

COMPLETION REPORT ON CONSTRUCTION AND
TESTING OF
THREE NEW PRODUCTION WELLS
AT THE PELICAN BAY WELLFIELD

Prepared for

PELICAN BAY IMPROVEMENT DISTRICT

By

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Cape Coral, Florida

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INTRODUCTION

Missimer and Associates, Inc. was authorized to recommend on design, construction, and testing procedures for the installation of three new production wells and one monitor well at the site of the existing wellfield of the Pelican Bay Improvement District. The work scope also included supervision of construction, collection of geologic samples, geophysical logging, collection and analysis of test data, and report preparation.

WELL CONSTRUCTION

Three new production wells and one monitor well were constructed at the locations shown on Figure 1. The wells were constructed by McGregor Pump Company during the period between January 26, 1980 and February 20, 1981. A general construction diagram of the new production wells is shown in Figure 2. The production wells were constructed with 10-inch PVC casing and 6-inch PVC screen with a 0.020 inch slot size. The monitor well was constructed with 4-inch PVC casing and open hole below the casing. Table 1 gives the construction details on each well.

Geologic samples were collected at minimum five foot intervals. The description of the geology at each well site is given in the appendix. Geophysical logs (electric and gamma-ray and caliper) were run on each well. The geophysical logs are presented in the appendix.

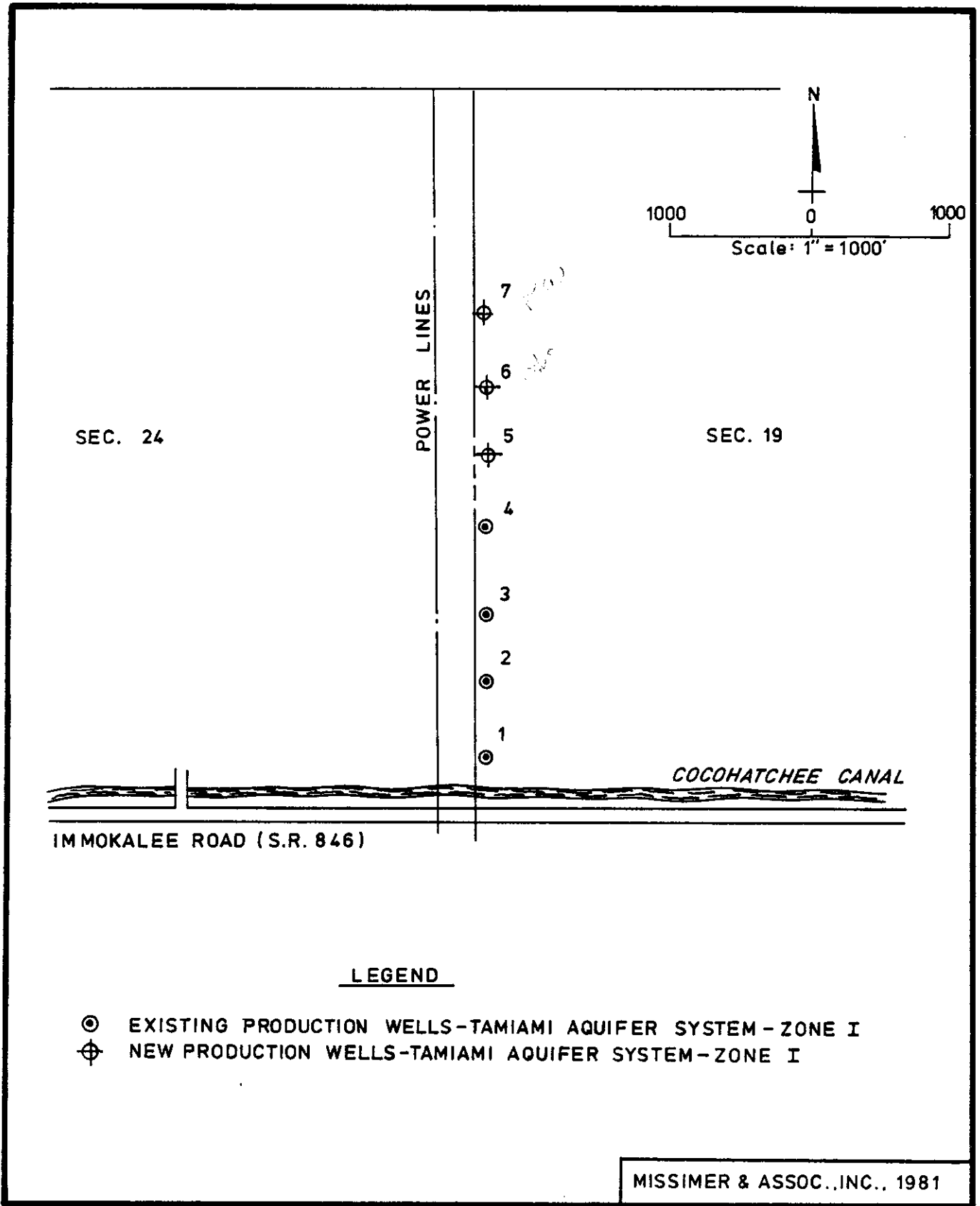


FIGURE 1. MAP SHOWING LOCATION OF OLD AND NEW PRODUCTION WELLS.

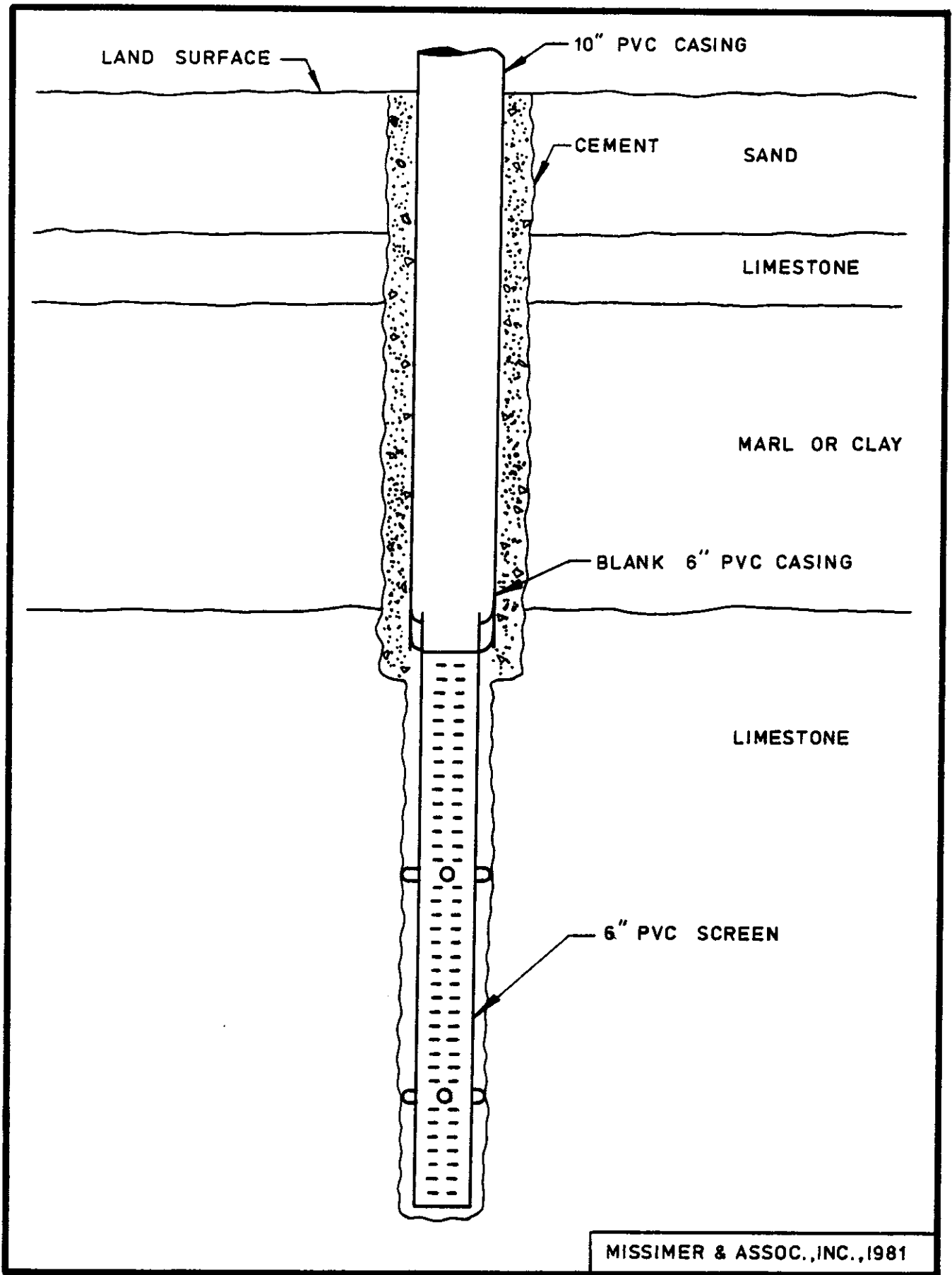


FIGURE 2. GENERAL CONSTRUCTION DIAGRAM OF NEW PRODUCTION WELLS.

TABLE 1. CONSTRUCTION DETAILS ON WELLS

<u>Well #</u>	<u>Casing Diameter</u>	<u>Total Depth</u>	<u>Cased Depth</u>	<u>Screen Interval</u>
5 (CO-287)	10"	100	50	50 to 100 (6")
6 (CO-288)	10"	101	51	51 to 101 (6")
7 (CO-289)	10"	101	53	53 to 101 (6")
CO-290	4"	100	52	Open hole to 100 ft.

WELL AND AQUIFER TESTING

Each new well was tested to determine its specific capacity and efficiency. Step drawdown tests were run at five different pumping rates. These pumping rates were 200, 300, 350, 400 and 500 gpm. Pumping was done for 1 hour at each step, and this duration was sufficient to allow for stabilization of the water level in the pumped well. Data from the step drawdown test was analyzed to determine well efficiency and specific capacity. In addition, data from the first step of the test was analyzed to obtain an estimate of the transmissivity of the formation. The results of these analysis are presented in Table 2.

In addition to the step drawdown tests, one constant rate pumping test was run on well #7 (CO-289). It was intended to pump continuously for 12 hours, however, the test was terminated after 9 hours pumping, when it became apparent that the water level data was being made invalid by interference created by pumping the old production wells. It was, therefore, not possible to use the data obtained for a determination of the leakance value. Nevertheless, the data from the early part of the test could be used to determine the transmissivity in the northern part of the wellfield.

Well #7 was pumped at 900 gpm for 540 minutes. A continuous record of water level decline was maintained on well CO-290, which is approximately 170 feet from the pumping well.

TABLE 2. RESULTS OF STEP DRAWDOWN TESTS

	<u>Well #5</u> <u>(CO-287)</u>	<u>Well #6</u> <u>(CO-288)</u>	<u>Well #7</u> <u>(CO-289)</u>
200 gpm specific capacity	117	166	97
300 gpm specific capacity	109	153	93
350 gpm specific capacity	104	140	91
400 gpm specific capacity	102	138	90
500 gpm specific capacity	96	131	88
Efficiency	60%	70%	80%

Figure 3 is a log-log plot of the time drawdown data from this test. Figure 4 is a semi-log plot of the same data and a sample transmissivity calculation. Transmissivity values obtained by these analyses were 224,000 gpd/ft and 216,000 gpd/ft.

WATER QUALITY

Samples were collected from each of the new production wells and analyzed for dissolved chloride. Dissolved chloride concentrations were: 240 mg/l in well #5 (CO-287); 220 mg/l in well #6 (CO-288); and 220 mg/l in well #7.

RECOMMENDED PUMPING RATES AND PUMP SETTINGS

The new production wells are capable of producing more water than the old wells. The recommended pumping rate for each of the new wells is 400 gpm. Because of drawdown interference within the wellfield, it is recommended that the pumping rate from well #3 be reduced to 200 gpm, and the pumping rate from well #4 be reduced to 100 gpm. The recommended pumping rates for all of the wells are as follows:

<u>Well #</u>	<u>Recommended Pumping Rate</u>
#1	300 gpm
#2	300 gpm
#3	200 gpm

<u>Well #</u>	<u>Recommended Pumping Rate</u>
#4	100 gpm
#5	400 gpm
#6	400 gpm
#7	400 gpm

The pump intakes of the new wells should be set at 45 feet below the top of the casing.

