UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

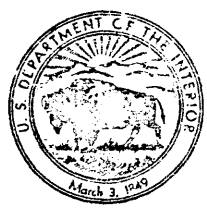
HYDROGEOLOGIC DATA FROM TWO WELLS AT MYAKKA HEAD, MANATEE COUNTY, FLORIDA

By William C. Sinclair

Open-File Report 81-1070

Prepared in cooperation with the

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT



Tallahassee, Florida

1982

UNITED STATES DEPARTMENT OF THE INTERIOR

JAMES G. WATT, Secretary

GEOLOGICAL SURVEY

Doyle G. Frederick, Acting Director

For additional information write to:

U.S. Geological Survey
325 John Knox Road, Suite F-240
Tallahassee, Florida 32303

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ABBREVIATIONS AND CONVERSION FACTORS

Factors for converting inch-pound units to International System (SI) units and abbreviation of units

Multiply	By	To obtain
inch (in.)	25.4	millimeter (mm)
foot (ft)	0.3048	meter (m)
gallon per minute (gal/min)	0.06309	liter per second (L/s)
gallon per minute per foot [(gal/min)/ft]	0.2070	liter per second per meter [(L/s)/m]

* * * * * * * * * * * * * *

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

HYDROGEOLOGIC DATA FROM TWO WELLS AT MYAKKA HEAD, MANATEE COUNTY, FLORIDA

By William C. Sinclair

ABSTRACT

Well construction data, lithologic and geophysical logs, and water-quality data are presented for a deep (1,210 feet) well drilled at Myakka Head, Manatee County, Florida. A shallow well (600 feet) was drilled at the same site. The wells were drilled as part of the Southwest Florida Water Management District's Regional Observation and Monitor-Well Program. The deep well is cased to a depth of 909 feet and open from 909 to 1,210 feet. The shallow well is cased to a depth of 563 feet and open from 563 to 600 feet. Chloride concentration of water from the deep well is 17 milligrams per liter.

INTRODUCTION

The U.S. Geological Survey, in cooperation with the Southwest Florida Water Management District, collected and analyzed drill cuttings and ran geophysical logs during construction of two wells drilled at Myakka Head, Manatee County, Fla. (fig. 1). The wells were drilled as part of the Southwest Florida Water Management District's Regional Observation and Monitor-Well Program. Both wells are at site no. 32. The first well was drilled to a depth of 1,210 feet and is referred to as the deep well. The second well was drilled to a depth of 600 feet and is referred to as the shallow well. The two wells were constructed to observe water levels in two separate intervals of the Floridan aquifer. Water samples were obtained from the deep well bimonthly and analyzed for chloride concentrations. This report presents construction data and hydrographs showing water-level fluctuations in both wells and a lithologic log and geophysical logs for the deep well.

WELL CONSTRUCTION

The two monitor wells were drilled between October and December 1977 using conventional mud-rotary drilling methods. Land surface at Myakka Head is about 104 feet above sea level. The terrain is flat with poor surface drainage. Reverse air drilling, a method generally preferred for test drilling, was not used because water produced by this type of drilling would not drain readily from the site.

Figure 2 shows construction details of the two wells. The deep well has 8-inch PVC casing from land surface to a depth of 60 feet. From 60 feet to a depth of 909 feet, the well has 6-inch PVC casing and is open hole from 909 to 1,210 feet. During placement of cement in the well annulus, cement filled the

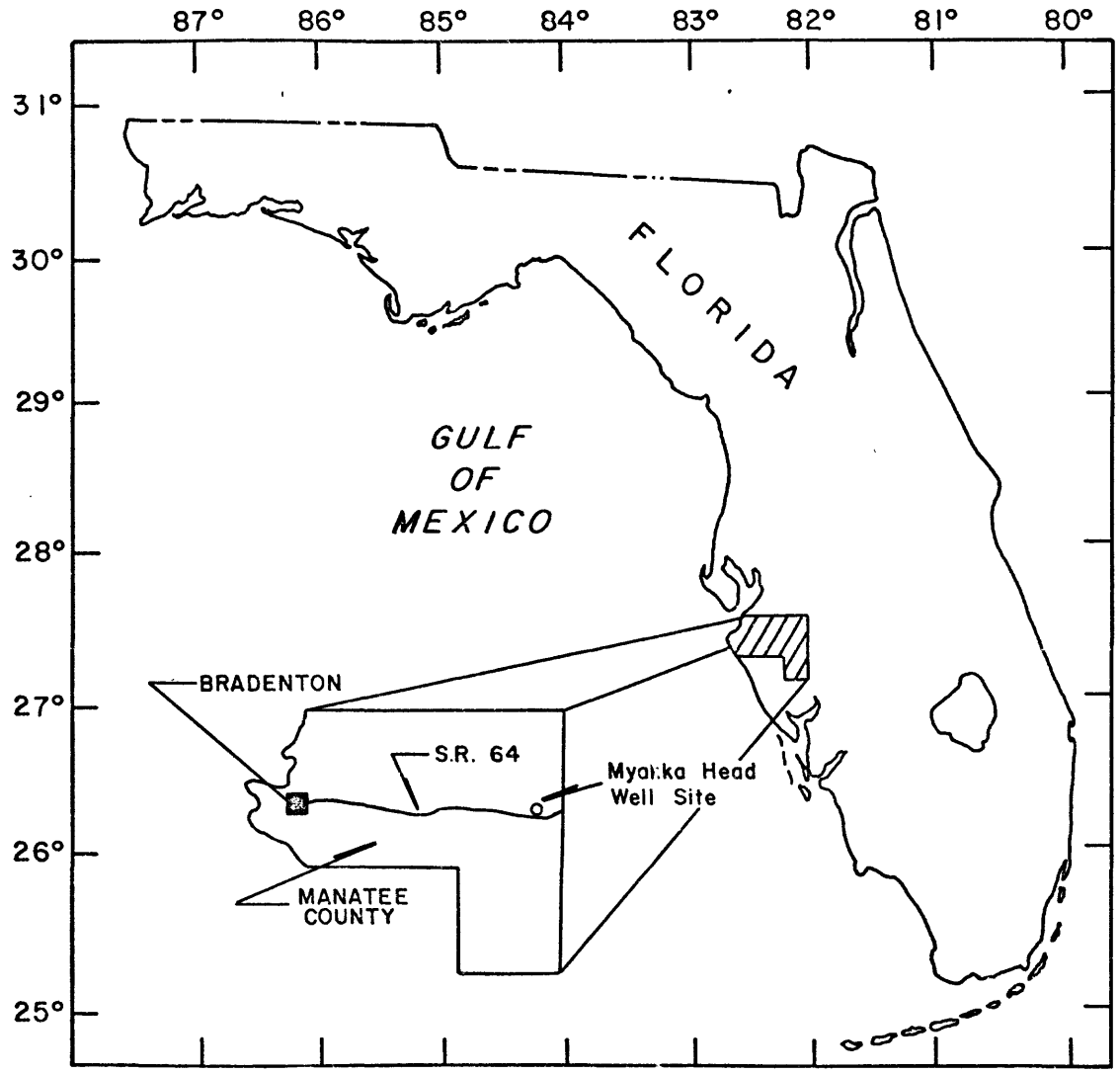


Figure 1.--Location of the Myakka Head monitor wells.

