173

API

CCRO-9 x - 326863
y 815339

CCRO-9A x = 326863
y = 815410

CCRO-9B x = 326863
y = 816039

AQUIFER TEST REPORT
LOWER HAWTHORN AQUIFER
CAPE CORAL, FLORIDA

APRIL, 1983

~~PRELIMINARY DRAFT~~
~~SUBJECT TO REVISION~~

For:

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AQUIFER TEST REPOTT
LOWER HAWTHORN AQUIFER
CAPE CORAL, FLORIDA

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INTRODUCTION

This groundwater hydrology well test is sponsored by the Utilities Department of the city of Cape Coral, Florida to better determine the yield characteristics of the lower Hawthorn aquifer in the vicinity of the Reverse Osmosis plant.

Scope

This report represents a summary and analysis of data from the test pumping of Well RO 9 in Cape Coral Reverse Osmosis wellfield. This pumping test occurred during the period of March 28 until April 7, 1983. Water level observations were precautiously made on March 7 and 8, 1983. This well will supply feed water to a Reverse Osmosis treatment plant located in Cape Coral.

Acknowledgment

The data collection was made by Durward H. Boggess, hydrologist and retiree from the U.S. Geological Survey. Analysis of data was made by the Hydrology Division, Layne-Western Company, Inc. The project was under the direction of Howard Needles Tammen and Bergendoff of Cape Coral, Florida.

Location of Wells

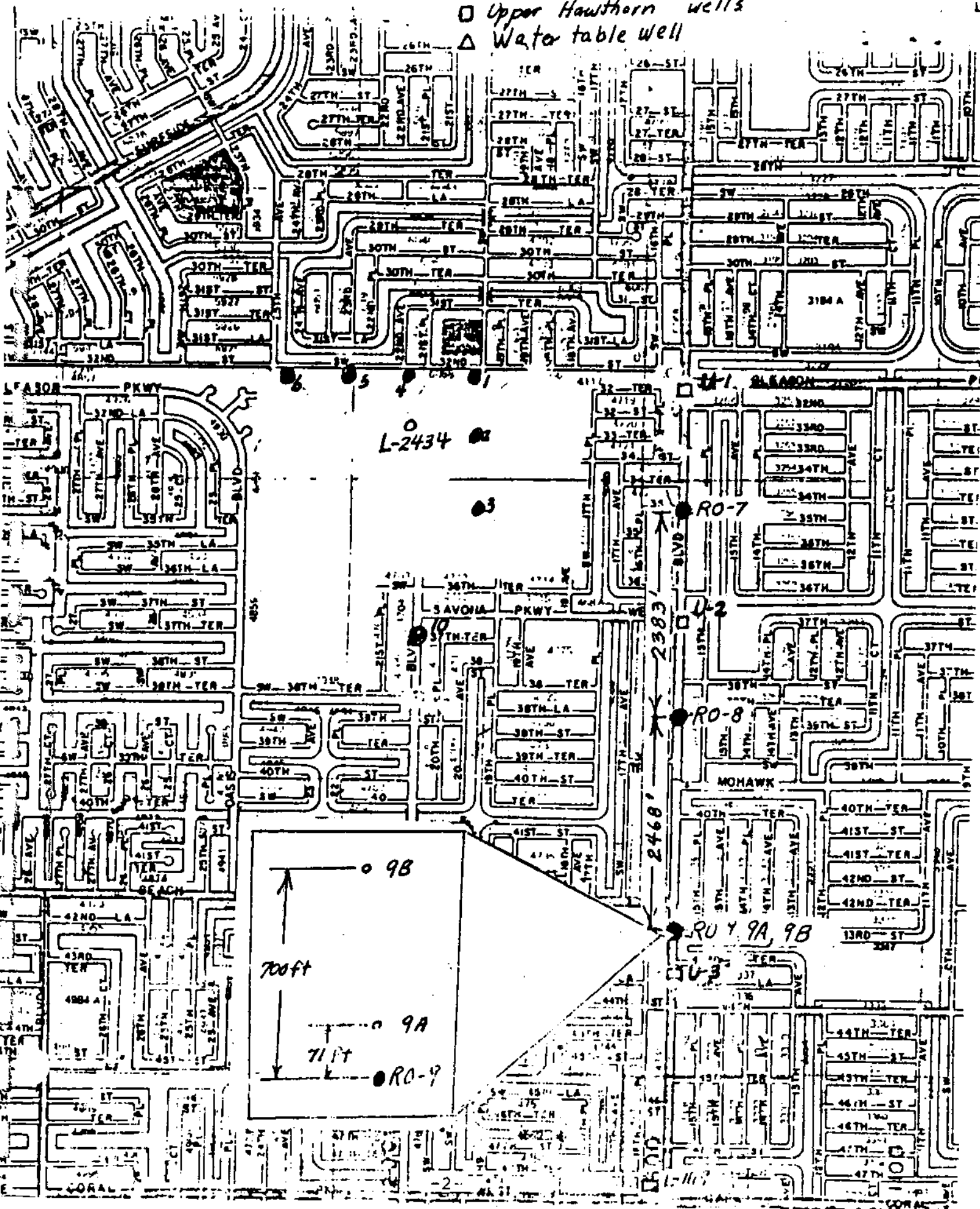
The wellfield providing water for the Reverse Osmosis plant is located in the southwest quadrant of the city limits of Cape Coral. As indicated in Figure 1, Well RO 9 is the southernmost well of the Reverse Osmosis wellfield. For the purpose of this test, two (2) observation wells (Wells 9A and 9B) were constructed to the north of Well RO 9. Well 9A is 70 feet from Well RO 9 and Well 9B is 700 feet from Well RO 9. Also during the test, Wells RO 7 and RO 8 were used as observation wells. The producing zone of the Reverse Osmosis wellfield is the lower Hawthorn aquifer. Well RO 9 is further described as being located near the center of the west side of the NW ¼ of Section 10, Township 45 South, Range 23 East, in Lee County, Florida.

Figure 1 - Cape Coral RO. Wellfield

● Lower Hawthorn wells

□ Upper Hawthorn wells

△ Water table well



Description of Aquifers

The lower Hawthorn and Suwannee aquifers are both artesian. They contain water which is not potable due to the presence of dissolved solids. The water is not treatable to potable water standards by conventional softening processes. Water is not taken from aquifers deeper than the Suwannee because they are known to contain more highly mineralized water than the Suwannee aquifer. Although the well yield can be increased by drilling into the Suwannee aquifer, the mineral content also increases with depth. Therefore most water is taken from the lower Hawthorn aquifer.

The lower Hawthorn aquifer consists of sandy limestone in the lower part of the Hawthorn formation and upper part of the Tampa limestone. It extends from approximately 350 feet below land surface to 700 feet. The Suwannee formation begins at about 750 feet below land surface. The top 100 feet or so of this formation consists of a dense limestone or clay which serves to divide the Suwannee aquifer and the lower Hawthorn aquifer. The water producing portion of the Suwannee formation begins at about 800 feet and may extend to deeper than 1,000 feet. The lower Hawthorn and the Suwannee aquifers are both under sufficient artesian pressure to produce free flowing wells at land surface. This information is illustrated in Figure 2.

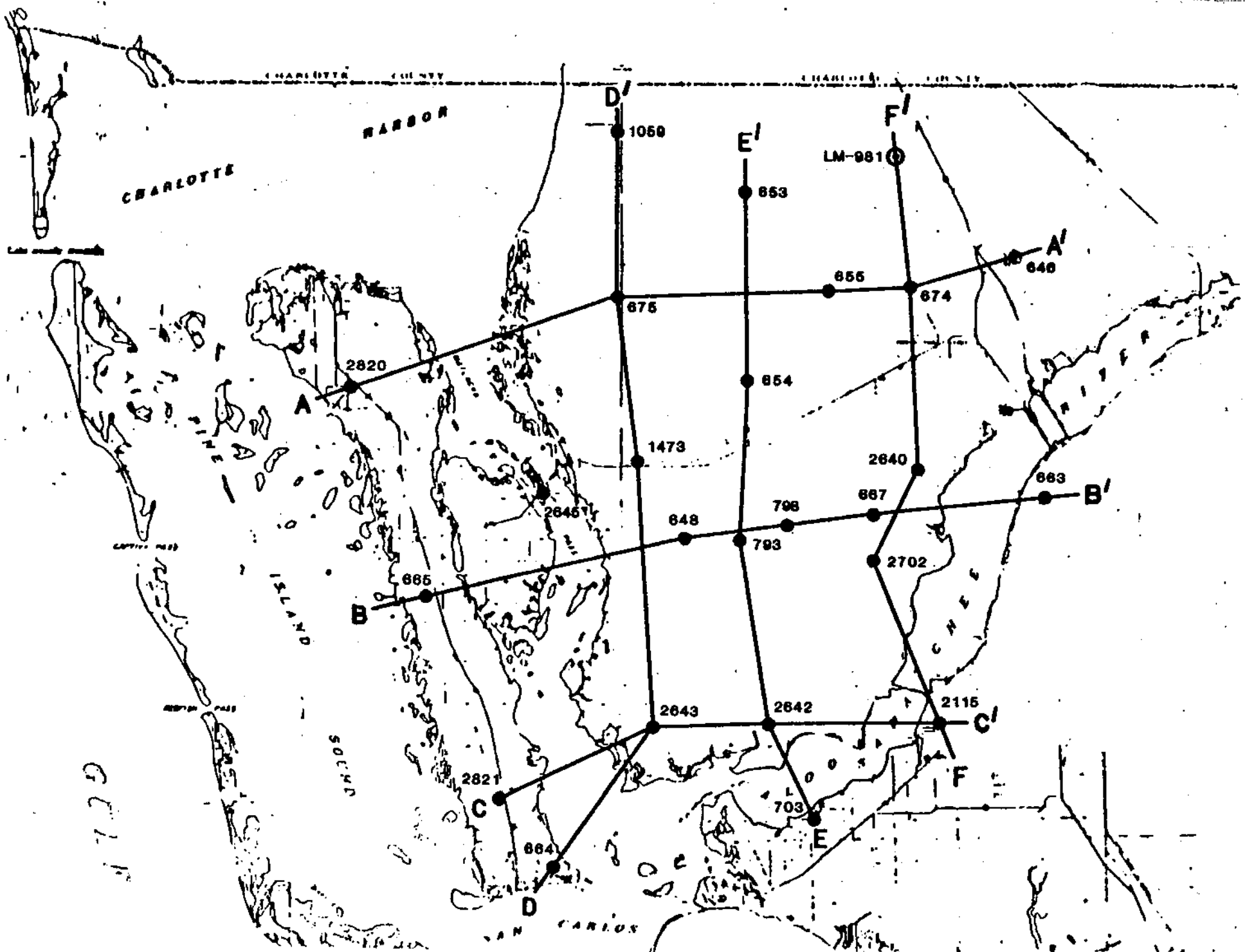
Although most wells in the Reverse Osmosis wellfield do not penetrate into the Suwannee aquifer, leakage from the Suwannee aquifer into the lower Hawthorn aquifer may occur. The data from the RO 9 pumping test will be evaluated to determine the leakage coefficient between the two aquifers.

Description of Wells

Well RO 9 is a 12-inch diameter well drilled to a depth of approximately 750 feet. This well is cased and cement grouted to a depth of 350 feet. This well, as are the other Reverse Osmosis wells, is an open hole limestone rock well extending through the whole depth of the lower Hawthorn aquifer. Observation wells 9A and 9B were similarly constructed except that they have a 4-inch diameter casing.

A summary of the driller's logs for RO Well 9 is given in Table 1. Additional well log data is given in Appendix I of the report.

Figure 2 - LOCATION C GEOLOGIC CROSS SECTION



A
2820
Pine Island
Matlacha Pass
675
655
674
646
A'
NGVD
50
100
150
200
LITHOLOGIC SYMBOLS
Sand
Clay
Sandy Clay
Sandstone
Limestone

B
665
Pine Island
Little Pine Island
Matlacha Pass
64B
798
667
Caloosahatchee River
663
B'
NGVD
50
100
150
200

LAYNE WESTERN COMPANY, INC.

D
664
Matlacha Pass
2643
2644
1473
675
1054
D'
NGVD
50
100
150
200

E
703
Caloosahatchee River
2642
793
654
653
E'
NGVD
50
100
150

F
2115
2702
2640
674
LM 981
F'
NGVD
50
100
150

TABLE 1

DRILLER'S WELL LOG SUMMARIZED

R.O. WELL #9

Driller set 33 feet of 20-inch black steel surface casing from 3 feet above ground to 30 feet below ground. The well casing consisted of 353 feet of 12-inch diameter PVC Schedule 40 material set from 3 feet above ground level to 350 feet below the ground. Use 14.5 sacks of 94 lb grout amount with 5% bentonite.

Depth From	Depth To	Formation	Thickness Feet
0	20	Sand, Shell with Rock	20
20	35	Shell and mud, Thick	15
35	40	Green Clay	5
40	50	White Rock, Clay and Shell	10
50	90	Green Clay	40
90	100	Green Clay w/rock, Phosphate	10
100	105	Brown Shell w/rock Phosphate	5
105	180	Limestone	75
180	200	Green Clay	20
200	295	Limestone	95
295	330	Clay	35
330	390	Limestone	60
390	445	Limestone w/clay	55
445	490	Limestone	45
490	500	Gray Limestone	10
500	505	Limestone w/clay	5
505	510	White to Green Clay	5
510	520	Limestone	10
520	525	Gray Clay	5
525	530	White Clay	5
530	535	Green Clay w/limestone	5
535	540	White Clay and Limestone	5
540	545	Tan Limestone	5
545	550	White Clay w/limestone	5
550	570	Limestone w/clay	20
570	580	Tan Limestone	10
580	605	Brown Limestone	25
605	610	White Limestone	5
610	705	Brown Limestone	95
705	755	Clay	50

PUMPING TEST

An attempt was made to start the pumping tests on March 4 and again on March 11, 1983, but was discontinued after several hours each time because the rate could not be maintained. The information on these tests, although limited value, is included in Appendix II. The third start using a lower pumping rate, began on March 28 with continuous pumping of Well RO 9 until April 7, 1983. Recovery measurements were then made thru April 8, 1983. Q = 746 gpm

There were numerous problems prior to and during the tests. The most serious of which were related to highly unusual weather patterns, which resulted in about 19.5 inches of rain and strong gusty winds. This caused several delays from early February to the actual start of the test. This threat continued during the entire test period.

Table 2 gives the description of wells at or near the Cape Coral RO plant. Listed are the wells giving both the City number and the U.S.G.S. file number, the depth, aquifer unit or units, and other details. Table 3 gives the rainfall occurrence for February, March, and part of April, 1983.

During the course of this test, Wells RO 1, 2, 4, and 6 were being pumped to provide water to the Reverse Osmosis plant. These wells were pumped at a constant level for several weeks prior to and during the test. This was done in an attempt to stabilize the water level elevations throughout the area. However, it appears from results of the test that the pumping level within the Reverse Osmosis wellfield changed during the course of the test. This change in pumping rate effected the drawdown of Observation well L-2434, which is a permanent U.S.G.S. monitoring station. The drawdown in this well was registered as being 3 feet during the course of the test. This value would seem excessive considering the other observed well drawdowns. This apparent change in the pumping rates in the wellfield would also tend to effect the drawdown in Wells RO 7 and RO 8. Therefore, for the purpose of this data analysis, Wells RO 7 and RO 8 were not considered as fully responsive to the pumping of RO 9 well, but were used as backup for the results of the other tests.

Table 2

DESCRIPTION OF WELLS AT OR NEAR THE CAPE CORAL RO PLANT

Well Number City	USGS	Depth (Ft.)	Aquifer	Casing Depth(ft)	Casing Diam(in)	Alt. of Land Sur. (NGVD)	Alt. of MP Above Land Sur.	Sp. Cap (gpm/ft)	Use of Well
RO 1	L-2113	900	LH-SU	362	10	7	2.3	86	Prod.
RO 2	L-2249	745	LH	362	12	6	1.8	50	"
RO 3	L-2250	685	LH	347	12	6	---	102	"
RO 4	L-2251	705	LH	345	12	6	2.4	34	"
RO 5	L-2272	700	LH	350	12	6	---	28	"
RO 6	L-2273	765	LH	345	12	6	---	17	"
RO 7	---	---	------	Reported same as RO 9		-----	2.3	---	"
RO 8	---	---	------	Reported same as RO 9		-----	2.5	---	"
[redacted]	---	748	LH	350	12	8	2.4	---	"
9A	---	737	LH	347	4	8	2.5	---	Obs.
9B	---	750	LH	350	4	8	1.9	---	Obs.
RO 10	---	755	LH	350	12	8	---	---	Prod.
---	L-2434	700	LH	353	4	7.03	3.1	---	Obs.
U 1	---	270	UH	106	8	8	2.1	---	Prod.
U 2	---	265	UH	107	8	8	2.3	---	Prod.
U 3	---	---	------	Reported same as U 1		------	2.2	---	---
---	L-581	174	UH	---	8	9.92	3.0	---	Obs.
---	L-1119	224	UH	42	2	---	2.1	---	Obs.
---	L-2644	178	UH	128	4	7.51	3.2	---	Obs.
---	L-1136	13	WT	---	4	9.71	2.6	---	Obs.

LH - Lower Hawthorn

UH - Upper Hawthorn

SU - Suwannee

WT - Water Table

Table 3

RAINFALL RECORDS FROM THE CAPE CORAL
REVERSE OSMOSIS PLANT

	1983		
	February	March	April
1	---	.03	---
2	2.1	---	.05
3	---	---	---
4	---	---	---
5	---	---	---
6	1.25	---	---
7	.4	1.07	---
8	---	.79	---
9	---	---	.03
10	.5	.27	1.25
11	---	.10	.30
12	.82	---	---
13	2.06	---	---
14	---	---	---
15	---	.23	---
16	.8	.32	---
17	.13	1.33	---
18	---	---	---
19	.8	---	---
20	---	---	---
21	---	.22	---
22	---	---	---
23	---	---	---
24	---	2.00	---
25	---	---	---
26	---	---	---
27	2.17	.05	---
28	1.04	.05	---
29	---	---	---
30	---	---	---
31	---	---	---
Total	12.07	7.43	

AQUIFER ANALYSIS

Analyzing extensive test data is very difficult to fully understand the many changes occurring in the system. The early to middle portion of the data, usually from 5 to 1,500 minutes elapsed time, reflects the formation conditions in the vicinity of the well for the depth and thickness penetrated by the well and observation wells. This computed value of transmissivity is usually the lowest number obtained from the data and should be used for the evaluation of well performance. From 1,000 minutes to more than 10,000 minutes in elapsed time, the aquifer test data reflects factors occuring to the aquifer, such as boundaries, both leakage infiltration and barrier conditions, atmospheric pressure changes and pumpage of other wells at the plant. In reviewing the many drawdown plots, shown in Figures 3 thru 10, the above variations and changes are apparent.

Some of the raw data consisting of recorder charts and Barograph charts are given in Appendix II. There was a fluctuation of water levels of about 0.05 feet daily in the records. Since this was consistent, numbers were selected for the tables that represented the best fit. The variation in pressure was observed on the Barograph records attached in Appendix II.

Shown in Table 4 is the listing of various values of the formation coefficients calculated from the data. The **time versus drawdown data**, collected during the course of this test, was plotted on semilog graphs and log-log graphs for each of these three wells. The transmissivities and coefficient of storativities were calculated from these graphs. The plots of Wells RO 9 and 9A, shown in Figures 4 and 5, indicate a formation transmissivity of approximately 35,000 gpd/ft of aquifer for the early part of the test. The plots of Well 9B indicated a much higher transmissivity of about 100,000 gpd/ft. The values of coefficient of storativity were approximately 0.003. These values are similar to the values documented for Wells RO 1 thru RO 6.

Using the values of 35,000 gpd/ft for transmissivity and 0.003 for storativity, the theoretical specific capacity of the well is 17.7 gpm/ft of drawdown. This compares nearby exactly with the observed specific capacity of 17.8 gpm/ft.

Using a transmissivity of 35,000 and the actual drawdown of Well RO 9, a distance-drawdown semilog plot would indicate a radius of influence of about 3,000 feet. At this radius of influence, Wells RO 7 and L 2434 should not be affected by pumpage of Well RO 9 at 746 gpm. This would confirm that other factors influenced the drawdown of Wells RO 8 and RO 7 during the test.

TABLE 4 - SUMMARY OF FORMATION COEFFICIENTS

Semilog Plot	T Early	T Later	S
Well RO 9	35,200	75,750	---
9A	37,870	93,780	.00023
9B	106,450	180,700	.0002
Well RO 8	---	174,300	.0011
Well RO 7	---	166,900	.00053
9A to 9B	24,660	Distance-Drawdown	
RO 9 to 9B	34,250	Distance-Drawdown	

Log-Log Plot	T	S	P'
Well RO 9	34,600	.0054	.035
9A	38,000	.0016	.050
9B	93,000	.002	.017

T's are expressed in gpd/ft, S values are dimensionless, and leakage (P') given in gpd/ft^2.

The aquifer's leakage factor was calculated using Walton's solution for transient condition, leaky aquifers. The leakage factor was determined to be 0.0335 gpd/ft^2. Assuming that all water to Well RO 9 was supplied by leakage from the Suwannee aquifer, then a circular area with a radius of 3,200 feet would be required to replenish the daily withdrawal of Well RO 9. This value closely agrees with the radius of influence from the distance-drawdown plot.

It should be noted on the log-log plot, attached as Figure 3, that the vertical leakage rate appeared to decrease as the drawdown decreased further from the test pumping well.

In Table 5, listed are miscellaneous measurements in other Cape Coral wells in both the water table and upper Hawthorn aquifers during the test. The effect of these water level changes may have had some effect on the lower Hawthorn aquifer especially as noted in L-2434.

Figure 11 gives the water level hydrograph for L-2434, located at the Reverse Osmosis plant, reflecting the water level in the lower Hawthorn aquifer.

Figure 12 gives the water level hydrograph during the text for upper Hawthorn Observation well L-581.

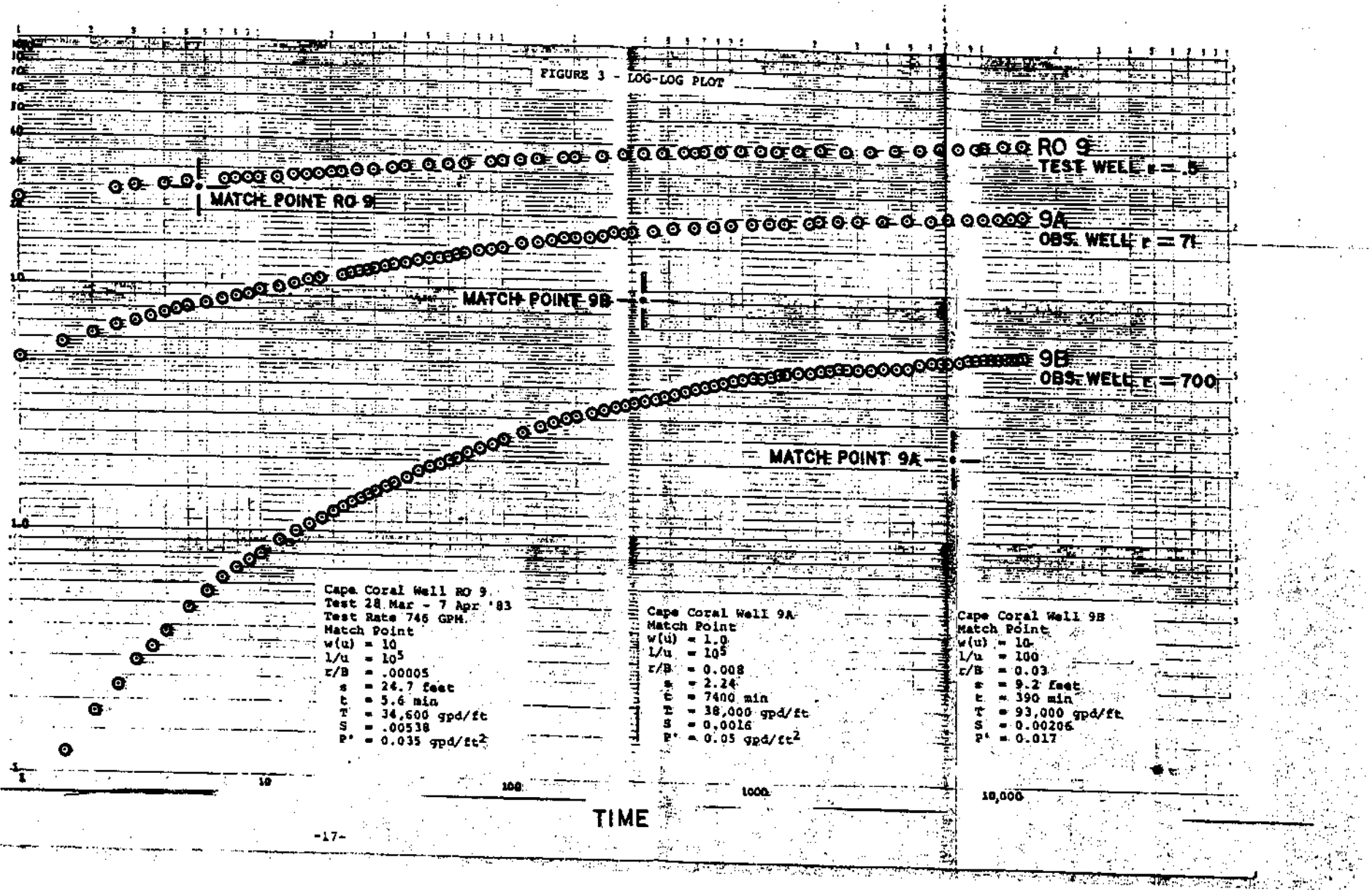


FIGURE 3 - LOG-LOG PLOT
RO 9
TEST WELL r = .5
MATCH POINT RO 9
9A
OBS. WELL r = 71
MATCH POINT 9B
9B
OBS. WELL r = 700
MATCH POINT 9A
Cape Coral Well RO 9
Test 28 Mar - 7 Apr '83
Test Rate 746 GPM.
Match Point
w(u) = 10
1/u = 10^5
r/B = .00005
s = 24.7 feet
t = 5.6 min
T = 34,600 gpd/ft
S = .00538
P' = 0.035 gpd/ft^2
Cape Coral Well 9A
Match Point
w(u) = 1.0
1/u = 10^5
r/B = 0.008
s = 2.24
t = 7400 min
T = 38,000 gpd/ft
S = 0.0016
P' = 0.05 gpd/ft^2
Cape Coral Well 9B
Match Point
w(u) = 10
1/u = 100
r/B = 0.03
s = 9.2 feet
t = 390 min
T = 93,000 gpd/ft
S = 0.00206
P' = 0.017
1.0
10
100
1000
10,000
TIME

AQUIFER TEST
DRAWDOWN

NAME Cape Coral DATE 3-28-83

LOCATION WELL NO. Pumped Well RO-9 JOB NO. OR 737

Meas. Point 2.4 ft. above LDS Top plate of well

TIME OF DAY	ELAPSED TIME IN MINUTES	WATER LEVEL FROM MS PT	DRAWDOWN IN FEET	RECOVERY	REMARKS Pumping Rate
	S.W.L.				
0829	0	+14.64	0		
0900	1.0	- 8.24	22.88		
	2.5	9.92	24.56		
	3.0	10.45	25.09		
	4.0	11.01	25.65		
	5.0	11.38	26.02		
	6.0	11.70	26.34		
	7.3	12.29	26.93		
	8.0	12.53	27.17		
	9.0	12.79	27.43		
	10.0	12.94	27.58		
	12.0	13.32	27.96		
	14.0	13.66	28.30		
	16.0	14.04	28.68		
	18.0	14.37	29.01		
	20.0	14.59	29.23		
	22.0	14.84	29.48		
	24.0	15.02	29.66		
	26.0	15.23	29.87		
	28.0	15.41	30.05		
	30.0	15.54	30.18		
	33.0	16.01	30.65		
	36.0	16.27	30.91		
0940	40.0	16.52	31.16		
0945	45	16.88	31.52		
	50	17.14	31.78		
	55	17.39	32.03		
1000	60	17.62	32.26		770
	65	17.86	32.50		
	70	18.01	32.65		
	80	18.33	32.97		
	90	18.71	33.35		
	100	19.03	33.67		
	120	19.47	34.11		
	140	19.85	34.49		
	160	20.12	34.76		
1200	180	20.39	35.03		746
1220	200	20.60	35.24		
1250	230	20.84	35.48		
1320	260	21.07	35.71		
1350	290	21.44	36.08		
1420	320	21.60	36.24		
1450	350	21.76	36.40		753
1530	390	21.93	36.57		
1610	430	22.06	36.70		
1650	470	22.44	37.08		
1740	520	22.62	37.26		756
1841	581	22.82	37.46		
1940	640	22.96	37.60		
2000	660				

HOURLY

AQUIFER TEST
DRAWDOWN

NAME Cape Coral DATE 3-28 thru 4-1-83

LOCATION _____ WELL NO. Pumped Well RO-9 JOB NO. OR 737

TIME OF DAY	ELAPSED TIME IN MINUTES	WATER LEVEL From MS PT	DRAWDOWN IN FEET	RECOVERY	REMARKS Pumping Rate
	S.W.L.		Static +14.64		
2040	700	23.15	37 79		
2140	760	23.29	37.93		
2240	820	23.44	38.08		
2400	900	23.60	38.24		
3-29-83					
0140	1000	23.72	38.36		
0320	1100	23.84	38.48		
0500	1200	23.98	38.62		
0640	1300	24.09	38.73		
0800	1380				752
0820	1400	24.18	38.82		
1000	1500	24.33	38.97		755
1320	1700	24.54	39.18		750
1640	1900	24.62	39.26		
2000	2100	24.74	39.38		
3-30-83					
0205	2465	24.97	39.61		
0600	2700	25.01	39.65		
1100	3000	25.11	39.75		743
1740	3400	25.15	39.79		742
3-31-83					
0020	3800	25.34	39.98		748
0840	4300	25.35	39.99		745
1700	4800	25.55	40.19		740
4-1-83					
0300	5400	25.72	40.36		739
1300	6000	25.84	40.48		741
2300	6600	25.94	40.58		748
4-2-83					
0900	7200	25.95	40.59		748
2100	7920	26.08	40.72		740
4-3-83					
0830	8610	26.25	40.89		748
2100	9360	26.29	40.93		747
4-4-83					
0900	10,080	26.41	41.05		747
2100	10,800	26.51	41.15		741
4-5-83					
0900	11,520	26.53	41.17		738
2100	12,240	27.07	41.71		750
4-6-83					
0900	12,960	27.04	41.68		752
2100	13,680	27.10	41.74		751
4-7-83					
0750	14,330	27.16	41.80		
900	14,400	27.12	41.76		
0905	14,405				751

HOURLY

32,045,900 - 21,298,300/14405 = 746 gpm
746 gpm average rate for test period

AQUIFER TEST
RECOVERY

NAME Cape Coral DATE 4-7-83

LOCATION _____ WELL NO. RO 9 JOB NO. OR 737

Meas. Point 2.4 ft. above LSD Top plate of well

TIME OF DAY	ELAPSED TIME IN MINUTES	WATER LEVEL ABOVE MS PT	DRAWDOWN IN FEET	RECOVERY	REMARKS
	S.W.L.			PWL -27.12	
0750		-27.16			
0900	0	-27.12			
0905	0	+ 1.04		28.16	pump off
0909	4				
0910	5	1.51		28.63	
	6	1.91		29.03	
	7	2.28		29.40	
	8	2.58		29.70	
	9	2.86		29.98	
0915	10	3.10		30.22	
	12	3.54		30.66	
	14	3.89		31.01	
	16	4.21		31.33	
	18	4.51		31.63	
0925	20	4.77		31.89	
	22	4.99		32.11	
	24	5.21		32.33	
	26	5.41		32.53	
	28	5.60		32.72	
0935	30	5.78		32.90	
	33	6.02		33.14	
	36	6.24		33.36	
0945	40	6.53		33.65	
	45	6.82		33.94	
	50	7.10		34.22	
0955	55	7.33		34.45	
0960	60	7.56		34.68	
0965	65	7.77		34.89	
	70	7.96		35.08	
	80	8.27		35.39	
1035	90	8.55		35.67	
	100	8.81		35.93	
1105	120	9.22		36.34	
	140	9.56		36.68	
	160	9.84		36.96	
1205	180	10.08		37.20	
1225	200	10.28		37.40	
1255	230	10.56		37.68	
1325	260	10.79		37.91	
1355	290	10.99		38.11	
1425	320	11.16		38.28	
1455	350	11.31		38.43	
1535	390	11.48		38.60	
1615	430	11.63		38.75	
1655	470	11.76		38.88	
1745	520	11.89		39.01	
1845	580	12.04		39.16	
1945	640	12.12		39.24	
2045	700	12.22		39.34	
2145	760	12.33		39.45	

HOURLY

AQUIFER TEST
RECOVERY

NAME Cape Coral DATE 4-7-83

LOCATION _____ WELL NO. RO 9 JOB NO. OR 737

TIME OF DAY	ELAPSED TIME IN MINUTES	WATER LEVEL ABOVE MS PT	DRAWDOWN IN FEET	RECOVERY	REMARKS
	S.W.L.			PWL -27.12	
2245	820	12.42		39.54	
4-8-83					
0005	900	12.54		39.66	
0145	1000	12.70		39.82	
0325	1100	12.83		39.95	
0505	1200	12.92		40.04	
0645	1300	12.99		40.11	
0835	1400	13.09		40.21	
0905	1440	13.13		40.25	

HOURLY

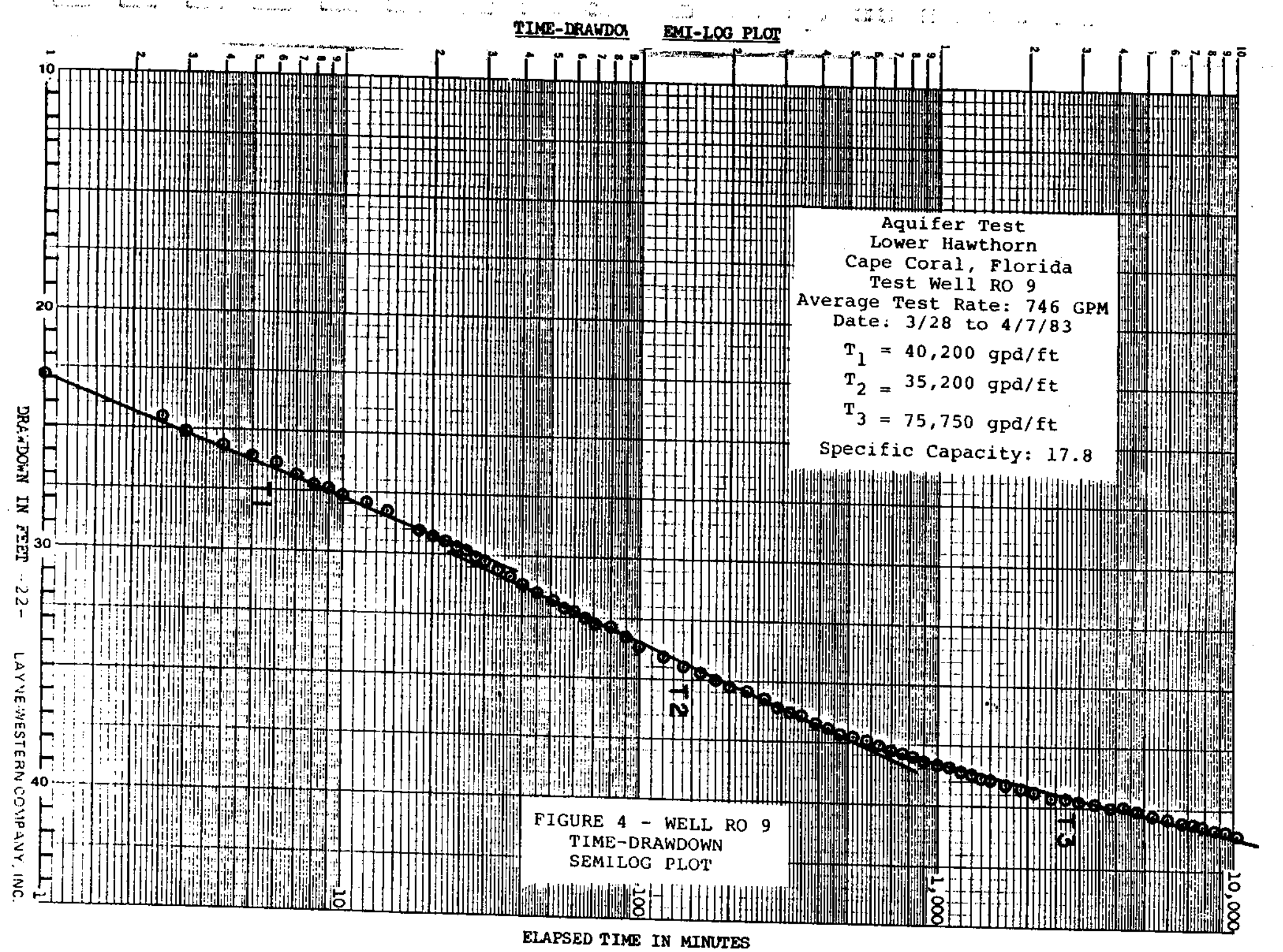


FIGURE 4 - WELL RO 9
TIME-DRAWDOWN
SEMILOG PLOT

AQUIFER TEST
DRAWDOWN

NAME Cape Coral DATE 3-28-83

LOCATION WELL NO. 9A JOB NO. OR 737

Meas. Point 2.5ft. above LSD Top of cap

TIME OF DAY	ELAPSED TIME IN MINUTES	WATER LEVEL ABOVE MS PT	DRAWDOWN IN FEET	RECOVERY	REMARKS
	S.W.L.		Static WL +14.64		
0828	0	+14.64	0		
	0.25	11.15	3.49		
	0.50	10.42	4.22		
	0.75	9.85	4.79		
	1.00	9.58	5.06		
	1.50	8.78	5.86		
	2.00	8.28	6.36		
	2.5	7.87	6.77		
	3.00	7.52	7.12		
	3.50	7.23	7.41		
	4.00	6.98	7.66		
	4.50	6.75	7.89		
	5.00	6.55	8.09		
	6.00	6.20	8.44		
	7.00	5.82	8.82		
	8.00	5.58	9.06		
	9.00	5.33	9.31		
	10.00	5.12	9.52		
	12.00	4.75	9.89		
	14.00	4.43	10.21		
	16.00	4.13	10.51		
	18.00	3.83	10.81		
	20.00	3.59	11.05		
	22.00	3.38	11.26		
	24.00	3.18	11.46		
	26.00	2.99	11.65		
	28.00	2.83	11.81		
	30.00	2.67	11.97		
	33.00	2.42	12.22		
	36.00	2.18	12.46		
	40.00	1.93	12.71		
	45.00	1.63	13.01		
	50.00	1.38	13.26		
	55.00	1.13	13.51		
1000	60.00	0.93	13.71		
1005	65.00	0.72	13.92		
1010	70.00	0.55	14.09		
1020	80.00	0.23	14.41		
1030	90.00	-0.06	14.58		
1040	100.00	-0.31	14.89		
1100	120.00	-0.73	15.47		
1120	140.00	-1.07	15.71		
1141	161.00	-1.37	16.01		
1201	180.00	-1.60	16.24		
1221	204.00	-1.80	16.44		
52	232.00	-2.04	16.68		
1321	261.00	-2.24	16.88		
1351	391.00	-2.48	17.12		
1421	321.00	-2.64	17.28		
1451	351.00	-2.78	17.42		

HOURLY

AQUIFER TEST
DRAWDOWN

NAME Cape Coral DATE 3-28-83

LOCATION - WELL NO. 9A JOB NO. OR 737

TIME OF DAY	ELAPSED TIME IN MINUTES	WATER LEVEL ABOVE MS PT	DRAWDOWN IN FEET	RECOVERY	REMARKS
	S.W.L.		Static +14.64		
1531	391.00	-2.93	17.57		
1611	431.00	-3.08	17.72		
1651	471.00	-3.28	17.92		
1741	521.00	-3.43	18.07		
1844	584.00	-3.61	18.25		
1942	642.00	-3.75	18.39		
2043	703.00	-3.92	18.56		
2142	762.00	-4.06	18.70		
2241	821	-4.17	18.81		
3-29-83					
0002	902.00	-4.32	18.96		
0146	1006.00	-4.45	19.09		
0323	1103.00	-4.56	19.20		
0502	1202.00	-4.64	19.28		
0642	1302.00	-4.76	19.40		
0821	1401.00	-4.86	19.50		
1002	1502	-4.98	19.62		
1322	1702.00	-5.13	19.77		
1645	1905.00	-5.18	19.82		
003	2103.00	-5.29	19.93		
-30-83					
0210	2470.00	-5.49	20.13		
0603	2703.00	-5.52	20.16		
1101	3001.00	-5.64	20.28		
1743	3403.00	-5.64	20.28		
3-31-83					
0842	4302.00	-5.80	20.44		
1702	4802.00	-5.96	20.60		
4-1-83					
0303	5403.00	-6.14	20.78		
1303	6003.00	-6.27	20.91		
2303	6603.00	-6.33	20.97		
4-2-83	HOURLY				
0902	7202.00	-6.37	21.01		
2103	7923.00	-6.44	21.08		
4-3-83					
0825	8605.00	-6.55	21.19		
2102	9362.00	-6.63	21.27		
4-4-83					
0902	10,082.00	-6.70	21.34		
2102	10,802.00	-6.77	21.41		
4-5-83					
0902	11,522.00	-6.81	21.45		
2102	12,242.00	-7.03	21.67		
6-83					
02	12,962.00	-7.05	21.69		
2102	13,682.00	-7.09	21.73		
4-7-83					
0755	14,335.00	-7.11	21.75		
0900	14,400.00	-7.13	21.77		

AQUIFER TEST
RECOVERY

NAME Cape Coral DATE 4-7,8-83

LOCATION _____ WELL NO. 9A JOB NO. OR 737

Meas. Point 2.5 ft. above LSD Top of cap

TIME OF DAY	ELAPSED TIME IN MINUTES	WATER LEVEL ABOVE MS PT	DRAWDOWN IN FEET	RECOVERY IN FEET	REMARKS
	S.W.L.			PWL -7.13	
0755		-7.11			
0900		-7.13			
0905	Pump Off				
	.24	-2.00		5.13	
	1.59	at tube top= +0.10'		7.23	
	3.00	+0.99		8.12	
	3.50	1.29		8.42	
	4.00	1.51		8.64	
	4.50	1.75		8.88	
	5.00	1.97		9.10	
	5.50	2.16		9.29	
	6.00	2.36		9.49	
	7.00	2.68		9.81	
	8.00	3.01		10.14	
	9.00	3.25		10.38	
	10.00	3.49		10.62	
	12.00	3.90		11.03	
	14.00	4.26		11.39	
	16.00	4.57		11.70	
	18.00	4.85		11.98	
	20.00	5.09		12.22	
	22.00	5.32		12.45	
	24.00	5.53		12.66	
	26.00	5.72		12.85	
	28.00	5.90		13.03	
	30.00	6.05		13.18	
	33.00	6.29		13.42	
	36.00	6.50		13:63	
	40.00	6.75		13.88	
	45.00	7.04		14.17	
	HOURLY 50.00	7.31		14.44	
	55.00	7.54		14.67	
	60.00	7.74		14.87	
	65.00	7.94		15.07	
	70.00	8.12		15.25	
	80.00	8.43		15.56	
	90.00	8.69		15.82	
	100.00	8.93		16.06	
	120.00	9.34		16.47	
	140.00	9.67		16.80	
	160.00	9.94		17.07	
	180.00	10.16		17.29	
	202.00	10.39		17.52	
	232.00	10.64		17.77	
1327	262.00	10.87		18.00	
37	292.00	11.07		18.20	
1426	321.00	11.24		18.37	
1457	352.00	11.38		18.51	
1537	392.00	11.55		18.68	
1617	432.00	11.70		18.83	

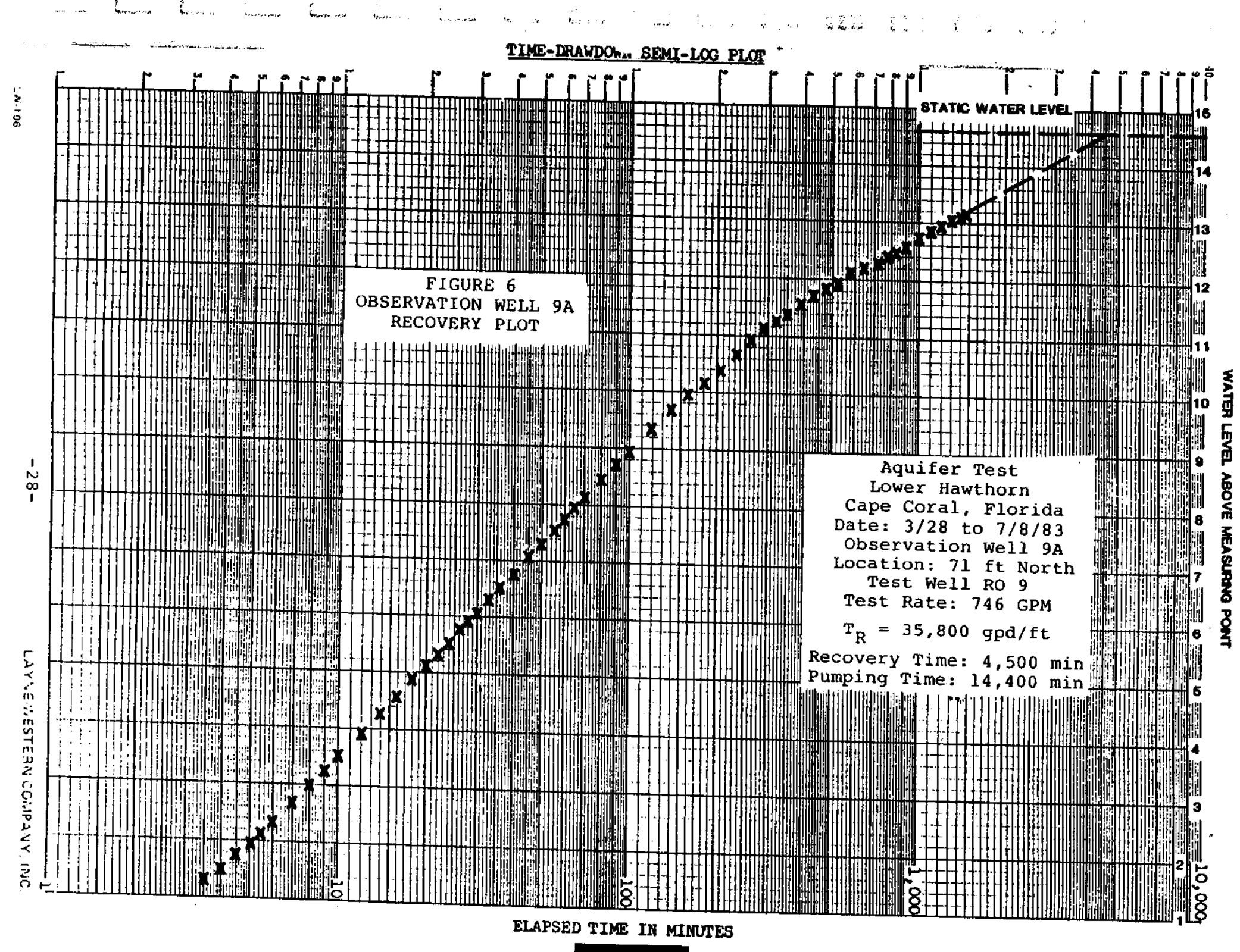
AQUIFER TEST
RECOVERY

NAME Cape Coral DATE 4-7,8,-83

LOCATION _____ WELL NO. 9A JOB NO. OR 737

TIME OF DAY	ELAPSED TIME IN MINUTES	WATER LEVEL ABOVE MS PT	DRAWDOWN IN FEET	RECOVERY IN FEET	REMARKS
	S.W.L.			PWL -7.13	
1657	472.00	11.82		18.95	
1747	522.00	11.92		19.05	
1846	581.00	12.08		19.21	
1950	645.00	12.16		19.29	
2048	703.00	12.27		19.40	
2148	763.00	12.37		19.50	
2248	823.00	12.45		19.50	
4-8-83					
0007	902.00	12.57		19.70	
0147	1002.00	12.73		19.86	
0327	1102.00	12.86		19.99	
0507	1202.00	12.96		20.09	
0646	1301.00	13.02		20.15	
0827	1402.00	13.11		20.24	
0909	1444.00	13.16		20.29	

HOURLY


TIME-DRAWDOWN SEMI-LOG PLOT
STATIC WATER LEVEL
FIGURE 6
OBSERVATION WELL 9A
RECOVERY PLOT
Aquifer Test
Lower Hawthorn
Cape Coral, Florida
Date: 3/28 to 7/8/83
Observation Well 9A
Location: 71 ft North
Test Well RO 9
Test Rate: 746 GPM
T_R = 35,800 gpd/ft
Recovery Time: 4,500 min
Pumping Time: 14,400 min
WATER LEVEL ABOVE MEASURING POINT
ELAPSED TIME IN MINUTES
1
10
100
1,000
10,000

AQUIFER TEST
DRAWDOWN

NAME Cape Coral DATE 3-28-83

LOCATION _____ WELL NO. 9B JOB NO. OR 737

Meas. Point 1.9 ft. above LSD Former top of cap

TIME OF DAY	ELAPSED TIME IN MINUTES	WATER LEVEL FROM MS PT	DRAWDOWN IN FEET	RECOVERY	REMARKS
	S.W.L.				
0800	0	+14.90			
0858	0	14.88			
	15 Sec.	14.87	0.01		
	30 Sec.	14.85	0.03		
	45 Sec.	14.83	0.05		
	1.0	14.80	0.08		
	1.5	14.76	0.12		
	2.0	14.70	0.18		
	2.5	14.65	0.23		
	3.0	14.59	0.29		
	3.5	14.55	0.33		
	4.0	14.50	0.38		
	4.5	14.45	0.43		
	5.0	14.40	0.48		
	6.0	14.32	0.56		
	7.0	14.25	0.63		
	8.0	14.18	0.70		
	9.07	14.12	0.76		
	10.0	14.07	0.81		
	12.0	13.97	0.91		
	14.0	13.88	1.00		
	16.0	13.80	1.08		
	18.0	13.73	1.15		
	20.0	13.67	1.21		
	22.0	13.60	1.28		
	24.0	13.54	1.34		
	26.0	13.49	1.39		
	38.0	13.44	1.44		
	30.0	13.39	1.49		
	33.0	13.32	1.56		
	36.0	13.26	1.62		
	40.0	13.18	1.70		
	45.0	13.08	1.80		
	50.0	13.00	1.88		
	55.0	12.93	1.95		
	60.0	12.85	2.03		
	65.0	12.79	2.09		
	70.0	12.72	2.16		
	80.0	12.61	2.27		
	90.0	12.50	2.38		
	100.0	12.41	2.47		
	120.0	12.25	2.63		
1124	144.0	12.08	2.80		
1143	163.0	11.96	2.92		
1202	182.0	11.86	3.02		
1222	202.0	11.78	3.10		
1253	233.0	11.67	3.21		
1322	262.0	11.57	3.31		
1353	293.0	11.49	3.39		
1423	323.0	11.42	3.46		

HOURLY

AQUIFER TEST
DRAWDOWN

NAME Cape Coral DATE 3-28,29,30-83

LOCATION _____ WELL NO. 9B JOB NO. OR 737

TIME OF DAY	ELAPSED TIME IN MINUTES	WATER LEVEL FROM MS PT	DRAWDOWN IN FEET	RECOVERY	REMARKS
	S.W.L.		Static +14.90		
1453	353.0	11.35	3.53		
1533	393.0	11.27	3.61		
1613	433.0	11.20	3.68		
1653	463.0	11.12	3.76		
1743	523.0	11.04	3.84		
1847	587.0	10.94	3.96		
1944	644.0	10.84	4.06		
2045	705.0	10.74	4.16		
2144	764.0	10.66	4.24		
2243	823.0	10.59	4.31		
3-29-83					
0005	905.0	10.49	4.41		
0148	1008.0	10.42	4.48		
0326	1106.0	10.38	4.52		
0506	1206.0	10.33	4.57		
0644	1304.0	10.26	4.64		
0824	1404.0	10.20	4.70		
1-04	1504.0	10.13	4.77		
1324	1704.0	10.07	4.83		
1649	1909.0	10.07	4.83		
2006	2106.0	9.98	4.92		
3-30-83					
0215	2475.0	9.86	5.04		
0604	2704.0	9.86	5.04		
1104	3004.0	9.82	5.08		
1745	3405.0	9.89	5.01		
3-31-83					
0026	3806.0	9.79	5.11		
0845	4305.0	9.82	5.08		
1704	4804.0	9.74	5.16		
4-1-83					
0305	5405.0	9.57	5.33		
1305	6005.0	9.49	5.41		
2306	6606.0	9.47	5.43		
4-2-83					
0904	7204.0	9.47	5.43		
2105	7925.0	9.42	5.48		
4-3-83					
0835	8615.0	9.33	5.57		
2104	9364.0	9.27	5.63		
4-4-83					
0906	10,086.0	9.21	5.69		
2106	10,806.0	9.19	5.71		
4-5-83					
0904	11,524.0	9.17	5.73		
105	12,245.0	9.13	5.77		
4-6-83					
0905	12,965.0	9.11	5.79		
2104	13,684	9.09	5.81		

HOURLY

AQUIFER TEST
DRAWDOWN

NAME Cape Coral DATE 3-30 thru 4-7-83

LOCATION _____ WELL NO. 9B JOB NO. OR 737

TIME OF DAY	ELAPSED TIME IN MINUTES	WATER LEVEL From MS PT	DRAWDOWN IN FEET	RECOVERY	REMARKS
	S.W.L.		Static +14.90		
4-7-83					
0758	14,338	9.08	5.82		
0900	14,400	9.08	5.82		

HOURLY

AQUIFER TEST
RECOVERY

NAME Cape Coral DATE 4-7-83

LOCATION _____ WELL NO. 9B JOB NO. OR 737

Meas. Point 1.9 ft above LSD Former top of cap Kreidt - HNTB

TIME OF DAY	ELAPSED TIME IN MINUTES	WATER LEVEL ABOVE MS PT	DRAWDOWN IN FEET	RECOVERY IN FEET	REMARKS
	S.W.L.			PWL +9.08	
0758		+9.08			
0900	0	9.08			
0905	Pump Off .25	9.08		0	
	.50	9.09		0.01	
	.75	9.10		0.02	
	1.00	9.11		0.03	
	1.50	9.15		0.07	
	2.00	9.19		0.11	
	2.50	9.21		0.13	
	3.00	9.25		0.17	
	3.50	9.30		0.22	
	4.00	9.34		0.26	
	4.50	9.38		0.30	
	5.00	9.41		0.33	
	6.00	9.48		0.40	
	7.00	9.54		0.46	
	8.00	9.60		0.52	
	9.00	9.65		0.57	
	10.00	9.70		0.62	
	12.00	9.80		0.72	
	14.00	9.88		0.80	
	16.00	9.96		0.88	
	18.00	10.03		0.95	
	20.00	10.09		1.01	
	22.00	10.15		1.07	
	24.00	10.21		1.13	
	26.00	10.26		1.18	
	28.00	10.31		1.23	
	30.00	10.36		1.28	
	33.00	10.43		1.35	
	36.00	10.49		1.41	
	40.00	10.57		1.49	
	45.00	10.67		1.59	
	50.00	10.76		1.68	
	55.00	10.84		1.76	
	60.00	10.91		1.83	
	65.00	10.98		1.90	
	70.00	11.06		1.98	
	80.00	11.17		2.09	
	90.00	11.29		2.21	
	100.00	11.39		2.31	
	120.00	11.58		2.50	
	140.00	11.74		2.66	
	160.00	11.88		2.80	
	180.00	12.00		2.92	
	200.00	12.11		3.03	
1257	232.00	12.28		3.20	
1329	264.00	12.41		3.33	
1358	293.00	12.52		3.44	
1428	323.00	12.63		3.55	

HOURLY

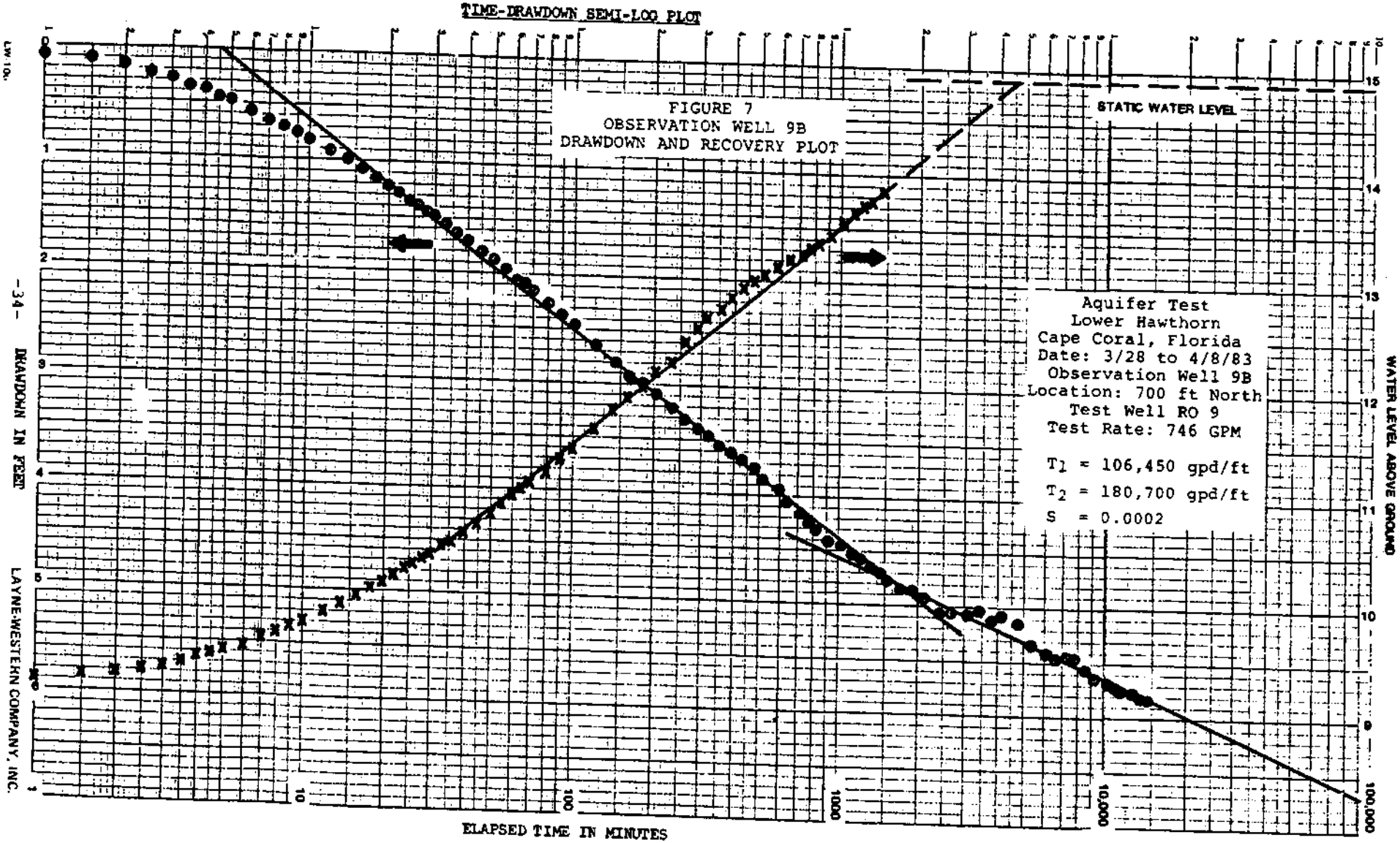
AQUIFER TEST

AME Cape Coral DATE 4-7-83

LOCATION _____ WELL NO. 9B JOB NO. OR 737

TIME OF DAY	ELAPSED TIME IN MINUTES	WATER LEVEL ABOVE MS PT	DRAWDOWN IN FEET	RECOVERY	REMARKS
	S.W.L.			PWL +9.08	
1459	354	12.71		3.63	
1539	394	12.82		3.74	
1619	434	12.90		3.82	
1659	474	12.98		3.90	
1749	524	13.05		3.97	
1848	583	13.13		4.05	
1955	650	13.20		4.12	
2051	706	13.24		4.16	
2150	765	13.30		4.22	
2250	925	13.34		4.26	
4-8-83					
0009	904	13.43		4.35	
0149	1004	13.54		4.46	
0329	1104	13.64		4.56	
0509	1204	13.70		4.62	
0648	1303	13.74		4.66	
0829	1404	13.80		4.72	
0915	1450	13.82		4.74	

HOURLY


TIME-DRAWDOWN SEMI-LOG PLOT
FIGURE 7
OBSERVATION WELL 9B
DRAWDOWN AND RECOVERY PLOT
STATIC WATER LEVEL
Aquifer Test
Lower Hawthorn
Cape Coral, Florida
Date: 3/28 to 4/8/83
Observation Well 9B
Location: 700 ft North
Test Well RO 9
Test Rate: 746 GPM
T_1 = 106,450 gpd/ft
T_2 = 180,700 gpd/ft
S = 0.0002
ELAPSED TIME IN MINUTES
DRAWDOWN IN FEET
WATER LEVEL ABOVE GROUND
LAYNE-WESTERN COMPANY, INC.