DRAWDOWNS AND WELL INTERFERENCE

The cone of depression due to pumping all wells within the wellfield at the recommended maximum rate is shown in Figure 5. This figure was based on a transmissivity value of 200,000 gpd/ft. The leakance of $.01 \text{ gpd/ft}^3$, which was determined from the original design program, was also used in this model.

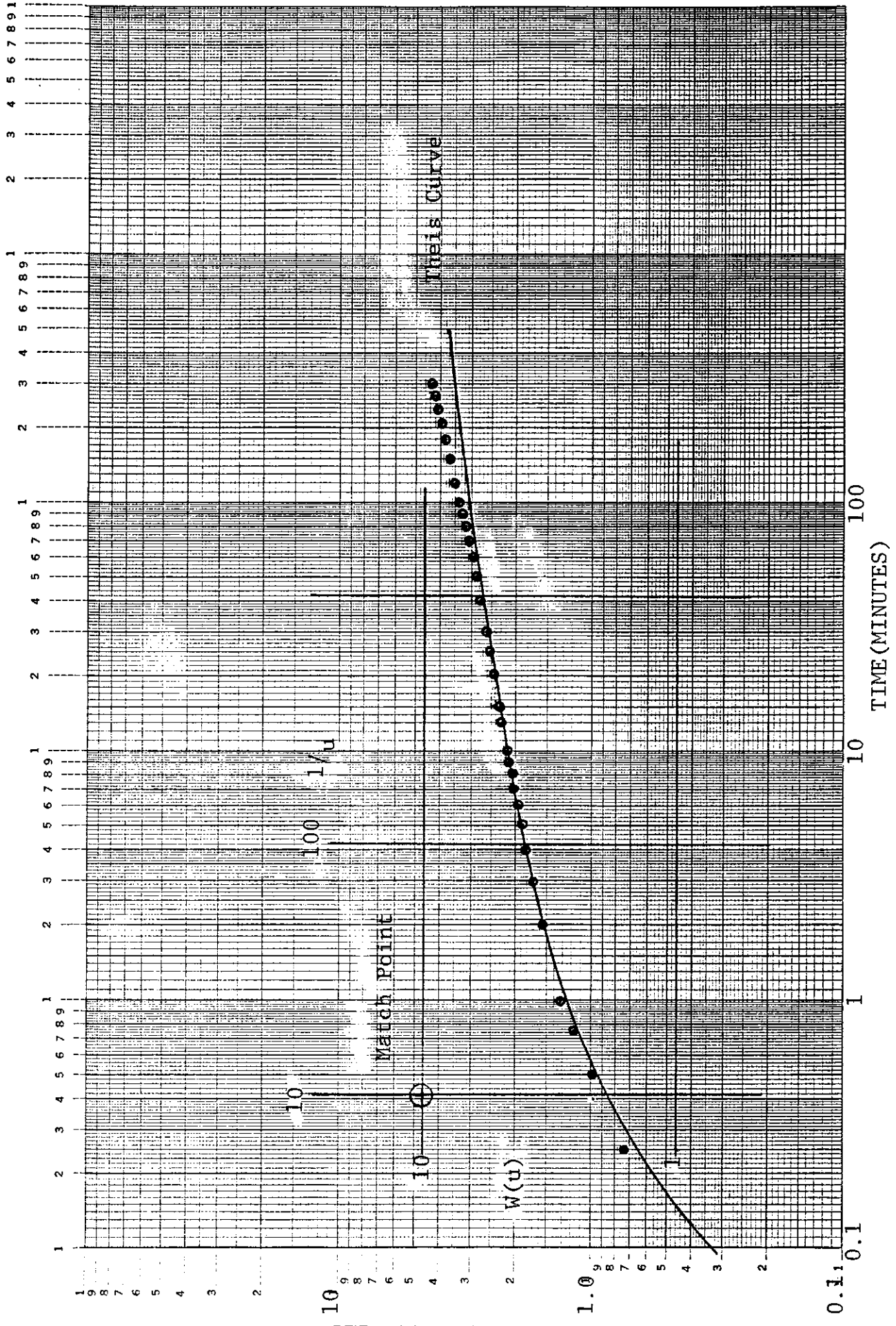


FIGURE 3. LOG-LOG PLOT OF DRAWDOWN VS TIME FOR WELL CO-290.