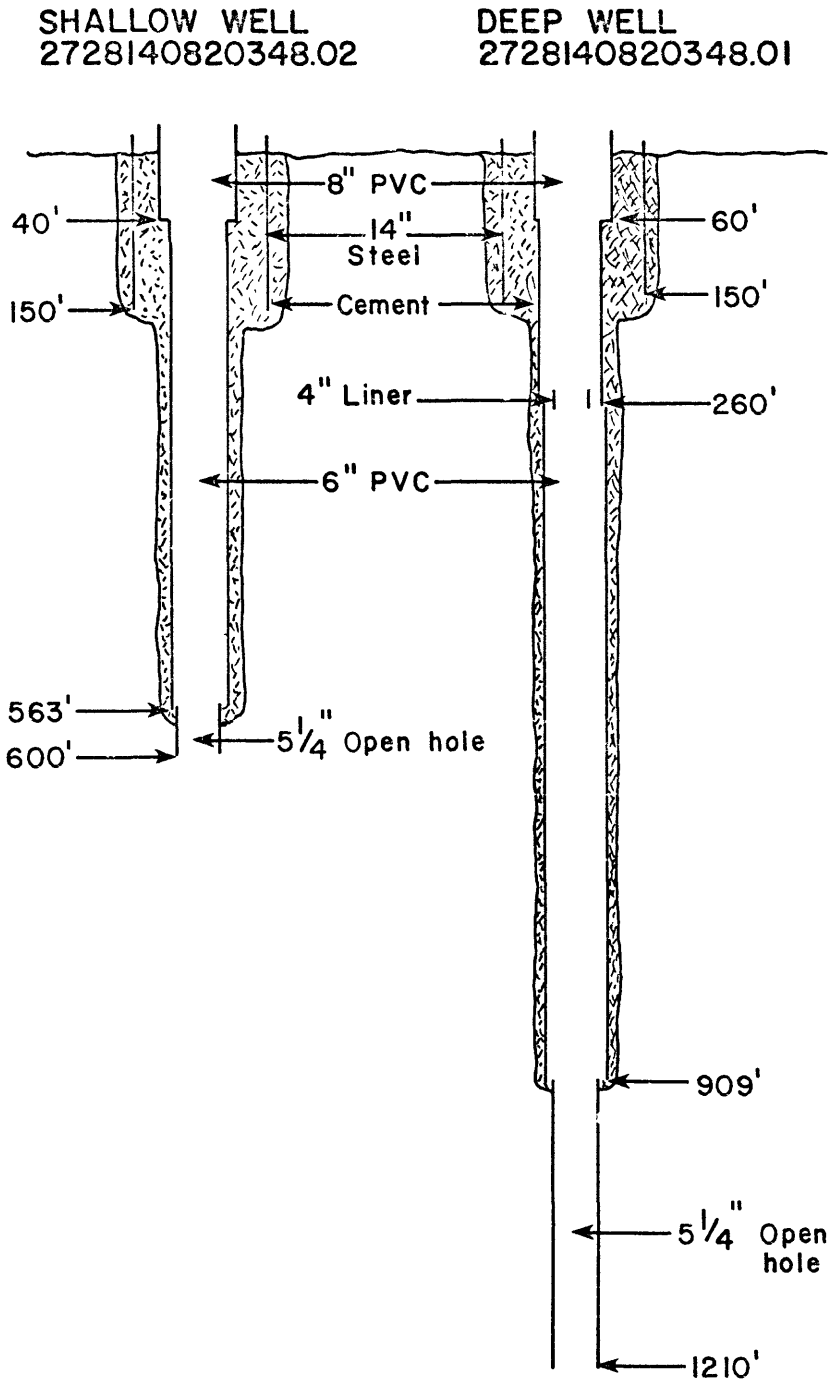


Figure 2.--Well constructions.

casing to within 276 feet of land surface. A caliper log made after the cement had been drilled from the casing indicated that the casing was broken at a depth of 260 feet. A downhole television survey later verified the casing break. Forty feet of 4-inch PVC casing was centered at a depth of 260 feet and cemented in place to insure the integrity of the casing.

A summary of the casing problem is given in a 1978 report by Dr. Carl E. Kurt, Assistant Professor at the School of Engineering and Engineering Experiment Station, Auburn University. The report is in the files of the Southwest Florida Water Management District, 5060 U.S. Highway 41 South, Brooksville, FL 33512.

The shallow well (fig. 2), drilled 15 feet west of the deep well, is cased with 8-inch PVC casing to a depth of 40 feet, 6-inch PVC casing to a depth of 563 feet, and is open hole from 563 feet to a total depth of 600 feet. After the casing was cemented from 563 feet to land surface and while drilling to 600 feet, a very fine quartz sand was encountered. Quartz sand was not shown at these depths in the lithologic log of the deep well and it is not known whether the sand constitutes fill in a solution cavity or whether the very fine sand is caving alongside the casing cement. Very fine sand fills the shallow well to a depth of 569 feet in spite of efforts to clean the well by pumping and bailing.

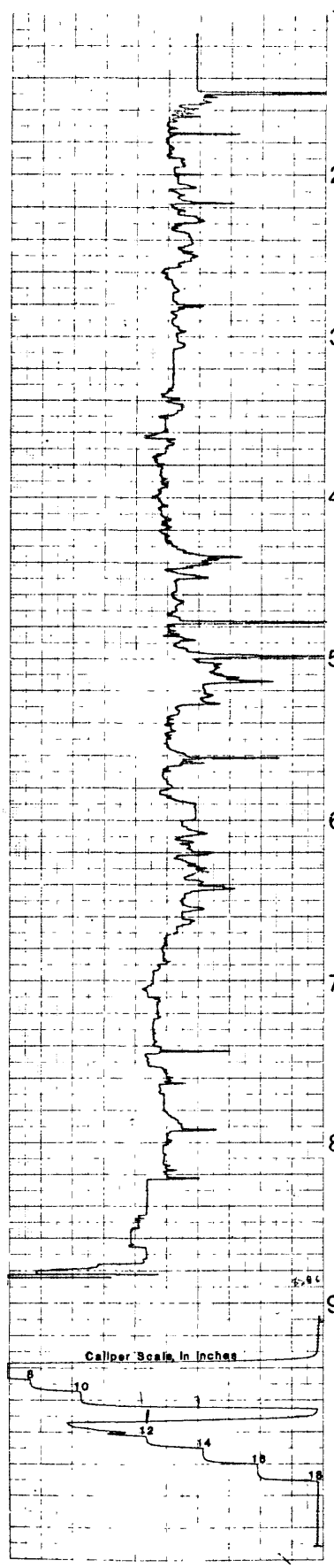
LITHOLOGIC AND GEOPHYSICAL LOGS

Drill cuttings were collected from the deep well at 5-foot intervals from land surface to a total depth of 1,210 feet. The cuttings are described in table 1. Drill cuttings were not collected from the shallow well. The depths of well casing and intervals left open to the Floridan aquifer in the two wells were selected on the basis of lithologic and geophysical logs.

Geophysical logs were run in the deep well on October 31, 1977, when the borehole was open from 150 to 910 feet. These logs are shown in figures 3-9. Caliper and temperature logs run after the deep well was completed are shown in figures 10-14. A downhole television survey was run in the deep well after completion and a videotape of this survey is on file at the Southwest Florida Water Management District office in Brooksville, Fla.

WELL DEVELOPMENT

On June 6, 1978, the deep well was pumped at a rate of 100 gal/min for 7 hours and 28 minutes. The response to pumping was an immediate 1-foot decline in water level in the pumping well, after which the level remained nearly constant. Periodic measurements of water level in the shallow well did not show any change during pumping from the deep well. During the second hour of pumping, a temperature log (fig. 13) was made of the upper part of the deep well to determine if water was leaking from the aquifer through the break in casing at 260 feet.



CALIPER LOG

TYPE: DATE: 10-31-77

LOCATION: State Florida County Manatee Town MyaKKa Head

LOGGING INFORMATION

Operator(s) JERRY IDLER
Equipment address: [illegible] CO.LO.
Logger type: [illegible] No. [illegible]
Tool type: WRS
Tool length, cable head to measuring point: 6 ft, 0 in
Calibration: mated eq /eq
Logging speed: 22.5 ft/min
Log vert. scale: 20 ft/in
Arm length: 6 inches

MODULE SETTINGS

Scale (Range): ~ 1:1 inches/chart div.
Position Pot. (Base, zero or suppression): _____ Dial div.
Sensitivity Pot. (Span): _____ Dial div.

RECORDER SETTINGS

	Ch 1	Ch 2	Ch 3
Position:			
Sensitivity:			

Run No. 2 of _____

Remarks: _____

U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION

District (or Project): 208

FILE LOCATION NO.: _____

WELL INFORMATION

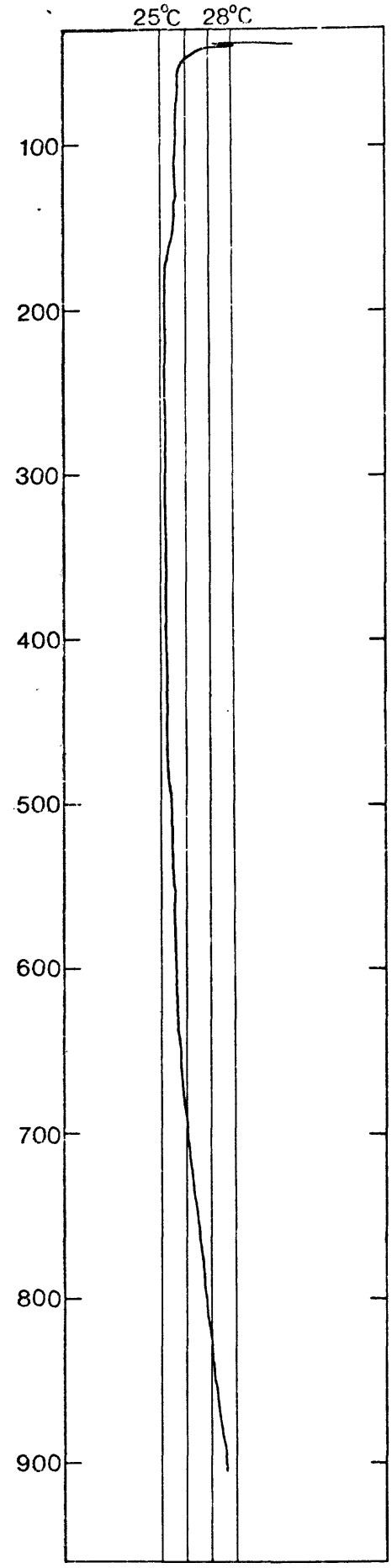
Well No. (USGS): 27 28 13 082 03 1 Ft. 02
Other: _____
Map or Quad MyaKKa Head
Site description _____

Agency or Owner: SWFWMD
Address: _____
Altitude of L.S. _____
Log M.P. LSD
Btm log interval: 888.6 ft Well TD: _____ ft.
Top log interval: 148 ft
Type of finish: Open hole
Casing: Elev. of top _____ ft/in Above / Below L.S.
I.D. 14, from LSD to 148, type Steel
I.D. _____, from _____ to _____, type _____
I.D. _____, from _____ to _____, type _____
Cement: from LSD to 148
Perf. interval(s) from _____ to _____, type _____
Open hole diameter: _____ from _____ to _____
_____ from _____ to _____
Fluid level: _____ ft/in Above / At / Below L.S., Top Csg
Fluid type: mud ; temp _____ °F, °C
Fluid resist.: _____ ohm-m
Driller: Meredith Corp
Address: Orlando Fl
Type of rig: rotary
Date started: _____ completed _____
Aquifer or formation: _____

NOTE: This log is not to be used to fulfill private contractual obligations.