AQUIFER TEST
DRAWDOWN

NAME Cape Coral DATE 3-28-83

LOCATION WELL NO. RO-8 JOB NO. OR 737

Meas. Point 2.5 ft. above lsd Top plate of well

TIME OF DAY	ELAPSED TIME IN MINUTES	WATER LEVEL ABOVE MS PT	DRAWDOWN IN FEET	RECOVERY	REMARKS Pumping Rate
	S.W.L.				
0813	0	16.21	0		
	1	16.21	0		
	5	16.21	0		
	10	16.21	0		
	18	16.21	0		
	20	16.20	.01		
	22	16.20	.01		
	24	16.20			
	26	16.20			
	28	16.19	.02		
	30	16.19			
	33	16.19			
	36	16.18	.03		
	40	16.18			
	45	16.17	.04		
	50	16.16	.05		
	55	16.15	.06		
	60	16.15			
	65	16.14	.07		
	70	16.13	.08		
	80	16.11	.10		
	90	16.11			
	100	16.10	.11		
	120	16.08	.13		
	140	16.05	.16		
	160	16.01	.20		
	180	16.00	.21		
	205	15.94	.27		
	236	15.92	.29		
	260	15.94	.27		
	290	15.92	.29		
	320	15.91	.30		
	350	15.88	.33		
	390	15.87	.34		
	430	15.83	.38		
	470	15.80	.41		
1746	526	15.72	.49		
1850	590	15.69	.52		
1950	650	15.62	.59		
2051	711	15.56	.65		
2151	771	15.49	.72		
2251	831	15.43	.78		
3-29-83					
0013	913	15.38	.83		38½" = 765gpm
0156	1016	15.33	.88		38½" = 765gpm
0335	1115	15.28	.93		38½" = 765gpm
0515	1215	15.25	.96		38½" = 765gpm
0652	1312	15.19	1.02		38½" = 765gpm
0826	1406	15.16	1.05		
1006	1506	15.08	1.13		

AQUIFER TEST
DRAWDOWN

NAME Cape Coral DATE 3-28,29,30-83

LOCATION _____ WELL NO. RO 8 JOB NO. OR 737

TIME OF DAY	ELAPSED TIME IN MINUTES	WATER LEVEL ABOVE MS PT	DRAWDOWN IN FEET	RECOVERY	REMARKS
	S.W.L.		Static 16.21		
1327	1707	15.05	1.16		
1651	1911	15.04	1.17		
2010	2110	14.97	1.24		
3-30-83					
0218	2478	14.83	1.38		
0610	2710	14.83	1.38		
1107	3007	14.79	1.42		
1750	3410	14.85	1.36		
3-31-83					
0850	4310	14.78	1.43		
1708	4808	14.69	1.52		
4-1-83					
0308	5408	14.54	1.67		
1315	6015	14.46	1.75		
2309	6609	14.44	1.77		
4-2-83					
0906	7206	14.44	1.77		
2107	7927	14.39	1.82		
4-3-83					
0840	8620	14.32	1.89		
2107	9367	14.26	1.95		
4-4-83					
0928	10,108	14.21	2.00		
2110	10,810	14.19	2.02		
4-5-83					
0915	11,535	14.19	2.02		
2108	12,248	14.18	2.03		
4-6-83					
0907	12,967	14.18	2.03		
2108	13,688	14.17	2.04		
4-7-83					
0757	14,337	14.18	2.03		
0900	14,400	14.18	2.03		

AQUIFER TEST
RECOVERY

AME Cape Coral DATE 4-7-83

LOCATION _____ WELL NO. RO-8 JOB NO. OR 737

Meas. Point 2.5 ft. above LSD Top plate of well

TIME OF DAY	ELAPSED TIME IN MINUTES	WATER LEVEL ABOVE MS PT	DRAWDOWN IN FEET	RECOVERY	REMARKS
	S.W.L.			PWL 14.18	
0900	0	14.18		0	
	1	14.18		0	
	2	14.18		0	
	4	14.18		0	
	6	14.18		0	
	8	14.18		0	
	10	14.18		0	
	20	14.19		.01	
	22	14.19		.01	
24	24	14.19			
	26	14.20		.02	
	28	14.20			
	30	14.20			
	33	14.21		.03	
	36	14.21			
	40	14.21			
	45	14.21			
	50	14.22		.04	
	55	14.23		.05	
	60	14.24		.06	
	65	14.24			
	70	14.25		.07	
	80	14.26		.08	
	90	14.27		.09	
	100	14.28		.10	
	120	14.30		.12	
	140	14.33		.15	
	160	14.35		.17	
	180	14.39		.21	
	202	14.41		.23	
1259	234	14.46		.28	
1331	266	14.51		.33	
1401	296	14.55		.37	
1431	326	14.58		.40	
1502	357	14.62		.44	
1541	396	14.66		.48	
1622	437	14.68		.50	
1701	476	14.72		.54	
1751	526	14.74		.56	
1851	586	14.76		.58	
2000	655	14.77		.59	
2054	709	14.76		.58	
2153	768	14.80		.62	
2253	828	14.83		.65	
4-8-83					
013	908	14.88		.70	
0152	1007	14.97		.79	
0332	1107	15.03		.85	
0512	1207	15.08		.90	
0650	1305	15.11		.93	

0

AQUIFER TEST
RECOVERY

NAME Cape Coral DATE 4-7,8-83

LOCATION _____ WELL NO. RO-8 JOB NO. OR 737

Meas. Point 2.5 ft. above LSD Top plate of well

TIME OF DAY	ELAPSED TIME IN MINUTES	WATER LEVEL ABOVE MS PT	DRAWDOWN IN FEET	RECOVERY	REMARKS
	S.W.L.			PWL 14.18	
4-8-83					
0832	1407	15.17		.99	
0925	1460	15.19		1.01	

HOURLY

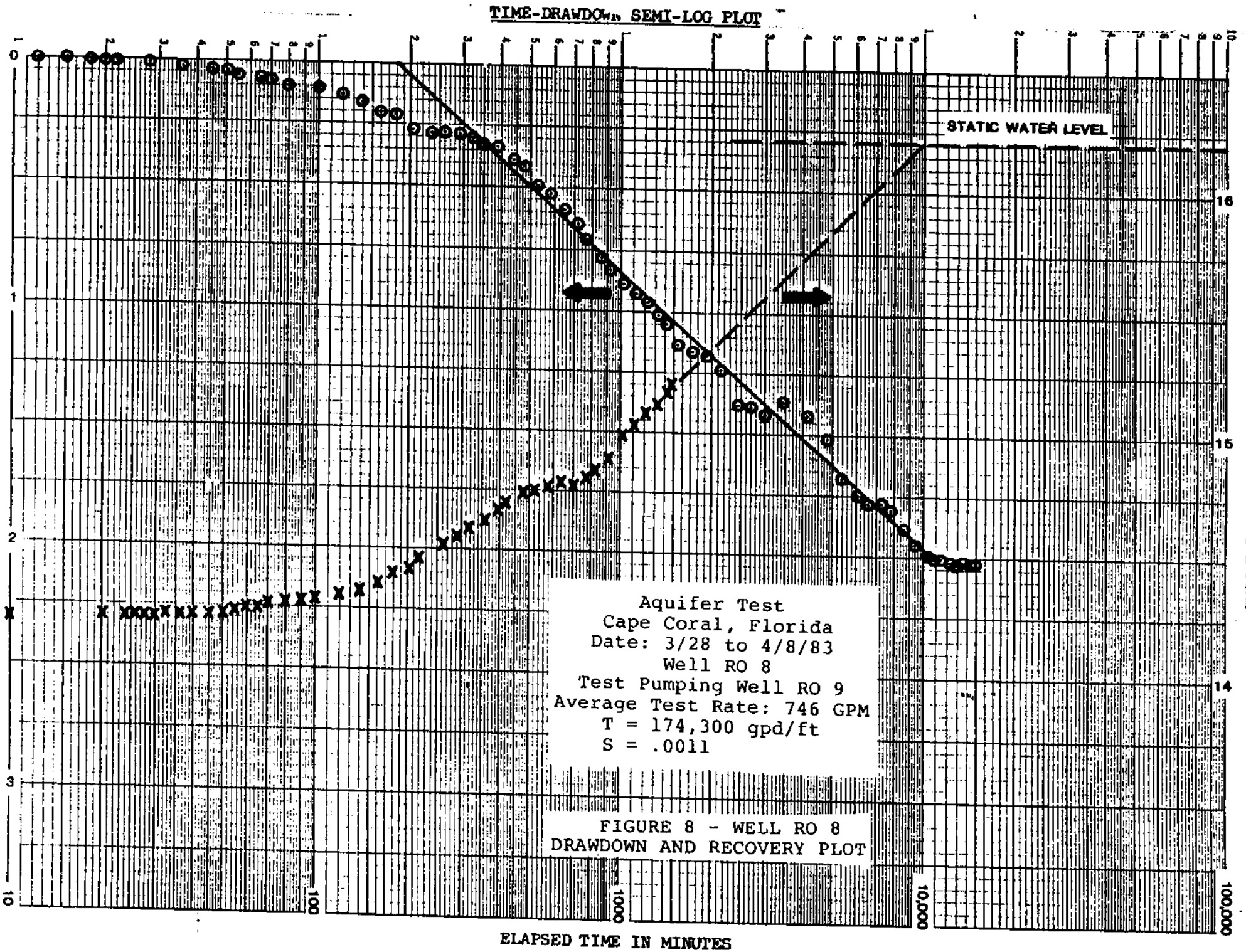


FIGURE 8 - WELL RO 8
DRAWDOWN AND RECOVERY PLOT

AQUIFER TEST
DRAWDOWN

NAME Cape Coral Background wells DATE 3-28-83

LOCATION RO-1,2,4 and 6 pumping WELL NO. RO-7 JOB NO. OR 737

Meas. Point 2.3 ft. above LSD Top plate of well

TIME OF DAY	ELAPSED TIME IN MINUTES	WATER LEVEL ABOVE MS PT	DRAWDOWN IN FEET	RECOVERY	REMARKS
	S.W.L.		Static 15.71		
0819	0	15.71	0		
0900	15 sec	15.71	0		
	30 sec	15.71	0		
	45 sec	15.71	0		
	1.0	15.71	0		
	1.5	15.71	0		
	2.0	15.71	0		
	2.5	15.71	0		
	3.0	15.71	0		
	3.5	15.71	0		
	4.0	15.71	0		
	5.0	15.71	0		
	6.0	15.71	0		
	7.0	15.71	0		
	8.0	15.71	0		
	9.0	15.71	0		
	10.0	15.71	0		
	12.0	15.71	0		
	14.0	15.71	0		
	16.0	15.71	0		
	18.0	15.71	0		
	20.0	15.71	0		
	22.0	15.71	0		
	24.0	15.71	0		
	26.0	15.71	0		
	28.0	15.71	0		
	30.0	15.70	.01		
	33.0	15.70	0		
	36.0	15.70	0		
	40.0	15.70	0		
	45.0	15.70	0		
	50.0	15.70	0		
	55.0	15.70	0		
1000	50.0	15.69	.02		
	65.0	15.69	0		
	70.0	15.69	0		
	80.0	15.68	.03		
	90.0	15.68	0		
	100.0	15.67	.04		
1100	120.0	15.66	.05		
	140.0	15.64	.07		
	160.0	15.63	.08		
	180.0	15.62	.09		
	206.0	15.61	.10		
	239.0	15.61	0		
	260.0	15.60	.11		
	290.0	15.59	.12		
	320.0	15.58	.13		
	350.0	15.57	.14		
	390.0	15.56	.15		

AQUIFER TEST
DRAWDOWN

NAME Cape Coral DATE 3-28,29,30-83

LOCATION _____ WELL NO. RO-7 JOB NO. OR 737

TIME OF DAY	ELAPSED TIME IN MINUTES	WATER LEVEL ABOVE MS PT	DRAWDOWN IN FEET	RECOVERY	REMARKS
	S.W.L.				
	430	15.55	.16		
	470	15.53	.18		
1749	529	15.50	.21		
1853	593	15.45	.26		
1947	647	15.39	.32		
2049	709	15.34	.37		
2148	768	15.19	.42		
2247	847	15.23	.48		
3-29-83					
0009	909	15.17	.54		
0154	1014	15.13	.58		
0330	1110	15.12	.59		
0511	1211	15.09	.62		
0648	1308	15.04	.67		
0828	1408	14.99	.72		
1008	1508	14.93	.78		
1330	1710	14.89	.82		
1655	1915	14.88	.83		
2014	2114	14.82	.89		
3-30-83					
0220	2480	14.69	1.02		
0610	2710	14.69	1.02		
1114	3014	14.66	1.05		
1752	3412	14.70	1.01		
3-31-83					
0035	3815	14.60	1.11		
0853	4313	14.62	1.09		
1710	4810	14.52	1.19		
4-1-83					
0311	5411	14.37	1.34		
1324	6024	14.28	1.43		
2313	6613	14.26	1.45		
4-2-83					
0915	7215	14.25	1.46		
2111	7931	14.20	1.51		
4-3-82					
0845	8625	14.13	1.58		
2110	9370	14.06	1.65		
4-4-83					
0936	10,116	14.02	1.69		
2112	10,812	14.00	1.71		
4-5-83					
0926	11,546	13.99	1.72		
2112	12,252	13.98	1.73		
4-6-83					
914	12,974	13.99	1.72		
2111	13,691	13.97	1.74		
4-7-83					
0745		13.99	1.72		
0900	14,400	13.99	1.72		

AQUIFER TEST
RECOVERY

NAME Cape Coral DATE 4-7-83

LOCATION WELL NO. RO-7 JOB NO. OR 737

Meas. Point 2.3ft above LSD Top plate of well

TIME OF DAY	ELAPSED TIME IN MINUTES	WATER LEVEL ABOVE MS PT	DRAWDOWN IN FEET	RECOVERY	REMARKS
	S.W.L.			PWL 13.99	
0745	0	13.99		0	
0900	0	13.99		0	
0906	1	13.99		0	
	1.5	13.99		0	
	2.0	13.99		0	
	2.5	13.99		0	
	3.0	13.99		0	
	3.5	13.99		0	
	4.0	13.99		0	
	4.5	13.99		0	
	5.0	13.99		0	
	6.0	13.99		0	
	7.0	13.99		0	
	8.0	13.99		0	
	9.0	13.99		0	
0915	10.0	13.99		0	
	12.0	13.99		0	
	14.0	13.99		0	
	16.0	13.99		0	
	18.0	13.99		0	
	20.0	13.99		0	
	22.0	13.99		0	
	24.0	13.99		0	
	26.0	13.99		0	
	28.0	13.99		0	
	30.0	13.99		0	
	33.0	14.00		.01	
	36.0	14.00		.01	
	40.0	14.00		.01	
	45.0	14.00		.01	
	50.0	14.00		.01	
	55.0	14.00		.01	
	60.0	14.01		.02	
	65.0	14.01		.02	
	70.0	14.01		.02	
	80.0	14.01		.02	
	90.0	14.02		.03	
	100.0	14.02		.03	
	120.0	14.03		.04	
	130.0	14.04		.05	
	140.0	14.05		.06	
	160.0	14.05		.06	
	165.0	14.06		.07	
	180.0	14.07		.08	
	205.0	14.08		.09	
1300	235.0	14.11		.12	
1334	269.0	14.14		.15	
1404	299.0	14.17		.18	
1433	328.0	14.19		.20	
1504	359.0	14.21		.22	

AQUIFER TEST
RECOVERY

NAME Cape Coral DATE 4-7,8-83

LOCATION WELL NO. RO-7 JOB NO. OR 737

TIME OF DAY	ELAPSED TIME IN MINUTES	WATER LEVEL ABOVE MS PT	DRAWDOWN IN FEET	RECOVERY	REMARKS
	S.W.L.				
1544	399	14.24		.25	
1624	439	14.26		.27	
1704	479	14.27		.28	
1753	528	14.29		.30	
1853	588	14.31		.32	
1957	652	14.31		.32	
2057	712	14.31		.32	
2156	771	14.33		.34	
2256	831	14.35		.36	
4-8-83					
0017	912	14.40		.41	
0155	1010	14.47		.48	
0335	1110	14.54		.55	
0516	1211	14.58		.59	
0654	1309	14.61		.62	
0834	1409	14.65		.66	
0930	1465	14.67		.68	

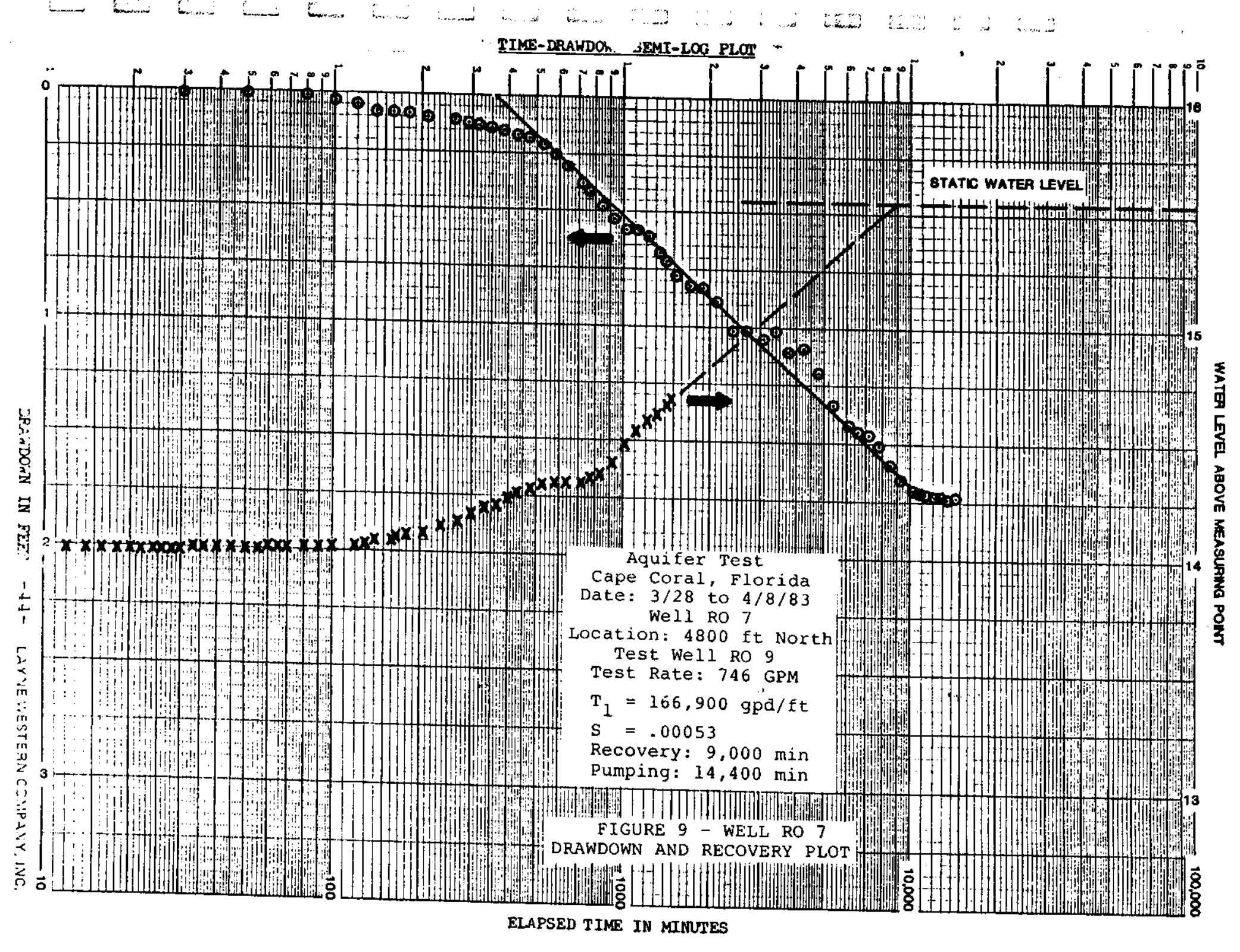
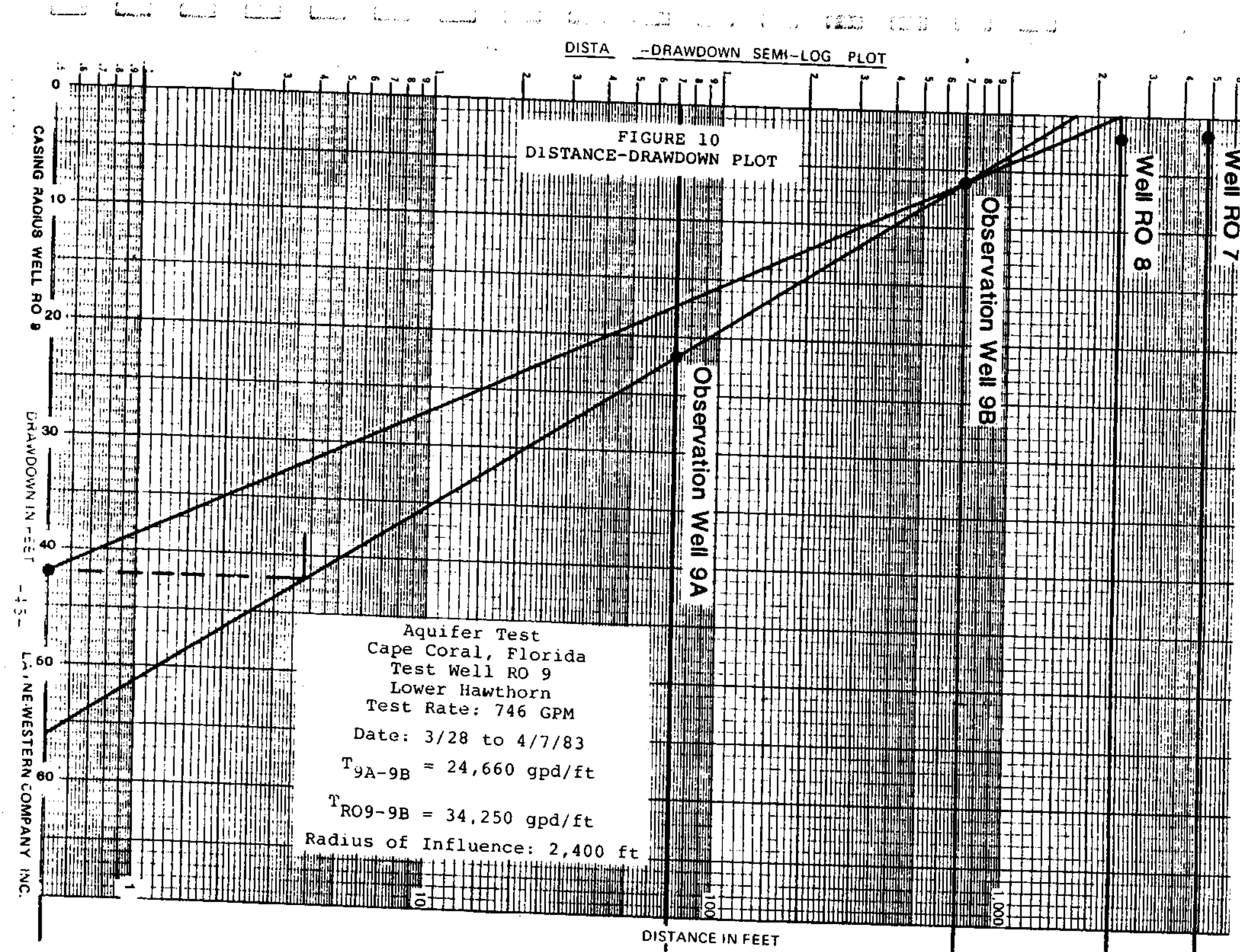


FIGURE 9 - WELL RO 7
DRAWDOWN AND RECOVERY PLOT



CEL[illegible]EOL[illegible] WATER LEVEL MEASUREMENTS [illegible]R THE CARLSBAD REVERSE OSMOSIS PLANT. AQUIFERS: WT-Water table; LH-Lower Hawthorn; UH-Upper Hawthorn. All measurements in feet referred to land surface datum.

TABLE 5

Well No.	Aquifer	1983 2-11	2-15	2-18	2-22	2-25	3-1	3-3	3-4	3-6	3-8	3-9	3-10	3-11	3-15	3-18	3-21	3-22
L-1136	WT	4.94	4.23	4.29	4.70	4.94	4.14		4.57		3.81			4.33		4.39		4.81
U-1	UH	19.60	18.94	17.77	15.85	15.15	14.32		13.83		13.14			13.41		13.22		13.72
U-2	UH	18.60	16.49	15.44	14.20	13.68	12.82		12.35		11.93			11.80		11.47		11.60
U-3	UH	13.51	12.57	11.99	11.14	10.69	9.99		9.65		9.21			9.00		8.44		8.41
L-581	UH	27.89	25.87	24.22	22.62	21.98	20.78		20.16		19.73			21.73		21.15		21.80
L-1119	UH	13.61	12.05	11.99	11.15	10.79	10.02		9.72		9.48			9.15		8.42		8.49
L-2614	UH	2.14	1.94	1.72	1.34	1.05	0.56		0.55		0.08			+ .02	+ .90	+ .43		+ .29
RO-7	LH	+13.65	+9.08	+14.45	+14.75	+14.89	+15.03	+14.84	+14.86	+15.04	+14.58	+14.16	+13.83	+14.27	+14.06		+17.58	+17.49
RO-8	LH	+14.64	+14.65	+15.34	+15.62	+15.76	+16.18	+15.69	+15.74	+15.96	+15.60	+15.20	+14.92	+15.20		+16.92		+18.27
RO-9	LH	+11.36	+13.17	+13.84	+14.04	+14.16	+14.22	+14.08	+14.14	+14.43	+13.70	+13.24	+12.96	+13.53		-17.48	+16.79	+17.15
9A	LH	+12.76	+13.21	+13.89	+14.10	+14.17	+14.30		+14.38	+14.51	+13.76			+18.60	+13.52	-1.11		+16.78
9C	LH	+11.84	+12.53	+13.29	+13.45	+13.55	+13.63	+13.27	+13.59	+13.89	+13.16	+12.69	+12.38	+12.98	+12.98	+11.80	+16.67	+16.49
L-2494	LH	-10.22	-4.61	-3.61	-3.66	-3.39	-3.72		-3.80	-4.92			-10.37	-7.90	-5.01	+ .84	+1.96	+1.81

TABLE 5 con t

Well No	3-23	3-24	3-27	3-28	3-29	3-30	3-31	4-1	1983 4-2	4-3	4-4	4-5	4-6	4-7	4-8			
L-1136			4.56		4.49		4.56					4.99		5.26	5.12			
U-1			13.95		14.12	14.19	14.16	14.38	14.59	14.99	15.49	15.95	16.30	16.63	16.76			
U-2			11.55	11.31	11.64	11.73	11.71	11.99	12.14	12.30	12.62	12.87	13.13	13.56	13.80			
U-3			8.08	7.98	8.11	8.16	8.11	8.29	8.29	8.37	8.57	8.73	9.09	9.34	9.43			
L-581			22.29		23.01		23.56					27.13		27.08				
L-1119			8.13		8.18	8.22	8.20	8.33	8.33	8.44	8.67	8.95	9.29	9.76	9.93			
L-2644			+.43		+.40		+.55			+.47		+.40		+.30	+.28			
RO-7	+17.61	+18.05	+17.88															
RO-8	+18.37	+18.88	+18.62															
RO-9	+16.87	+17.18	+16.96															
9A	+16.92		+17.06															
9B	+16.56	+17.02	+16.68															
L-2644		+2.38			+1.15		+.22					-.52		-.46				

See aquifer test data

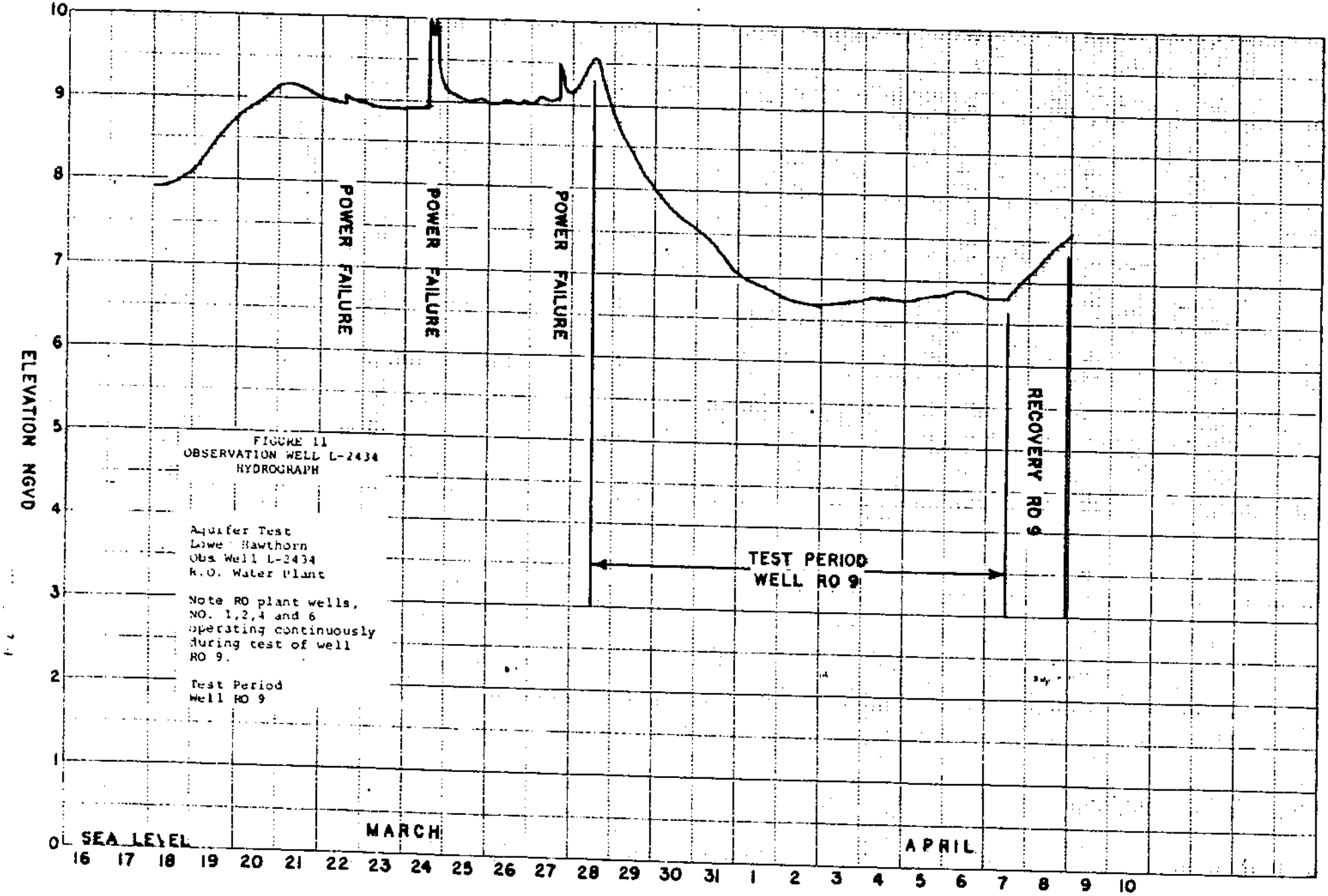


FIGURE 11
OBSERVATION WELL L-2434
HYDROGRAPH

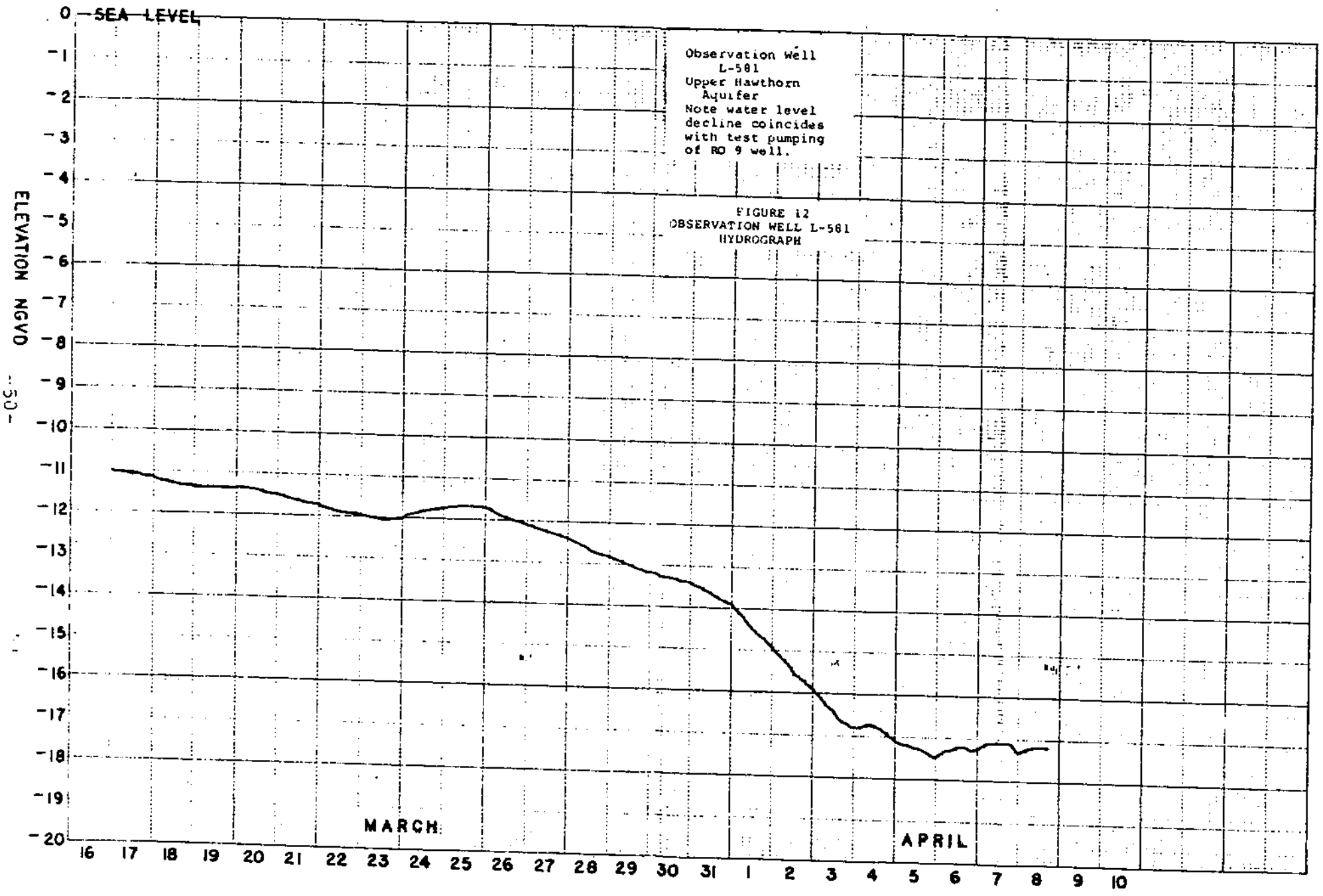


FIGURE 12
OBSERVATION WELL L-581
HYDROGRAPH

SUMMARY AND CONCLUSIONS

A pumping test was run utilizing the southernmost well of the Cape Coral Reverse Osmosis plant, designated Well RO 9. These wells are flowing artesian wells with above ground static water levels.

The Cape Coral area overlies a geologic anticline as depicted by the upper surface of the lower Hawthorn aquifer shown in the geologic cross sections.

Two (2) attempts were made to start the long-term pumping test on Well RO 9 in both February and early March. Weather conditions interferred with the operation as well as failure to hold a constant pumping rate. Third start for the long-term pumping test was commenced on March 28, and continued with recovery measurements thru April 8, 1983.

The test well, RO 9, was pumped at an average rate of 746 gpm for 14,400 minutes. Recovery was then observed for 24 hours following pumping.

In analyzing the data, various values of transmissivity were derived. It has been found from experience that the early portion of the data more accurately reflect the true formation characteristics in the vicinity of the well. Long-term transmissivity values represent leakage to the aquifer system and boundary effects. It is therefore concluded that the value that best represents the transmissivity of the formation is 35,000 gpd/ft. The value that best represents the coefficient of storativity for the long-term test is 0.003. The higher values of transmissivity derived from the data indicates substantial leakage to the upper Hawthorn formation.

Leakage factor calculated that best represents the conditions in the vicinity of the well, was 0.0335 gpd/ft^2.

The observed specific capacity of the well was 17.8 ~~gpd~~ gpm/ft. The calculated theoretical specific capacity was 17.7 gpm/ft for an apparent well efficiency of 99%.

Prepared by:

James O. Smith, Jr.
Hydrologist

Reviewed by:

Carl E. Nuzman, P.E.
Hydrology Division Manager

JOS:CEN:drj

APPENDIX I

WELL COMPLETION REPORTS

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
WELL COMPLETION REPORT

OWNER: CITY OF CAPE CORAL

WELL LOCATION:

DRILL METHOD: [X] Rotary

SURFACE CASING, CASING, AND LINER MATERIAL:

Steel O.D. (in.)				PVC	Other	From	To	Schedule No.	Joints
20"						+5	30		1
				12"		+3	350	40	19

GROUT:

14.5 WITH 5% BENTONITE

FINISH:

QUALITY TEST:

Chloride 1000

WELL TEST:

WELL EQUIPMENT:

TYPE OF WORK:

PERMIT NUMBER: WW-36-53278
#9 L.H.

WELL NUMBER

TYPE OF WELL:

USE:

SKETCH LOCATION OF WELL

155' TO INTERSECTION OF BEACH PARKWAY.

CHIQUITA BLVD.

WELL #9

GEOPHYSICAL LOGS: Type / By:

WELL LOG

Bore Hole (in.)	Casing Size (in.)	Depth From (Ft.)	Depth To (Ft.)	Description
28"		0	5	SAND SHELL SURFACE ROCK
		5	10	SAND SHELL
		10	15	SAND SHELL GRAY ROCK
		15	20	SAND SHELL GRAY ROCK MUD
		20	25	SHELL MUD
		25	30	MUD THICK
195		30	35	MUD THICK
		35	40	GREEN CLAY
		40	45	WHITE ROCK CLAY
		45	50	WHITE ROCK SHELL
		50	55	GREEN CLAY
		55	60	GREEN CLAY
		60	65	GREEN CLAY
		65	70	GREEN CLAY SHELL
		70	75	GREEN CLAY
		75	80	GREEN CLAY
		90	85	GREEN CLAY
		85	90	GREEN CLAY
		90	95	GREEN CLAY ROCK PHOSPHAT
		95	100	GREEN CLAY ROCK PHOSPHAT
		100	105	SHELL BROWN ROCK PHOSPHAT
		105	110	LIMESTONE
		110	115	LIMESTONE SHELL
		115	120	LIMESTONE SHELL
		120	125	LIMESTONE SHELL
		125	130	LIMESTONE SHELL

Total Depth 750 Ft.

Top of Producing Zone 352 Ft. Bottom of Producing Zone 750 Ft.

1509 License No. [signature] Pres. Water Well Contractor's Signature

5 20 77 Completion Date [signature] Owner Signature

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION
WELL COMPLETION REPORT

WELL LOCATION:

TYPE OF WELL:

USE:

SKETCH LOCATION OF WELL

GEOPHYSICAL LOGS:

WELL LOG

From	To	
130	135	LIME STONE
135	140	" "
140	145	" "
145	150	" "
150	155	" "
155	160	" "
160	165	" "
165	170	LIME STONE CLAY
170	175	" "
175	180	" "
180	185	GREEN CLAY
185	190	" "
190	195	" "
195	200	" "
200	205	LIME STONE
205	210	" "
210	215	LIME STONE CLAY
215	220	" "
220	225	" "
225	230	" "
230	235	" "
235	240	" "
240	245	" "
245	250	" "
250	255	" "
255	260	LIME STONE

Water Well Contractor's Signature

DEPARTMENT OF ENVIRONMENTAL REGULATION

WELL COMPLETION REPORT

OWNER:

WELL LOCATION:

GEOPHYSICAL LOGS: Type: By:

Bore Hole Dia. (in.)	Casing Dia. (in.)	Depth (Ft.) From	Depth (Ft.) To	
		260	265	LIME STONE
		265	270	" "
		270	275	" "
		275	280	MUDDY LIME STONE
		280	285	" "
		285	290	" "
		290	295	" "
		295	300	STICKY CLAY
		300	305	" "
		305	310	" "
		310	315	" "
		315	320	" "
		320	325	" "
		325	330	" "
		330	335	LIME STONE
		335	340	" "
		340	345	" "
		345	350	" "
//		350	355	LIME STONE
		355	360	" "
		360	365	LIME STONE CLAY
		365	370	" "
		370	375	" "
		375	380	" "
		380	385	" "
		385	390	" "

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

WELL COMPLETION REPORT

OWNER:

WELL LOCATION:

DRILL METHOD:

SURFACE CASING, CASING, AND LINER MATERIAL:

GROUT:

SCREEN:

QUALITY TEST:

YIELD TEST:

PUMP EQUIPMENT:

TYPE OF WORK:

PERMIT NUMBER:

WELL NUMBER

TYPE OF WELL:

USE:

SKETCH LOCATION OF WELL

GEOPHYSICAL LOGS: Type: By:

WELL LOG

Bore Hole (No.)	Casing Seal (No.)	Depth (Ft.) From	Depth (Ft.) To	Description
		390	595	LIME STONE - CLAY
		395	400	" "
		400	405	" "
		405	410	" "
		410	415	" "
		415	420	" "
		420	425	" "
		425	430	" "
		430	435	" "
		435	440	" "
		440	445	" "
		445	450	LIME STONE - SOME CLA
		450	455	" "
		455	460	" "
		460	465	" - " SOFT
		465	470	" "
		470	475	" "
		475	480	" "
		480	485	" "
		485	490	LIME STONE SOFT
		490	495	GRAY LIME STONE
		495	500	LIME STONE
		500	505	LIME STONE CLAY
		505	510	CLAY WHITE + GREY
		510	515	LIME STONE
		515	520	" "

Total Depth: Ft.

Water Well Contractor's Signature

Completion Date

Driller Signature

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

WELL COMPLETION REPORT

GEOPHYSICAL LOGS: Type: By:

WELL LOG

Bore Hole (in.)	Casing Size (in.)	Depth (ft.) From	Depth (ft.) To	Description
		520	525	GRAY CLAY
		525	530	WHITE & CLAY LIMESTON
		530	535	GREEN CLAY LIMESTONE
		535	540	WHITE & CLAY LIMESTON
		540	545	TAN LIMESTONE
		545	550	WHITE CLAY LIMESTO.
		550	555	LIMESTONE CLAY
		555	560	" "
		560	565	" "
		565	570	" "
		570	575	TAN LIMESTONE
		575	580	LIMESTONE
		580	585	BROWN LIMESTONE
		585	590	" "
		590	595	" "
		595	600	" "
		600	605	" "
		605	610	WHITE LIMESTONE
		610	615	LIMESTONE BROWN
		615	620	" "
		620	625	" "
		625	630	" "
		630	635	" "
		635	640	" "
		640	645	" "
		645	650	" "

DEPARTMENT OF ENVIRONMENTAL REGULATION

WELL COMPLETION REPORT

WELL LOCATION:

OWNER WELL NUMBER OR NAME:

DRILL METHOD:

SURFACE CASING, CASING, AND LINER MATERIAL:

GROUT:

FINISH:

QUALITY TEST:

WELL TEST:

WELL EQUIPMENT:

TYPE OF WELL:

USE:

SKETCH LOCATION OF WELL

GEOPHYSICAL LOGS:

WELL LOG

From	To	Description
650	655	LIMESTONE BROWN
655	660	" "
660	665	" "
665	670	" "
670	675	" "
675	680	" "
680	685	" "
685	690	" "
690	695	" "
695	700	" "
700	705	" "
705	710	CLAY
710	715	"
715	720	"
720	725	"
725	730	"
730	735	"
735	740	"
740	745	"
745	750	"
750	755	"

Total Depth

Water Well Contractor's Signature

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

WELL COMPLETION REPORT

OWNER: CITY OF CAPE CORAL

TYPE OF WORK: [X] New Construction

PERMIT NUMBER: WW #10
WW-36-53279
L.H. 11 1'

WELL NUMBER:

TYPE OF WELL:

USE:

WELL LOCATION:

OWNER WELL NUMBER OR NAME:

DRILL METHOD: [X] Rotary

SURFACE CASING, CASING, AND LINER MATERIAL

Steel Dia. (in.) Black	Galv.	S. Steel	Steel Wt.	Dia. (in.) PVC	Other	From (Ft.)	To (Ft.)	Schedule No.	Joints
20"						+3	30		/
				12"		+3	350	40	,8

Describe Material: W B.

GROUT: [X] Neat Cement

Type and Percent of Additives and Grout Volume or Number of 94 lb. Sacks

	From (Ft.)	To (Ft.)
19.5 WITH 3% BENTONITE	+3	350'

FINISH:

QUALITY TEST

Chloride 11000

WELL TEST

WELL EQUIPMENT

SKETCH LOCATION OF WELL

496' to intersection of Aqualinda Blvd. 38th Terrace

Well #10

496' to intersection of Aqualinda Blvd & Sarona Pkwy.

AQUALINDA. BLVD.

GEOPHYSICAL LOGS

WELL LOG

Bore Hole Size (in.)	Casing Size (in.)	Depth From (Ft.)	Depth To (Ft.)	Description
28		0	5	SAND SHELL SURFACE ROCK
		5	10	SAND SHELL
		10	15	SAND SHELL GRAY ROCK
		15	20	SAND SHELL GRAY ROCK M
		20	25	SHELL MUD
		25	30	MUD THICK
19.5		30	35	MUD THICK
		35	40	GREEN CLAY
		40	45	WHITE ROCK CLAY
		45	50	WHITE ROCK SHELL
		50	55	GREEN CLAY
		55	60	GREEN CLAY
		60	65	GREEN CLAY
		65	70	GREEN CLAY SHELL
		70	75	GREEN CLAY
		75	80	GREEN CLAY
		80	85	GREEN CLAY
		85	90	GREEN CLAY
		90	95	GREEN CLAY ROCK PHOSPHA
		95	100	GREEN CLAY ROCK PHOSPHAT
		100	105	SHELL BROWN ROCK PHOSPH
		105	110	LIMESTONE
		110	115	LIMESTONE SHELL
		115	120	LIMESTONE SHELL
		120	125	LIMESTONE SHELL
		125	130	LIMESTONE SHELL.

Total Depth 750 Ft.

Top of Producing Zone 350 Ft. Bottom of Producing Zone 750 Ft.

1508 Harvey Youngquist Pres.
License No. Water Well Contractor's Signature Position

5 26 73 Jim Cady
Completion Date Owner Signature

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL REGULATION

WELL COMPLETION REPORT

OWNER:

WELL LOCATION:

OWNER WELL NUMBER OR NAME:

DRILL METHOD:

SURFACE CASING, CASING, AND LINER MATERIAL

GROUT:

QUALITY TEST:

WELL TEST:

WELL EQUIPMENT:

TYPE OF WORK:

PERMIT NUMBER

WELL NUMBER

TYPE OF WELL:

USE:

SKETCH LOCATION OF WELL

GEOPHYSICAL LOGS: Type

WELL LOG

Samp Hole No.	Casing Size No.	Depth From	Depth To	Describe cuttings at 20 ft. or smaller intervals and changes. Give color, grainsize and type of material.
		130	135	LIME STONE
		135	140	" "
		140	145	" "
		145	150	" "
		150	155	" "
		155	160	" "
		160	165	" "
		165	170	LIMESTONE CLAY
		170	175	" "
		175	180	" "
		180	185	GREEN CLAY
		185	190	" "
		190	195	" "
		195	200	" "
		200	205	LIME STONE
		205	210	" "
		210	215	LIME STONE CLAY
		215	220	" "
		220	225	" "
		225	230	" "
		230	235	" "
		235	240	" "
		240	245	" "
		245	250	" "
		250	255	" "
		255	260	LIME STONE

Water Well Contractor's Signature

Driller Signature

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION
WELL COMPLETION REPORT

OWNER:

Last Name | First Name | Initial

Number | Street

City | State

Area Code | Phone Number | Zip Code

WELL LOCATION:

¼ | ¼ | ¼ of Section | Township | N-S | Range | E-W

Latitude: Deg. | Min. | Sec. | N

Longitude: Deg. | Min. | Sec. | W

Number | Street/Road

Lot No. | Subdivision

City | County

OWNER WELL NUMBER OR NAME:

DRILL METHOD: [ ] Rotary [ ] Cable Tool [ ] Jet [ ] Auger

Other:

SURFACE CASING, CASING, AND LINER MATERIAL:

Size Dia. (In.)		Size (In. Wt./Ft.)	Dia. (In.)		From (Ft.)	To (Ft.)	Schedule No.	Quantity
	Galv.		PVC	Other?				

Screen Material:

C = Threaded and Coupled, TCW = Threaded, Coupled, and Welded, W = Welded, S = Slotted (PVC), O = Other

GROUT: [ ] None [ ] Neat Cement [ ] Other:

Amount and Percent or Additives and Grout Volume or Number of Sacks

	From (Ft.)	To (Ft.)

SCREEN: [ ] Open Hole [ ] Perforated or Slotted Casing [ ] Gravel Pack

Manufacturer or Screen Assembled by Well Casing [ ] Manufacturer or Screen

Assembled with Portion Inside Casing (Portion Measured)

Screen/Screen Material	Dia. (In.)	Slot Size (In.)	From (Ft.)	To (Ft.)

Other Fittings:

QUALITY TEST: [ ] None [ ] Bailed ____ [ ] Chemical ____

Date | Date

[ ] Health Dept. [ ] USGS [ ] Other

Odor [ ] Colored [ ] Sulphur [ ] Salty [ ] Iron [ ] Other

Chlorides | Chlorides

Other | ppm or appropriate abbreviation | pH | Temp. | °F/°C

Disinfected: [ ] No [ ] Yes ____ (Detail)

WELL TEST, By: [ ] Natural Flow ____ G.P.M. [ ] Bailed

Bailer [ ] Permanent Pump [ ] Test Pump [ ] Hours

Pumping Measured By: [ ] Bailer [ ] Elevated [ ] Common Meter

Orifice [ ] Trapezoid [ ] Venturi [ ] Volumetric [ ] Other

Static Water Level ____ ft. ____ - ____ Ft.

Pumping Water Level ____ - ____ - ____ Ft.

For ____ Hours At ____ G.P.M.

Specific Capacity ____ G.P.M./Ft. of Drawdown

Aquifer Ft. (Elevation):

Tested ____ Ft. [ ] Above [ ] Below Land Surface

Elevation of Supplying Ft. = ____ Ft. [ ] Above [ ] Below MSL

WELL EQUIPMENT: [ ] Open [ ] Cased [ ] Screened

Permanent Pump [ ] Temporary Pump

Pump: [ ] Centrifugal [ ] Cylinder [ ] Jet [ ] Submersible

Turbine [ ] Other:

Driver [ ] Diesel [ ] Electric [ ] Gasoline [ ] Other:

Manufacturer ____ Capacity ____ G.P.M.

Manufacturer Model ____ Ft.

FORM 17-1.122 (3)

TYPE OF WELL:
[ ] New Construction [ ] Repair
[ ] Deepening [ ] Plugging
[ ] Other

PERMIT NUMBER:

WELL NUMBER

TYPE OF WELL: [ ] Water Well [ ] Test Well [ ] Recharge [ ] Drainage
[ ] Waste Disposal [ ] Observation [ ] Other

USE: [ ] Domestic [ ] Irrigation [ ] Industrial [ ] Landscape [ ] Public Supply
[ ] Other

SKETCH LOCATION OF WELL in relation to road landmarks, giving distance and direction from nearest named town, road, or other reference point.

North ↑

GEOPHYSICAL LOGS: Type: By:

Date Drilling Started	Casing Size (In.)	Depth (Ft.) From	Depth (Ft.) To	WELL LOG Formation colors in Ft. or smaller intervals and thickness. Give water production and type of material from any aquifer, indicate producing zones. Add additional sheets if necessary.
		260	265	LIME STONE
		265	270	" "
		270	275	" "
		275	280	MUDDY LIMESTONE
		280	285	" "
		285	290	" "
		290	295	" "
		295	300	STICKY CLAY
		300	305	" "
		305	310	" "
		310	315	" "
		315	320	" "
		320	325	" "
		325	330	" "
		330	335	LIME STONE
		335	340	" "
		340	345	" "
		345	350	" "
//		350	355	LIME STONE
		355	360	" "
		360	365	LIME STONE CLAY
		365	370	" "
		370	375	" "
		375	380	" "
		380	385	" "
		385	390	" "

Total Depth ____ Ft. Producing Zone Material: [ ] Sand [ ] Shell
[ ] Broken Shell [ ] Limestone [ ] Other

Top of Producing Zone ____ Ft., Bottom of Producing Zone ____ Ft.
[ ] Drill Cuttings Sent to Bureau of Geology

License No.

