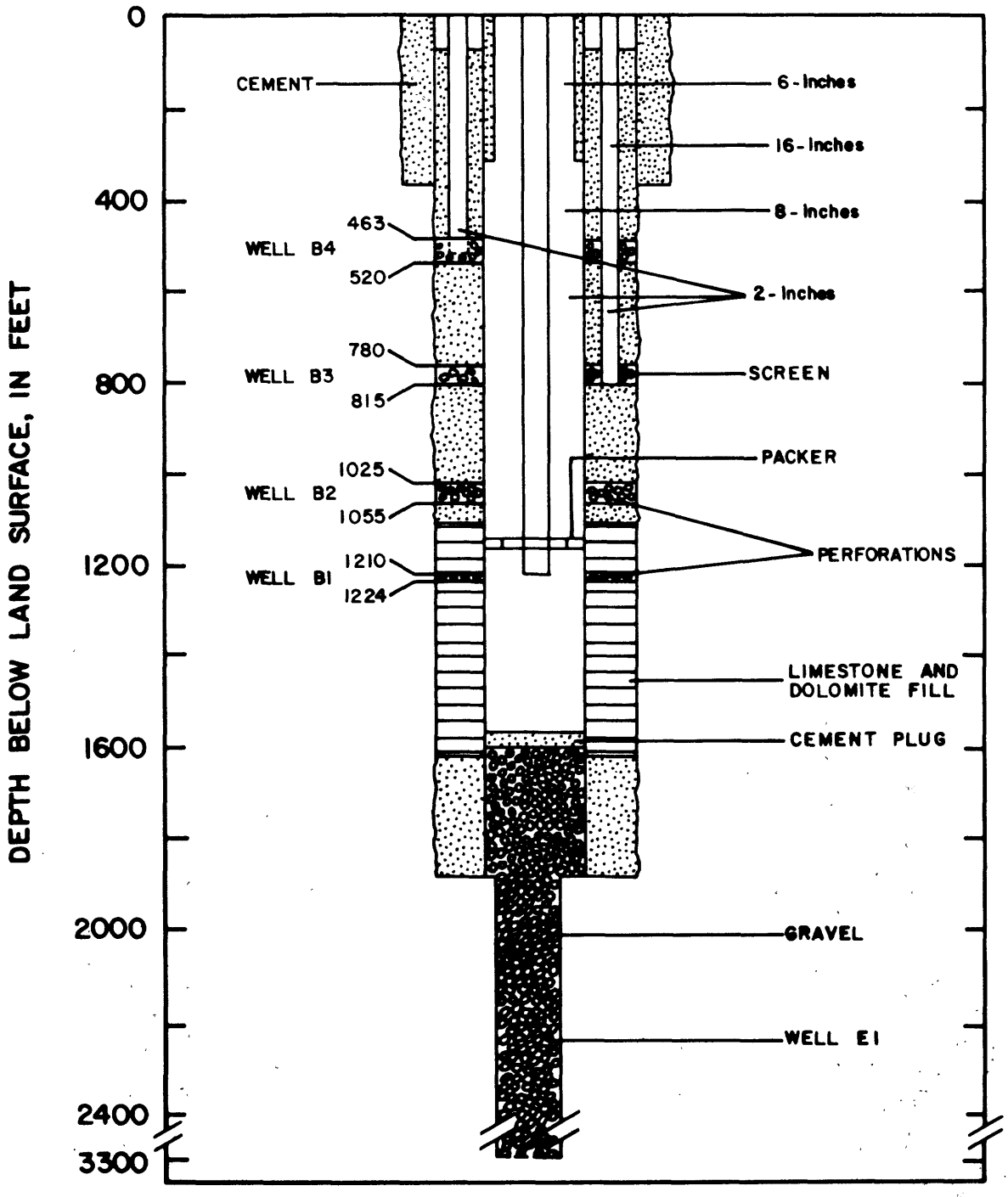

Figure 3.--Construction of wells B1, B2, B3, B4, and E1.

Observation Wells near the Exploratory Hole

The two observation wells, B5 and B6 (fig. 4), were constructed near the exploratory hole. Well B5 is 102 ft from the exploratory hole (fig. 2) and has a 2-in casing and a well point set from 90 to 94 ft. Well B6 is 140 ft from the exploratory hole (fig. 2) and has a 2-in casing and a well point set from 31 to 35 ft.

Test Injection Well and Nearby Observation Wells

The test injection well (well A1 on fig. 5) is 856 ft distant from wells B1-B4 (fig. 3). A 36-in casing was set at 380 ft and the annulus cemented back to land surface. Then, a 24-in casing was set at 961 ft and the annulus cemented back to 500 ft. The well is an open hole from 961 to 1,080 ft.

The injection well was drilled with conventional rotary mud circulation from land surface to 988 ft. Mud circulation was lost between 762 and 802 ft. This interval was cemented and drilling continued with mud. The mud level in A1 dropped at the depths 903, 945, 947, and 960 ft but immediately recovered. Mud circulation was again lost between 975 and 988 ft.

Cores were taken in two strata during the drilling of well A1. Descriptions and laboratory analyses of these cores are presented later in this report.

Observation wells, A2, A3, and A4 (fig. 2), are 26 ft, 65 ft, and 106 ft from well A1, the injection test well. They have 6-in casings which are cemented to land surface. A2 is open from 746 to 800 ft, A3 from 473 to 521 ft, and A4 from 200 to 250 ft. Figure 5 shows the construction of these wells.

HYDROGEOLOGIC DATA

Hydrogeologic data collected at the South Cross Bayou injection test site include descriptions and laboratory analyses of drill cuttings and cores, withdrawal and injection test results, water-level hydrographs, geophysical logs, and water-quality analyses.

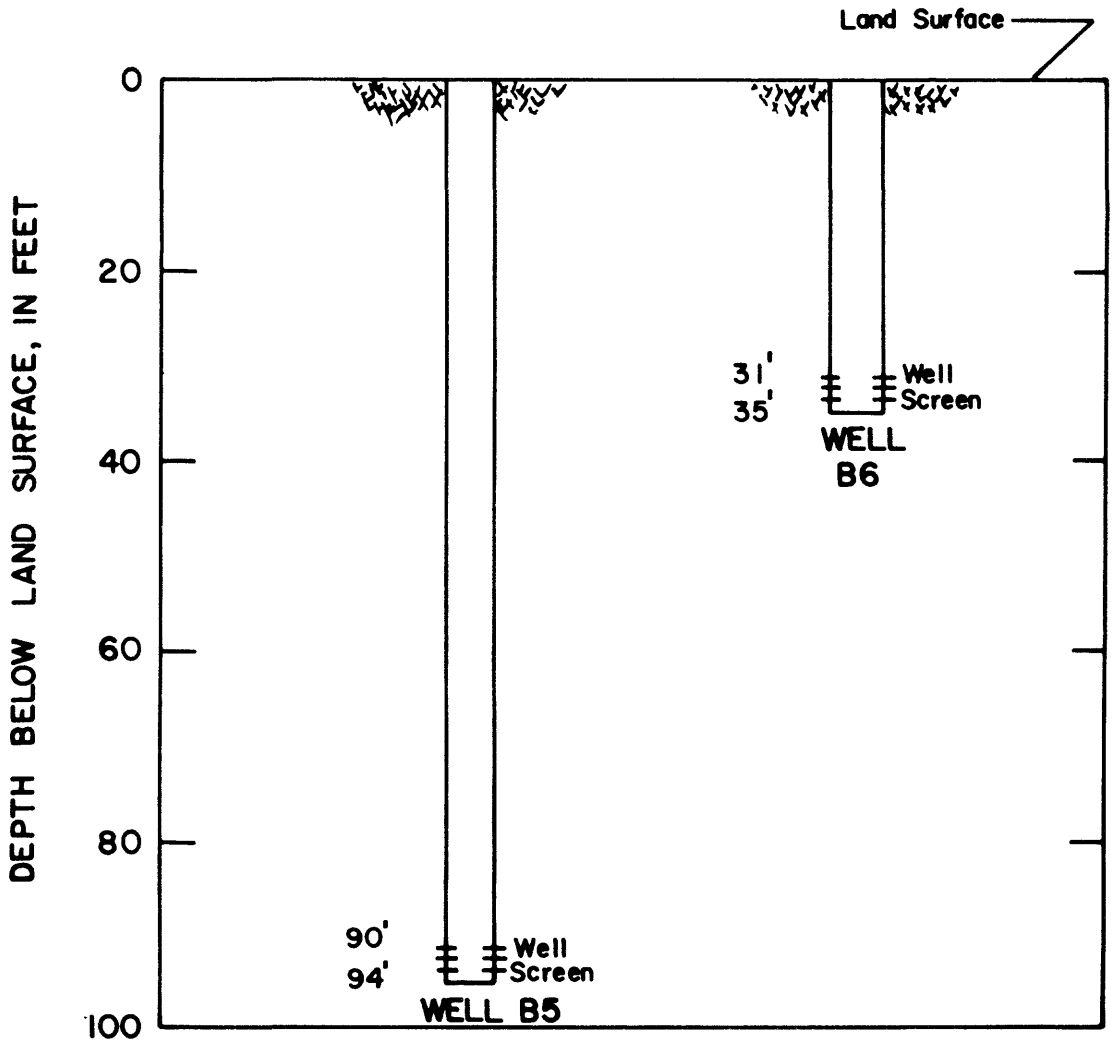

Figure 4.--Construction of wells B5 and B6.

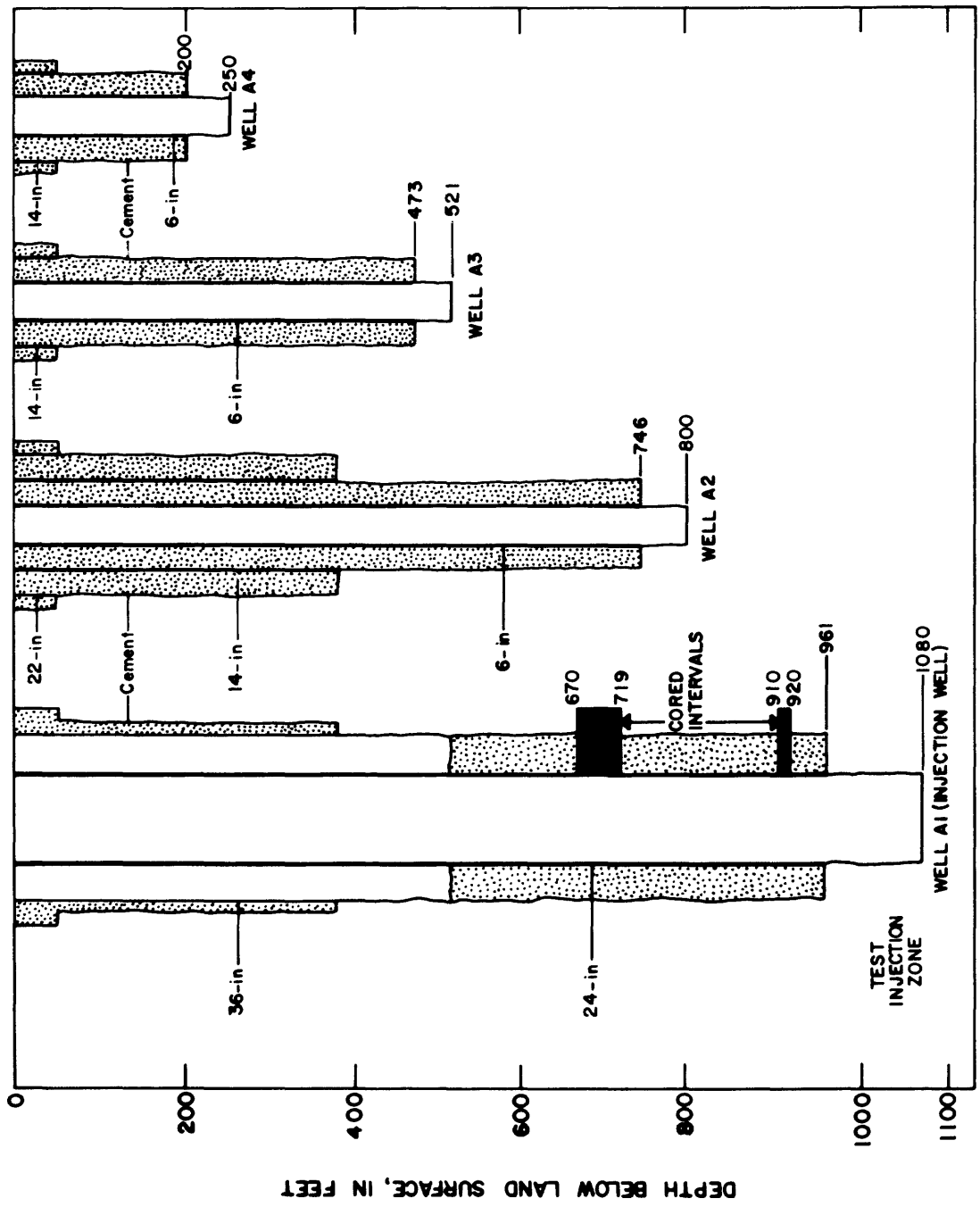

Figure 5.--Construction of wells A1, A2, A3, and A4.

Drill Cuttings and Cores

Drill cuttings were collected every 10 ft from each hole drilled at the South Cross Bayou site. These cuttings were sent to the Florida State Bureau of Geology in Tallahassee, Florida, as required by state law. Descriptions of the cuttings from well E1 are given in table 2. A graphic lithologic log of well E1 and depths at which cores were obtained from well A1 is shown in figure 6. The mineralogy of drill cuttings and cores from selected depths is given in table 3.

Cores of two strata were taken during the drilling of well A1 from 670 to 719 ft below land surface (9 ft of core recovered) and 910 to 920 ft (3 ft of core recovered). Core descriptions are given in table 4. Laboratory analyses were performed by Core Laboratories, Inc., Dallas, Texas, and the U.S. Geological Survey Hydrologic Laboratory, Lakewood, Colorado. Analyses included air and water vertical intrinsic permeability, porosity, interval transit time, and compressibility. These measurements are presented in tables 5, 6, and 7.

Hydraulic Testing

Short-term Withdrawal and Injection Tests

Short-term withdrawal and injection tests were performed in well A1 and water-level drawdown and buildup were measured in wells A1 and B3. The procedure involved pumping A1 for 2 hours at one rate, allowing 2 hours for the water levels to recover, then starting the next step test at a higher pumping rate. The purpose of these tests was to determine if Darcy's law is applicable for radial flow in the test injection zone and to determine total well losses (Jacob, 1947) and casing losses in well A1. Table 8 lists the water-level measurements made in well B3 during these tests and table 9 lists the measurements in well A1.

Short-term withdrawal tests were performed on wells E1 and A4. During the test, well E1 was uncased from 1,853 to 3,280 ft. Discharge and water-level data for these tests are given in tables 10 and 11.

Water levels, instead of drawdowns, are given in this report for tests which exceed 1 hour because several environmental factors cause natural fluctuations at the South Cross Bayou test site. These factors, which have to be accounted for in computing the drawdowns, include tidal changes in the Gulf of Mexico, periodic dilation of the rock column caused by earth tides, barometric pressure changes, and regional trends in groundwater levels.

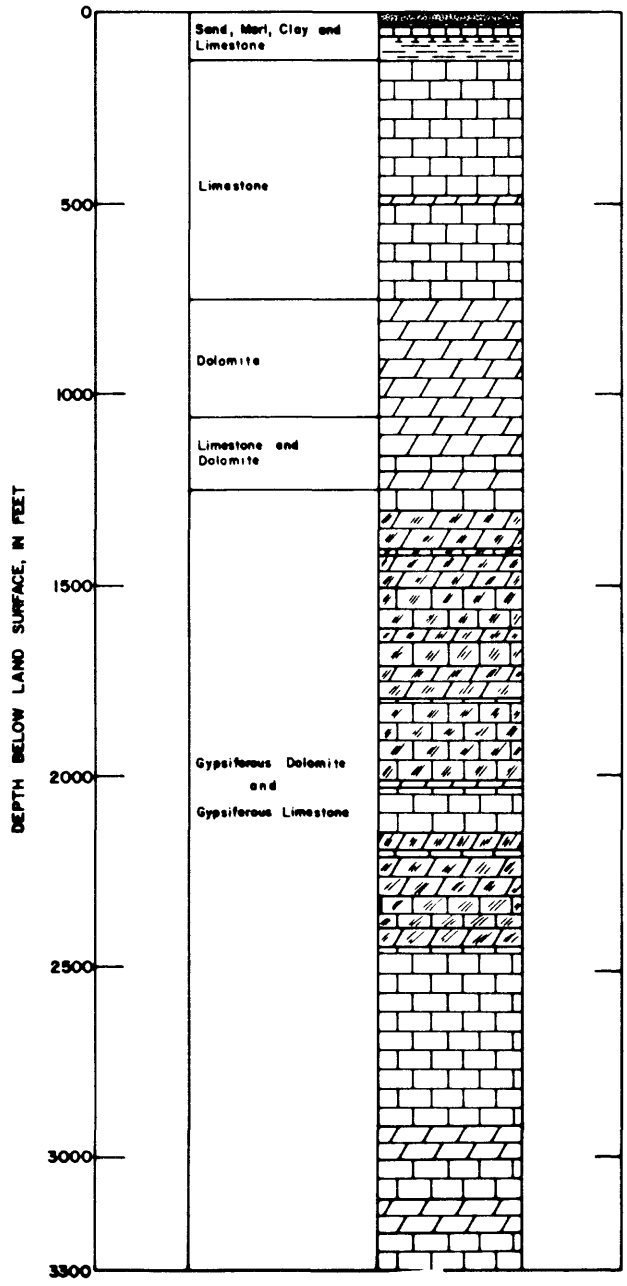

Figure 6.--Lithologic log of well E1.

Withdrawal Test

Well A1, the test-injection well, was pumped at a rate of 5,000 gal/min for 33 hours from October 16 to October 18, 1974. Water levels were measured during the test in wells A1, A2, A3, A4, B1, B2, B3, B4, and B5. The measurements are listed in tables 12 through 14.

Injection Test

From October 30 to November 3, 1974, a total of 96.33 hours, water from Joe's Creek (fig. 1) was injected into well A1 at an average rate of 4,350 gal/min. The injected water ranged in chloride concentration from 92 to 2,400 mg/L and was 820 mg/L near the end of the test. Prior to the test, well-head pressure in well A1 was 5.6 lb/in^2, and at test end it was 9.1 lb/in^2. Bottomhole pressure in well A1 is shown in table 15. Water levels in wells A2-A4 and B1-B4 are shown in table 16.