Other data and logs available for this well: _____

Figure 3.--Caliper log of deep well, October 31, 1977.



TEMPERATURE LOG

TYPE: DATE: 10-31-77

LOCATION: State Florida County Manatee Town Myakka Head

LOGGING INFORMATION

Operator(s)
Equipment address:
Logger type: No.
Tool type: GRI
Detector type: Thermistor
Tool length, cable head to detector: 10 ft in
Calibration: See chart dated 6-3-77
Logging speed: 25 down ft/min
Log vert. scale: 20 ft/in

MODULE SETTINGS

Scale switch (rate, range or counts): 100 cps (for pulse tool)
°F, C (for other tools)
T.C. switch: 5 sec. (for pulse)
Position Pot. (base, zero or suppression): Dial div.
Sensitivity Pot. (Span): 10 Dial div.
Discrimination Pot.: Dial div. (for pulse)
Input pulse: volts; polarity (for pulse)
Output switch: normal, reverse (for pulse)
Actual scale: 100 cps } chart div (or) = cps/°F, C
full scale
(circle as appl.cable)
1.99 °F, C } chart div (or)
full scale
(circle as applicable)

Run No. 1 of

Remarks:

U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION

District or Project: 208

FILE LOCATION NO.:

WELL INFORMATION

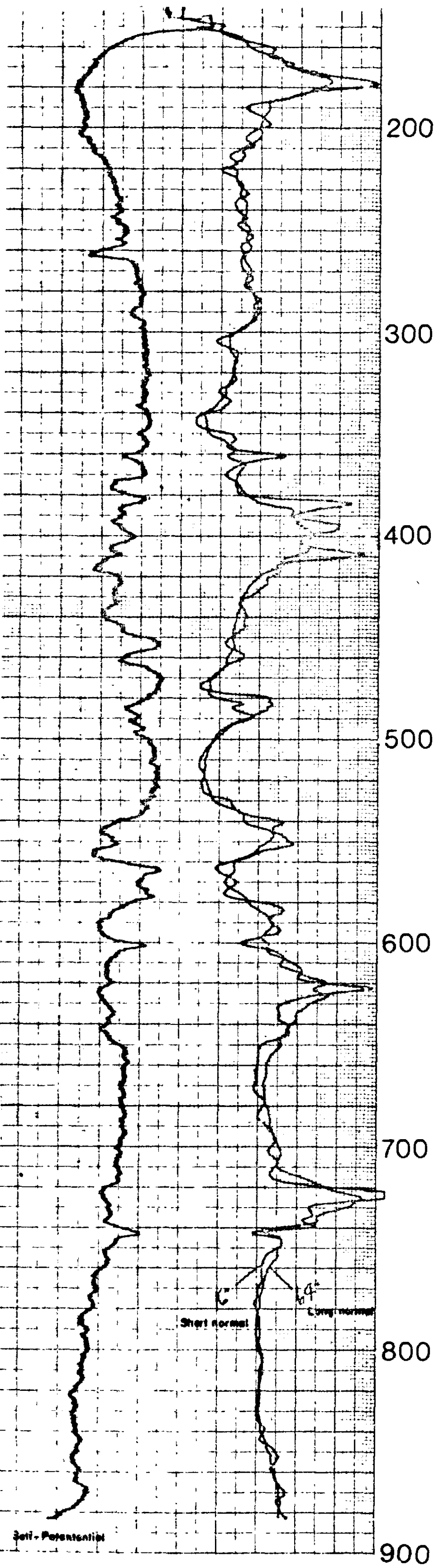
Well No. (USGS): 272813082035 01
Other:
Map or Quad Myakka Head
Site description

Agency or Owner: SWFWMD
Address:
Altitude of L.S.
Log M.P. LSD
Btm log interval: 894.6 ft Well TD: 894.6 ft.
Top log interval: LSD ft
Type of finish: Open hole
Casing: Elev. of top 1'6" ft/in (Above / Below) L.S.
I.D. 14, from LSD to 148, type Steel
I.D. , from to , type
I.D. , from to , type
Cement: from LSD to 148
Perf. interval(s) from to , type
Open hole diameter: 12¾" from 150 to 894.6
from to
Fluid level: ft/in Above / At / Below L.S., Top Csg
Fluid type: Mud ; temp °F, °C
Fluid resist.: ohm-m
Driller: Meredith Corp
Address: Orlando Fl
Type of rig: rotary
Date started: completed
Aquifer or formation:

NOTE: This log is not to be used to fulfill private contractual obligations

Other data and logs available for this well:

Figure 4.--Temperature log of deep well, October 31, 1977.



ELECTRIC LOG

U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION

TYPE: DATE: 10-31-77 District or Project: 208

LOCATION: State: Florida County: Manatee Town: Myakka Head FILE LOCATION NO.:

LOGGING INFORMATION

Operator(s) [redacted]

Equipment address [redacted]

Logger type: [redacted] No.: [redacted]

Tool type: [illegible]

Tool length, cable head to measuring point: [illegible] ft in

Calibration: Dated on log

Logging speed: 40 ft/min up down

Log vert. scale: 20 ft/in

MODULE SETTINGS

SINGLE POINT RESISTANCE

Scale switch (range): ohms

Position Pot. (base, zero, or suppression): Dial div.

Sensitivity Pot. (Span): Dial div.

Actual scale: ohms chart div (or) full scale (circle as applicable)

RESISTIVITY

16 inch normal (other resistivity)

Scale switch: 200 ohm-meters

Position Pot.: dial div.

Sensitivity Pot.: dial div.

Actual scale: 40 ohm-m chart div (or) full scale (circle as applicable)

64 inch normal

Scale switch: 200 ohm-meters

Position Pot.: dial div.

Sensitivity Pot.: dial div.

Actual scale: 40 ohm-m chart div (or) full scale (circle as applicable)

SPONTANEOUS POTENTIAL

Scale switch: 50 millivolts

Position Pot.: dial div.

Sensitivity Pot.: dial div.

Actual scale: Mv chart div (or) full scale (circle as applicable)

RECORDER SETTINGS

	Ch 1	Ch 2	Ch 3
Position Pot.:			
Sensitivity Pot.:			

Run No. 7 of 7

Remarks:

WELL INFORMATION

Well No. (USGS): 272813082031901 02

Other:

Map or Quad Myakka Head

Site description

Agency or Owner: SWFWMD

Address:

Altitude of L.S.

Log M.P. LSD

Btm log interval: [illegible] ft Well TD: 910 ft.

Top log interval: 1[illegible] ft

Type of finish: Open hole

Casing: Elev. of top 1'6" ft/in Above L.S. Below

I.D. 14, from LSD to 148, type S

I.D. ___, from ___ to ___, type ___

I.D. ___, from ___ to ___, type ___

Cement: from LSD to 150

Perf. interval(s) from ___ to ___, type ___

Open hole diameter: [illegible] from 150 to 910 from ___ to ___

Fluid level: 40 ft/in Above At Below L.S., Top Csg

Fluid type: Mud; temp ___ °F

Fluid resist.: ohm-m

Driller: Meredith Corp

Address: Orlando Fl

Type of rig: rotary

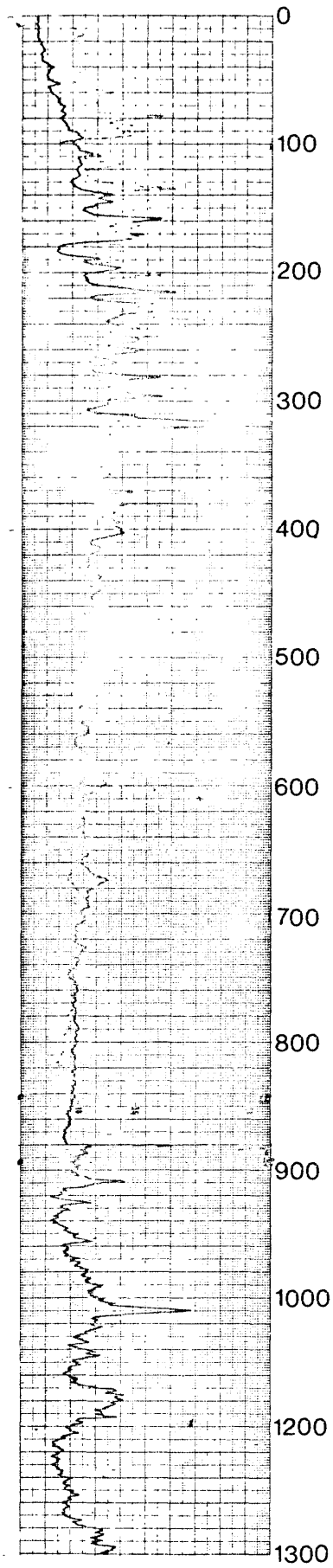
Date started: completed

Aquifer or formation:

NOTE: This log is not to be used to fulfill private contractual obligations.

