HOBE SOUND AQUIFER TEST REPORT

BY: GEORGE W. HILL

I. Summary

A. Location. -- Martin County, Florida, Township 39 South, Range 42 East, Gomez Land Grant (No sections surveyed) 1.5 Miles North of the Town of Hobe Sound.

B. Date. -- September 11, 1979.

C. Length. -- Pumping: 7.0 hours; Recovery 7.0 hours. Pump malfunction after 7.0 hours of pumping.

D. Discharge. -- 132 gallons per minute.

E. Hydraulic Coefficients. -- Transmissivity -- 2,000 ft^2/day.
Storage Coefficient -- 1.6×10^{-4}, 1.2×10^{-4}

F. Analytical Model. -- Hantush-Jacob (for leaky confined aquifer, unsteady, flow).

G. Remarks. -- Boulton's delayed yield solution for a leaky unconfined aquifer gives similar results.

II. Narrative

A. Introduction

1. Test Purpose. -- To determine the aquifer properties of the best producing zone of the so-called shallow aquifer. This test is part of a groundwater reconnaissance study of the aquifer in conjunction with Project FL-268 in cooperation with South Florida Water Management District. The project is referred to by SFWMD as The Upper East Coast Planning Area which includes Martin and St. Lucie Counties and eastern Okeechobee County, Florida.

2. Personnel. -- Ralph Wilcox, Bill Long, George Hill, Mike Dooley and Jay Wendorf, all from the Jupiter Field Office. Bill Long supervised the test drilling and well construction of the test network. Computations and report was done by George Hill Hydrologist-in-charge and were reviewed by Fred Meyer of the South Florida Subdistrict, WRD.

B. Physical Aspects.

1. Site Location. -- The test site is in Township 39 south, Range 42 East, in the Gomez Land Grant (no section lines), one block east of State Highway A1A and 1.5 miles north of Hobe Sound on the grounds of the Hobe Sound Baptist Church, Martin County, Florida.

2. Test Drilling and Geophysical Logs. -- Geophysical and lithologic data were obtained from a test well prior to installation of the network (Exhibit III).

3. Aquifer Description. -- The so-called shallow aquifer is mainly composed of sand, clay, silt and shell of Pleistocene and Pliocene epochs. Sediments forming the aquifer system are components of the Fort Thompson and Anastasia Formations overlain by Pamlico Sand (W. Miller, 1979). Shell and sand lenses in the Caloosahotchee Marl are also present. Many facies changes appear. Generally the aquifer system is unconfined and under water-table conditions, but localized artesian conditions have been noted by other investigators (Parker 1955) in the vicinity of Fort Pierce and Indiantown where discontinuous clay lenses act as confining units.

The wells were screened in a zone composed mainly of broken shell, sandstone or fine cemented sand overlain by a 10-15 foot layer composed predominately of sandy clay and some cemented limestone. The pumped zone is underlain by sandstone with some shell and marl. Some lithologic logs show the presence of limestone just below the pumped zone (Exhibit III).

4. Well Description. -- The production well was finished with 6-inch ID PVC pipe to a depth of 138 feet below land surface and was screened from 103-138 feet with wire wrapped underbar construction PVC screen. Screen slots are thirty thousandths.

Four 2-inch ID PVC wells were installed in the pumped zone (Exhibit II) - two wells to the west, one to the east and one to the south of the production well.

Two 2-inch ID PVC wells were installed above the confining zone at depths of 75 and 89 feet respectively - one 30 feet to the west and one ten feet to the north of the production well.

Pertinent well data are shown in the table below.

Well No.	Radius, in Feet	Drilled Depth, in Feet	Screened Interval in Feet
10N	10	75	70-75
30WS	30	89	74-89
79E	79	142	103-142
100W	100	148	103-142
116S	116	143	103-138
30W	30	215	105-135
PW	0	143	103-138

Please see Exhibits II and IV.

5. Instrumentation. -- Three Keck/Stevens water level recorders were used to obtain background and drawdown data on wells 30W, 79E, 100W and 116S. Steel tapes were used to measure drawdown in wells 30WS and 10N. A Weather Measure, Model B201 baragraph was used to record barometric pressure during the test.

6. Pump. -- The production well was pumped (air lifted) with an 80 CFM air compressor. Air was injected into the well through a 3/4 inch PVC pipe which was perforated with 1/8-inch holes from depths of - feet.