Completion Date

Water Well Contractor's Signature | Position

Driller Signature

STATE OF FLORIDA

DEPARTMENT OF ENVIRONMENTAL REGULATION

WELL COMPLETION REPORT

OWNER:

WELL LOCATION:

DRILL METHOD:

SURFACE CASING, CASING, AND LINER MATERIAL:

PUMP TEST:

EQUIPMENT:

GEOPHYSICAL LOGS:

WELL LOG

From	To	
390	395	LIME STONE - CLAY
395	400	" "
400	405	" "
405	410	" "
410	415	" "
415	420	" "
420	425	" "
425	430	" "
430	435	" "
435	440	" "
440	445	" "
445	450	LIME STONE - SOME CLA
450	455	" "
455	460	" "
460	465	" " SOFT
465	470	" "
470	475	" "
475	480	" "
480	485	" "
485	490	LIME STONE SOFT
490	495	GRAY LIME STONE
495	500	LIME STONE
500	505	LIME STONE CLAY
505	510	CLAY WHITE + GREY
510	515	LIME STONE
515	520	" "

Water Well Contractor's Signature

Owner Signature

DEPARTMENT OF ENVIRONMENTAL REGULATION

WELL COMPLETION REPORT

OWNER:

WELL LOCATION:

DRILL METHOD: [ ] Rotary [ ] Cable Tool [ ] Jet [ ] Auger

SURFACE CASING, CASING, AND LINER MATERIAL:

SCREEN: [ ] Open Hole [ ] Perforated or Slotted Casing [ ] Gravel Pack

QUALITY TEST: [ ] Name [ ] Address

WELL TEST, by: [ ] Natural Flow [ ] Bailer

WELL EQUIPMENT: [ ] Open [ ] Cased [ ] Valved

TYPE OF WELL: [ ] Water Well [ ] Test Well [ ] Recharge [ ] Drainage

USE: [ ] Domestic [ ] Irrigation [ ] Industrial [ ] Commercial [ ] Public Supply

SKETCH LOCATION OF WELL

GEOPHYSICAL LOGS: Type: By:

WELL LOG

Diameter (In.)	Casing Depth (Ft.)	Depth (Ft.) From	Depth (Ft.) To	Formation Description
		520	525	GRAY CLAY
		525	530	WHITE & CLAY LIMESTONE
		530	535	GREEN CLAY LIMESTONE
		535	540	WHITE & CLAY LIMESTONE
		540	545	TAN LIMESTONE
		545	550	WHITE CLAY LIMESTONE
		550	555	LIMESTONE CLAY
		555	560	" "
		560	565	" "
		565	570	" "
		570	575	TAN LIMESTONE
		575	580	LIMESTONE
		580	585	BROWN LIMESTONE
		585	590	" "
		590	595	" "
		595	600	" "
		600	605	" "
		605	610	WHITE LIMESTONE
		616	615	LIMESTONE BROWN
		615	620	" "
		620	625	" "
		625	630	" "
		630	635	" "
		635	640	" "
		640	645	" "
		645	650	" "

Water Well Contractor's Signature

Driller Signature

FORM 17-1.123 (3

DEPARTMENT OF ENVIRONMENTAL REGULATION

WELL COMPLETION REPORT

OWNER:

WELL LOCATION

WELL NUMBER OR NAME:

DRILL METHOD: [ ] Rotary [ ] Cable Tool [ ] Jet [ ] Auger

SURFACE CASING, CASING, AND LINER MATERIAL:

TYPE OF WELL: [ ] Water Well [ ] Test Well [ ] Recharge [ ] Drainage

USE: [ ] Domestic [ ] Irrigation [ ] Industrial [ ] Livestock [ ] Public Supply

SKETCH LOCATION OF WELL

GEOPHYSICAL LOGS: Yes By:

WELL LOG

Date Made (mo.)	Casing Size (in.)	Depth (Ft.) From	Depth (Ft.) To	
		650	655	LIMESTONE BROWN
		655	660	" "
		660	665	" "
		665	670	" "
		670	675	" "
		675	680	" "
		680	685	" "
		685	690	" "
		690	695	" "
		695	700	" "
		700	705	" "
		705	710	CLAY
		710	715	"
		715	720	"
		720	725	" "
		725	730	"
		730	735	"
		735	740	"
		740	745	"
		745	750	"
		750	755	"

WELL TEST, by: [ ] Natural Flow [ ] G.P.M. [ ] Bailer [ ] Permanent Pump [ ] Test Pump [ ] Other

WELL EQUIPMENT: [ ] Open [ ] Cased [ ] Screened [ ] Temporary Pump [ ] Centrifugal [ ] Cylinder [ ] Jet [ ] Submersible [ ] Other

WELL HANDLER

Water Well Contractor's Signature

Driller Signature

FORM 17-1.122 (3/88)

APPENDIX II

SUMMARY OF TEST DATA FOR THE LOWER HAWTHORN AQUIFER AT CAPE CORAL

SUMMARY OF TEST DATA FOR THE LOWER HAWTHORN AQUIFER AT CAPE CORAL

1. Map showing the number and location of wells at or near the Cape Coral RO Plant.

2. Table 1 - Description of wells at or near the Cape Coral RO Plant.

3. Table 2 - Miscellaneous water level measurements from wells February 11 to April 8, 1983.

4. Table 3 - Rainfall at the Cape Coral RO Plant for February, March, April 1983.

5. Test 3 - Field data for drawdown in wells RO-7, 8, 9, 9A, and 9B for period March 28 to April 7, 1983.

6. Test 3 - Semi log plots of unadjusted field data for wells RO-7, 8, 9, 9A, and 9B (March 28 to April 7, 1983).

7. Test 3 - Field data for recovery in wells RO-7, 8, 9, 9A, and 9B for April 7-8, 1983.

8. Test 3 - Semi log plots of unadjusted field data for wells RO-7, 8, 9, 9A, and 9B (April 7-8, 1983).

9. Test 1 - Field data for drawdown in wells RO-7, 8, 9, 9A, and 9B on March 4, 1983.

10. Test 2 - Field data for drawdown in wells RO-7, 8, 9, 9A, and 9B on March 11, 1983.

11. Automatic recorder charts

    A. Stevens Type F charts for wells 9B (February 17 to April 8, 1983), RO-7 (February 18 to April 8, 1983), and L-2644 (February 10 to April 8, 1983).

    B. Stevens Type A 35 continuous charts for wells L-581 (March 17 to April 8, 1983) and L-2434 (March 18 to April 8, 1983).

    C. Foxboro pressure recorder charts for well 9A (February 8 to April 8, 1983).

12. Barometer records

    A. Page Field - FAA/FSS (February 9 to April 9, 1983).

    B. Federal Building Fort Myers - NOAA (February 7 to April 8, 1983).

Durward H. Boggess, Hydrologist
4312 South Pacific Circle
North Fort Myers, Florida 33903

April 13, 1983

Mr. Vernon E. Lynch, P.E.
Howard Needles Tammen & Bergendoff
1105 Cape Coral Parkway
Cape Coral, Florida 33904

Dear Vernon,

Forwarded are the records and other information collected during the tests conducted on the lower Hawthorn aquifer in the vicinity of the Cape Coral RO Plant. A summary of the information is also included.

Three aquifer tests were begun in March 1983. The first two tests on March 4 and March 11, were discontinued after several hours because the pumping rate could not be maintained. The information on these tests, although of limited value is included. The third test using a lower pumping rate, began on March 28 and was continued until April 7. The test was successfully completed on April 8 with the collection of recovery data.

There were numerous problems prior to and during the tests, the most serious of which were related to the highly unusual weather patterns which resulted in about 19.5 inches of rain and strong gusty winds. This caused several delays in starting the test and posed a threat during the entire test period.

I greatly appreciate the support, assistance, and cooperation of all those who participated in the test.

Sincerely,

Durward

Durward H. Boggess

Enclosures

cc: Donald Kuyk

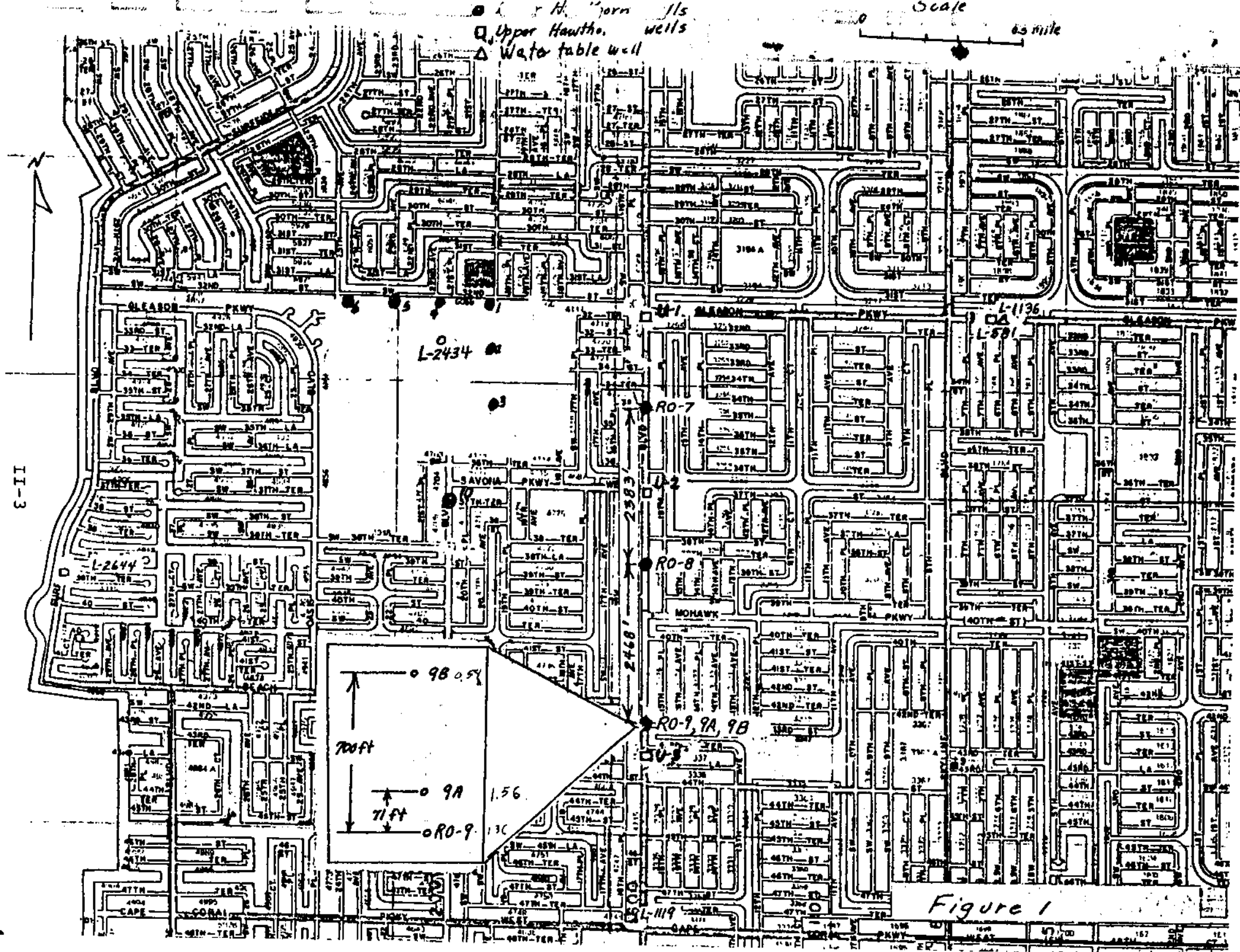

Upper Hawtho. wells
Water table well
Scale
0
0.5 mile
N
L-2434
L-2644
L-1136
L-581
L-1119
RO-7
RO-8
RO-9, 9A, 9B
2383'
2468'
700 ft
9B 0.5
9A 1.5
71 ft
RO-9 1.3
GLEASON PKWY
SAVONA PKWY
MOHAWK PKWY
BEACH
CAPE CORAL PKWY
II-3

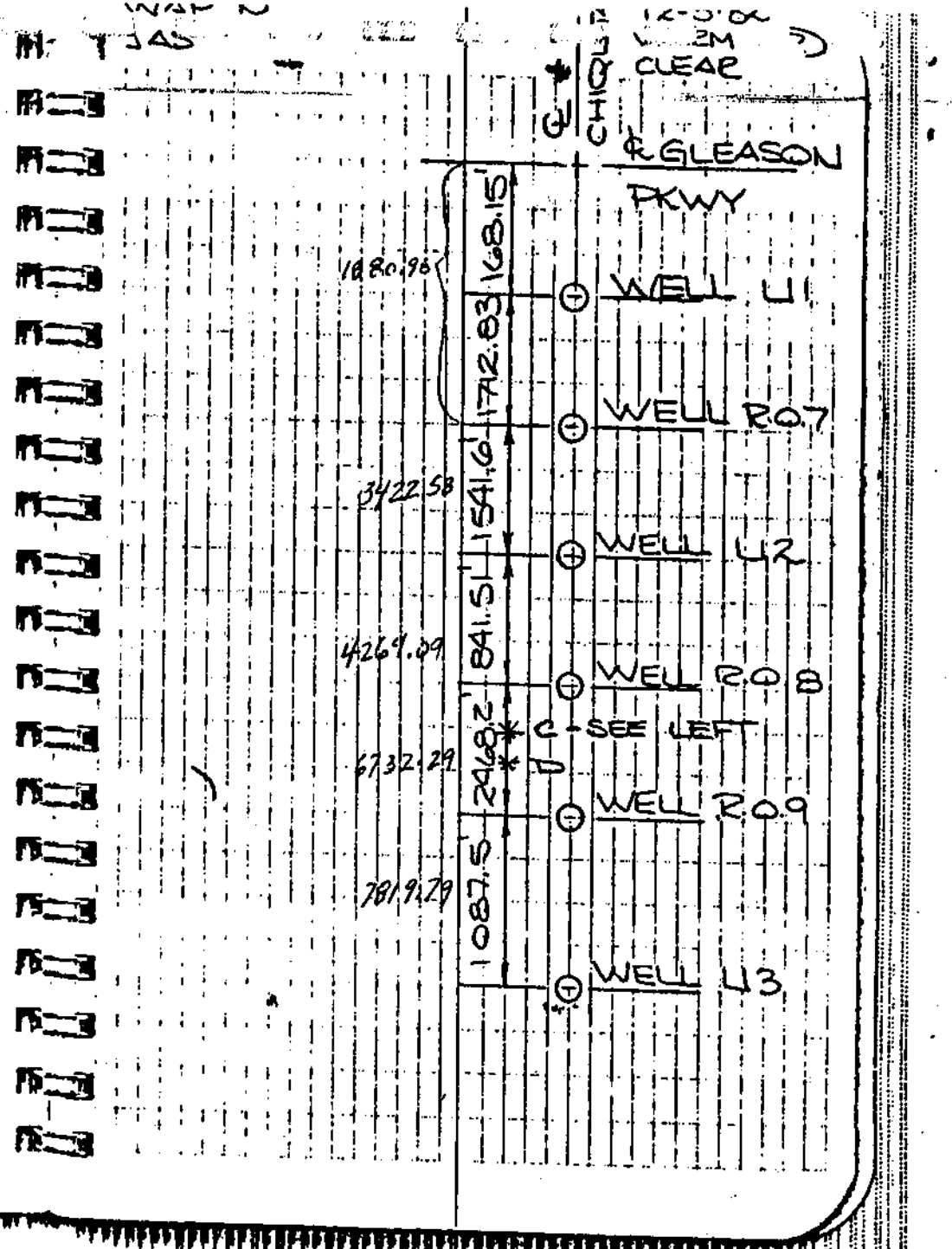
Figure 1

A) CHAINED ℄ GLEASON & CHIQUITA TO ℄ WELL U1 (NAIL & CAP IN PAVEMENT)

B) CHAINED ℄ OF WELL TO ℄ WELL 1

C) MONITOR WELL - 700.2' NORTH OF R.O.9

D) MONITOR WELL - 71.2' NORTH OF R.O.9



DESCRIPTION OF WELLS FOR WHICH SPECIAL DISPLAY

Well number		Depth (ft)	Aquifer	Casing		Alt. of land sur. (NGVD)	Alt. of MP above land sur.	Sp. Cap. (gpm/ft)	Use of Well					
City	USGS			Depth(ft)	Diam(in)									
RO-1	L-2113	900	LH-Su	362	10	7	2.3	86	Prod.					
RO-2	L-2249	745	LH	362	12	6	1.8	50	"					
RO-3	L-2250	685	LH	347	12	6		102	"					
RO-4	L-2251	705	LH	345	12	6	2.4	34	"					
RO-5	L-2272	700	LH	350	12	6		28	"					
RO-6	L-2273	765	LH	345	12	6		17	"					
RO-7			Reported same as			RO-9	2.3		"					
RO-8			"	"	"	"	2.5		"					
RO-9		748	LH	350	12	8	2.4		"					
9A		737	LH	347	4	8	2.5		Obs.					
9B		750	LH	350	4	8	1.9		Obs.					
RO-10		755	LH	350	12	8			Prod.					
	L-2454	700	LH	353	4	7.03	3.1		Obs.					
U-1		270	UH	106	8	8	2.1		Prod.					
U-2		265	UH	107	8 "	8	2.3		Prod.					
U-3			Reported same as			U-1	2.2							
	L-581	174	UH		8	9.92	3.0		Obs.					
	L-1119	224	UH	42	2		2.1		Obs.					
	L-2644	178	UH	128	4	7.51	3.2		Obs.					
	L-1136	13	WT		4	9.71	2.6		Obs.					

LH - Lower Hawthorn Su - Suwannee
UH - Upper Hawthorn WT - Water table

OSMOSIS PLANT. AQUIFERS: WT-Wate[illegible]able; LH-Lower Hawthorn; UH-Upper Hawthorn. All measurements in fe[illegible] referred to land surface datum.

Well No.	Aquifer	1983 2-11	2-15	2-18	2-22	2-25	3-1	3-3	3-4	3-6	3-8	3-9	3-10	3-11	3-15	3-18	3-21	3-22
L-1136	WT	4.94	4.23	4.29	4.70	4.94	4.14		4.57		3.81			4.33		4.39		4.81
U-1	UH	19.60	18.94	17.77	15.85	15.15	14.32		13.83		13.14			13.41		13.22		13.72
U-2	UH	18.60	16.49	15.44	14.20	13.68	12.82		12.35		11.93			11.80		11.47		11.60
U-3	UH	13.51	12.57	11.99	11.14	10.69	9.99		9.65		9.21			9.00		8.44		8.44
L-501	UH	27.89	25.87	24.22	22.62	21.98	20.78		20.16		19.73			21.73		21.15		21.80
L-1119	UH	13.61	12.05	11.99	11.15	10.79	10.02		9.72		9.48			9.15		8.42		8.49
L-2644	UH	2.14	1.94	1.72	1.34	1.05	0.56		0.56		0.08			+.02	+.30	+.43		+.29
RO-7	LH	+13.65	+9.08	+14.45	+14.75	+14.89	+15.03	+14.84	+14.86	+15.04	+14.58	+14.16	+13.83	+14.27	+14.06		+17.58	+17.49
RO-8	LH	+14.64	+14.65	+15.34	+15.62	+15.76	+16.18	+15.69	+15.74	+15.96	+15.60	+15.20	+14.92	+15.20		+16.92		+18.27
RO-9	LH	+11.36	+13.17	+13.84	+14.04	+14.16	+14.22	+14.08	+14.14	+14.43	+13.70	+13.24	+12.96	+13.53		-17.48	+16.79	+17.15
9A	LH	+12.76	+13.21	+13.89	+14.10	+14.17	+14.30		+14.38	+14.51	+13.76			+12.60	+13.52	-1.11		+16.78
9B	LH	+11.84	+12.53	+13.29	+13.45	+13.55	+13.63	+13.27	+13.59	+13.89	+13.16	+12.69	+12.38	+12.98	+12.98	+11.80	+16.67	+16.49
L-2484	LH	-10.22	-4.61	-3.61	-3.66	-3.39	-3.72		-3.80	-4.92			-10.37	-7.90	-5.01	+.84	+1.96	+1.81

II-6

Well No.	3-23	3-24	3-27	3-28	3-29	3-30	3-31	4-1	1983 4-2	4-3	4-4	4-5	4-6	4-7	4-8
L-1136			4.56		4.49		4.56					4.99		5.26	5.12
U-1			13.95		14.12	14.19	14.16	14.38	14.59	14.99	15.49	15.95	16.30	16.63	16.76
U-2			11.55	11.31	11.64	11.73	11.71	11.99	12.14	12.30	12.62	12.87	13.13	13.56	13.80
U-3			8.08	7.98	8.11	8.16	8.11	8.29	8.29	8.37	8.57	8.73	9.09	9.34	9.43
L-581			22.29		23.01		23.56					27.13		27.08	
L-1119			8.13		8.18	8.22	8.20	8.33	8.33	8.44	8.67	8.95	9.29	9.76	9.93
L-2644			+.43		+.40		+.55			+.47		+.40		+.30	+.28
RO-7	+17.61	+18.05	+17.88												
RO-8	+18.37	+18.88	+18.62												
RO-9	+16.87	+17.18	+16.96												
9A	+16.92		+17.06												
9B	+16.56	+17.02	+16.68												
L-2434		+2.38			+1.15		+.22					-.52		-.46	

See aquifer test data

II-7

Table 3.- RAINFALL RECORDS FROM THE CAPE CORAL REVERSE OSMOSIS PLANT

	1983											
	Feb.	Mar.	Apr.									
1		.03										
2	2.1		.05									
3												
4												
5												
6	1.25											
7	.4	1.07										
8		.79										
9			.03									
10	.5	.26	1.25									
11		.10	.30									
12	.82											
13	2.06											
14												
15		.23										
16	.8	.32										
17	.19	1.33										
18												
19	.8											
20												
21		.22										
22												
23												
24		2.00										
25												
26												
27	2.17	1.10										
28	1.04	.05										
29												
30												
31												
Total	12.07	7.43										

AQUIFER TEST

Drawdown

Pumped Well

Well No. RO-9

Date 3-28-83 Location Cape Coral

Meas. Point 2.47 ft above ls Top plate of well

Clock Time	Elapsed Time(Min.)	Water level referred to MP	Water Level	Drawdown in Feet	Pumping Rate Meter reading
0829	0	+14.64	+14.64	0	02129830 0
0900 0901	Start 1.0	10 − 1.76	− 8.24	22.88	
	2.5	10 + .08	9.92	24.56	760 gpm
	3.0	10.45	10.45	25.09	
	4.0	11.01	11.01	25.65	
	5.0	11.38	11.38	26.02	
	6.0	11.70	11.70	26.34	
	7.25	12.29	12.29	26.93	
	8	12.53	12.53	27.17	
	9	12.79	12.79	27.43	
	10	12.94	12.94	27.58	
	12	13.32	13.32	27.96	
	14	13.66	13.66	28.30	
	16	14.04	14.04	28.68	
	18	14.37	14.37	29.01	
	20	14.59	14.59	29.23	
	22	14.84	14.84	29.48	
	24	15.02	15.02	29.66	
	26	15.23	15.23	29.87	
	28	15.41	15.41	30.05	
	30	15.54	15.54	30.18	
	33	16.01	16.01	30.65	
	36	16.27	16.27	30.91	
0940	40	16.52	16.52	31.16	

AQUIFER TEST

Pumped Well

Well No. RO-9

Date 3-28-83 Location Cape Coral Meas. Point _____

Clock Time	Elapsed Time(Min.)		Water Level	Drawdown in Feet	Pumping Rate
0945	45	16.88		31.52	
	50	17.14		31.78	
	55	17.39		32.03	
1000	60	17.62		32.26	21344500
	65	17.86		32.50	
	70	18.01		32.65	
	80	18.33		32.97	38½ - 765 gpm
	90	18.71		33.35	
	100	19.03		33.67	
	120	19.47		34.11	
	140	19.85		34.49	213922 (124 min.)
	160	20.12		34.76	38½" = 765 gpm
1200	180	20.39		35.03	21434 38½" = 765 gpm
1220	200	20.60		35.24	38½" = 765 gpm
1250	230	20.84		35.48	21472 38½" = 765 gpm
1320	260	21.07		35.71	21495 38½" = 765 gpm
1350	290	21.44		36.08	21517 38½ = 765 gpm
1420	320	21.60		36.24	21540 38½" = 765 gpm
1450	350	21.76		36.40	21562 38½" = 765 gpm
1530	390	21.73		36.57	21592 38½" = 765 gpm
1610	430	22.06		36.70	21623 38½" = 765 gpm
1650	470	22.44		37.08	21653 38½" = 765 gpm
1740	520	22.62		37.26	21690 38½" = 765 gpm
1841	581	22.82		37.46	

AQUIFER TEST

Pumped Well

Well No. RO-9

Date 3-28-83 to 4-1-83 Location Cape Coral Meas. Point

Clock Time	Elapsed Time(Min.)		Water Level	Drawdown in Feet Static 14.64	Pumping Rate 212 98300 Start
1940	640		22.96	37.60	
2000	660				21795900 Meter 719gpm
2040	700		23.15	37.79	
2140	760		23.29	37.93	
2240	820		23.44	38.08	38½" (765 gpm)
2340	900		23.60	38.24	
3-27-83 0140	1000		23.72	38.36	38½" = 765gpm
0320	1100		23.87	38.43	38½" = 765gpm
0500	1200		23.93	38.63	38½" = 765gpm
0640	1300		24.09	38.73	38½" = 765gpm
0800	1380				Meter 022337700
0820	1400		24.18	38.82	
1000	1500		24.33	38.97	02242836 (753gpm)
1320	1700		24.54	39.18	02257820 (753gpm)
1640	1900		24.62	39.26	38½" - 765gpm
2000	2100		24.74	39.38	
3-30 0205	2465		24.97	39.61	
0600	2700		25.01	39.65	
1100	3000		25.11	39.75	23544100
1740	3400		25.15	39.79	23840700 (748gpm)
2020	3800		25.34	39.98	24139800
3-31 0840	4300		25.35	39.99	24512200
1700	4800		25.55	40.19	24882000
4-1 0300	5400		25.72	40.36	25325600

RO-9 Test 3 3

AQUIFER TEST

Pumped Well

Well No. RO-9

Date 4-1-83 to 4-7-83 Location Cape Coral Meas. Point

Clock Time	Elapsed Time(Min.)		Water Level	Drawdown in Feet Static +14.64	Pumping Rate
1300	6000		-25.84	40.48	25770360
2300	6600		25.94	40.58	26219000
0900	7200		25.95	40.59	26,667,700
2100	7920		26.08	40.72	27,200,800
0830	8610		26.25	40.89	27,716,700
2100	9360		26.29	40.93	28,276,800
0900	10,080		26.41	41.05	28,814,700
2100	10,800		26.51	41.15	29,348,200
0900	11,520		26.53	41.17	29,879,300
2100	12,240		27.07	41.71	Adjust Q 30,419,400
0900	12,960		27.04	41.68	30,961,100
2100	13,680		27.10	41.74	31,501,600
0750	14,330		27.16	41.80	
0900	14,400		27.12	41.76	
0905	14,405				32,045,900

32,045,900 − 21,298,300 / 14405 = 746

746gpm Avg. Rate for Test Period

AQUIFER TEST

Pumped Well

Well No. RO-9

Date 4-1-83 to 4-7-83 Location Cape Coral Meas. Point

Clock Time	Elapsed Time(Min.)		Water Level	Drawdown in Feet Static +14.64	Pumping Rate
1300	6000		-25.04	40.48	25770300
2300	6600		25.94	40.58	26,219,000
0900	7200		25.95	40.59	26,667,700
2100	7920		26.08	40.72	27,200,800
0830	8610		26.25	40.89	27,716,700
2100	9360		26.29	40.93	28,276,800
0910	10,080		26.41	41.05	28,814,700
2100	10,800		26.51	41.15	29,348,200
0900	11,520		26.53	41.17	29,879,300
2100	12,240		27.07	41.71	Adjust Q 30,419,400
0900	12,960		27.04	41.68	30,961,100
2100	13,680		27.10	41.74	31,501,600
0750	14,330		27.16	41.80	
0900	14,400		27.12	41.76	
0905	14,405				32,045,900
		32,045,900 − 21,298,300 / 14405 = 746gpm			
	746gpm	Avg. Rate for Test Period			

RO-9 Test 3 4

Water meter on well #1

Date	Time	Meter Reading	Difference	Time (min.) elapsed		Pumping rate (gpm)
3-28-83	0900	21,298,300	0	0		
	1000	21,344,500	46,200	60	60	770
	1200	21,434,000	89,500	180	120	746
	1450	21,562,000	128,000	350	170	753
"	1740	21,690,000	128,000	520	170	756
3-29	0800	22,337,700	541,800	1380	720	752
	1000	22,428,300	90,600	1500	120	755
	1320	22,578,200	149,900	1700	200	750
3-30	1100	23,544,100	965,900	3000	1300	743
"	1740	23,840 700	296,600	3440	400	742
3-31	0020	24,139,800	299,100	3800	400	748
	0840	24,512,200	372,400	4300	500	745
	1700	24,882,000	369,800	4800	500	740
4-1	0300	25,325,600	443,600	5400	600	739
	1300	25,770,300	444,700	6000	600	741
	2300	26,219,000	448,700	6600	600	748
4-2	0900	26,667,700	448,700	7200	600	748
	2100	27,200,800	533,100	7920	720	740
4-3	0830	27,716,700	515,900	8610	690	748
	2100	28,276,800	560,100	9360	750	747
4-4	0900	28,814,700	537,900	10,080	720	747
"	2100	29,348,200	533,500	10,800	720	741
4-5	0900	29,879,300	531,100	11,520	720	738
	2100	30,419,400	540,100	12,240	720	750
4-6	0900	30,961,100	541,700	12,960	720	752
	2100	31,501,600	540,500	13,680	720	751
4-7	0905	32,045,900	544,300	14,405	725	751

Total 10,746,600 gal Average pumping rate = 746 gpm

AQUIFER TEST

Recovery

Well No. RO-9

Date 4-7-83 Location Cape Coral Meas. Point 2.4ft above lsd Top plate of well.

Clock Time	Elapsed Time(Min.)		Water Level	Recovery ~~Drawdown~~ in Feet PWL -27.12	Pumping Rate
0750			-27.16		
0900	0		-27.12		
0905 c909	4		+ 1.04	28.16	Pump off
0910	5		1.51	28.63	
	6		1.91	29.03	
	7		2.28	29.40	
	8		2.58	29.70	
	9		2.86	29.98	
0915	10		3.10	30.22	
	12		3.54	30.66	
	14		3.89	31.01	
	16		4.21	31.33	
	18		4.51	31.63	
0925	20		4.77	31.89	
	22		4.99	32.11	
	24		5.21	32.33	
	26		5.41	32.53	
	28		5.60	32.72	
0935	30		5.78	32.90	
	33		6.02	33.14	
	36		6.24	33.36	
0945	40		6.53	33.65	
	45		6.82	33.94	
	50		7.10	34.12	

RO-9 Test 3 Rec 1

AQUIFER TEST

Well No. RO-9

Date 4-7-83 Location Cape Coral Meas. Point _____

Clock Time	Elapsed Time(Min.)		Water Level	Recovery ~~Drawdown~~ in Feet RWL - 27.12	Pumping Rate
55	55		+7.33	34.45	
60	60		7.56	34.68	
65	65		7.77	34.89	
	70		7.96	35.08	
	80		8.27	35.39	
1035	90		8.55	35.67	
	100		8.81	35.93	
1105	120		9.22	36.34	
	140		9.56	36.68	
	160		9.84	36.96	
1205	180		10.08	37.20	
1225	200		10.28	37.40	
1245	220		10.46	37.58	
1305	240		10.79	37.91	
1355	290		10.99	38.11	
1425	320		11.16	38.28	
1455	350		11.31	38.43	
1535	390		11.48	38.60	
1615	430		11.63	38.75	
1655	470		11.76	38.88	
1745	520		11.89	39.01	
1845	580		12.04	39.16	
1945	640		12.12	39.24	
2045	700		12.22	39.34	

RO-9 Test 3 Rec 2

AQUIFER TEST

Well No. RO-9

Date 04-07-93 Location CAVE CREEK Meas. Point

Clock Time	Elapsed Time(Min.)	Tape Reading Held - Wet	Water Level	~~Drawdown~~ Recovery in Feet PWL -27.12	Pumping Rate
2145	760		12.33	39.45	
2245	820		12.42	39.54	
(04-08-93) 0005	900		12.54	39.66	
0115	1000		12.70	39.82	
0325	1100		12.83	39.95	
0505	1200		12.92	40.04	
0645	1300		12.99	40.11	
0825	1400		13.09	40.21	
0905	1440		13.13	40.25	

RO-9 Test 3 Rec 3

AQUIFER TEST

Drawdown

Well No. 9A

Date 3-28-83 (GFR) Location Cape Coral Meas. Point 2.5 ft above ls Top of cap

Clock Time	Elapsed Time(Min.)	Water level referred to MP	Water Level	Drawdown in Feet Static WL +14.64	Pumping Rate
0828	0	+14.64		0	
	.25	+ 11.15 (Above MP)		3.49	
	.50	+ 10.42		4.22	
	.75	+ 9.85		4.79	
	1.0	+ 9.58		5.06	
	1.5	+ 8.73		5.96	
	2	+ 8.28		6.36	
	2.5	+ 7.87		6.77	
	3	+ 7.52		7.12	
	3.5	+ 7.23		7.41	
	4	+ 6.94		7.70	
	4.5	+ 6.75		7.89	
	5	+ 6.55		8.09	
	6	+ 6.20		8.44	
	7	+ 5.82		8.82	
	8	+ 5.58		9.06	
	9	+ 5.33		9.31	
	10	+ 5.12		9.52	
	12	+ 4.75		9.89	
	14	+ 4.43		10.21	
	16	+ 4.13		10.51	
	18	+ 3.93		10.71	
	20	+ 3.59		11.05	
		+ 3.38		11.26	

AQUIFER TEST

Well No. 9A

Date 03-28-93 (GFL) Location CHICOSITA PKWY S/E CORR'L Meas. Point _____

Clock Time	Elapsed Time(Min.)		Water Level	Drawdown in Feet Static +14.64	Pumping Rate
	—	+3.18'		11.46	
	20	+2.99		11.65	
	25	+2.83'		11.81	
	30	+2.67'		11.97	
	35	+2.42'		12.22	
	30	+2.18'		12.46	
	40	+1.93'		12.71	
	45	+1.63'		13.01	
	50	+1.38		13.26	
	55	+1.13		13.51	
1000	60	+0.93		13.71	
1005	65	+0.72		13.92	
1010	70	+0.55		14.09	
1020	80	+0.33		14.31	
1030	90	-0.06 BELOW MP	-0.06	14.53	
1040	100	1.00 - 0.69	-0.31	14.89	
1050	110	1.00 - 0.27	-0.73	15.47	
1120	150	2.00 - 0.93	-1.07	15.71	
1121	151	2.00 - 0.63 = 1.37	-1.37	16.01	
1126	156	2.00 - 0.40 = 1.60	-1.60	16.34	
1132	162	2.00 - 0.20 = 1.80	-1.80	16.44	
1152	182	3.00 - 0.96 = 2.04	-2.04	16.68	
1156	186	3.00 - 0.76 = 2.24	-2.24	16.88	
1216	246	3.00 - 0.52 = 2.48'	-2.78	17.12	

9A Test 3 2

AQUIFER TEST

Well No. 9A

Date 03-29-83 Location Cape Coral Meas. Point

3-29-83
3-30-83

Clock Time	Elapsed Time(Min.)	3.00 - 0.52 = 2.48	Water Level	Static +14.64 Drawdown in Feet 17.12	Pumping Rate
1421	321	3.00 - 0.36 = 2.64	-2.64	17.28	
1451	351	3.00 - 0.22 = 2.78	-2.78	17.42	
1531	391	3.00 - 0.07 = 2.93	-2.93	17.57	
1611	431	4.00 - 0.92' = 3.08	-3.08	17.72	
1651	471	4.00 - 0.72 = 3.28	-3.28	17.92	
1741	521	4.00 - 0.57 = 3.43	-3.43	18.07	
1844	584	3.61	-3.61	18.25	
1942	642	3.75	-3.75	18.39	
2043	703	3.92	-3.92	18.56	
2142	762	4.06	-4.06	18.70	
2241	821	4.17	-4.17	18.81	
3-29 0002	902	4.32	-4.32	18.96	
0146	1006	5.00 - 0.55 = 4.45	-4.45	19.09	30 2" = 765 gpm
0323	1103	5.00 - 0.44 = 4.56	-4.56	19.20	30 1/2" = 705 gpm
0502	1202	5.00 - 0.36 = 4.64	-4.64	19.23	30 1/2" = 705 gpm
0642	1302	5.00 - 0.24 = 4.76	-4.76	19.40	30 1/2" = 765 gpm
0821	1401	4.86	-4.86	19.50	
1002	1502	4.98	-4.98	19.62	
1322	1702	5.13	-5.13	19.77	
1645	1905	5.18	-5.18	19.82	
2003	2103	5.29	-5.29	19.93	
3-30 0210	2470	5.49	-5.49	20.13	
0603	2703	5.52	-5.52	20.16	
1101	3001	5.64	-5.64	20.28	

9A Test 3 3

AQUIFER TEST

Well No. 9A

Date 3-30-83 to 4-7-83 Location Cape Coral Meas. Point

	Clock Time	Elapsed Time(Min.)		Water Level	Drawdown in Feet Stk +14.64	Pumping Rate
3-30	1743	3403		-5.64	20.28	
	0024	3804		5.79	20.43	
3-31	0842	4302		5.80	20.44	
	1702	4802		5.96	20.60	
4-1	0303	5403		6.14	20.78	
	1303	6003		6.27	20.91	
	2303	6603		6.33	20.97	
4-2	0702	7202		6.37	21.01	
	2103	7923		6.44	21.08	
4-3	0825	8605		6.55	21.19	
	2102	9362		6.63	21.27	
4-4	0902	10,082		6.70	21.34	
	2102	10,802		6.77	21.41	
4-5	0902	11,522		6.81	21.45	
	2102	12,242		7.03	21.67	
4-6	0902	12,962		7.05	21.69	
	2102	13,682		7.09	21.73	
4-7	0755	14,335		7.11	21.75	
	0900	14400		-7.13	21.77	

AQUIFER TEST

Recovery

Well No. 9A

Date 4-7-83 Location Cape Coral Meas. Point 2.5 ft. above l.s. Top of cap

Clock Time	Elapsed Time(Min.)		Water Level	~~Drawdown~~ Recovery in Feet PWL -7.13	Pumping Rate
0755			-7.11		
0900	—	2.00 - 0.87	-7.13		
0905	Pump off				
	24 sec	24	-2.00	5.13	
	1:59	1:59 ABOVE MP	AT TUBE @ TOP = +0.10'	7.23	
	3		+0.99	8.12	
	3 1/2		+1.29	8.42	
	4		+1.51	8.64	
	4 1/2		+1.75	8.88	
	5		+1.97	9.10	
	5 1/2		+2.16	9.29	
	6		+2.36	9.49	
	7		+2.63	9.81	
	8		+3.01	10.14	
	9		+3.25	10.38	
	10		+3.47	10.62	
	12		+3.70	11.03	
	14		+4.26	11.39	
	16		+4.57	11.70	
	18		+4.85	11.98	
	20		+5.09	12.22	
	22		+5.32	12.45	
	24		+5.53	12.66	
	26		+5.72	12.85	

9A Test 3 Rec 1

AQUIFER TEST

Recovery

Well No. 9A

Date 04-07-83 Location Cape Coral Meas. Point

Clock Time	Elapsed Time(Min.)	Above MP	Water Level	Recovery ~~Drawdown~~ in Feet PWL -7.13	Pumping Rate
	20		+5.90	-13.03	
	30		+6.05	13.18	
	33		+6.29	13.42	
	36		+6.50	13.63	
	40		+6.75	13.88	
	45		+7.04	14.17	
	50		+7.31	14.44	
	55		+7.54	14.67	
	60		+7.74	14.87	
	65		+7.94	15.07	
	70		+8.12	15.25	
	80		+8.43	15.56	
	90		+8.69	15.82	
	100		+8.93	16.06	
	120		+9.34	16.47	
	140		+9.67	16.80	
	160		+9.94	17.07	
	180		+10.16	17.29	
	202		+10.39	17.52	
	222		+10.62	17.77	
1307	243		+10.81	18.00	
1354	290		+11.07	18.20	
1426	321		+11.24	18.37	
1457	352		+11.38	18.51	

RECOVERY

Well No. 94

Date 04-07-83 to 4-8-83 Location Cape Coral Meas. Point

Clock Time	Elapsed Time(Min.)	Tape Reading Held - Wet	Water Level	Recovery ~~Drawdown~~ in Feet PWL -7.13	Pumping Rate
1537	392		+11.55	18.68	
1617	432		+11.70	18.83	
1657	472		+11.82	18.95	
1747	522		+11.92	19.05	
1846	581		+12.08	19.21	
1950	695		+12.16	19.29	
2048	703		+12.27	19.40	
2148	763		+12.37	19.50	
2248	823		+12.45	19.58	
2347	902		+12.57	19.70	
0047	1002		+12.73	19.86	
0327	1102		+12.86	19.99	
0507	1202		+12.96	20.09	
0646	1301		+13.02	20.15	
0827	1402		+13.11	20.24	
0909	1444		+13.16	20.29	

9A Test 3 Rec 3

AQUIFER TEST

Drawdown

Well No. 9B

Date 3-28-83 Location Cape Coral

Meas. Point 1.9 ft. above land surface
Former top of cap

Clock Time	Elapsed Time(Min.)	water level referred to MP	Water Level	Drawdown in Feet	Pumping Rate
0800	0	+14.90			
0858	0	+14.88			
	15 sec	+14.87		0.01	
	30 sec	+14.85		0.03	
	45 sec	+14.83		0.05	
	1 min	+14.80		0.08	
	1½	+14.76		0.12	
	2	+14.70		0.18	
	2½	+14.65		0.23	
	3	+14.59		0.29	
	3½	+14.55		0.33	
	4	+14.50		0.38	
	4½	+14.45		0.43	
	5	+14.40		0.48	
	6	+14.32		0.56	
	7	+14.25		0.63	
	8	+14.18		0.70	
	9:07	+14.12		0.76	
	10	+14.07		0.81	
	12	+13.97		0.91	
	14	+13.88		1.00	
	16	+13.80		1.08	
	18	+13.73		1.15	
	20	+13.67		1.21	

9B Test 3 1

AQUIFER TEST

Well No. 9B

Date 3-28-83 Location _____ Meas. Point _____

Clock Time	Elapsed Time(Min.)		Water Level	Drawdown in Feet	Pumping Rate
	22	+13.60		1.38	
	24	+13.54		1.34	
	26	+13.49		1.39	
	28	+13.44		1.44	
	30	+13.39		1.49	
	33	+13.32		1.56	
	36	+13.26		1.62	
	40	+13.18		1.70	
	45	+13.08		1.80	
	50	+13.00		1.88	
	55	+12.93		1.95	
	60	+12.85		3.03	
	65	+12.79		2.09	
	70	+12.72		2.16	
	80	+12.61		2.27	
	90	+12.50		2.38	
	100	+12.41		2.47	
	120	+12.25		2.63	
1124	144	+12.02		2.80	
1143	163	+11.96		2.72	
1202	182	+11.86		3.02	
1222	202	+11.78		3.10	
1243	223	+11.67		3.21	
1322	262	+11.57		3.31	

AQUIFER TEST

Well No. 9B

Date 03-28-83 Location Cape Coral Meas. Point

3-29-83
3-30-83

Clock Time	Elapsed Time(Min.)		Water Level	Static +14.90 Drawdown in Feet	Pumping Rate
1353	273		+ 11.49	3.39	
1423	323		+ 11.42	3.46	
1453	353		+ 11.35	3.53	
1533	393		+ 11.27	3.61	
1613	433		+ 11.20	3.68	
1653	473		+ 11.12	3.76	
1743	523		+ 11.04	3.84	
1847	587		+ 10.94	3.96	
1944	644		+ 10.84	4.06	
2045	705		+ 10.74	4.16	
2144	764		+ 10.66	4.24	
2243	823		+ 10.59	4.31	
0005	905		+ 10.49	4.41	
0148	1008		+ 10.42	4.48	38½" = 765 a.m
0326	1106		+ 10.38	4.52	38½" = 765 a.m
0506	1206		+ 10 33	4.57	38½" = 765 a.m
0624	1304		+ 10.26	4.64	38½" = 765 a.m
0824	1404		+ 10.20	4.70	
1004	1504		+ 10.13	4.77	
1324	1704		+ 10.07	4.83	
1649	1909		+ 10.07	4.83	
2206	2106		+ 9.98	4.92	
0215	2475		+ 9.86	5.04	
0604	2704		+ 9.86	5.04	

9B Test 3 3

AQUIFER TEST

Well No. 9B

Date 3-30-83 to 4-7-83 Location Cape Coral Meas. Point

Clock Time	Elapsed Time(Min.)		Water Level	Drawdown in Feet Static +14.90	Pumping Rate
1104	3004		+9.82	5.08	
1745	3905		+9.89	5.01	
0026	3806		+9.79	5.11	
0845	4305		+9.82	5.08	
1704	4804		+9.74	5.16	
0305	5405		+9.57	5.33	
1305	6005		+9.49	5.41	
2306	6606		+9.47	5.43	
0904	7204		+9.47	5.43	
2105	7925		+9.42	5.48	
0835	8615		+9.33	5.57	
2104	9364		+9.27	5.63	
0906	10,086		+9.21	5.69	
2106	10,806		+9.19	5.71	
0904	11,524		+9.17	5.73	
2105	12,245		+9.13	5.77	
0905	12,965		+9.11	5.79	
2104	13,684		+9.09	5.81	
0758	14,338		+9.08	5.82	
0900	14,400		+9.08	5.82	

AQUIFER TEST

Recovery

Well No. 9B

Date 4-7-83 Location Cape Coral Meas. Point 1.9 ft. above l. Former top of Krefdt - HNTB

Clock Time	Elapsed Time(Min.)		Water Level	Recovery ~~Drawdown~~ in Feet PWL +9.08	Pumping Rate
0758			+9.08		
0900	0		+9.08		
0905	Pump off 1/4		9.08	0	
	1/2		9.09	0.01	
	3/4		9.10	.02	
	1		9.11	.03	
	1 1/2		9.15	.07	
	2		9.19	.11	
	2 1/2		9.21	.13	
	3		9.25	.17	
	3 1/2		9.30	.22	
	4		9.34	.26	
	4		9.38	.30	
	5		9.41	.33	
	5		9.48	.40	
	7		9.54	.46	
	8		9.60	.52	
	9		9.65	.57	
	10		9.70	.62	
	12		9.80	.72	
	14		9.88	.80	
	16		illegible	.88	
	18		illegible	.95	
	20		illegible	1.01	

9B Test 3 Rec 1

AQUIFER TEST

Well No. 9B

Date 4-7-83 Location Cape Coral Meas. Point

Clock Time	Elapsed Time(Min.)		Water Level	~~Drawdown~~ Recovery in Feet PWL +9.08	Pumping Rate
	22		10.15	1.07	
	24		10.21	1.13	
	26		10.26	1.18	
	28		10.31	1.23	
	30		10.36	1.28	
	33		10.43	1.35	
	35		10.49	1.41	
	40		10.57	1.49	
	45		10.67	1.59	
	50		10.76	1.68	
	55		10.84	1.76	
	60		10.91	1.83	
	65		10.98	1.90	
	70		11.06	1.98	
	80		11.17	2.09	
	90		11.29	2.21	
	100		11.39	2.31	
	120		11.58	2.50	
	140		11.74	2.66	
	160		11.88	2.80	
	180		12.00	2.92	
	200		12.11	3.03	
1257	332		12.20	3.20	
1322	364		12.41	3.33	

9B Test 3 Rec 2

AQUIFER TEST

Well No. 9B

Date 04-07-93 Location Cape Coral Meas. Point

RECOVERY

Clock Time	Elapsed Time(Min.)		Water Level	~~Drawdown~~ Recovery in Feet PWL +9.08	Pumping Rate
1358	293		+12.52	3.44	
1428	323		+12.63	3.55	
1459	354		+12.71	3.63	
1539	394		+12.82	3.74	
1619	434		+12.90	3.82	
1659	474		+12.98	3.90	
1749	524		+13.05	3.97	
1848	583		+13.13	4.05	
1955	650		+13.20	4.12	
2051	706		+13.24	4.16	
2150	765		+13.30	4.22	
2250	825		+13.34	4.26	
0029	904		+13.43	4.35	
0129	1004		+13.54	4.46	
0329	1104		+13.64	4.56	
0507	1204		+13.70	4.62	
0628	1303		+13.74	4.66	
0829	1404		+13.80	4.72	
0915	1450		+13.62	4.74	

AQUIFER TEST

Drawdown

Well No. RO-8

Date 3-28-83 Location Cape Coral

Meas. Point 2.5ft. above ls Topplate of well

Clock Time	Elapsed Time(Min.)	Water level referred to MP	Water Level	Drawdown in Feet	Pumping Rate
0813	0	+16.24			
8:57	—	+16.21 +13.21	+16.21 +16.21	0	
	1/4			0	
	1/2			0	
	3/4			0	
	1			0	
	1 1/2			0	
	2			0	
	2 1/2			0	
	3			0	
	3 1/2			0	
	4			0	
	4 1/2			0	
	5			0	
	6			0	
	7			0	
	8			0	
	9			0	
	10			0	
	12			0	
	14			0	
	16			0	
	18	+13.21	+16.21	0	
	20	+13.20	+16.20	0.01	

RO-8 Test 3 1

AQUIFER TEST

Well No. R.O. #8

Date 3-28-83 Location Cape Coral Meas. Point

Clock Time	Elapsed Time(Min.)		Water Level	Drawdown in Feet Static +16.21	Pumping Rate
	22	+13.20	+16.20	0.01	
	24	+13.20	+16.20		
	26	+13.20	+16.20		
	28	+13.19	+16.19	.02	
	30	+13.19	+16.19		
	33	+13.19	+16.19		
	36	+13.18	+16.18	.03	
	40	+13.18	+16.18		
	45	+13.17	+16.17	.04	
	50	+13.16	+16.16	.05	
	55	+13.15	+16.15	.06	
	60	+13.15	+16.15		
	65	+13.14	+16.14	.07	
	70	+13.13	+16.13	.08	
	80	+13.11	+16.11	.10	
	90	+13.11	+16.11		
	100	+13.10	+16.10	.11	
	120	+13.08	+16.08	.13	
	140	+13.05	+16.05	.16	
	160	+13.01 11:42 A.M.	+16.01	.20	
	180	+13.00 12:02 PM	+16.00	.21	
5	185	+12.94	+15.94	.27	
5	186	+12.92	+15.92	.29	
2		+12.94	+15.94	.27	

RO-8 Test 3 2

AQUIFER TEST

Well No. R.O. #8

Date 3-28-83 / 3-29-83 / 3-30-83 Location Cape Coral Meas. Point

Clock Time	Elapsed Time(Min.)		Water Level	Drawdown in Feet Static+16.21	Pumping Rate
1:12	270	12.92	+ 15.92	0.29	
12	320	12.91	+ 15.91	.30	
2:12	350	12.88	+ 15.88	.33	
12	390	12.87	+ 15.87	.34	
12	430	12.83	+ 15.83	.38	
12	470	12.80	+ 15.80	.41	
1746	526	12.72	+ 15.72	.49	
1850	590	12.69	+ 15.69	.52	
1950	650	12.62	+ 15.62	.59	
2051	711	12.56	+ 15.56	.65	
2151	771	12.49	+ 15.49	.72	
2251	831	12.43	+ 15.43	.78	
0013	913	12.38	+ 15.38	.83	39½" = 765 gpm
0156	1016	12.33	+ 15.33	.88	39½" = 765 gpm
0335	1115	12.28	+ 15.28	.93	39½" = 765 gpm
0515	1215	12.25	+ 15.25	.96	39½" = 765 gpm
0652	1312	12.19	+ 15.19	1.02	39½" = 765 gpm
0826	1406	12.16	+ 15.16	1.05	
1006	1506	12.08	+ 15.08	1.13	
1327	1707	12.05	+ 15.05	1.16	
1651	1911	12.04	+ 15.04	1.17	
2010	2110		+ 14.97	1.24	
0218	2478		+ 14.83	1.38	
0610	2710		+ 14.83	1.38	

READINGS TAKEN BY JE, TS

RO-8 Test 3 3

AQUIFER TEST

Well No. RO-8

Date 3-30-83 to 4-7-83 Location Cape Coral Meas. Point

Clock Time	Elapsed Time(Min.)	Add 3ft. to reading	Water Level	Drawdown in Feet Static +16.21	Pumping Rate
1107	3007		+14.79	1.42	
1750	3410		+14.85	1.36	
0030	3810		+14.76	1.45	
0850	4310	+11.78	+14.78	1.43	
1708	4808		+14.69	1.52	
0308	5708		+14.54	1.67	
1315	6015		+14.46	1.75	
2309	6609		+14.44	1.77	
0906	7206		+14.44	1.77	
2107	7927		+14.39	1.82	
0840	8620	+11.32	+14.32	1.89	
2107	9367		+14.26	1.95	
0928	10,108		+14.21	2.00	
2110	10,810		+14.19	2.02	
0915	11,535		+14.19	2.02	
2108	12,248		+14.18	2.03	
0907	12,967		+14.18	2.03	
2108	13,688		+14.17	2.04	
0757	14,337		+14.18	2.03	
0900	14,400		+14.18	2.03	

RO-8 Test 3 4

AQUIFER TEST

Recovery

Well No. RC-8

Date 4-7-83 Location Cape Coral

Meas. Point 2.5 ft above ls Top plate of we

Wm A. PARSONS/HNTB

Clock Time	Elapsed Time(Min.)		Water Level	Recovery ~~Drawdown~~ in Feet PWL +14.18	Pumping Rate
0757			+14.18	0	
0900	0		14.18		
0905	Pump off		14.18		
	1/2		14.18		
	3/4		14.18		
	1		14.18		
	1 1/2		14.18		
	2		14.18		
	2 1/2		14.18		
	3		14.18		
	3 1/2		14.18		
	4		14.18		
	4 1/2		14.18		
	5		14.18		
	6		14.18		
	7		14.18		
	8		14.18		
	9		14.18		
	10		14.18		
	12		14.19	0.01	
	14		14.19		
	16		14.19		
	18		14.19		
	20		14.19	0.01	

RO-8 Test 3 Rec 1

AQUIFER TEST

Recovery

Well No. RO-8

Date 4-7-93 Location CAPE Coral Meas. Point

Wm A Parsons/HNTB

Clock Time	Elapsed Time(Min.)		Water Level	~~Drawdown~~ Recovery in Feet PWL +14.18	Pumping Rate
	22		14.19	0.01	
	24		14.19		
	26		14.20	.02	
	28		14.20		
	30		14.20		
	33		14.21	.03	
	36		14.21		
	40		14.21		
	45		14.21		
	50		14.22	.04	
	55		14.23	.05	
	60 1 HR		14.24	.06	
	65 1 05		14.24		
	70 1 10		14.25	.07	
	80 1 20		14.26	.08	
	90 1 30		14.27	.09	
	100 1 40		14.28	.10	
	120 (2 HR)		14.30	.12	
	140 (2 20)		14.33	.15	
	160 (2 40)		14.35	.17	
	180 (3 00)		14.39	.21	
	202		14.41	.23	
1259	234		14.46	.28	
1331	266		14.51	.33	

RO-8 Test 3 Rec 2

AQUIFER TEST

Well No. RO-8

Date 04-07-83 Location Cape Coral Meas. Point

to 4-8-83

Clock Time	Elapsed Time(Min.)		Water Level	Recovery ~~Drawdown~~ in Feet PWL 14.18	Pumping Rate
1401	296		+14.55	0.37	
1431	326		+14.58	.40	
1502	357		+14.62	.44	
1541	396		+14.66	.48	
1622	437		+14.68	.50	
1701	476		+14.72	.54	
1751	526		+14.74	.56	
1851	586		+14.76	.58	
2000	655		+14.77	.59	
2054	709		+14.76	.58	
2153	768		+14.80	.62	
2253	828		+14.83	.65	
4-8 0013	903		+14.88	.70	
0152	1007		+14.97	.79	
0332	1107		+15.03	.85	
0512	1207		+15.08	.90	
0650	1305		+15.11	.93	
0832	1407		+15.17	.99	
0925	1460		+15.19	1.01	

AQUIFER TEST

Drawdown

Well No. RO-7

Date 3-28-83 Location Cape Coral Meas. Point 2.3 ft. above Top plate of well

Background wells RO1, 2, 4 and 6 pumping

Clock Time	Elapsed Time(Min.)	Water level referred to MP	Water Level	Drawdown in Feet Static +15.71	Pumping Rate
0819	0	+15.71		0	
0900	0 15 sec	+15.71			
	30 sec	+15.71			
	45 sec	+15.71			
	1	+15.71			
	1½	+15.71			
	2	+15.71			
	2½	+15.71			
	3	+15.71			
	3½	+15.71			
	4	+15.71			
	5	+15.71			
	6	+15.71			
	7	+15.71			
	8	+15.71			
	9	+15.71			
	10	+15.71			
	12	+15.71			
	14	+15.71			
	16	+15.71			
	18	+15.71			
	20	+15.71			
	22	+15.71			
	24	+15.71			

RO-7 Test 3 1

AQUIFER TEST

Well No. RO-7

Date 3-28-83 Location Cape Coral Meas. Point

Clock Time	Elapsed Time(Min.)		Water Level	Drawdown in Feet Static +15.71	Pumping Rate
	26	+15.71		0	
	28	+15.71		0	
	30	+15.70		0.01	
	33	+15.70			
	36	+15.70			
	40	+15.70			
	45	+15.70			
	50	+15.70			
	55	+15.70			
1000	60	+15.69		.02	
	65	+15.69			
	70	+15.69			
	80	+15.68		.03	
	90	+15.68			
	100	+15.67		.04	
1100	120	+15.66		.05	
	140	+15.64 11:22 A.M.		.07	
	160	+15.63		.08	
	180	+15.62		.09	
	206	+15.61		.10	
	239	+15.61			
	260	+15.60		.11	
	290	+15.59		.12	
	320	+15.53		.13	

RO-7 Test 3 2

AQUIFER TEST

Well No. RO-7

Date 03-29-83 Location Cape Coral Meas. Point

3-29-83
3-30-83

Clock Time	Elapsed Time(Min.)		Water Level	Drawdown in Feet Static +15.71	Pumping Rate
	350	+ 15.57		.0,14	
	390	+ 15.56		.15	
	430	+ 15.55		.16	
	470	+ 15.53		.18	
1749	529	+ 15.50		.21	
1853	593	+ 15.45		.26	
1947	647	+ 15.39		.32	
2049	709	+ 15.34		.37	
2148	768	+ 15.29		.42	
2247	827	+ 15.23		.48	
0009	907	+ 15.17		.54	3=½" = 765 gpm
0154	1014	+ 15.13		.58	38½" = 765 gpm
0350	1110	+ 15.12		.59	38½" = 765 gpm
0511	1211	+ 15.09		.62	38½" = 765 gpm
0643	1308	- 15.02		.67	38½" = 765 gpm
0828	1408	+ 14.99		.72	
1008	1508	+ 14.93		.78	
1350	1710	+ 14.89		.82	
1655	1915	+ 14.88		.83	
2014	2114	+ 14.82		.89	
0220	2480	+ 14.69		1.02	
0610	2710	+ 14.69		1.02	
1114	3014	+ 14.66		1.05	
1752	3412	+ 14.70		1.01	