Other data and logs available for this well:

Figure 5.--Electric log; long and short normal resistivity and self potential of deep well, October 31, 1977.



NUCLEAR LOG

TYPE: Gamma DATE:

LOCATION: State Florida County Manatee Town Myakka Head

U.S. GEOLOGICAL SURVEY WATER RESOURCES DIVISION

District or Project: 208

FILE LOCATION NO.:

LOGGING INFORMATION

Operator(s) JERRY IDLER
Equipment Address: DENVER COLO.
Logger type: WRI M-CON M10045
Tool type: GRT
Detector type: 1 x 4 x Cal
Source type:
Source size: C; MC
Source spacing:
Tool length, cable head to detector ft in
Calibration: 220 CPS = 100 API units cps
Logging speed: 25 ft/min (up) down
Log vert. scale: 20 ft/in

MODULE SETTINGS

Scale switch (rate or counts): 500 cps } chart div (or)
API } full scale
(circle as applicable)

T. C. switch: 4 sec.
Position Pot. (Base, zero, or suppression): 10 Dial Div.
Sensitivity Pot. (Span): 10 Dial Div.
Discrimination Pot.: Di:1 Div.
Input pulse: volts; Polarity
Output switch: normal; reverse
Actual scale: 150 CPS/in cps } chart div (or)
API } full scale
(circle as applicable)

RECORDER SETTINGS

	Ch 1	Ch 2	Ch 3
Position Pot.:			
Sensitivity Pot.:			

Run No. 3 of

Remarks: Below 880 logged
0-200 cps full scale, speed 25 fpm
TC = 4 sec

WELL INFORMATION

Well No. (USGS): 27 28 13 082 03 51.02 49
Other:
Map or Quad Myakka Head
Site description

Agency or Owner: SWFWMD
Address:
Altitude of L.S.
Log M.P. LSD Log TD 891.6 ft
Btm log interval: 891.6 ft Well TD: ft
Top log interval: LSD ft
Type of finish: open hole
Casing: Elev. of top 1'6" ft/in (Above) Below L.S.

I.D. 14", from LSD to 198, type Steel
I.D. , from to , type
I.D. , from to , type

Cement: from LSD to 150

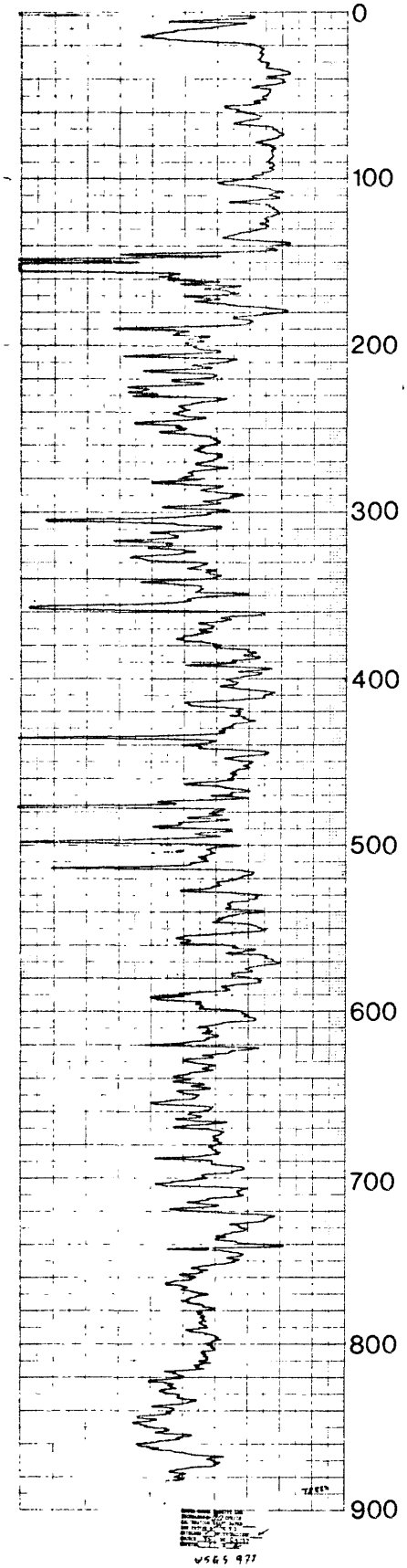
Perf. interval(s) from to , type
Open hole diameter: 12¼ from 150 to 880
from to

Fluid level: ft/in Above At L.S., Top Csg Below
Fluid type: Mud temp °F, °C
Fluid resist.: ohm-m
Driller:
Address:
Type of rig:
Date started: completed
Aquifer or formation:

NOTE: This log is not to be used to fulfill private contract obligations.

Other data and logs available for this well:

Figure 6.--Gamma-ray log of deep well, October 31, 1977, to depth of 880 feet, and November 27, 1977, from 880 to 1,200 feet.



NUCLEAR LOG — GAMMA-GAMMA DENSITY LOG INCREASES → CPS/IN. — U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION

TYPE: DATE: 10-31-77 CALIBRATION CHART DATED District or Project: 208

LOCATION: State Florida County Manatee Town Myakka Head FILE LOCATION NO.:

LOGGING INFORMATION

Operator(s): [illegible]
Equipment Address: [illegible]
Logger type: [illegible]
Tool type: USGS 977
Detector type: 1 x 1 x Tal
Source type: Cs 137
Source size: [illegible] C; 32 MC
Source spacing: 16"
Tool length, cable head to detector 11 ft in
Calibration: See Chart cps
Logging speed: ft/min u down
Log vert. scale: 20 ft/in

MODULE SETTINGS

Scale switch (rate or counts): cps / API } chart div (or) full scale (circle as applicable)

T. C. switch: 2 sec.
Position Pot. (Base, zero, or suppression): 10 Dial Div.
Sensitivity Pot. (Span): 10 Dial Div.
Discrimination Pot.: Dial Div.
Input pulse: volts; Polarity
Output switch: normal (reverse)
Actual scale: 500 cps / API } chart div (or) full scale (circle as applicable)

RECORDER SETTINGS

	Ch 1	Ch 2	Ch 3
Position Pot.:			
Sensitivity Pot.:			

Run No. 5 of

Remarks:

GAMMA-GAMMA DENSITY LOG
INCREASES → CPS/IN.
CALIBRATION CHART DATED
LOG DATE [illegible] T.D.
SHIELDED DECENTRALIZED
SOURCE #5
CRYSTAL #

WELL INFORMATION

Well No. (USGS): 27281308203501
Other:
Map or Quad Myakka Head
Site description

Agency or Owner: SWFWMD
Address:
Altitude of L.S.
Log M.P. L.S.D. Log TD
Btm log interval: ft Well TD: 910 ft
Top log interval: ft
Type of finish:
Casing: Elev. of top 1'6" ft/in (Above) Below L.S.

I.D. 14, from L.S.D. to 150, type Steel
I.D. , from to , type
I.D. , from to , type

Cement: from L.S.D. to 150

Perf. interval(s) from to , type
Open hole diameter: 12¼ from 150 to 910
9 from L.S.D. to 150

Fluid level: 10 ft/in Above At Below L.S., Top Csg

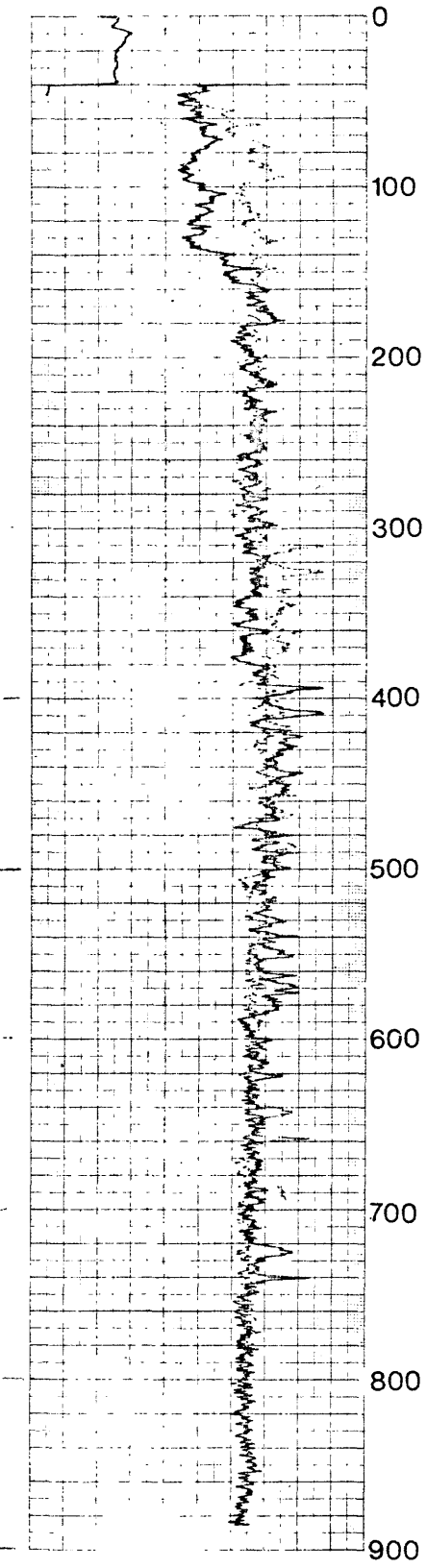
Fluid type: Mud temp °F,
Fluid resist.: ohm-m
Driller: Florida Core
Address: Orlando FL
Type of rig: rotary
Date started: completed
Aquifer or formation:

NOTE: This log is not to be used to fulfill private contra. obligations.