7. Measurement of Drawdown and Recovery Data. -- The Keck/Stevens waterlevel recorders gave acceptable drawdown record. Only minor adjustments to the gage heifht data were made. From about 1630 hours until the pump stopped there were unusual fluctuations in the chart trace of all four wells where drawdown was automatically recorded. The pumping rate was steady. The cause of the fluctuations appear to be some outside interference, but fluctuations are not noticeable in the drawdown curves.

Background water-level records from these same wells show these erratic fluctuations in water-levels prior to start of pumping. Also, the recovery chart trace reflects these short cycled fluctuations. Note also that the character of the fluctuation vary with wells. Wells 79E and 116S show sharp, downward spikes at irregular intervals on the background record; well 32W shows a combination of spikes and waves and well 100W shows waves and traces of spikes. The spikes could be caused by trains passing just a short distance to the east of the site. The sharpest spikes are on the eastern most well 79E.

8. Discharge. -- The production well was pumped at about 132 gallons per minute. Discharge was measured with a circular orifice weir (6-inch pipe, 3-inch orifice with a piezometer mounted in the side of the weir). The rate was steady with only a two gallon per minute variation during the pumping period. Discharge data are shown in Exhibit V.

A 6-inch aluminum pipeline was used to route the discharge about 400 feet to a street gutter having a rather steep gradient to the east toward the Intracoastal Waterway (Exhibit I).

9. Potential Surface Water Recharge Sources. -- The Intracoastal Waterway is about 3,700 feet to the east. There are no other surface water bodies near the test site. It can be safely assumed that SW recharge was not a factor in this test.

C. Computation

1. Computations are included in Exhibit VIII. Two solution methods were considered. 1) Hantush-Jacob solution for a leaky confined aquifer with vertical movement. 2) Boulton's solution for delayed yield in an unconfirmed aquifer with vertical movement.

2. Type Curve Fitting. -- Plate 3, P.P. 708 and Plate 8, P.P. 708 were used in the solution. The former is for nonsteady flow in a leaky artesian aquifer; the latter is for delayed yield from storage response.

Transmissivity values for both methods are practically the same as shown in the table below.

Well No.	Hantush-Jacob	Delayed Yield
32W		1,690
100W	2,020	1,840
79E	2,020	2,020
100S	2,020	2,020

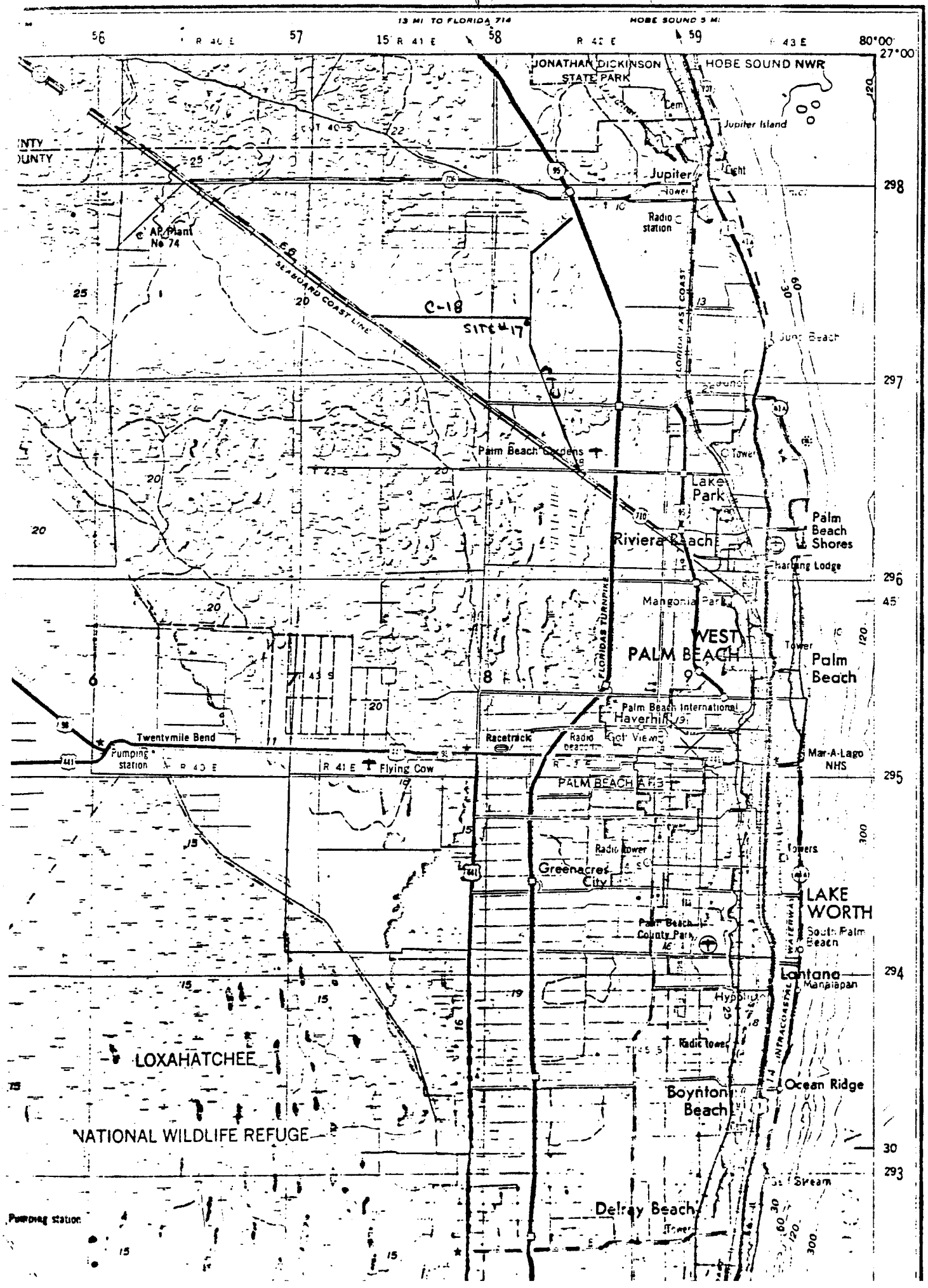
See Exhibit VIII for computations.