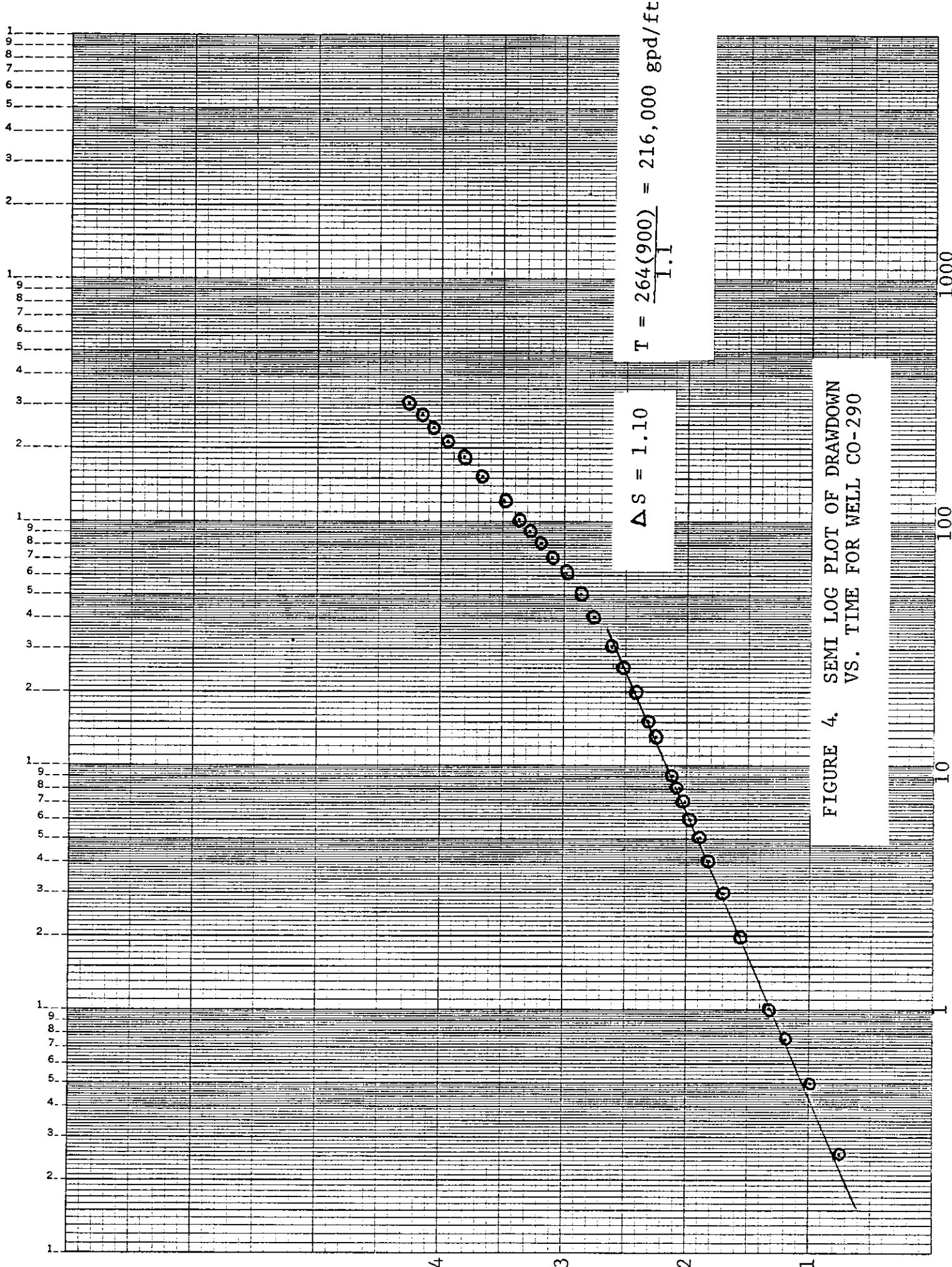


FIGURE 4. SEMI LOG PLOT OF DRAWDOWN VS. TIME FOR WELL CO-290

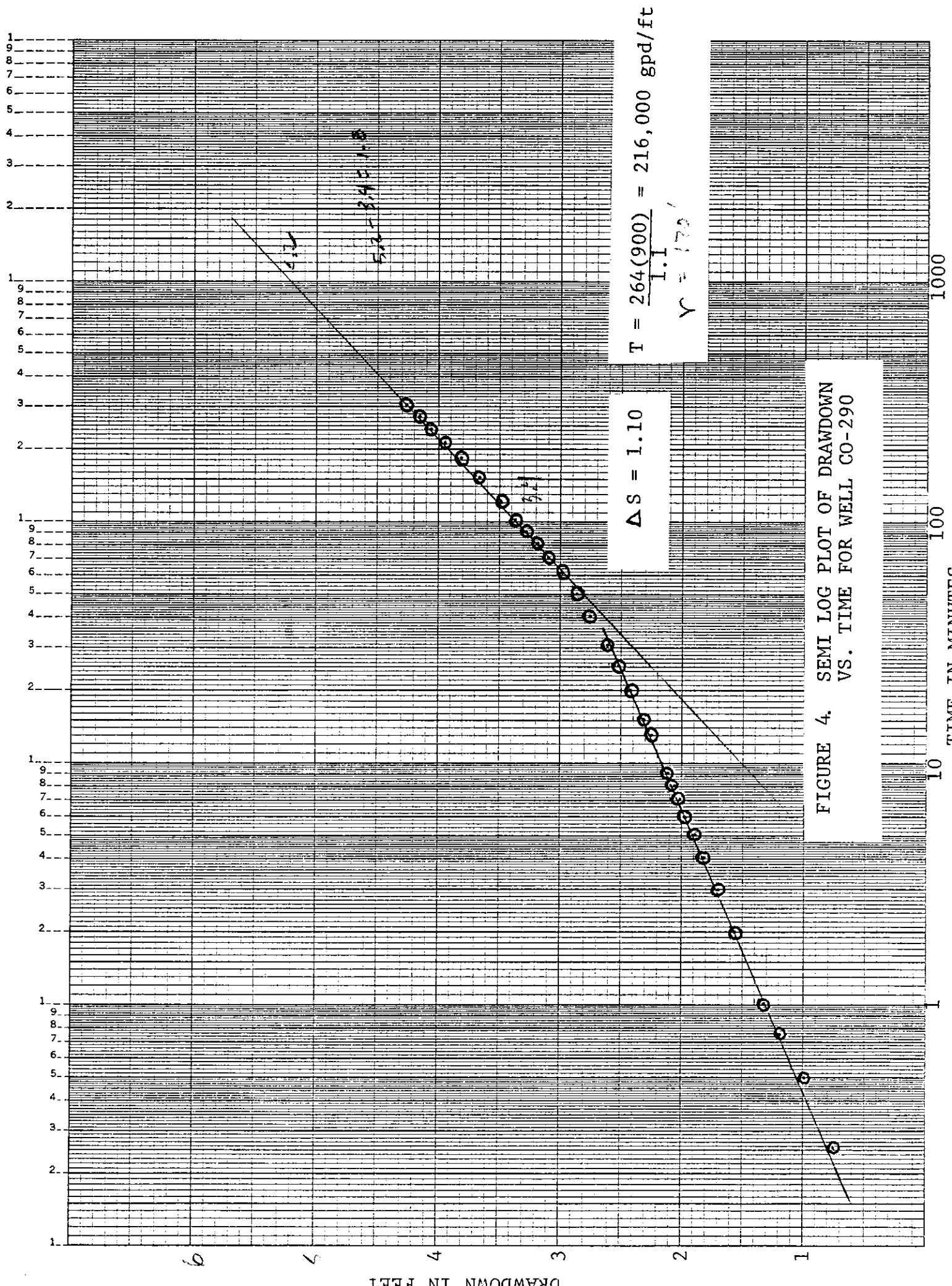


FIGURE 4. SEMI LOG PLOT OF DRAWDOWN VS. TIME FOR WELL CO-290

drawdown at equilibrium

t = 2000000 gpd/ft

l = 0.010000000000

grid spacing = 200 ft

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
1	1.84	1.94	2.04	2.14	2.24	2.33	2.39	2.41	2.39	2.33	2.24	2.14	2.04	1.94	1.84	1.75	1.66	
2	1.95	2.06	2.18	2.30	2.43	2.55	2.65	2.70	2.65	2.55	2.43	2.30	2.18	2.06	1.95	1.84	1.74	
				<u>Immokalee Road</u>														
3	2.05	2.18	2.31	2.46	2.62	2.79	2.98	3.09	2.98	2.79	2.62	2.46	2.31	2.18	2.05	1.93	1.82	
4	2.15	2.29	2.44	2.61	2.80	3.02	3.32	⊕ #1	3.32	3.02	2.80	2.61	2.44	2.29	2.15	2.01	1.89	
5	2.24	2.39	2.56	2.75	2.96	3.21	3.48	3.67	3.48	3.21	2.96	2.75	2.56	2.39	2.24	2.09	1.96	
6	2.32	2.48	2.67	2.87	3.09	3.36	3.65	3.86	3.65	3.36	3.09	2.87	2.67	2.48	2.32	2.17	2.03	
7	2.39	2.57	2.76	2.97	3.20	3.47	3.81	⊕ #2	3.81	3.47	3.20	2.97	2.76	2.57	2.39	2.23	2.09	
8	2.46	2.64	2.83	3.05	3.29	3.54	3.82	3.99	3.82	3.54	3.29	3.05	2.83	2.64	2.46	2.29	2.14	
9	2.51	2.70	2.90	3.11	3.35	3.59	3.87	⊕ #3	3.87	3.59	3.35	3.11	2.90	2.70	2.51	2.34	2.18	
10	2.56	2.75	2.95	3.17	3.40	3.63	3.86	4.01	3.86	3.63	3.40	3.17	2.95	2.75	2.56	2.38	2.22	
11	2.59	2.79	3.00	3.22	3.45	3.68	3.88	3.98	3.88	3.68	3.45	3.22	3.00	2.79	2.59	2.41	2.25	
12	2.62	2.82	3.04	3.27	3.51	3.75	3.99	⊕ #4	3.99	3.75	3.51	3.27	3.04	2.82	2.62	2.44	2.26	
13	2.64	2.84	3.07	3.31	3.58	3.85	4.12	4.26	4.12	3.85	3.58	3.31	3.07	2.84	2.64	2.45	2.27	
14	2.64	2.85	3.09	3.35	3.63	3.96	4.33	4.67	4.33	3.96	3.63	3.35	3.09	2.85	2.64	2.45	2.27	
15	2.63	2.85	3.09	3.36	3.66	4.02	4.45	⊕ #5	4.45	4.02	3.66	3.36	3.09	2.85	2.63	2.44	2.26	
16	2.61	2.82	3.06	3.34	3.65	4.02	4.42	4.67	4.42	4.02	3.65	3.34	3.06	2.82	2.61	2.42	2.24	
17	2.57	2.78	3.02	3.29	3.60	3.97	4.44	⊕ #6	4.44	3.97	3.60	3.29	3.02	2.78	2.57	2.38	2.21	
18	2.51	2.71	2.94	3.20	3.50	3.86	4.26	4.53	4.26	3.86	3.50	3.20	2.94	2.71	2.51	2.33	2.16	
19	2.43	2.62	2.84	3.08	3.36	3.69	4.09	4.45	4.09	3.69	3.36	3.08	2.84	2.62	2.43	2.26	2.11	
20	2.34	2.52	2.71	2.93	3.17	3.45	3.82	⊕ #7	3.82	3.45	3.17	2.93	2.71	2.52	2.34	2.19	2.04	
21	2.24	2.40	2.57	2.75	2.95	3.16	3.37	3.48	3.37	3.16	2.95	2.75	2.57	2.40	2.24	2.10	1.97	
22	2.14	2.27	2.42	2.57	2.72	2.87	2.99	3.04	2.99	2.87	2.72	2.57	2.42	2.27	2.14	2.01	1.89	
23	2.03	2.15	2.27	2.39	2.51	2.61	2.68	2.71	2.68	2.61	2.51	2.39	2.27	2.15	2.03	1.91	1.80	

FIGURE 5. DRAWDOWN IN POTENTIOMETRIC SURFACE OF TAMiami-ZONE I AQUIFER FOR PUMPING ALL WELLS AT RECOMMENDED PUMPING RATE.

APPENDIX

GEOLOGIST'S LOG OF WELL CO-287

<u>Depth(ft)</u>	<u>Description</u>
0-12	Sand and shell, fine, light gray-brown, <u>Chione cancellata</u> , gastropods, bivalves, medium permeability.
12-17	Limestone, gray-tan, sandy, biomicrite to biosparite, medium-hard, medium-high permeability.
17-24	Marl, gray-tan, limestone fragments in a phosphatic carbonate mud matrix, silty, low permeability.
24-30	Marl, gray-tan, shell and limestone fragments in a clay-mud matrix, silt-sized phosphorite, low permeability.
30-35	Marl, gray-tan, greater clay matrix than above, minor limestone and shell fragments, matrix is phosphatic, low permeability.
35-40	Marl, gray-green, green carbonate mud matrix, minor shell fragments, phosphatic, low permeability.
40-46	Marl, gray-green, shell and sand-sized phosphorite nodules in mud matrix, low permeability.
46-50	Limestone, gray, biomicritic, quartz silt (3-5%), moldic porosity, gastropods, corals, echenoid spines, medium to high permeability.
50-55	Limestone, gray, biomicritic, increasing amount of shell, moldic, high permeability.
55-60	Limestone, gray-white, biomicrite, trace of quartz silt, vugged, moldic porosity, high permeability.
60-65	Limestone, gray-white, matrix of fossil hash - shell fragments and quartz silt, moldic porosity, high permeability.
65-70	Limestone, white, biomicrite, trace of spar lining vugs, trace of quartz silt, high permeability.
70-75	Limestone, white, biomicritic, moldic porosity, vugged, bivalves, spar linings, high permeability.

GEOLOGIST'S LOG OF WELL CO-287 - Continued

<u>Depth(ft)</u>	<u>Description</u>
75-80	Limestone, white, biomicrite, similar to above but less shell, quartz silt and spar is minor, vugged, high permeability.
80-85	Limestone, white-beige, biomicrite, increasing amount of quartz silt, vugged, trace of phosphorite, medium to high permeability.
85-90	Limestone, beige, biomicrite, silty, spar lining vugs, trace of phosphorite, medium to high permeability.
90-98	Limestone, beige, biomicrite, harder than above, vugged, minor quartz silt, medium to high permeability.
98-100	Limestone, beige-white, silty, phosphatic, moldic porosity, medium permeability.

GEOLOGIST'S LOG OF WELL CO-288

<u>Depth(ft)</u>	<u>Description</u>
0-9	Sand and shell, fine grained, gray to light brown, gastropods, <u>Chione cancellata</u> , medium permeability.
9-14	Limestone, light gray-tan, sandy, biomicrite, very hard, medium permeability.
14-19	Limestone, gray-light gray, biomicrite, very hard, macroscopic clear calcite crystals, minor quartz silt, medium permeability.
19-38	Marl, gray-white, limestone fragments and shell in a carbonate-clay mud matrix, phosphatic, low permeability.
38-44	Marl, gray-green, green carbonate clay matrix, limestone and shell fragments. Minor quartz sand, phosphatic, low permeability.
44-49	Marl, gray-green, similar to above limestone, shell and quartz minor, phosphatic, low permeability.
49-55	Limestone, light gray-white, biomicrite, moldic porosity, chalky texture, medium to high permeability.
55-60	Limestone, white-gray, biomicritic, vugged with microspar lining, trace of quartz silt, high permeability.
60-65	Limestone, light gray-white, biomicritic, highly vugged with good spar crystals, high permeability.
65-70	Limestone, light gray-white, biomicritic, similar to above, high permeability.
70-82	Limestone, light gray-white, biomicritic, spar lining vugs, trace of quartz silt, medium hard, high permeability.
82-89	Limestone, beige-white, softer than above, silty, biomicritic, medium to high permeability.

GEOLOGIST'S LOG OF WELL CO-288 - continued:

<u>Depth(ft)</u>	<u>Description</u>
89-96	Limestone, white-beige, medium hard, vugged biomicritic, minor quartz silt present, medium to high permeability.
96-100	Limestone, beige, chalky, medium, silty, small vugs, medium permeability.

GEOLOGIST'S LOG OF WELL CO-289

<u>Depth(ft)</u>	<u>Description</u>
0-11	Sand and shell, fine, light gray-brown, <u>Chione cancellata</u> , gastropods, bivalves, <u>medium permeability</u> .
11-15	Limestone, gray-tan, very hard, biomicrite, sandy, loss of circulation at 13 feet, high permeability.
15-20	Limestone, medium hard, no sample.
20-24	Marl, gray, limestone is biomicritic, lime mud matrix, silty, low permeability.
24-44	Marl, gray-green, clay-mud matrix with limestone fragments, low permeability.
44-50	Marl, same as above, low permeability.
50-53	Limestone, gray-green, biomicrite phosphatic, vugged, high permeability.
53-60	Limestone, gray-cream, biomicritic with micro spar lining vugs, spar is minor but present, high permeability.
60-65	Limestone, gray-white, biomicrite, friable microfossil hash - limestone and shell fragments, vugged molds, high permeability.
65-75	Limestone, white, biomicrite, moldic porosity, vugged, spar lining vugs, high permeability.
75-82	Limestone, white, biomicrite, trace of quartz silt, softer than above, vugged, high permeability.
82-90	Limestone, beige-white, biomicrite, quartz silt (5%), moldic porosity, medium permeability.
90-95	Limestone, beige, biomicrite, medium soft, silty, similar to above, medium permeability.
95-100	Limestone, beige, biomicrite, soft, silty, trace of lime mud, medium permeability.



MISSIMER
AND
ASSOCIATES, INC.

GEOPHYSICAL LOG

WELL NUMBER: 10-200

DATE LOGGED: 1/29/81

PROJECT: Energy Co. Well Log System
NUMBER: 91-6

LOGS, SCALES, AND CONSTANTS

SPONTANEOUS POTENTIAL	-----	<input type="checkbox"/>	_____	_____	_____
RESISTIVITY	-----	<input type="checkbox"/>	_____	_____	_____
GAMMA RAY	-----	<input type="checkbox"/>	_____	_____	_____
CALIPER	-----	<input type="checkbox"/>	_____	_____	_____
TEMPERATURE	-----	<input type="checkbox"/>	_____	_____	_____
FLOW VELOCITY	-----	<input type="checkbox"/>	_____	_____	_____
INSTRUMENT	_____				