RO-7 Test 3 3

AQUIFER TEST

Well No. RO-7

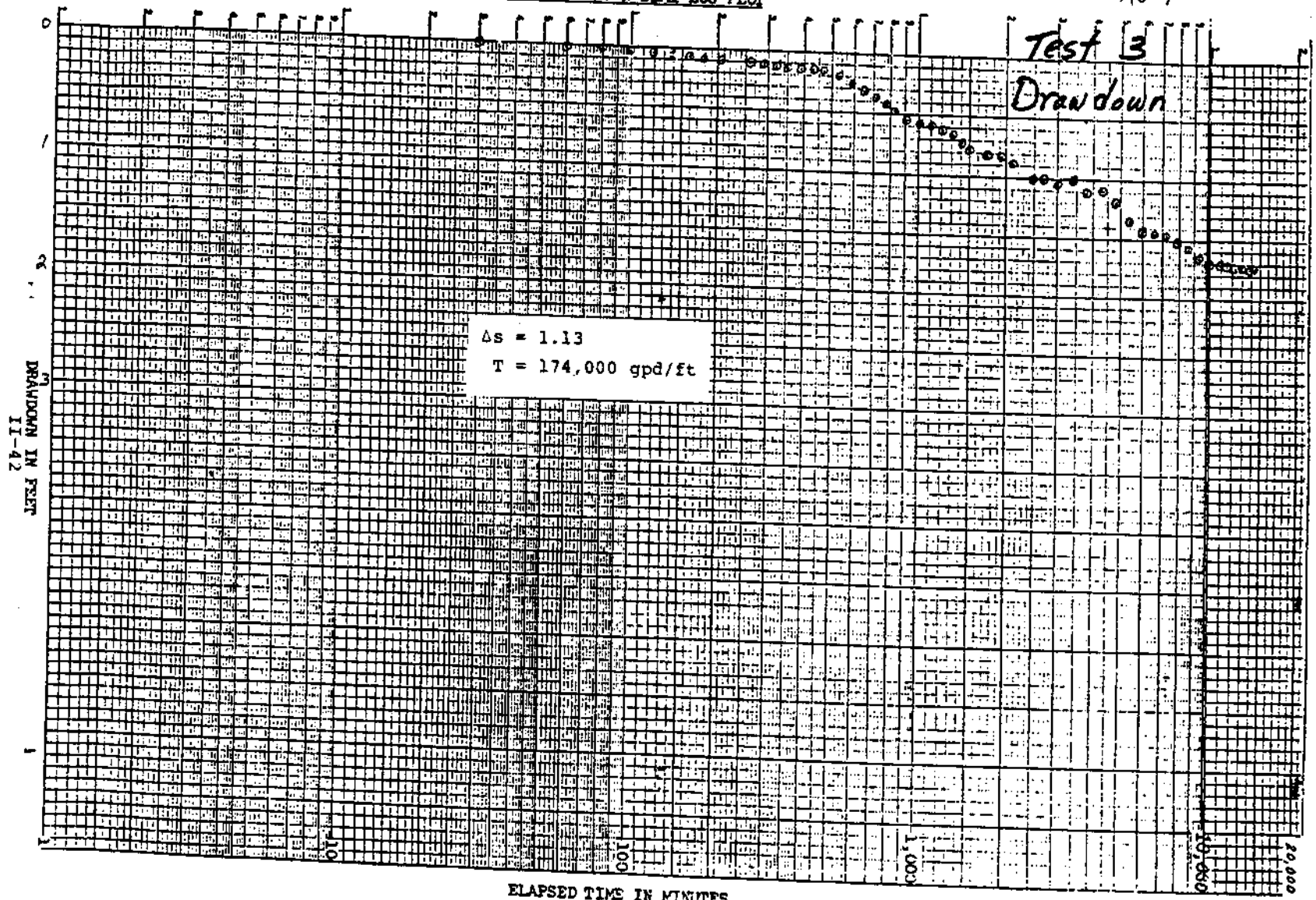
Date 3-31-83 to 4-7-83 Location Cape Coral Meas. Point

	Clock Time	Elapsed Time(Min.)		Water Level	Drawdown in Feet Static +15.71	Pumping Rate
-31	0035	3815		+14.60	1.11	
	0853	4313		+14.62	1.09	
	1710	4810		+14.52	1.19	
4-1	0311	5411		+14.37	1.34	
	1324	6024		+14.28	1.43	
	2313	6613		+14.26	1.45	
4-2	0915	7215		+14.25	1.46	
	2111	7931		+14.20	1.51	
4-3	0845	8625		+14.13	1.58	
	2110	9370		+14.06	1.65	
4-4	0936	10,116		+14.02	1.69	
	2112	10,812		+14.00	1.71	
4-5	0926	11,546		+13.99	1.72	
	2112	12,252		+13.98	1.73	
4-6	0914	12,974		+13.99	1.72	
	2111	13,691		+13.97	1.74	
4-7	0745			+13.99	1.72	
	0900	14,400		+13.99	1.72	

RO-7 Test 3 4

RO-7

TIME-DRAWDOWN SEMI-LOG PLOT



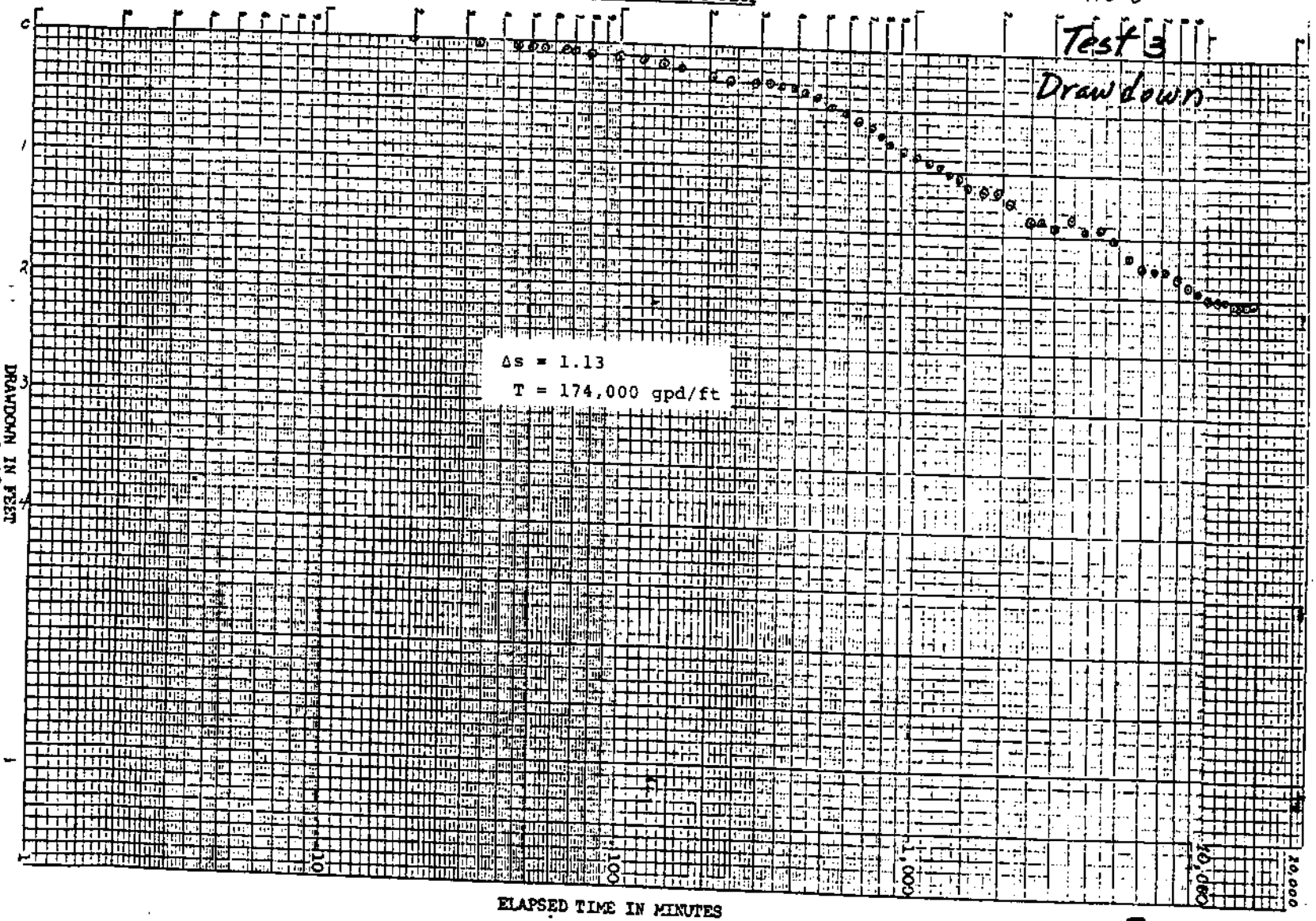
RO-7

TIME-DRAWDOWN SEMI-LOG PLOT

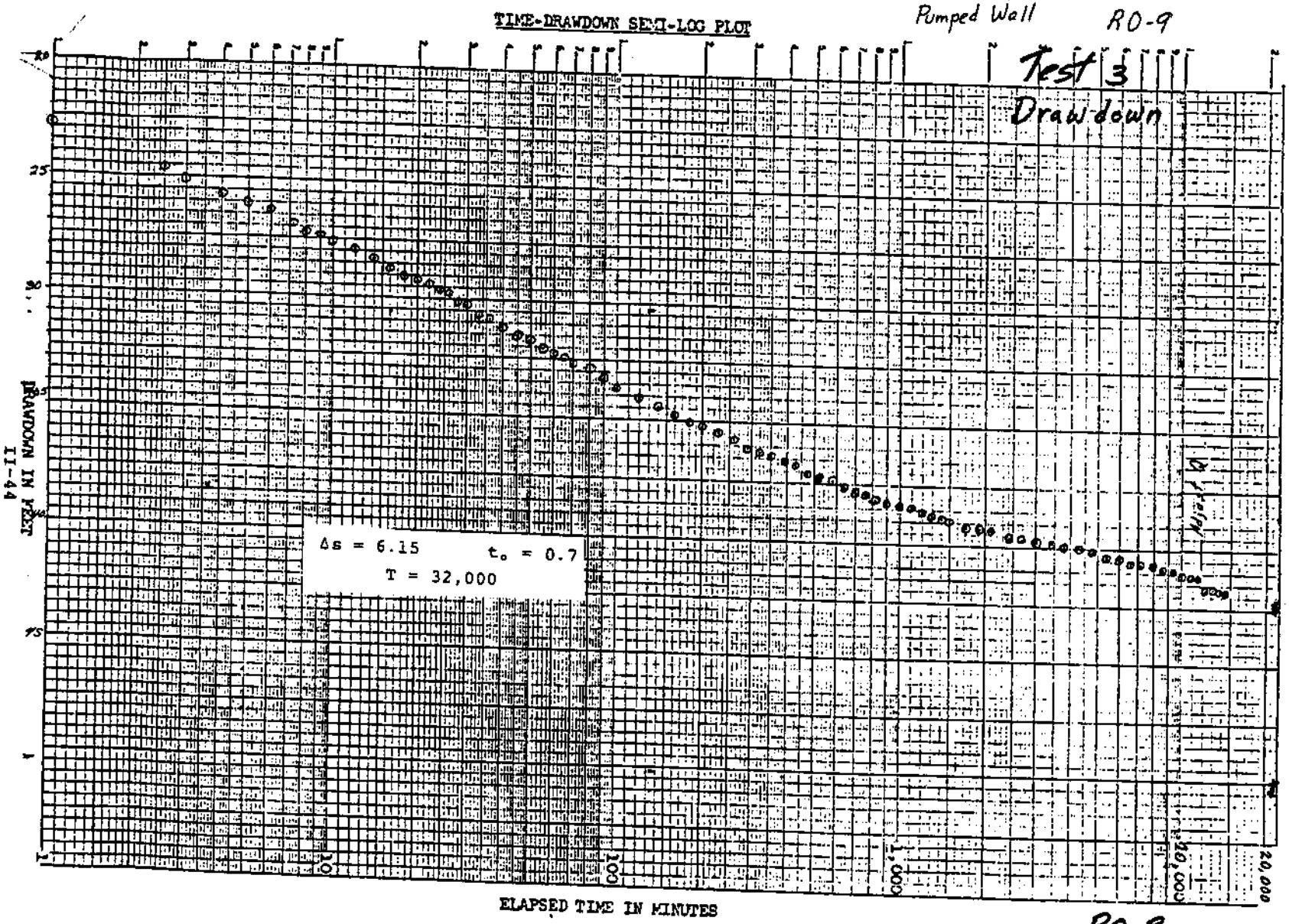
KO-8

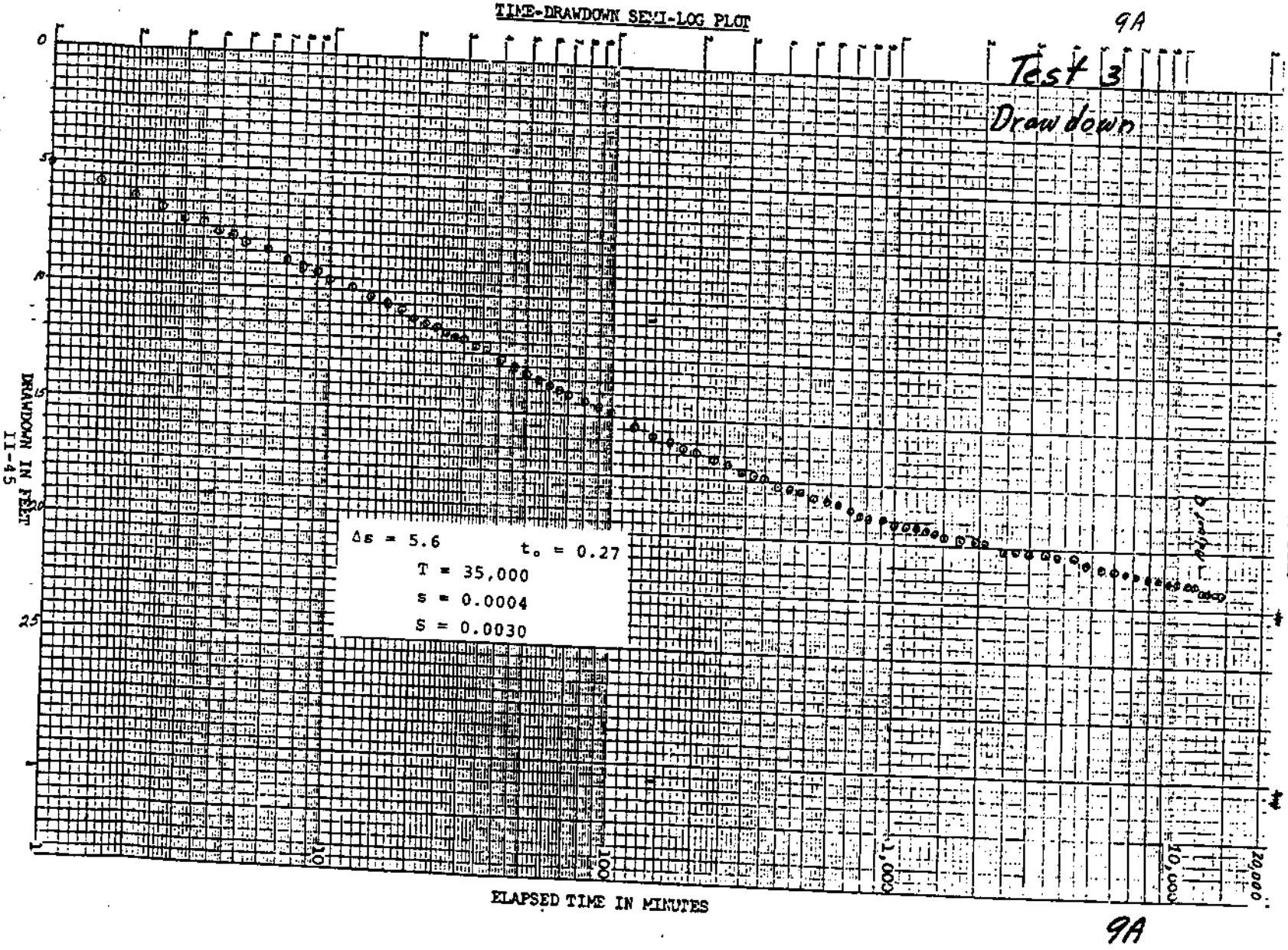
Test 3

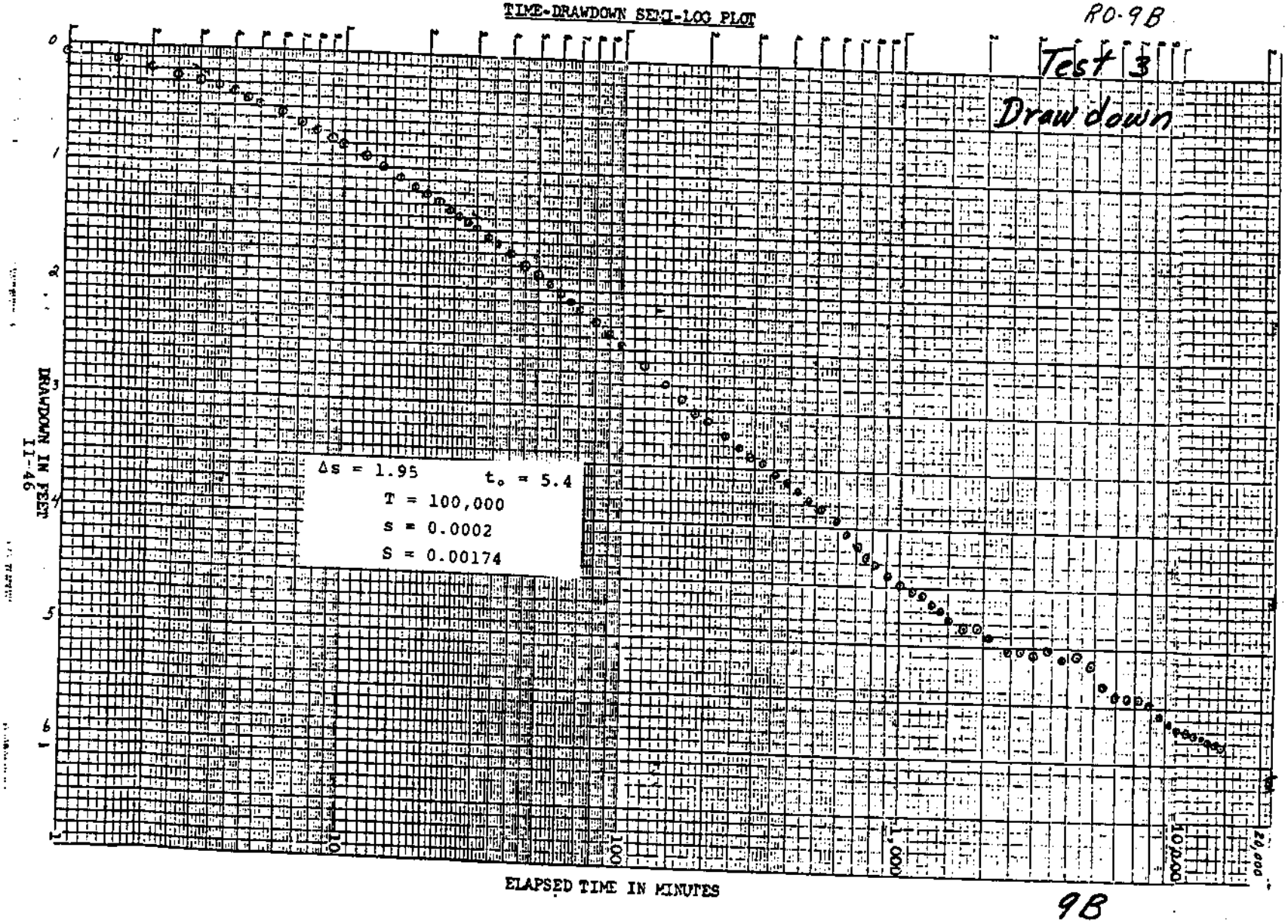
Drawdown



RO-8


TIME-DRAWDOWN SEMI-LOG PLOT
Pumped Well
RO-9
Test 3
Drawdown
Δs = 6.15
t₀ = 0.7
T = 32,000
DRAWDOWN IN FEET
ELAPSED TIME IN MINUTES
RO-9


TIME-DRAWDOWN SEMI-LOG PLOT
9A
Test 3
Drawdown
DRAWDOWN IN FEET
II-45
RECOVERY IN FEET
0
5
10
15
20
25
Δs = 5.6
t₀ = 0.27
T = 35,000
s = 0.0004
S = 0.0030
1
10
100
1,000
10,000
20,000
ELAPSED TIME IN MINUTES
9A


TIME-DRAWDOWN SEMI-LOG PLOT
RO-9B
Test 3
Draw down
DRAWDOWN IN FEET
11-46
Δs = 1.95
t₀ = 5.4
T = 100,000
s = 0.0002
S = 0.00174
0
1
2
3
4
5
6
7
10
100
1,000
10,000
ELAPSED TIME IN MINUTES
9B

AQUIFER TEST

Recovery

Well No. RO-7

Date 4-7-83 Location Cape Coral Meas. Point 2.3 ft above / Top plate of well

Clock Time	Elapsed Time(Min.)		Water Level	Recovery ~~Drawdown~~ in Feet PWL + 13.99	Pumping Rate
0745	0		+13.99	0	
0900	0		13.99		
0906	1		13.99		
	1½		13.99		
	2		13.99		
	2½		13.99		
	3		13.99		
	3½		13.99		
	4		13.99		
	4½		13.99		
	5		13.99		
	6		13.99		
	7		13.99		
	8		13.99		
	9		13.99		
0915	10		13.99		
	12		13.99		
	14		13.99		
	16		13.99		
	18		13.99		
	20		13.99		
	22		13.99		
	24		13.99		
	26		13.99	0	

RO-7 Test 3 Rec 1

AQUIFER TEST

Well No. RO-7

Date 4-7-83 Location Cape Coral Meas. Point _____

Clock Time	Elapsed Time(Min.)		Water Level	Recovery ~~Drawdown~~ in Feet PwL +13.99	Pumping Rate
	28		13.99	.0	
	30		13.99	0	
	33		14.00	0.01	
	36		14.00		
	40		14.00		
	45		14.00		
	50		14.00		
	55		14.00		
	60		14.01	.02	
	65		14.01		
	70		14.01		
	80		14.01		
	90		14.02	.03	
	100		14.02	.1	
	120		14.03	.04	
	130		14.04	.05	
	140		14.05	.06	
	160		14.05		
	165		14.06	.07	
	180		14.07	.08	
	205		14.09	.09	
1300	235		14.11	.12	
1332	267		14.14	.15	
1404	299		14.17	.18	

RO-7 Test 3 Rec 2

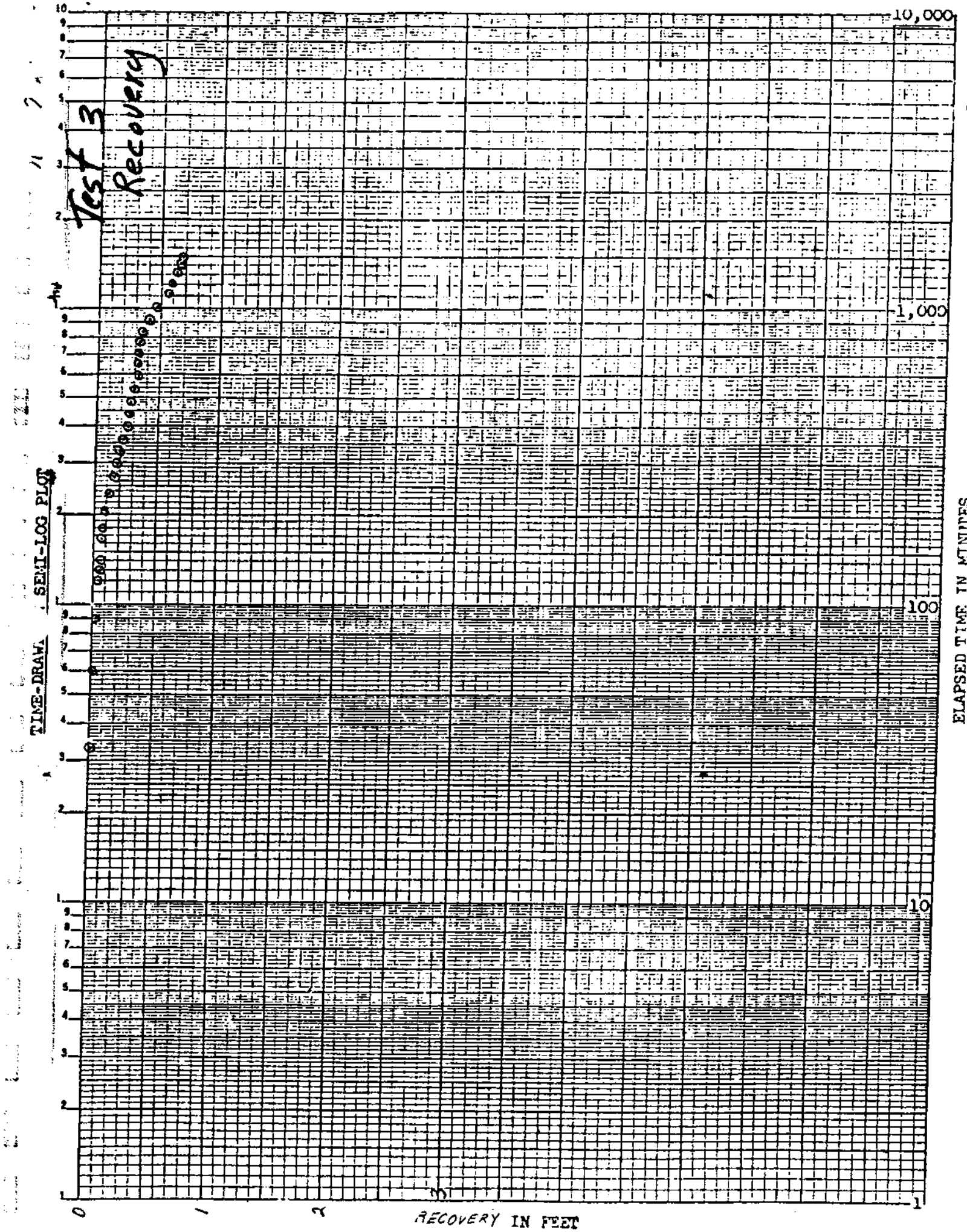
AQUIFER TEST

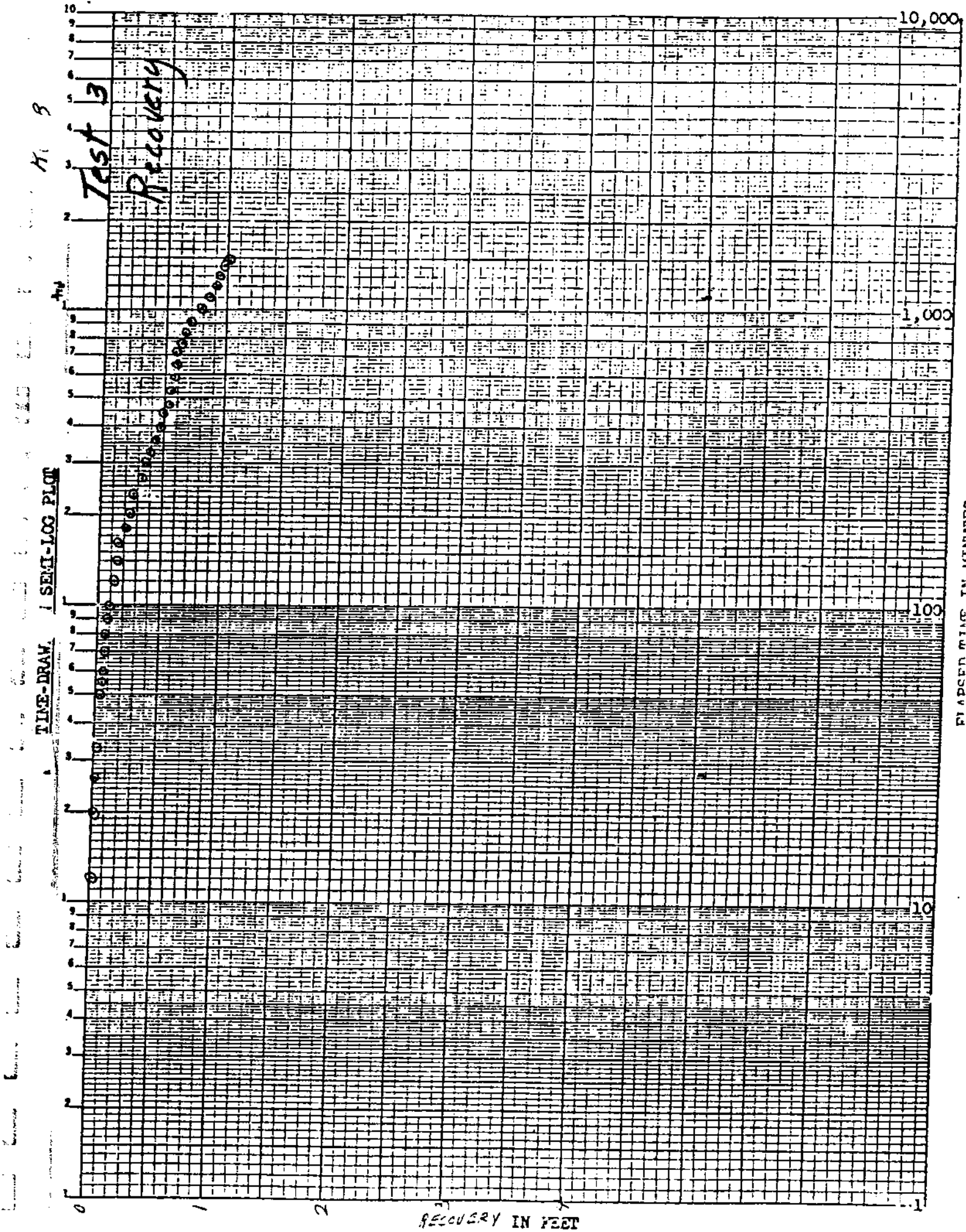
Well No. RO-7

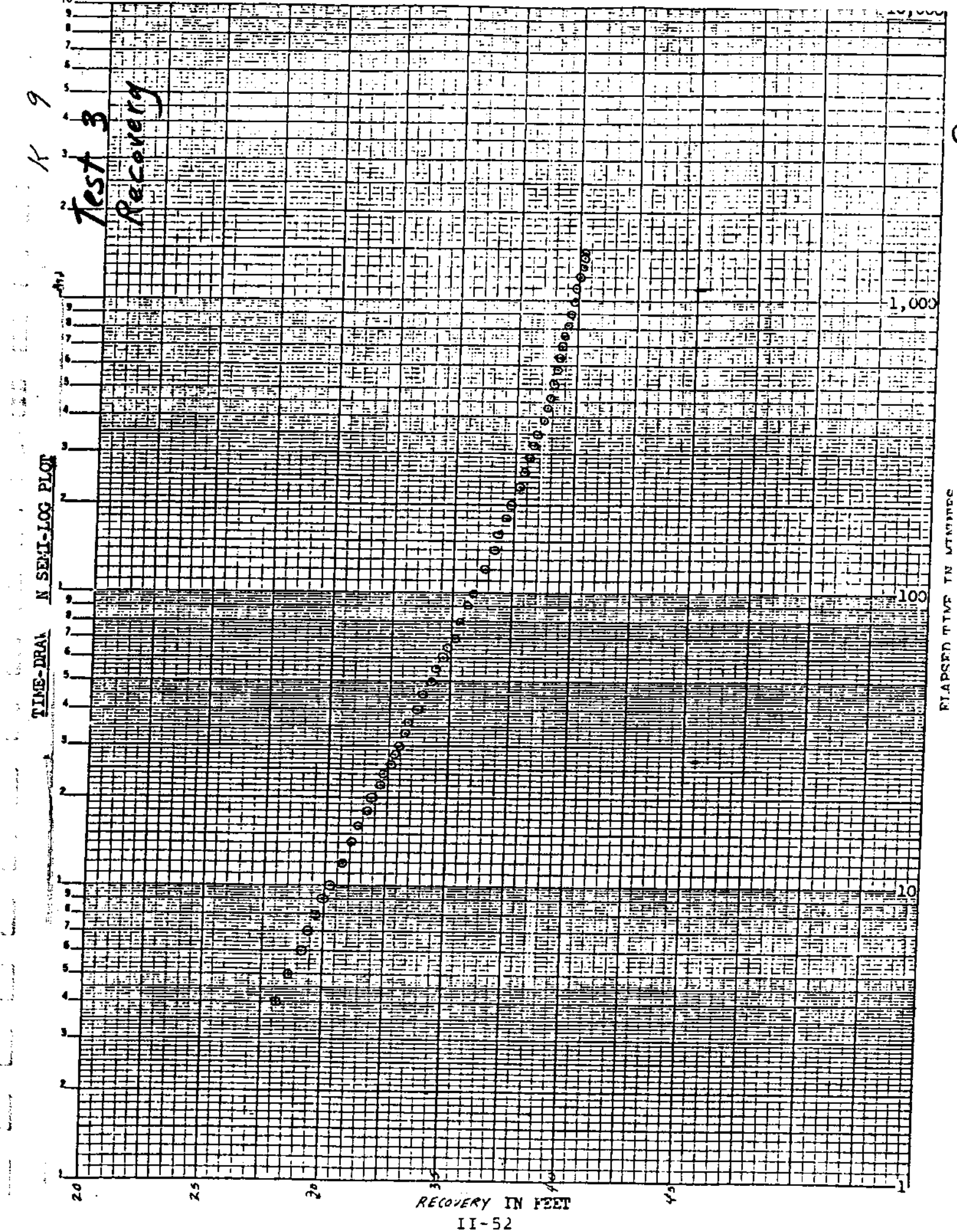
Date 04-07-83 Location Cape Coral Meas. Point _____
to 4-8-83

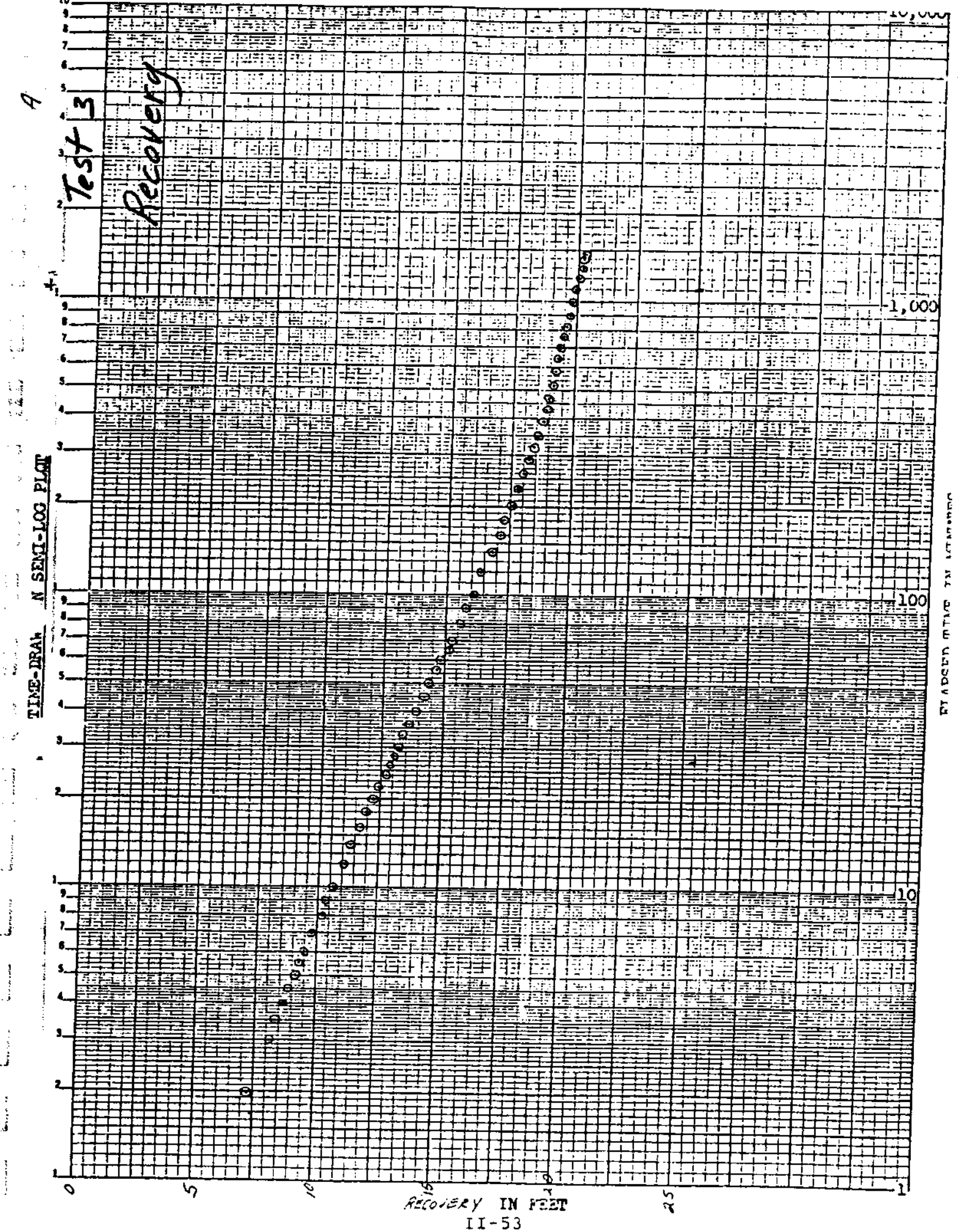
Clock Time	Elapsed Time(Min.)	Tape Reading Held - Wet	Water Level	~~Drawdown~~ Recovery in Feet PWL +13.99	Pumping Rate
1433	328		+14.19	0.20	
1504	359		+14.21	.22	
1544	399		+14.24	.25	
1624	439		+14.26	.27	
1704	479		+1427	.28	
1753	528		+14.29	.30	
1853	588		+14.31	.32	
1957	652		+14.31	.32	
2057	712		+14.31	.32	
2156	771		+1433	.34	
2256	931		+14.35	.36	
0017	912		+14.40	.41	
0155	1010		+14.47	.48	
0335	1110		+14.54	.55	
0516	1211		+14.58	.59	
0654	1309		+14.61	.62	
0834	1409		+14.65	.66	
0730	1465		+14.67	.68	

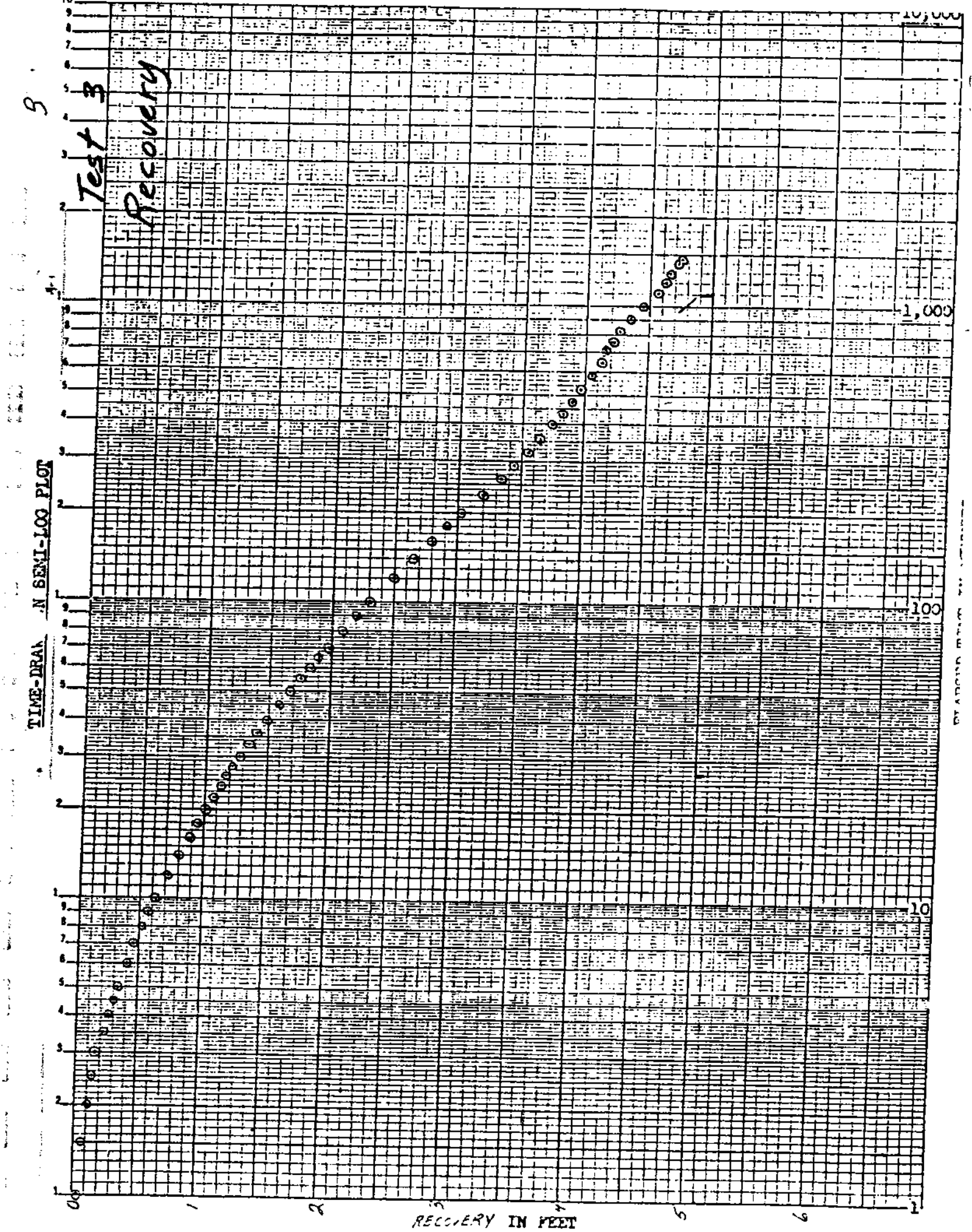
RO-7 Test 3 Rec 3


Test 3
Recovery
TIME-DRAWA SEMI-LOG PLOT
10,000
1,000
100
10
1
0
1
2
RECOVERY IN FEET
ELAPSED TIME IN MINUTES


Test 3
Recovery
H_i 8
H_{ij}
SEMI-LOG PLOT
TIME-DRAW
10,000
1,000
100
10
1
0
1
2
RECOVERY IN FEET
ELAPSED TIME IN MINUTES


Test 3
Recovery
K 9
TIME-DRAW N SEMI-LOG PLOT
1,000
100
10
1
20
25
30
35
40
45
RECOVERY IN FEET
ELAPSED TIME IN MINUTES


Test 3
Recovery
TIME-DRAW N SEMI-LOG PLOT
1,000
100
10
1
0
5
10
15
20
25
RECOVERY IN FEET


Test 3
Recovery
TIME-DRAW
N SEMI-LOG PLOT
10,000
1,000
100
10
1
0.0
1
2
3
4
5
6
7
RECOVERY IN FEET

AQUIFER TEST

Drawdown

Well No. RO-7

Date 3/4/83 Location Chiquita Blvd. Meas. Point Hole in top plate of well

Located 4851 ft. N. of RO-9

Clock Time 0720	Elapsed Time(Min.)	Add .8 ft. correction	0.9 mile Water Level 12.56	Drawdown in Feet	Pumping Rate
0830	0	4'5"8 TCK	12.58		
	15	4'5 8			
	30	4'5 8			
	45	4'5 8			
	1	4'5 8			
	1½	4'5 8			
	2	4'5 8			
	2½	4'5"8 TCK			
	3	4'5"8			
	3½	4'5"8			
	4	4'5 8			
	4½	4'5 8			
	5	4'5 8			
	6	4'5 8			
	7	4'5 8			
	8	4'5 8			
	9	4'5 8			
	10	4'5 8			
	12	4'5 8			
	14	4'5 8			
	16	4'5 8			
	18	4'5 8			
	20	4'5 8			
	22	4'5 8	12.58		

Test 1

1

AQUIFER TEST

Well No. RO-7

Date 3/4/03 Location _____ Meas. Point Hole in t
Plate of we

Clock Time	Elapsed Time(Min.)	Add 8ft.	Water Level	Drawdown in Feet	Pumping Rate
	24	4' 2" 8 TEN	12.58		
	26	4' 2" 8			
	28	4' 2 8			
	30	4' 2 8			
	33	4' 2 8			
	36	4' 2 8			
	40	4' 2 8			
	45	4' 2" 8 TEN			
	50	4 2 8	12.58	0	
	55	4' 2" 7 TEN	12.57	.01	
	60	4' 2" 7 TEN			
	65	4' 2" 7 TEN			
	70	4' 2" 7			
	80	4' 2" 7	12.57		
	90	4' 2" 6 TEN	12.56	.02	
	100	4' 2" 6 TEN	12.56		
	120	4' 2" 5 TEN	12.55	.03	
	140	4' 2" 4 TEN	12.54	.04	

Test 1

2

AQUIFER TEST

Drawdown

Well No. RO-8

Date 3/4/83 Location Chiquita Blvd. Meas. Point Hole in top Plate 2.5

Located 2468 ft. N of RO-9

Clock Time 0718	Elapsed Time(Min.)	13.24 (About ½ mile)	Water Level	Drawdown in Feet	Pumping Rate
0830	0	13.24	LSD 13.70		
	1/4	13.24		0	
	1/2	13.24			
	3/4	13.24			
	1	13.24			
	1 1/2	13.24			
	2	13.24			
	2 1/2	13.24			
	3	13.24			
	3 1/2	13.24			
	4	13.24			
	4 1/2	13.24			
	5	13.24			
	6	13.24			
	7	13.24			
	8	13.24			
	9	13.24			
	10	13.24			
	12	13.24			
	14	13.24		0	
	16	13.235			
	18	13 - 2.35	13.235		
	20	13 - 2.35	〃		
	22	13 - 2.35	13.235		

Test 1

1

AQUIFER TEST

Well No. R.O. 8

Date 3/4 Location _____ Meas. Point _____

Clock Time	Elapsed Time(Min.)	17	Water Level	Drawdown in Feet	Pumping Rate
	24	13 − 2.30	13.23	.01	
	26	13 - 2.25	13.225		
	28	13 - 2.25	13.225		
	30	13 - 2.20	13.22	.02	
	33	13 - 2.15	13.215		
	36	13 - 2.10	13.21	.03	
	40	13 - 2.05	13.205		
	45	13 − 1.95	13.195	.04	
	50	13 - 1.90	13.19	.05	
	55	13 - 1.80	13.18	.06	
0930	60	13 - 1.75	13.175		
	1:05 65	13 - 1.70	13.17	.07	
	1:10 70	13 - 1.60	13.16	.08	
	1:20 80	13 - 1.50	13.15	.09	
	1:30 90	13.135	13.135	.10	
	1:40 100	13.120 (F)	13.12	.12	
	2:00 120	13.090 (F)	13.09	.15	
	2:20 140	13.060 (F)	13.06	.18	
	2:40 160				
	3:00 180				
	3:20 200				
	3:50 230				
	4:20 260				

Test 1

2

AQUIFER TEST

Drawdown

LOWER HAWTHORN #9 Well No. RO-9

Date 3/4/83 Location Chiquita Blvd. Meas. Point Hole in top of top plate 2.4

Pumped Well

Clock Time	Elapsed Time(Min.)	+11.79	Water Level	Drawdown in Feet Static +11.79	Pumping Rate
0658 0820	0	+11.79	LSD		
08:30	2:30	27.62		- 39.41	
	4:00	28.42	26.02	40.21	
	5.30	28.00	- - - - - -	- 39.79	ADJUSTING PUMPING RAT
	7:00	32.06		43.80	69" 1009 gpm
	8:00	30.51		42.30	Continued adjust.
	9:00	30.91		42.70	
	10:00	31.25		43.04	
	12.00	31.99		43.78	
	14.00	32.38		44.17	
	16	32.68		44.47	
	18	33.03		44.82	
	21	33.45		45.24	
	24	33.90		45.69	
	26	34.09		45.88	
	28	34.38		46.17	
	30	34.78	32.36	46.57	
	34 1/2	35.37		47.16	
	37	35.65		47.44	
	41	35.96		47.75	Valve wide open
0915	45	36.05		47.84	995 gpm
	52	36.21		48.00	
	59	36.27		48.06	
	65	36.35		48.14	977 gpm
	70	36.41		48.20	994 gpm

Test 1

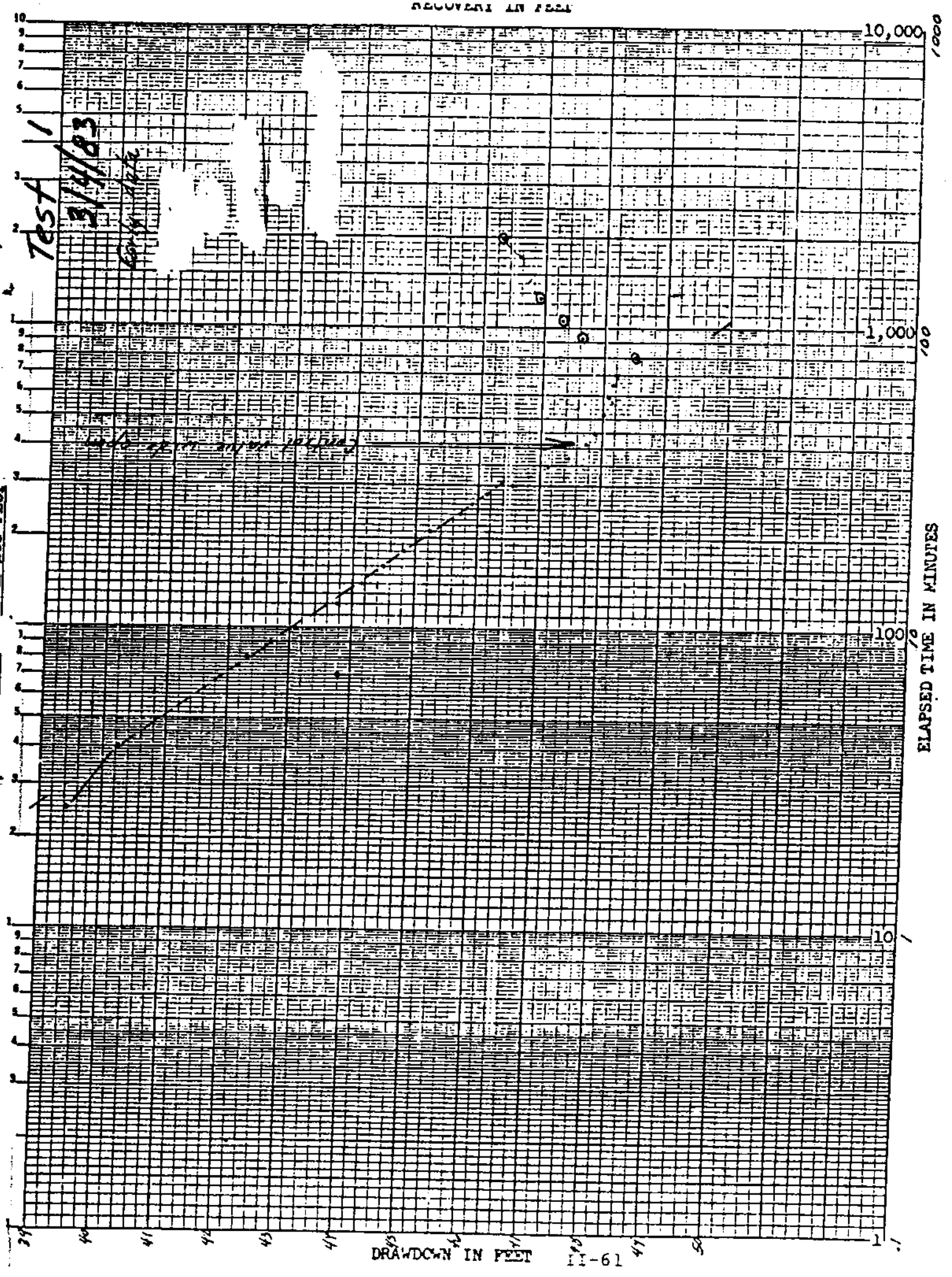
AQUIFER TEST

Well No. RO-9

Date 3/4/83 Location _____ Meas. Point _____

Clock Time	Elapsed Time(Min.)		Drawdown ~~Water~~ Level Static +11.79	Drawdown in Feet LSD	Pumping Rate
	80	36.71	48.50	24.31	968 gpm
	93	35.82	47.61		
	105	35.51	47.30		
1035	125	35.18	46.97		927 gpm
1058	148	34.48	46.27		
1105		Test discontinued			904 gpm

RECOVERY IN FEET



Valve open completely at 09:10 - Level drops below 68" to 70" range

09:15	67 "		995 gpm
09:20	66 ½ "		991
09:25	66 "		988
09:30	65 "		981
09:35	64 ½ "		977
09:40	64 "		974
09:45	63 ½ "		971
09:50	63 "		968
09:55	62 ½ "		964
10:02*	61 ½		958
10:05	61 "	DATA W-4-83 OK	955
10:10	59 ½ "		945
10:15	59 "		942
10:20	58 ½ "		938
10:25	58		934
10:30	57 ½		930
10:35	57		927
10:40	56 ½		923
10:45	56		919
10:50	55 ½		915
10:55	55		912
11:00	54 ½		908
11:05	54		904
	OFF		
11:08	72"		(70" = 1016)+

* Reading was obstructed by tube fitting.

AQUIFER TEST

Drawdown

Well No. 94

Date 3/4/83 Location Chiquita Blvd. Meas. Point Top of c

Located 71.2 ft. N. of RO-9

Clock Time	Elapsed Time(Min.)		Water Level	Drawdown in Feet	Pumping Rate
0830 0			+14.24'	0	
15sec			+ 7.60	6.64	
1min			+4.50	9.74	
2			+ 3.21	11.03	
2.5			+ 2.68	11.56	
3			+ 2.27	11.97	
3.5			+ 1.87	12.37	
4.0			+ 1.54	12.70	
4.5			+ 1.20	13.04	
5			+ 0.96	13.28	
6			+ 0.57	13.67	
7		Above MP	+ 0.04	14.20	
8		Below MP	- 0.49	14.73	
9			0.86	15.10	
10			1.16	15.40	
12			1.53	15.77	
14			2.07'	16.31	
16			2.42'	16.66	
18			2.82'	17.06'	
20			3.14'	17.38'	
22			3.45'	17.69'	
24			3.70'	17.94'	
26			3.93'	18.17'	
28			4.20'	18.44'	
30			4.41'	18.65	

Test 1

AQUIFER TEST

Well No. 9A

Date 03-04-93 Location _____ Meas. Point _____

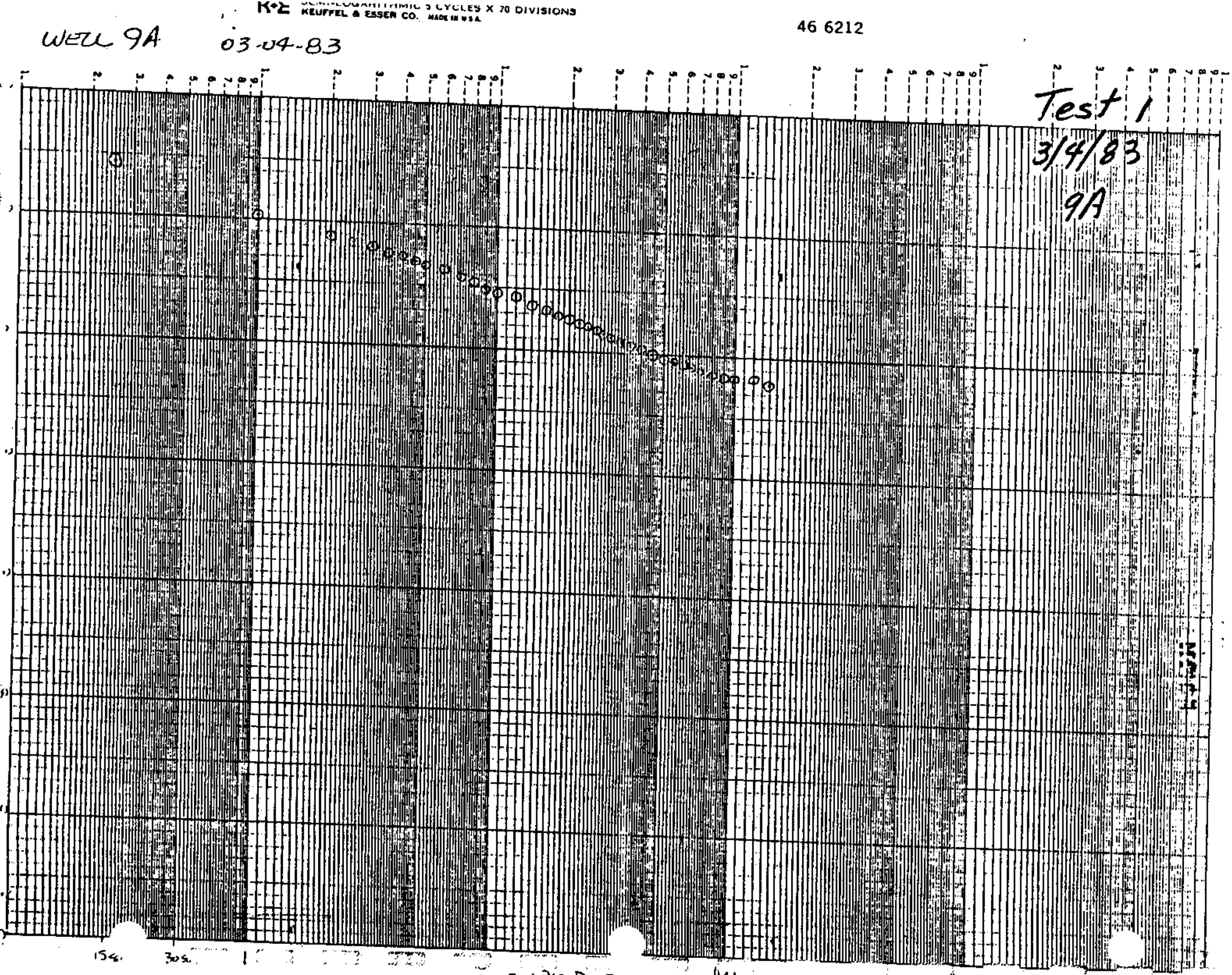
Clock Time	Elapsed Time(Min.)		Water Level	Drawdown in Feet	Pumping Rate
	33	(below mp)	4.78'	19.02'	
	36	6-0.72	5.10'	19.34'	
	40	6-0.58	5.42'	19.66'	
	45	7-1.24	5.76'	20.00'	
	50	7-0.92	6.08'	20.32'	
	55	7-0.70	6.30'	20.54'	
0930	60	7-0.45	6.55'	20.79	
	65	7-0.25	6.75'	20.99'	
	70	8-1.06	6.94'	21.18'	
	80	8-0.77	7.23'	21.47'	
	90	8-0.58	7.42'	21.66'	
	100	8-0.49	7.51'	21.75'	
1030	120	8-0.32	7.68'	21.92'	
	140	8-0.14	7.86	22.10	
	148	8-0.10	7.90	22.14'	

Test 1 2

K+E SEMILOGARITHMIC 5 CYCLES X 70 DIVISIONS
KEUFFEL & ESSER CO. MADE IN U.S.A.