Other data and logs available for this well:

USGS 977

Figure 7.--Gamma-gamma log of deep well, October 31, 1977.



NUCLEAR LOG

U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION

TYPE: Neutron DATE: 10-31-77

District or Project: 208

LOCATION: State Florida County Manatee Town Myakka Head FILE LOCATION NO.:

LOGGING INFORMATION

Operator(s): JERRY IDLER
Equipment Address: [illegible] O.
Logger type: [illegible] No. 10045
Tool type: CNRT
Detector type: .75 X 1.5 Xtal
Source type: Am Be
Source size: 3 cu C; MC
Source spacing: 16"
Tool length, cable head to detector ft in
Calibration: See Chart cps
Logging speed: 25 ft/min (up) down
Log vert. scale: 20 ft/in

MODULE SETTINGS

Scale switch (rate or counts): 500 cps } chart div (or)
API } full scale
(circle as applicable)

T. C. switch: 4 sec.
Position Pot. (Base, zero, or suppression): 10 Dial Div.
Sensitivity Pot. (Span): 10 Dial Div.
Discrimination Pot.: Dial Div.
Input pulse: volts; Polarity
Output switch: normal; reverse
Actual scale: 100 cps/in cps } chart div (or)
API } full scale
(circle as applicable)

RECORDER SETTINGS

	Ch 1	Ch 2	Ch 3
Position Pot.:			
Sensitivity Pot.:			

Run No. 4 of

Remarks:

WELL INFORMATION

Well No. (USGS): 2728/10820301.02
Other:
Map or Quad Myakka Head
Site description
Agency or Owner: SWFWMD
Address:
Altitude of L.S.
Log M.P. GL Log TD 285.3 ft
Btm log interval: ft Well TD: ft
Top log interval: ft
Type of finish:
Casing: Elev. of top 1'6" ft/in (Above) Below L.S.

I.D. 14, from GL to 148, type Steel
I.D. , from to , type
I.D. , from to , type

Cement: from GL to 150

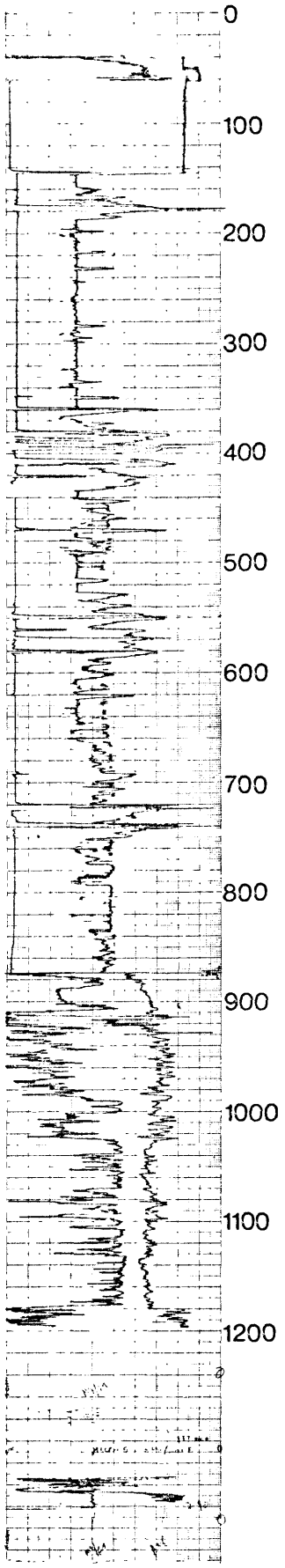
Perf. interval(s) from to , type
Open hole diameter: 12¼ from 150 to 910
from to

Fluid level: 40 ft/in Above At L.S., Top Csg (Below)
Fluid type: mud temp °F, °C
Fluid resist.: ohm-m
Driller: Meredith Corp
Address: Orlando Fl
Type of rig: rotary
Date started: completed
Aquifer or formation:

NOTE: This log is not to be used to fulfill private contrac obligations.

Other data and logs available for this well:

Figure 8.--Neutron log of deep well, October 31, 1977.



ACOUSTIC VELOCITY LOG

TYPE: DATE: 10-31-77

LOCATION: State Florida County Manatee Town MyaKKa Head

LOGGING INFORMATION

Operator(s) JERRY IDLER

Equipment address:

Logger type: No.

Tool type: Simplex

Tool length, cable head to measuring point: 11 ft.(1 ft.spacing); ft.(2 ft.spacing); ft.(3 ft.spacing)

Calibration: 0-300 μsec

Logging speed: 20 ft/min

Log vert. scale: 20 ft/in

Receiver spacing: 1 ft

MODULE SETTINGS

Velocity range: 0 to 300 micro sec./ft, this run

Millivolt scale: to , this run

Time scale: 30 micro sec./in. or chart div.

Borehole gain step: 4

Receiver gain: 7 %

Recorder span: 020 %

Recorder time constant: A B (C)(10)

RECORDER SETTINGS

	Ch 1	Ch 2	Ch 3	Ch 4
Position:				
Sensitivity:				

Run No. 6 of

Remarks: Below 874 logged 11-27-77
Same scale & settings

U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION

DISTRICT (OR PROJECT): 208

FILE LOCATION NO.:

WELL INFORMATION

Well No. (USGS): 272813082031901.02

Other:

Map or Quad MyaKKa Head

Site description

Agency or Owner: SWFWMD

Address:

Altitude of L.S.

Log M.P. LSD

Btm log interval: 875 ft Well TD: 910 ft.

Top log interval: 650 148 ft

Type of finish: Open hole

Casing: Elev. of top 1'6" ft/in (Above) Below L.S.

I.D. 19, from LSD to 148, type Steel

I.D. , from to , type

I.D. , from to , type

Cement: from LSD to 150

Perf. interval(s) from to , type

Open hole diameter: 19" from 148 to 150
12¼ from 150 to 910

Fluid level: 40 ft/in Above At L.S., Top Csg Below

Fluid type: mud ; temp °F, °C

Fluid resist.: ohm-m

Driller: Merydith Corp

Address: Orlando Fl

Type of rig: rotary

Date started: completed

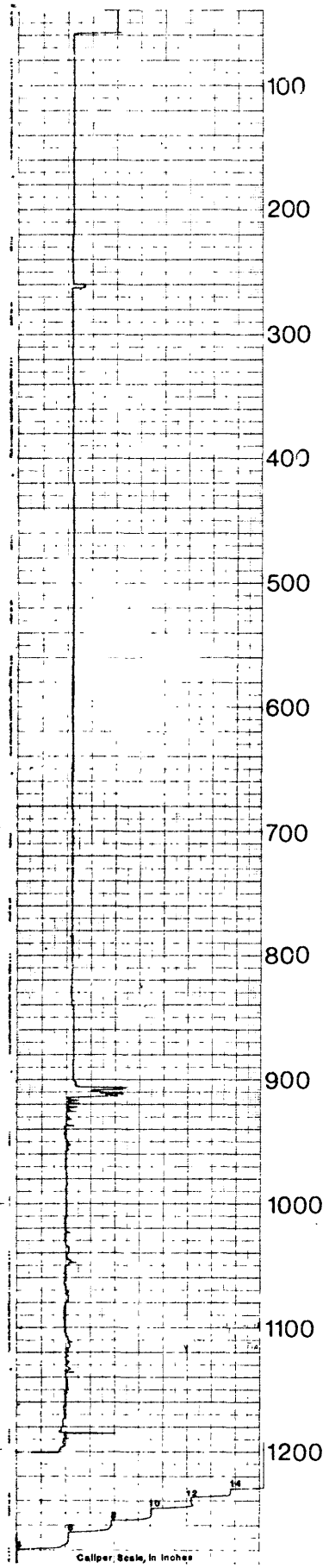
Aquifer or formation:

NOTE: This log is not to be used to fulfill private contractual obligations.

Other data and logs available for this well:

U. S. GOVERNMENT PRINTING OFFICE: 1974—701-888

Figure 9.--Acoustic velocity log of deep well, October 31, 1977.