On November 8, 1974, well A1 was allowed to backflow. Backflow lasted 11 minutes and was estimated between 9,000 and 17,000 gal--a backflow volume less than the 21,650-gal casing volume of A1. Chloride concentration of the backflow water ranged from 810 to 850 mg/L. Nine minutes after backflow ceased, water from Joe's Creek again was injected into A1, this time for 1 hr at a rate of about 2,000 gal/min. The well was immediately allowed to backflow. Significant backflow lasted for about 10 minutes--a small stream of water (less than 1 gal/min) flowed for an additional 53 minutes. Total backflow volume cannot be estimated, but it likely exceeded the casing volume of well A1 because hydrogen sulfide, a common constituent in ground water in the test area, was smelled just before major backflow ceased. From 8 to 63 minutes after start of backflow, chloride concentration ranged from 5,600 to 9,410 mg/L. After backflow ceased, 19,000 gal of water was withdrawn from well A1. Chloride concentration after withdrawing that volume was 19,000 mg/L.

Water-level hydrographs that cover the time spans of the withdrawal and injection tests for wells A2, A3, A4, B1, B2, B3, and B4 are shown on figures 7 and 8. Water levels in A2 changed substantially during and after the injection test (fig. 7).

Geophysical Logs

Geophysical logs were run in the test wells at the South Cross Bayou test site while the wells were being drilled. Tables 17, 18, and 19 are a summary of all of the geophysical logs run at the test site. Caliper and flowmeter logs for well A1 are shown on figure 9. A graphic lithologic log with caliper, resistivity, flowmeter, and a temperature profile

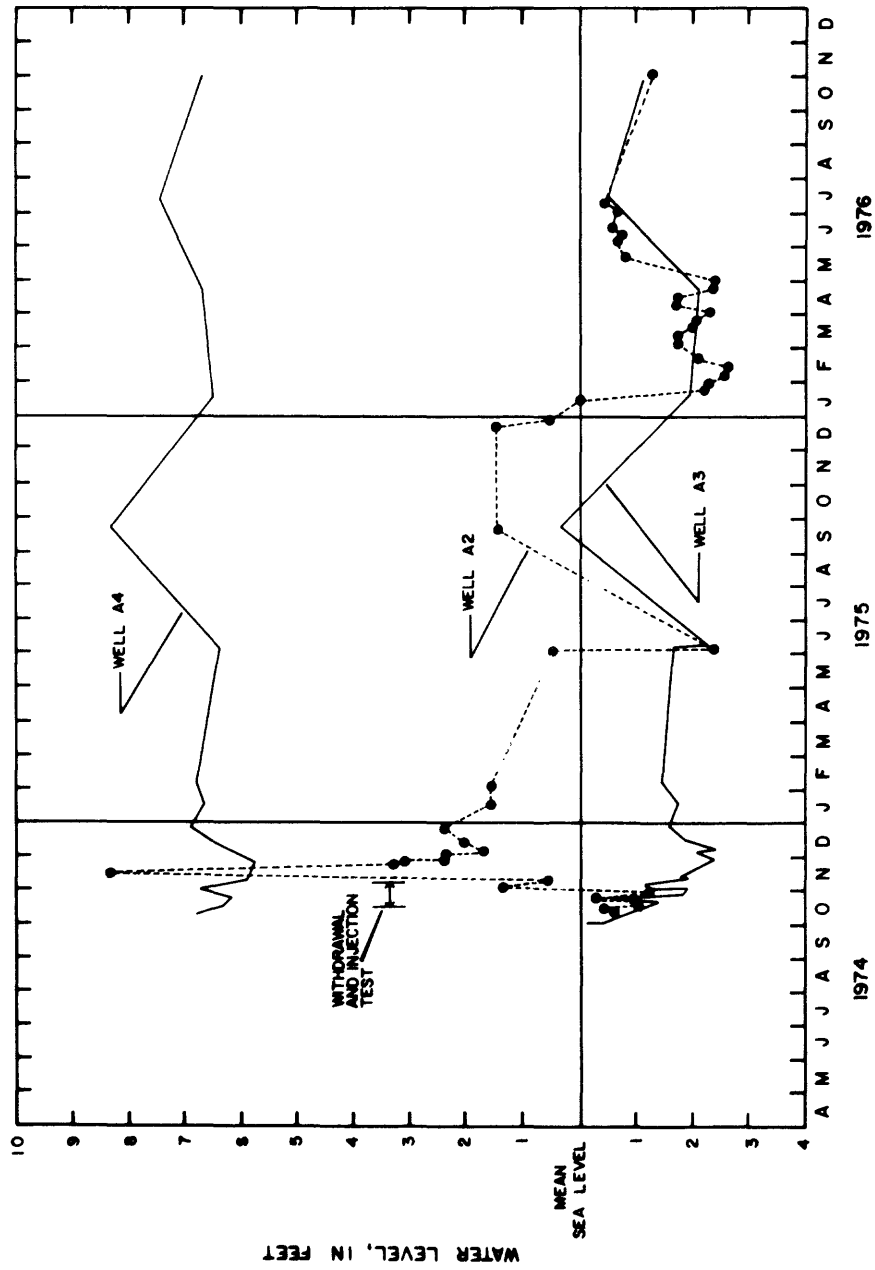

Figure 7.--Hydrographs of water levels in wells A2, A3, and A4, 1974-76.

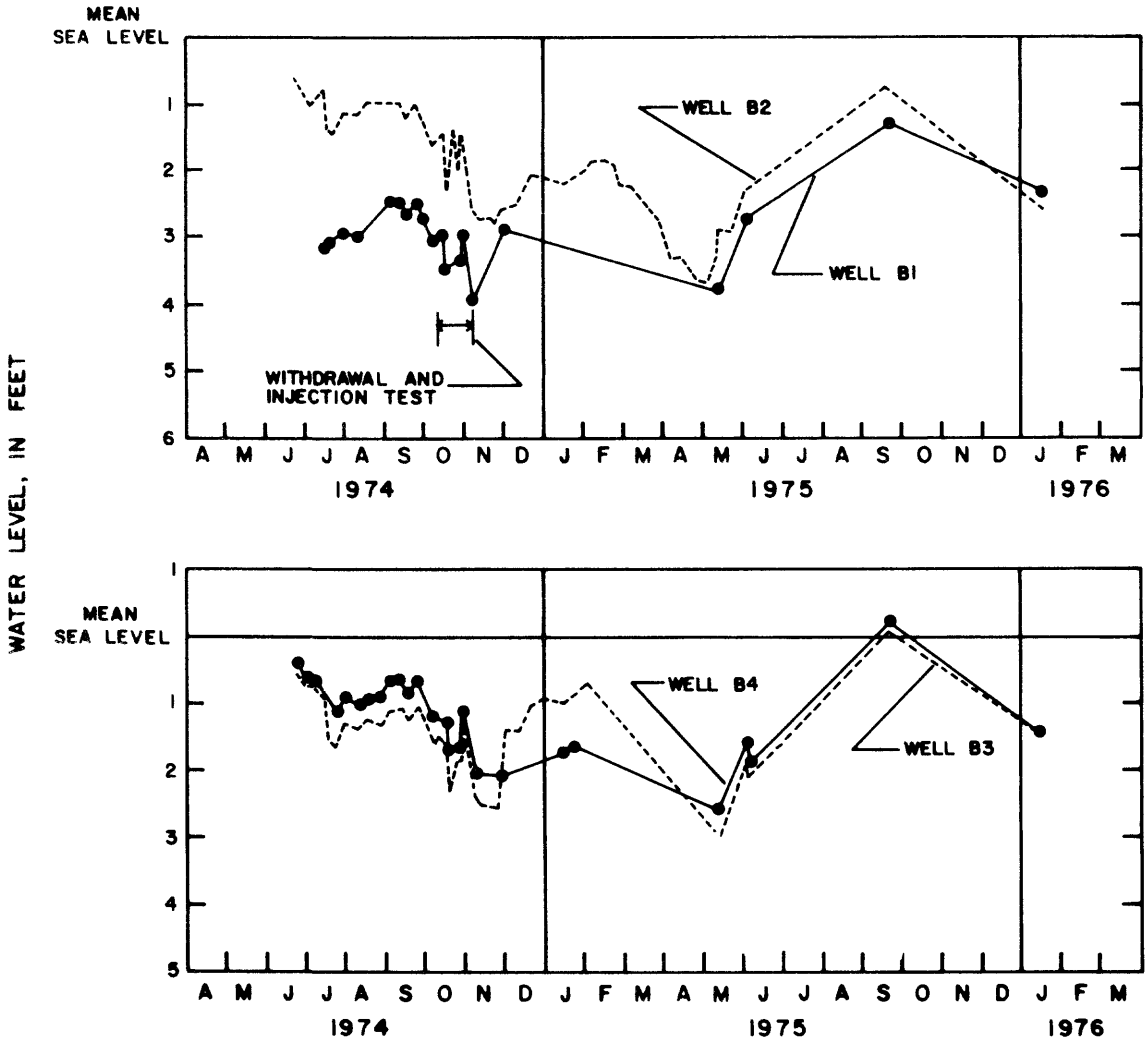

Figure 8.--Hydrographs of water levels in wells B1, B2, B3, and B4, 1974-76.

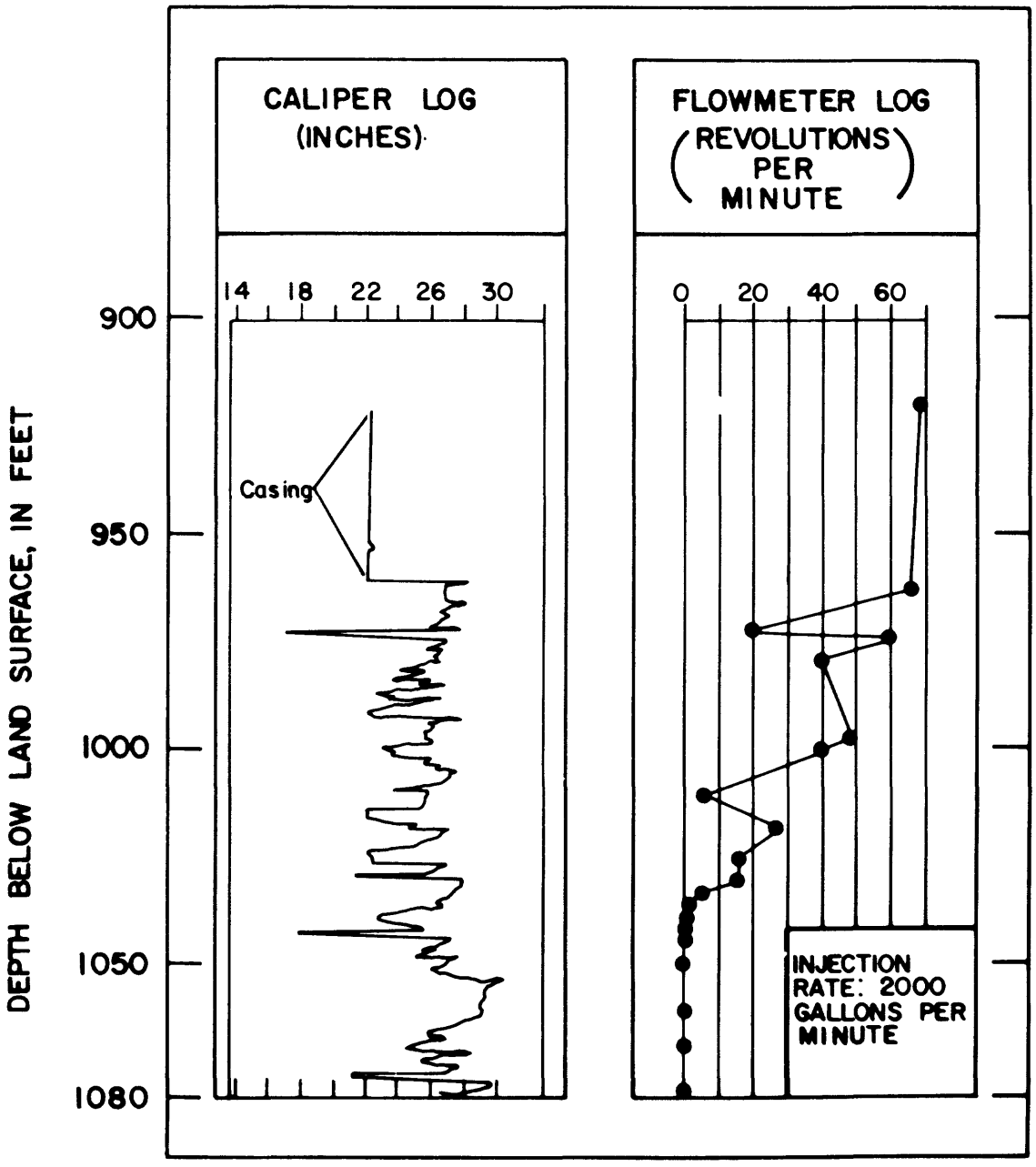

Figure 9.--Caliper and flowmeter logs of well A1.

during pumping for the upper part of well E1 are shown on figure 10. A lithologic log with caliper, static and pumping temperature profiles for the lower part of well E1 are shown on figure 11. The scale for the temperature logs in figure 11 is "counts per second" because a calibration curve correlating counts per second to temperature was not available. These logs are useful, nevertheless, for indicating where inflow is occurring within the borehole. Normal and lateral resistivity logs for well A2 are shown in figure 12.

Water-Quality Analyses

Water samples were collected for chemical analysis from well E1 (exploratory hole) during drilling, from all wells after their completion, and during and after the injection test. Table 20 shows the specific conductance and chloride concentration of water from well E1 as the well was deepened during drilling. Table 21 shows the temperature, specific conductance, and chloride concentration of water from wells A1, A2, A3, B1, B2, B3, and B4, before, during, and after the injection test. Analyses of water from well A1, after the injection test, include analyses of backflow samples, pumped samples, and point samples. Tables 22 through 24 give the chemical analyses of water from wells at the site.

Before the injection test, chloride concentration of the native formation water from wells at the site increased with depth. For example, water from test well A1 had a chloride concentration of 20,000 mg/L in the interval 961-1,080 ft (table 1) (table 21). Water samples from well A4, uncased from 200-250 ft, and A3, uncased from 463-571 ft, had chloride concentrations of 450 mg/L and 19,000 mg/L (table 21). Therefore, the uppermost position of water with 19,000 mg/L chloride concentration must be between 250 and 463 ft (table 1). Based on a lateral resistivity log of well A2 (fig. 12), the uppermost position of water with 19,000 mg/L chloride concentration is estimated to be about 370 ft.

The following water-quality sampling procedures were used at the wells. All water samples were pumped from wells using either centrifugal or turbine pumps. Before collecting the initial pumped water sample, the total volume within each well was removed at least once. Specific gravity, specific conductance, and temperature of the discharging water were then measured. Initial water samples were collected at the South Cross Bayou test site after the specific gravity or specific conductance and temperature of the water became constant. All other samples were collected after the total volume within each well was removed.

Freshwater was introduced into each test hole during drilling and construction. After placement of cement in wells B1-B4, freshwater was introduced to wash cement from the work pipe. A substantial volume of

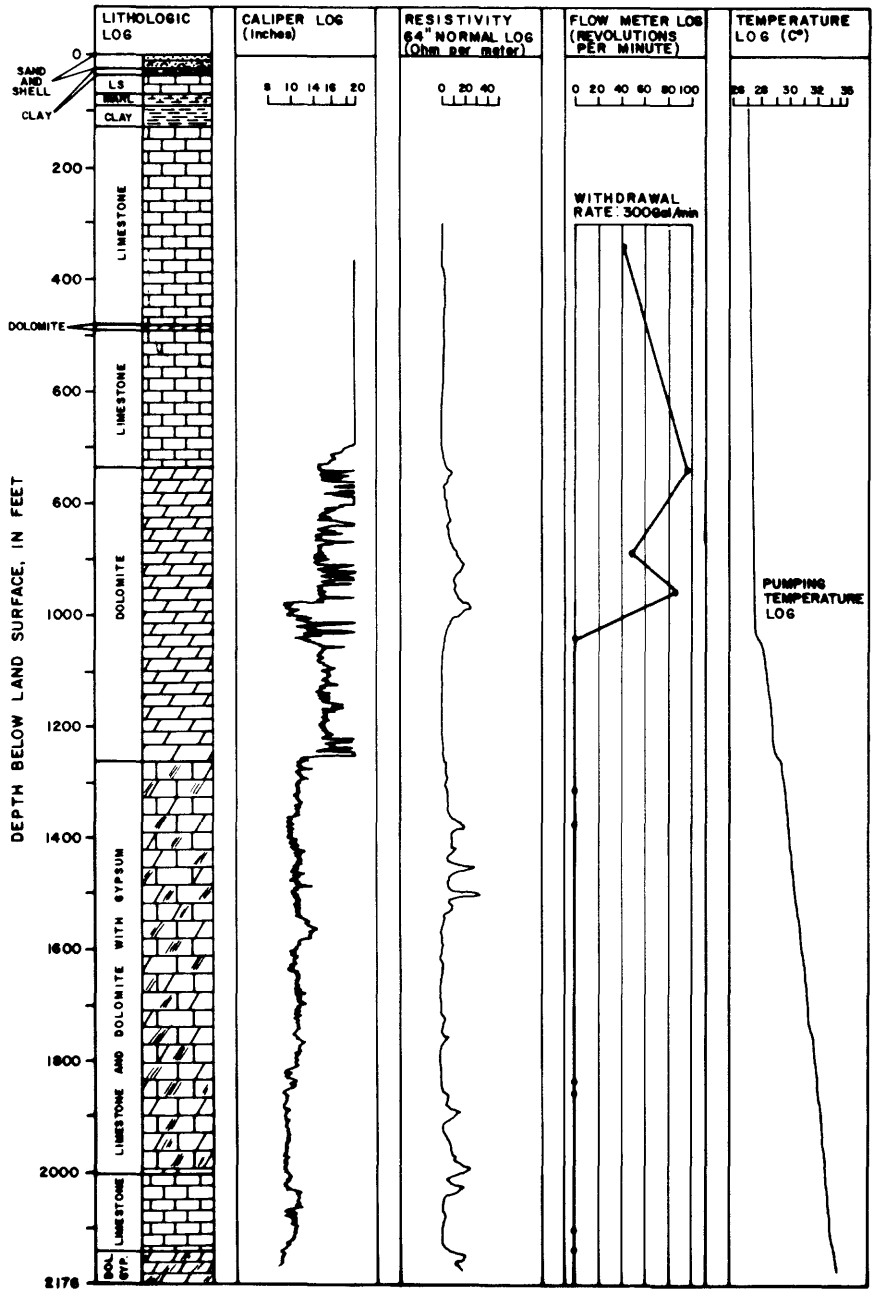

Figure 10.--Lithologic and geophysical logs of well E1, from land surface to 2,176 feet.