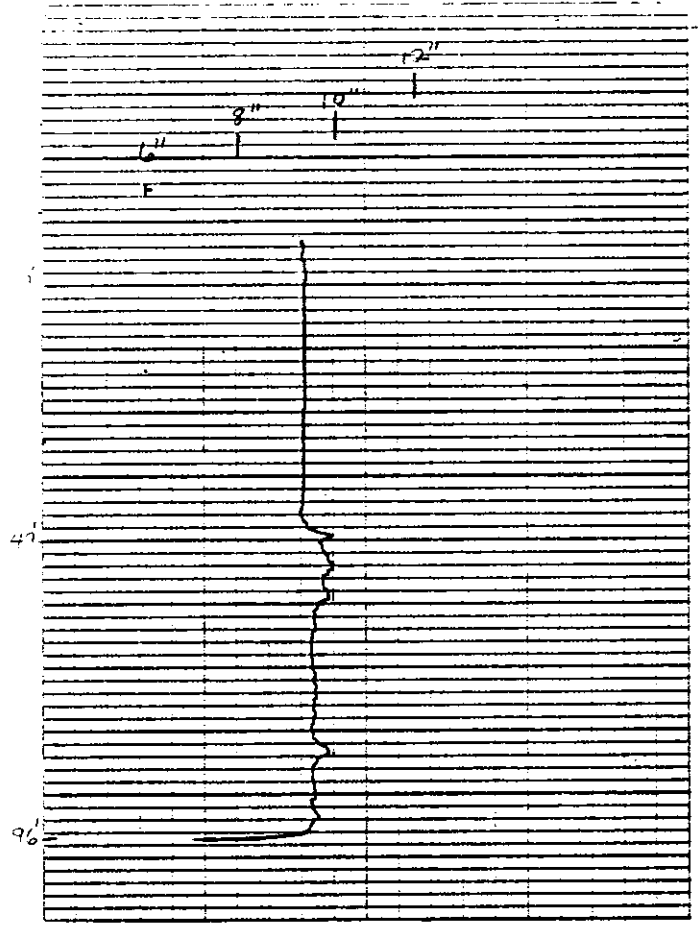
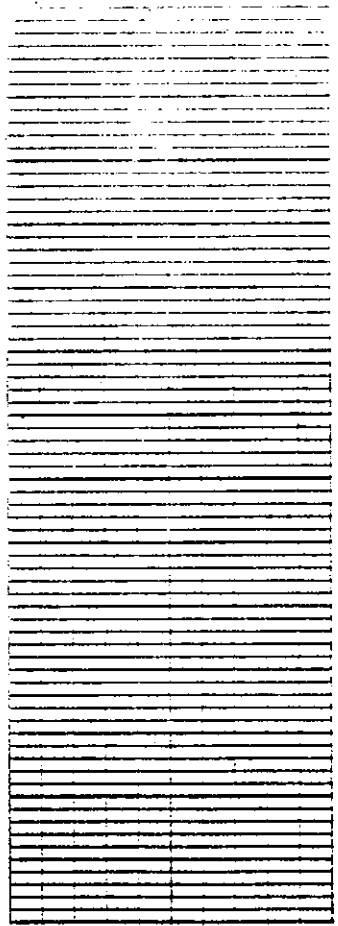
HORIZONTAL VERTICAL SPEED

LOCATION: COUNTY: _____ 1/4 _____ 1/4 _____ 1/4, SECTION: _____, TOWNSHIP: _____, RANGE: _____
ELEVATION (LSD) _____ FEET (MSL) _____

FIRST READING	AT	
LAST READING	AT	
FEET LOGGED		
BOTTOM - DRILLER		
CASING - LOG		
CASING - DRILLER		
HOLE DIAMETER		
CASING DIAMETER		

LOGGED BY: _____
ASSISTED BY: _____

REMARKS AND INTERPRETIVE COMMENTS OR NOTES:



DATE PRINTED: 1/29/81

NO. 10-1123-01



MISSIMER
AND
ASSOCIATES, INC.

GEOPHYSICAL LOG

WELL NUMBER: CO-20

DATE LOGGED: 5-17

PROJECT: Brown Co. Water - Exploration
NUMBER: 21-6

LOGS, SCALES, AND CONSTANTS

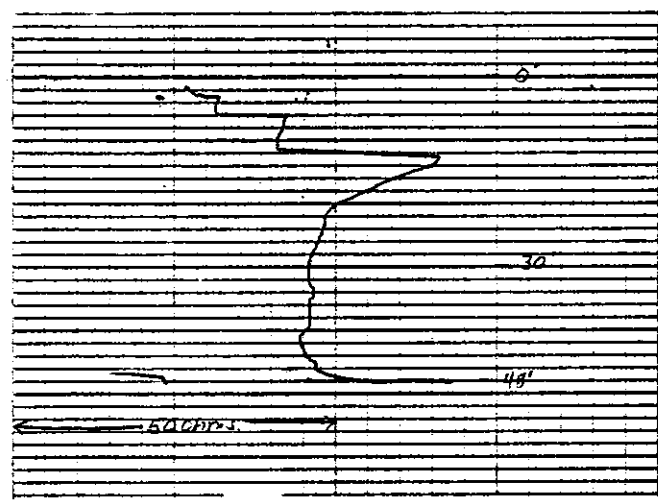
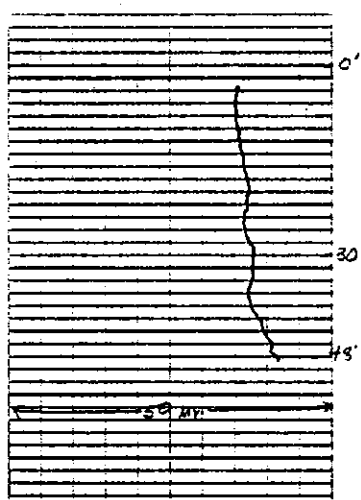
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RESISTIVITY	-----	<input checked="" type="checkbox"/>	<u>1.0</u>	<u>0.100</u>
GAMMA RAY	-----	<input type="checkbox"/>	-----	-----
CALIPER	-----	<input type="checkbox"/>	-----	-----
TEMPERATURE	-----	<input type="checkbox"/>	-----	-----
FLOW VELOCITY	-----	<input type="checkbox"/>	-----	-----
INSTRUMENT	-----	-----	HORIZONTAL	VERTICAL
			SPEED	

LOCATION: COUNTY: Polk, 1/4 1/4 1/4, SECTION: 13, TOWNSHIP: 49, RANGE: 20
ELEVATION (LSD) _____ FEET (MSL)

FIRST READING	AT	<u>45'</u>
LAST READING	AT	<u>2'</u>
FEET LOGGED		<u>43'</u>
BOTTOM - DRILLER		
CASING - LOG		
CASING - DRILLER		
HOLE DIAMETER		<u>10"</u>
CASING DIAMETER		

LOGGED BY: M. T. ...
ASSISTED BY: _____

REMARKS AND INTERPRETIVE COMMENTS OR NOTES:





MISSIMER
AND
ASSOCIATES, INC.

GEOPHYSICAL LOG

WELL NUMBER: 60287

DATE LOGGED: _____

PROJECT: 1-1-6
NUMBER: _____

LOGS, SCALES, AND CONSTANTS

SPONTANEOUS POTENTIAL	-----	<input type="checkbox"/>	_____	_____	_____
RESISTIVITY	-----	<input type="checkbox"/>	_____	_____	_____
GAMMA RAY	-----	<input checked="" type="checkbox"/>	_____	_____	_____
CALIPER	-----	<input type="checkbox"/>	_____	_____	_____
TEMPERATURE	-----	<input type="checkbox"/>	_____	_____	_____
FLOW VELOCITY	-----	<input type="checkbox"/>	_____	_____	_____
INSTRUMENT	_____				

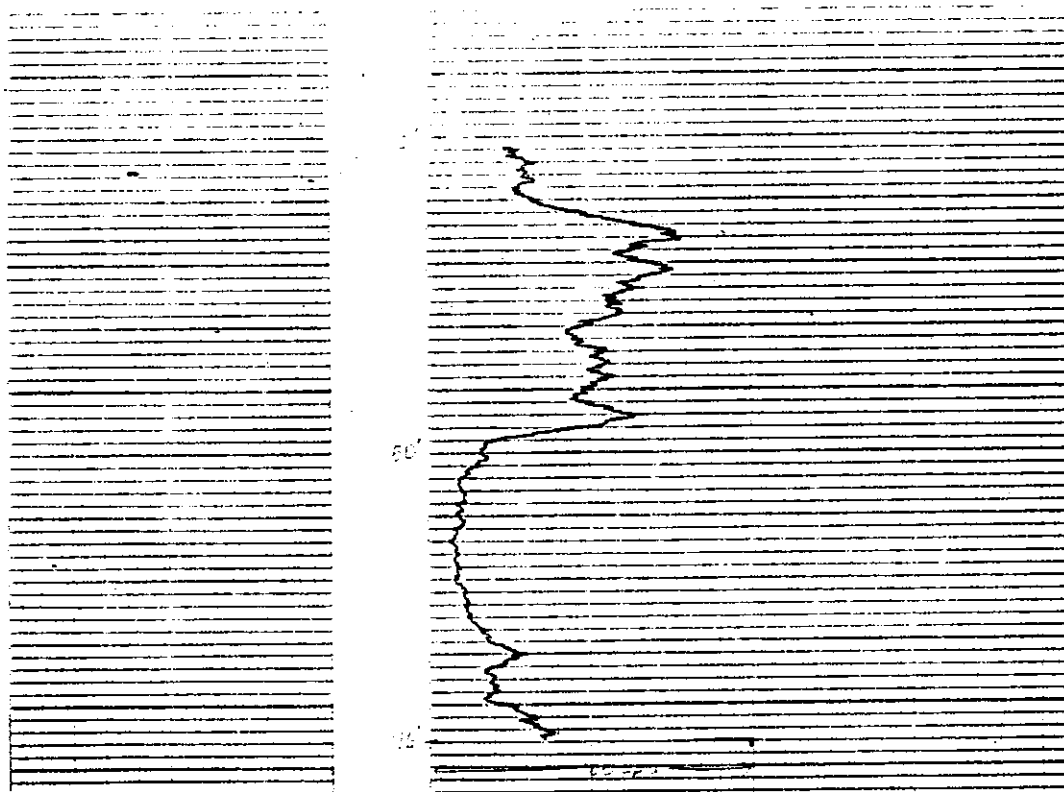
HORIZONTAL VERTICAL SPEED

LOCATION: COUNTY: _____ 1/4 _____ 1/4 _____ 1/4, SECTION: _____, TOWNSHIP: _____, RANGE: _____
ELEVATION (LSD) _____ FEET (MSU) _____

FIRST READING	AT	_____
LAST READING	AT	_____
FEET LOGGED		_____
BOTTOM - DRILLER		_____
CASING - LOG		_____
CASING - DRILLER		_____
HOLE DIAMETER		_____
CASING DIAMETER		_____

LOGGED BY: _____
ASSISTED BY: _____

REMARKS AND INTERPRETIVE COMMENTS OR NOTES: 74-3





MISSIMER
AND
ASSOCIATES, INC.

GEOPHYSICAL LOG

WELL NUMBER: CO-285

DATE LOGGED: _____

PROJECT: _____

NUMBER: _____

LOGS, SCALES, AND CONSTANTS

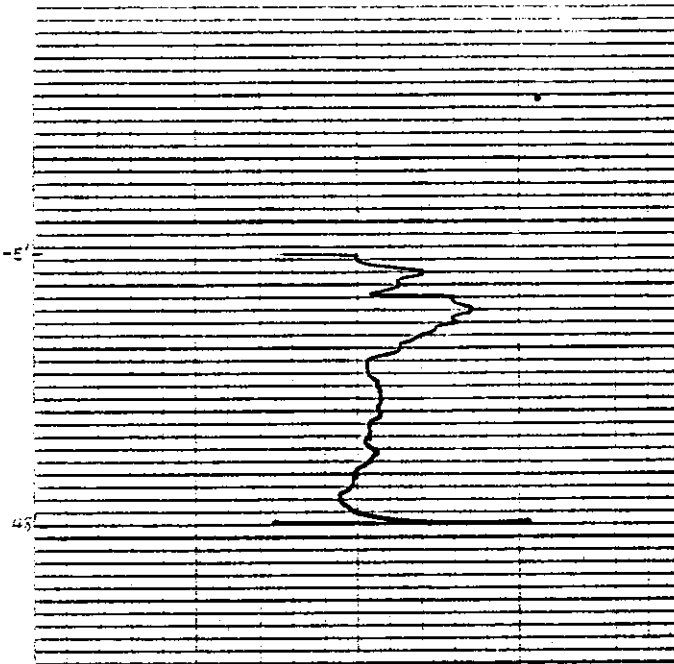
SPONTANEOUS POTENTIAL	-----	<input checked="" type="checkbox"/>	_____	_____	_____
RESISTIVITY	-----	<input checked="" type="checkbox"/>	_____	_____	_____
GAMMA RAY	-----	<input type="checkbox"/>	_____	_____	_____
CALIPER	-----	<input type="checkbox"/>	_____	_____	_____
TEMPERATURE	-----	<input type="checkbox"/>	_____	_____	_____
FLOW VELOCITY	-----	<input type="checkbox"/>	_____	_____	_____
INSTRUMENT	_____		HORIZONTAL	VERTICAL	SPEED

LOCATION: COUNTY: _____, _____ 1/4 _____ 1/4 _____ 1/4, SECTION: _____, TOWNSHIP: _____, RANGE: _____
ELEVATION (LSD) _____ FEET (MSL) _____

FIRST READING	AT _____
LAST READING	AT _____
FEET LOGGED	_____
BOTTOM- DRILLER	_____
CASING- LOG	_____
CASING- DRILLER	_____
HOLE DIAMETER	_____
CASING DIAMETER	_____

LOGGED BY: _____
ASSISTED BY: _____

REMARKS AND INTERPRETIVE COMMENTS OR NOTES:





MISSIMER
AND
ASSOCIATES, INC.