46 6212

Well 9A 03-04-83



II-65

AQUIFER TEST

Drawdown

William A Parsons

Well No. 9B

Date 3/4/83 Location Chiquita Blvd. Meas. Point Alt. of top of

Located 700.2 ft. N. of Exp. 19 RO-9

Clock Time 07/0	Elapsed Time(Min.) 0	11.69	Water Level LSD	Drawdown in Feet	Pumping Rate
0830	0	11.71			
	16 sec	11.70		.01	
	30 sec	11.69		.02	
	45 sec	11.65		.06	
	1 min	11.63		.08	
	1½ min	11.56		.15	
	2	11.49		.22	
	2½	11.42		.29	
	3	11.35		.36	
	3½	11.28		.43	
	4	11.21		.50	
	4½	11.15		.56	
	5	11.09		.62	
	6	10.98		.73	
	7	10.88		.83	
	8	10.79		.92	
	9	10.70		1.01	
	10	10.62		1.09	
	12	10.48		1.23	
	14	10.35		1.36	
	16	10.24		1.47	
	18	10.14		1.57	
	20	10.05		1.66	
	22	9.97		1.74	

Test 1

1

AQUIFER TEST

William A Hansom

Well No. 9B

Date 3/4/83 Location Chiquita Blvd. Meas. Point

Clock Time	Elapsed Time(Min.)		Water Level	Drawdown in Feet	Pumping Rate
	24	9.89		1.82	
	26	9.81		1.90	
	28	9.74		1.97	
	30	9.67	777	2.04	
	33	9.58		2.13	
	36	9.49		2.22	
	40	9.38		2.33	
	45	9.25		2.46	
	50	9.14		2.57	
	55	9.04		2.67	
	60	8.95		2.76	
	65 (1:05)	8.87		2.84	
	70 (1:10)	8.78		2.93	
	80 (1:20)	8.66	67	3.05	
	90 (1:30)	8.55		3.16	
	100 (1:40)	8.46		3.25	
	120 (2:00)	8.31		3.40	
	140 (2:20)	8.20		3.51	

Test 1

AQUIFER TEST

Drawdown

Well No. RO-7

Date 3/11/92 Location Cape Coral Meas. Point

Clock Time	Elapsed Time(Min.)	Correction-add 8 ft.	Water Level	Drawdown in Feet	Pumping Rate
1115	0	11.97			
155	0	3.97	11.97		
	15	3.97			
	30	3.97			
	45	3.97			
	1	3.97			
	1½	3.97			
	2	3.97			
	2½	3.97			
	3	3.97			
	3½	3.97			
	4	3.97			
	4½	3.97			
	5	3.97			
	6	3.97			
	7	3.97			
	8	3.97			
	9	3.97			
	10	3.97			
	12	3.97			
	14	3.97			
	16	3.97			
	18	3.97			
	20	3.97	11.97		

Test 2

AQUIFER TEST

Well No. RO-7

Date 3/11/83 Location _____ Meas. Point _____

Clock Time	Elapsed Time(Min.)	Correction - add 8 ft.	Water Level	Drawdown in Feet	Pumping Rate
	22	3.97	11.97		
	24	3.97			
	26	3.97			
	28	3.97			
2:30	30	3.97			
	33	3.97			
	36	3.97			
	40	3.97			
	45	3.97			
	50	3.97			
	55	3.97			
3:00	60	3.97	11.97	0	
	65	3.96	11.96	.01	
	70	3.96	11.96	.01	
	80	3.95	11.95	.02	
	126	3.92	11.92	.05	

Test 2

AQUIFER TEST

Drawdown

Well No. RO-8

Date 3/11/83 Location Cape Coral Meas. Point ______

Clock Time	Elapsed Time(Min.)		Water Level	Uncorrected Drawdown in Feet	Pumping Rate
1159	0	12.70			
2:08	0	12.70			
	1/4				
	1/2				
	3/4				
	1				
	1 1/2				
	2				
	2 1/2				
	3				
	3 1/2				
	4				
	4 1/2				
	5				
	6				
	7	12.70			
	8	12.69			
	9				
	10				
	12				
	14				
	16				
	18				
1st Reading	20	12.69		.01	

START TEST CLOCK ~~Cape~~ @ 2:00 PM

Test 2

II-70

1

AQUIFER TEST

Well No. PO-8

Date 3/11/83 Location _____ Meas. Point _____

Clock Time	Elapsed Time(Min.)		Water Level	Drawdown in Feet	Pumping Rate
	22	12.68		.02	
	24	12.68			
	26	12.68			
	28	12.67		.03	
	30	12.67			
	33	12.67			
	36	12.67			
	46	12.66		.04	
	45	12.65		.05	
	50	12.64		.06	
	55	12.64			
	60	12.64			
	65	12.63		.07	
	70	12.61		.09	
	80	12.60		.10	
	90	12.57		.13	
	100	12.54		.16	
	120	12.52		.18	
	140	12.51		.19	
	160	12.47		.23	

TIMETED (cont @ 17 00 00

AQUIFER TEST

Drawdown

Pumped Well

Well No. RO-9

Date 3/11/83 Location Cape Coral Meas. Point

Clock Time	Elapsed Time(Min.)		Water Level	Drawdown in Feet Static +11.09	Pumping Rate
1220	0	+11.13			
1345	0	+11.09	+11.09		
	1.4	30 - 2.07	27.93	39.02	
	2.	30 - 1.58	28.42	39.51	
	2.5	30 - 1.45	28.45	39.54	
*	3.	30 - 1.36	28.64	39.73	* Adjust Q.
	4.	30 - 2.70	27.30	38.39	" "
	5.	25.74	25.74	36.83	" "
	6.	25.17	25.17	36.26	" "
	7.	25-.33	24.67	35.76	900 gpm
	8.	25-.25	24.75	35.84	
	9.	25-.07	24.93	36.02	
	10	25.12	25.12	36.21	
	12	25.46	25.46	36.35	
	14	26.10		37.19	
	16	26.50		37.59	
	18	26.76		37.85	
	20	27.03		38.12	
	22	27.23		38.32	
	24	27.43		38.52	
	26	27.60		38.69	
	28	27.76		38.85	
	30	30 - 1.97	28.03	39.12	
	33	30 - 1.55	28.45	39.54	

Test 2

1

AQUIFER TEST

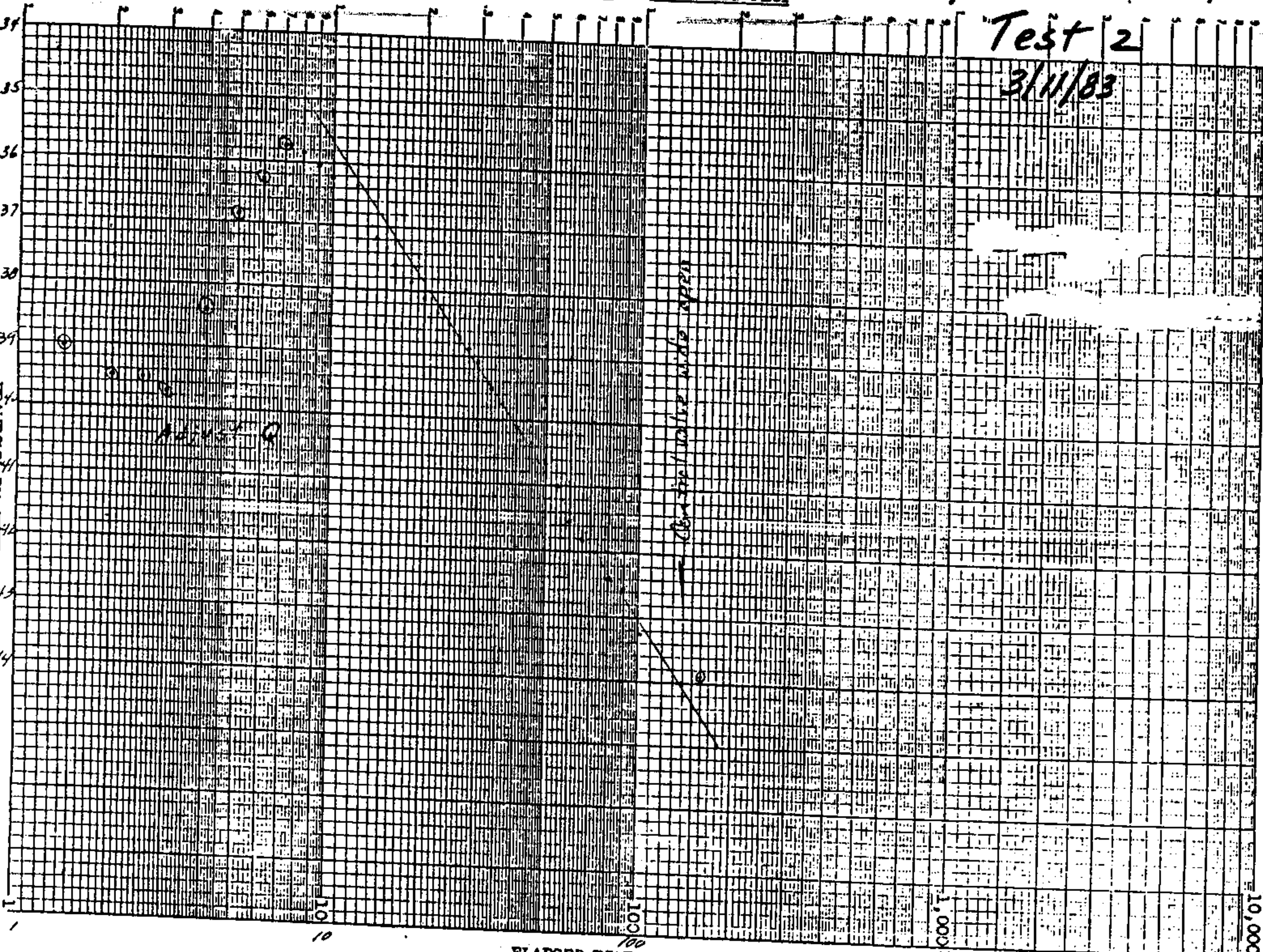
Well No. RO-9

Date 3/11/83 Location _____ Meas. Point _____

Clock Time	Elapsed Time(Min.)		Water Level	Drawdown in Feet	Pumping Rate
	36	30 -1.36	28.64	39.73	
	40	30 - 1.01	28.99	40.08	53" 896gpm
	45	30 - 0.76	29.24	40.33	
	50	30 -047	29.53	40.62	
	55	30 - 0.09	29.91	41.00	
3 00 PM	60	30.44		41.53	
	66	30.72		41.81	
	71	30.85		41.94	
	80	31.11		42.20	
3 30 PM	90	31.45		42.54	
	102	3212		43.21	
4 04	120	32.59		43.68	
	142	32.91		44.00	50.5" 876gpm
	162	32.80		43.89	Valve wide open - no further adjustment available

Test 2

TIME-DRAWDOWN SEMI-LOG PLOT



AQUIFER TEST

Drawdown

Well No. 94

Date 03-11-93 Location CHIQUITA PKWY, CAPE CORAL Meas. Point

Clock Time	Elapsed Time (Min.)		(Ft. MP) Water Level	Drawdown in Feet	Pumping Rate
1348	0	(ABOVE MP)	+ 11.10		
1404	0		+ 11.00'	0	
	0.25		+ 6.70	4.30'	
	0.5		+ 6.48	4.52'	
	0.75		+ 5.08	5.92'	
	1.0		+ 4.02	6.98'	
	1.5		+ 2.95	8.15'	
	2.0		+ 2.33	8.77'	
	2.5		+ 1.71	9.29'	
	3.0		+ 1.30	9.70'	
	3.5		+ 0.96	10.04'	
	4.0		+ 0.77	10.23'	
	4.5		+ 0.61	10.36'	
	5		+ 0.56	10.44'	
	6		+ 0.31	10.69'	
	7	ABOVE MP ↓	+ 0.16	10.84'	
	8	BELOW MP	- 0.02	11.02'	
	9		0.39	11.39'	
	10		0.63	11.63'	900
	12		1.04	12.04'	900
	14		1.41	12.41'	900
	16	2.00 - 0.34'	1.66	12.66	900
	18	3.00 - 1.03'	1.97'	12.97'	900
	20	3.00 - 0.76'	2.24'	13.24'	900
	22	3.00 - 0.50'	2.50'	13.50'	900

Test 2

1

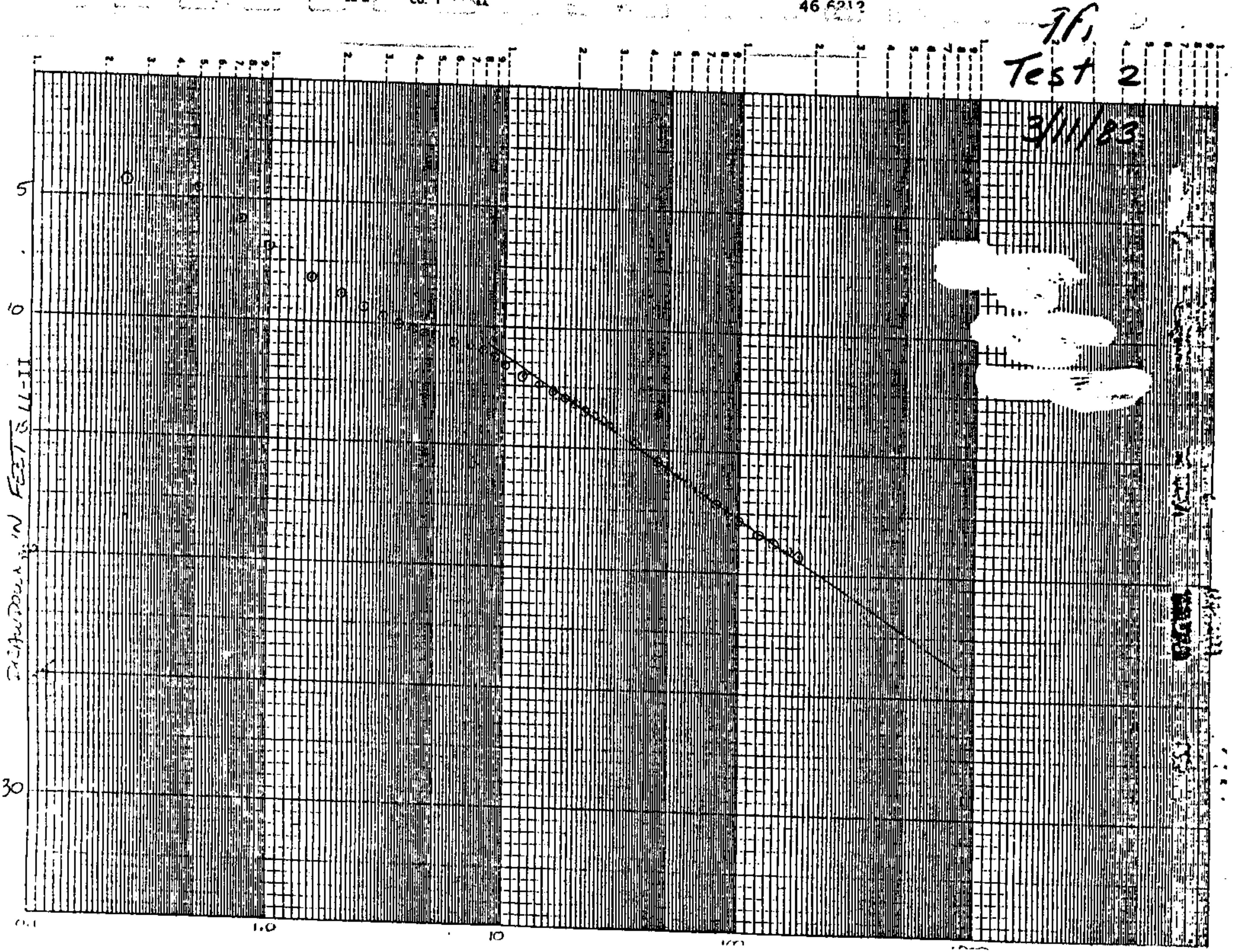
Date 03-11-03 Location CHIQUITA PKWY. CAPE CORAL Well No. 9A

Meas. Point

Clock Time	Elapsed Time(Min.)	(Below MP)	Water Level (Below MP)	Drawdown in Feet	Pumping Rate, GPM
	24	3.00'-0.27'	2.73'	13.73'	900
	26	4.00'-1.07'	2.93'	13.73'	900
	28	4.00'-0.88'	3.12'	14.12'	900
	30	4.00'-0.70'	3.30'	14.30'	900
	33	4.00'-0.38'	3.62'	14.62'	900
	36	5.00'-1.13'	3.87'	14.37'	900
	40	5.00'-0.83'	4.17'	15.17'	900
	45	5.00'-0.50'	4.50'	15.50'	900
	50	6.00'-1.21'	4.79'	15.79'	900
	55	6.00'-0.90'	5.10'	16.10'	900
	60	6.00'-0.61'	5.39'	16.39'	900
	65	6.00'-0.37'	5.63'	16.63'	900
	70	7.00'-1.17'	5.83'	16.83'	900
	80	7.00'-0.81'	6.19'	17.19'	900
	90	7.00'-0.51'	6.49'	17.49'	900
	100	8.00'-1.14'	6.86'	17.86'	900
	120	8.00'-0.63'	7.37'	18.37'	900
"1 [illegible] @ [illegible]"	140	9.00'-1.30'	7.70'	18.70'	896
1645	160	9.00-1.00'	8.00'	19.00'	"0.25" 874
1705	180	9.00-0.74'	8.26'	19.26'	
1725	200				
	230				
	260				
	270				

Test 2

2


Test 2
3/11/83
5
10
30
1.0
10

AQUIFER TEST

Drawdown

Well No. 9B

Date 3/11/83 Location Cape Coral Meas. Point

Clock Time	Elapsed Time(Min.)		Water Level	Uncorrected Drawdown in Feet	Pumping Rate
1202	0	11.08			
1:51	0	11.03			
2:04		11.02			
	¼	11.00		.02	
	½	10.96		.06	
	¾	10.95		.07	
	1	10.92		.10	
	1½	10.85		.17	
	2	10.79		.23	
	2½	10.70		.32	
	3	10.63		.39	
	3½	10 55		.47	
	4	10 49		.53	
	4½	10.43		.59	
	5	10.37		.65	
	6	10.27		.75	
	7	10.19		.83	
	8	10.11		.91	
		10.04		.98	
	10	9.98		1.04	
	12	9.87		1.15	
	14	9.77		1.25	
	16	9.67		1.35	
	18	9.59		1.43	

Test 2

1

AQUIFER TEST

Well No. 9B

Date 3/11/83 Location _____ Meas. Point _____

Clock Time	Elapsed Time(Min.)		Water Level	Drawdown in Feet	Pumping Rate
	20	9.50		1.52	
	22	9.43		1.59	
	24	9.37		1.65	
	26	9.29		1.73	
	28	9.24		1.78	
	30	9.19		1.83	
	33	9.10		1.92	
	36	9.03		1.99	
	40	8.94		2.08	
	45	8.83		2.19	
	50	8.73		2.29	
	55	8.64		2.38	
	60	8.55		2.47	
	65	8.48		2.54	
	70	8.39		2.63	
	80	8.25		2.77	
	90	8.14		2.88	
	100	8.01		3.01	
	120	7.83		3.19	
	140	7.67		3.35	
	160	7.55		3.47	

Test 2

AQUIFER TEST

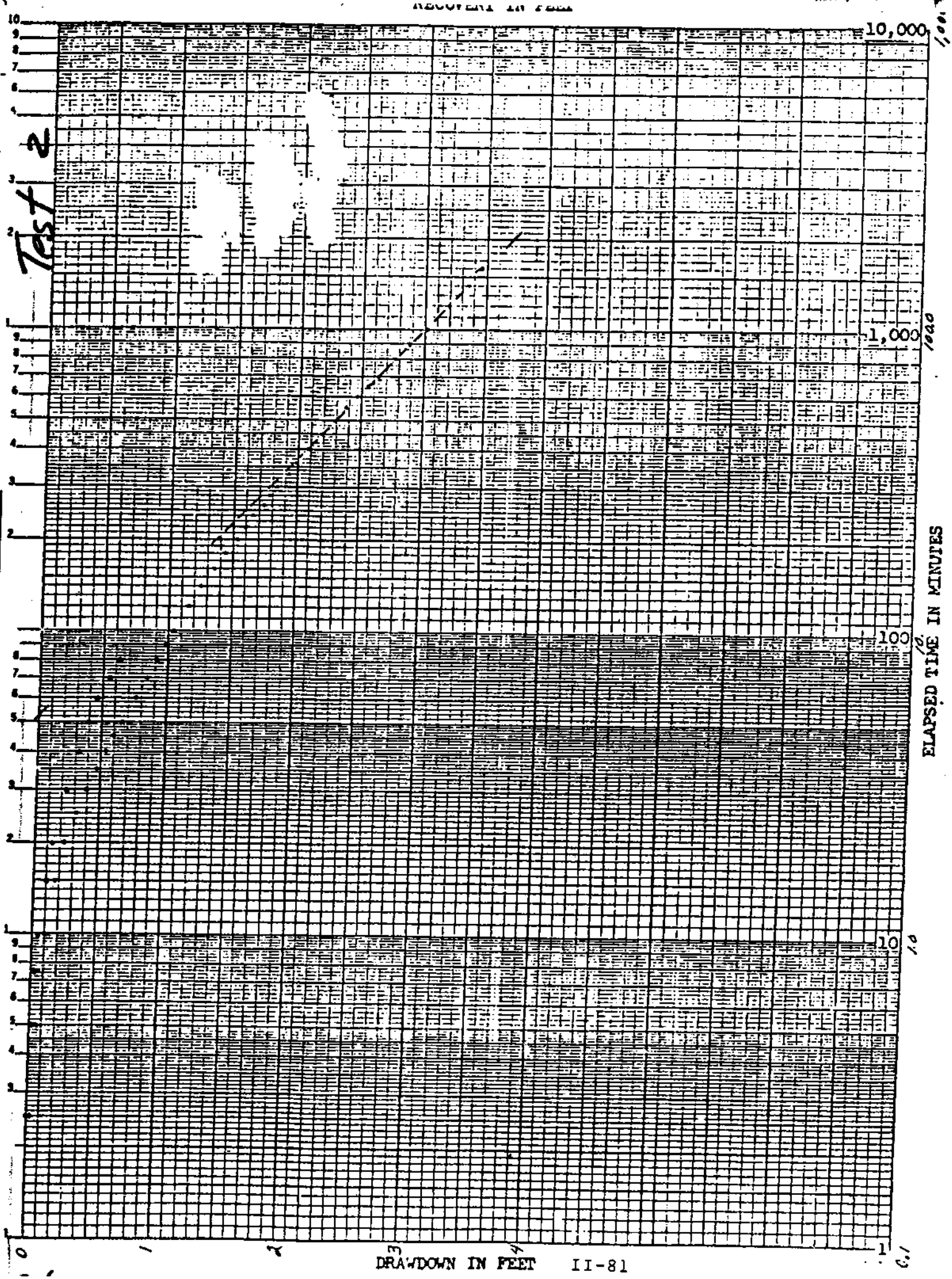
Recovery

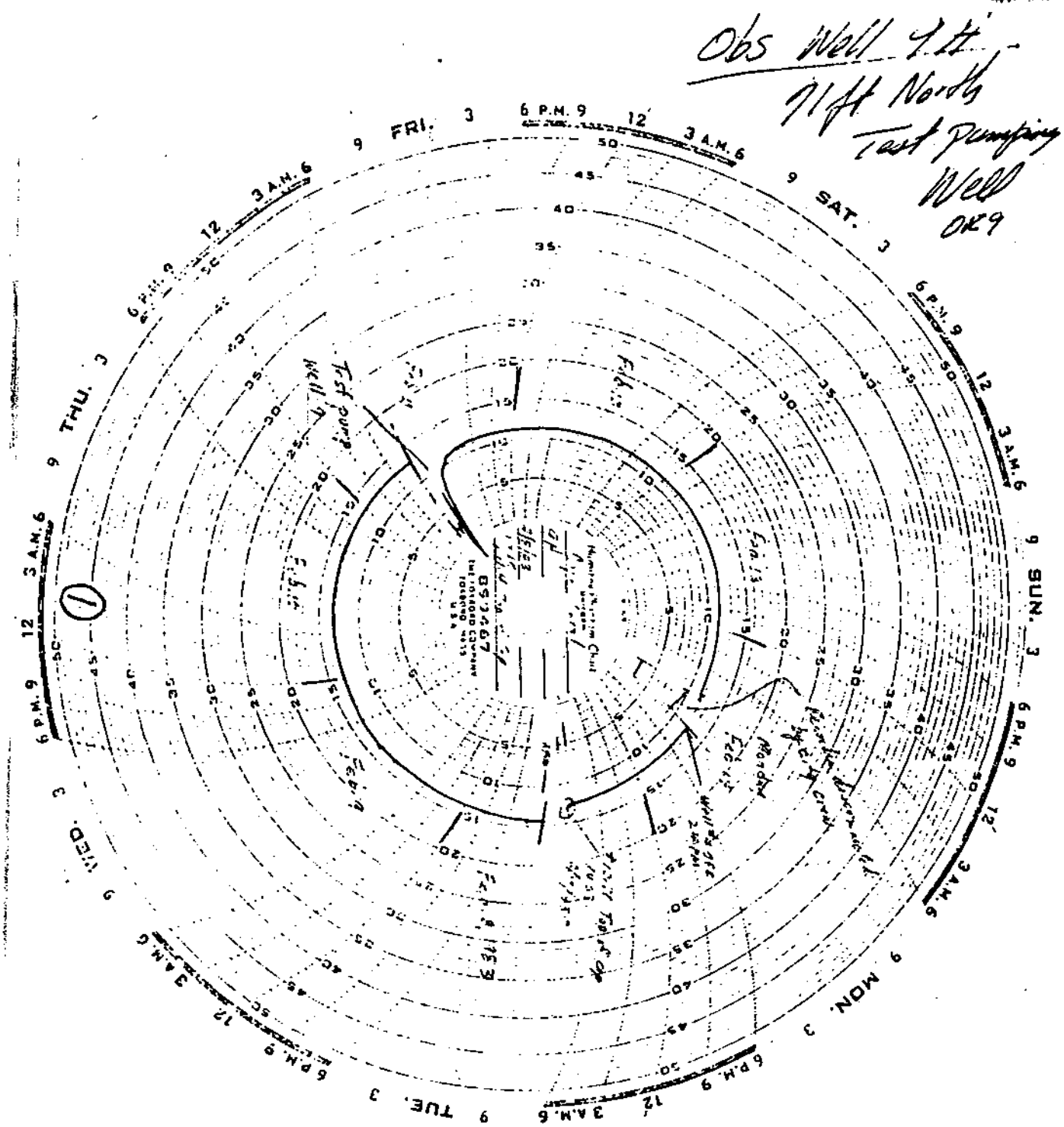
Well No. 9B

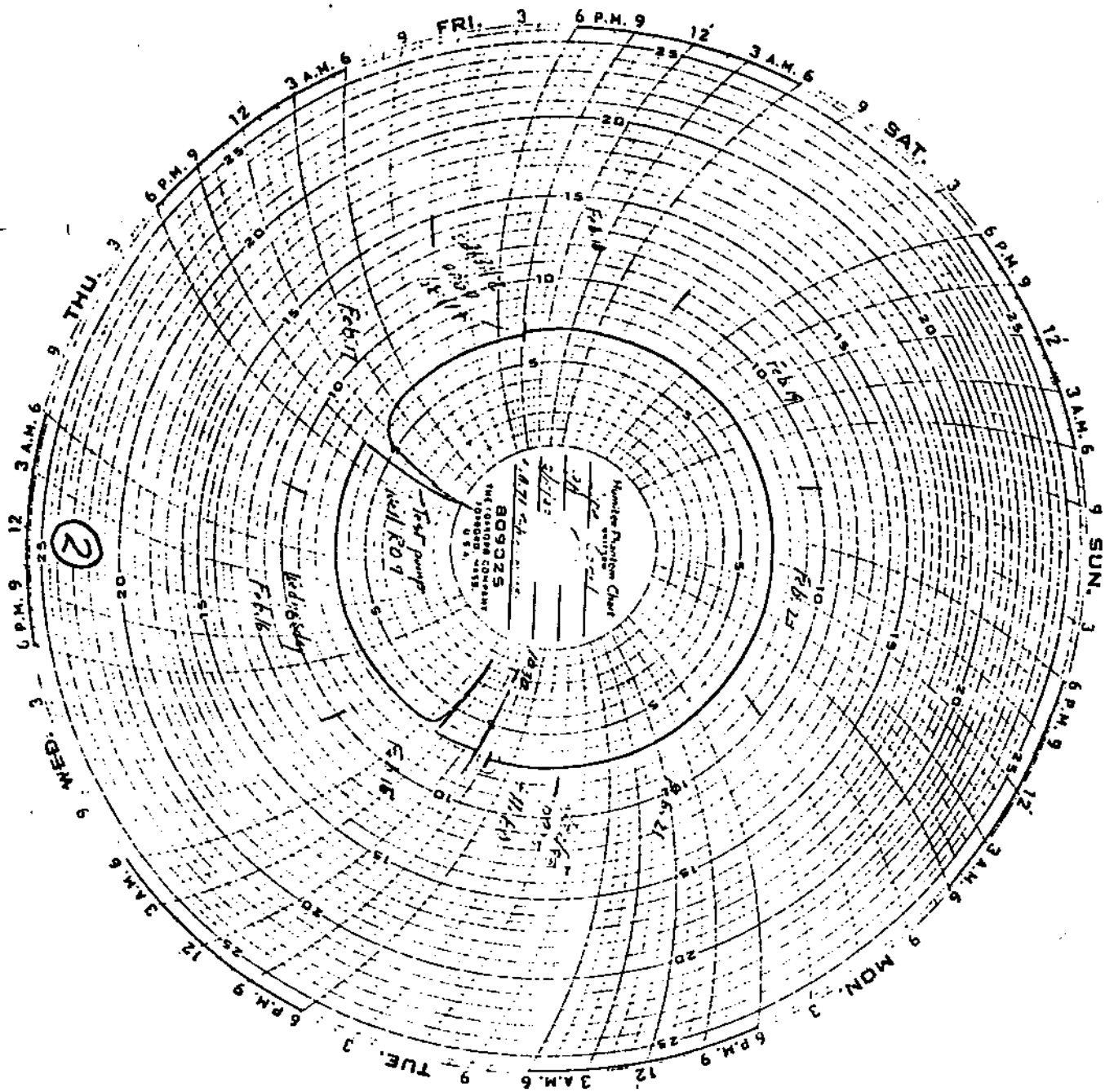
Date 3/11/83 Location _____ Meas. Point _____

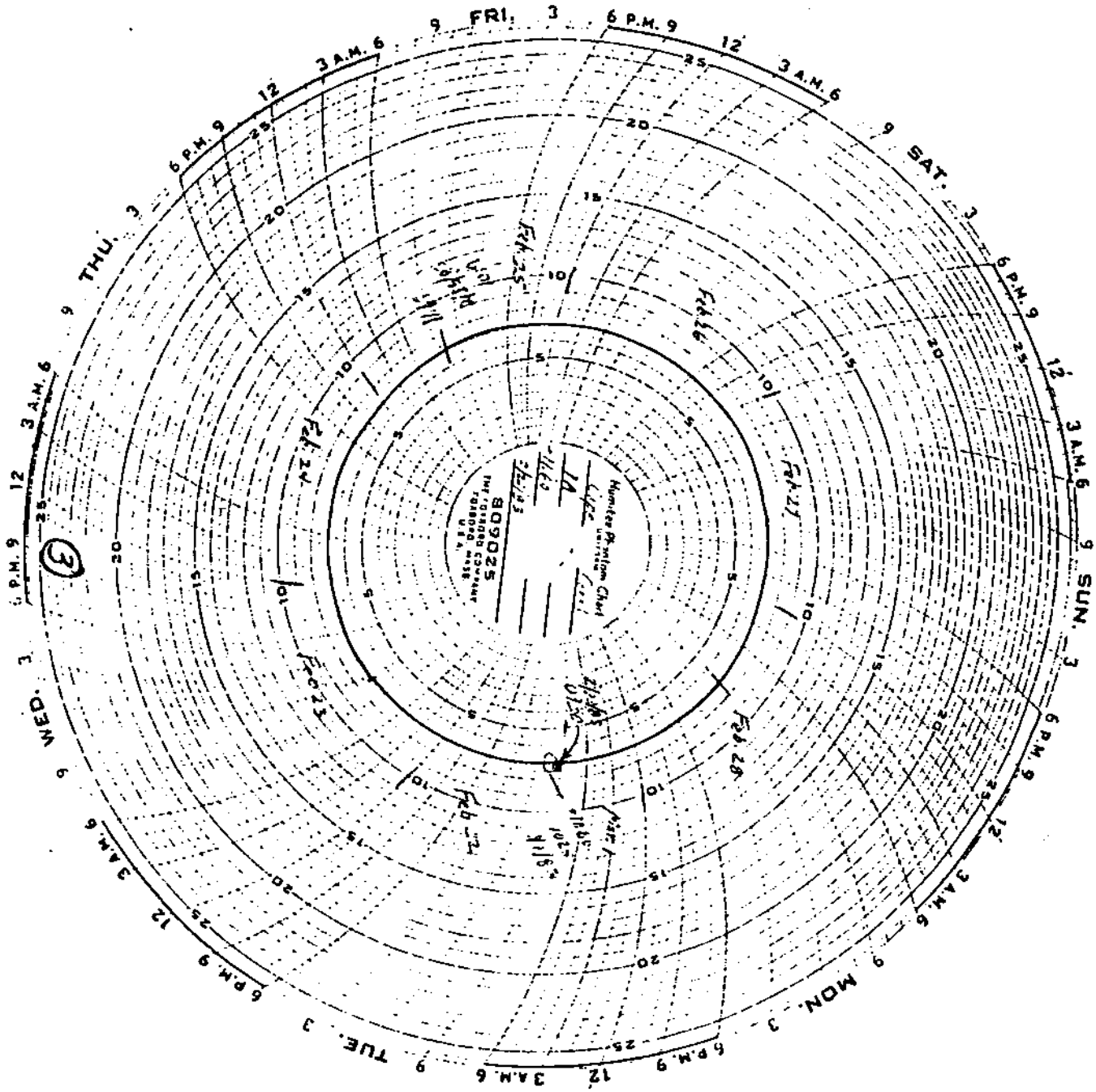
Clock Time	Elapsed Time(Min.)		Water Level	~~Drawdown~~ Recovery in Feet	Pumping Rate
	0	7.37			
	½	7.39		.02	
	30 Sec.	7.40		.03	
	45 Sec.	7.41		.04	
	1	7.42		.05	
	1.5	7.47		.10	
	2	7.50		.13	
	3	7.60		.23	
	4	7.69		.32	
	5	7.76		.39	
	6	7.84		.47	
	7	7.92		.55	
	8	7.99		.62	

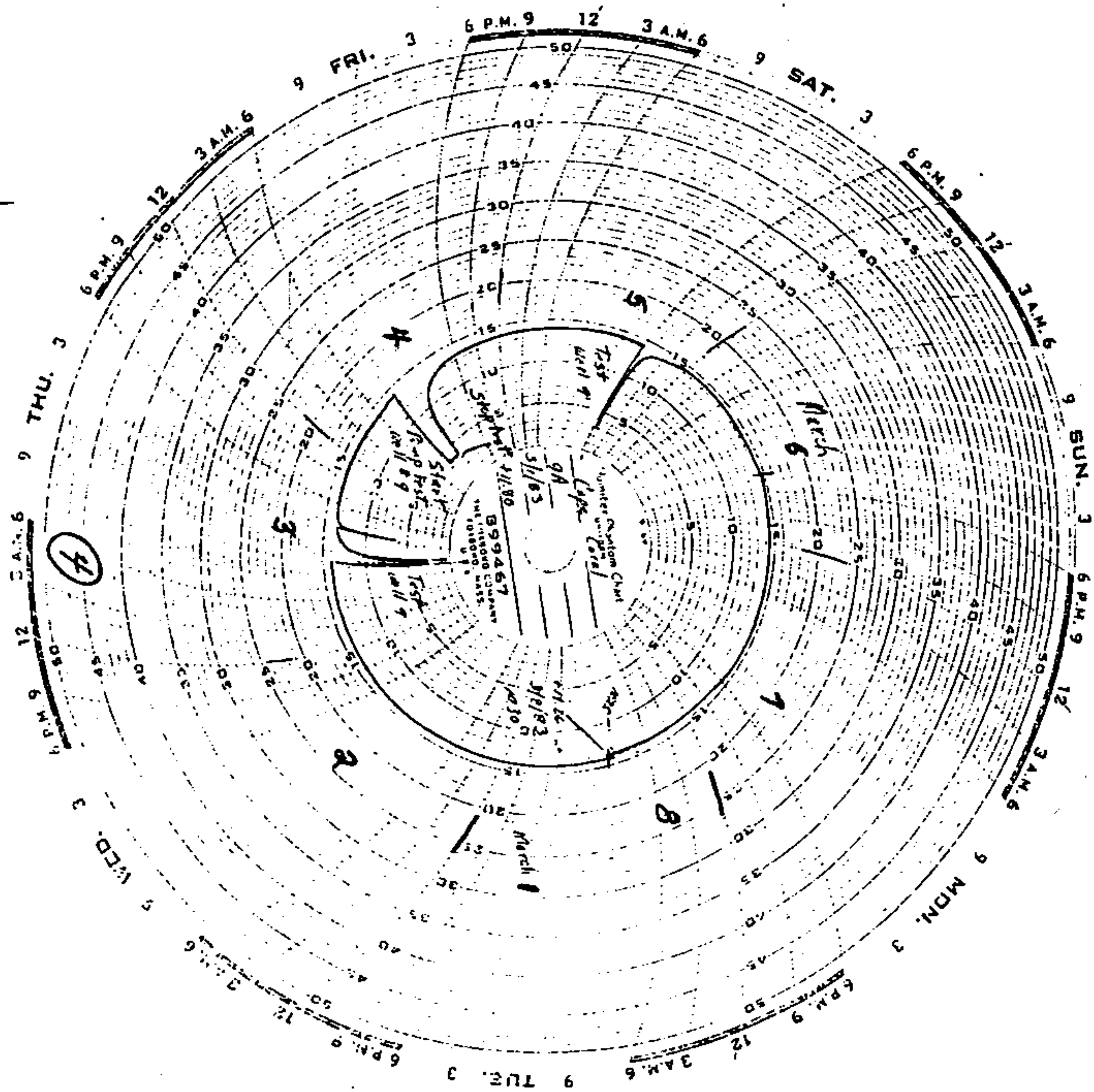
Test 2

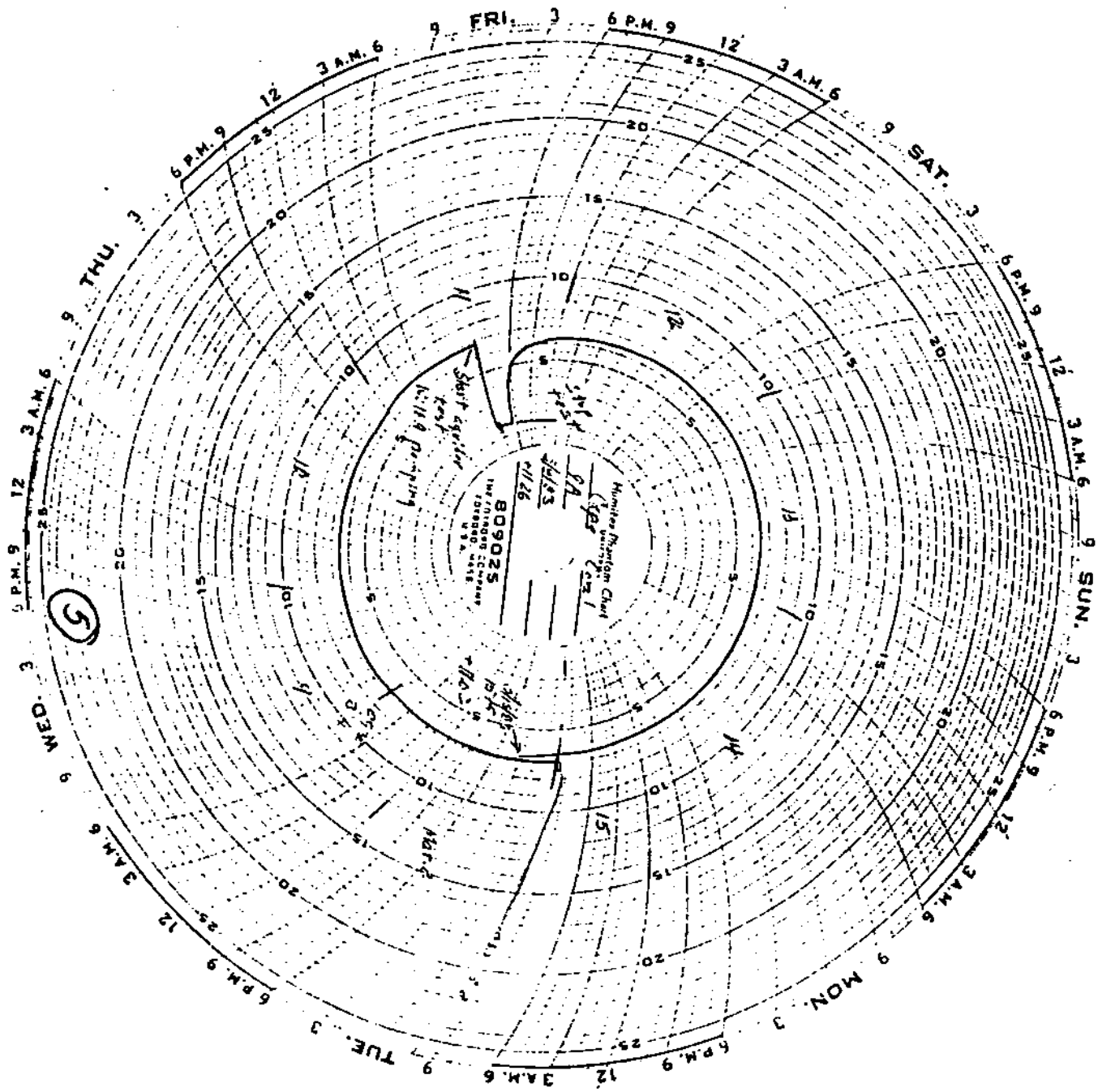

Test 2
Semi-Log Plot
10,000
1,000
100
10
1
0
1
2
3
4
DRAWDOWN IN FEET
ELAPSED TIME IN MINUTES

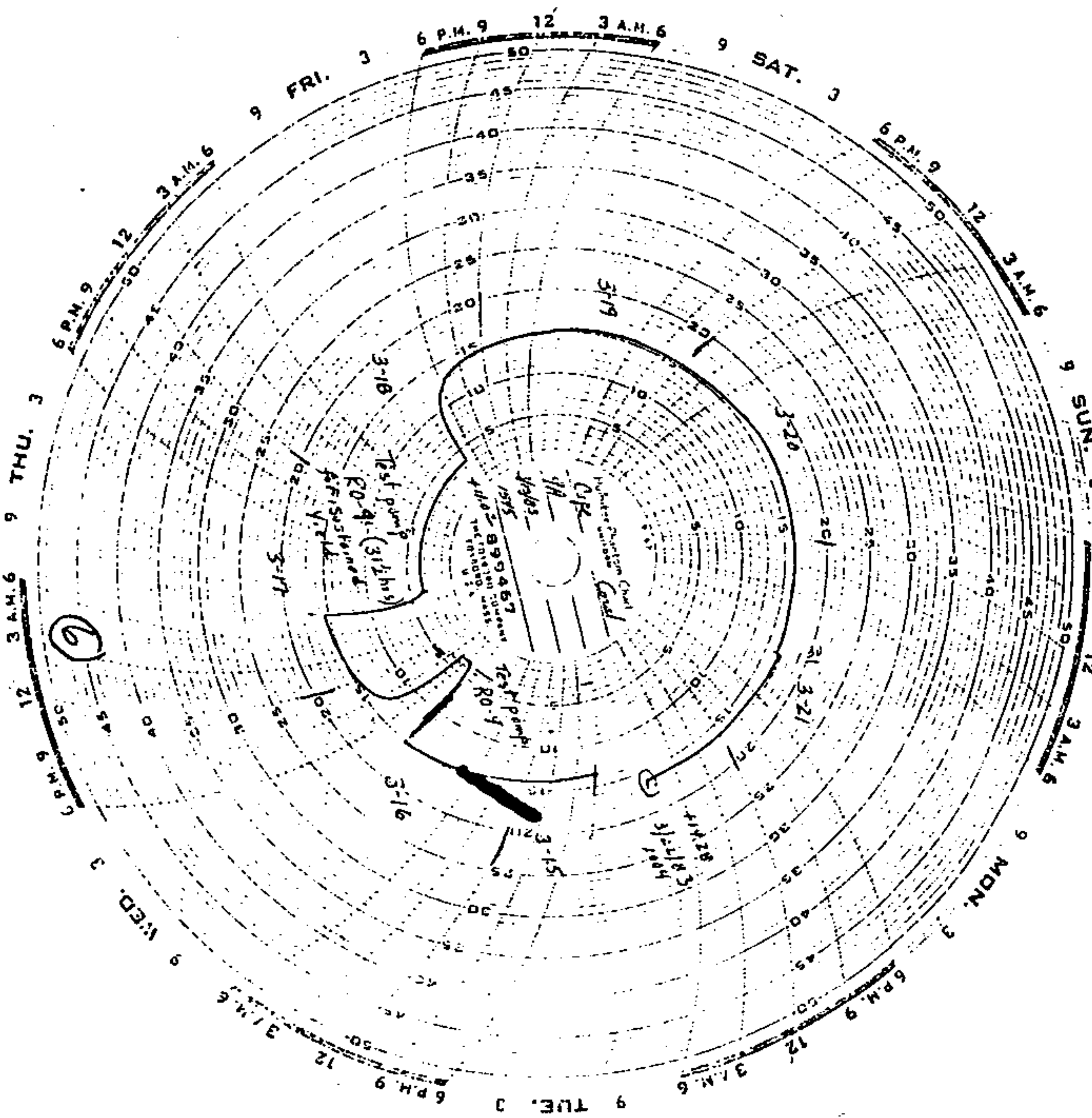

Obs Well 4 ft
71 ft North
Test Pumping
Well
OK 9
FRI.
SAT.
SUN.
MON.
TUE.
WED.
THU.
6 P.M.
12
3 A.M.
9
3

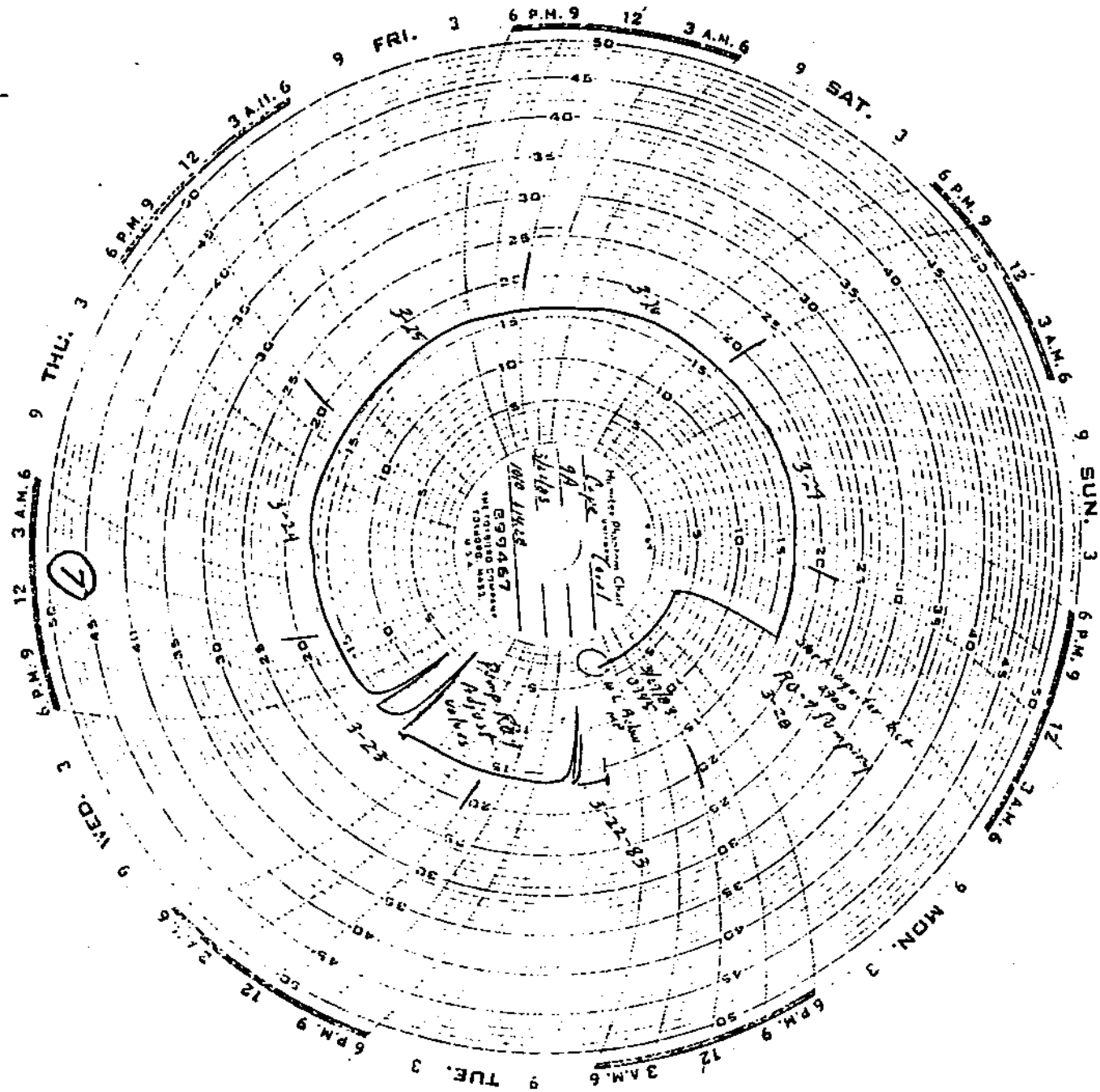

FRI.
SAT.
SUN.
MON.
TUE.
WED.
THU.
6 P.M.
3 A.M.
809325
THE FOXBORO COMPANY
FOXBORO, MASS.
U.S.A.