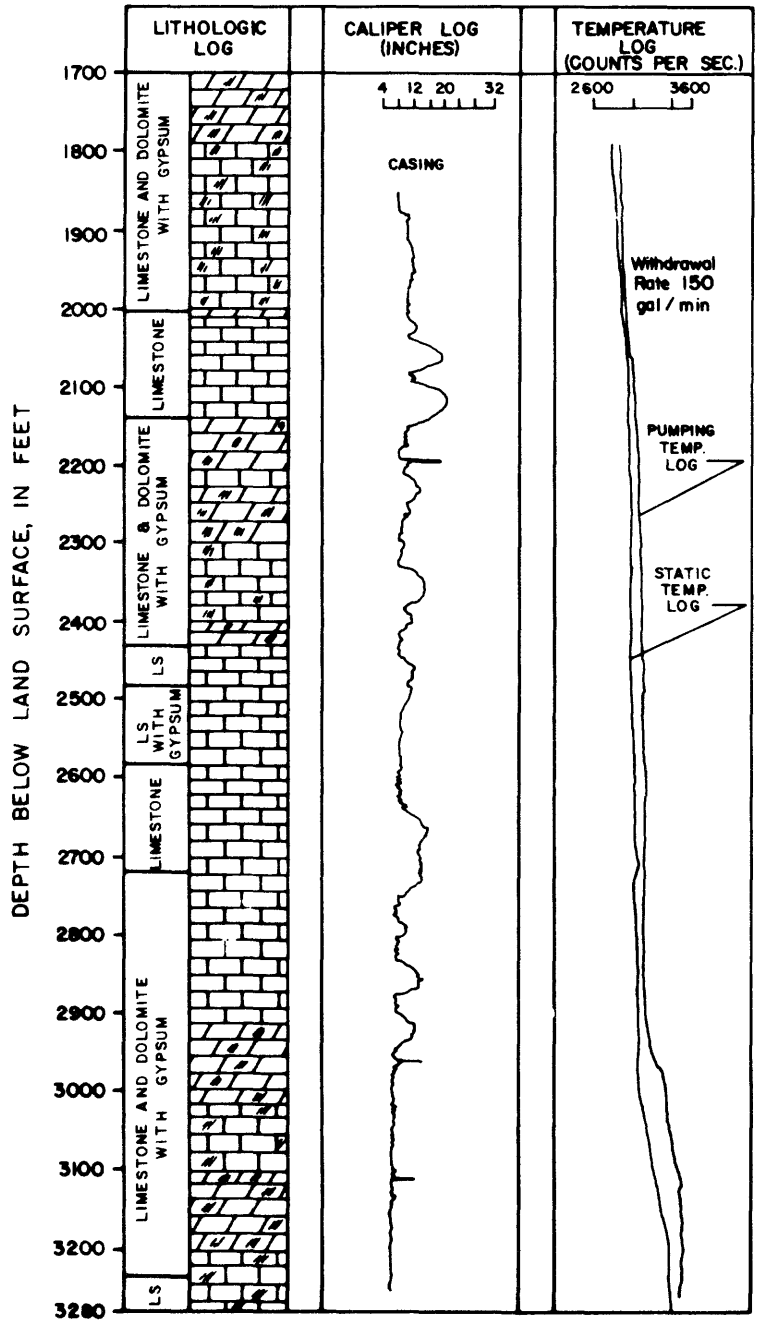

Figure 11.--Lithologic and geophysical logs of well E1 from 1,700 to 3,280 feet.

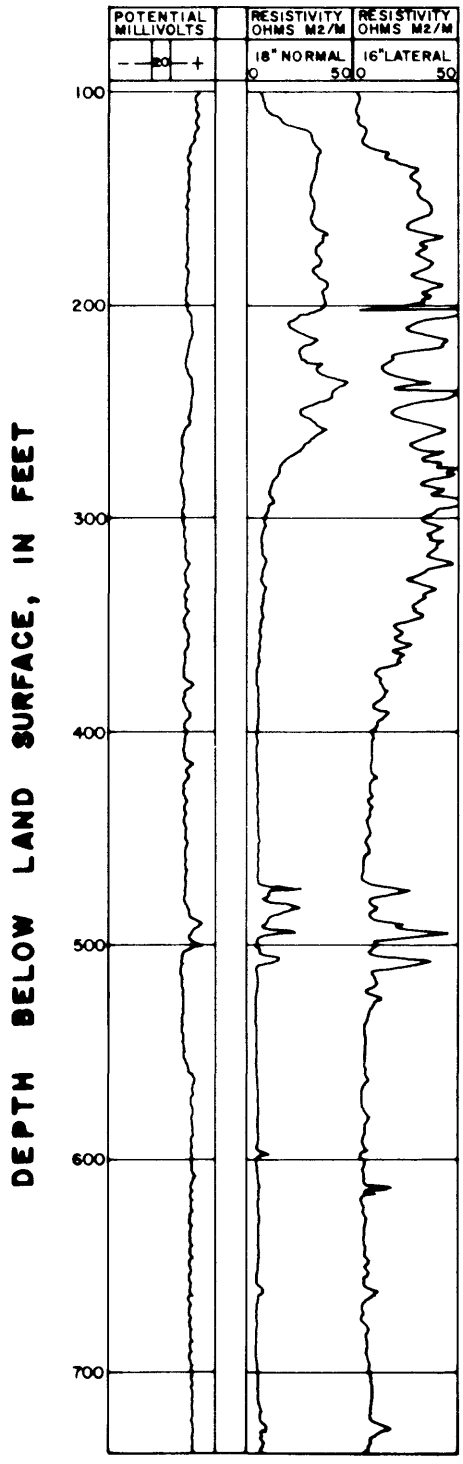

Figure 12.--Normal and lateral resistivity logs of well A2.

freshwater was introduced into well A1 during drilling when loss of circulation occurred from 762 to 802 ft and 975 to 988 ft. The disposition of this water and to what extent it mixed with the native saline waters is unknown.

QUALITY OF WATER FROM WELLS NEAR THE TEST INJECTION SITE

Wells within about a 1-mi radius of the test injection site were sampled and analyzed to provide water-quality background data prior to anticipated long-term injection at the test site. Locations of the wells sampled are shown on figure 13; reported construction data are given in table 25; and the chemical analyses of water from these wells are given in tables 26 and 27. Chloride concentration of water from the wells near the test site ranged between 9.8 to 290 mg/L. Reported depth of these wells ranged from 25 to 302 ft.

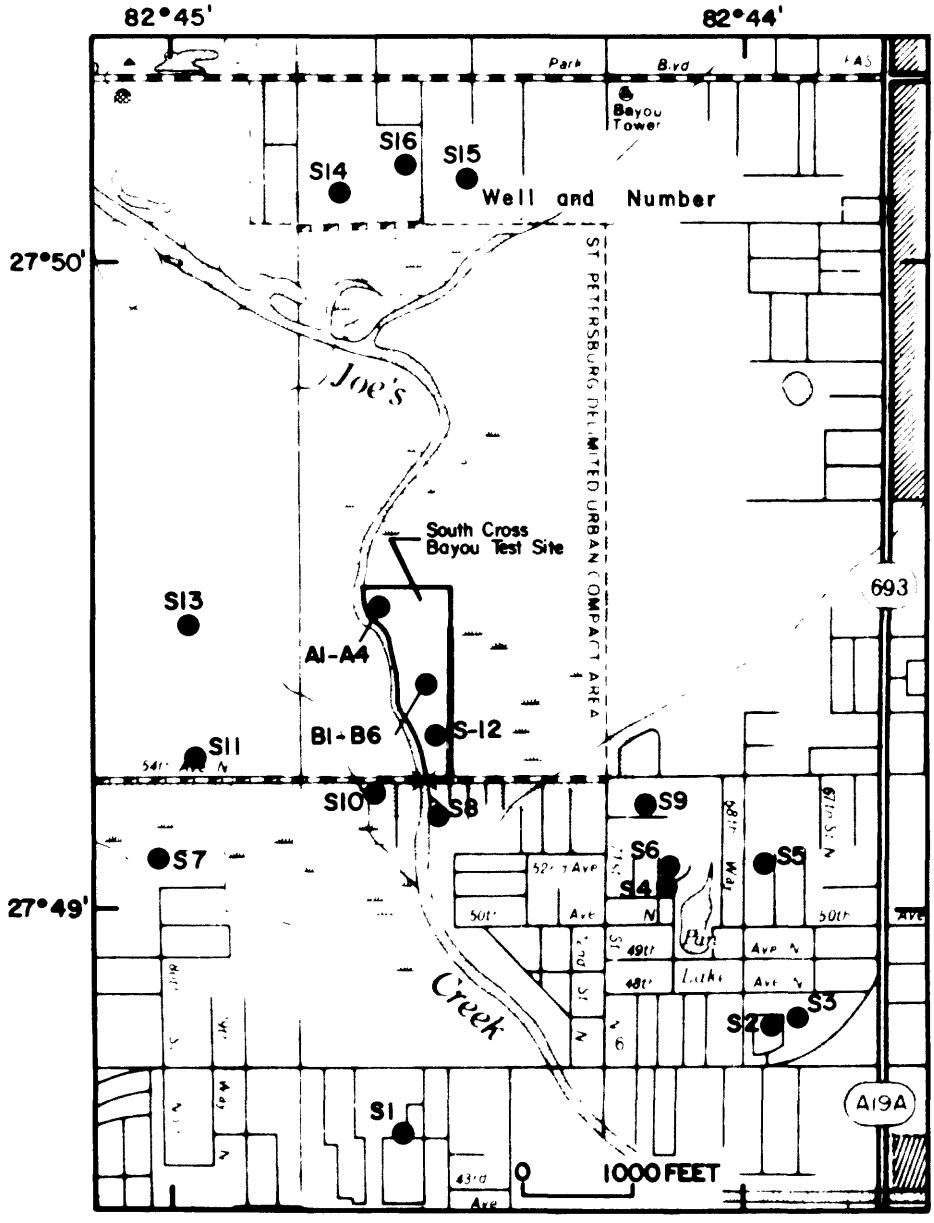

Figure 13.--Location of selected wells near the South Cross Bayou test site.

SELECTED REFERENCES

Applin, Paul L., 1951, Preliminary report on buried pre-Mesozoic rocks in Florida and adjacent states: U.S. Geol. Survey Circ. 91, 28 p.

Black, Crow and Eidsness, Inc., 1970, Water resources investigations for the Pinellas County water system, Pinellas County, Florida.

_____, 1974, Results of drilling and testing of the test stormwater injection well for the City of St. Petersburg, Florida.

Briley, Wilde and Associates, Inc., and Seaburn and Robertson, Inc., 1977, Effluent disposal well investigation, McKay Creek waste treatment facility, Pinellas County, Florida.

Chen, Chih Shan, 1965, The regional lithostratigraphic analysis of Palocene and Eocene rocks of Florida: Florida Geol. Survey Bull. 45, 105 p.

Cherry, R. N., Stewart, J. W., and Mann, J. A., 1970, General hydrology of the Middle Gulf Area, Florida: Florida Geol. Survey Rept. Inv. 56, 96 p.

Greenleaf and Telesca, Inc., 1975, Construction of test wells, South Cross Bayou Pollution Control Facility, Pinellas County, Florida.

Hantush, M. S., 1964, Hydraulics of wells: in Advances in Hydroscience, v. 1, edited by Ven Te Chow, p. 280-432, Academic Press, New York and London.

Heath, Ralph C., and Smith, Peter C., 1954, Ground-water resources of Pinellas County, Florida: Florida Geol. Survey Rept. Inv. 12, 139 p.

Hickey, J. J., 1977, Hydrogeologic data for the McKay Creek subsurface-injection test site, Pinellas County, Florida: U.S. Geol. Survey open-file rept. 77-802, p. 62.

Jacob, C. E., 1947, Drawdown test to determine effective radius of artesian wells: Am. Soc. Civil Engineers Trans., v. 112, p. 1047-1070.

Kaufman, M. I., 1973, Subsurface waste water injection, Florida: Am. Soc. Civil Engineers Proc., Jour. Irrigation and Drainage Div., v. 99, no IT1, p. 53-70.

Klinkenberg, L. J., 1941, The permeability of porous media to liquids and gases: Am. Petroleum Inst. Drilling Production Practices, p. 200-213.

Lohman, S. W., and others, 1972, Definitions of selected ground-water terms - revisions and conceptual refinements: U.S. Geol. Survey Water-Supply Paper 1988, 21 p.

Parker, G. G., Ferguson, G. E., Love, S. K., and others, 1955, Water resources of southeastern Florida, with special reference to the geology and ground water of the Miami area: U.S. Geol. Survey Water-Supply Paper 1255, 965 p.

Puri, Harbans S., Faulkner, Glen L., and Winston, George O., 1973, Hydrogeology of subsurface liquid-waste storage in Florida, preprints of papers presented at the Second International Symposium on Underground Waste Management and Artificial Recharge, New Orleans, Louisiana, Sept. 26-30, v. 2: Am. Assoc. Petroleum Geologists, Inc., Tulsa, Okla., p. 825-841.

Rosenshein, J. S., and Hickey, J. J., 1977, Storage of treated sewage effluent and stormwater in a saline aquifer, Pinellas Peninsula, Florida: Ground Water, v. 15, no. 4, p. 289-293.

Sinclair, William C., 1974, Hydrogeologic characteristics of the surficial aquifer in northwest Hillsborough County, Florida: Florida Bur. Geol. Inf. Circ. 86, 98 p.

Teeuw, D., 1971, Prediction of formation compaction from laboratory compressibility data: Am. Inst. Mining Metall. Petroleum Engineers Trans., v. 251, p. 263-271.

Vernon, R. O., 1970, The beneficial use of zones of high transmissivities in Florida subsurface for water storage and waste disposal: Florida Bur. Geol. Inf. Circ. 70, 39 p.

Wilson, W. E., Rosenshein, J. S., and Hunn, J. D., 1973, Hydrologic evaluation of industrial-waste injection at Mulberry, Florida, preprints of papers presented at the Second International Symposium on Underground Waste Management and Artificial Recharge, New Orleans, Louisiana, Sept. 26-30, v. 1: Am. Assoc. Petroleum Geologists, Inc., Tulsa, Okla., p. 552-564.

Table 1.--Record of wells for South Cross Bayou test injection site

Well number	Latitude Longitude	Name of well	Land-surface altitude (ft above mean sea level)	Total depth (ft below land surface)	Open interval (ft below land surface)	Casing diameter (in)	Distance from injection well A1 (ft)
A1	274929N0824435.01	Test injection well	8.0	1,080	961-1,080	24	---
A2	274929N0824435.02	Injection monitor 800	8.1	800	746- 800	6	26
A3	274929N0824435.03	Injection monitor 521	7.7	521	463- 521	6	65
A4	274929N0824435.04	Injection monitor 250	7.8	250	200- 250	6	106
B1	274922N0824431.04	Monitor 1224	8.3	1,224	1,210-1,224	2	856
B2	274922N0824431.03	Monitor 1055	8.3	1,035	1,025-1,035	8	856
B3	274922N0824431.02	Monitor 815	8.3	815	780- 815	2	856
B4	274922N0824431.01	Monitor 520	8.3	520	463- 520	2	856
B5	274921N0824430.02	Monitor 94	8	94	90- 94	2	958
B6	274921N0824430.01	Monitor 35	8	35	31- 35	2	996
E1	274922N0824431.00	Exploratory hole	8.3	3,280	---	-	856

Table 2.--Lithologic log of well E1

	Thickness (ft)	Depth (ft)
Sand, fine to coarse; some pebbles; some lignite	15	15
Shells; some sand; clay	10	25
Clay, gray-brown; sandy; shells and fossils; conglomeratic; trace phosphate	10	35
Limestone, cream, chalky, some vugs, fossiliferous; sand; some clay; phosphate	30	65
Clay, pale green; some limestone	5	70
Marl, pale green, sandy, silty; some clay; trace phosphate	15	85
Limestone, cream, chalky, fossiliferous	5	90
Clay, dark green, calcareous; sand	5	95
Sand, medium grained; clay, calcareous	5	100
Clay, gray, calcareous; sand; pebbles; trace phosphate	25	125
Limestone, cream, chalky, some vugs, fossiliferous; sand; trace phosphate	60	185
No sample	5	190
Limestone, cream-gray, dense; chert	5	195
Limestone, cream, fossiliferous; much sand	20	215
Limestone, cream-gray, some vugs	30	245
Limestone, cream, chalky, sand; trace phosphate	10	255
Limestone, cream, some vugs, fossiliferous; trace chert; trace phosphate	30	285
Limestone, cream; sand; fossiliferous; chert; phosphate	45	330

Table 2.--Lithologic log of well E1 - continued

	Thickness (ft)	Depth (ft)
Limestone, cream-buff, chalky, vugular, fossiliferous; some coquinoid	60	390
Limestone, cream-buff, chalky, granular, fossiliferous	90	480
Dolomite, yellow-brown, crystalline	10	490
Limestone, cream-buff, chalky, granular, very fossiliferous; much black chert	5	495
Limestone, cream-buff, chalky, soft, fossiliferous	40	535
Limestone, cream-buff, granular, very fossiliferous	20	555
Limestone, cream-buff, granular, very fossiliferous; sand	105	660
Limestone, granular, some vugs, oolitic, very fossiliferous	75	735
Dolomite, yellow-brown, crystalline, vugular, very porous, trace of Dictyoconus at 745; chert	310	1045
Dolomite, yellow, gray, crystalline, some vugular, some very porous; some limestone, cream; some chert	10	1055
Dolomite, cream-brown, sucrosic, vugular, dolomitic, some fossils; some chert	65	1120
Dolomite, brown, chalky, vugular, some crystalline, some fossils; trace limestone	65	1185
Dolomite, granular, sucrosic, oolitic; some limestone, cream; trace lignite	65	1250
Limestone, cream, chalky, granular	10	1260
Limestone, vugular, dolomitic; chert, dark brown-black; some dolomite; trace of gypsum	20	1280