GEOPHYSICAL LOG

WELL NUMBER: C-222

DATE LOGGED: _____

PROJECT: _____

NUMBER: _____

LOGS, SCALES, AND CONSTANTS

SPONTANEOUS POTENTIAL	-----	<input type="checkbox"/>	-----	-----	-----
RESISTIVITY	-----	<input type="checkbox"/>	-----	-----	-----
GAMMA RAY	-----	<input checked="" type="checkbox"/>	-----	-----	-----
CALIPER	-----	<input type="checkbox"/>	-----	-----	-----
TEMPERATURE	-----	<input type="checkbox"/>	-----	-----	-----
FLOW VELOCITY	-----	<input type="checkbox"/>	-----	-----	-----
INSTRUMENT	-----			HORIZONTAL	VERTICAL
				SPEED	

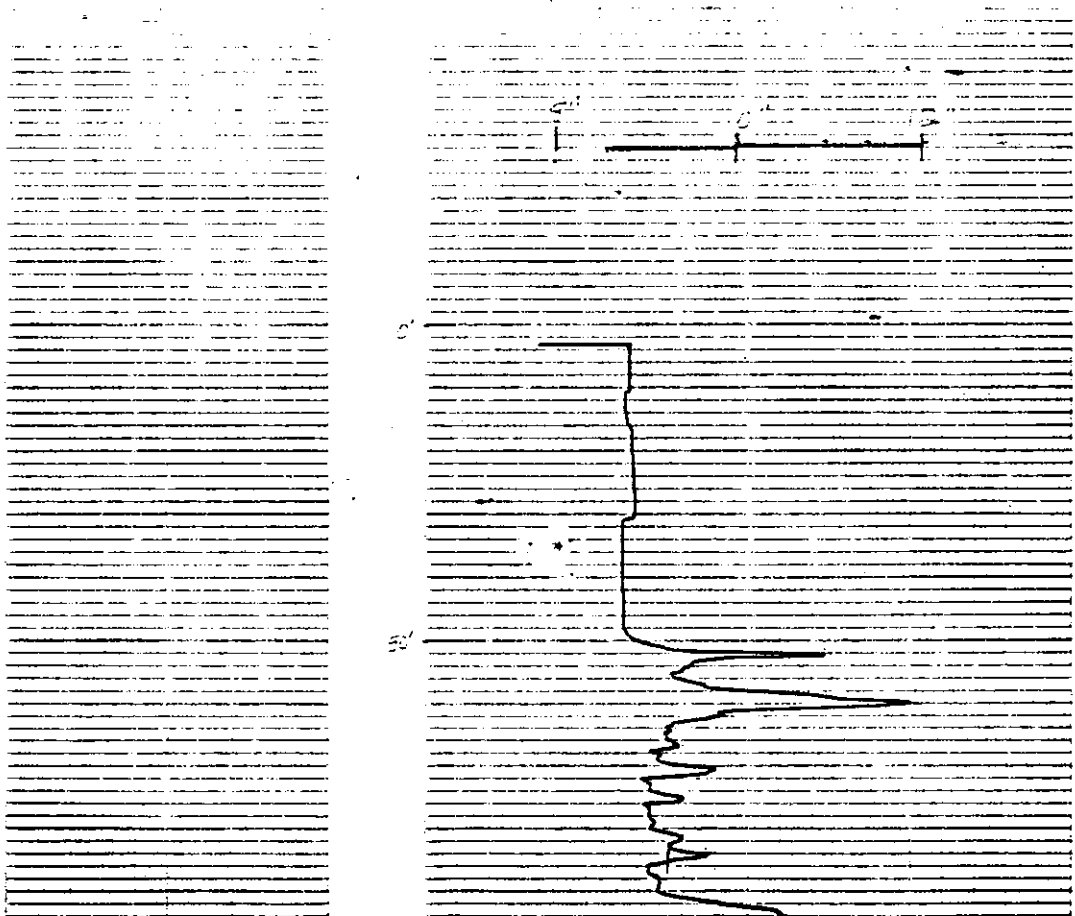
LOCATION: COUNTY: _____, _____ 1/4 _____ 1/4 _____ 1/4, SECTION: _____, TOWNSHIP: _____, RANGE: _____

ELEVATION (LSD) _____ FEET (MSL) _____

FIRST READING	AT
LAST READING	AT
FEET LOGGED	
BOTTOM - DRILLER	
CASING - LOG	
CASING - DRILLER	
HOLE DIAMETER	
CASING DIAMETER	

LOGGED BY: _____
ASSISTED BY: _____

REMARKS AND INTERPRETIVE COMMENTS OR NOTES:





MISSIMER
AND
ASSOCIATES, INC.

GEOPHYSICAL LOG

WELL NUMBER: CG-28

DATE LOGGED: 5-1-51

PROJECT: _____
NUMBER: 0-3

LOGS, SCALES, AND CONSTANTS

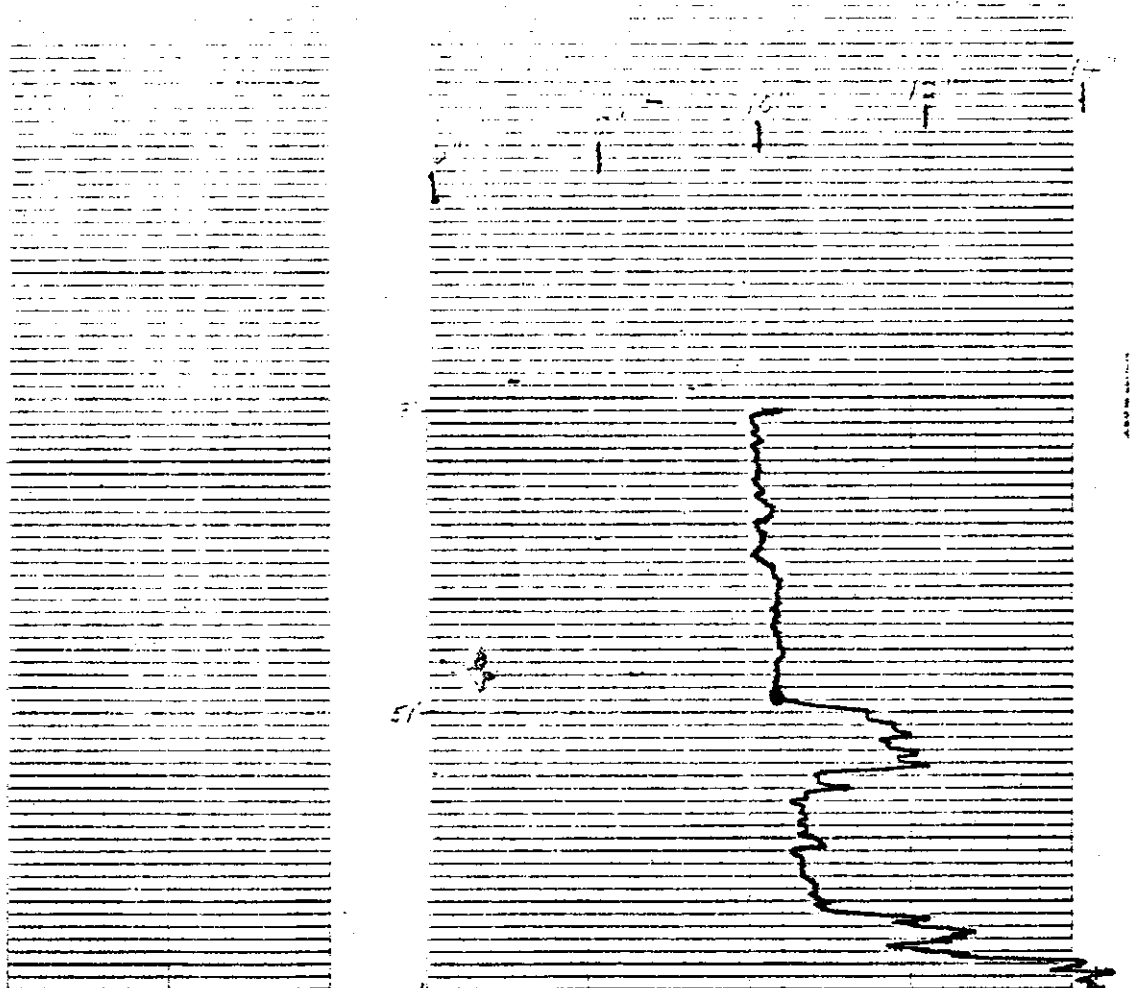
SPONTANEOUS POTENTIAL	-----	□□□□□	_____	_____	_____
RESISTIVITY	-----	□□□□□	_____	_____	_____
GAMMA RAY	-----	□□□□□	_____	_____	_____
CALIPER	-----	□□□□□	_____	_____	_____
TEMPERATURE	-----	□□□□□	_____	_____	_____
FLOW VELOCITY	-----	□□□□□	_____	_____	_____
INSTRUMENT	_____		HORIZONTAL	VERTICAL	SPEED

LOCATION: COUNTY: _____ 1/4 — 1/4 — 1/4, SECTION: _____, TOWNSHIP: _____, RANGE: _____
ELEVATION (LSD) _____ FEET (MSL)

FIRST READING	AT
LAST READING	AT
FEET LOGGED	
BOTTOM - DRILLER	
CASING - LOG	
CASING - DRILLER	
SOLE DIAMETER	
CASING DIAMETER	

LOGGED BY: M. J. [Signature]
ASSISTED BY: _____

REMARKS AND INTERPRETIVE COMMENTS OR NOTES:





MISSIMER
AND
ASSOCIATES, INC.

GEOPHYSICAL LOG

WELL NUMBER: 40-289

DATE LOGGED: 2/10/89

PROJECT: Palisade Bay Wellfield Expansion
NUMBER: 81-6

LOGS, SCALES, AND CONSTANTS

SPONTANEOUS POTENTIAL
RESISTIVITY
GAMMA RAY
CALIPER
TEMPERATURE
FLOW VELOCITY

1" = 5 mV 20' / MIN
1" = 200 OHMS 20' / MIN

HORIZONTAL VERTICAL SPEED

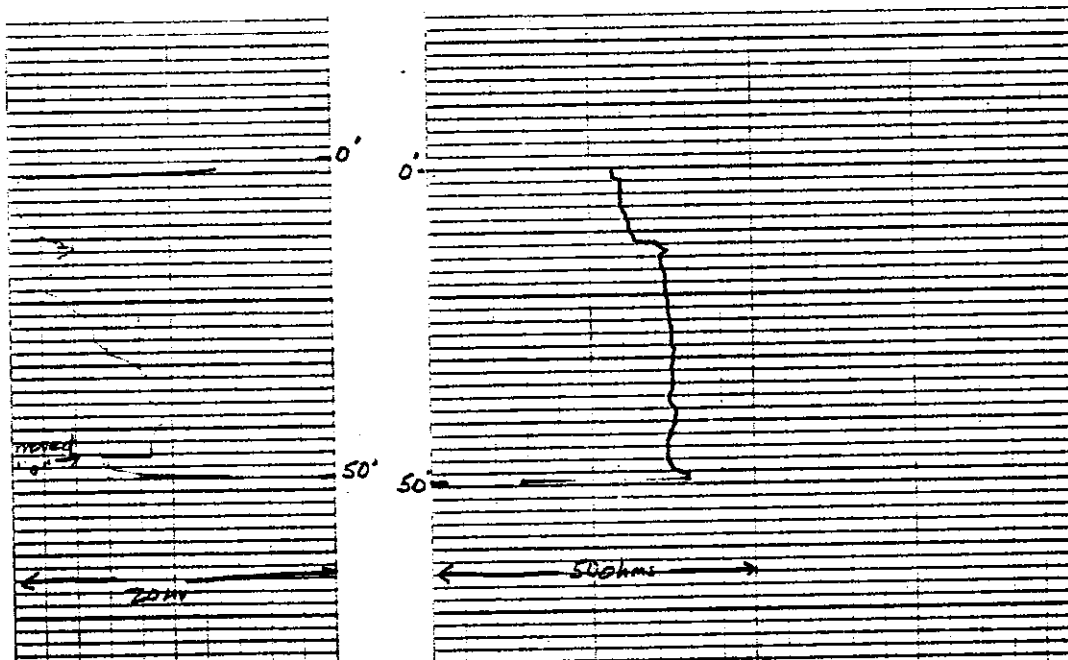
INSTRUMENT _____

LOCATION: COUNTY: _____, 1/4 _____ 1/4 _____ 1/4, SECTION: _____, TOWNSHIP: _____, RANGE: _____
ELEVATION (LSD) _____ FEET (MSL)

FIRST READING	AT	50
LAST READING	AT	1
FEET LOGGED		49
BOTTOM - DRILLER		
CASING - LOG		
CASING - DRILLER		
HOLE DIAMETER		15 1/2"
CASING DIAMETER		

LOGGED BY: M. Testi
ASSISTED BY: _____

REMARKS AND INTERPRETIVE COMMENTS OR NOTES:



M-12-1935-03



MISSIMER
AND
ASSOCIATES, INC.