FRI.
SAT.
SUN.
MON.
TUE.
WED.
THU.
3 A.M.
6 P.M.
9
12
3
6
9
520608


FRI.
SAT.
SUN.
MON.
TUE.
WED.
THU.
6 P.M. 9
12
3 A.M. 6
B99467
Hunter Custom Chart
Test Well #
March
4


FRI.
SAT.
SUN.
MON.
TUE.
WED.
THU.
6 P.M.
3 A.M.
809025
Humidity Pressure Chart
5


FRI.
SAT.
SUN.
MON.
TUE.
WED.
THU.
3-15
3-16
3-17
3-18
3-19
3-20
3-21


FRI.
SAT.
SUN.
MON.
TUE.
WED.
THU.
6 P.M.
12
3 A.M.
9
3
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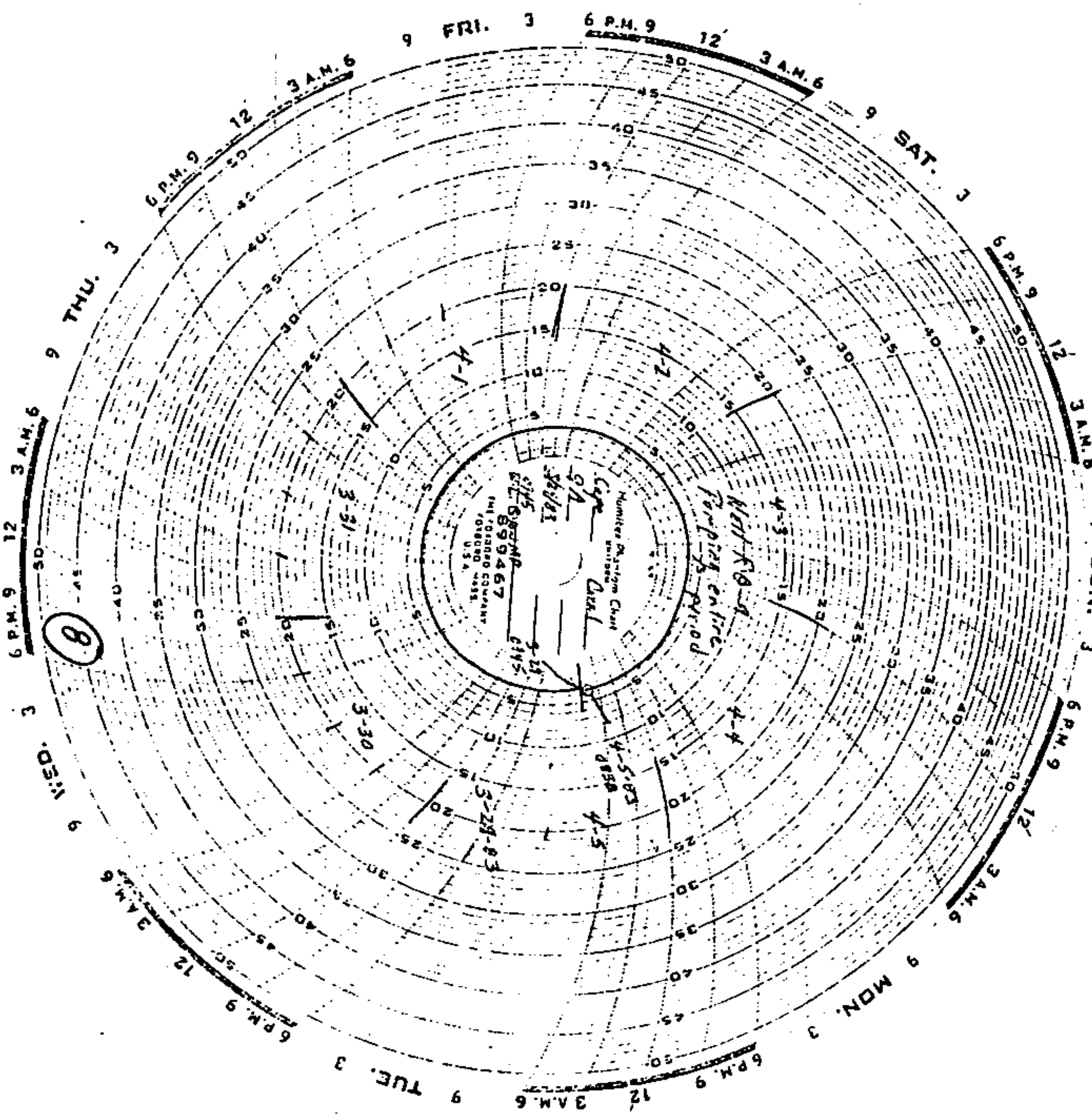
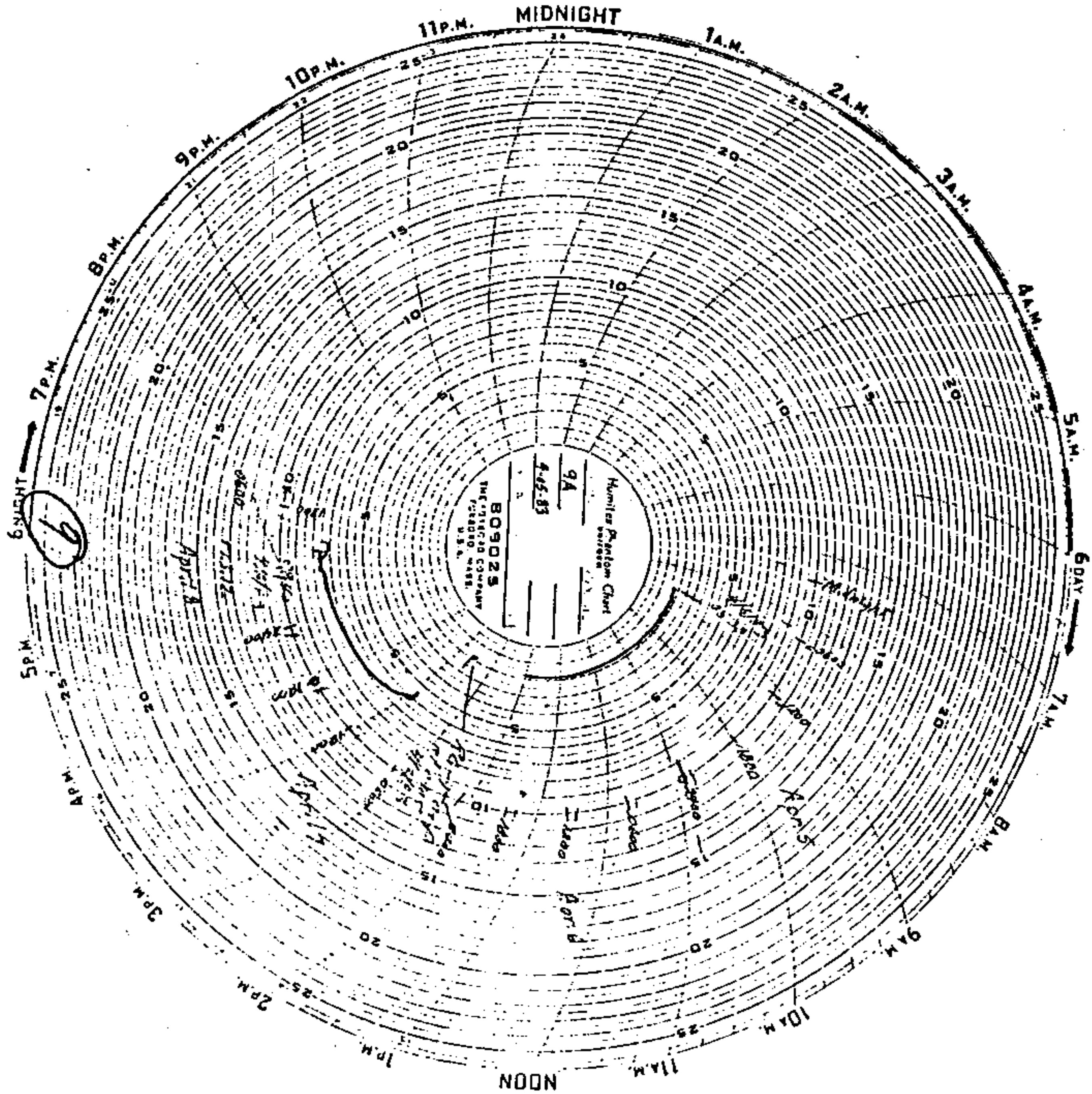
45
40
35
30
25
20
15
10
5
0


FRI.
SAT.
SUN.
MON.
TUE.
WED.
THU.
8


MIDNIGHT
1A.M.
2A.M.
3A.M.
4A.M.
5A.M.
6DAY
7A.M.
8A.M.
9A.M.
10A.M.
11A.M.
NOON
1P.M.
2P.M.
3P.M.
4P.M.
5P.M.
6NIGHT
7P.M.
8P.M.
9P.M.
10P.M.
11P.M.
B0902S

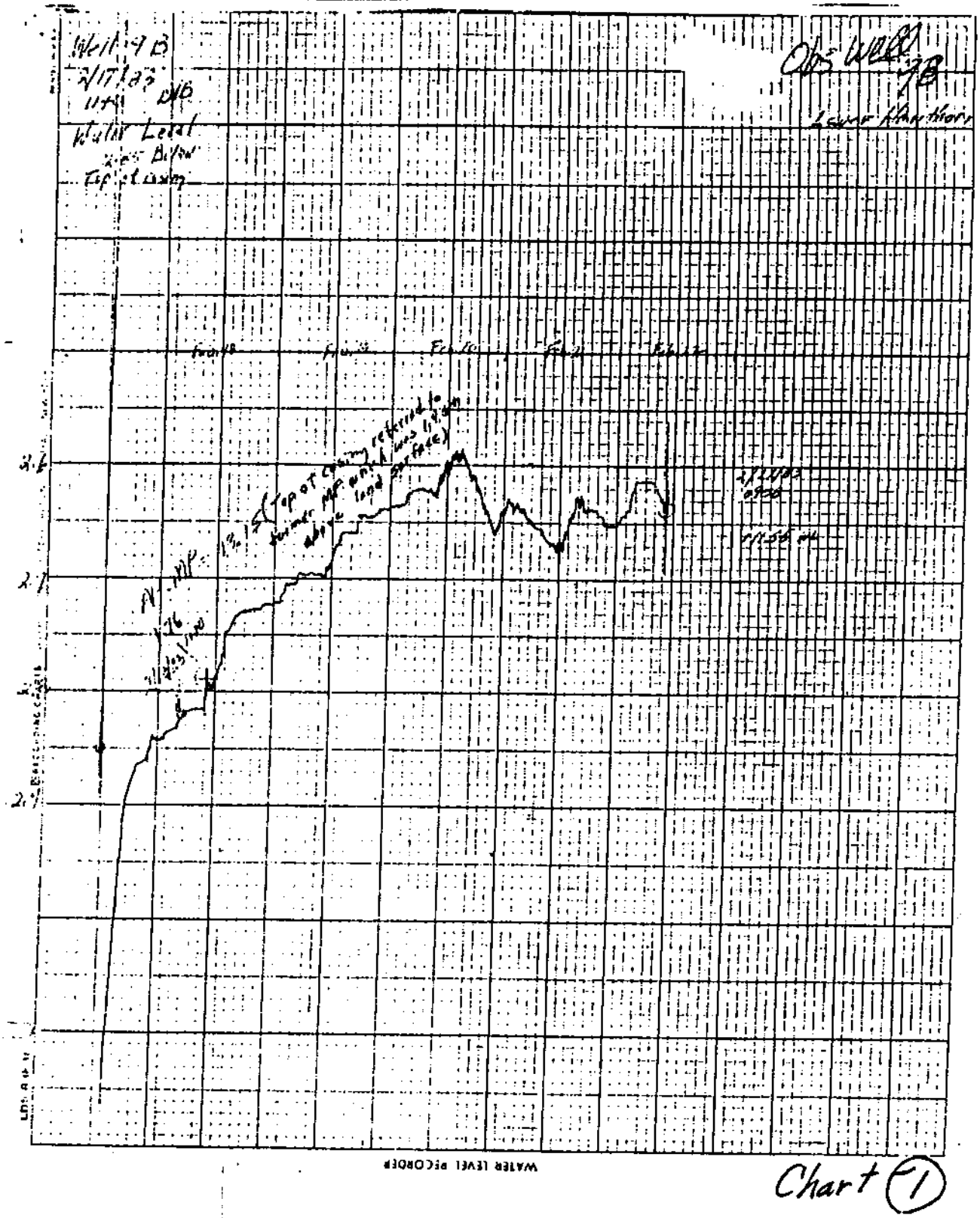
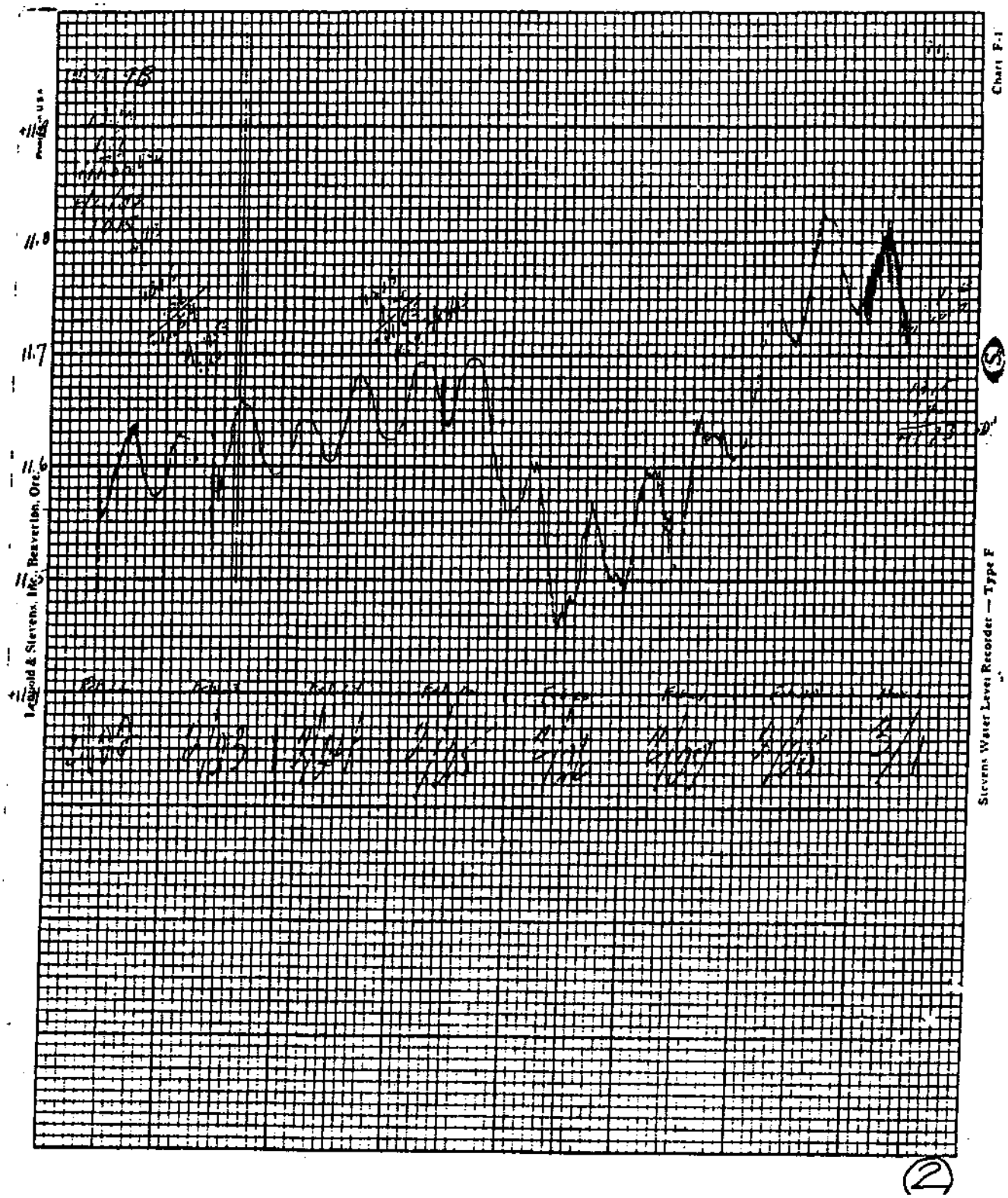
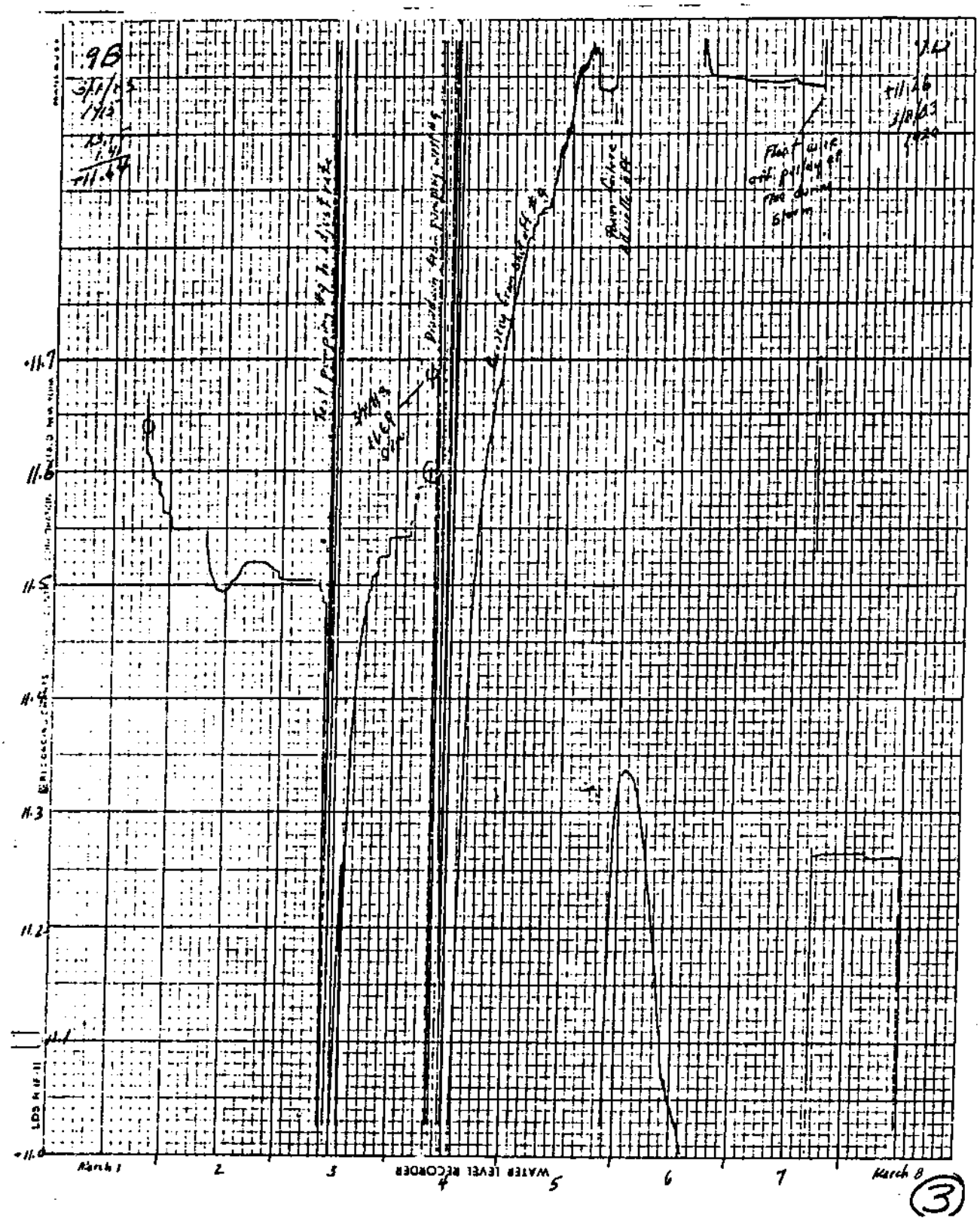
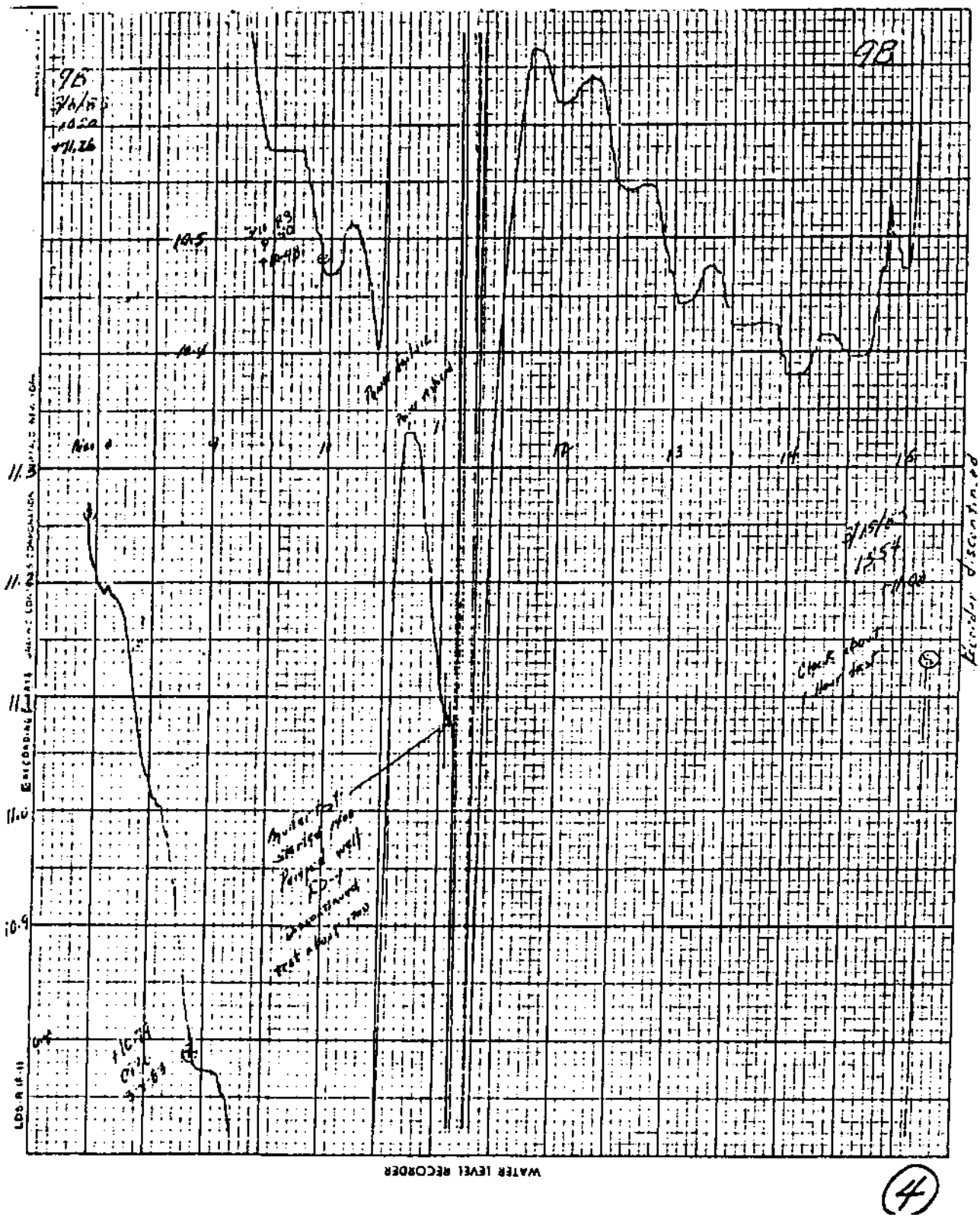
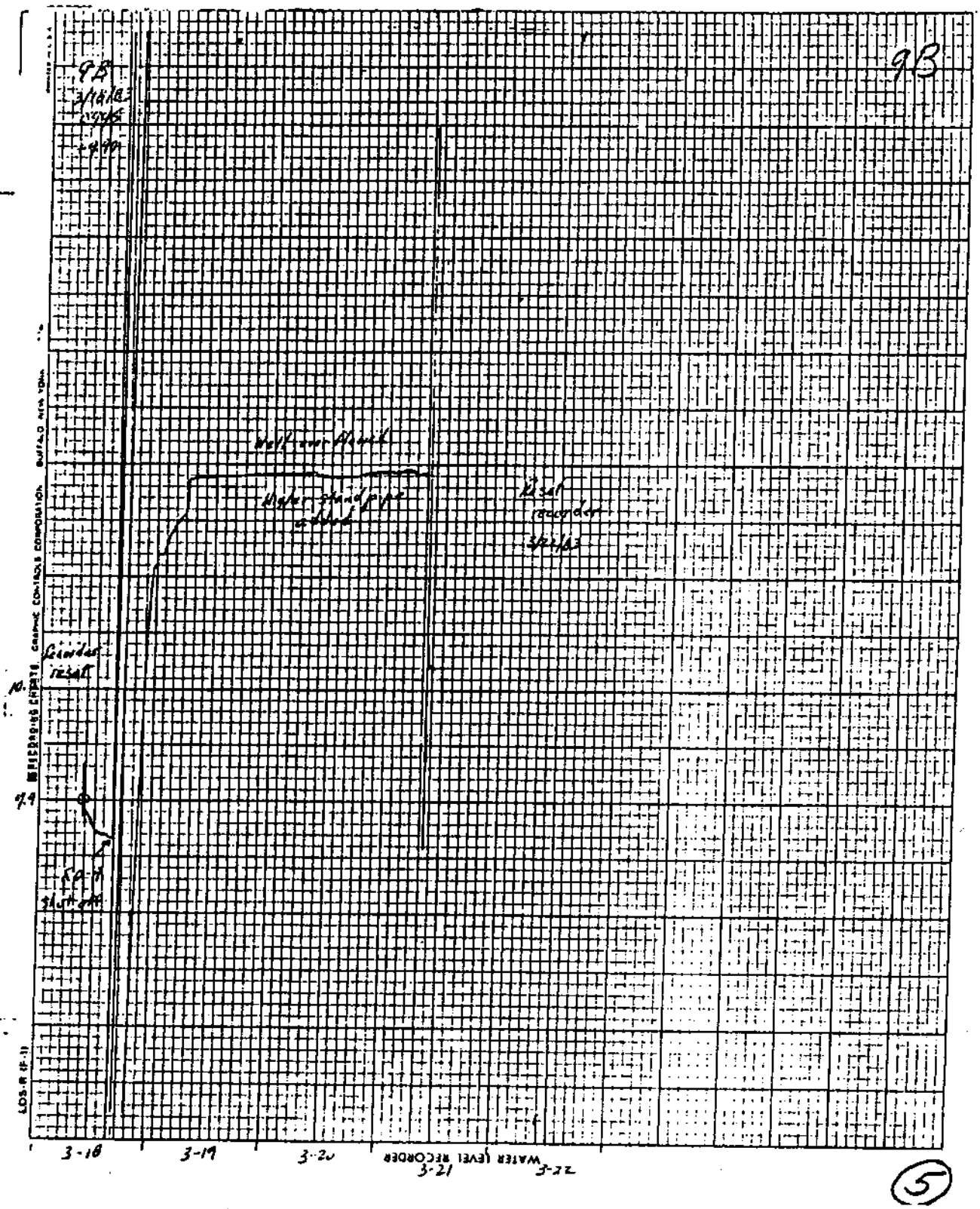

Obs Well 78
Lower Hawthorn
Water Level
Below
Flowing
WATER LEVEL PICORDER

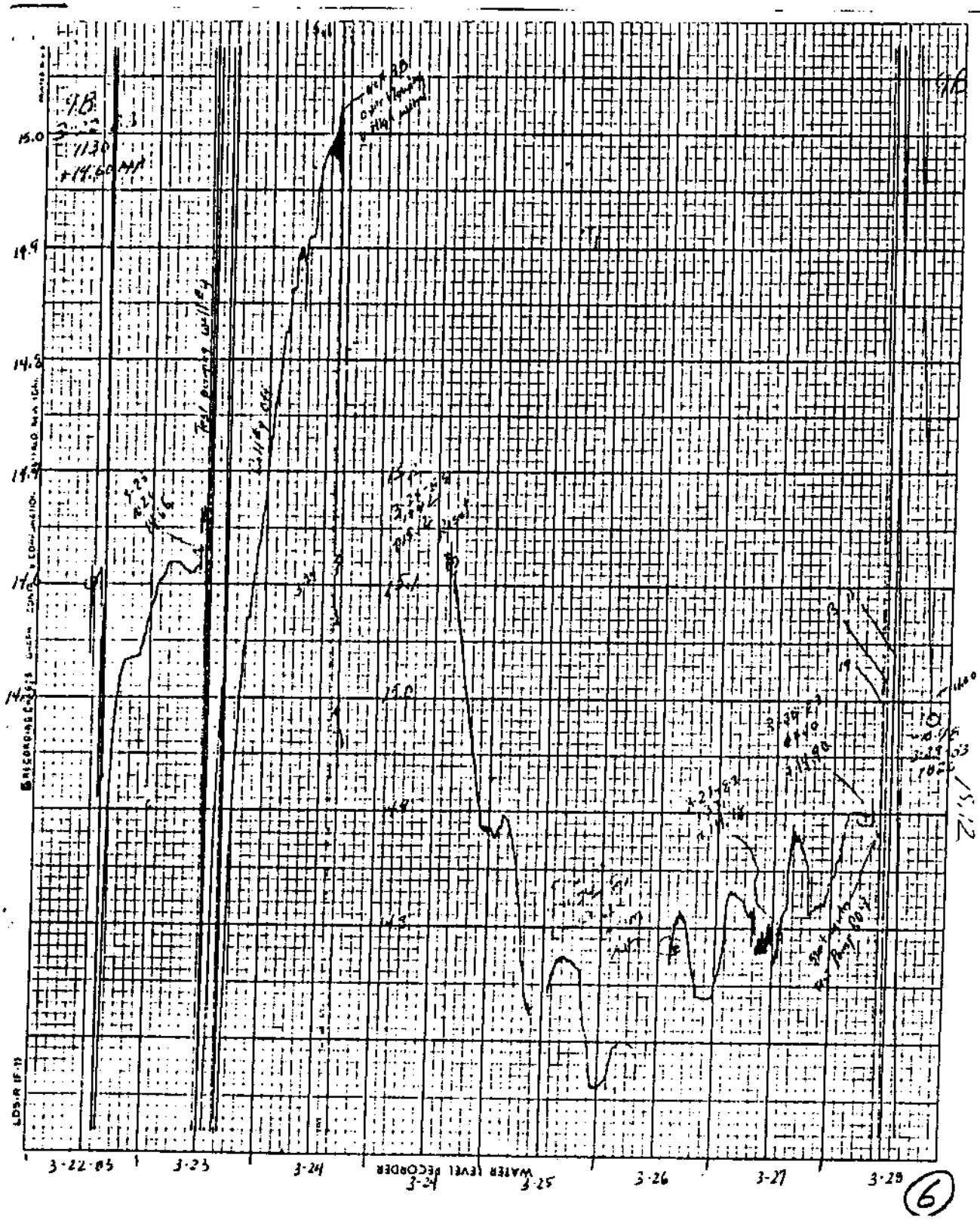
Chart (1)

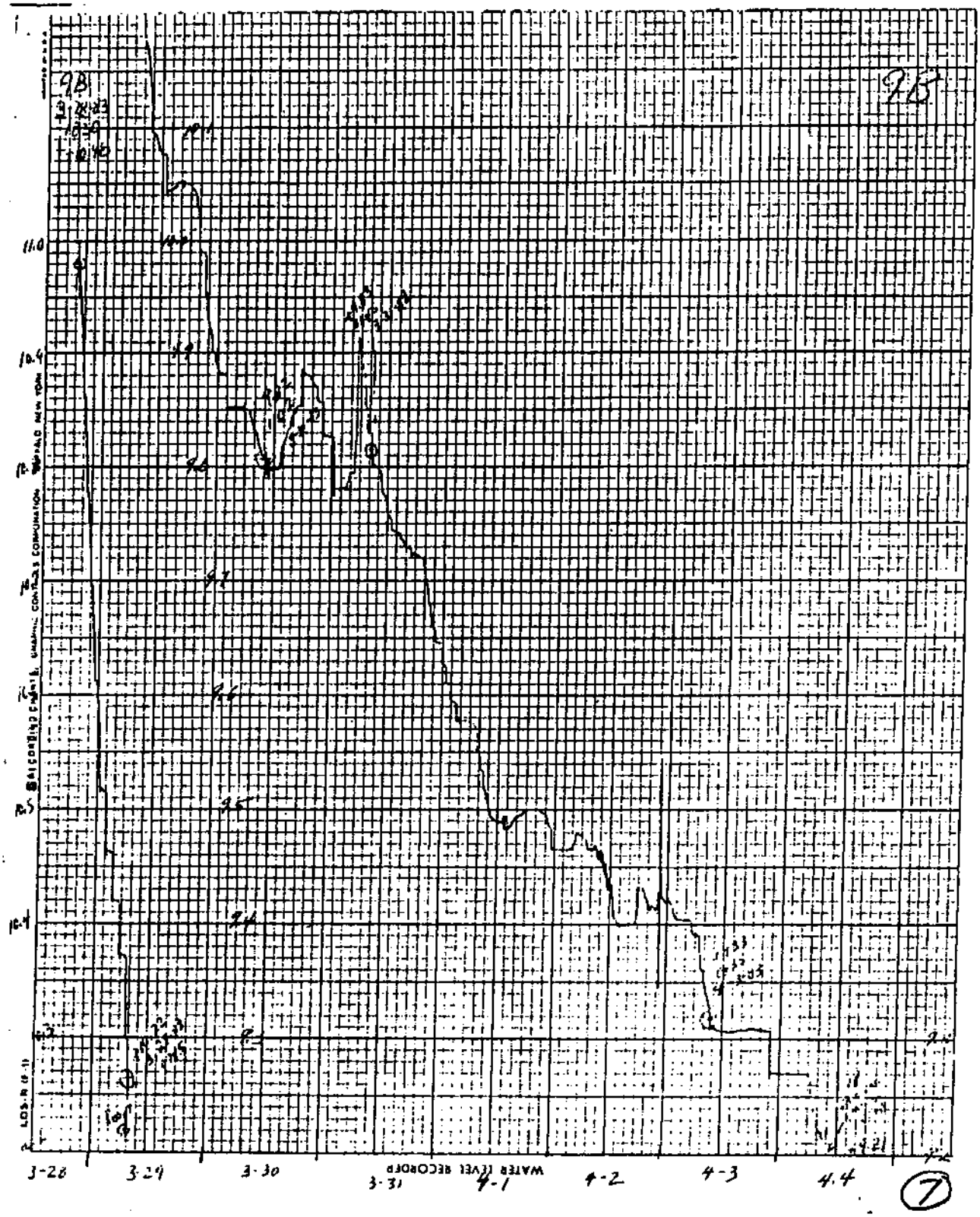

Leupold & Stevens, Inc., Beaverton, Ore.
Stevens Water Level Recorder — Type F
Chart F-1

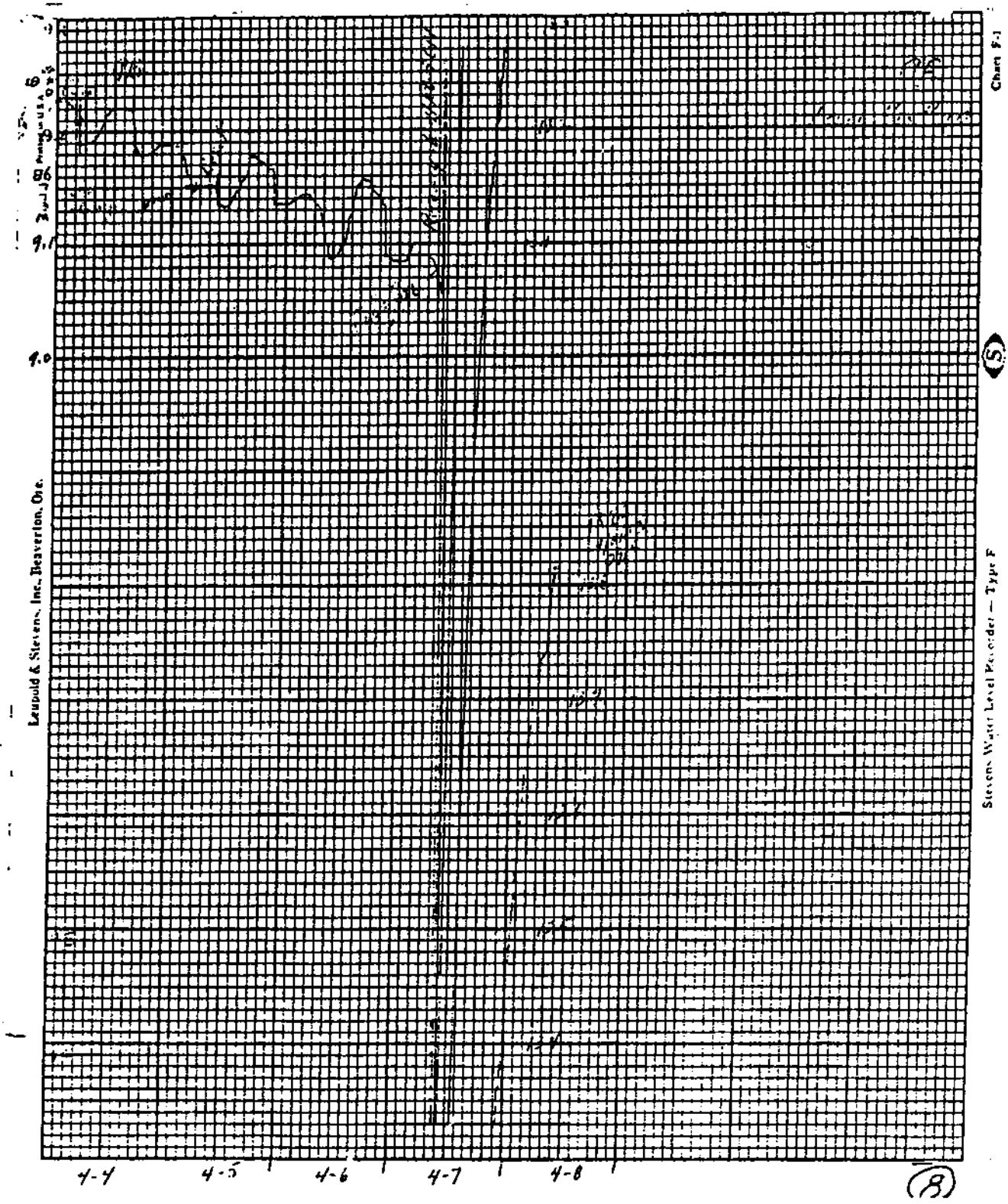

March 1
2
3
4
5
6
7
March 8
WATER LEVEL RECORDER
+11.7
11.6
11.5
11.4
11.3
11.2
+11.0

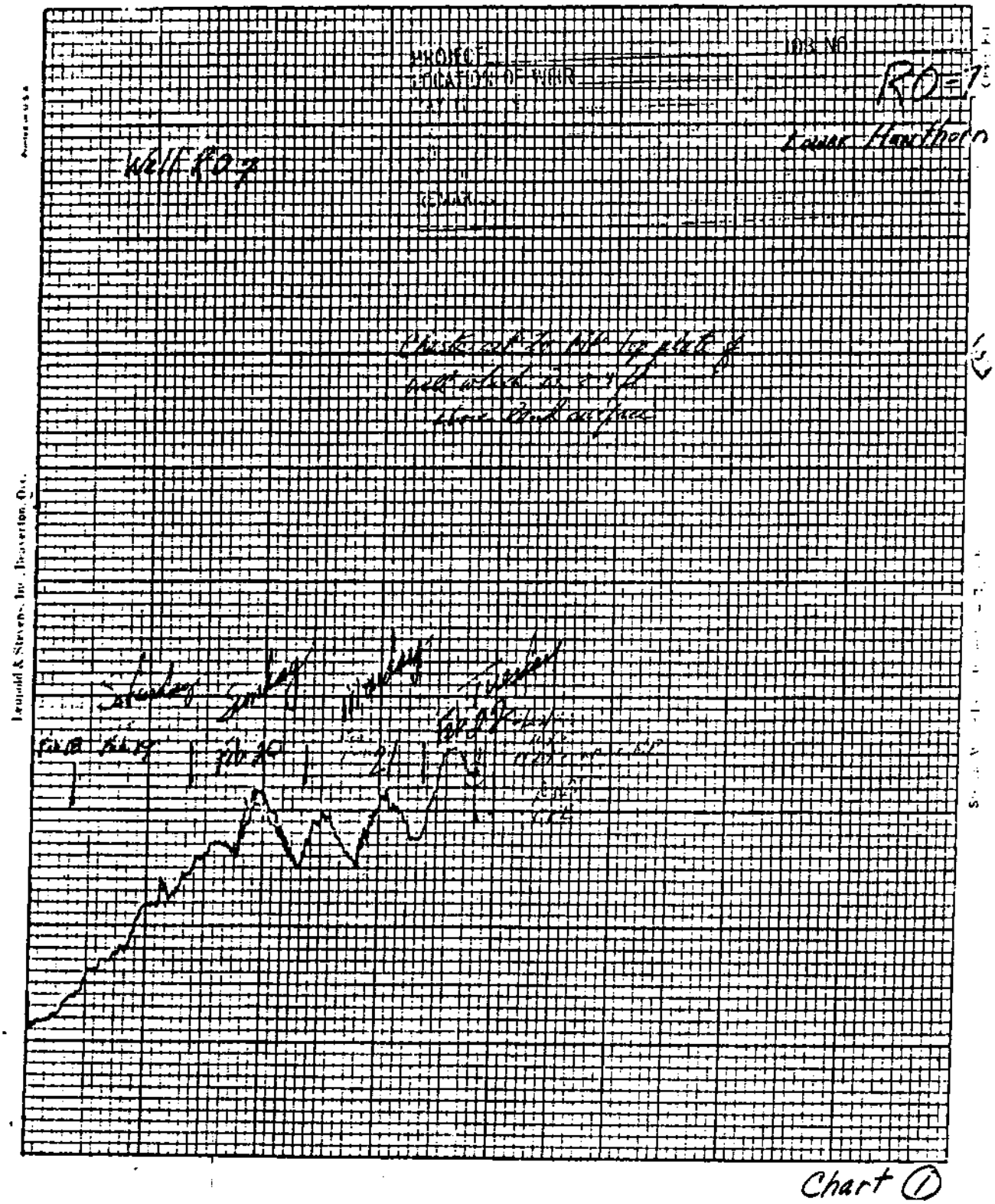

WATER LEVEL RECORDER
(4)

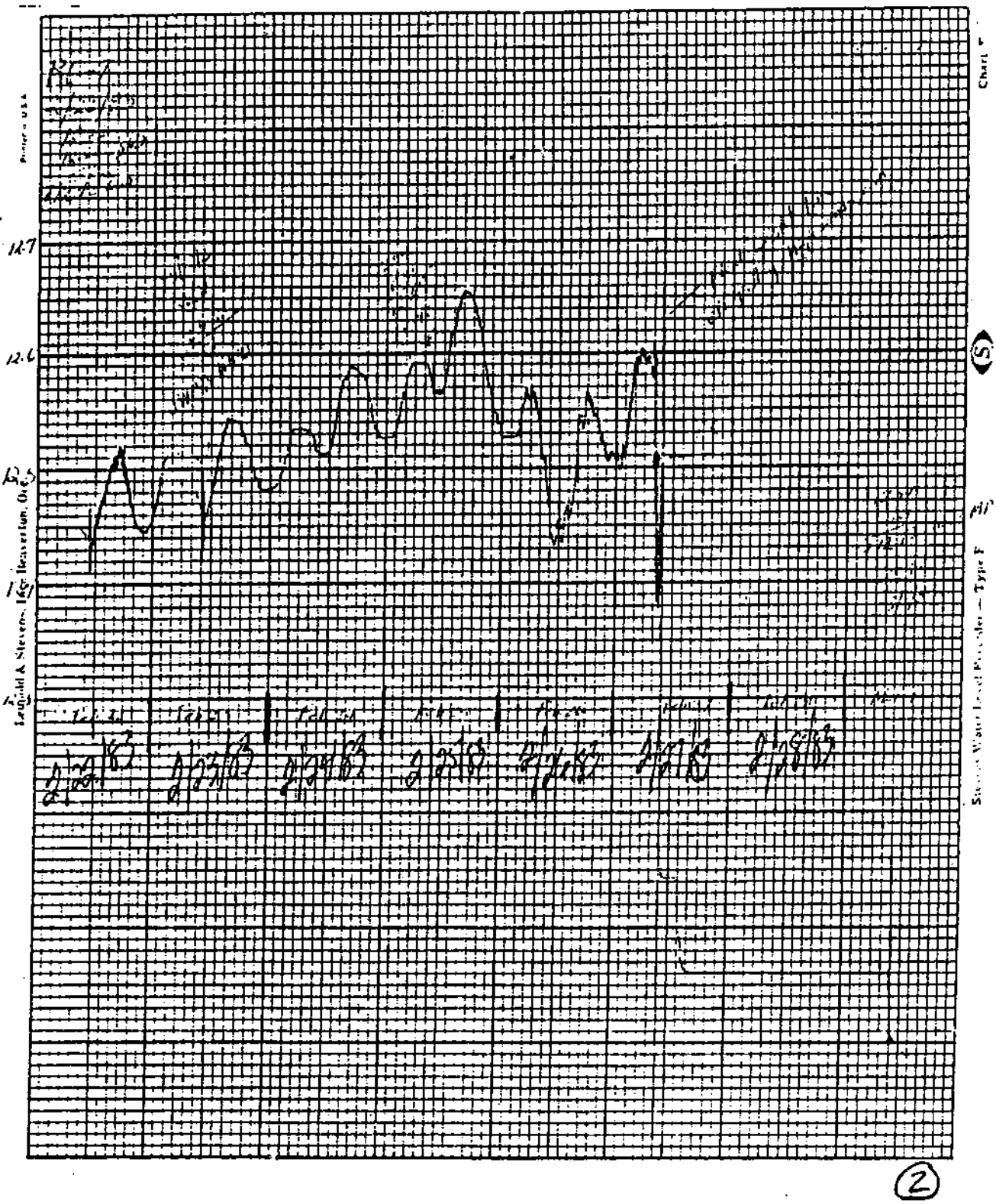

GRAPHIC CONTROLS CORPORATION BUFFALO NEW YORK
WATER LEVEL RECORDER
3-18
3-19
3-20
3-21
3-22

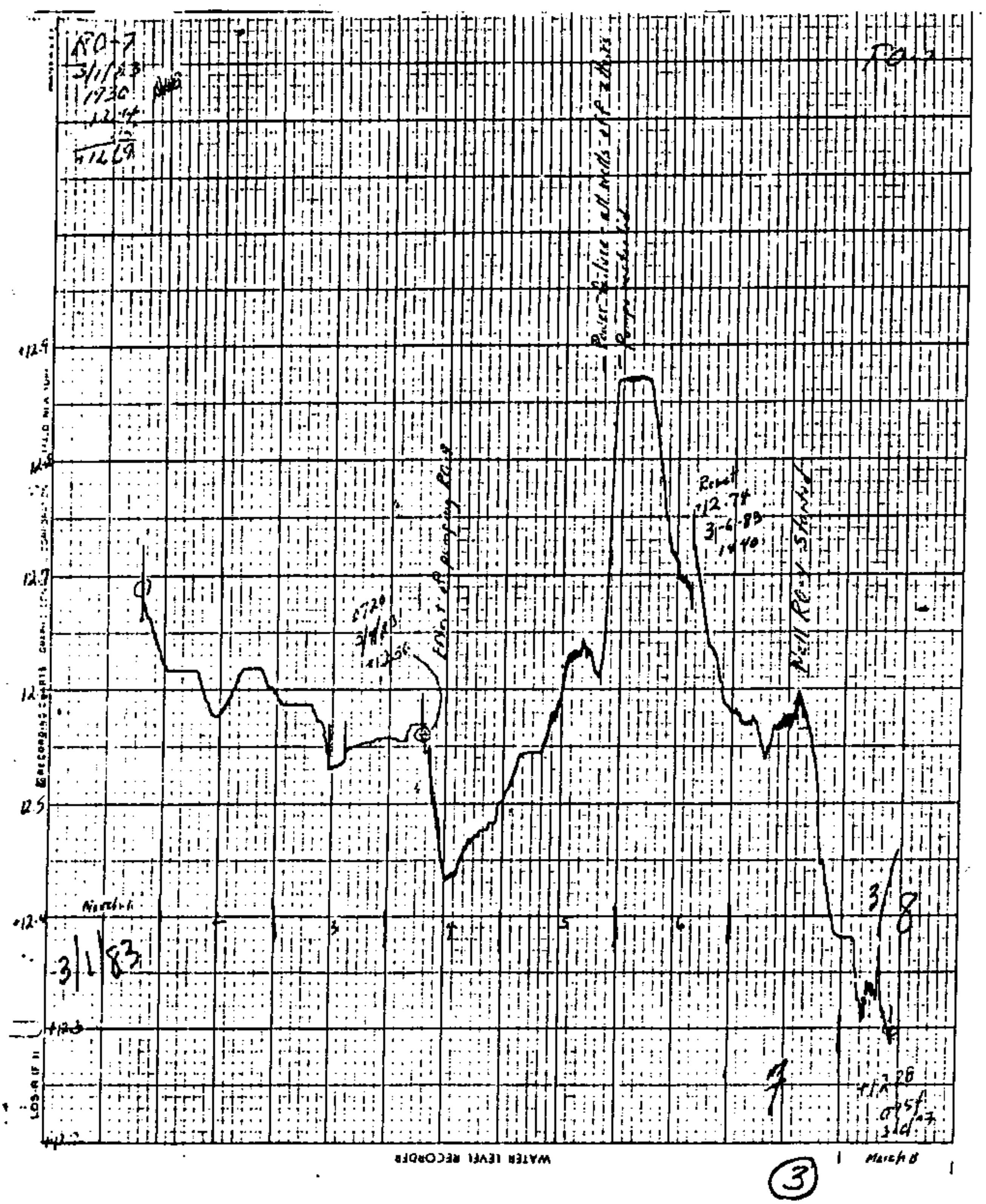

15.0
14.5
14.0
13.5
13.0
3-22-85
3-23
3-24
3-25
3-26
3-27
3-28
WATER LEVEL RECORDER
3-24
6

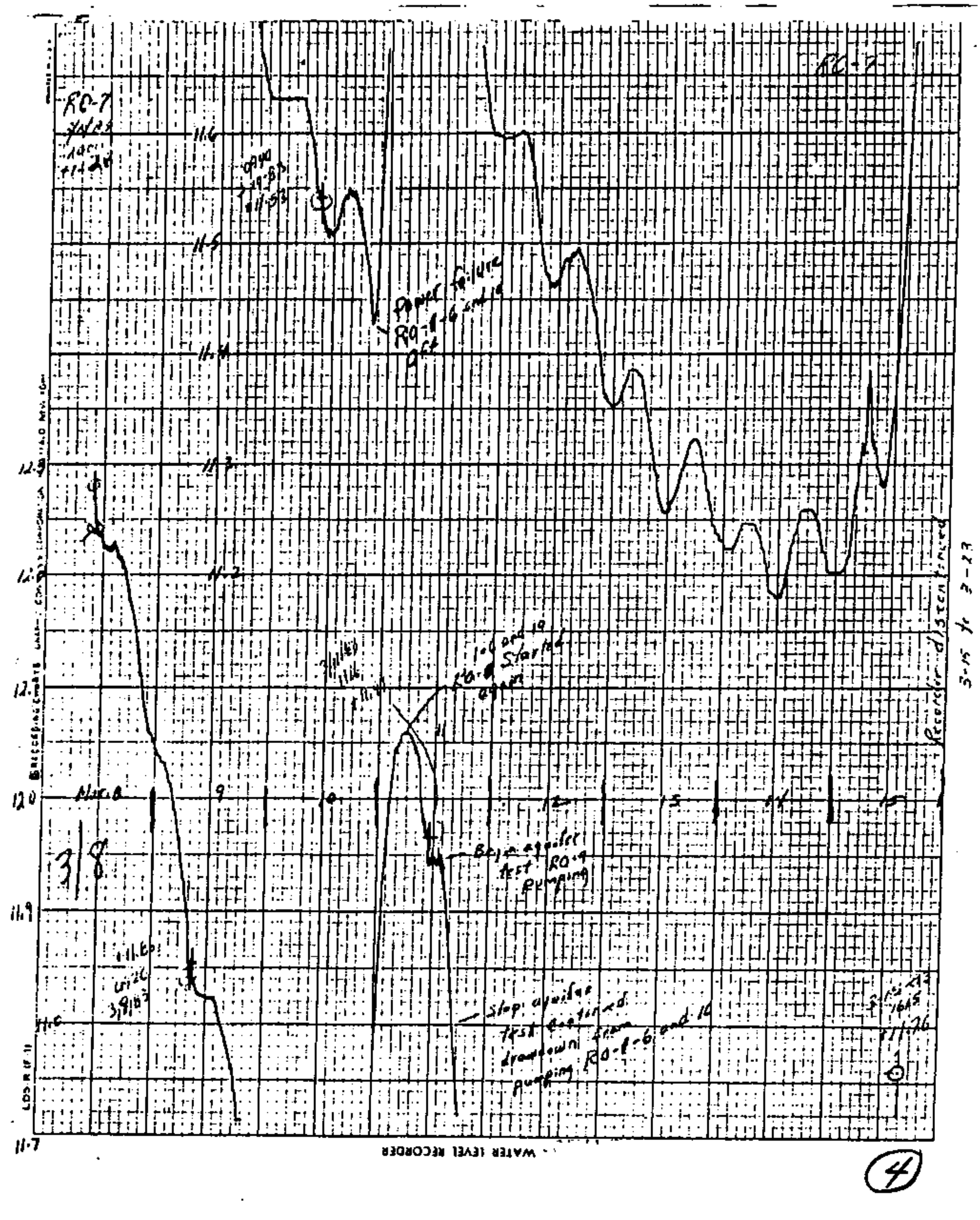

11.0
10.4
9.8
9.2
8.6
8.0
3-28
3-29
3-30
3-31
4-1
4-2
4-3
4.4
WATER LEVEL RECORDER

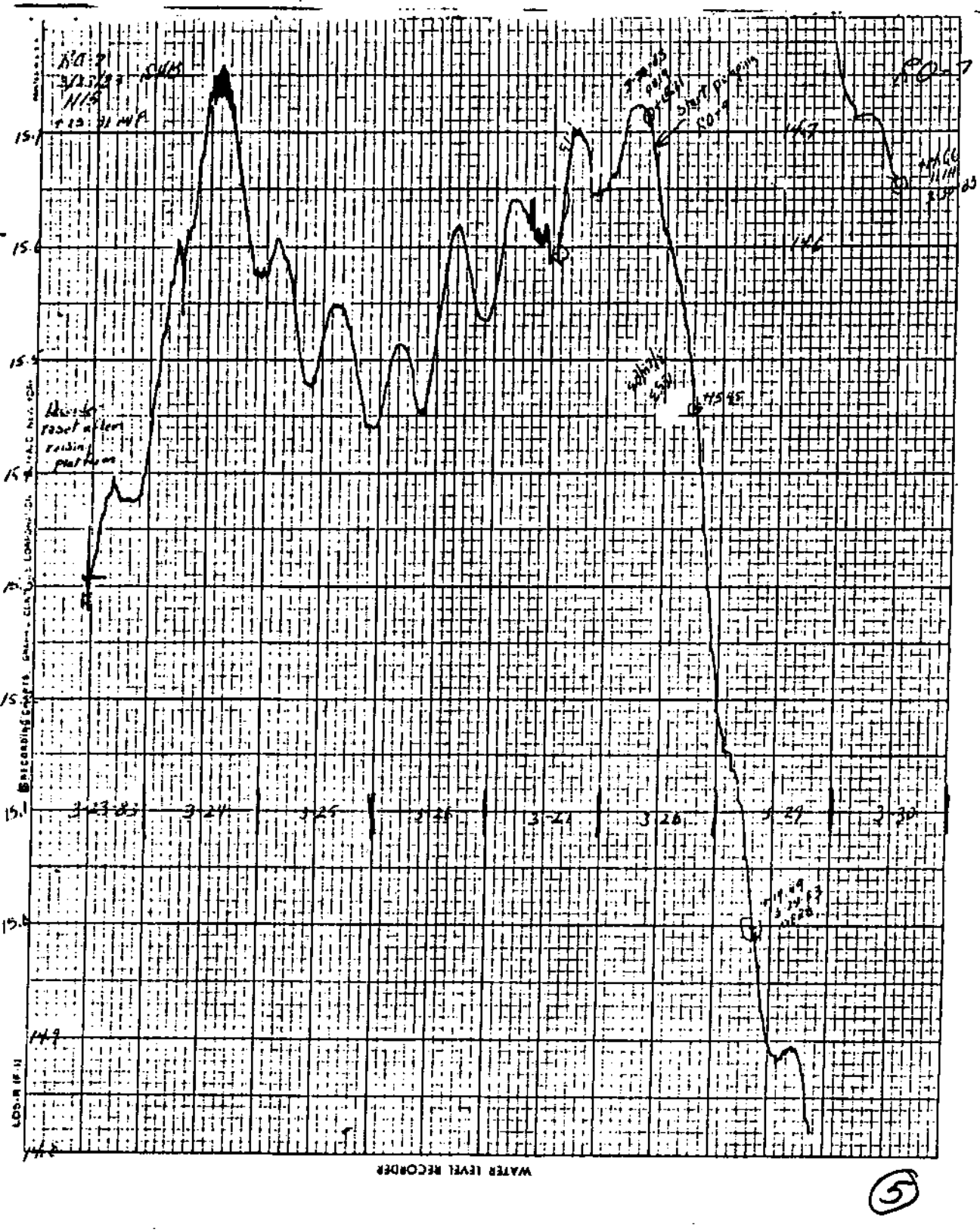

Leupold & Stevens, Inc. Beaverton, Ore.
Stevens Water Level Recorder — Type F
Chart F-1
9.0
9.1
4.0
4-4
4-5
4-6
4-7
4-8
(S)
(B)

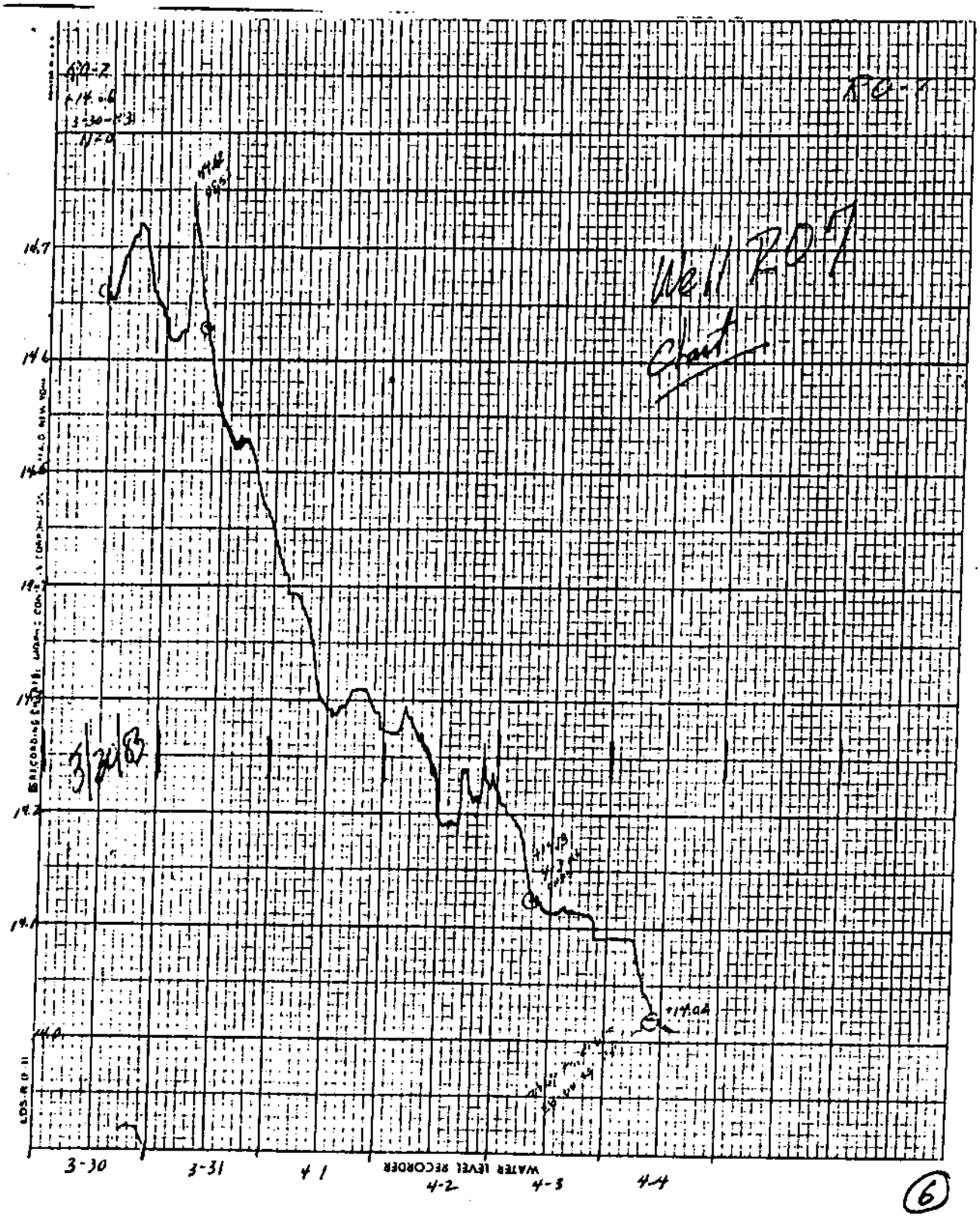

PROJECT
LOCATION OF YOUR
JOB NO
RO-1
Lower Hawthorn
Well RO-1
Chart ①

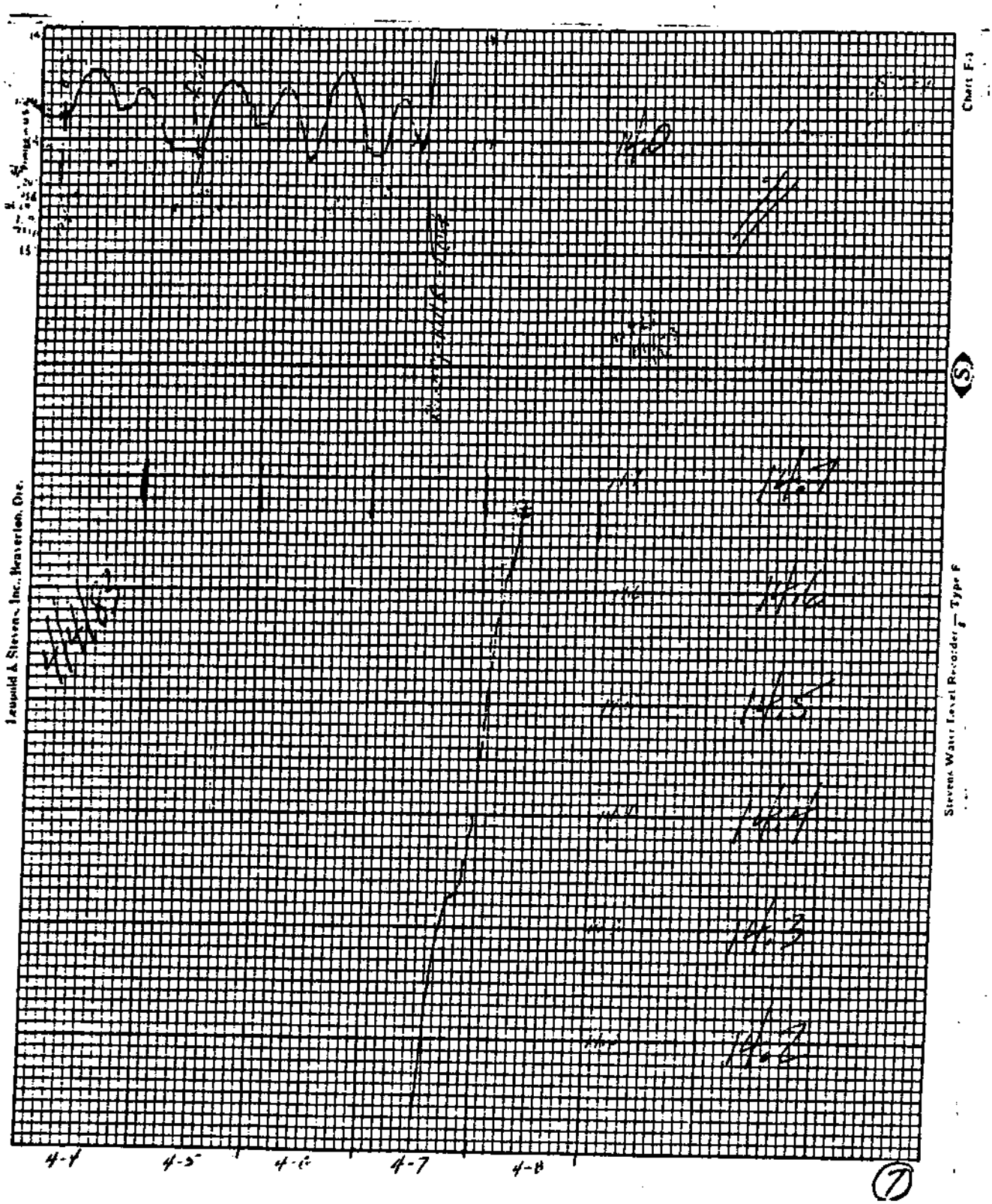





RO-7
Power failure RO-8-6 and 10 off
Begin aquifer test RO-9 pumping
Stop aquifer test (recovered drawdown from pumping RO-8-6 and 10
Recorder discontinued 3-15 to 3-23
WATER LEVEL RECORDER