Table 2.--Lithologic log of well E1 - continued

	Thickness (ft)	Depth (ft)
Dolomite, vugular, dolomitic; chert, dark brown-black	10	1290
Dolomite, vugular, dolomitic limestone, some chert, dark brown-black; gypsum, anhydrite	60	1350
Dolomite, cream-brown, platy; limestone, finely crystalline; gypsum	50	1400
Limestone, cream, vugular; some dolomite; chert; gypsum	30	1430
Dolomite, cream-brown, vugular, platy; some limestone, cream, some black streaks; chert; some gypsum	70	1500
Limestone, cream, vugular, dolomitic, fossiliferous; gypsum	30	1530
Limestone, cream, vugular, fossiliferous; some dolomite; much gypsum and anhydrite	20	1550
Limestone, white, chalky, vugular, fossiliferous; gypsum	20	1570
Limestone, white, chalky, less vugular, fossiliferous; some dolomite, cream brown	25	1595
Dolomite, cream-buff, vugular, fossiliferous; some limestone; chert; gypsum	40	1635
Limestone, cream-brown to yellow-brown, sandy, granular; gypsum	65	1700
Dolomite, yellow-cream, chalky, vugular; chert; much gypsum and anhydrite	90	1790
Limestone, cream-buff, chalky, dolomitic; gypsum	60	1850
Limestone, cream, chalky, vugular, dolomitic; chert; gypsum	40	1890
Limestone, cream, chalky, slightly dolomitic; gypsum	60	1950

Table 2.--Lithologic log of well E1 - continued

	Thickness (ft)	Depth (ft)
Limestone, cream-tan, vugular, dolomitic; dolomite, brown, crystalline; chert; considerable gypsum and anhydrite	50	2000
Dolomite, gray-brown to yellow-brown, coarsely crystalline; chert	10	2010
Limestone, cream, granular, nodular, coarsely crystalline, very fossiliferous (coquina), Dictyoconus	75	2085
Dolomite, yellow-brown, some vugs, crystalline; chert	5	2090
Limestone, cream, granular, finely crystalline, slightly fossiliferous; some dolomite, yellow-brown	50	2140
Dolomite, yellow-brown, vugular, crystalline; chert, gypsum	10	2150
Dolomite, cream-brown, granular; limestone; gypsum	25	2175
No sample	3	2178
Dolomite, cream-brown, granular, coarsely crystalline; limestone; some gypsum	7	2185
Dolomite, yellow-brown, coarsely crystalline; trace gypsum	15	2200
Dolomite, dark-brown	10	2210
Limestone, cream-white, very fossiliferous; dolomite, light-brown, crystalline	20	2230
Dolomite, light yellow-brown, finely crystalline; limestone; gypsum	20	2250
Dolomite, light yellow-brown, finely crystalline; limestone; gypsum; iron mineral	10	2260

Table 2.--Lithologic log of well E1 - continued

	Thickness (ft)	Depth (ft)
Dolomite, light yellow-brown, finely crystalline; limestone, finely granular or oolitic, fossiliferous; trace gypsum	5	2265
Dolomite, yellow-brown, finely to coarsely crystalline; gypsum	10	2275
Dolomite, yellow-brown, finely to coarsely crystalline; some limestone, brown, dolomitic, fossiliferous; gypsum	25	2300
Limestone, cream to yellow, granular, fossiliferous; some dolomite, gypsum	35	2335
Limestone, cream-gray, very fossiliferous (Dictyoconus?)	5	2340
Poor recovery-limestone, dolomite, gypsum, sand, iron mineral	60	2400
Dolomite, gray-brown, crystalline; some limestone; some gypsum; much of iron mineral	20	2420
Dolomite; limestone; much chert	10	2430
Limestone; much chert; iron mineral	10	2440
Limestone, cream, chalky, granular, fossiliferous; chert; much of iron mineral; caving	45	2485
Limestone, cream, chalky, granular, fossiliferous; some dolomite, yellow-brown; gypsum; iron mineral	65	2550
Limestone, cream, fossiliferous; some dolomite; some gypsum; possible contamination	35	2585
Limestone, cream-white, granular, fossiliferous; much chert	15	2600
Limestone, cream-white, granular, fossiliferous; much chert	95	2695
No samples	5	2700

Table 2.--Lithologic log of well E1 - continued

	Thickness (ft)	Depth (ft)
Limestone, cream-buff, chalky, granular, fossiliferous	15	2715
No sample	5	2720
Limestone, cream-buff, chalky, granular, fossiliferous; trace gypsum	30	2750
Limestone, cream, granular, fossiliferous; some dolomite, crystalline; trace gypsum	10	2760
Limestone, cream granular, micro-oolitic?, fossiliferous; little gypsum	20	2780
Limestone, cream, granular; some dolomite, coarsely crystalline; little gypsum	70	2850
Limestone, cream, chalky, granular, crystalline, fossiliferous; some dolomite, yellow, coarsely crystalline; trace gypsum	40	2890
Limestone, cream, very finely crystalline; little dolomite	30	2920
Dolomite, yellow to clear, coarsely crystalline; some limestone; some gypsum	30	2950
Dolomite, yellow-brown, very coarsely crystalline; some gypsum	30	2980
Dolomite, yellow-brown, coarsely crystalline; chert; some gypsum	15	2995
Dolomite, yellow-brown, coarsely crystalline; some limestone, cream-white, chalky, granular, fossiliferous	10	3005
Dolomite, yellow-brown, coarsely crystalline; gypsum	5	3010
Limestone, cream-white, chalky, granular, fossiliferous; dolomite, gray, finely crystalline; gypsum	85	3095

Table 2.--Lithologic log of well E1 - continued

	Thickness (ft)	Depth (ft)
Dolomite, gray-brown, finely crystalline; little gypsum	5	3100
Dolomite, gray-brown, finely crystalline; some chert; little gypsum	15	3115
Dolomite, gray-brown, finely crystalline; some limestone, cream, fossiliferous; some gypsum	35	3150
Dolomite, gray-brown, crystalline; limestone, cream, fossiliferous; chert; trace gypsum	50	3200
Limestone, cream-white, granular; some dolomite; trace gypsum	35	3235
Limestone, cream-white, granular; possibly micro-oolitic; some dolomite	15	3250
Limestone, yellow-brown, granular, very fine grained; dolomite; iron mineral	30	3280

Table 3.--X-ray diffraction analyses of selected lithologic samples from wells E1 and A1

[Analyses, in percent based on peak height, performed by USGS Hydrologic Laboratory, Lakewood, Colorado.]

Well	Depth (ft)	Quartz	Calcite	Dolomite	Aragonite	Siderite	Total clay minerals	Total
E1	35	16	0	0	33	0	29	78
E1	50	20	0	59	0	0	7	86
E1	155	2	97	1	0	0	0	100
E1	355	2	97	1	0	0	0	100
E1	530	0	92	0	0	0	0	92
A1	712	0	83	14	0	0	0	97
A1	716	9	98	2	0	0	0	100
E1	760	1	20	79	0	0	0	100
A1	915	0	0	99	0	0	0	99
E1	1010	0	6	85	0	0	0	91
E1	1100	0	0	100	0	0	0	100
E1	1200	2	5	93	0	0	0	100

Table 4.--Description of cores from well A1

Lithology	Depth of cored interval (ft)	Core recovery (ft)	Largest core segment (in)
No core recovered	670-710	0	
Limestone, cream to light brown, granular, some vugs, some vertical and horizontal fractures, fossiliferous	710-719	9	6
Limestone, white, very soft, no fossils	910-911	1	crushed
Dolomite, brown-gray, microcrystalline, some pin point and large vugs, some fractures which are mainly vertical and found in lower part of recovered core, no fossils	911-920	2	4

Table 5.--Vertical intrinsic permeability of cores from well A1

[Analyses performed by Core Laboratories, Inc., Dallas, Texas. Nitrogen gas intrinsic permeabilities corrected for Klinkenberg effect (Klinkenberg, 1941) by Core Laboratories. Kinematic viscosity of the formation and distilled water used in the tests were 0.960 centistokes and 0.955 centistokes, respectively. Kinematic viscosity of the nitrogen gas was 15.391 centistokes. Temperature of all of the fluids was 75°F (23.9°C). Intrinsic permeability may be converted to hydraulic conductivity as shown in Lohman and others (1972, p. 10).]

Depth of core (ft)	Nitrogen gas intrinsic permeability (cm^2)	Water intrinsic permeability	
		Formation water (cm^2)	Distilled water (cm^2)
710-713	6.12×10^{-10}	3.16×10^{-10}	3.85×10^{-10}
710-713	2.37×10^{-10}		

Table 6.--Porosity of cores from well A1

[Porosity determined by the U.S. Geological Survey Hydrologic Laboratory, Lakewood, Colorado, and Core Laboratories, Inc., Dallas, Texas.]

Depth of core (feet)	Total porosity (percent)	Effective porosity (percent)
710-713	--	30
710-713	--	28
710-713	34	31
715-717	22	19
914-916	3	0.1

Table 7.--Compressibility of cores from well A1

[Analyses performed by Core Laboratories, Inc., Dallas, Texas. Core Laboratories calculated pore volume compressibility which is change in pore volume divided by average pore volume divided by initial bulk volume divided by pressure change. Compressibility was calculated from the Core Laboratory results by multiplying pore volume compressibility by average pore volume divided by initial bulk volume. Average pore volume was calculated over a selected range of pressures. Initial bulk volume was measured at the first pressure in the selected range.]

Depth of core (ft)	Average pore volume / Initial bulk volume (percent)	Pressure (lb/in^2)		Compressibility (in^2/lb)
		External	Internal	
	Hydraulic loading of core samples (Corrected to uniaxial loading by Core Laboratories)			
710-713	30.7	2000 2000	1800 1371	1.6×10^{-6}
710-713	28.0	2000 2000	1800 1371	3.1×10^{-7}

Table 8.--Water-level drawdown and buildup in well B3 during short-term withdrawal and injection tests in well A1

Date	Elapsed time (min)	Well A1 A) withdrawal rate B) injection rate (gal/min)	Well B3 A) drawdown B) buildup (ft)
7-22-74	90	A) 820	A) 0.05
7-23-74	90	1480	.12
7-23-74	90	2340	.18
7-24-74	90	2710	.20
7-25-74	90	2840	.22
10-16-74	90	5000	.40
10-29-74	90	B) 1140	B) .06
10-28-74	90	2050	.17
10-30-74	90	3400	.29
10-30-74	90	4600	.38

Table 9.--Water-level drawdown and buildup in well A1 during short-term withdrawal and injection tests in well A1

[Buildup was measured in the casing at 38 and 958 feet below land surface. Casing depth is 961 feet.]

Date	Elapsed time (min)	Well A1 A) withdrawal rate B) injection rate (gal/min)	Well A1 A) drawdown B) buildup at 38 feet C) buildup at 958 feet (ft)
7-23-74	90	A) 1480	A) 1.03
10-16-74	90	5000	5.22
10-29-74	90	B) 1140	B) C) 1.1
10-29-74	18	2050	2.2 1.7
10-30-74	90	3400	3.8 2.9
10-30-74	90	4600	4.9 3.3

Table 10.--Water levels in well E1 during short-term well E1 withdrawal test

[Depth interval, 1,863 to 3,280 feet; test began March 25, 1974 at 2240 hours and ended March 26, 1974 at 0608 hours. Discharge of well E1 ranged from 150 to 175 gallons per minute for first hour of test. Average discharge for rest of the test was 145 gallons per minute and ranged from 140 to 149 gallons per minute.]

Time (hr)	Water level (ft below measuring point)	Time (hr)	Water level (ft below measuring point)
3-25-74		2350	52.53
1121	31.85	2400	52.63
1125	31.84	3-26-74	
1130	31.85	0010	52.75
1135	31.86	0020	52.80
1140	31.85	0030	52.95
1144	31.86	0040	53.07
1733	31.63	0050	53.21
1742	31.62	0055	53.32
1748	31.63	0102	53.43
2232	31.66	0110	53.55
2237	31.66	0120	53.54
2240	31.66	0121	53.54
2242	43.71	0130	53.57
2243	45.19	0142	53.73
2244	46.12	0150	53.71
2245	47.26	0200	53.64
2247	47.54	0203	53.70
2248	47.77	0218	53.85
2252	47.81	0221	53.84
2256	47.51	0240	53.70
2257	47.51	0258	53.76
2300	47.57	0323	53.85
2305	47.68	0340	53.91
2310	48.02	0400	53.98
2315	49.17	0419	53.99
2320	51.02	0444	54.09
2325	51.60	0504	54.12
2331	52.32	0544	54.24
2335	52.57	0609	54.31
2340	52.67	0611	54.21

Table 11.--Water levels in well A4 during short-term well A4 withdrawal test

[Test began January 16, 1976 at 1345 hours and ended January 16, 1976 at 1515 hours. Discharge of well A4 was 105 gallons per minute.]

Time (hr)	Water level (ft above (+) and below (-) mean sea level)	Time (hr)	Water level (ft above (+) and below (-) mean sea level)
1-16-76		1445	-17.23
1230	6.57	1455	-17.22
1380	6.52	1505	-17.24
1338	6.56	1515	-17.24
1342	6.59	1516	1.37
1346	-8.23	1517	3.21
1347	-16.53	1518	4.10
1349	-16.59	1519	4.70
1350	-16.70	1520	5.07
1351	-16.77	1521	5.26
1352	-16.81	1522	5.45
1353	-16.81	1523	5.59
1354	-16.85	1524	5.72
1355	-16.91	1525	5.82
1357	-16.91	1527	5.97
1400	-16.92	1529	6.07
1401	-16.95	1531	6.15
1403	-16.99	1533	6.21
1405	-17.01	1535	6.25
1410	-17.06	1540	6.33
1415	-17.06	1545	6.37
1420	-17.23	1550	6.40
1425	-17.21	1555	6.42
1430	-17.22	1605	6.45
1435	-17.22	1615	6.47

Table 12.--Water levels in well A1 during well A1 withdrawal test

[Test began October 16, 1974 at 2338 hours and ended October 18, 1974 at 0838 hours. Discharge of well A1 was 5,000 gallons per minute.]

Time (hr)	Water level (ft below mean sea level)	Time (hr)	Water level (ft below mean sea level)
10-16-74		0638	6.24
2130	1.66	0738	6.35
2200	1.65	0838	6.44
2300	1.63	0938	6.44
2330	1.63	1038	6.37
2338	1.63	1138	6.30
2393	2.98	1238	6.24
2344	6.50	1338	6.31
10-17-74		1438	6.24
0004	5.96	1538	6.25
0007	6.20	1638	6.23
0015	6.05	1738	6.25
0018	6.06	1838	6.30
0031	5.86	1938	6.30
0038	5.81	2038	6.31
0048	6.10	2138	6.31
0058	6.17	2238	6.29
0098	6.21	2338	6.26
0138	6.21	10-18-74	
0158	6.07	0038	6.26
0218	6.16	0138	6.23
0238	6.19	0238	6.16
0258	6.07	0338	6.15
0328	6.10	0438	6.15
0338	6.14	0538	6.23
0438	6.17	0638	6.23
0508	6.22	0738	6.24
0538	6.19	0838	6.26

Table 13.--Water levels in wells A2, A3, A4, B1, B2, B3, and B4 during well A1 withdrawal test

[Test began October 16, 1974 at 2338 hours and ended October 18, 1974 at 0838 hours. Discharge of well A1 was 5,000 gallons per minute. Levels shown are in feet below mean sea level.]

Date	Time (hr)	Well A2	Well A3	Well A4	Well B1	Well B2	Well B3	Well B4
10-16-77	2200	0.53	1.00	6.87	2.97	1.51	1.52	1.20
	2215	.53	1.00	6.87	2.97	1.50	1.52	1.19
	2230	.52	1.00	6.87	2.97	1.50	1.51	1.19
	2245	.51	.99	6.88	2.97	1.49	1.51	1.19
	2230	.51	.99	6.88	2.96	1.48	1.51	1.18
	2315	.50	.98	6.89	2.96	1.49	1.50	1.17
	2330	.49	.98	6.89	2.96	1.48	1.50	1.16
	2338	.48	.96	6.90	2.95	1.46	1.48	1.16
	2339	.55	.97	6.91	2.95	1.62	1.56	1.16
	2340	.70	1.02	6.91	2.95	1.69	1.63	1.18
	2341	.77	1.03	6.91	2.95	1.70	1.69	1.19
	2342	.80	1.05	6.91	2.95	1.72	1.73	1.21
	2343	.81	1.08	6.91	2.95	1.74	1.75	1.23
	2344	.82	1.10	6.90	2.96	1.74	1.76	1.24
	2345	.83	1.12	6.90	2.96	1.75	1.76	1.26
	2346	.84	1.12	6.90	2.96	1.76	1.78	1.27
	2347	.84	1.14	6.89	2.97	1.76	1.78	1.28
	2348	.85	1.16	6.89	2.97	1.77	1.80	1.29
	2353	.87	1.20	6.86	2.99	1.78	1.81	1.34
	2358	.88	1.22	6.84	3.01	1.80	1.82	1.37
10-17-74	0003	.89	1.24	6.82	3.03	1.80	1.83	1.39
	0008	.90	1.26	6.81	3.04	1.82	1.84	1.40
	0013	.91	1.27	6.80	3.05	1.82	1.85	1.41
	0018	.92	1.28	6.78	3.07	1.82	1.86	1.43
	0023	.92	1.28	6.77	3.08	1.83	1.86	1.43
	0028	.92	1.28	6.76	3.09	1.83	1.86	1.44
	0038	.92	1.29	6.75	3.10	1.83	1.86	1.44

Table 13.--Water levels in wells A2, A3, A4, B1, B2,B3, and B4 during well A1 withdrawal test - continued