CALIPER LOG

U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION

TYPE: DATE: 11-2-77

District (or Project):

LOCATION: State Florida County Manatee Town Myakka Head FILE LOCATION NO.:

LOGGING INFORMATION

Operator(s) Gerry Idler
Equipment address: Dennis Cole
Logger type: GRI M-GRN No. 10043
Tool type: GRT
Tool length, cable head to measuring point: 6 ft, 0 in
Calibration: noted on log
Logging speed: 25 ft/min
Log vert. scale: 20 ft/in
Arm length: 63 inches

MODULE SETTINGS

Scale (Range): 4-11 inches/chart div.
Position Pot. (Base, zero or suppression): Dial div.
Sensitivity Pot. (Span): Dial div.

RECORDER SETTINGS

	Ch 1	Ch 2	Ch 3
Position:			
Sensitivity:			

Run No. of

Remarks:

WELL INFORMATION

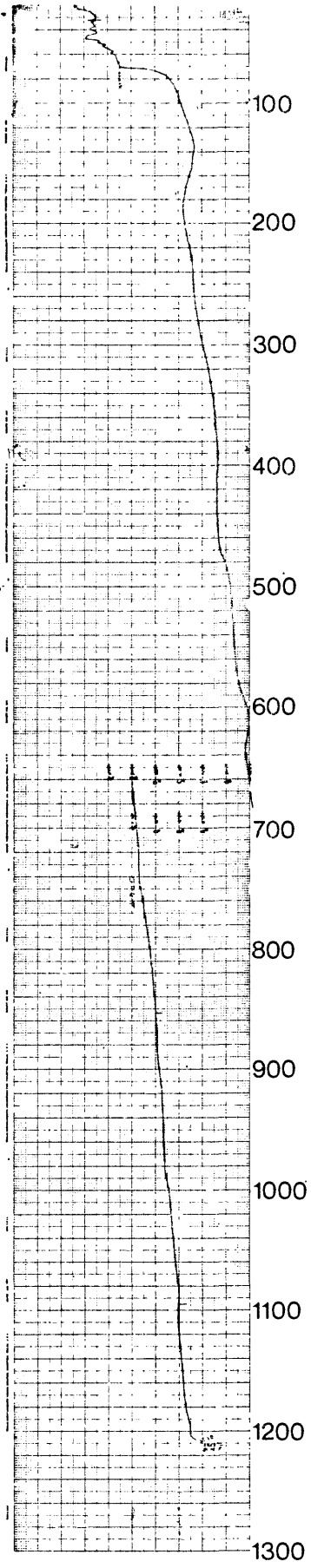
Well No. (USGS):
Other:
Map or Quad Myakka Head
Site description

Agency or Owner: SCWEG/MD
Address:
Altitude of L.S.
Log M.P. L.S.D.
Btm log interval: 1200 ft Well TD: 1214 ft.
Top log interval: 90 ft
Type of finish: casing - open hole
Casing: Elev. of top 1.8 ft/in (Above/Below) L.S.
I.D. 14, from +1.5 to 148, type Steel
I.D. 8, from +1.8 to 60, type PVC
I.D. 2, from 60 to 939, type PVC
Cement: from 914 to L.S.D.
Perf. interval(s) from to, type
Open hole diameter: 5 from 909 to 1214
from to
Fluid level: ft/in Above / At / Below L.S., Top Csg
Fluid type: water; temp °F, °C
Fluid resist.: ohm-m
Driller: Meredith Corp.
Address: Orlando
Type of rig: rotary
Date started: completed
Aquifer or formation: Avon Park Fm

NOTE: This log is not to be used to fulfill private contractual obligations.

Other data and logs available for this well:

Figure 10.--Caliper log of completed deep well before liner was set, November 27, 1977.



TEMPERATURE LOG

U.S. GEOLOGICAL SURVEY, WATER RESOURCES DIVISION

TYPE: DATE: 11-27-77 District or Project: 208

LOCATION: State Florida County Manatee Town MyaKka Head FILE LOCATION NO.: 272813082035T.02

LOGGING INFORMATION

Operator(s)
Equipment address:
Logger type: No. 20045
Tool type:
Detector type:
Tool length, cable head to detector: ft in
Calibration:
Logging speed: 2.5 ft/min
Log vert. scale: ft/in

MODULE SETTINGS

Scale switch (rate, range or counts) cps (for pulse tool)
°F, C (for other tools)
T.C. switch: sec. (for pulse)
Position Pot. (base, zero or suppression): Dial div.
Sensitivity Pot. (Span): Dial div.
Discrimination Pot.: Dial div. (for pulse)
Input pulse: volts; polarity (for pulse)
Output switch: normal, reverse (for pulse)
Actual scale: cps } chart div (or) = cps/°F, C
full scale
(circle as applicable)
°F, C } chart div (or)
full scale
(circle as applicable)

Run No. of

Remarks: 600 - 2000 cps
1700 - 2250 cps

WELL INFORMATION

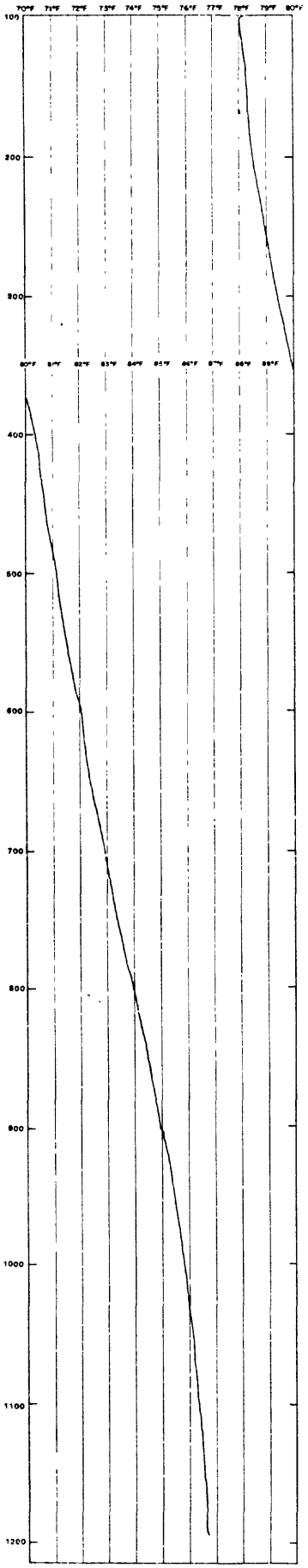
Well No. (USGS): 272813082
Other:
Map or Quad MyaKka Head
Site description

Agency or Owner: SWFWMD
Address:
Altitude of L.S.
Log M.P. 650
Btm log interval: 1202 ft Well TD: 1214 ft.
Top log interval: 20 ft
Type of finish: open hole
Casing: Elev. of top 1.8 ft/in (Above/Below) L.S.
I.D. 14, from +1.5 to 148, type STEEL
I.D. 8, from +1.8 to 60, type PVC
I.D. 6, from 62 to , type ABS
Cement: from 15 to 914
Perf. interval(s) from to , type
Open hole diameter: 5¾ from 909 to 1214
from to
Fluid level: ft/in Above
At L.S., Top Csg
Below
Fluid type: water ; temp °F, °C
Fluid resist.: ohm-m
Driller: Meredith Corp
Address: Orlando
Type of rig: rotary
Date started: completed
Aquifer or formation: Avon Park Ls.

NOTE: This log is not to be used to fulfill private contractual obligations.

Other data and logs available for this well:

Figure 11.--Temperature log of completed deep well; static conditions, November 27, 1977.



SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

LOG HEADING

WELL NAME: ROMP #32 DATE: 6-5-78

COUNTY: HARDEE OWNER: SWFWMD

LOCATION: T 34 R 22 SEC. 36 , SE 1/4 SE 1/4 SW 1/4

LATITUDE: 272215 LONGITUDE: 820354

WELL DEPTH: 1220' DEPTH LOGGED: 1198'

CASING DEPTH: _____ DIAMETER: 8" \ 6"

ELEVATION: LSD _____ ft MSL OF TOP OF CASING 1.7.85

TOP OR START OF LOG 7.0 ft ~~above~~ (below) LSD

WATER LEVEL: 84.0 ft. below top of casing _____ ft MSL

LOGGING SPEED: 20 ft /min. LOGGED: ___ UP ↘ DOWN

OPERATOR: C. STRAUSER / J. BROOKS

TYPE LOG:

___ CALIPER ___ ELECTRIC ↘ TEMPERATURE ___ SAMPLE

___ GAMMA ___ FLOW ___ FLUID RESISTIVITY

USE OF WELL: MONITOR

QW SAMPLE: DATE: _____

DEPTH SAMPLED: _____

Figure 12.--Temperature log of completed deep well; static conditions, June 5, 1978.