WATER LEVEL RECORDER
15.1
15.0
14.9
14.8
3-23
3-24
3-25
3-26
3-27
3-28
3-29
3-30
Recorder reset after raising platform
5


Well RD-1
Chart
3/24/83
3-30
3-31
4-1
4-2
4-3
4-4
WATER LEVEL RECORDER
(6)


Leupold & Stevens, Inc., Beaverton, Ore.
Stevens Water Level Recorder — Type F
Chart F-1
4-4
4-5
4-6
4-7
4-8

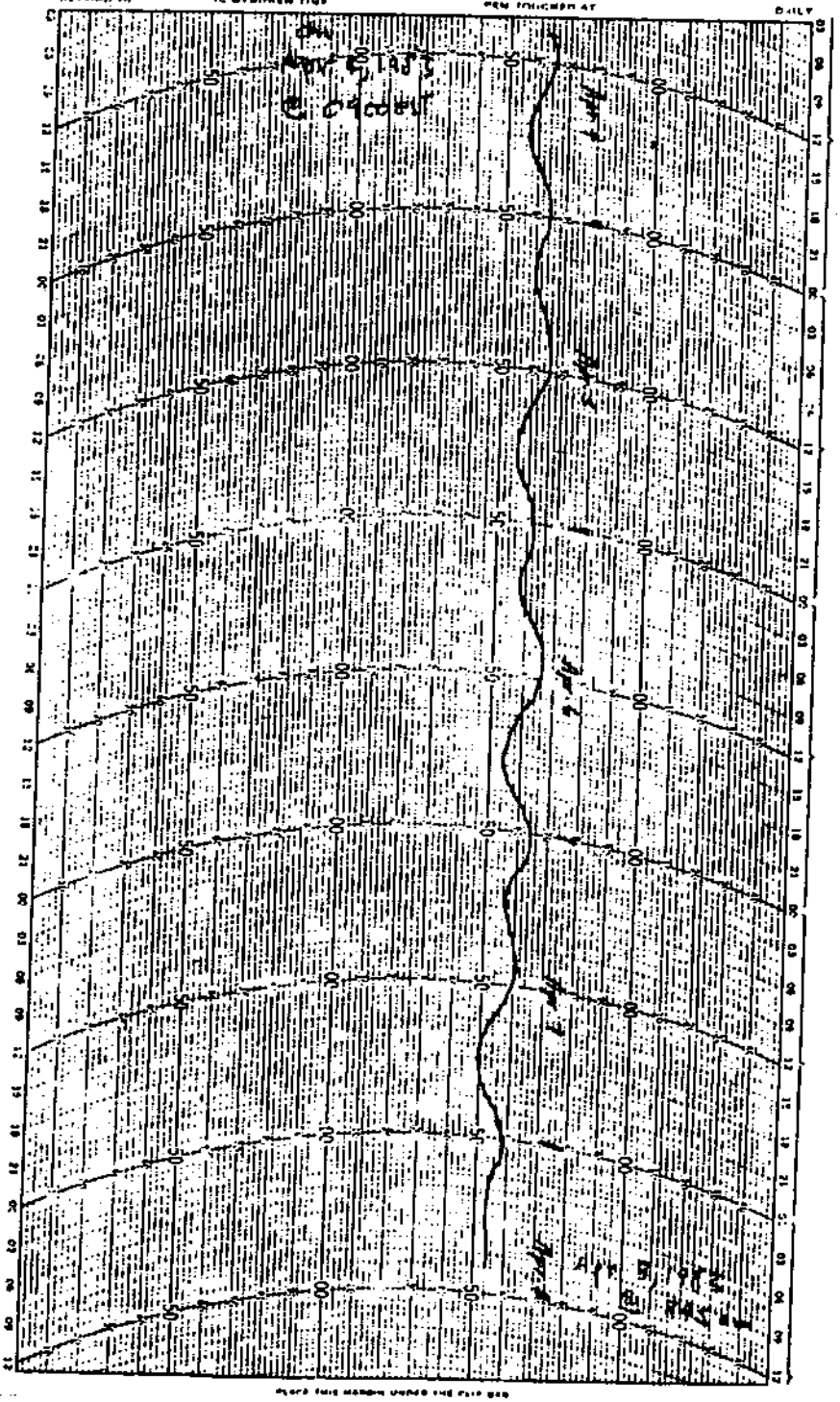
Federal Bldg

WS FORM 1068C REVISED APRIL 1972

U.S. DEPARTMENT OF COMMERCE – NOAA NATIONAL WEATHER SERVICE Ft. Myers

STATION PRESSURE AT 04 0900 EST BAROGRAM

0FF 080845AM



WS FORM 455-17

U.S. DEPARTMENT OF COMMERCE — NOAA NATIONAL WEATHER SERVICE

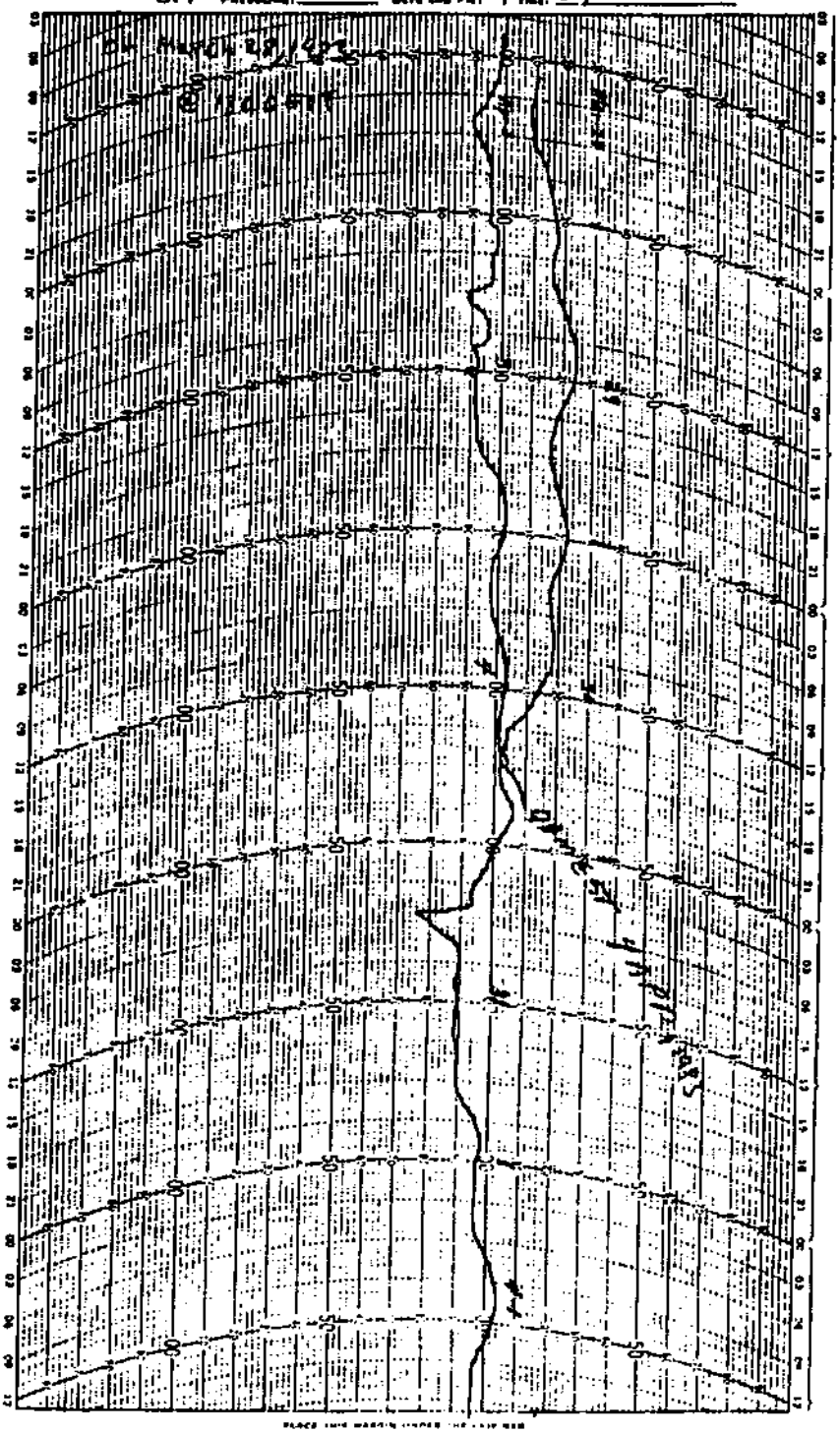
BAROGRAM

STATION PRESSURE (as indicated) AT _____

TIME OF RECORD _____ TO MERIDIAN ELEVATION (ft) _____

ON PRESSURE: _____ DATE AND PM( ) AM( ) TIME: 28/1300 EST

OFF PRESSURE: _____ DATE AND PM( ) AM( ) TIME: 04/0900 EST



U.S. DEPARTMENT OF COMMERCE – NOAA NATIONAL WEATHER SERVICE

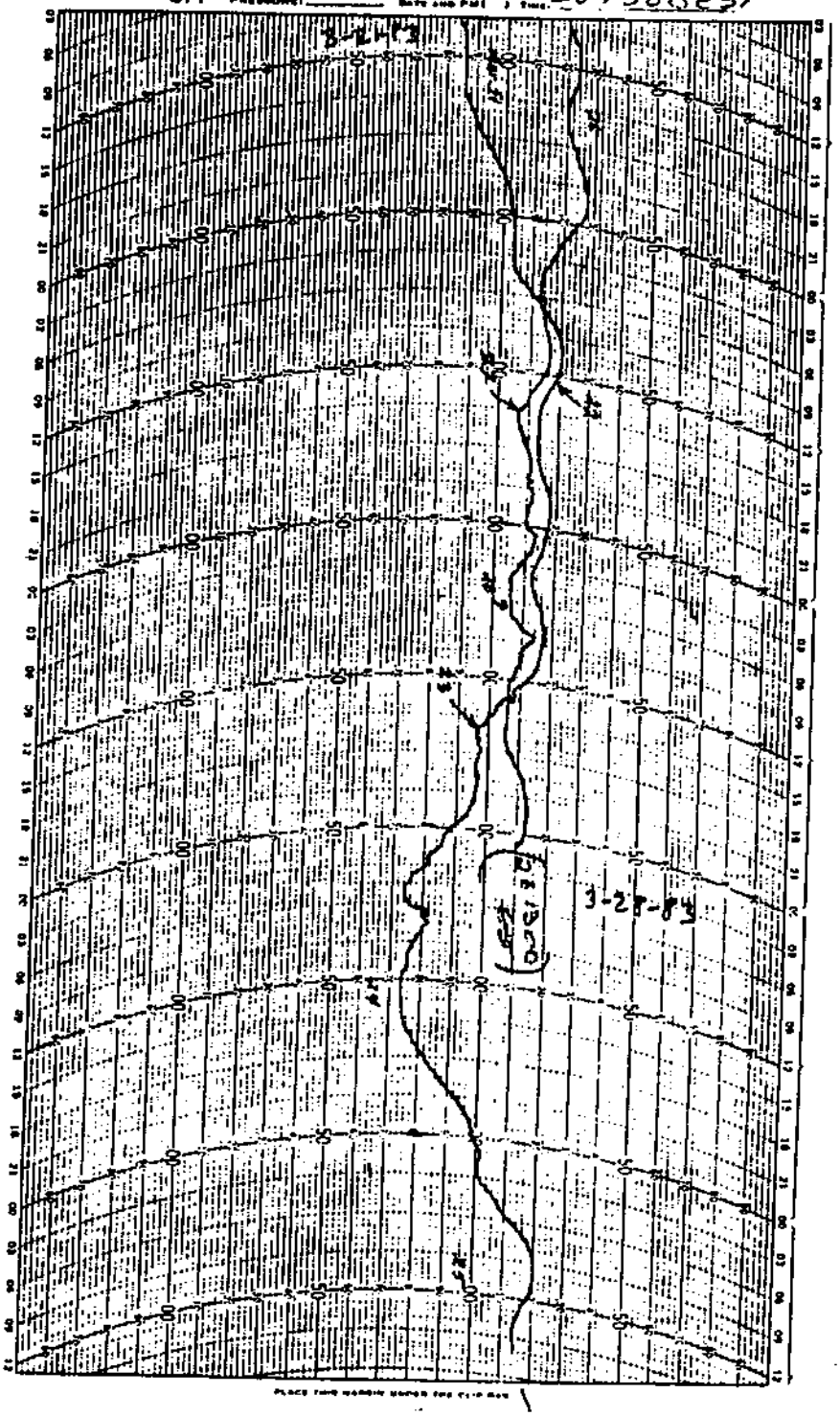
BAROGRAM

STATION PRESSURE (to nearest) AT _____

TIME OF RECORD _____ IN MERIDIAN ELEVATION (ft.) _____

ON PRESSURE: _____ DATE AND TIME (AM/PM) TIME 21 0930 EST

OFF PRESSURE: _____ DATE AND TIME (AM/PM) TIME 28 1300 EST



PLACE TIME MARKER HERE FOR CLOCK RUN

WS FORM 455-17

U.S. DEPARTMENT OF COMMERCE – NOAA NATIONAL WEATHER SERVICE

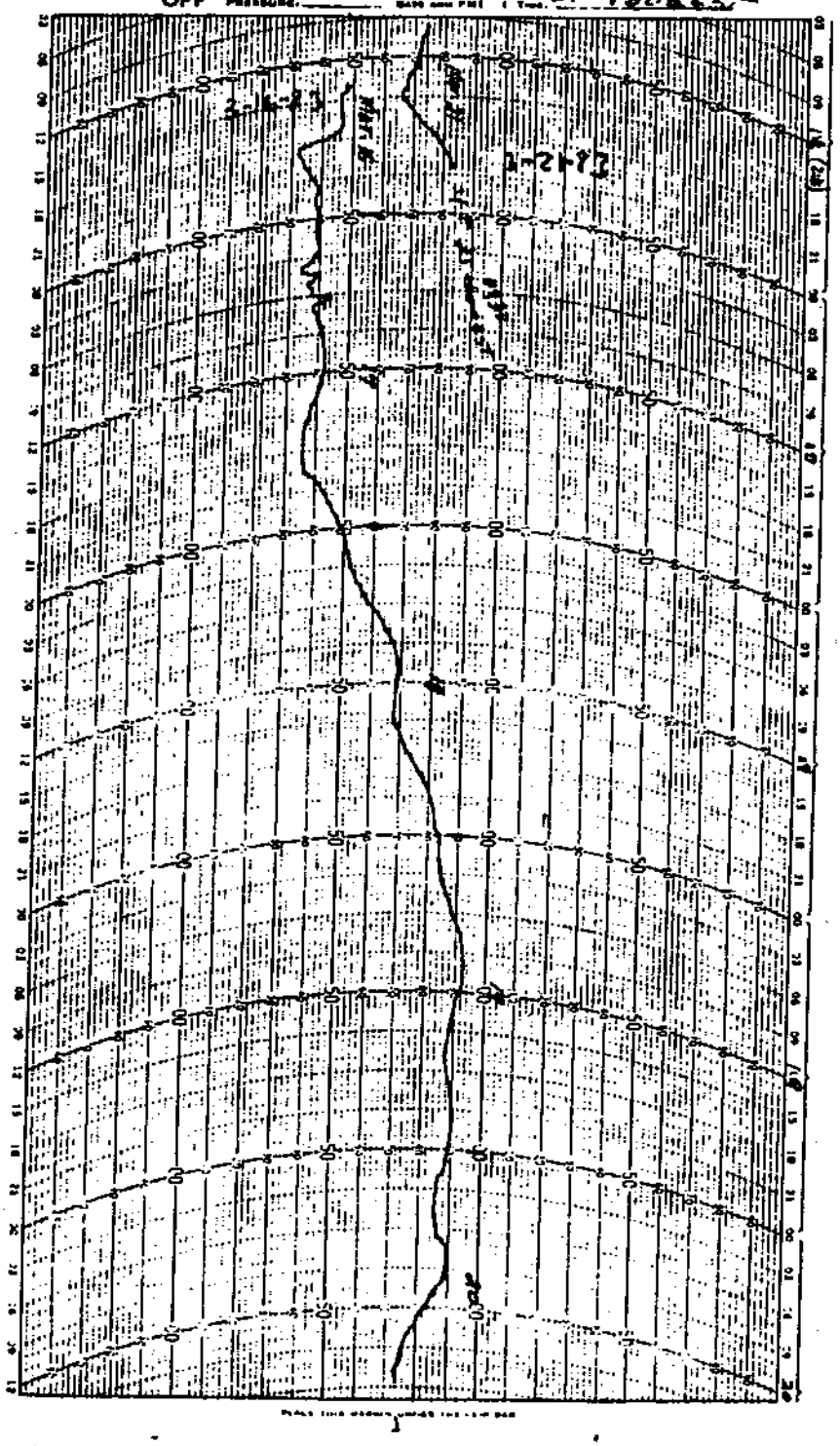
BAROGRAM

STATION PRESSURE to record AT _____

TIME OF RECORD _____ to MERIDIAN ELEVATION (m.s.l.) _____

ON PRESSURE: _____ Date and PM) AM) Time: Nov 16 1400 EST

OFF PRESSURE: _____ Date and PM) AM) Time: Nov 21 0930 EST



U.S. DEPARTMENT OF COMMERCE – NOAA NATIONAL WEATHER SERVICE

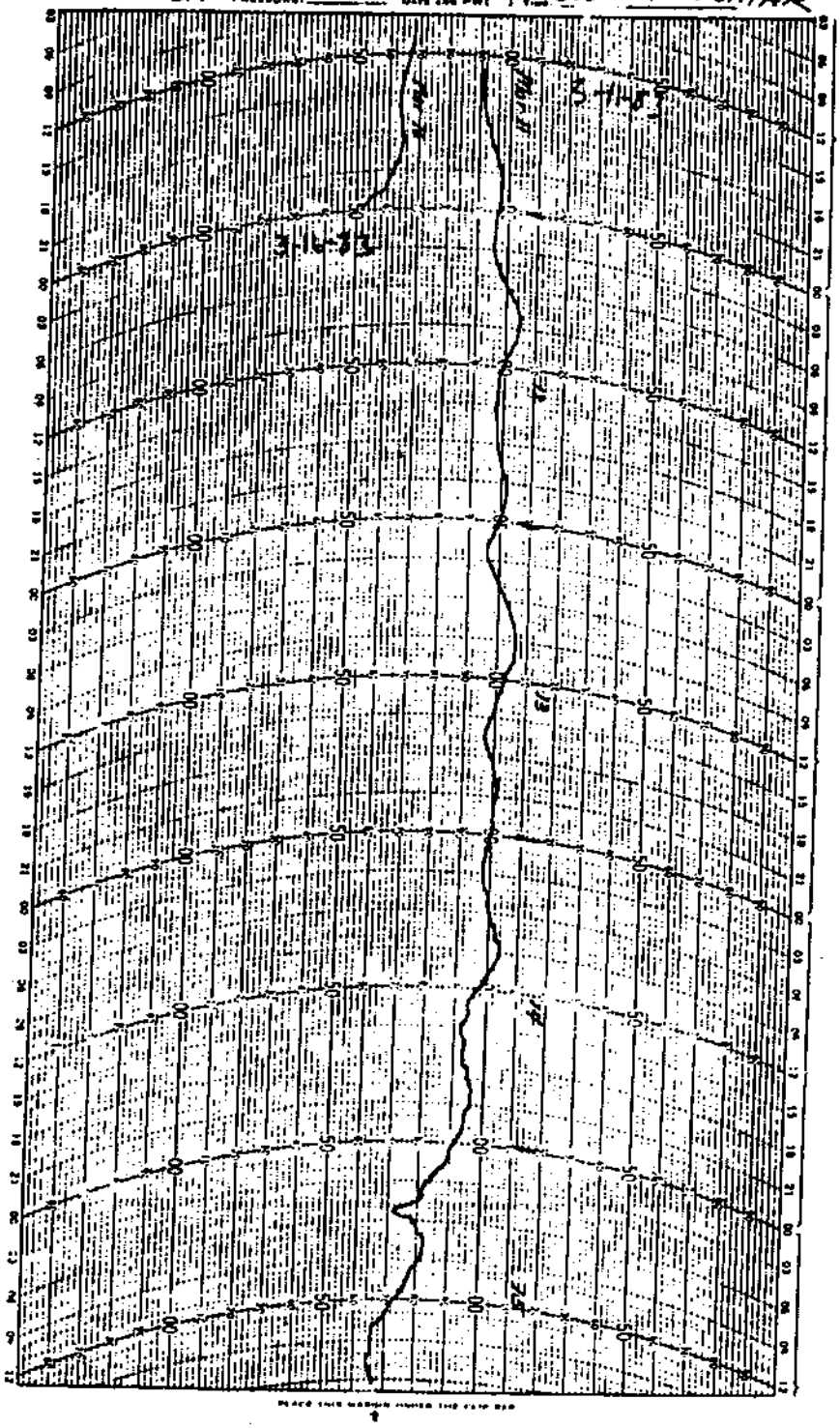
BAROGRAM

STATION PRESSURE (in inches) AT _____

TIME OF RECORD _____ to MERIDIAN. ELEVATION (ft.) _____

ON PRESSURE: _____ DATE AND TIME: AM( ) PM( ) TIME: 245PM est 11MAR

OFF PRESSURE: _____ DATE AND TIME: AM( ) PM( ) TIME: 210PM 16MAR



U.S. DEPARTMENT OF COMMERCE – NOAA NATIONAL WEATHER SERVICE

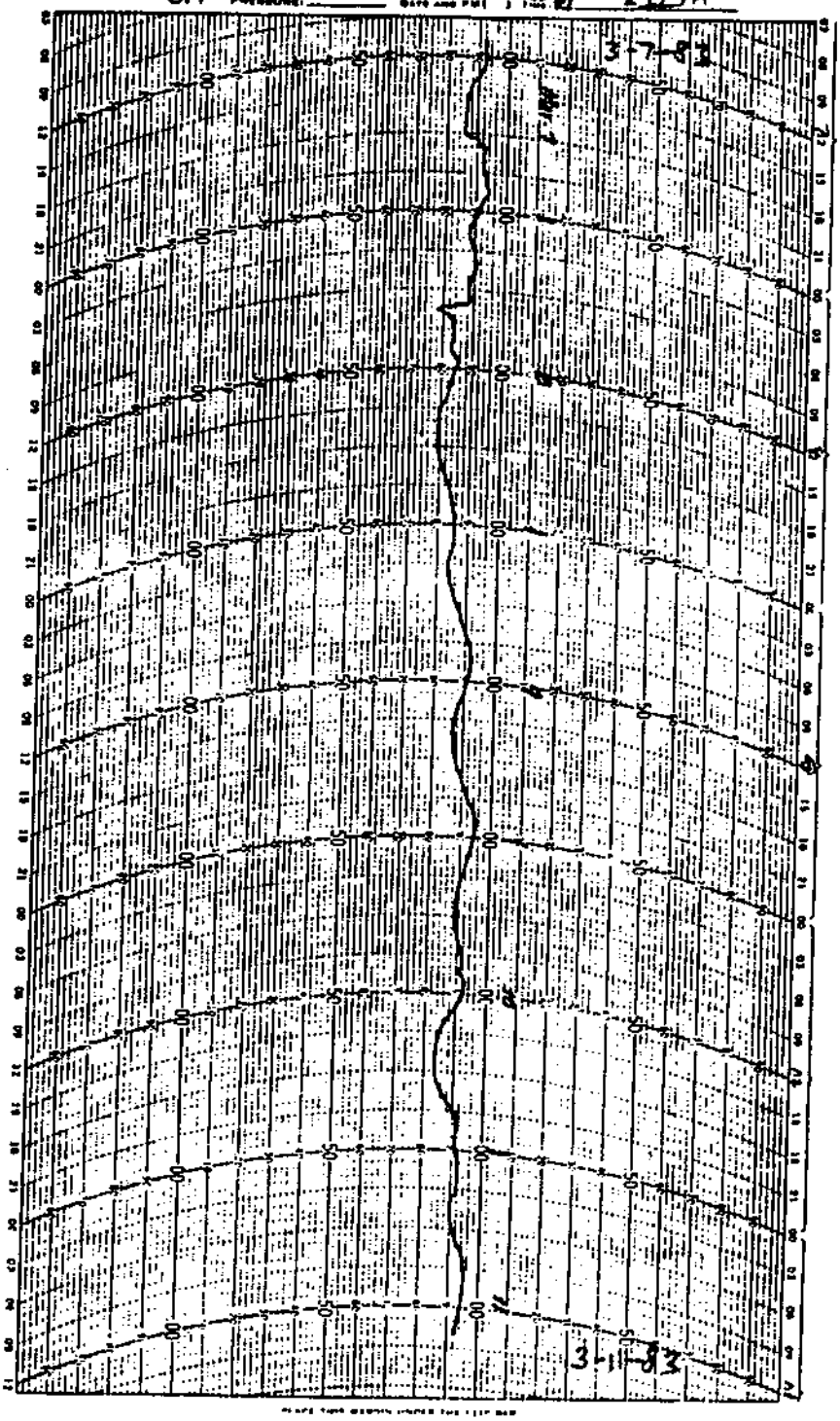
BAROGRAM

STATION PRESSURE to record AT _____

TIME OF RECORD _____ IN MERIDIAN. ELEVATION (ft) _____

ON PRESSURE: _____ Date and PM[ ] AM[ ] Time: 3-7-83 10 AM EST

OFF PRESSURE: _____ Date and PM[ ] AM[ ] Time: 3-11-83 2:45 PM



U.S. DEPARTMENT OF COMMERCE – NOAA NATIONAL WEATHER SERVICE

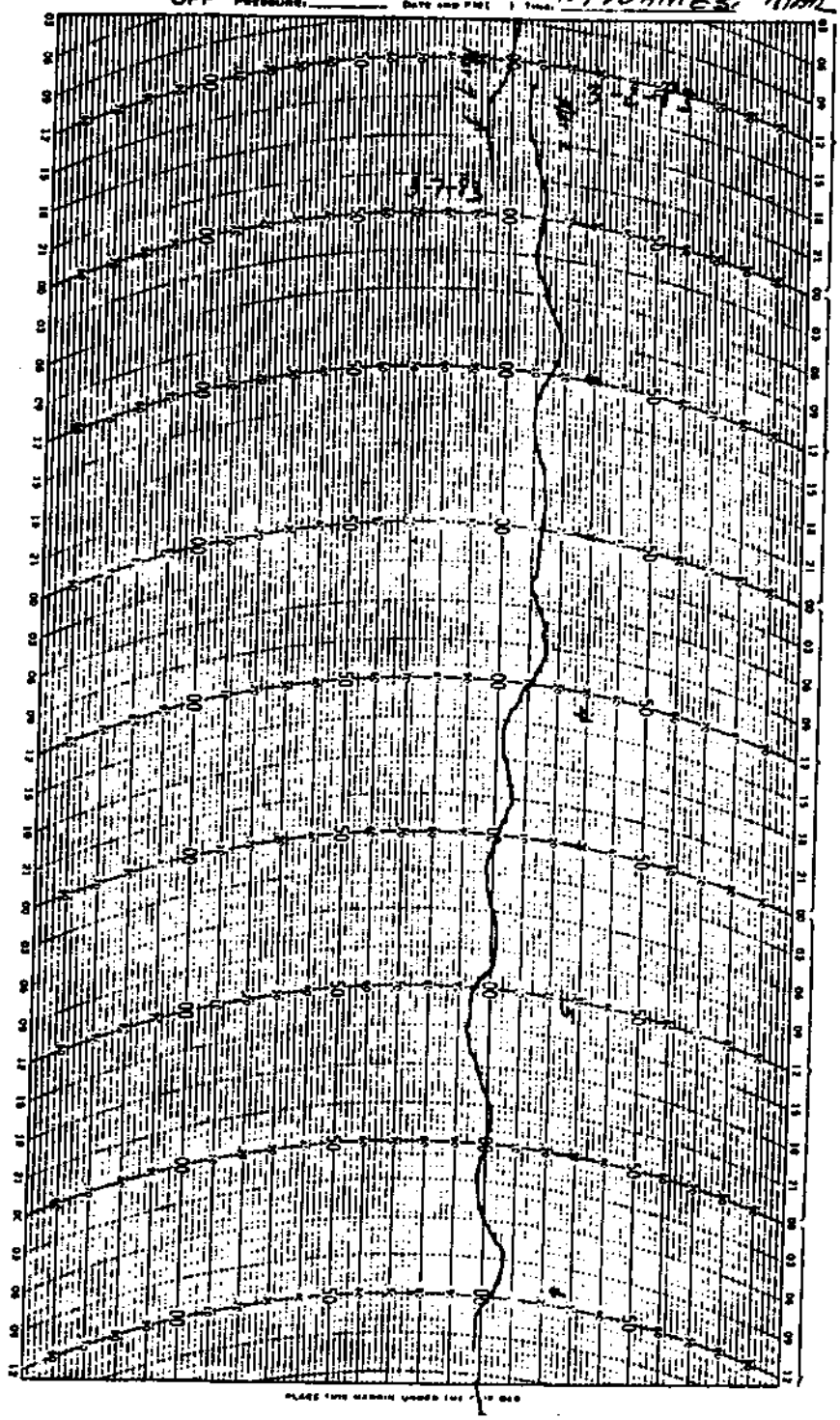
BAROGRAM

STATION PRESSURE (in inches) AT _____

TIME OF RECORD _____ IN MERIDIAN. ELEVATION (ft.) _____

ON PRESSURE: _____ DATE AND PM( ) AM( ) TIME: 02 1425 EST

OFF PRESSURE: _____ DATE AND PM( ) AM( ) TIME: 1710 AM EST MAR



PLACE THIS MARGIN UNDER THE PEN

U.S. DEPARTMENT OF COMMERCE – NOAA NATIONAL WEATHER SERVICE

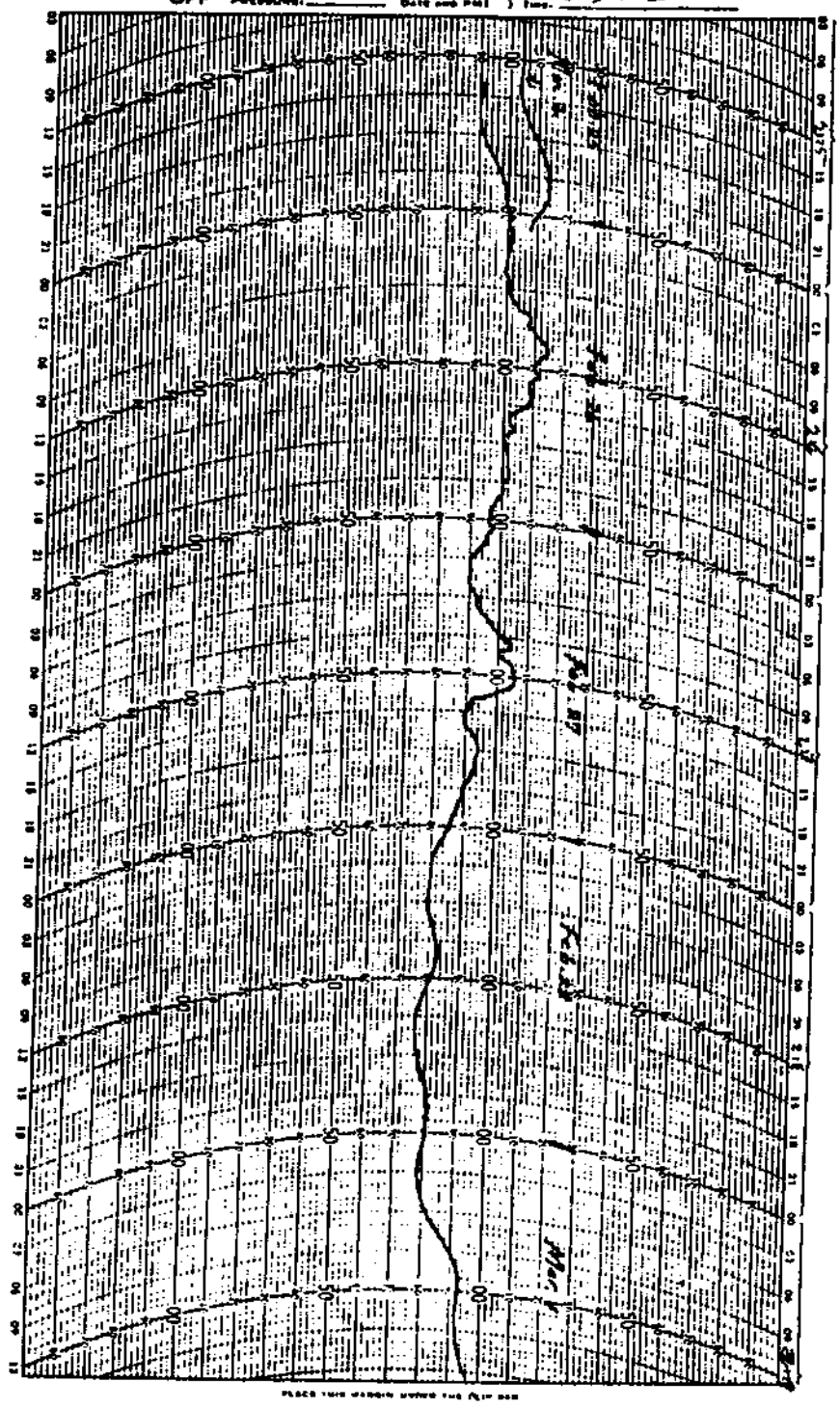
BAROGRAM

STATION PRESSURE (in inches) AT _____

TIME OF RECORD _____ TH MERIDIAN ELEVATION (H_p) _____

ON PRESSURE: _____ DATE AND PHI [AM / PM] TIME: 1745 EST 4/4/83

OFF PRESSURE: _____ DATE AND PHI [AM / PM] TIME: 3-2-83 1420



PLACE THIS BAROGRAM UNDER THE CLIP ON

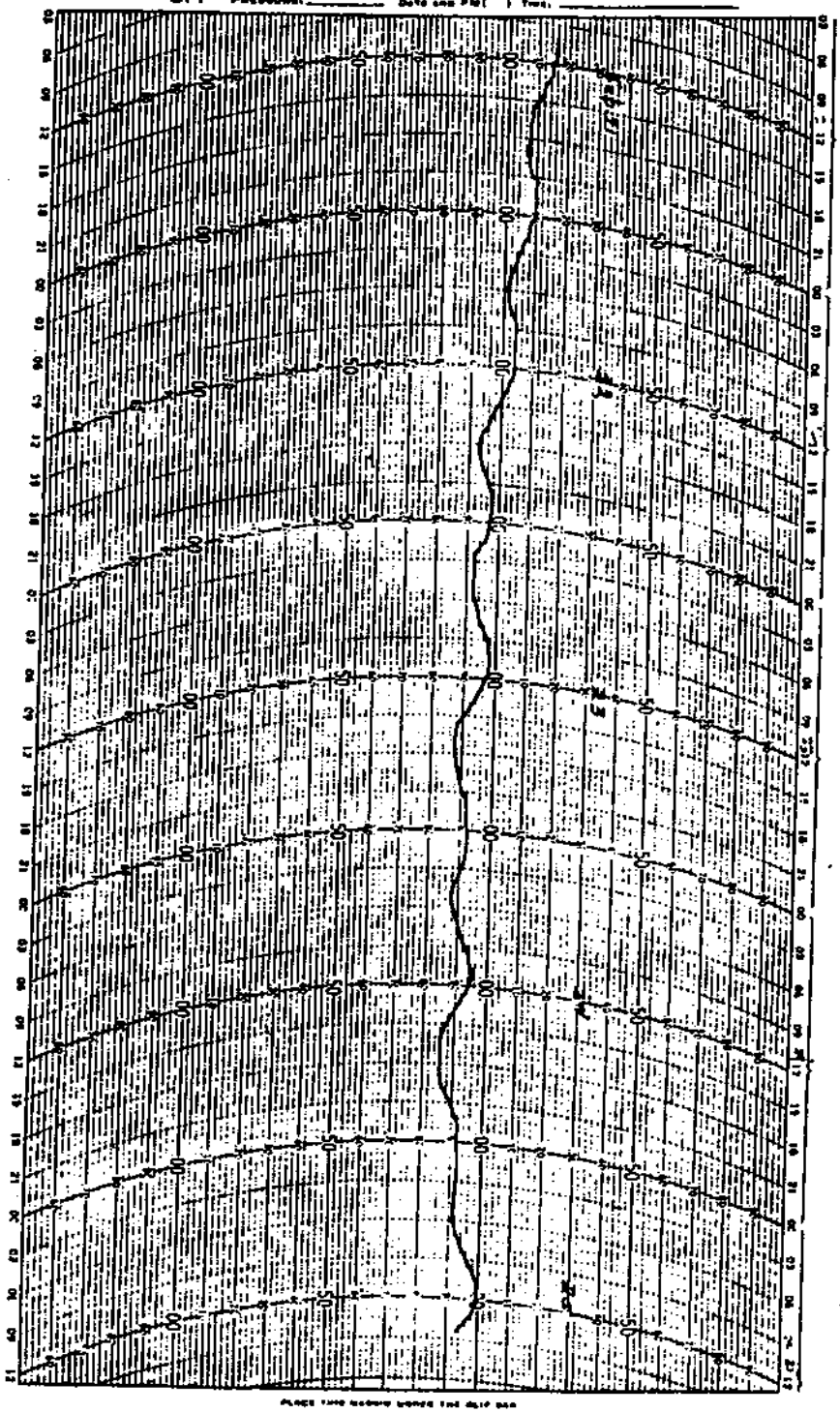
BAROGRAM

STATION PRESSURE (to nearest) AT WB Fld Bldg, Ft Myers

TIME OF RECORD _____ IN MERIDIAN. ELEVATION (ft.) _____

ON PRESSURE: _____ DATE AND TIME: AM( ) PM( ) TIME: 2110 CDT AM EST

OFF PRESSURE: _____ DATE AND TIME: AM( ) PM( ) TIME: 1953



PLACE TIME RECORD DOWN THE DAY BAR

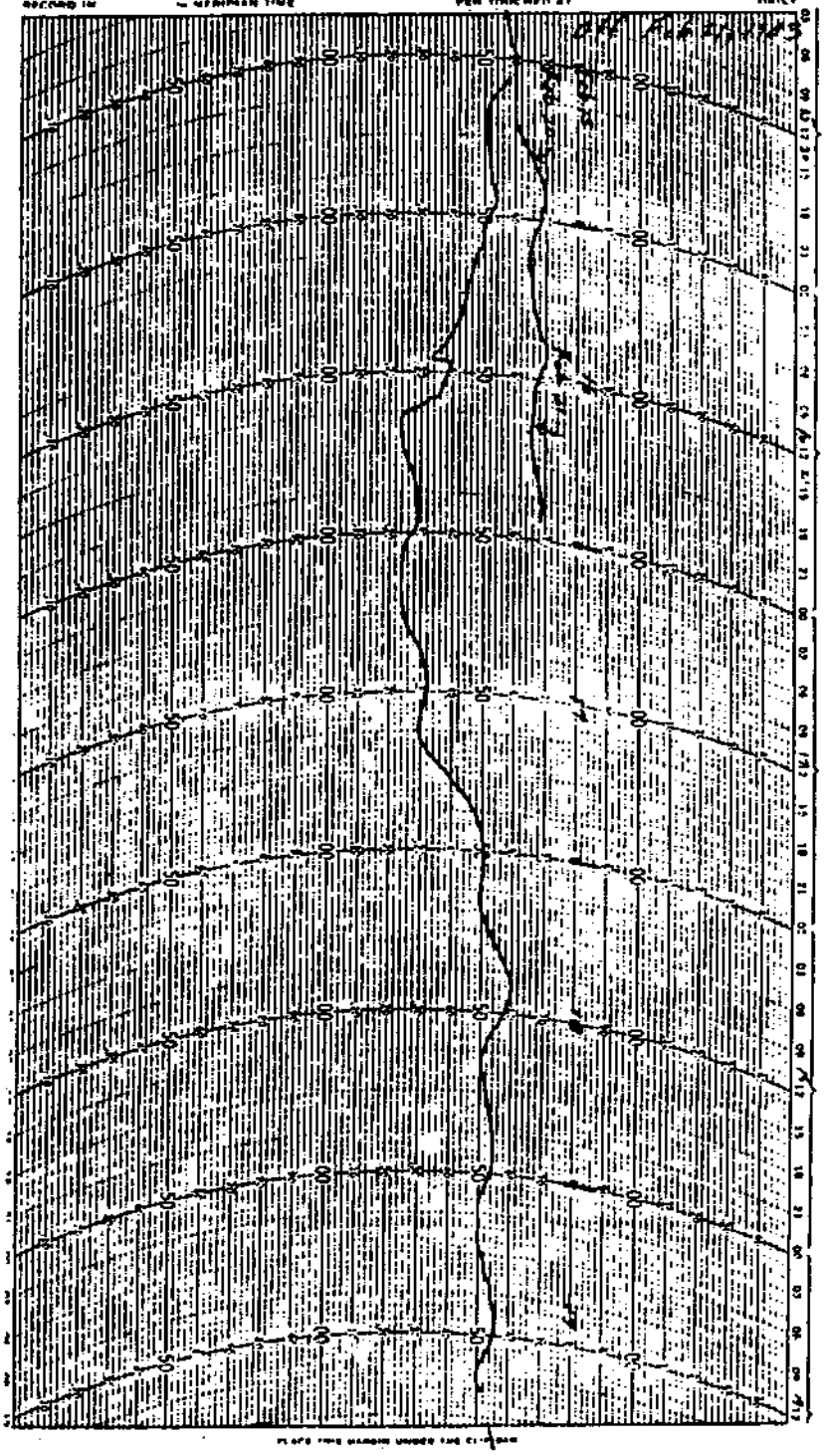
S FORM 1068C REVISED APRIL 1972

U.S. DEPARTMENT OF COMMERCE – NOAA NATIONAL WEATHER SERVICE

BAROGRAM

STATION PRESSURE AT WB Fld Bldg Ft Myers PM/1230Pm 2/15/83

RECORD IS ... STANDARD TIME PEN TIMED WITH AT ... DAILY

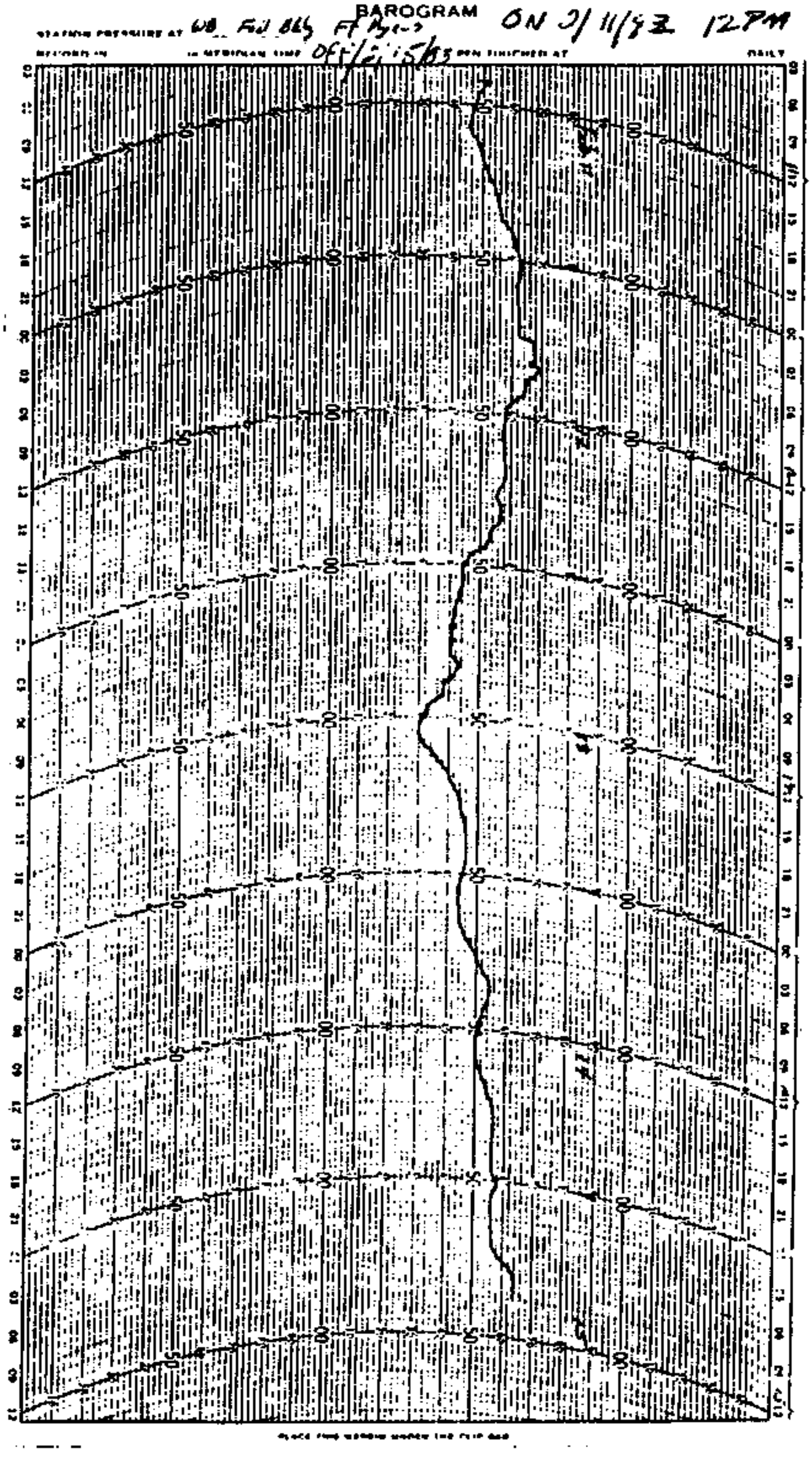


PLACE TIME STAMPS UNDER THE CLIP BAR

WS FORM 1068C REVISED APRIL 1972

U.S. DEPARTMENT OF COMMERCE—NOAA NATIONAL WEATHER SERVICE

BAROGRAM



WS FORM 455-17

U.S. DEPARTMENT OF COMMERCE – NOAA NATIONAL WEATHER SERVICE

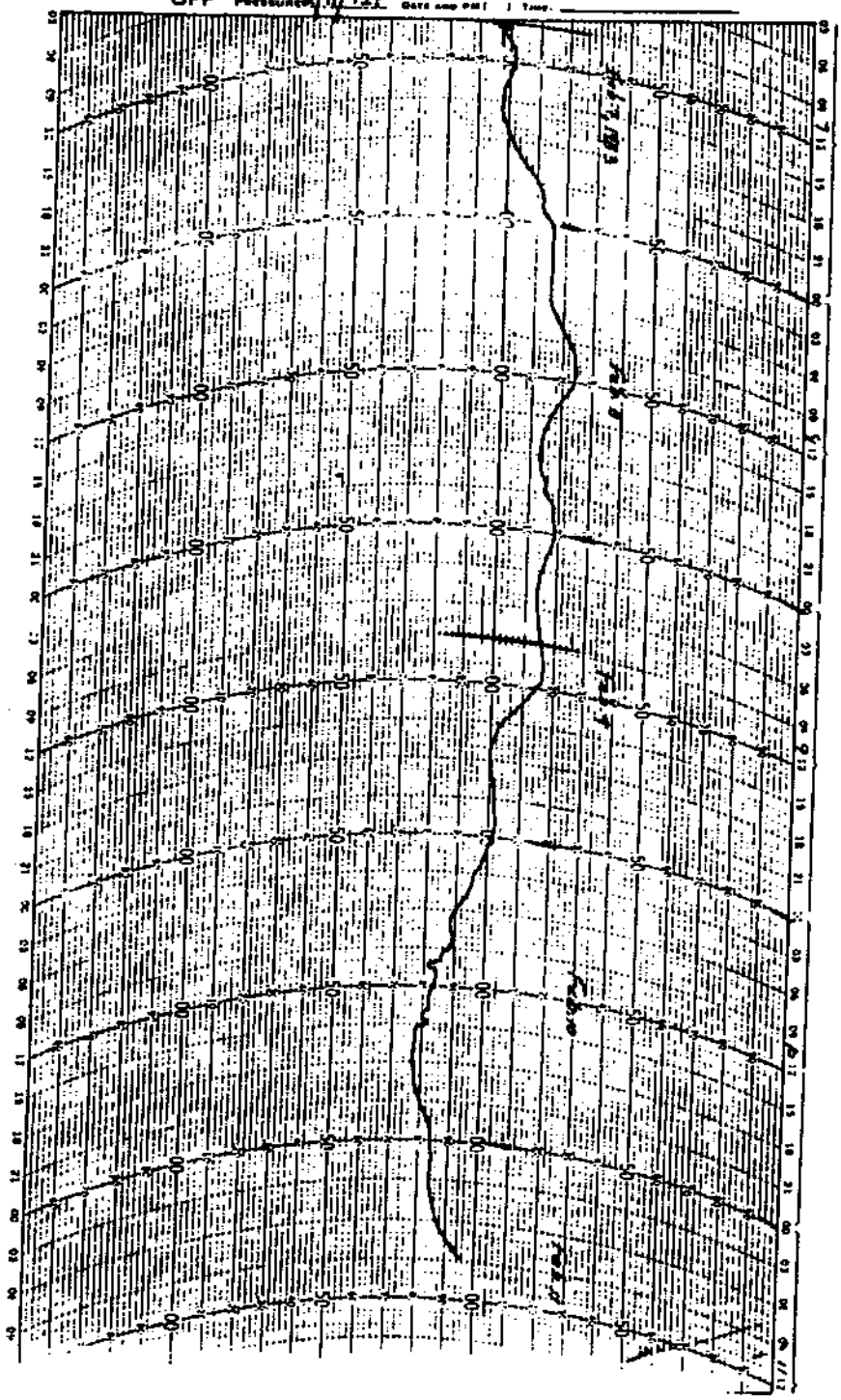
BAROGRAM

STATION PRESSURE [illegible] AT WB Fld Offc Ft Myers

TIME OF RECORD _____ TH MERIDIAN ELEVATION [illegible] _____

ON PRESSURE 2/7/53 DATE AND PM? AM[ ] PM[ ] TIME _____

OFF PRESSURE 2/14/28 DATE AND PM? AM[ ] PM[ ] TIME _____



WS FORM 455-17

U.S. DEPARTMENT OF COMMERCE – NOAA NATIONAL WEATHER SERVICE

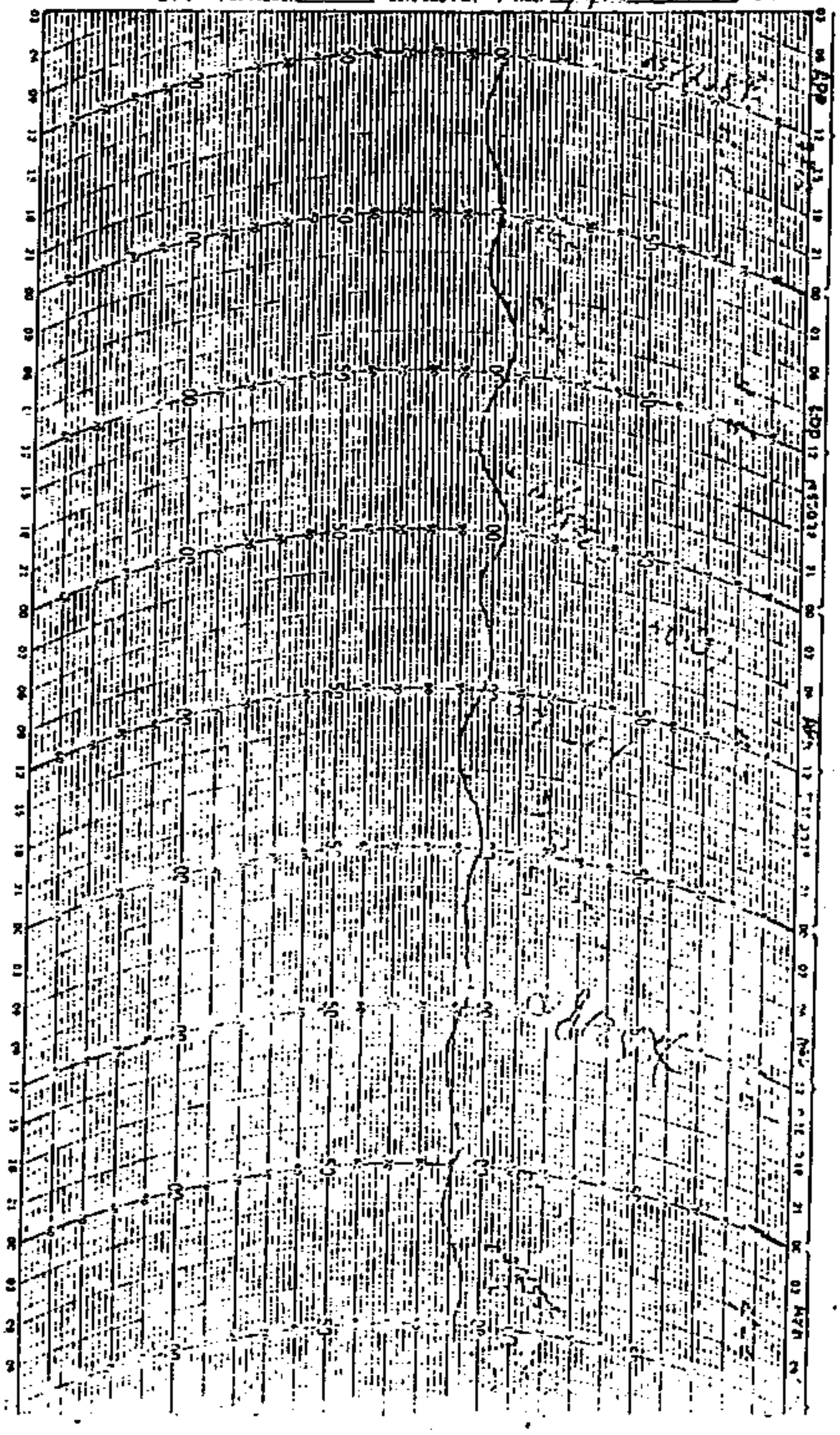
BAROGRAM

STATION PRESSURE (in inches) AT ______

TIME OF RECORD ______ MERIDIAN, ELEVATION ______

ON Pressure 3002 99 Date and Time 04-05-83 1258Z

OFF Pressure ______ Date and Time 4/1/83 @ 1255 EST



WS FORM 1951-1