Date	Time (hr)	Well A2	Well A3	Well A4	Well B1	Well B2	Well B3	Well B4
10-17-74	0048	0.94	1.31	6.73	3.11	1.85	1.87	1.46
	0058	.94	1.32	6.72	3.12	1.86	1.88	1.47
	0108	.95	1.33	6.71	3.13	1.86	1.89	1.47
	0118	.96	1.33	6.70	3.14	1.86	1.89	1.48
	0128	.96	1.34	6.70	3.15	1.87	1.90	1.48
	0138	.96	1.34	6.69	3.15	1.87	1.90	1.48
	0148	.96	1.35	6.68	3.16	1.88	1.91	1.49
	0158	.97	1.35	6.67	3.16	1.88	1.90	1.49
	0208	1.00	1.35	6.66	3.17	1.88	1.91	1.50
	0218	1.00	1.35	6.67	3.17	1.89	1.91	1.50
	0228	1.00	1.35	6.67	3.18	1.89	1.92	1.51
	0238	1.00	1.36	6.67	3.18	1.90	1.92	1.51
	0248	1.01	1.36	6.66	3.19	1.90	1.92	1.51
	0258	1.01	1.36	6.66	3.19	1.90	1.92	1.51
	0323	1.01	1.38	6.65	3.19	1.90	1.93	1.51
	0348	1.02	1.38	6.64	3.19	1.90	1.94	1.52
	0413	1.03	1.39	6.63	3.21	1.92	1.95	1.53
	0438	1.05	1.41	6.62	3.22	1.94	1.97	1.54
	0503	1.07	1.43	6.60	3.23	1.96	1.99	1.56
	0528	1.10	1.45	6.58	3.25	1.98	2.02	1.58
	0553	1.12	1.48	6.55	3.27	2.00	2.03	1.61
	0618	1.12	1.51	6.53	3.30	2.03	2.08	1.63
	0708	1.18	1.57	6.47	3.35	2.08	2.11	1.70
	0758	1.24	1.62	6.42	3.41	2.14	2.17	1.75
	0848	1.25	1.67	6.36	3.46	2.23	2.21	1.80
	0938	1.35	1.72	6.31	3.52	2.25	2.24	1.85
	1028	1.37	1.73	6.27	3.55	2.27	2.27	1.88
	1118	1.38	1.74	6.25	3.57	2.28	2.28	1.89

Table 13.--Water levels in wells A2, A3, A4, B1, B2, B3, and B4 during well A1 withdrawal test - continued

Date	Time (hr)	Well A2	Well A3	Well A4	Well B1	Well B2	Well B3	Well B4
10-17-74	1208	1.37	1.74	6.22	3.56	2.26	2.27	1.87
	1258	1.33	1.72	6.29	3.54	2.23	2.24	1.85
	1348	1.31	1.71	6.31	3.52	2.23	2.23	1.84
	1438	1.29	1.68	6.32	3.50	2.20	2.22	1.82
	1528	1.28	1.68	6.32	3.50	2.20	2.20	1.80
	1618	1.29	1.67	6.32	3.47	2.20	2.20	1.81
	1758	1.30	1.67	6.36	3.48	2.22	2.21	1.81
	1938	1.33	1.70	6.32	3.52	2.24	2.25	1.85
	2118	1.36	1.73	6.29	3.56	2.28	2.27	1.87
	2258	1.35	1.74	6.27	3.56	2.27	2.27	1.87
10-18-74	0038	1.31	1.70	6.35	3.53	2.23	2.22	1.83
	0218	1.28	1.65	6.35	3.49	2.20	2.20	1.80
	0358	1.27	1.64	6.36	3.47	2.20	2.19	1.79
	0538	1.29	1.66	6.37	3.48	2.22	2.22	1.80
	0718	1.36	1.72	6.31	3.53	2.29	2.29	1.87
	0838	1.44	1.79	6.22	3.58	2.39	2.36	1.93

Table 14.--Water levels in well B5 during well A1 withdrawal test

[Test began October 16, 1974 at 2338 hours and ended October 18, 1974 at 0838 hours. Discharge of well A1 was 5,000 gallons per minute.]

Time (hr)	Water level (ft below measuring point)	Time (hr)	Water level (ft below measuring point)
10-16-74		0952	5.53
2200	5.48	1030	5.53
2215	5.49	1200	5.56
2230	5.49	1221	5.55
2245	5.48	1245	5.55
2300	5.49	1330	5.55
2315	5.49	1430	5.54
2330	5.48	1530	5.51
2338	5.49	1630	5.49
2340	5.48	1725	5.52
2341	5.50	1935	5.52
2342	5.50	2035	5.53
2343	5.49	2304	5.52
2344	5.49	10-18-74	
2345	5.49	0020	5.49
2346	5.49	0106	5.48
2347	5.49	0238	5.47
2350	5.49	0321	5.48
2355	5.48	0436	5.48
2400	5.48	0547	5.49
10-17-74		0644	5.51
0005	5.48	0730	5.51
0010	5.46	0827	5.52
0035	5.46	0910	5.53
0043	5.41	0955	5.53
0216	5.41	1030	5.54
0344	5.43	1058	5.55
0445	5.45	1130	5.55
0525	5.45	1248	5.55
0708	5.49	1507	5.53
0838	5.51		

Table 15.--Bottom-hole pressure in well A1 during well A1 injection test

[Test began October 30, 1974 at 1547 hours and ended November 3, 1974 at 1607 hours. Average rate of injection in well A1 was 4,350 gallons per minute. Pressure measured at a depth of 958 feet in casing.]

Time (hr)	Bottom-hole pressure (ft of water above mean sea level)	Time (hr)	Bottom-hole pressure (ft of water above mean sea level)
10-30-74		1907	24.40
1505	20.83	1927	24.68
1515	20.83	1947	24.90
1534	20.73	2007	24.96
1545	20.72	2027	25.02
1546	20.73	2047	25.07
1547	20.78	2107	25.13
1548	24.12	2127	25.22
1549	24.18	2147	25.24
1550	24.18	2207	25.29
1552	24.18	2227	25.28
1553	24.16	2247	25.35
1554	24.12	2347	25.46
1555	24.12	10-31-74	
1556	24.11	0007	25.46
1557	24.01	0027	25.40
1559	24.07	0047	25.40
1601	24.01	0107	25.35
1603	24.01	0127	25.29
1605	24.01	0147	25.24
1607	23.07	0237	25.02
1612	23.96	0327	24.79
1617	24.81	0417	24.68
1622	23.99	0507	24.59
1627	23.99	0647	22.62
1637	24.01	0737	22.59
1647	24.04	0827	22.62
1657	24.01	1007	22.96
1707	23.96	1147	23.90
1717	23.96	1300	23.90
1727	23.96	1400	23.85
1747	23.96	1500	25.57
1807	23.90	1600	25.24
1827	23.90	1700	25.13
1847	24.35	1800	25.13

Table 15.--Bottom-hole pressure in well A1 during well A1 injection test - continued

Time (hr)	Bottom-hole pressure (ft of water above mean sea level)	Time (hr)	Bottom-hole pressure (ft of water above mean sea level)
1900	25.13	0700	25.63
2000	25.79	0800	24.96
2100	26.13	0900	24.12
2200	26.24	1000	24.24
2300	26.63	1100	23.78
2400	26.80	1200	25.40
11-1-74		1300	26.35
0100	26.74	1400	26.52
0200	26.46	1500	26.63
0300	26.24	1600	26.57
0400	26.13	1700	26.52
0500	25.74	1800	26.24
0600	25.47	1900	26.02
0700	25.29	2000	26.13
0800	25.29	2100	26.57
0900	25.24	2200	26.80
1000	25.40	2300	26.90
1100	26.91	2400	27.07
1200	26.80	11-3-74	
1300	26.85	0100	27.13
1400	26.80	0200	26.91
1500	26.81	0300	27.02
1600	26.68	0400	26.85
1700	26.46	0500	26.52
1800	26.24	0600	26.18
2000	26.68	0700	26.02
2100	26.91	0800	25.85
2300	27.02	0900	25.85
2400	25.07	1000	25.85
11-2-74		1100	25.85
0107	26.57	1200	26.07
0200	26.57	1300	26.74
0300	26.46	1400	27.24
0400	26.35	1500	27.41
0500	26.02	1600	27.41
0600	25.79	1607	27.35

Table 16.--Water levels in wells A2, A3, A4, B1, B2, B3 and B4 during well A1 injection test

[Test began October 30, 1974 at 1547 hours and ended November 3, 1974 at 1607 hours. Average rate of injection in well A1 was 4,350 gallons per minute.]

Date	Time (hr)	Well A2 water level (ft above (+) and below (-) mean sea level)	Well A3 water level (ft below mean sea level)	Well A4 water level (ft above mean sea level)	Well B1 water level (ft below mean sea level)	Well B2 water level (ft below mean sea level)	Well B3 water level (ft below mean sea level)	Well B4 water level (ft below mean sea level)
10-30-74	1400	-1.18	1.89	6.40	3.27	1.93	1.89	1.62
	1415	-1.18	1.90	6.38	3.29	1.94	1.90	1.63
	1430	-1.19	1.91	6.36	3.30	1.95	1.90	1.63
	1445	-1.20	1.91	6.34	3.31	1.96	1.91	1.64
	1500	-1.20	1.92	6.33	3.32	1.96	1.92	1.64
	1515	-1.25	1.92	6.31	3.32	1.96	1.92	1.64
	1530	-1.25	1.93	6.29	3.33	1.96	1.92	1.64
	1545	-1.26	1.94	6.28	3.33	1.96	1.92	1.64
	1547	-1.26	1.94	6.27	3.33	1.96	1.92	1.64
	1548	-1.25	1.94	6.26	3.33	1.96	1.92	1.64
	1549	-1.15	1.90	6.26	3.33	1.83	1.80	1.63
	1550	-1.00	1.85	6.26	3.33	1.79	1.73	1.61
	1551	- .99	1.83	6.26	3.32	1.75	1.70	1.59
	1552	- .98	1.82	6.27	3.32	1.72	1.68	1.58
	1553	- .96	1.81	6.27	3.32	1.72	1.68	1.57
	1554	- .96	1.80	6.27	3.32	1.71	1.67	1.56
	1555	- .95	1.79	6.27	3.32	1.70	1.66	1.55
	1556	- .95	1.78	6.27	3.31	1.70	1.66	1.54
	1557	- .94	1.76	6.28	3.31	1.70	1.65	1.53
	1602	- .92	1.73	6.29	3.29	1.68	1.63	1.99
	1607	- .90	1.71	6.31	3.27	1.67	1.62	1.47
	1612	- .89	1.69	6.33	3.26	1.66	1.61	1.45
	1617	- .89	1.68	6.34	3.25	1.65	1.60	1.43
	1622	- .88	1.67	6.36	3.23	1.64	1.59	1.42
	1627	- .87	1.66	6.37	3.22	1.64	1.58	1.41
	1632	- .87	1.65	6.39	3.22	1.63	1.58	1.40
	1637	- .86	--	6.40	3.21	1.63	1.57	1.39
	1647	- .85	1.63	6.43	3.19	1.62	1.57	1.38

Table 16.--Water levels in wells A2, A3, A4, B1, B2, B3 and B4 during well A1 injection test - continued

Date	Time (hr)	Well A2 water level (ft above (+) and below (-) mean sea level)	Well A3 water level (ft below mean sea level)	Well A4 water level (ft above mean sea level)	Well B1 water level (ft below mean sea level)	Well B2 water level (ft below mean sea level)	Well B3 water level (ft below mean sea level)	Well B4 water level (ft below mean sea level)
10-30-74	1657	-0.84	1.62	6.46	3.18	1.61	1.56	1.37
	1707	- .84	1.61	6.48	3.17	1.61	1.55	1.36
	1717	- .83	1.60	6.50	3.16	1.60	1.55	1.35
	1727	- .82	1.59	6.52	3.15	1.60	1.54	1.34
	1817	- .80	1.56	6.57	3.14	1.58	1.53	1.33
	1907	- .76	1.54	6.60	3.13	1.58	1.50	1.31
	1957	- .72	1.52	6.63	3.11	1.55	1.48	1.29
	2047	- .68	1.49	6.65	3.09	1.53	1.45	1.27
	2137	- .64	1.46	6.69	3.06	1.50	1.42	1.24
	2227	- .60	1.43	6.73	3.03	1.46	1.39	1.21
	2317	- .58	1.40	6.77	3.00	1.44	1.37	1.18
10-31-74	0007	- .56	1.39	6.79	2.97	1.42	1.36	1.14
	0147	- .53	1.38	6.82	2.94	1.42	1.35	1.12
	0327	- .53	1.39	6.82	2.95	1.46	1.37	1.14
	0507	- .57	1.45	6.77	3.01	1.54	1.45	1.21
	0647	- .74	1.62	6.66	3.13	1.71	1.63	1.36
	0827	- .74	1.69	6.53	3.22	1.76	1.68	1.42
	1647	- .36	1.48	6.60	3.08	1.54	1.46	1.24
11- 1-74	0107	+ .02	1.28	6.87	2.94	1.41	1.31	1.11
	0927	- .04	1.55	6.49	3.22	1.68	1.57	1.39
	1747	+ .25	1.46	6.56	3.11	1.61	1.50	1.30
11- 2-74	0207	+ .59	1.29	6.77	3.01	1.99	1.36	1.15
	1027	+ .42	1.61	6.43	3.32	1.89	1.70	1.49
	1847	+ .82	1.40	6.61	3.16	1.65	1.49	1.32
11- 3-74	0307	+1.16	1.20	6.80	3.03	1.52	1.33	1.15
	1607	+1.31	1.24	6.70	3.12	1.60	1.43	1.24

Table 17.--Summary of geophysical logs of well E1

[Logs are on file in the U.S. Geological Survey Southwest Florida Sub-district Office, Tampa, Florida.]

Date	Log	Depth interval (ft)	Logged by
2/ 6/73	Caliper	0- 430	U.S.G.S., Tampa
2/ 6/73	Single point resistance and spontaneous potential	0- 430	U.S.G.S., Tampa
2/ 6/73	Specific conductance	0- 430	U.S.G.S., Tampa
2/ 6/73	Gamma	0- 430	U.S.G.S., Tampa
5/11/73	Caliper	260-2160	U.S.G.S., Lakewood, Colorado
5/11/73	Long and short normal resistivity and spontaneous potential	374-2160	U.S.G.S., Lakewood, Colorado
5/11/73	Flowmeter	0-2160	U.S.G.S., Lakewood, Colorado
5/11/73	Gamma	0-2160	U.S.G.S., Lakewood, Colorado
5/11/73	Gamma-Gamma	1200-2160	U.S.G.S., Lakewood, Colorado
5/11/73	Neutron	0-2160	U.S.G.S., Lakewood, Colorado
5/11/73	Temperature - pumping	50-2160	U.S.G.S., Lakewood, Colorado
3/25/74	Caliper	1884-3260	U.S.G.S., Tampa
3/26/74	Temperature - static	1600-3260	U.S.G.S., Tampa
3/26/74	Temperature - pumping	1700-3260	U.S.G.S., Tampa
3/26/74	Single point resistance spontaneous potential	1780-3260	U.S.G.S., Tampa
6/11/74	Cement bond	100-1590	Schlumberger[1/]

1/ The use of brand names in this report is for identification purposes only and does not imply endorsement by the U.S. Geological Survey.

Table 18.--Summary of geophysical logs of well A1

[Logs are on file in the U.S. Geological Survey Southwest Florida Sub-district Office, Tampa, Florida.]

Date	Log	Depth interval (ft)	Logged by
6/11/74	Cement bond	370- 970	Schlumberger
10/24/74	Temperature - static	940-1080	U.S.G.S., Tampa
10/28/74	Temperature - injection	960-1080	U.S.G.S., Tampa
10/28/74	Flowmeter	940-1080	U.S.G.S., Tampa
12/23/74	Temperature - static	40-1080	U.S.G.S., Tampa
1/23/75	Caliper	920-1080	U.S.G.S., Tampa
4/ 9/75	Temperature - static	0-1080	U.S.G.S., Tampa
8/ 8/75	Temperature - static	80-1070	U.S.G.S., Tampa
10/ 1/75	Temperature - static	200-1060	U.S.G.S., Tampa

Table 19.--Summary of geophysical logs of wells A2, A3 and A4

[Logs are on file in the U.S. Geological Survey Southwest Florida Sub-district Office, Tampa, Florida.]

Well	Date	Log	Depth interval (ft)	Logged by
A2	9/21/74	Microseismogram	50-103	Welex, Inc.
A2	9/22/74	Lateral and short normal resistivity	100-743	Welex, Inc.
A2	9/22/74	Caliper	50-602	Welex, Inc.
A2	9/22/74	Acoustic velocity	50-602	Welex, Inc.
A2	11/20/74	Cement bond	100-750	Welex, Inc.
A3	11/20/74	Cement bond	50-508	Welex, Inc.
A4	11/20/74	Cement bond	50-200	Welex, Inc.