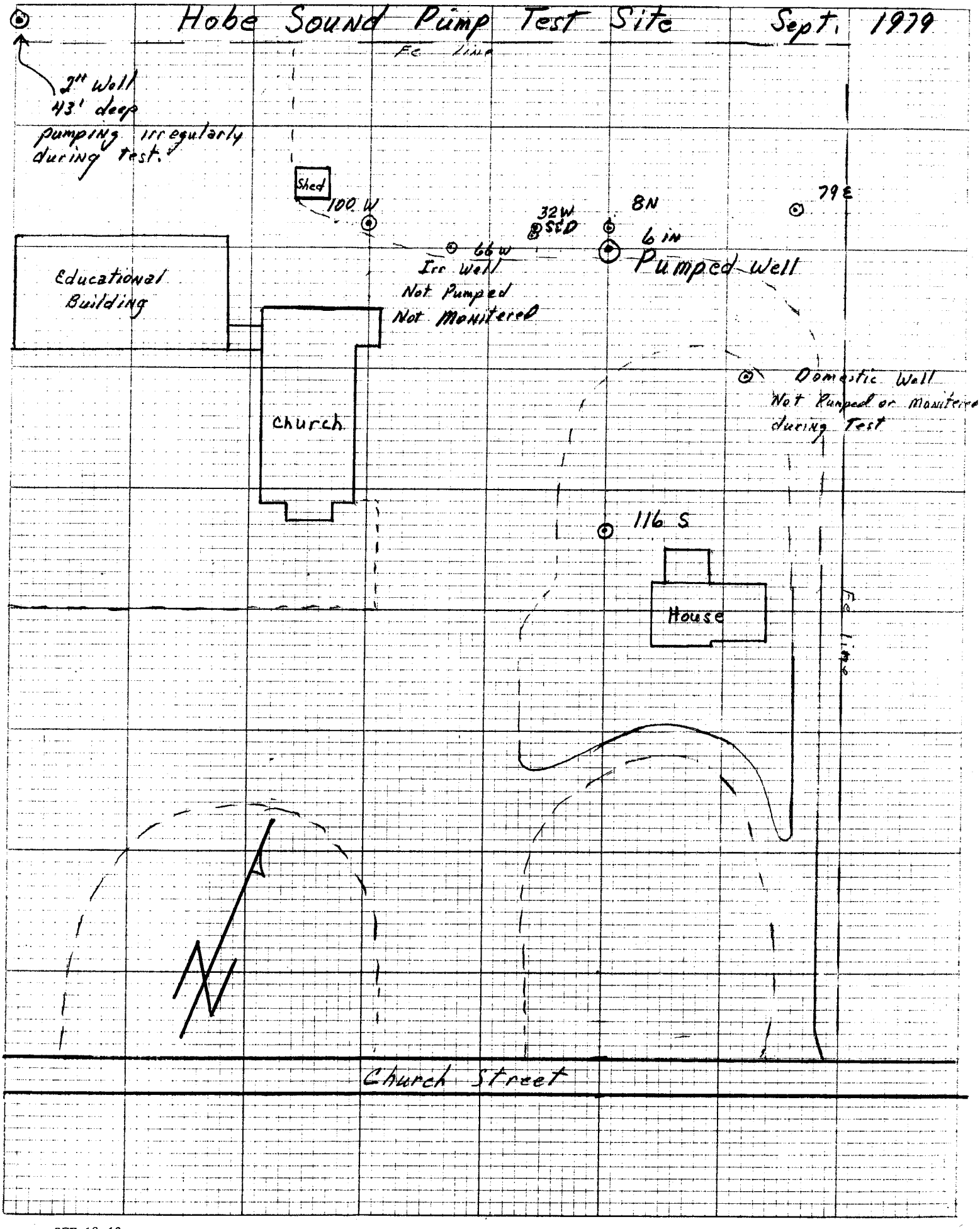
Since the two shallow observation wells (Exhibit VI) did not respond in relationship to wells in the pumped zone and the lithologic and geophysical data (Exhibit III) indicate a semi-confining bed overlaying the pumped zone, the correct solution is probably the nonsteady flow in a leaky artesian aquifer (Hantush-Jacob).