U.S. DEPARTMENT OF COMMERCE - NOAA NATIONAL WEATHER SERVICE

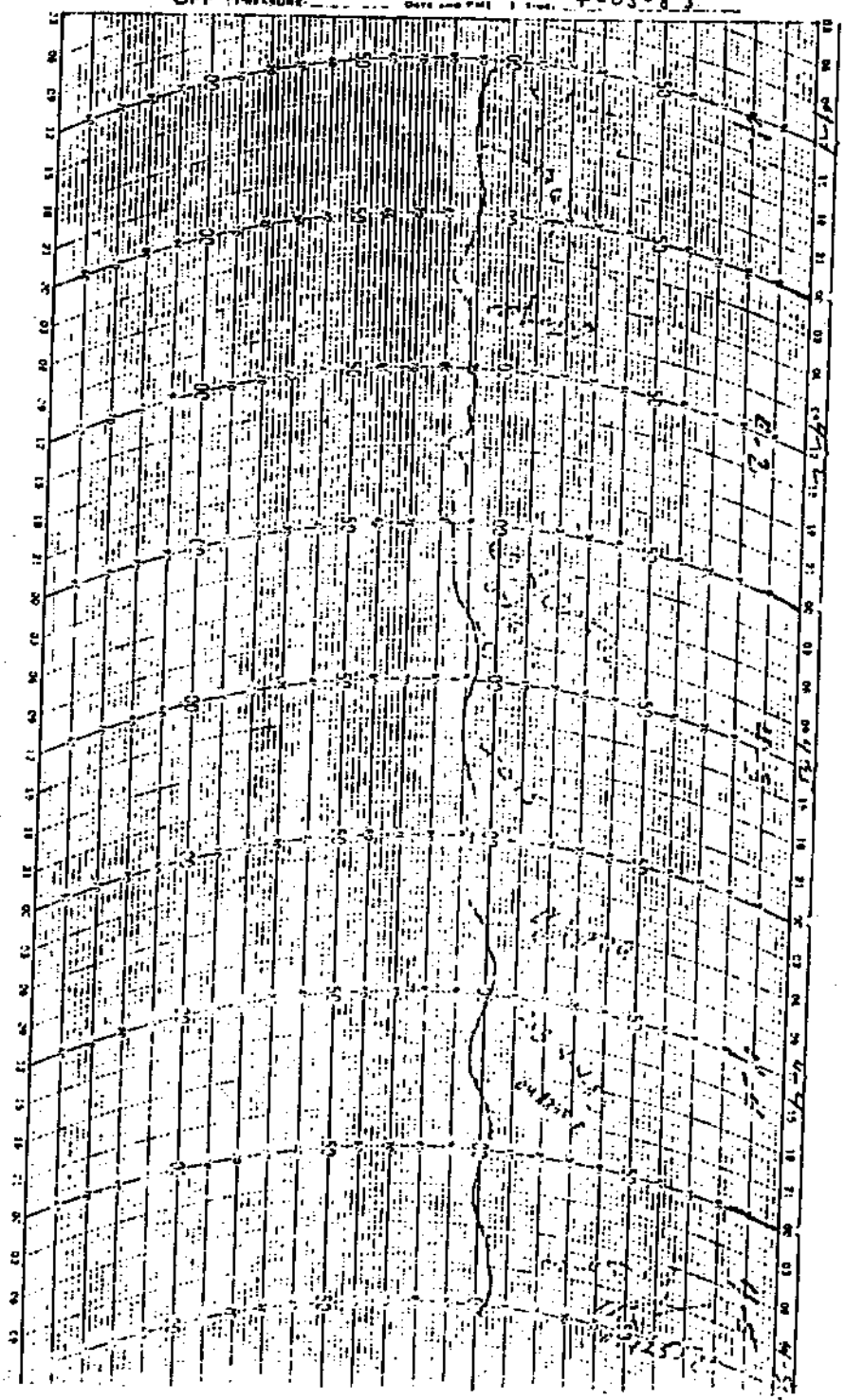
BAROGRAM

STATION IDENTIFIED BY ____ AT FT MYERS FL FJS

TIME OF RECORD ____ TO ____ (MERIDIAN) ELEVATION (Ft.) ____

ON PRESSURE 29.93 DATE AND PHASE OF MOON TIME 4-01-83 1750E

OFF PRESSURE ____ DATE AND PHASE OF MOON TIME 4-05-83



U.S. DEPARTMENT OF COMMERCE - NOAA NATIONAL WEATHER SERVICE

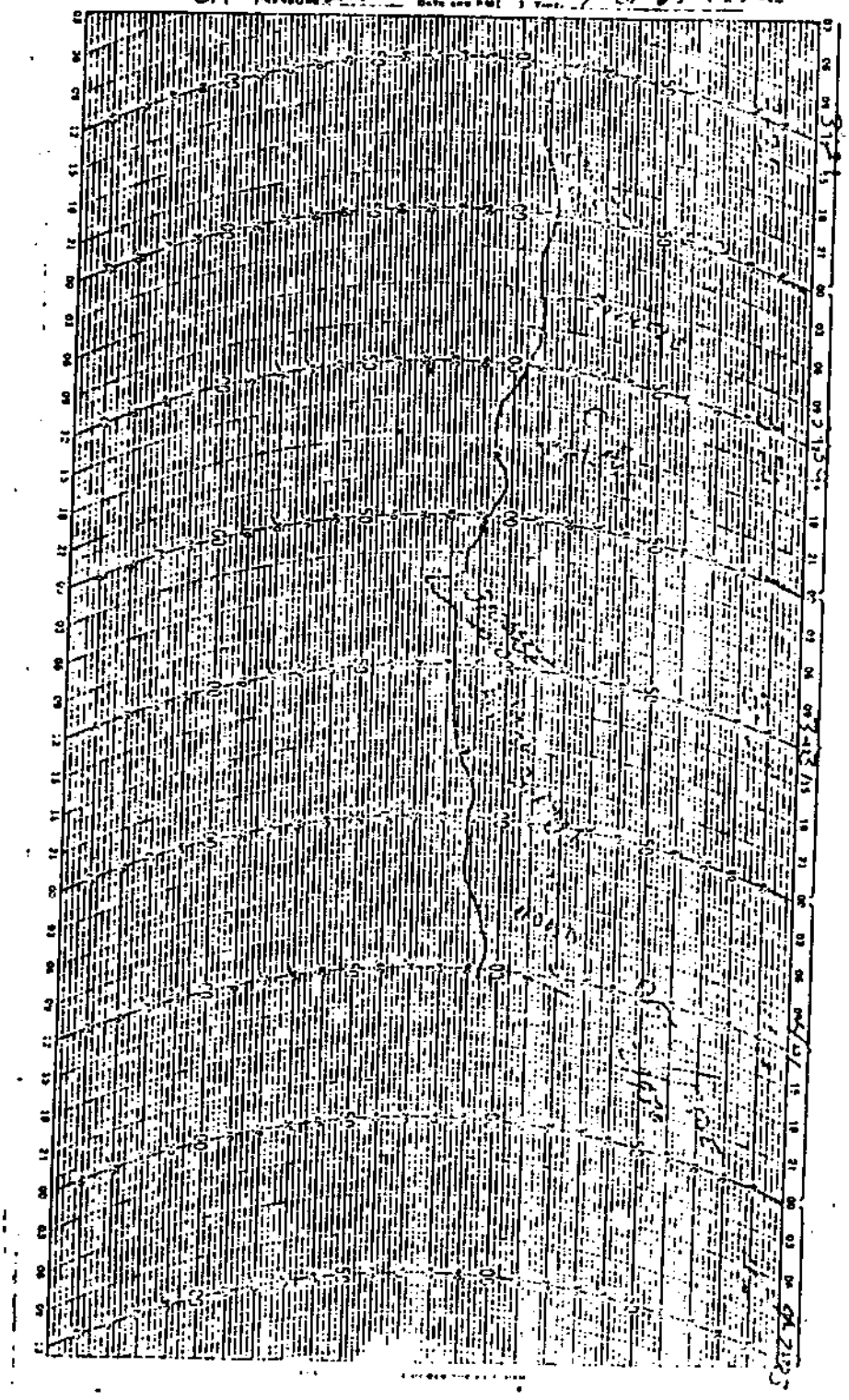
BAROGRAM

STATION PRESSURE (as received at) FT. MYERS FL CSS

TIME OF RECORD _____ TO MERIDIAN _____ ELEVATION (in ft.) _____

ON PRESSURE 30.150 DATE AND TIME (AM/PM) TIME 3 24 93 1300 E

OFF PRESSURE 29.85 DATE AND TIME (AM/PM) TIME 4-01-93 1250 E



WS FORM 455-17

U.S. DEPARTMENT OF COMMERCE – NOAA NATIONAL WEATHER SERVICE

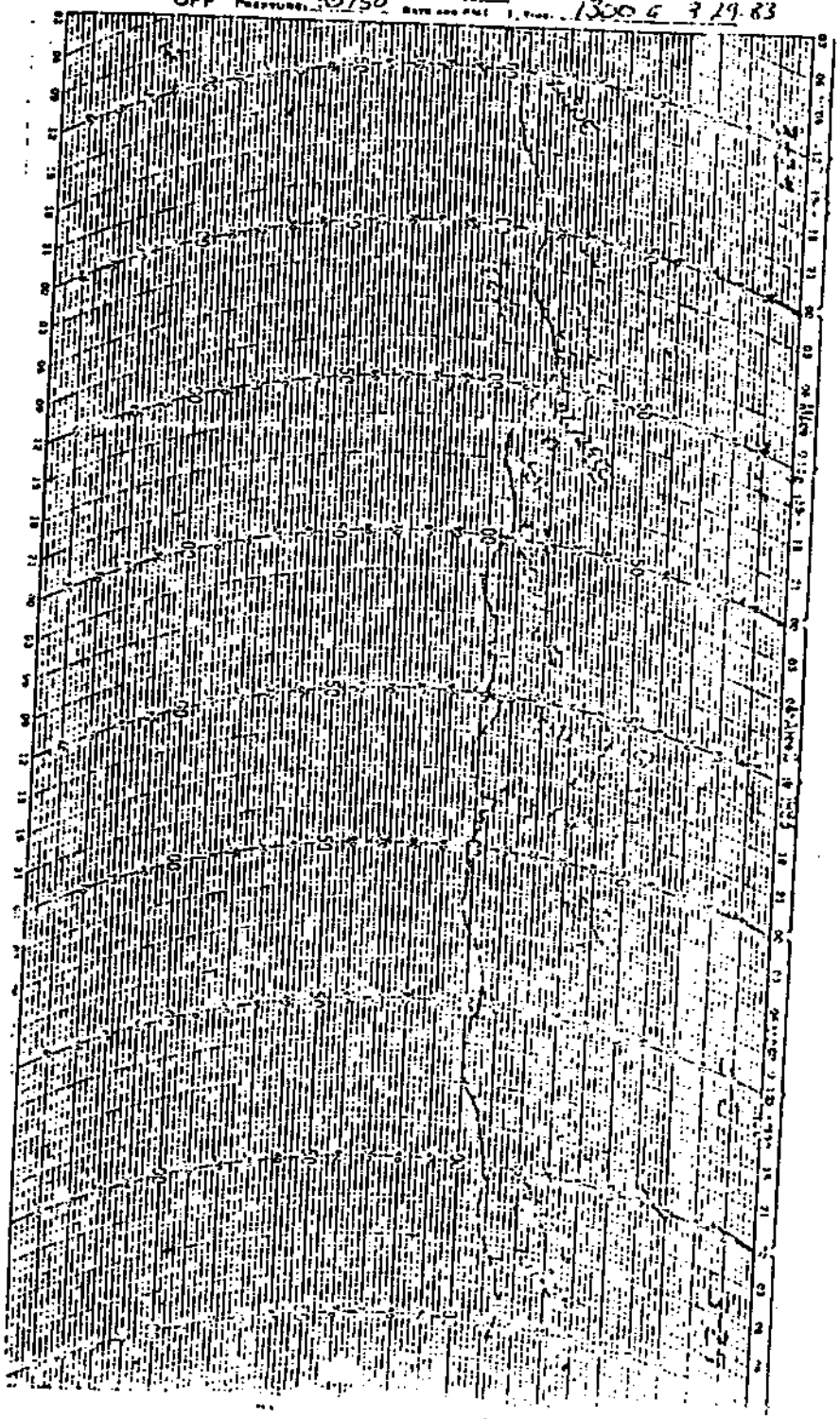
BAROGRAM

STATION PRESSURE INCHES AT (AAFES (PACE FIELD) FORT WALTON, FLORIDA

TIME OF RECORD _____ IN MERIDIAN. ELEVATION (ft.) _____

ON PRESSURE: 30.70 DATE AND PMT: 7 TIME: 1310

OFF PRESSURE: 30.50 DATE AND PMT: 1300 6 3-19-83



WS FORM 455-17

U.S. DEPARTMENT OF COMMERCE – NOAA NATIONAL WEATHER SERVICE

BAROGRAM

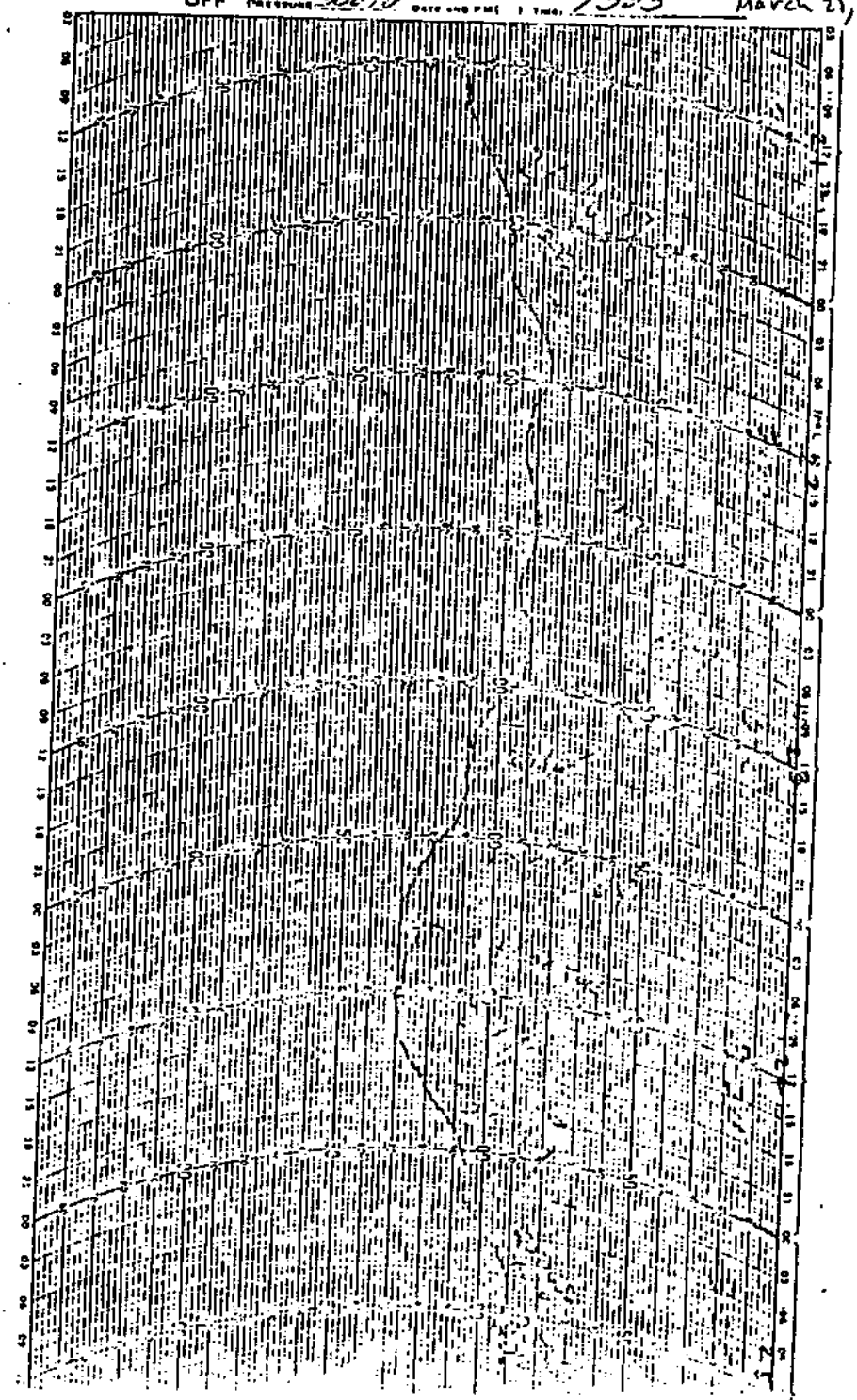
TAMPA (PAGE FIELD)
FL. FLORIDA

STATION PRESSURE (as recorded) AT _____ TAMPA (PAGE FIELD) FLORIDA

TIME OF RECORD 75 HR MERIDIAN ELEVATION (ft.) 18

ON PRESSURE 29.80 DATE AND PMI (X) AMI ( ) TIME 1256 March 21, 1983

OFF PRESSURE 29.70 DATE AND PMI ( ) AMI ( ) TIME 1305 March 25, 1983



WS FORM -455-17

U.S. DEPARTMENT OF COMMERCE - NOAA NATIONAL WEATHER SERVICE

BAROGRAM

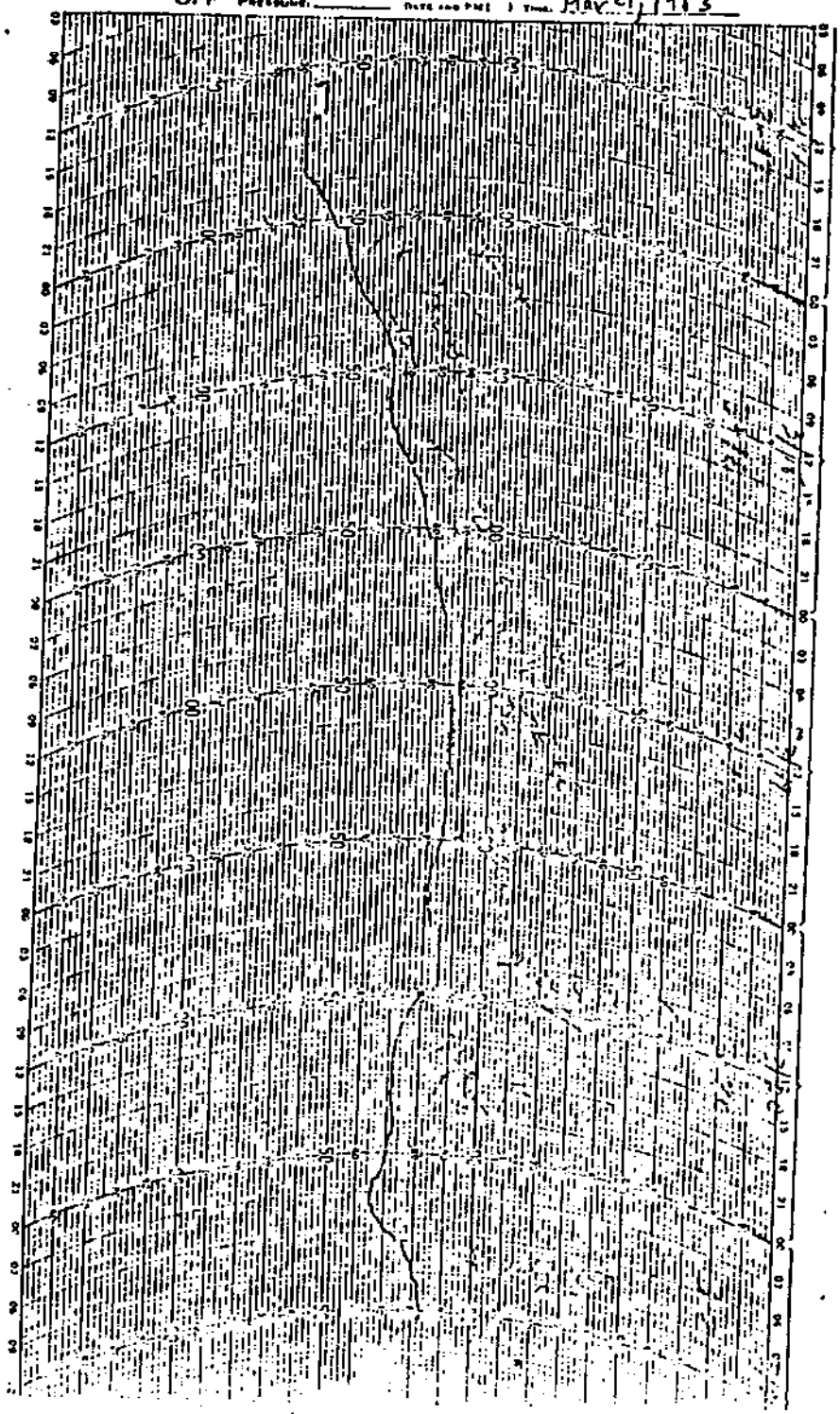
FAIRVIEW PEACH FIELDS
FORT MYERS, FLORIDA

STATION PRESSURE AS MEASURED AT _____

TIME OF RECORD _____ CENTRAL MERIDIAN, OR STATION (High) _____

ON PRESSURE: 29.14 DATE AND TIME (AM / PM) TIME: MAR 17, 1982

OFF PRESSURE: _____ DATE AND TIME (AM / PM) TIME: MAY 21, 1983



U.S. DEPARTMENT OF COMMERCE — NOAA NATIONAL WEATHER SERVICE

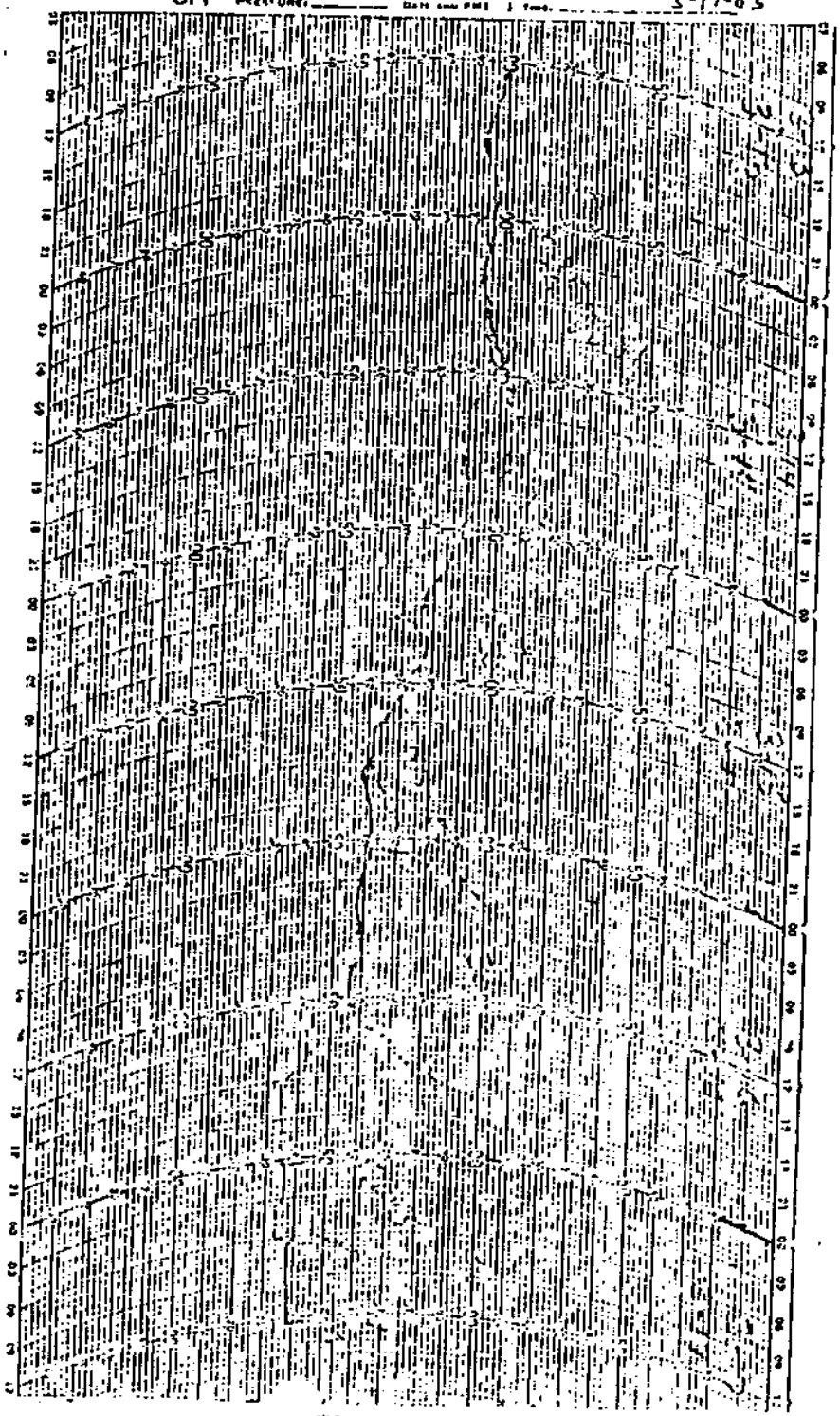
BAROGRAM

STATION PRESSURE as recorded at FT. MYERS, FL. EOS

TIME OF RECORD 25 hr MINIMUM ELEVATION in ft 15'

ON PRESSURE 29.92 in. DATE AND TIME (AM/PM) 1300 EST 3-13-83

OFF PRESSURE _____ in. DATE AND TIME (AM/PM) _____ 3-17-83



WS FORM 455-17

U.S. DEPARTMENT OF COMMERCE — NOAA National Weather Service

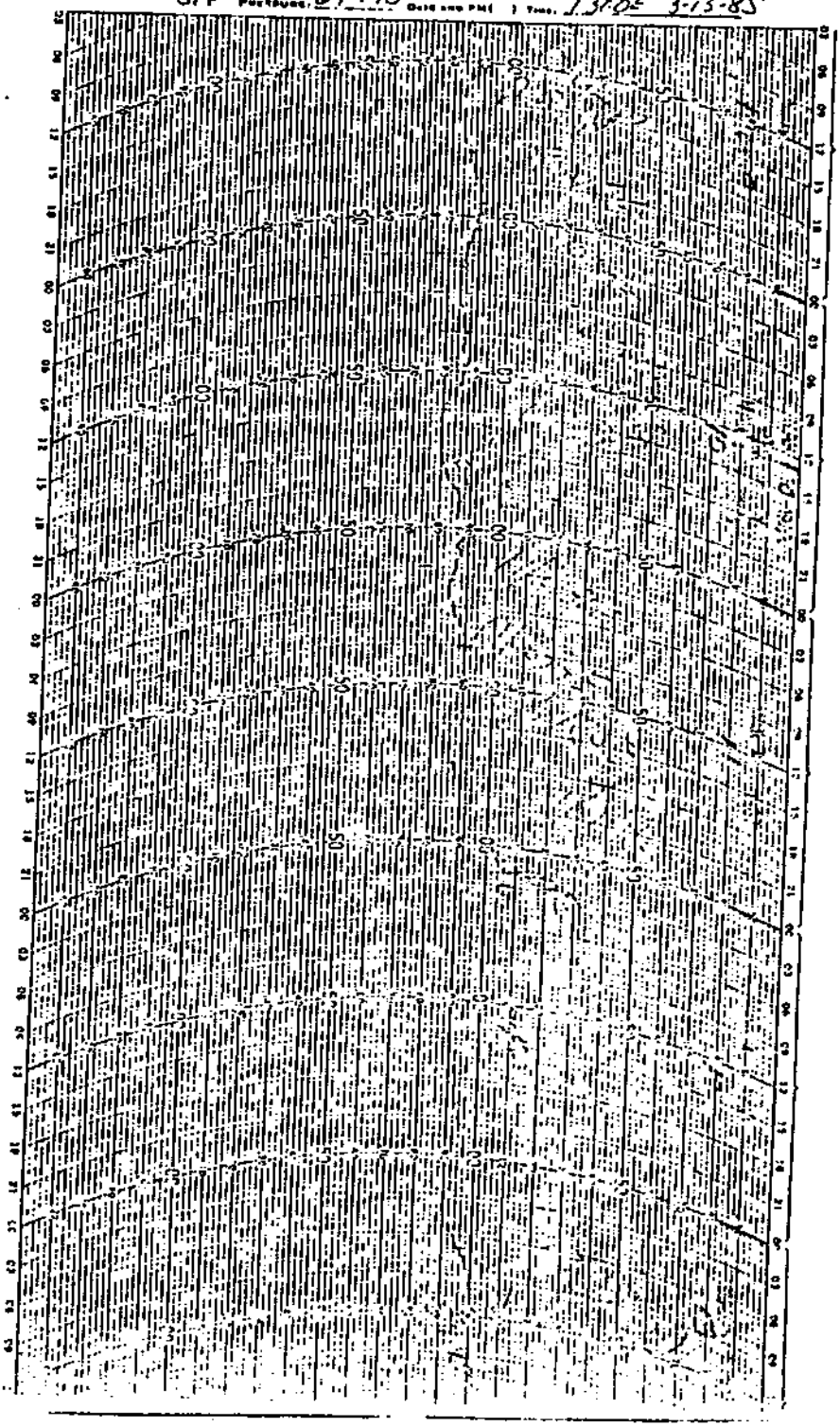
BAROGRAM

STATION PRESSURE (in inches) AT [illegible]

TIME OF RECORD 25 hr MERIDIAN ELEVATION (ft.) 18

ON Pressure: 29.60 Date and PM[illegible] Time: 04/258 3/9/83

OFF Pressure: 29.90 Date and PM[illegible] Time: 1305 3-13-83



WS FORM 455-17

U.S. DEPARTMENT OF COMMERCE - NOAA NATIONAL WEATHER SERVICE

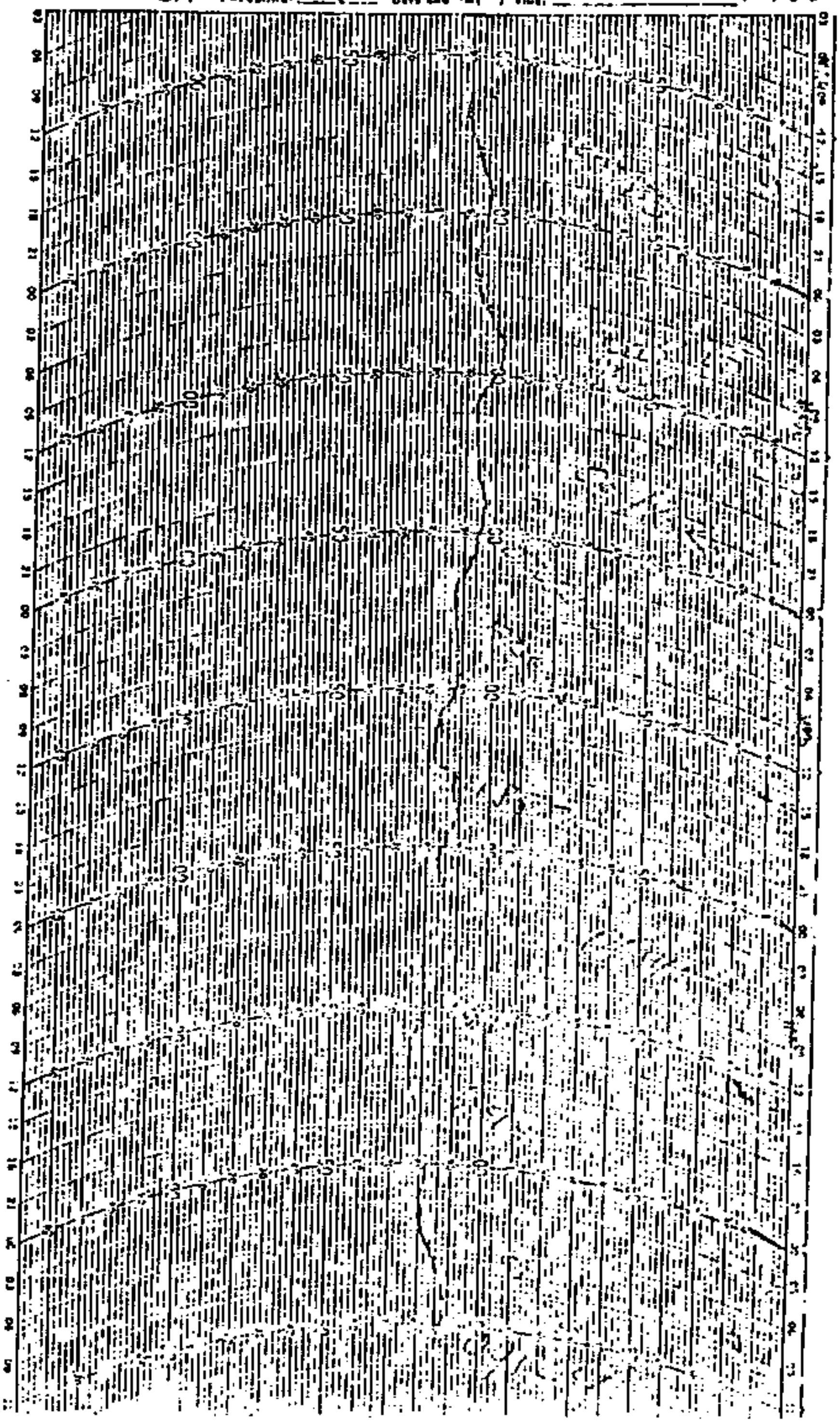
BAROGRAM

STATION PRESSURE IN INCHES AT ____________

TIME OF RECORD ________ TH MERIDIAN. ELEVATION ________

ON PRESSURE: 29.840 DATE AND TIME: 05/1450 3/5/83

OFF PRESSURE: 29.860 3/9/83



WS FORM 455 17

U.S. DEPARTMENT OF COMMERCE - NOAA NATIONAL WEATHER SERVICE

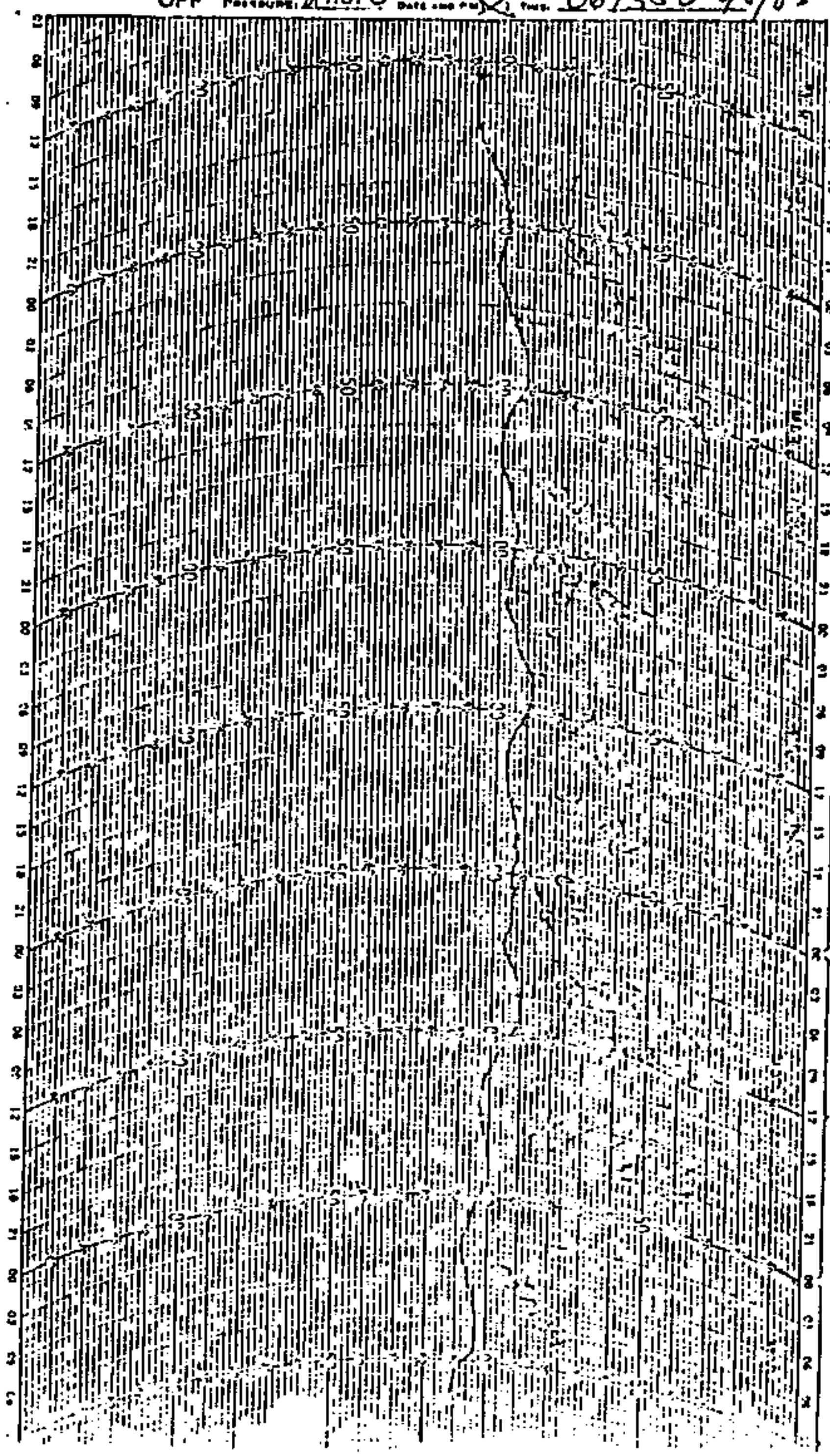
BAROGRAM

STATION PRESSURE (in inches) AT FMY

TIME OF RECORD 25-07500 MERIDIAN ELEVATION (ft.) 18

ON Pressure: ______ Date and Time: 3/1/83

OFF Pressure: 29.590 Date and Time: 061350 3/5/83



U.S. DEPARTMENT OF COMMERCE – NOAA NATIONAL WEATHER SERVICE

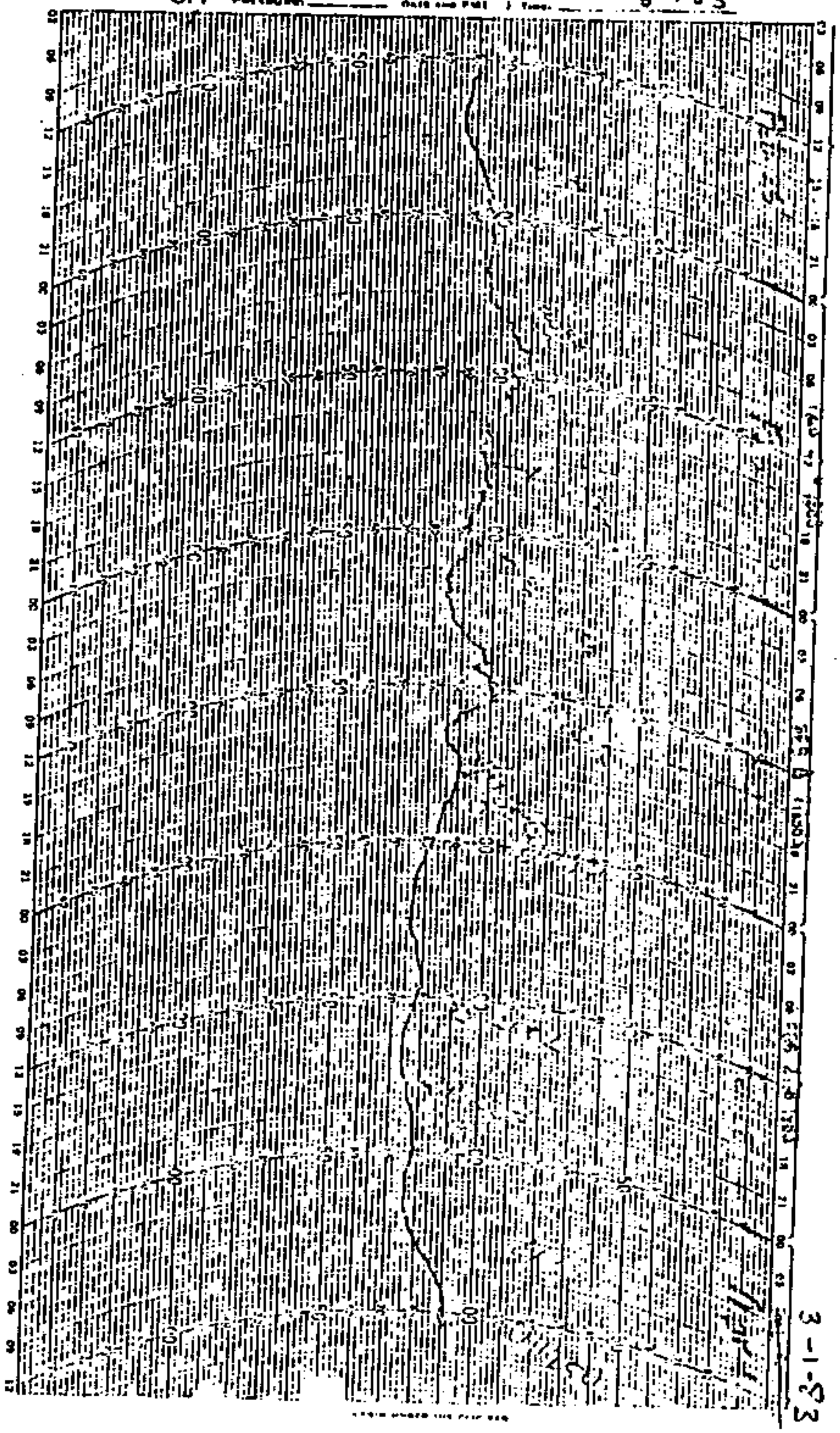
BAROGRAM

STATION PRESSURE IN INCHES AT ____ [illegible]

TIME OF RECORD ____ [illegible] MERIDIAN, ELEVATION (H_p) ____

ON Pressure 8796 Date and AM / PM Time [illegible] 2-25-83

OFF Pressure ____ Date and AM / PM Time 3-1-83



3-1-83

WS FORM 455-17

U.S. DEPARTMENT OF COMMERCE — NOAA NATIONAL WEATHER SERVICE

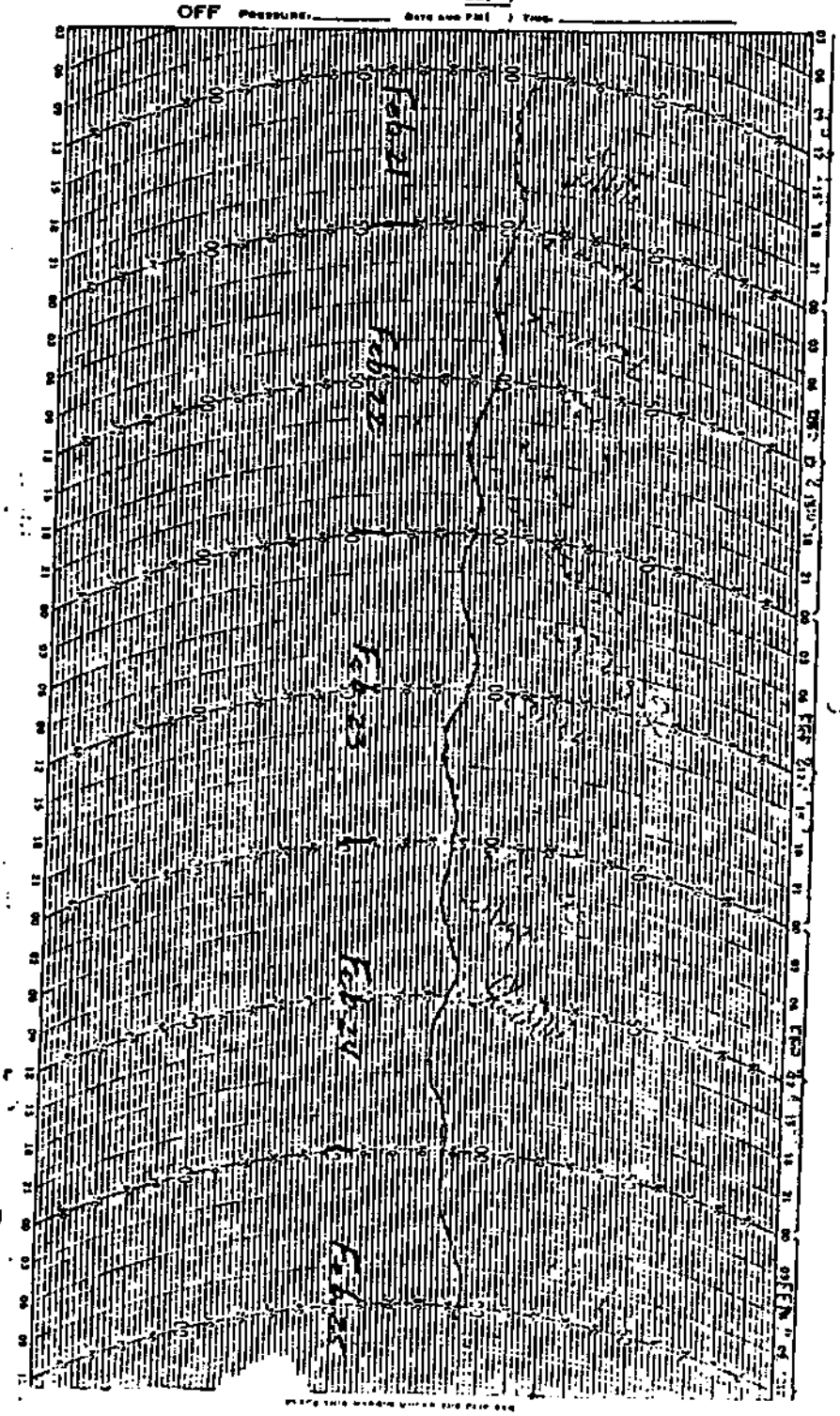
BAROGRAM

FAA/FIS (PAGE FIELD)
FORT MYERS, FLORIDA

STATION PRESSURE is reduced to _____ TIME OF RECORD _____ TH MERIDIAN, ELEVATION (ft.) _____

ON Pressure 29.05 Date and PM( ) Time AM( ) 1300 C 2/21/53

OFF Pressure _____ Date and PM( ) Time AM( ) _____



WS FORM 455-17

U.S. DEPARTMENT OF COMMERCE – NOAA NATIONAL WEATHER SERVICE

BAROGRAM

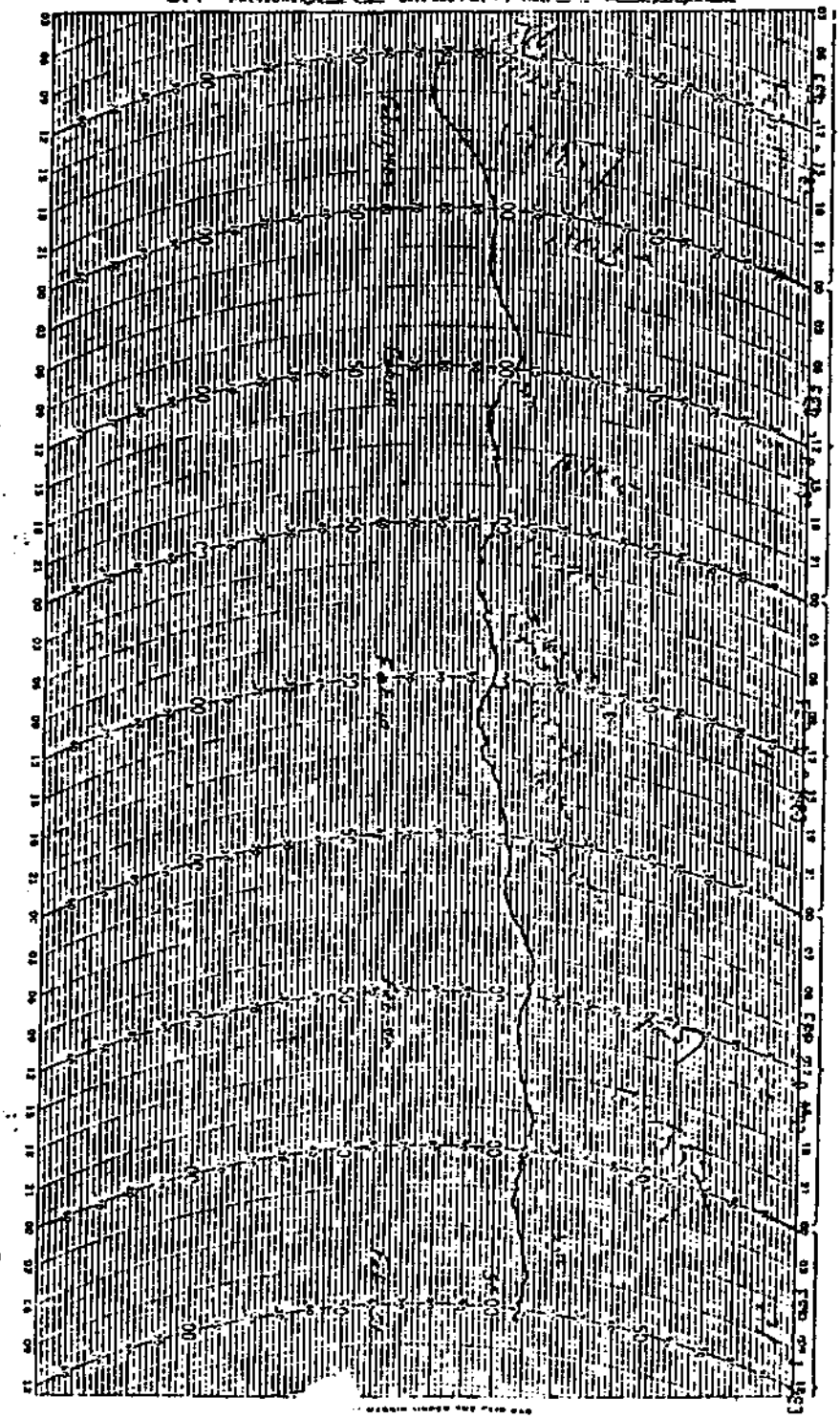
FAA/ISS (PACE FIELD)
FORT MYERS, FLORIDA

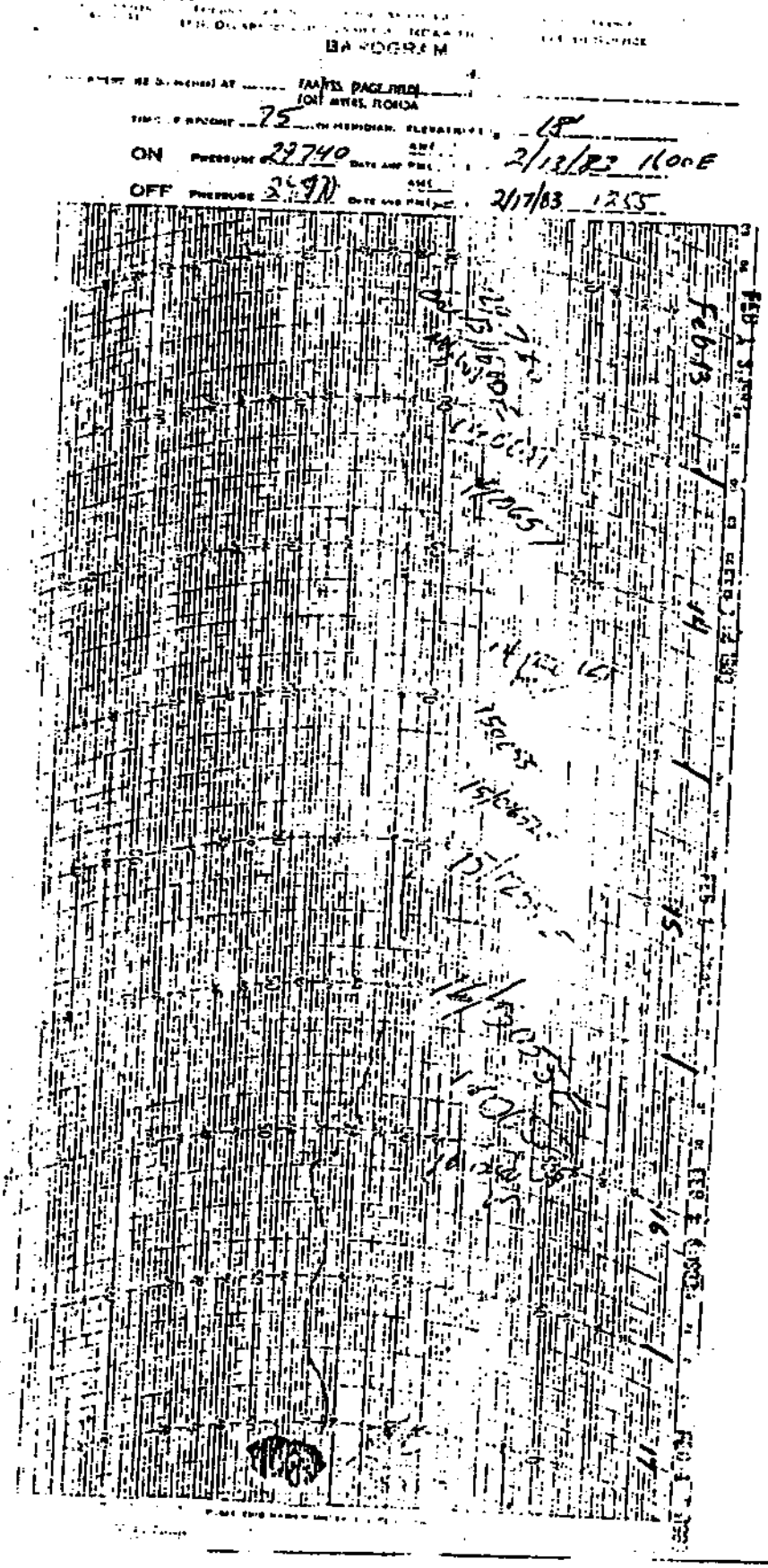
STATION PRESSURE (as required) AT _____

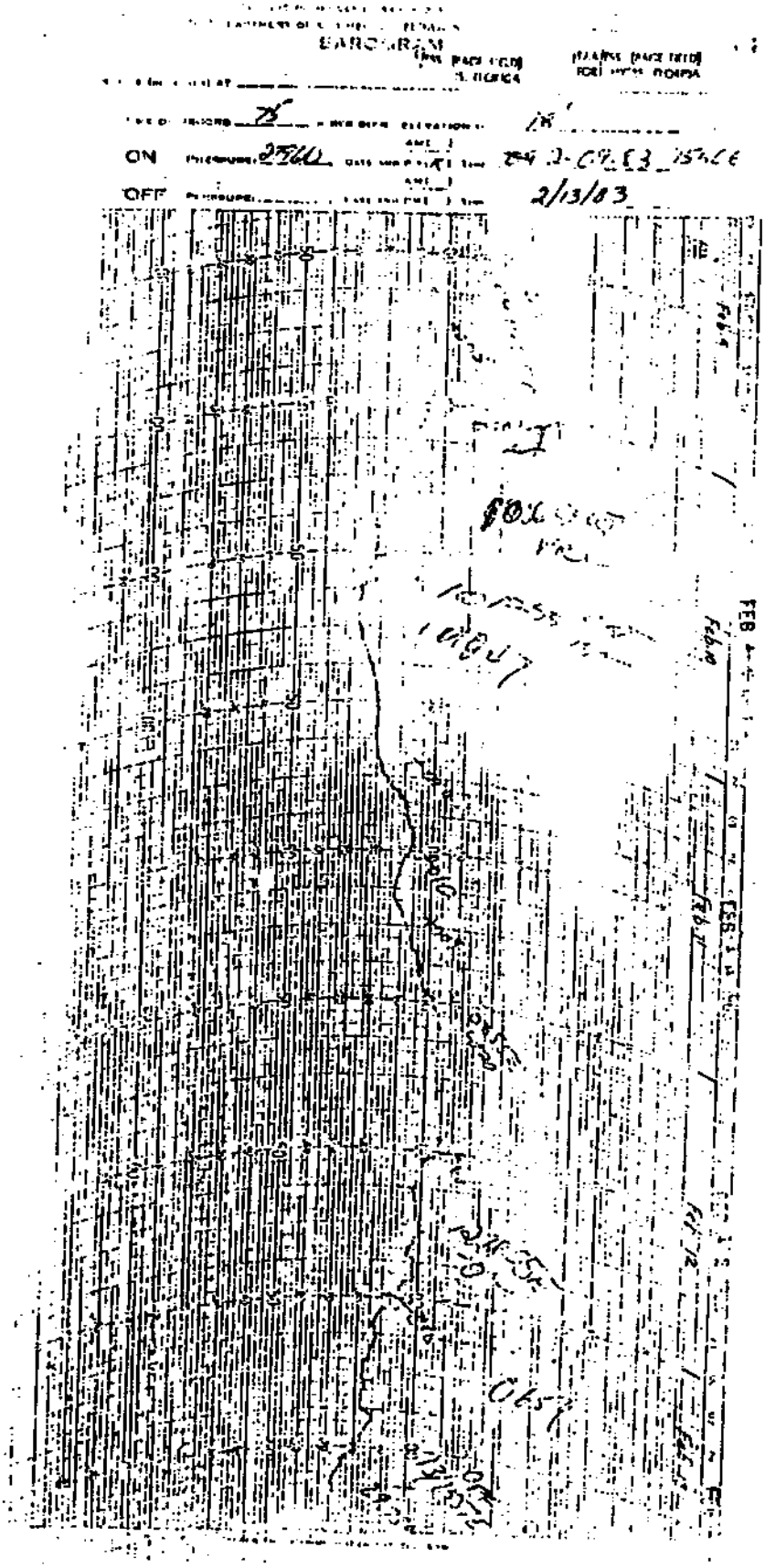
TIME OF RECORD _____ to MERIDIAN, ELEVATION (ft.) _____

ON PRESSURE: 29.770 DATE AND PM AM X Time: 1855 FEB 17 1983

OFF PRESSURE: 30.0 (L) DATE AND PM AM Time: 1300 E 2/21/23




BAROGRAM
FAA TEL PAGE FIELD
FORT MYERS, FLORIDA
ON
OFF
2/12/83 1100E
2/17/83 1235
Feb 13
14
15
16
17


ON
OFF
2/13/03