GEOPHYSICAL LOG

WELL NUMBER: 20-712

DATE LOGGED: 2/27/81

PROJECT: Palms Bay Watered Area
NUMBER: 91-6

LOGS, SCALES, AND CONSTANTS

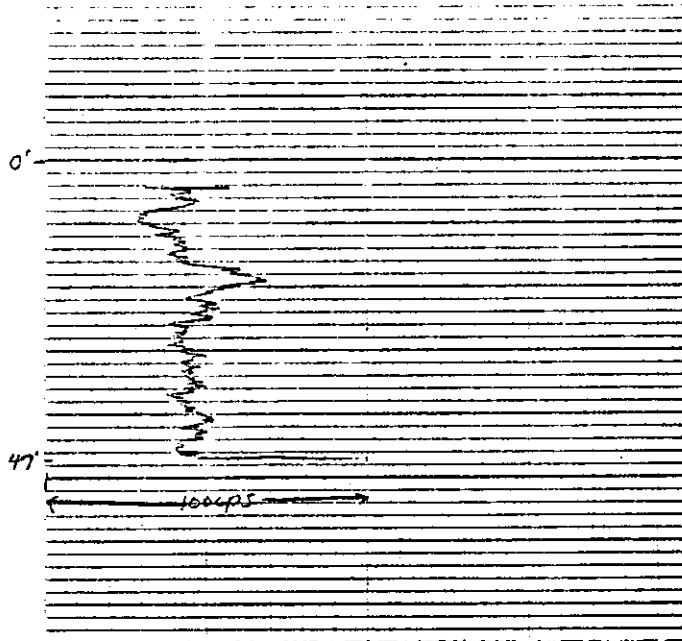
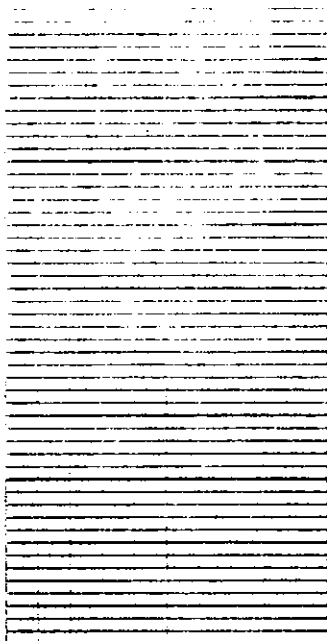
SPONTANEOUS POTENTIAL	-----	<input type="checkbox"/>	-----	-----	-----
RESISTIVITY	-----	<input type="checkbox"/>	-----	-----	-----
GAMMA RAY	-----	<input checked="" type="checkbox"/>	-----	-----	-----
CALIPER	-----	<input type="checkbox"/>	-----	-----	-----
TEMPERATURE	-----	<input type="checkbox"/>	-----	-----	-----
FLOW VELOCITY	-----	<input type="checkbox"/>	-----	-----	-----
INSTRUMENT	-----		-----	-----	-----
			HORIZONTAL	VERTICAL	SPEED

LOCATION: COUNTY: _____ 1/4 _____ 1/4 _____ 1/4, SECTION: _____, TOWNSHIP: _____, RANGE: _____
ELEVATION (LSD) _____ FEET (MSL) _____

FIRST READING	AT	<u>50'</u>
LAST READING	AT	<u>~</u>
FEET LOGGED		
BOTTOM - DRILLER		
CASING - LOG		
CASING - DRILLER		
HOLE DIAMETER		
CASING DIAMETER		<u>10"</u>

LOGGED BY: D. [unclear]
ASSISTED BY: _____

REMARKS AND INTERPRETIVE COMMENTS OR NOTES: T2-3



G. W. MISSIMER, INC.



MISSIMER
AND
ASSOCIATES, INC.

GEOPHYSICAL LOG

WELL NUMBER: 10-207

DATE LOGGED: 2/16/51

PROJECT: Palmer - 100' - 100' - 100' - 100'

NUMBER: 7-5

LOGS, SCALES, AND CONSTANTS

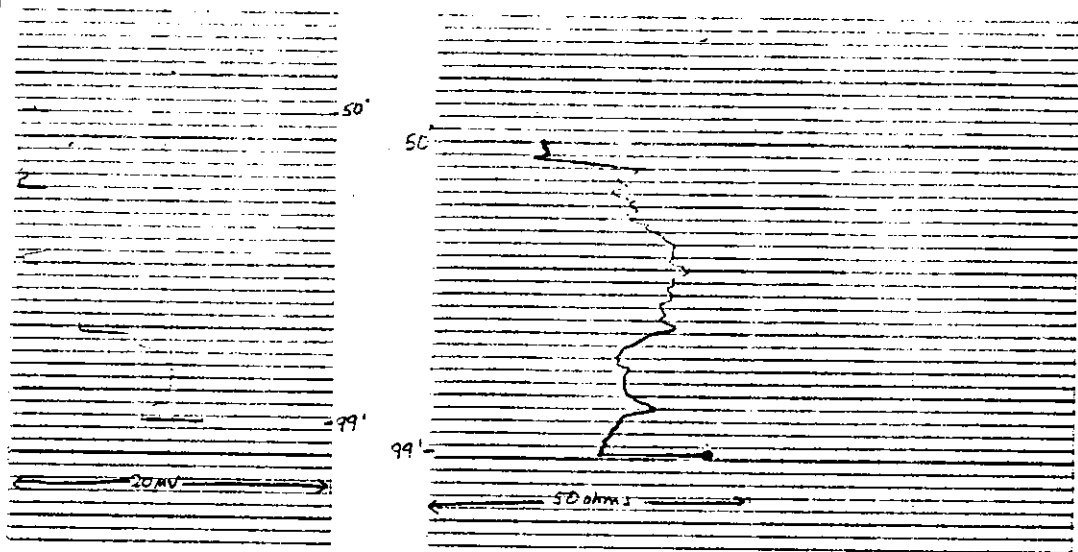
SPONTANEOUS POTENTIAL	-----	<input checked="" type="checkbox"/>	<u>100'</u>	<u>100'</u>
RESISTIVITY	-----	<input type="checkbox"/>	<u>100'</u>	<u>100'</u>
GAMMA RAY	-----	<input type="checkbox"/>	-----	-----
CALIPER	-----	<input type="checkbox"/>	-----	-----
TEMPERATURE	-----	<input type="checkbox"/>	-----	-----
FLOW VELOCITY	-----	<input type="checkbox"/>	-----	-----
INSTRUMENT	-----	-----	HORIZONTAL	VERTICAL
			SPEED	

LOCATION: COUNTY: _____ 1/4 _____ 1/4 _____ 1/4 SECTION: _____ TOWNSHIP: _____ RANGE: _____
ELEVATION (LSD) _____ FEET (MSL) _____

FIRST READING	AT	<u>0.70</u>
LAST READING	AT	<u>0.50</u>
FEET LOGGED		
BOTTOM - DRILLER		
CASING - LOG		
CASING - DRILLER		
HOLE DIAMETER		
CASING DIAMETER		

LOGGED BY: M. T. ...
ASSISTED BY: _____

REMARKS AND INTERPRETIVE COMMENTS OR NOTES: ...





MISSIMER
AND
ASSOCIATES, INC.

GEOPHYSICAL LOG

WELL NUMBER: CO-25

DATE LOGGED: 2/2/82

PROJECT: Pelican Bay Wellfield Expansion
NUMBER: 81-6

LOGS, SCALES, AND CONSTANTS

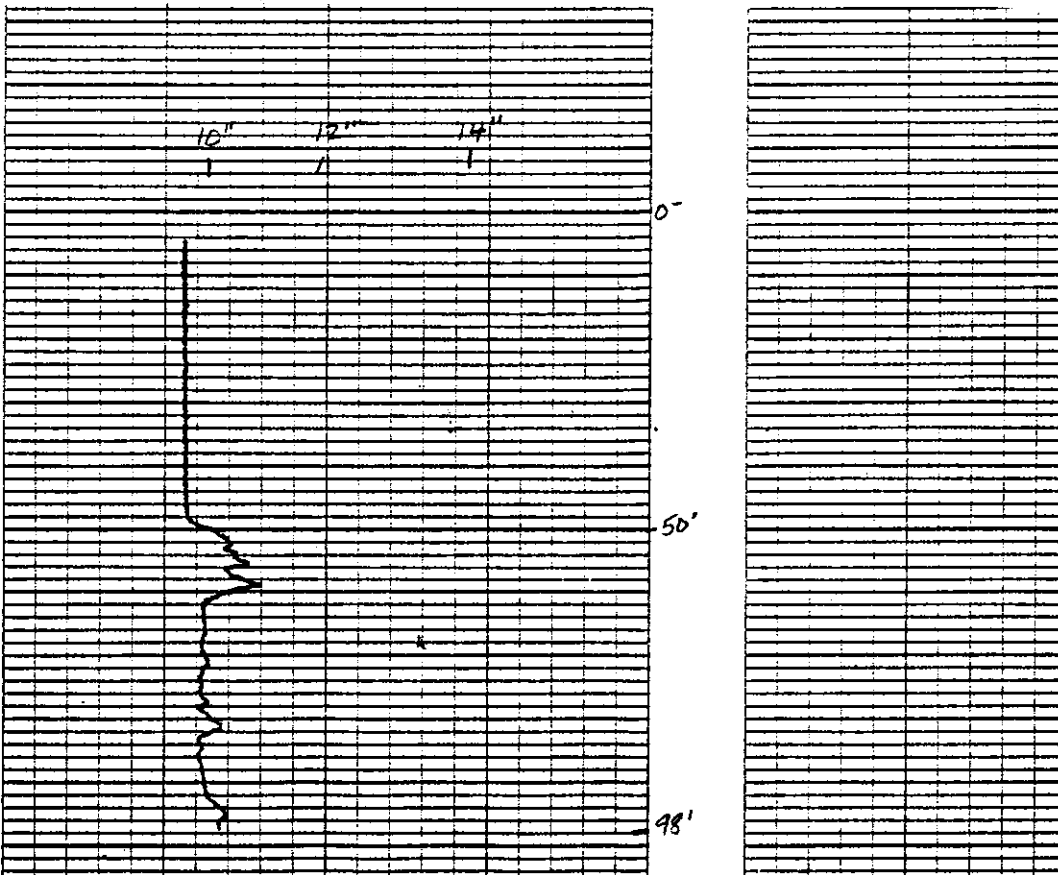
SPONTANEOUS POTENTIAL	-----	<input type="checkbox"/>	-----	-----	-----
RESISTIVITY	-----	<input type="checkbox"/>	-----	-----	-----
GAMMA RAY	-----	<input type="checkbox"/>	-----	-----	-----
CALIPER	-----	<input checked="" type="checkbox"/>	-----	-----	<u>19/16"</u>
TEMPERATURE	-----	<input type="checkbox"/>	-----	-----	-----
FLOW VELOCITY	-----	<input type="checkbox"/>	-----	-----	-----
INSTRUMENT	-----		HORIZONTAL	VERTICAL	SPEED

LOCATION: COUNTY: _____, _____ 1/4 _____ 1/4 SECTION: _____, TOWNSHIP: _____, RANGE: _____
ELEVATION (LSD) _____ FEET (MSL)

FIRST READING	AT	<u>99'</u>
LAST READING	AT	<u>4'</u>
FEET LOGGED		
BOTTOM - DRILLER		
CASING - LOG		
CASING - DRILLER		
HOLE DIAMETER		
CASING DIAMETER		<u>12"</u>

LOGGED BY: V. Testa
ASSISTED BY: _____

REMARKS AND INTERPRETIVE COMMENTS OR NOTES:





MISSIMER
AND
ASSOCIATES, INC.