3. Transmissivity. -- Use 2,020 ft^2/day.

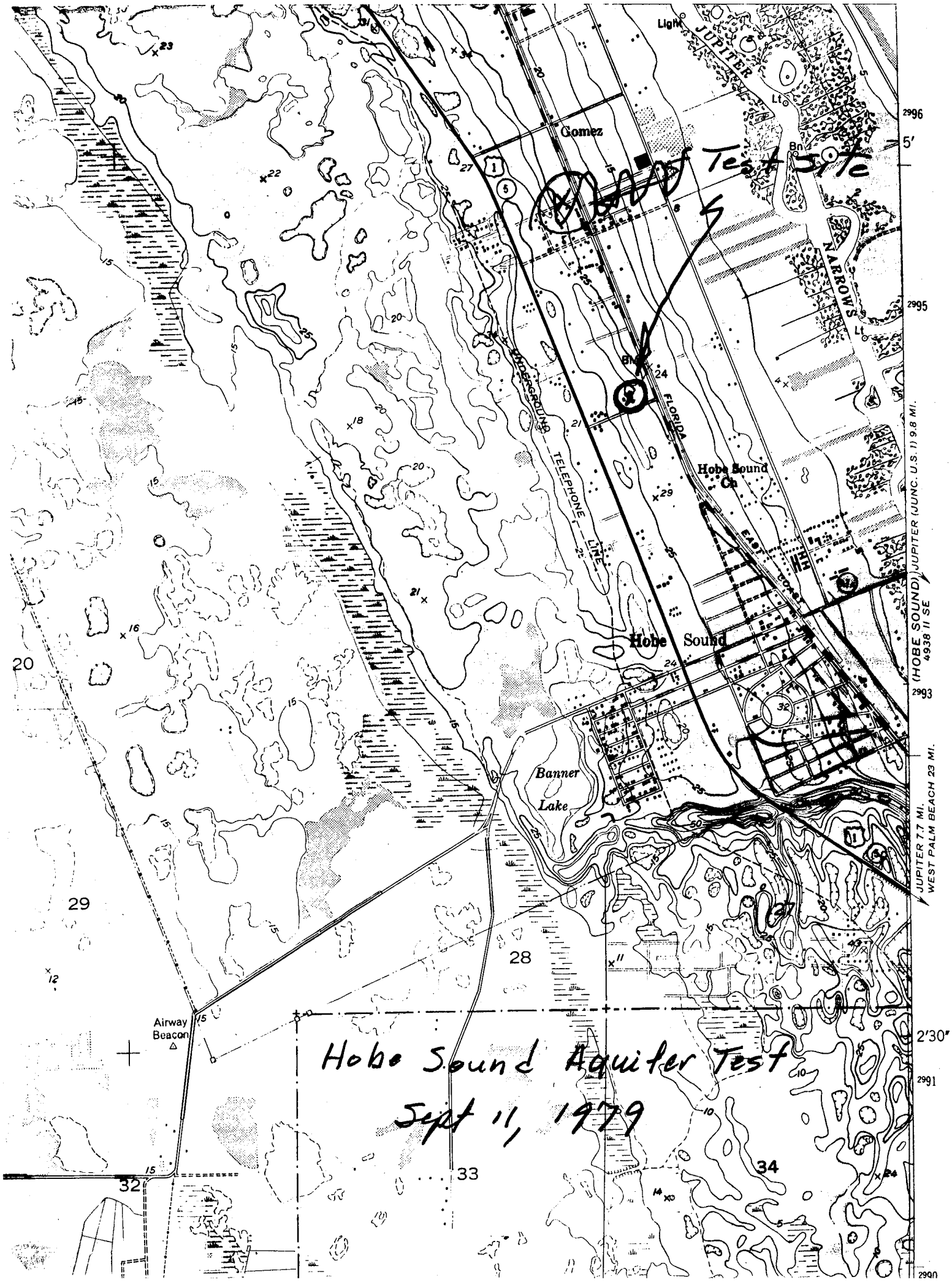
4. Storage Coefficient. -- 1.6×10^{-4}, 1.2×10^{-4}