Table 20.--Specific conductance and chloride concentration of water from exploratory well E1

DATE	TIME	DEPTH TO TOP OF SAMPLE INTERVAL (FT)	DEPTH TO BOTTOM OF SAMPLE INTERVAL (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	DISSOLVED CHLORIDE (CL) (MG/L)
WELL NUMBER E1		EXPLORATORY HOLE (LAT 27 49 22 LONG 082 44 31)			
FEB					
14...	1830	374	490	44400	16000
15...	0900	374	500	45800	17000
15...	1000	374	520	45200	16000
15...	1045	374	540	45200	17000
15...	1100	374	560	45000	16000
15...	1430	374	580	45800	17000
15...	1500	374	585	46600	17000
15...	1545	374	600	45200	17000
16...	0900	374	620	46000	17000
16...	1030	374	640	46200	17000
16...	1103	374	660	47000	17000
16...	1230	374	680	47000	17000
16...	1350	374	700	48000	18000
16...	1510	374	720	48000	17000
16...	1645	374	740	48000	18000
18...	1200	374	760	50000	19000
21...	0950	374	780	51000	19000
MAR					
03...	0905	374	800	50000	19000
04...	1155	374	820	50000	18000
07...	--	374	840	51000	20000
12...	--	374	860	52000	19000
14...	--	374	900	51000	19000
14...	--	374	920	48000	18000
15...	--	374	940	52000	20000
18...	--	374	960	52000	20000
APR					
10...	0700	374	1000	52000	19000
10...	0715	374	1020	52000	19000
10...	0730	374	1040	53000	19000
10...	0745	374	1060	53000	19000
10...	0800	374	1080	53000	19000
10...	0815	374	1100	53000	19000
11...	0820	374	1120	52000	19000
11...	0830	374	1140	52500	19000
11...	0845	374	1160	52500	19000

Table 20.--Specific conductance and chloride concentration of water from exploratory well E1 - continued

DATE	TIME	DEPTH TO TOP OF SAMPLE INTERVAL (FT)	DEPTH TO BOTTOM OF SAMPLE INTERVAL (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	DISSOLVED CHLORIDE (CL) (MG/L)
WELL NUMBER E1		EXPLORATORY HOLE (LAT 27 49 22 LONG 082 44 31)			
APR , 1973					
11...	0900	374	1180	52500	19000
11...	0930	374	1220	52500	19000
11...	0945	374	1240	52500	19000
11...	1000	374	1260	53000	19000
11...	1015	374	1280	53000	19000
12...	1030	374	1300	53000	19000
12...	1045	374	1320	53000	19000
12...	1100	374	1340	53000	19000
12...	1115	374	1360	53000	19000
12...	1130	374	1380	53000	19000
13...	1145	374	1400	53000	19000
13...	1200	374	1420	53000	19000
13...	1215	374	1440	53000	19000
15...	1300	374	1460	53500	19000
15...	1315	374	1480	53500	19000
15...	1330	374	1500	53500	19000
16...	--	374	1540	53000	20000
16...	1000	374	1560	51500	20000
17...	--	374	1580	56000	20000
18...	--	374	1600	55000	20000
18...	0800	374	1620	57000	20000
18...	0900	374	1640	57000	20000
18...	1000	374	1660	57000	20000
23...	--	374	1680	58000	20000
23...	0900	374	1700	58000	20000
24...	--	374	1720	58000	20000
24...	1300	374	1740	58000	20000
24...	1400	374	1760	58000	20000
24...	1500	374	1780	58000	20000
25...	--	374	1800	58000	20000
25...	1100	374	1820	59000	21000
25...	1200	374	1840	57000	20000
25...	1300	374	1860	57000	20000
26...	--	374	1880	58000	20000
27...	--	374	1900	58000	20000
27...	0900	374	1920	58000	20000
27...	1000	374	1940	58000	20000

Table 20.--Specific conductance and chloride concentration of water from exploratory well E1 - continued

DATE	TIME	DEPTH TO TOP OF SAMPLE INTERVAL (FT)	DEPTH TO BOTTOM OF SAMPLE INTERVAL (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	DISSOLVED CHLORIDE (CL) (MG/L)
WELL NUMBER E1		EXPLORATORY HOLE (LAT 27 49 22 LONG 082 44 31)			
MAY , 1973					
01...	0800	374	1980	59000	20000
01...	0900	374	2000	58000	20000
01...	1000	374	2020	59000	20000
02...	0700	374	2040	58000	20000
02...	0730	374	2060	57000	20000
02...	0800	374	2080	55000	20000
02...	0830	374	2100	60000	23000
02...	0900	374	2120	60000	22000
02...	1000	374	2140	55000	21000
02...	1030	374	2160	55000	21000
02...	1100	374	2178	55000	20000
JUL					
11...	1345	1863	2178	58000	24600
AUG					
08...	0900	1863	2200	66000	25000
08...	0830	1863	2220	66000	25000
08...	0900	1863	2240	65000	24000
08...	0930	1863	2260	73000	27000
08...	1000	1863	2280	73000	27000
08...	1030	1863	2300	73000	27000
08...	1100	1863	2320	75000	27000
08...	1130	1863	2340	75000	27000
08...	1200	1863	2360	75000	27000
08...	1230	1863	2380	75000	27000
08...	1300	1863	2400	75000	28000
08...	1313	1863	2420	76000	28000
08...	1330	1863	2440	76000	28000
14...	0830	1863	2460	76000	28000
14...	0900	1863	2480	75000	28000
14...	0930	1863	2500	75000	28000
15...	0800	1863	2520	68000	28000
15...	0830	1863	2540	69000	26000
15...	0900	1863	2560	68000	26000
15...	0930	1863	2580	71000	28000
15...	1000	1863	2600	71000	28000
15...	1030	1863	2620	71000	28000
15...	1100	1863	2640	71000	28000

Table 20.--Specific conductance and chloride concentration of water from exploratory well E1 - continued

DATE	TIME	DEPTH TO TOP OF SAMPLE INTERVAL (FT)	DEPTH TO BOTTOM OF SAMPLE INTERVAL (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	DISSOLVED CHLORIDE (CL) (MG/L)
WELL NUMBER E1		EXPLORATORY HOLE (LAT 27 49 22 LONG 082 44 31)			
AUG . 1973					
15...	1130	1863	2660	71000	28000
15...	1200	1863	2680	71000	28000
15...	1230	1863	2700	71000	28000
15...	1300	1863	2720	69000	27000
15...	1330	1863	2740	69000	27000
15...	1400	1863	2760	70000	27000
15...	1430	1863	2780	70000	27000
15...	1500	1863	2800	--	31000
15...	1530	1863	2820	70000	28000
21...	0800	1863	2840	74000	28000
21...	0900	1863	2860	70000	27000
21...	1000	1863	2880	70000	27000
21...	1030	1863	2900	70000	26000
21...	1100	1863	2920	70000	28000
21...	1130	1863	2940	69000	29000
21...	1200	1863	2960	72000	27000
21...	1300	1863	2980	70000	31000
SEP					
20...	0800	1863	3000	72500	28000
20...	0830	1863	3020	72500	28000
20...	0900	1863	3040	72500	28000
20...	0930	1863	3060	72500	30000
20...	1000	1863	3080	72500	29000
20...	1030	1863	3100	72500	29000
20...	1100	1863	3120	72500	28000
20...	1130	1863	3140	72000	30000
DEC					
18...	0800	1863	3160	70000	28000
18...	0900	1863	3180	70000	28000
18...	1000	1863	3200	71000	28000
18...	1100	1863	3220	71000	28000
18...	1200	1863	3240	71000	28000
18...	1300	1863	3260	72000	28000
JAN . 1974					
09...	1425	1863	3280	49000	19000
09...	1440	1863	3280	66000	26000
09...	1451	1863	3280	68000	27000

Table 20.--Specific conductance and chloride concentration of water from exploratory well E1 - continued

DATE	TIME	DEPTH TO TOP OF SAMPLE INTERVAL (FT)	DEPTH TO BOTTOM OF SAMPLE INTERVAL (FT)	SPECIFIC CONDUCTANCE (MICROMHOS)	DISSOLVED CHLORIDE (CL) (MG/L)
WELL NUMBER E1		EXPLORATORY HOLE (LAT 27 49 22 LONG 082 44 31)			
JAN . 1974					
09...	1502	1863	3280	61000	23000
09...	1515	1863	3280	62000	24000
09...	1531	1863	3280	68000	27000
09...	1547	1863	3280	70000	29000
09...	1602	1863	3280	71000	29000
09...	1620	1863	3280	70000	28000
09...	1633	1863	3280	71000	29000
09...	1645	1863	3280	70000	28000
MAR					
20...	1700	1863	3280	70100	28000

Table 21.--Temperature, specific conductance and chloride concentration of water from selected wells at the test site

DATE	TIME	DEPTH TO TOP OF SAMPLE INTERVAL (FT)	DEPTH TO BOTTOM OF SAMPLE INTERVAL (FT)	TEMPERATURE (DEG C)	SPECIFIC CONDUCTANCE (MICROMHOS)	DISSOLVED CHLORIDE (CL) (MG/L)
WELL NUMBER A1		SO CROSS INJ WELL (LAT 27 49 29 LONG 082 44 35.01)				
OCT , 1974						
17...	0040	961	1080	28.0	--	--
17...	0240	961	1080	27.0	--	--
17...	0440	961	1080	28.0	--	--
17...	0640	961	1080	28.0	--	--
17...	0840	961	1080	28.0	--	--
17...	1040	961	1080	28.0	--	--
17...	1240	961	1080	28.5	--	--
17...	1400	961	1080	28.0	50600	20000
17...	1440	961	1080	27.0	--	--
17...	1640	961	1080	28.5	--	--
17...	1840	961	1080	27.0	--	--
17...	2040	961	1080	27.3	--	--
17...	2240	961	1080	27.0	--	--
18...	0240	961	1080	28.0	--	--
18...	0640	961	1080	28.0	--	--
18...	0840	961	1080	--	--	--
28...	1916	961	1080	--	1960	420
28...	2016	961	1080	--	2050	440
29...	1750	961	1080	--	1040	190
30...	0920	961	1080	--	3980	1100
30...	0995	961	1080	--	2000	450
30...	1152	961	1080	--	1750	390
30...	1303	961	1080	--	1990	460
30...	1647	961	1080	25.0	1240	250
30...	1747	961	1080	24.8	1010	190
30...	1847	961	1080	25.8	1460	260
30...	1947	961	1080	27.5	2210	520
30...	2047	961	1080	27.0	2170	510
30...	2147	961	1080	26.5	2250	500
30...	2247	961	1080	26.5	3740	980
30...	2347	961	1080	26.1	3530	900
31...	0047	961	1080	26.5	2800	670
31...	0147	961	1080	25.5	2510	620
31...	0247	961	1080	24.5	2160	490
31...	0347	961	1080	24.0	1600	340
31...	0447	961	1080	23.0	1170	220

Table 21.--Temperature, specific conductance and chloride concentration of water from selected wells at the test site - continued

DATE	TIME	DEPTH TO TOP OF SAMPLE INTERVAL (FT)	DEPTH TO BOTTOM OF SAMPLE INTERVAL (FT)	TEMPERATURE (DEG C)	SPECIFIC CONDUCTANCE (MICROMHOS)	DISSOLVED CHLORIDE (CL) (MG/L)
WELL NUMBER A1			SO CROSS INJ WELL (LAT 27 49 29 LONG 082 44 35.01)			
OCT . 1974						
31...	0547	961	1080	23.0	935	150
31...	0645	961	1080	22.8	848	130
31...	0745	961	1080	22.8	820	130
31...	0845	961	1080	22.8	735	110
31...	0945	961	1080	25.5	705	92
31...	1130	961	1080	27.5	1970	430
31...	1245	961	1080	27.0	2130	470
31...	1330	961	1080	27.8	2330	520
31...	1430	961	1080	27.8	2500	550
31...	1600	961	1080	26.2	1480	320
31...	1700	961	1080	26.0	1240	250
31...	1800	961	1080	25.5	1150	220
31...	1900	961	1080	26.0	1360	280
31...	2000	961	1080	27.2	2030	420
31...	2100	961	1080	26.7	2180	500
31...	2200	961	1080	26.5	3100	800
31...	2300	961	1080	25.6	6600	1900
NOV						
01...	0001	961	1080	--	6700	1900
01...	0100	961	1080	26.0	6200	1800
01...	0200	961	1080	25.8	4840	1400
01...	0300	961	1080	25.3	4400	1200
01...	0400	961	1080	24.3	3490	960
01...	0500	961	1080	24.0	2590	680
01...	0600	961	1080	23.0	1870	440
01...	0700	961	1080	23.0	1380	300
01...	0800	961	1080	23.0	1210	260
01...	0900	961	1080	23.0	1050	200
01...	1000	961	1080	23.3	930	170
01...	1100	961	1080	27.0	2300	550
01...	1200	961	1080	28.0	2680	680
01...	1300	961	1080	27.5	2350	560
01...	1400	961	1080	27.5	3100	770
01...	1500	961	1080	27.7	2880	690
01...	1600	961	1080	27.0	2370	590
01...	1700	961	1080	26.0	1820	400
01...	1800	961	1080	25.6	1480	320

Table 21.--Temperature, specific conductance and chloride concentration of water from selected wells at the test site - continued

DATE	TIME	DEPTH TO TOP OF SAMPLE INTERVAL (FT)	DEPTH TO BOTTOM OF SAMPLE INTERVAL (FT)	TEMPERATURE (DEG C)	SPECIFIC CONDUCTANCE (MICROMHOS)	DISSOLVED CHLORIDE (CL) (MG/L)
WELL NUMBER A1		SO CROSS INJ WELL (LAT 27 49 29 LONG 082 44 35.01)				
NOV , 1974						
01...	1900	961	1080	25.2	1210	250
01...	2000	961	1080	26.6	2050	480
01...	2100	961	1080	27.0	2350	540
01...	2200	961	1080	26.2	2700	670
01...	2300	961	1080	26.4	5800	1600
02...	0001	961	1080	26.0	7200	2200
02...	0100	961	1080	26.1	7600	2400
02...	0200	961	1080	26.0	5600	1600
02...	0300	961	1080	25.5	4700	1400
02...	0400	961	1080	25.0	4090	1200
02...	0500	961	1080	24.2	3320	920
02...	0600	961	1080	25.6	2500	650
02...	0700	961	1080	23.3	1630	380
02...	0800	961	1080	23.3	1420	340
02...	0900	961	1080	23.5	1240	260
02...	1000	961	1080	23.5	1090	230
02...	1100	961	1080	23.5	920	170
02...	1200	961	1080	25.5	1320	280
02...	1300	961	1080	28.0	3410	900
02...	1400	961	1080	28.0	2600	590
02...	1500	961	1080	27.5	2700	630
02...	1600	961	1080	27.5	2610	660
02...	1700	961	1080	27.0	2400	640
02...	1800	961	1080	26.0	1930	440
02...	1900	961	1080	25.2	1310	280
02...	2000	961	1080	25.2	1630	360
02...	2100	961	1080	26.5	2300	540
02...	2200	961	1080	26.5	2470	590
02...	2300	961	1080	26.0	4610	1300
03...	0001	961	1080	26.5	8000	2400
03...	0100	961	1080	26.5	7750	2200
03...	0200	961	1080	26.2	7700	2300
03...	0300	961	1080	25.8	6200	1700
03...	0400	961	1080	25.3	4950	1400
03...	0500	961	1080	24.5	4600	1300
03...	0600	961	1080	24.0	3650	980
03...	0700	961	1080	23.5	2480	620

Table 21.--Temperature, specific conductance and chloride concentration of water from selected wells at the test site - continued

DATE	TIME	DEPTH TO TOP OF SAMPLE INTERVAL (FT)	DEPTH TO BOTTOM OF SAMPLE INTERVAL (FT)	TEMPERATURE (DEG C)	SPECIFIC CONDUCTANCE (MICROMHOS)	DISSOLVED CHLORIDE (CL) (MG/L)
WELL NUMBER A1			SO CROSS INJ WELL (LAT 27 49 29 LONG 082 44 35.01)			
NOV . 1974						
03...	0800	961	1080	23.0	1980	460
03...	0900	961	1080	23.3	1500	330
03...	1000	961	1080	23.8	1310	270
03...	1100	961	1080	24.3	1070	200
03...	1200	961	1080	24.8	965	170
03...	1300	961	1080	27.8	2940	720
03...	1400	961	1080	28.3	3900	1000
03...	1500	961	1080	27.5	3130	760
03...	1600	961	1080	27.3	3300	820
08...	1457	961	1080	26.3	3110	850
08...	1500	961	1080	26.3	3110	810
08...	1503	961	1080	26.3	3150	840
08...	1620	961	1080	24.5	16900	5600
08...	1625	961	1080	--	17100	5800
08...	1643	961	1080	--	27000	9400
08...	1715	961	1080	--	17800	6400
11...	1100	961	1080	25.5	18300	6000
DEC						
05...	1000			--	50000	--
05...	1034	961	1080	24.2	21800	7900
05...	1100	961	1080	--	51000	--
05...	1200	961	1080	25.9	50000	19000
05...	1245	961	1080	25.9	52000	20000
05...	1315	961	1080	25.9	52000	18000
05...	1330	1050	1050	25.8	54000	19000
20...	1000	200	200	--	50000	19000
20...	1100	977	977	--	51000	19000
20...	1200	990	990	--	50000	19000

Table 21.--Temperature, specific conductance and chloride concentration of water from selected wells at the test site - continued

DATE	TIME	DEPTH TO TOP OF SAMPLE INTERVAL (FT)	DEPTH TO BOTTOM OF SAMPLE INTERVAL (FT)	TEMPERATURE (DEG C)	SPECIFIC CONDUCTANCE (MICROMHOS)	DISSOLVED CHLORIDE (CL) (MG/L)
WELL NUMBER A2		SOUTH CROSS INJ MON 800 (LAT 27 49 29 LONG 082 44 35.02)				
OCT . 1974						
23...	1006	746	800	--	52000	19000
23...	1210	746	800	28.0	--	19000
23...	2400	746	800	--	50100	19000
NOV						
08...	1215	746	800	27.5	25100	8800
08...	1312	746	800	27.8	25700	9000
08...	1416	746	800	27.9	29800	9300
08...	1526	746	800	27.9	26500	9200
08...	1603	746	800	27.9	26500	9300
08...	1643	746	800	27.6	26500	9300
10...	1245	746	800	--	29800	11000
11...	1143	746	800	27.5	29700	10000
11...	1200	746	800	28.0	29900	11000
11...	1215	746	800	27.5	29800	10000
11...	1230	746	800	28.0	29800	10000
11...	1347	746	800	27.5	30300	11000
11...	1437	746	800	27.5	30800	11000
12...	1120	746	800	26.0	30900	11000
12...	1125	746	800	26.0	35400	13000
12...	1240	746	800	28.0	31500	11000
12...	1500	746	800	28.0	32100	11000
12...	1600	746	800	28.0	32200	12000
18...	1200	746	800	27.8	34900	13000
18...	1300	746	800	27.8	35200	12000
18...	1400	746	800	27.8	35800	13000
18...	1500	746	800	28.0	35500	13000
19...	1030	746	800	27.8	36200	12000
19...	1130	746	800	28.0	36000	13000
20...	1235	746	800	27.9	36900	14000
20...	1500	746	800	27.8	37500	14000
21...	1200	746	800	27.8	37500	14000
21...	1500	746	800	27.8	37500	14000
22...	0930	746	800	27.8	37300	14000
22...	1130	746	800	27.8	37800	13000
25...	1245	746	800	27.9	38400	14000
25...	1415	746	800	27.9	38200	14000
25...	1530	746	800	27.9	38900	15000

Table 21.--Temperature, specific conductance and chloride concentration of water from selected wells at the test site - continued

DATE	TIME	DEPTH TO TOP OF SAMPLE INTERVAL (FT)	DEPTH TO BOTTOM OF SAMPLE INTERVAL (FT)	TEMPERATURE (DEG C)	SPECIFIC CONDUCTANCE (MICROMHOS)	DISSOLVED CHLORIDE (CL) (MG/L)
WELL NUMBER A2		SOUTH CROSS INJ MON 800 (LAT 27 49 29 LONG 082 44 35.02)				
NOV , 1974						
26...	0955	746	800	27.8	38800	14000
26...	1155	746	800	27.8	38900	15000
26...	1415	746	800	27.8	39500	15000
26...	1520	746	800	27.8	39100	15000
27...	1010	746	800	27.9	39100	15000
27...	1155	746	800	27.9	39700	14000
27...	1400	746	800	27.9	37500	14000
27...	1430	746	800	27.9	40100	15000
27...	1500	746	800	27.9	39700	14000
DEC						
02...	1405	746	800	27.7	40200	16000
02...	1445	746	800	27.7	49200	18000
03...	1300	746	800	27.7	40200	15000
03...	1445	746	800	27.7	40300	16000
20...	0900	746	800	25.3	42200	16000
26...	1000	746	800	27.4	43200	17000
FEB , 1975						
04...	1323	746	800	27.6	44500	16000
04...	1440	746	800	27.7	44300	17000
04...	1615	746	800	27.7	44800	18000
MAY						
14...	2045	746	800	--	52000	19000
JUN						
04...	1240	746	800	27.6	47000	18000
JAN , 1976						
20...	1200	746	800	27.5	52000	18000
APR						
20...	1350	746	800	--	49200	19000