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

LOG HEADING

WELL NAME: Romp 32 DATE: 6-6-78

COUNTY: Manatee OWNER: Swfwmd

LOCATION T 34 R 22 SEC. 36, SE 1/4 SE 1/4 SW 1/4

LATITUDE: 27 28' 5" LONGITUDE: 82 03 54

WELL DEPTH: 1220 DEPTH LOGGED: 500

CASING DEPTH: _____ DIAMETER: 8 5/8"

ELEVATION: LSD _____ ft MSL DF TOP OF CASING 1.7 MSL

TOP OR START OF LOG 245 ft above LSD

WATER LEVEL: 84.0 ft. below top of casing _____ ft MSL

LOGGING SPEED: 20 ft./min LOGGED: ___UP ↘ DOWN

OPERATOR: C. Strasser / J. Brooks

TYPE LOG:

___ CALIPER ___ ELECTRIC ↘ TEMPERATURE ___ SAMPLE

___ GAMMA ___ FLOW ___ FLUID RESISTIVITY

USE OF WELL: Monitor

QW SAMPLE: DATE: _____

DEPTH SAMPLED: _____ _____

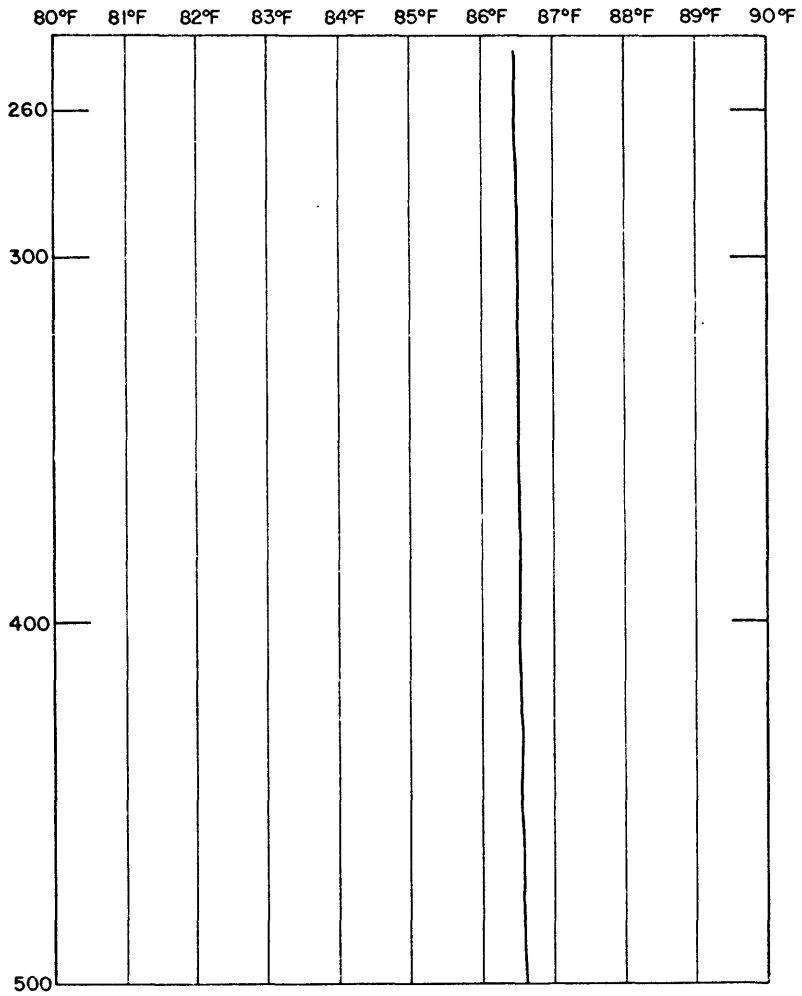


Figure 13.--Temperature log of completed deep well; pumping 100 gallons per minute, June 6, 1978.

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

LOG HEADING

WELL NAME: MYAKKA HEAD DEEP WELL DATE: 8/20/79

COUNTY: _____ OWNER: _____

LOCATION: T____ R____ SEC.____, ____1/4 ____1/4 ____1/4

LATITUDE: _____ LONGITUDE: _____

WELL DEPTH: _____ DEPTH LOGGED: 300

CASING DEPTH: _____ DIAMETER: _____

ELEVATION: LSD_____ft. MSL OF TOP OF CASING_____

TOP OR START OF LOG_____ft. above LSD below

WATER LEVEL: _____ft. below top of casing _____ft. MSL

LOGGING SPEED: 25 ft./min. LOGGED: ___UP ___DOWN

OPERATOR: B. Reese

TYPE LOG:

✓ CALIPER ___ELECTRIC ___TEMPERATURE ___SAMPLE

___GAMMA ___FLOW ___FLUID RESISTIVITY

USE OF WELL: _____

QW SAMPLE DATE: _____

DEPTH SAMPLED: _____

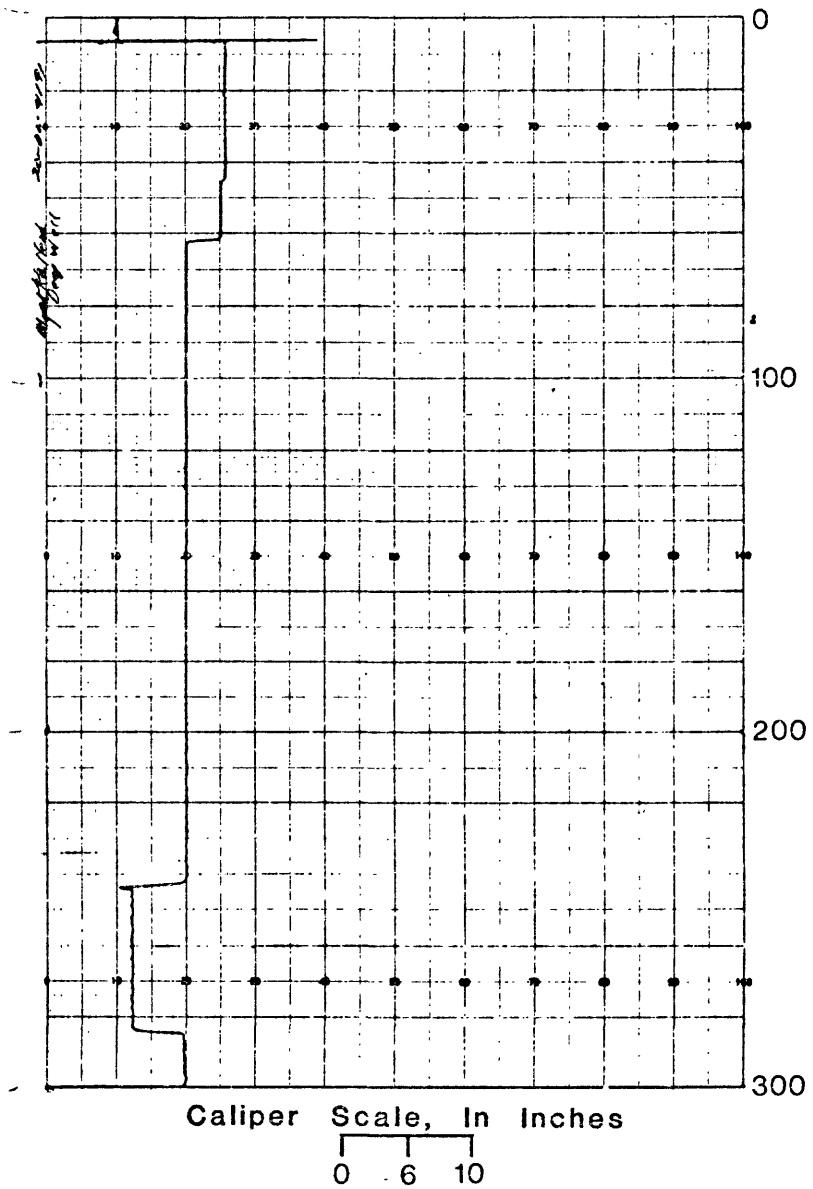


Figure 14.--Caliper log of completed deep well with liner in place, August 20, 1979.