GEOPHYSICAL LOG

WELL NUMBER: CO-370

DATE LOGGED: 8-1-58

PROJECT: Permian Basin
NUMBER: 51-6

LOGS, SCALES, AND CONSTANTS

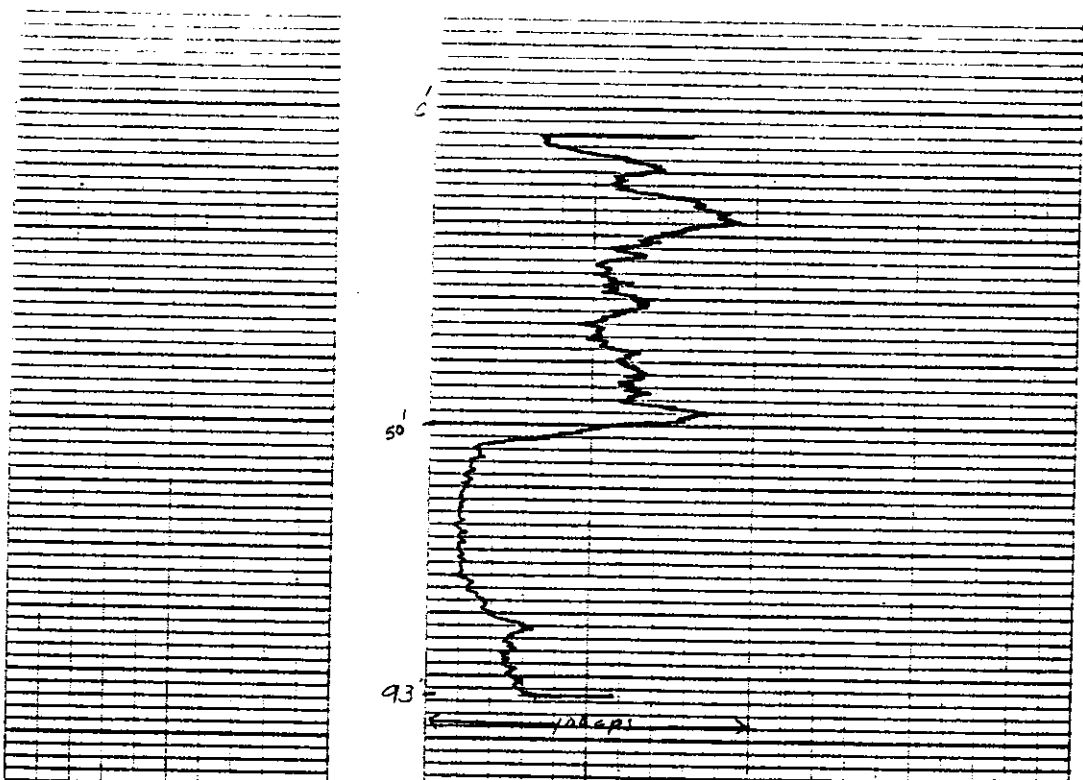
SPONTANEOUS POTENTIAL	-----	<input type="checkbox"/>	_____	_____	_____	
RESISTIVITY	-----	<input type="checkbox"/>	_____	_____	_____	
GAMMA RAY	-----	<input checked="" type="checkbox"/>	<u>115000</u>	<u>115000</u>	<u>115000</u>	
CALIPER	-----	<input type="checkbox"/>	_____	_____	_____	
TEMPERATURE	-----	<input type="checkbox"/>	_____	_____	_____	
FLOW VELOCITY	-----	<input type="checkbox"/>	_____	_____	_____	
INSTRUMENT	_____			HORIZONTAL	VERTICAL	SPEED

LOCATION: COUNTY: _____ 1/4 - 1/4 - 1/4 SECTION: _____ TOWNSHIP: _____ RANGE: _____
ELEVATION (LSD) _____ FEET (MSL) _____

FIRST READING	AT	<u>93'</u>
LAST READING	AT	<u>-</u>
FEET LOGGED		
BOTTOM - DRILLER		
CASING - LOG		
CASING - DRILLER		
HOLE DIAMETER		
CASING DIAMETER		

LOGGED BY: D. H. H.
ASSISTED BY: _____

REMARKS AND INTERPRETIVE COMMENTS OR NOTES:



C0-287

C0-287

DATA FROM FIRST PART OF
STEP DRAWDOWN TEST

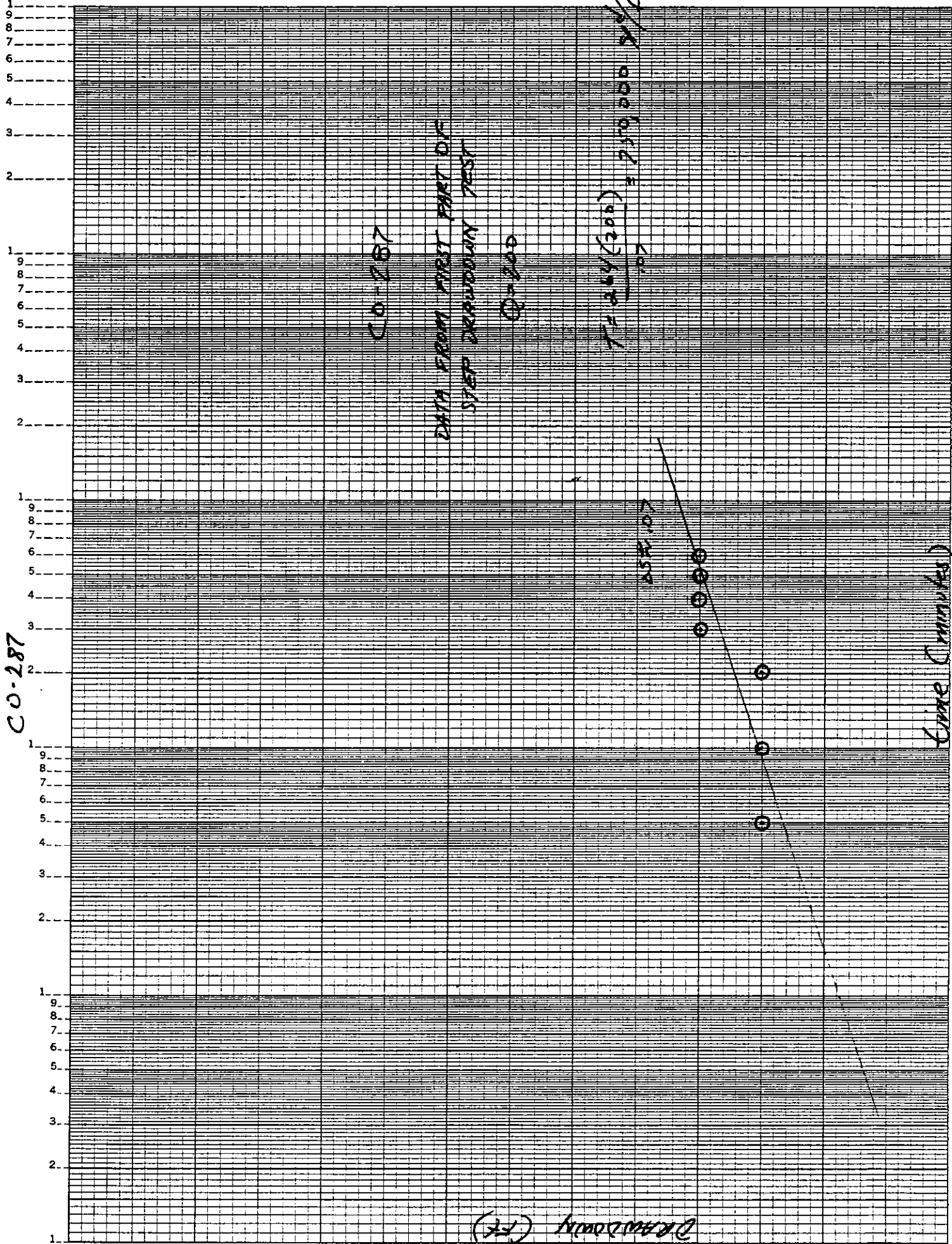
Q = 200

$$T = \frac{2.64(200)}{107} = 2.59 \text{ 500 } \frac{\text{ft}^3/\text{CY}}{\text{CY}}$$

4552.107

Drawdown (ft)

Time (minutes)