Table 21.--Temperature, specific conductance and chloride concentration of water from selected wells at the test site - continued

DATE	TIME	DEPTH TO TOP OF SAMPLE INTERVAL (FT)	DEPTH TO BOTTOM OF SAMPLE INTERVAL (FT)	TEMPERATURE (DEG C)	SPECIFIC CONDUCTANCE (MICROMHOS)	DISSOLVED CHLORIDE (CL) (MG/L)
WELL NUMBER A3		SOUTH CROSS INJ MON 521 (LAT 27 49 29 LONG 082 44 35.03)				
OCT., 1974						
23...	1004	473	521	--	52000	18000
23...	1240	473	521	26.5	49300	19000
NOV.						
11...	1338	473	521	25.0	49800	19000
11...	1345	473	521	26.0	51000	20000
11...	1422	473	521	26.5	49900	19000
11...	1503	473	521	26.3	50000	19000
12...	1055	473	521	26.0	51000	19000
12...	1250	473	521	26.5	49900	19000
12...	1500	473	521	26.5	49800	20000
12...	1600	473	521	26.5	49800	19000
19...	1450	473	521	26.5	51000	19000
20...	1245	473	521	26.1	49900	20000
20...	1505	473	521	26.1	49800	20000
21...	1205	473	521	25.7	49800	20000
21...	1405	473	521	25.7	49900	20000
21...	1505	473	521	25.9	49900	19000
22...	0935	473	521	25.7	49800	19000
22...	1135	473	521	25.8	50000	19000
JUNE, 1975						
04...	1345	473	521	26.4	49100	19000
JAN., 1976						
20...	1200	473	521	26.3	52000	18000
APR.						
20...	1210	473	521	26.0	50000	19000

Table 21.--Temperature, specific conductance and chloride concentration of water from selected wells at the test site - continued

DATE	TIME	DEPTH TO TOP OF SAMPLE INTERVAL (FT)	DEPTH TO BOTTOM OF SAMPLE INTERVAL (FT)	TEMPERATURE (DEG C)	SPECIFIC CONDUCTANCE (MICROMHOS)	DISSOLVED CHLORIDE (CL) (MG/L)
WELL NUMBER A4		SOUTH CROSS INJ 250 (LAT 27 49 29 LONG 082 44 35.04)				
OCT., 1974						
23...	1200	200	250	--	5400	440
23...	1305	200	250	25.5	1700	450
JUNE, 1975						
04...	1445	200	250	24.4	1910	470
SEP.						
15...	1600	200	250	--	1580	390
JAN., 1976						
16...	1430	200	250	24.2	1990	480
APR.						
20...	1100	200	250	24.0	2020	540

Table 21.--Temperature, specific conductance and chloride concentration of water from selected wells at the test site - continued

DATE	TIME	DEPTH TO TOP OF SAMPLE INTERVAL (FT)	DEPTH TO BOTTOM OF SAMPLE INTERVAL (FT)	TEMPERATURE (DEG C)	SPECIFIC CONDUCTANCE (MICROMHOS)	DISSOLVED CHLORIDE (CL) (MG/L)
WELL NUMBER B1		SOUTH CROSS MON 1224' (LAT 27 49 22 LONG 082 44 31.04)				
JULY, 1974						
16...	1630	1210	1224	26.0	53700	21000
DEC.						
02...	1535	1210	1224	--	53000	20000
JUNE, 1975						
05...	1530	1210	1224	25.3	54000	20000
JAN., 1976						
16...	1215	1210	1224	--	52000	20000
16...	1324	1210	1224	--	52000	19000
APR.						
20...	1300	1210	1224	25.0	53500	20000
WELL NUMBER B2		SOUTH CROSS MON 1055' (LAT 27 49 22 LONG 082 44 31.03)				
JULY, 1974						
17...	1225	1025	1055	27.5	52600	20000
AUG.						
23...	1115	1025	1055	--	52500	20000
DEC.						
03...	1345	1025	1055	--	52000	18000
JUNE, 1975						
06...	1320	1025	1055	--	53000	20000
JAN., 1976						
22...	1100	1025	1055	26.3	55000	21000
APR.						
21...	1507	1025	1055	--	51000	20000

Table 21.--Temperature, specific conductance and chloride concentration of water from selected wells at the test site - continued

DATE	TIME	DEPTH TO TOP OF SAMPLE INTERVAL (FT)	DEPTH TO BOTTOM OF SAMPLE INTERVAL (FT)	TEMPERATURE (DEG C)	SPECIFIC CONDUCTANCE (MICROMHOS)	DISSOLVED CHLORIDE (CL) (MG/L)
WELL NUMBER B3		SOUTH CROSS MONITOR 815 (LAT 27 49 22 LONG 082 44 31.02)				
JULY. 1974						
17...	1350	780	815	28.5	52300	20000
AUG.						
23...	1230	780	815	--	53000	20000
MAY . 1975						
14...	2045	780	815	26.5	52000	19000
JUNE						
05...	1235	780	815	24.9	52000	19000
APR.. 1976						
20...	1245	780	815	25.0	51000	20000
WELL NUMBER B4		SOUTH CROSS MONITOR 520 (LAT 27 49 22 LONG 082 44 31.01)				
JULY. 1974						
17...	1425	463	520	27.0	49900	19000
AUG.						
23...	1140	463	520	--	50000	19000
DEC.						
02...	1215	463	520	--	49100	19000
JUNE. 1975						
05...	0940	463	520	26.0	49800	18000
APR.. 1976						
20...	1410	463	520	--	49200	18000
WELL NUMBER B5		SOUTH CROSS BAYOU MON 94 (LAT 27 49 21 LONG 082 44 30.02)				
JUL . 1976						
29...	1310	90	94	--	780	52
WELL NUMBER B6		SOUTH CROSS BAYOU MON 35 (LAT 27 49 21 LONG 082 44 30.01)				
JUL . 1976						
29...	1325	31	35	--	580	25

Table 22.--Chemical analyses of water from selected wells at the test site

DATE	TIME	DEPTH TO TOP OF SAMPLE INTERVAL (FT)	DEPTH TO BOTTOM OF SAMPLE INTERVAL (FT)	TEMPERATURE (DEG C)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	ALKALINITY AS CACO3 (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	TOTAL SULFIDE (S) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
WELL NUMBER A1					SO CROSS INJ WELL (LAT 27 49 29 LONG 082 44 35.01)						
OCT . 1974											
17...	1400	961	1090	28.0	50600	7.5	153	186	0	1.1	20000
DEC											
05...	1034	961	1080	24.2	21900	7.4	210	256	0	--	7900
05...	1200	961	1080	25.9	50000	7.4	200	244	0	--	19000
05...	1330	1050	1050	25.8	54000	7.3	232	283	0	--	19000
WELL NUMBER A2					SOUTH CROSS INJ MON 800 (LAT 27 49 29 LONG 082 44 35.02)						
OCT . 1974											
23...	2400	746	800	--	50100	7.2	157	191	0	--	19000
NOV											
18...	1200	746	800	27.8	34900	--	185	225	--	--	13000
18...	1500	746	800	28.0	35500	--	185	225	--	--	13000
DEC											
03...	1300	746	800	27.7	40200	--	176	214	--	--	15000
WELL NUMBER A3					SOUTH CROSS INJ MON 521 (LAT 27 49 29 LONG 082 44 35.03)						
OCT . 1974											
23...	1240	473	521	26.5	49300	7.1	184	224	0	--	19000
WELL NUMBER A4					SOUTH CROSS INJ 250 (LAT 27 49 29 LONG 082 44 35.04)						
OCT . 1974											
23...	1305	200	250	25.5	1700	7.4	130	159	0	--	450

Table 22.--Chemical analyses of water from selected wells at the test site - continued

DATE	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DENSITY (GM/ML AT 20 C)
	WELL NUMBER A1			SO CROSS INJ WELL (LAT 27 49 29 LONG 082 44 35.01)						
OCT . 1974										
17...	3900	1.1	910	1000	11000	400	11	38100	36300	1.024
DEC										
05...	1100	.7	380	460	4500	170	5.8	15300	14700	--
03...	2600	1.2	850	1000	11000	410	11	35300	34300	1.025
03...	2800	1.4	850	970	11000	380	11	36300	35200	--
	WELL NUMBER A2			SOUTH CROSS INJ MON 800 (LAT 27 49 29 LONG 082 44 35.02)						
OCT . 1974										
23...	3000	1.2	840	1000	11000	770	12	36100	35800	1.025
NOV										
18...	2600	1.0	590	730	7200	520	12	24100	24200	--
18...	2000	1.0	590	750	7600	520	12	24500	24600	--
DEC										
03...	2200	.8	640	750	8300	320	12	28500	27400	--
	WELL NUMBER A3			SOUTH CROSS INJ MON 521 (LAT 27 49 29 LONG 082 44 35.03)						
OCT . 1974										
23...	3100	1.0	600	740	12000	690	13	35800	36300	1.025
	WELL NUMBER A4			SOUTH CROSS INJ 250 (LAT 27 49 29 LONG 082 44 35.04)						
OCT . 1974										
23...	60	.3	160	47	110	13	3.6	959	929	--

Table 22.--Chemical analyses of water from selected wells at the test site - continued

DATE	TIME	DEPTH TO TOP OF SAMPLE INTERVAL (FT)	DEPTH TO BOTTOM OF SAMPLE INTERVAL (FT)	TEMPERATURE (DEG C)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	ALKALINITY AS CACO3 (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	TOTAL SULFIDE (S) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
		WELL NUMBER B1			SOUTH CROSS MON 1224' (LAT 27 49 22 LONG 082 44 31.04)						
JUL , 1974 16...	1630	1210	1224	26.0	53700	6.3	149	182	0	--	21000
		WELL NUMBER B2			SOUTH CROSS MON 1055' (LAT 27 49 22 LONG 082 44 31.03)						
JUL , 1974 17...	1225	1025	1055	27.5	52600	6.1	66	80	0	.5	20000
		WELL NUMBER B3			SOUTH CROSS MONITOR 815 (LAT 27 49 22 LONG 082 44 31.02)						
JUL , 1974 17...	1350	780	815	28.5	52300	6.0	138	168	0	.6	20000
		WELL NUMBER B4			SOUTH CROSS MONITOR 520 (LAT 27 49 22 LONG 082 44 31.01)						
JUL , 1974 17...	1425	463	520	27.0	49900	6.1	98	119	0	.6	19000
		WELL NUMBER E1			EXPLORATORY HOLE (LAT 27 49 22 LONG 082 44 31)						
FEB , 1973 14...	1830	374	490	--	44400	7.6	--	--	--	3.5	16000
JUL 11...	1345	1863	2178	--	58000	7.2	266	324	0	70	24600
MAR , 1974 20...	1700	1863	3280	32.0	70100	6.8	276	336	0	55	28000

Table 22.--Chemical analyses of water from selected wells at the test site - continued

DATE	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DENSITY (GM/ML AT 20 C)
WELL NUMBER B1				SOUTH CROSS MON 1224' (LAT 27 49 22 LONG 082 44 31.04)						
JUL , 1974 16... 3800		1.1	1300	1100	12000	9.5	10	39800	39400	1.026
WELL NUMBER B2				SOUTH CROSS MON 1055' (LAT 27 49 22 LONG 082 44 31.03)						
JUL , 1974 17... 3200		.7	850	990	11000	460	1.8	37500	36600	1.025
WELL NUMBER B3				SOUTH CROSS MONITOR 815 (LAT 27 49 22 LONG 082 44 31.02)						
JUL , 1974 17... 6200		.8	880	1400	12000	420	7.1	37600	40800	1.025
WELL NUMBER B4				SOUTH CROSS MONITOR 520 (LAT 27 49 22 LONG 082 44 31.01)						
JUL , 1974 17... 3000		.6	1000	920	11000	430	7.5	35500	35400	1.024
WELL NUMBER E1				EXPLORATORY HOLE (LAT 27 49 22 LONG 082 44 31)						
FEB , 1973 14... 2700		1.0	1400	890	8700	240	14	--	--	--
JUL 11... 4800		5.8	1500	1200	14000	440	13	--	46800	1.033
MAR , 1974 20... 5100		5.4	1600	1300	16000	700	14	54500	52900	1.040

Table 23.--Concentrations of trace elements in water from selected wells at the test site

DATE	TIME	DEPTH TO TOP OF SAMPLE INTERVAL (FT)	DEPTH TO BOTTOM OF SAMPLE INTERVAL (FT)	DISSOLVED ARSENIC (AS) (UG/L)	DISSOLVED BORON (B) (UG/L)	DISSOLVED CADMIUM (CD) (UG/L)	DISSOLVED CHROMIUM (CR) (UG/L)	HEXAVALENT CHROMIUM (CR6) (UG/L)	DISSOLVED COBALT (CO) (UG/L)	DISSOLVED COPPER (CU) (UG/L)	DISSOLVED IRON (FE) (UG/L)
WELL NUMBER A1					SO CROSS INJ WELL (LAT 27 49 29 LONG 082 44 35.01)						
OCT.. 1974 17...	1400	961	1080	0	4200	1	0	0	0	0	220
WELL NUMBER A2					SOUTH CROSS INJ MON 800 (LAT 27 49 29 LONG 082 44 35.02)						
OCT.. 1974 23...	2400	746	800	3	1900	4	1	0	0	1	160
WELL NUMBER A3					SOUTH CROSS INJ MON 521 (LAT 27 49 29 LONG 082 44 35.03)						
OCT.. 1974 23...	1240	473	521	1	2300	--	1	0	3	1	170
WELL NUMBER A4					SOUTH CROSS INJ 250 (LAT 27 49 29 LONG 082 44 35.04)						
OCT.. 1974 23...	1305	200	250	0	50	8	1	0	7	1	10

Table 23.--Concentrations of trace elements in water from selected wells at the test site - continued

DATE	DIS-SOLVED LEAD (PB) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	DIS-SOLVED MOLYB-DENUM (MO) (UG/L)	DIS-SOLVED NICKEL (NI) (UG/L)	DIS-SOLVED STRON-TIUM (SR) (UG/L)	DIS-SOLVED VANA-DIUM (V) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)	DIS-SOLVED ALUM-INUM (AL) (UG/L)	DIS-SOLVED LITHIUM (LI) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)
	WELL NUMBER A1			SO CROSS INJ WELL (LAT 27 49 29 LONG 082 44 35.01)						
OCT.. 1974 17...	2	120	2	0	27000	500	90	0	150	.2
	WELL NUMBER A2			SOUTH CROSS INJ MON 800 (LAT 27 49 29 LONG 082 44 35.02)						
OCT.. 1974 23...	0	110	90	29	32000	250	60	10	150	.1
	WELL NUMBER A3			SOUTH CROSS INJ MON 521 (LAT 27 49 29 LONG 082 44 35.03)						
OCT.. 1974 23...	0	98	8	--	38000	250	90	7	130	.0
	WELL NUMBER A4			SOUTH CROSS INJ 250 (LAT 27 49 29 LONG 082 44 35.04)						
OCT.. 1974 23...	0	780	1	--	5000	8.7	500	10	25	.0

Table 23.--Concentrations of trace elements in water from selected wells at the test site - continued

DATE	TIME	DEPTH TO TOP OF SAMPLE INTERVAL (FT)	DEPTH TO BOTTOM OF SAMPLE INTERVAL (FT)	DISSOLVED ARSENIC (AS) (UG/L)	DISSOLVED BORON (B) (UG/L)	DISSOLVED CADMIUM (CD) (UG/L)	DISSOLVED CHROMIUM (CR) (UG/L)	HEXAVALENT CHROMIUM (CR6) (UG/L)	DISSOLVED COBALT (CO) (UG/L)	DISSOLVED COPPER (CU) (UG/L)	DISSOLVED IRON (FE) (UG/L)
WELL NUMBER B1			SOUTH CROSS MON 1224' (LAT 27 49 22 LONG 082 44 31.04)								
JULY, 1974 16...	1630	1210	1224	0	4500	2	1	0	0	1	3100
WELL NUMBER B2			SOUTH CROSS MON 1055' (LAT 27 49 22 LONG 082 44 31.03)								
JULY, 1974 17...	1225	1025	1055	0	2500	2	0	--	6	4	780
WELL NUMBER B3			SOUTH CROSS MONITOR 815 (LAT 27 49 22 LONG 082 44 31.02)								
JULY, 1974 17...	1350	780	815	0	4700	0	0	0	2	0	230
WELL NUMBER B4			SOUTH CROSS MONITOR 520 (LAT 27 49 22 LONG 082 44 31.01)								
JULY, 1974 17...	1425	463	520	0	3300	2	0	0	4	30	530
WELL NUMBER E1			EXPLORATORY HOLE (LAT 27 49 22 LONG 082 44 31)								
FEB., 1973 14...	1830	374	490	20	--	0	50	0	0	40	1100
JULY 11...	1345	1863	2178	0	--	0	--	0	1	70	260
MAR., 1974 20...	1700	1863	3280	5	15000		0	0	9	0	260

Table 23.--Concentrations of trace elements in water from selected wells at the test site - continued

DATE	DIS-SOLVED LEAD (PB) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	DIS-SOLVED MOLYB-DENUM (MO) (UG/L)	DIS-SOLVED NICKEL (NI) (UG/L)	DIS-SOLVED STRON-TIUM (SR) (UG/L)	DIS-SOLVED VANA-DIUM (V) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)	DIS-SOLVED ALUM-INUM (AL) (UG/L)	DIS-SOLVED LITHIUM (LI) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)
	WELL NUMBER B1			SOUTH CROSS MON 1224' (LAT 27 49 22 LONG 082 44 31.04)						
JULY. 1974 16...	10	200	3	4	28000	670	3500	0	420	.3
	WELL NUMBER B2			SOUTH CROSS MON 1055' (LAT 27 49 22 LONG 082 44 31.03)						
JULY. 1974 17...	7	100	5	12	17000	760	34000	30	150	.1
	WELL NUMBER B3			SOUTH CROSS MONITOR 815 (LAT 27 49 22 LONG 082 44 31.02)						
JULY. 1974 17...	5	120	2	0	33000	730	4600	10	140	.0
	WELL NUMBER B4			SOUTH CROSS MONITOR 520 (LAT 27 49 22 LONG 082 44 31.01)						
JULY. 1974 17...	7	150	9	22	23000	670	1600	50	150	.1
	WELL NUMBER E1			EXPLORATORY HOLE (LAT 27 49 22 LONG 082 44 31)						
FEB.. 1973 14...	1	60	15	1	34000	280	40	20	110	--
JULY 11...	0	40	0	0	30000	360	0	70	2900	--
MAR.. 1974 20...	2	100	0	2	33000	4.0	30	20	4	1.7