Table 1.--Lithologic log of deep well

Lithology	Depth to top (ft)	Thickness (ft)
SAND, stained, pale yellowish brown, very fine to fine grain; quartz, well sorted, subangular to subrounded.	0	5
SAND, as above, with slight clay, dusky brown, organic material and occasional coarse sand; quartz, well rounded. Varying amounts of organic material and clay.	5	20
SAND, dusky brown, very fine to fine grain, well sorted; 20 percent CLAY.	25	5
SAND, very fine to fine grain, well sorted, occasional coarse grains; clear rounded quartz; 20 percent CLAY, olive gray; 5 percent PHOSPHATE grains, black.	30	15
SAND, clayey, as above, but PHOSPHATE 10 percent, very fine to very coarse grain.	45	10
CLAYEY SAND, greenish black, very fine to fine grain, occasional very coarse grain; PHOSPHATE, varies 5 to 10 percent, very fine to coarse grain, well rounded.	55	30
LIMESTONE, yellowish gray with much very fine grain SAND including phosphate; CLAYEY SAND, as above, with PHOSPHATE (caving?).	85	5
LIMESTONE, as above, and LIMESTONE, yellowish gray, micritic; much PHOSPHATE, round grains to 5 mm, and phosphatic limestone.	90	25
CLAY, pale olive; much very fine grain PHOSPHATE, limestone chips (caving?).	115	5
LIMESTONE, as from 90-115.	120	5
CLAY, medium dark gray with very fine grain PHOSPHATE, well rounded.	125	5
LIMESTONE, yellowish gray or light gray, very sandy, very fine to fine grain including much PHOSPHATE. Rounded PHOSPHATE grains to 5 mm, black, and rare CHERT, brownish gray.	130	10
CLAY, pale olive, waxy luster; black PHOSPHATE, very fine grain, well rounded.	140	5
LIMESTONE, yellowish gray with PHOSPHATE, black, very fine to fine grain, and clear quartz, well rounded, and limestone, very light gray, micritic. CHERT, light olive gray with PHOSPHATE, black, very fine grain, and clear quartz.	145	25
No sample.	170	5

Table 1.--Lithologic log of deep well--Continued

Lithology	Depth to top (ft)	Thickness (ft)
LIMESTONE, yellowish gray with PHOSPHATE, black, very fine to fine grain, and clear quartz, well rounded, and CLAY, light gray, varying amounts with very fine grain, well rounded, black PHOSPHATE; occasional CHERT.	175	70
As above, but only slight CLAY.	245	5
CLAY, light gray, very fine grain to granular; PHOSPHATE, black, varying proportion of limestone and chert as at 175.	250	55
CLAY, light gray and light greenish gray, calcareous; very fine grain to granule of quartz and black PHOSPHATE, subangular to well rounded. Varying content of LIMESTONE, yellowish gray with similar phosphate and quartz content. Pure micrite from 320 to 360. Occasional plates of spar.	305	55
LIMESTONE, yellowish gray, with varying amounts of clear quartz and black phosphate, very fine to granule size. Occasional brownish gray CHERT.	360	5
CLAY, as at 305.	365	5
LIMESTONE, yellowish gray, some very fine grain to granule, subrounded black phosphate, diminishing with depth.	370	15
LIMESTONE, very pale orange, microfossils, microporosity, occasionally dusy.	385	10
LIMESTONE, very light gray, some fossiliferous, some micritic, some sandy, very fine grain, clear quartz, subangular to subrounded.	395	25
LIMESTONE, very light gray, sandy, very fine to fine grain clear quartz, slightly clayey from 420 to 430. Phosphate rare.	420	45
CLAY, very light gray, with very fine to occasional granules of quartz and some phosphate. Some sandy limestone, as above.	465	20
CLAY, greenish gray, very fine to fine grain quartz and phosphate. CHERT, pale yellowish brown.	485	10
SANDY CLAY, very light gray, with very fine to fine grain clear quartz. Some CHERT.	495	15
CLAY, pale yellowish brown, and light gray sandy clay, as above. CHERT, pale yellowish brown.	510	5
SANDY LIMESTONE, pale yellowish brown, very fine to fine grain clear quartz and occasional black phosphate, subangular to subrounded. Slightly clayey, light gray.	515	5

Table 1.--Lithologic log of deep well--Continued

Lithology	Depth to top (ft)	Thickness (ft)
SANDY CLAY, very light gray, very fine to fine grain clear quartz and occasional phosphate, subangular to subrounded. Much chert, pale yellowish brown from 540 to 545.	520	25
LIMESTONE, light brown, with some quartz sand and chert and SANDY LIMESTONE, pale yellowish brown, very fine to fine grain clear quartz, subangular to subrounded. Slight clay, light gray.	545	10
LIMESTONE, very pale orange, dense, microgranular. Slight microporosity at 575-585.	555	30
LIMESTONE, very pale orange, microfossil hash, slight microporosity, cuttings are clusters of subangular fossil fragments.	585	145
DOLOMITE, grayish orange, dense, very slight microporosity.	730	10
LIMESTONE, dolomitic, very pale orange, microgranular texture.	740	50
LIMESTONE, very pale orange, Lepidocyclina common, microgranular texture, many camerina from 820 to 840.	790	120
DOLOMITE, moderate yellowish brown, microcrystalline, sucrosic, rare microporosity.	910	125
DOLOMITIC LIMESTONE, very pale orange, micropackstone of rounded fossil fragments. Some spar echinoid fragments. (Dictyconus).	1,035	155
DOLOMITE, moderate, yellowish brown, microcrystalline, sucrosic texture.	1,190	24

WATER LEVELS AND CHEMISTRY

Water-level recorders were installed on both wells in March 1980 and are being maintained by the U.S. Geological Survey. Water levels for the period April 1-10, 1980, are shown in figure 15.

A sample of water pumped from the deep well on May 22, 1980, had a chloride concentration of 17 milligrams per liter and a specific conductance of 1,030 micromhos per centimeter at 25° Celsius.

SUMMARY

Two wells were drilled at Myakka Head, Manatee County, Fla., as part of the Southwest Florida Water Management District's Regional Observation and Monitor-Well Program. The deep well is cased to a depth of 909 feet and open from 909 to 1,210 feet. The shallow well is cased to a depth of 563 feet and open from 563 to 600 feet. The wells are used to monitor water levels in two separate intervals of the Floridan aquifer. Water from the deep well has a chloride concentration of 17 milligrams per liter.

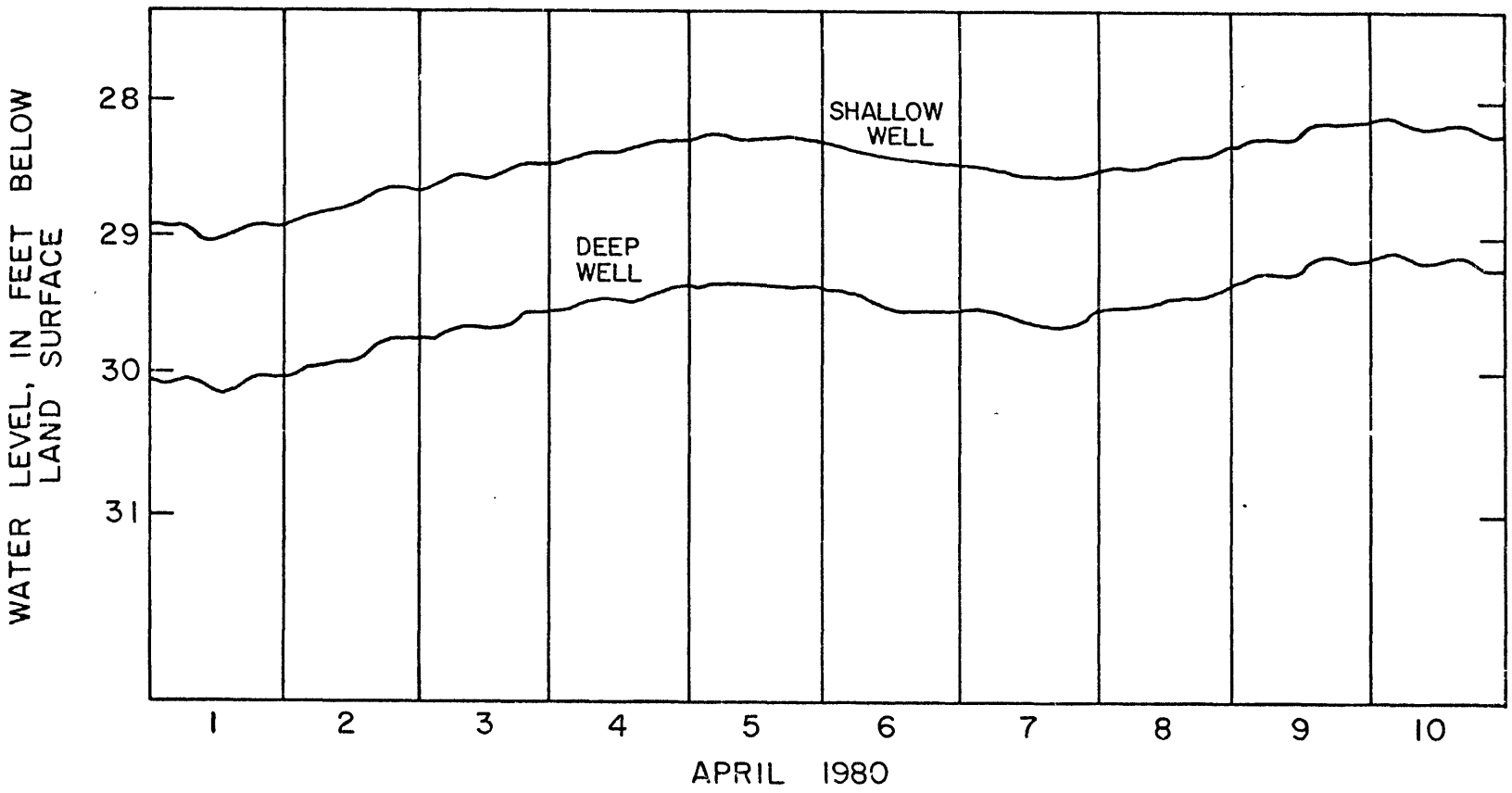


Figure 15.--Hydrographs of water levels in the deep well and shallow well, April 1-10, 1980.