7
55
6

WELL CO-288

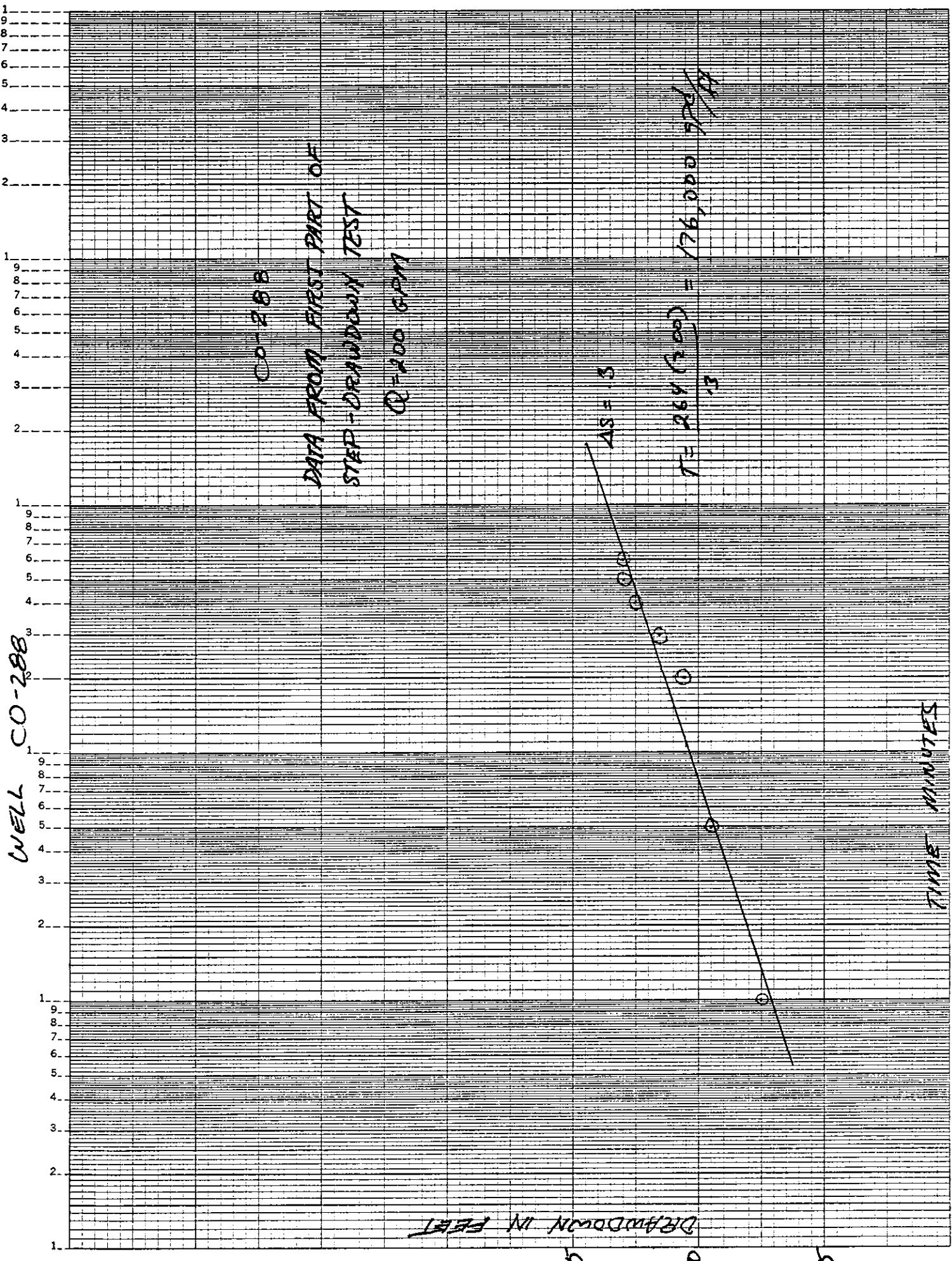
CO-288

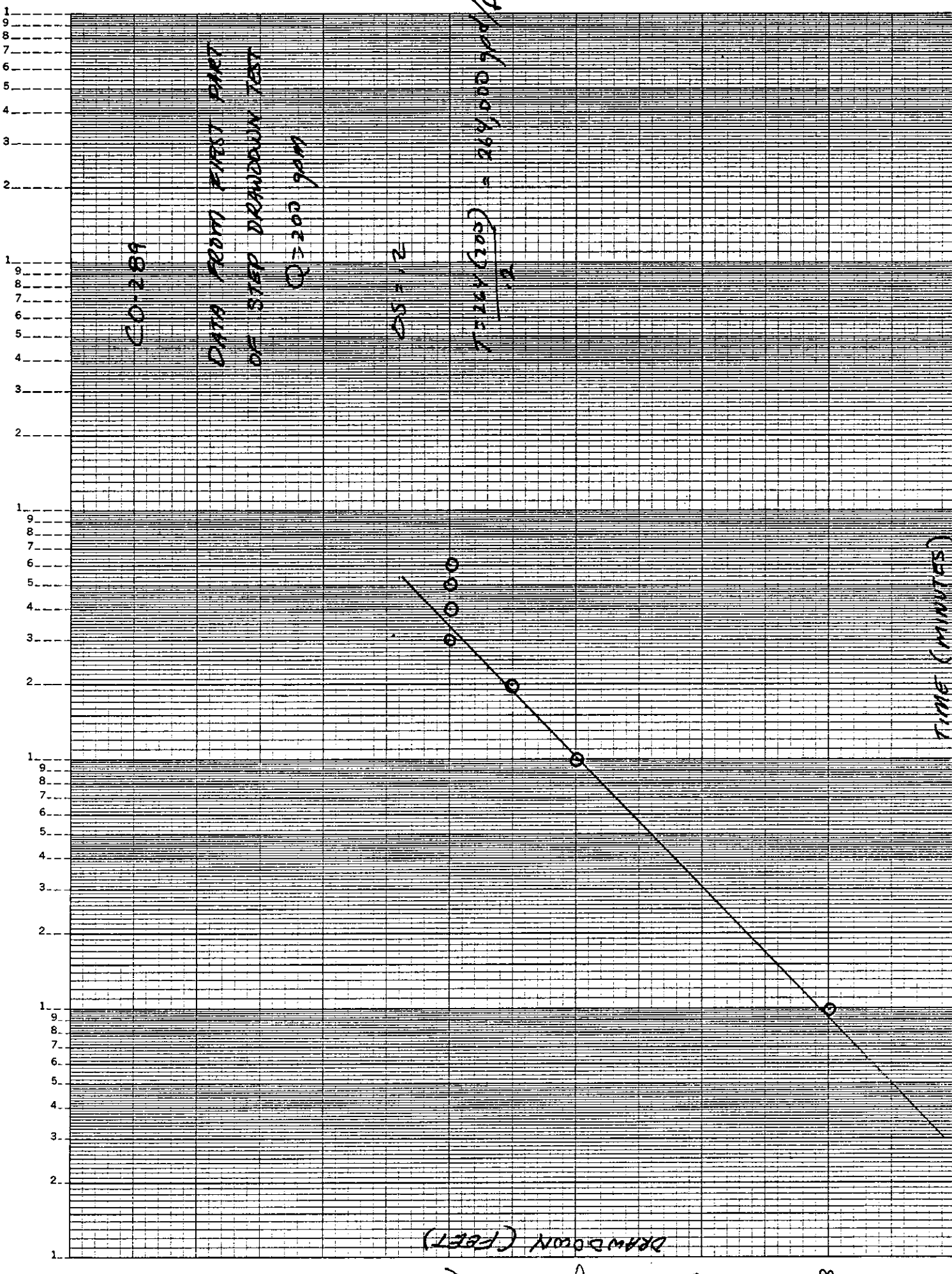
DATA FROM FIRST PART OF
STEP-DRAWDOWN TEST

Q = 200 GPM

AS = 13

$T = \frac{264(200)}{13} = 176,000 \text{ gpd/A}$





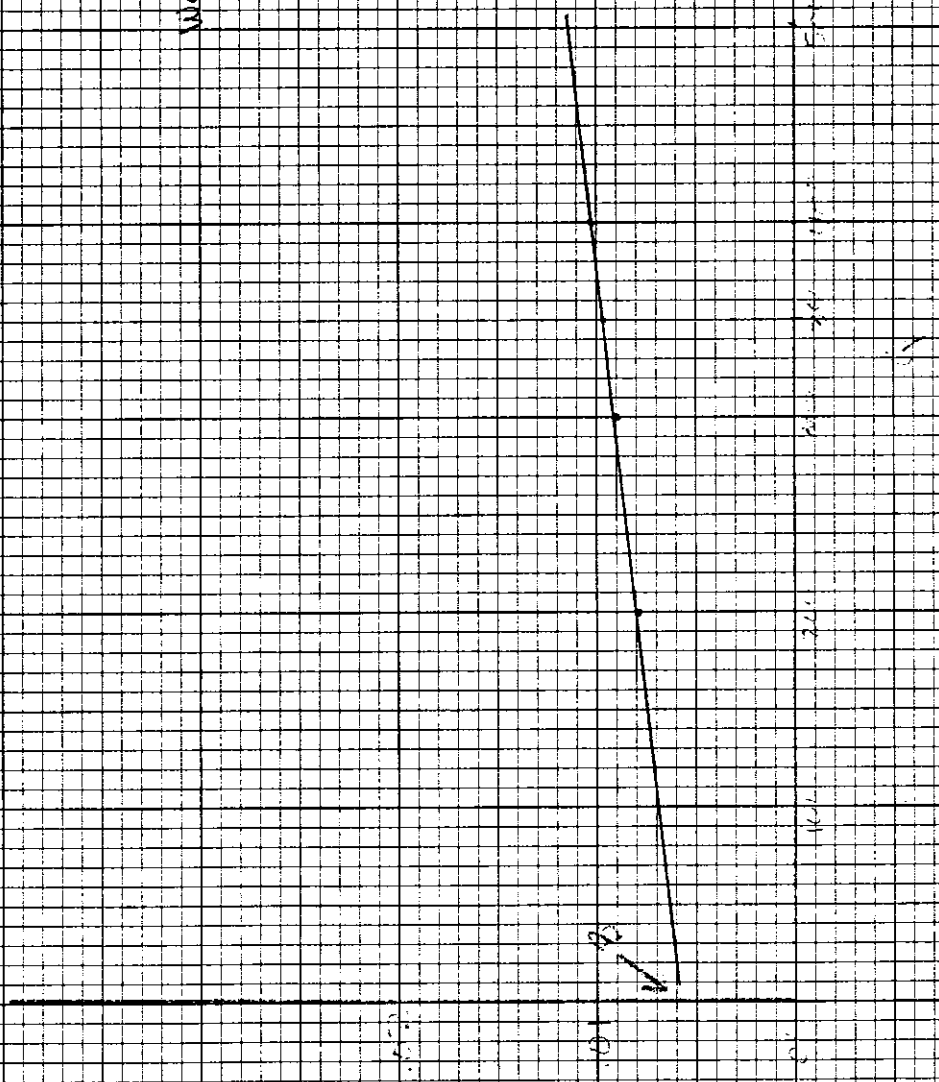
10-2817 66-10-11-11

B=1116 graphed

Well efficiency = $\frac{PWS}{P}$

HT	10.6 ft
300	65.4%
*350	62.7%
*400	61.5%
*500	57.7%

*HIGH PUMP OFF ON SURFACE



-10

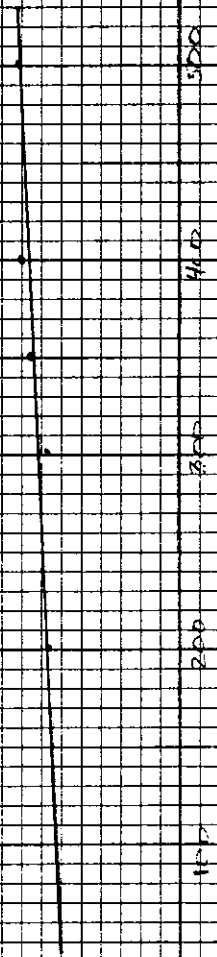
CO-288 OPEN HOLE

8-005

81.5 %
82.5 %
77.6 %
67.7 %
67.9 %

AT 800
300
350
400
500

410



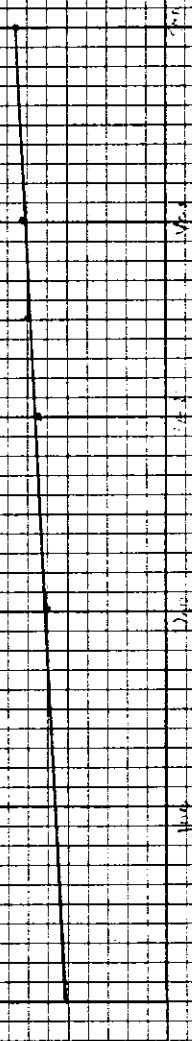
⊗

882-077 SPINDLES

83.00%

200	83.0%
300	76.9%
350	70.0%
400	69.0%
500	65.8%

5/10
10/1
10/1



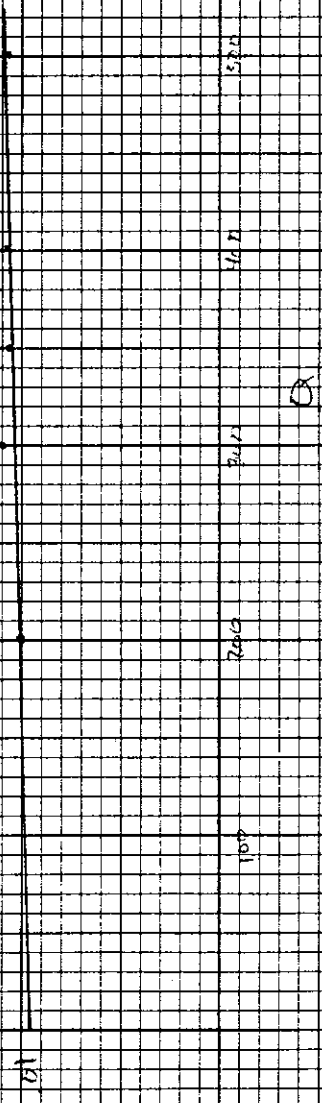
100 200 300 400 500
80 70 60 50

CO-289 open hole

B: .009

200	85.7 1/2
300	80.6 7/8
350	82.9 1/2
400	83.7 1/2
500	83.8 1/2

6/10



Q

CO-281 Standard

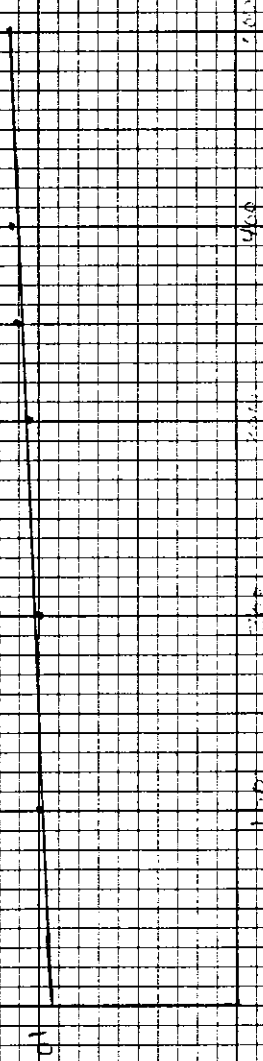
R-1001

Stairway

200	87.8%
300	84.3
400	81.8%
500	80.7%
600	75.8%

1/15
0.2

0.1



200

400

600

800

1000

0.1

0.2