Table 24.--Concentrations of nitrogen and phosphorus in water from selected wells at the test site

DATE	TIME	DEPTH TO TOP OF SAMPLE INTERVAL (FT)	DEPTH TO BOTTOM OF SAMPLE INTERVAL (FT)	TOTAL NITROGEN (N) (MG/L)	TOTAL ORGANIC NITROGEN (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	TOTAL NITRATE (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	TOTAL ORTHO PHOSPHORUS (P) (MG/L)
WELL NUMBER A1 SO CROSS INJ WELL (LAT 27 49 29 LONG 082 44 35.01)										
OCT , 1974 17...	1400	961	1080	.65	.17	.48	.00	.00	.03	.03
WELL NUMBER A2 SOUTH CROSS INJ MON 800 (LAT 27 49 29 LONG 082 44 35.02)										
OCT , 1974 23...	1210	746	800	.65	.12	.53	.00	.00	.07	.02
WELL NUMBER A3 SOUTH CROSS INJ MON 521 (LAT 27 49 29 LONG 082 44 35.03)										
OCT , 1974 23...	1240	473	521	1.0	.27	.73	.00	.00	.08	.03
WELL NUMBER A4 SOUTH CROSS INJ 250 (LAT 27 49 29 LONG 082 44 35.04)										
OCT , 1974 23...	1305	200	250	.62	.08	.54	.00	.00	.03	.01

Table 24.--Concentrations of nitrogen and phosphorus in water from selected wells at the test site - continued

DATE	TIME	DEPTH TO TOP OF SAMPLE INTERVAL (FT)	DEPTH TO BOTTOM OF SAMPLE INTERVAL (FT)	TOTAL NITROGEN (N) (MG/L)	TOTAL ORGANIC NITROGEN (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	TOTAL NITRATE (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	TOTAL ORTHO PHOSPHORUS (P) (MG/L)
WELL NUMBER B1			SOUTH CROSS MON 1224' (LAT 27 49 22 LONG 082 44 31.04)							
JUL , 1974 16...	1630	1210	1224		.11		.00	.00	.13	.00
WELL NUMBER B2			SOUTH CROSS MON 1055' (LAT 27 49 22 LONG 082 44 31.03)							
JUL , 1974 17...	1225	1025	1055	.47	.02	.45	.00	.00	.01	.00
WELL NUMBER B3			SOUTH CROSS MONITOR 815 (LAT 27 49 22 LONG 082 44 31.02)							
JUL , 1974 17...	1350	780	815	.72	.30	.42	.00	.00	.02	.02
WELL NUMBER B4			SOUTH CROSS MONITOR 520 (LAT 27 49 22 LONG 082 44 31.01)							
JUL , 1974 17...	1425	463	520	.31	.31	.00	.00	.00	.04	.03
WELL NUMBER E1			EXPLORATORY HOLE (LAT 27 49 22 LONG 082 44 31)							
FEB , 1973 14...	1830	374	490	--	--	--	.00	.00	.35	--
JUL 11...	1345	1863	2178	4.2	.48	3.8	.00	.00	.04	.04
MAR , 1974 20...	1700	1863	3280	7.2	2.5	4.7	.01	.08	--	--

Table 25.--Record of wells near the South Cross Bayou test site

Well number	Latitude Longitude	Name or owner	Land surface altitude (ft above mean sea level)	Reported total depth (ft below land surface)	Reported casing depth (ft below land surface)	Casing diameter (in)	Distance from injection well A1 (ft)
S1	274840N0824433.01	Isle of Palms	20	187	--	2	4950
S2	274850N0824355.01	El Rey Trailer Park	17	35	--	1.5	5330
S3	274852N0824353.01	El Rey Trailer Park	17	90	--	2	5450
S4	274904N0824406.01	Kubanka	17	100	--	2	3770
S5	274906N0824359.01	Stevens	17	198	135	2	4290
S6	274906N0824406.01	Boluzar	16	56	--	2	3650
S7	274907N0824505.01	Paradise Shores	10	240	--	4	3120
S8	274910N0824433.01	E. T. Johns	5	60	--	2	2080
S9	274912N0834410.01	Mitchell	15	150	--	-	3120
S10	274913N0824439.01	Belerose	10	25	--	1-1/4	1820
S11	274916N0824458.01	Five Towns	10	300	--	-	2210
S12	274918N0824431.01	Spangler	10	100	--	2	1430
S13	274925N0824458.01	Five Towns	8	302	127	6	1700
S14	275007N0824441.01	Showard	11	60	--	1-1/4	3770
S15	275008N0824429.01	Butler	10	146	105	3	3900
S16	275010N0824433.01	Butler	12	98	90	2	4030

Table 26.--Chemical analyses of water from selected wells near the test site

DATE	TIME	TOTAL DEPTH OF WELL (FT)	TEMPERATURE (DEG C)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	ALKALINITY AS CACO3 (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	TOTAL SULFIDE (S) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
WELL NUMBER S1				ISLE OF PALMS (LAT 27 48 40 LONG 082 44 33.01)						
MAR., 1973										
01...	1505	187	--	1180	--	--	--	--	--	210
SEP., 1975										
02...	1340	187	--	929	--	--	--	--	--	130
WELL NUMBER S2				EL REY TRAILER PARK (LAT 27 48 50 LONG 082 43 55.01)						
MAR., 1973										
01...	1445	35	--	236	--	--	--	--	--	54
WELL NUMBER S3				EL RAY TRAILER PARK (LAT 27 48 52 LONG 082 43 53.01)						
MAR., 1973										
01...	1440	90	--	760	--	--	--	--	--	110
SEP., 1975										
02...	1300	90	--	--	--	--	--	--	--	80
WELL NUMBER S4				KUBANKA (LAT 27 49 04 LONG 082 44 06.01)						
MAR., 1973										
01...	1240	100	--	725	--	--	--	--	--	52
SEP., 1975										
02...	1130	100	--	709	--	--	--	--	--	52
WELL NUMBER S5				STEVENS (LAT 27 49 06 LONG 082 43 59.01)						
JULY, 1974										
17...	1521	198	26.5	1330	6.5	215	262	0	--	290
AUG., 1975										
20...	1310	198	25.6	1310	--	--	--	--	--	270

Table 26.--Chemical analyses of water from selected wells near the test site - continued

DATE	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DENSITY (GM/ML AT 20 C)
	WELL NUMBER S1				ISLE OF PALMS (LAT 27 48 40 LONG 082 44 33.01)					
MAR.. 1973										
01...	--	--	--	--	--	--	--	--	--	--
SEP.. 1975										
02...	9.4	--	--	--	35	--	--	--	--	.998
	WELL NUMBER S2				FL RAY TRAILER PARK (LAT 27 48 50 LONG 082 43 55.01)					
MAR.. 1973										
01...	--	--	--	--	--	--	--	--	--	--
	WELL NUMBER S3				FL RAY TRAILER PARK (LAT 27 48 52 LONG 082 43 53.01)					
MAR.. 1973										
01...	--	--	--	--	--	--	--	--	--	--
SEP.. 1975										
02...	.1	--	--	--	24	--	--	--	--	.998
	WELL NUMBER S4				KUPANKA (LAT 27 49 04 LONG 082 44 06.01)					
MAR.. 1973										
01...	--	--	--	--	--	--	--	--	--	--
SEP.. 1975										
02...	1.5	--	--	--	30	--	--	--	--	.998
	WELL NUMBER S5				STEVENS (LAT 27 49 06 LONG 082 43 59.01)					
JULY. 1974										
17...	25	.1	130	33	86	1.4	39	1000	736	.997
AUG.. 1975										
20...	12	--	--	--	77	--	--	--	--	.998

Table 26.--Chemical analyses of water from selected wells near the test site - continued

DATE	TIME	TOTAL DEPTH OF WELL (FT)	TEMPERATURE (DEG C)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	ALKALINITY AS CACO3 (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	TOTAL SULFIDE (S) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
WELL NUMBER S6 POLVZAR (LAT 27 49 06 LONG 082 44 06.01)										
MAR.. 1973										
01...	1255	56	--	720	--	--	--	--	--	56
AUG.. 1975										
20...	1325	56	25.3	718	--	--	--	--	--	55
WELL NUMBER S7 PARADISE SHORES (LAT 27 49 07 LONG 082 45 05.01)										
MAR.. 1973										
08...	1145	240	--	1250	7.9	217	264	0	2.3	240
SEP.. 1975										
02...	1055	240	--	1220	--	--	--	--	--	240
WELL NUMBER S8 E.T. JOHNS (LAT 27 49 10 LONG 082 44 33.01)										
MAR.. 1973										
01...	1400	60	--	650	--	--	--	--	--	27
WELL NUMBER S9 MITCHELL (LAT 27 49 12 LONG 082 44 10.01)										
MAR.. 1973										
08...	0955	150	--	560	7.6	269	328	0	--	22
AUG.. 1975										
20...	1345	150	25.7	555	--	--	--	--	--	21
WELL NUMBER S10 BELLEROSE (LAT 27 49 13 LONG 082 44 39.01)										
MAR.. 1973										
01...	1340	25	--	540	--	--	--	--	--	16
AUG.. 1975										
20...	1515	25	26.1	646	--	--	--	--	--	33

Table 26.--Chemical analyses of water from selected wells near the test site - continued

DATE	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DENSITY (GM/ML AT 20 C)
WELL NUMBER S6 POLYZAP (LAT 27 49 06 LONG 082 44 06.01)										
MAR.. 1973										
01...	--	--	--	--	--	--	--	--	--	--
AUG.. 1975										
20...	1.2	--	--	--	30	--	--	--	--	.998
WELL NUMBER S7 PARADISE SHORES (LAT 27 49 07 LONG 082 45 05.01)										
MAR.. 1973										
08...	16	.4	120	36	48	11	37	902	641	1.001
SEP.. 1975										
02...	34	--	--	--	48	--	--	--	--	0.998
WELL NUMBER S8 F.T. JOHNS (LAT 27 49 10 LONG 082 44 33.01)										
MAR.. 1973										
01...	--	--	--	--	--	--	--	--	--	--
WELL NUMBER S9 MITCHELL (LAT 27 49 12 LONG 082 44 10.01)										
MAR.. 1973										
08...	400	.3	70	16	20	3.8	42	346	736	1.001
AUG.. 1975										
20...	1.0	--	--	--	20	--	--	--	--	0.998
WELL NUMBER S10 BELLEROSE (LAT 27 49 13 LONG 082 44 39.01)										
MAR.. 1973										
01...	--	--	--	--	--	--	--	--	--	--
AUG.. 1975										
20...	25	--	--	--	17	--	--	--	--	0.998

Table 26.--Chemical analyses of water from selected wells near the test site - continued

DATE	TIME	TOTAL DEPTH OF WELL (FT)	TEMPERATURE (DEG C)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	ALKALINITY AS CACO3 (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	TOTAL SULFIDE (S) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
WELL NUMBER S11					FIVE TOWNS (LAT 27 49 16 LONG 082 44 58.01)					
MAR.. 1973										
08...	1120	300	--	1090	7.6	207	252	0	4.6	180
AUG.. 1975										
20...	1435	300	24.2	1100	--	--	--	--	--	190
WELL NUMBER S12					SPANGLER (LAT 27 49 18 LONG 082 44 31.01)					
MAR.. 1973										
08...	1020	100	--	660	7.7	315	384	0	1.3	37
AUG.. 1975										
20...	1245	100	24.3	672	--	--	--	--	--	35
WELL NUMBER S13					FIVE TOWNS (LAT 27 49 25 LONG 082 44 58.01)					
AUG.. 1975										
20...	1450	302	24.4	3610	--	--	--	--	--	970
WELL NUMBER S14					SHOWARD (LAT 27 50 07 LONG 082 44 41.01)					
MAR.. 1973										
01...	1140	60	--	530	--	--	--	--	--	9.8
AUG.. 1975										
20...	1545	60	25.4	528	--	--	--	--	--	11
WELL NUMBER S15					BUTLER (LAT 27 50 08 LONG 082 44 29.01)					
MAR.. 1973										
08...	0900	146	--	1150	7.6	210	256	0	5.1	210
SEP.. 1975										
02...	1200	146	--	1160	--	--	--	--	--	210

Table 26.--Chemical analyses of water from selected wells near the test site - continued

DATE	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DENSITY (GM/ML AT 20 C)
		WELL NUMBER S11			FIVE TOWNS (LAT 27 49 16 LONG 082 44 58.01)					
MAR.. 1973										
08...	32	.4	110	32	41	10	39	786	571	1.000
AUG.. 1975										
20...	35	--	--	--	40	--	--	--	--	0.998
		WELL NUMBER S12			SPANGLER (LAT 27 49 18 LONG 082 44 31.01)					
MAR.. 1973										
08...	.8	.3	100	10	28	.9	22	404	389	--
AUG.. 1975										
20...	1.3	--	--	--	28	--	--	--	--	0.998
		WELL NUMBER S13			FIVE TOWNS (LAT 27 49 25 LONG 082 44 58.01)					
AUG.. 1975										
20...	82	--	--	--	320	--	--	--	--	0.999
		WELL NUMBER S14			SHOWARD (LAT 27 50 07 LONG 082 44 41.01)					
MAR.. 1973										
01...	--	--	--	--	--	--	--	--	--	--
AUG.. 1975										
20...	1.3	--	--	--	7.7	--	--	--	--	0.998
		WELL NUMBER S15			BUTLER (LAT 27 50 08 LONG 082 44 29.01)					
MAR.. 1973										
08...	36	.4	110	32	47	7.8	38	690	610	1.000
SEP.. 1975										
02...	23	--	--	--	46	--	--	--	--	0.999

Table 26.--Chemical analyses of water from selected wells near the test site - continued

DATE	TIME	TOTAL DEPTH OF WELL (FT)	TEMPERATURE (DEG C)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	ALKALINITY AS CACO3 (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	TOTAL SULFIDE (S) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
WELL NUMBER S16 BUTLER (LAT 27 50 10 LONG 082 44 33.01)										
FEB.. 1973										
26...	1235	98	--	660	--	--	--	--	--	19
SEP.. 1975										
02...	1220	98	--	--	--	--	--	--	--	13

Table 26.--Chemical analyses of water from selected wells near the test site - continued

DATE	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DENSITY (GM/ML AT 20 C)
WELL NUMBER S16 BUTLER (LAT 27 50 10 LONG 082 44 33.01)										
FEB.. 1973										
26...	--	--	--	--	--	--	--	--	--	--
SEP.. 1975										
02...	1.1	--	--	--	8.4	--	--	--	--	0.998

Table 27.--Concentrations of nitrogen, phosphorus, coliform, and streptococci in water from selected wells near the test site

DATE	TIME	TOTAL DEPTH OF WELL (FT)	TOTAL NITROGEN (N) (MG/L)	TOTAL ORGANIC NITROGEN (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	TOTAL NITRATE (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	TOTAL ORTHO PHOSPHOROS (P) (MG/L)	IMMEDIATE COLIFORM (COL. PER 100 ML)	FECAL COLIFORM (COL. PER 100 ML)	STREPTOCOCCI (COLONIES PER 100 ML)
			WELL NUMBER S1			ISLE OF PALMS (LAT 27 48 40 LONG 082 44 33.01)						
JUN , 1974												
13...	0900	187	--	--	--	--	--	--	--	<1	<1	<1
			- WELL NUMBER S5			STEVENS (LAT 27 49 06 LONG 082 43 59.01)						
JUN , 1974												
13...	0845	198	--	--	--	--	--	--	--	<1	<1	<1
JUL												
17...	1521	198	.73	.29	.44	.00	.00	.03	.03	--	--	--
			WELL NUMBER S7			PARADISE SHORES (LAT 27 49 07 LONG 082 45 05.01)						
MAR , 1973												
08...	1145	240	.95	.45	.40	.00	.00	--	4.6	0	0	--
			WELL NUMBER S9			MITCHELL (LAT 27 49 12 LONG 082 44 10.01)						
MAR , 1973												
03...	0955	150	.99	.51	.48	.00	.00	--	5.1	0	0	--
JUN , 1974												
13...	0840	150	--	--	--	--	--	--	--	<1	<1	<1
			WELL NUMBER S11			FIVE TOWNS (LAT 27 49 16 LONG 082 44 58.01)						
MAR , 1973												
08...	1120	300	.70	.02	.68	.00	.00	--	5.0	13	0	--
JUN , 1974												
13...	0835	300	--	--	--	--	--	--	--	<1	<1	<1

Table 27. -Concentrations of nitrogen, phosphorus, coliform, and streptococci in water from selected wells near the test site - continued

DATE	TIME	TOTAL DEPTH OF WELL (FT)	TOTAL NITROGEN (N) (MG/L)	TOTAL ORGANIC NITROGEN (N) (MG/L)	TOTAL AMMONIA NITROGEN (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	TOTAL NITRATE (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	TOTAL ORTHO PHOSPHORUS (P) (MG/L)	IMMEDIATE COLIFORM (COL. PER 100 ML)	FECAL COLIFORM (COL. PER 100 ML)	STREPTOCOCCI (COLONIES PER 100 ML)
WELL NUMBER S12 SPANGLER (LAT 27 49 18 LONG 082 44 31.01)												
MAR . 1973												
08...	1020	100	.54	.16	.39	.00	.00	--	2.8	0	0	--
JUN . 1974												
13...	0825	100	--	--	--	--	--	--	--	<1	<1	<1
WELL NUMBER S15 BUTLER (LAT 27 50 08 LONG 082 44 29.01)												
MAR . 1973												
08...	0900	146	.89	.41	.48	.00	.00	--	4.8	0	0	--
JUN . 1974												
13...	0825	146	--	--	--	--	--	--	--	<1	<1	<1
WELL NUMBER S16 BUTLER (LAT 27 50 10 LONG 082 44 33.01)												
JUN . 1974												
13...	0815	98	--	--	--	--	--	--	--	<1	<1	81

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