5 Leakance - - - .0045


13 MI TO FLORIDA 714
HOBE SOUND 5 MI
R 40 E
57
R 41 E
58
R 42 E
59
R 43 E
80°00
27°00
JONATHAN DICKINSON STATE PARK
HOBE SOUND NWR
Jupiter Island
Jupiter
Light
Tower
Radio station
AP Plant No 74
SEABOARD COAST LINE
C-18
SITE #17
FLORIDA EAST COAST
Juno Beach
Palm Beach Gardens
Lake Park
Riviera Beach
Palm Beach Shores
Harbang Lodge
Mangonia Park
WEST PALM BEACH
Palm Beach
FLORIDA TURNPIKE
Palm Beach International
Haverhill
Twentymile Bend
Pumping station
Racetrack
Radio beacon
Golf Views
Flying Cow
Mar-A-Lago NHS
PALM BEACH AFB
Radio tower
Towers
Greenacres City
LAKE WORTH
South Palm Beach
Palm Beach County Park
Lantana
Manalapan
Hypoluxo
Radio tower
LOXAHATCHEE
NATIONAL WILDLIFE REFUGE
Boynton Beach
Ocean Ridge
INTRACOASTAL WATERWAY
Delray Beach
Tower
Stream
Pumping station
298
297
296
295
294
293
30
45
120
60
300


Hobe Sound Pump Test Site
Sept. 1979
Fe Line
1st Well
43' deep
pumping irregularly
during test.
Shed
100 W
32W
8S
8N
79E
6 in
Pumped Well
66 W
Irr Well
Not Pumped
Not Monitored
Educational
Building
Church
Domestic Well
Not Pumped or Monitored
during Test
116 S
House
Fe Line
Church Street

BEE 10x10


Gomez
Hobe Sound
Banner Lake
Airway Beacon
Hobe Sound Aquifer Test
Sept 11, 1979
JUPITER
NARROWS
FLORIDA
EAST COAST
TELEPHONE LINE
(HOBE SOUND) JUPITER (JUNC. U.S. 1) 9.8 MI.
4938 II SE
JUPITER 7.7 MI.
WEST PALM BEACH 23 MI.
2996
2995
2993
2991
2990
2'30"
5'

J-D State Park Test
May 29 – 30, 1979

Hantush - Jacob method, P.P. 708, Plate 3B

Wells O_1 and O_2

$Q = 312$ gpm

Match Point data:

$L(u,v) = 10$

$1/4 = 10$

$s = 5.3$ ft.

$t/r^2 = 3 \times 10^{-8}$

O_1 $r = 25.5$ ft

O_2 $r = 100$ ft

$$T = \frac{(312) \times (1440) \times (10)}{(4\pi) \times (5.3)}$$

$= 67,500$ gpd/ft

$= 9,020$ ft²/d

$$S = \frac{4(9,020)(3 \times 10^{-8})}{10}$$

$= 1.08 \times 10^{-4}$

$$\frac{K'}{b'}(O_1) = 4T\frac{V^2}{r^2} = 4(9,020)\frac{(0.04)^2}{(25.5)^2} = 0.09/d$$

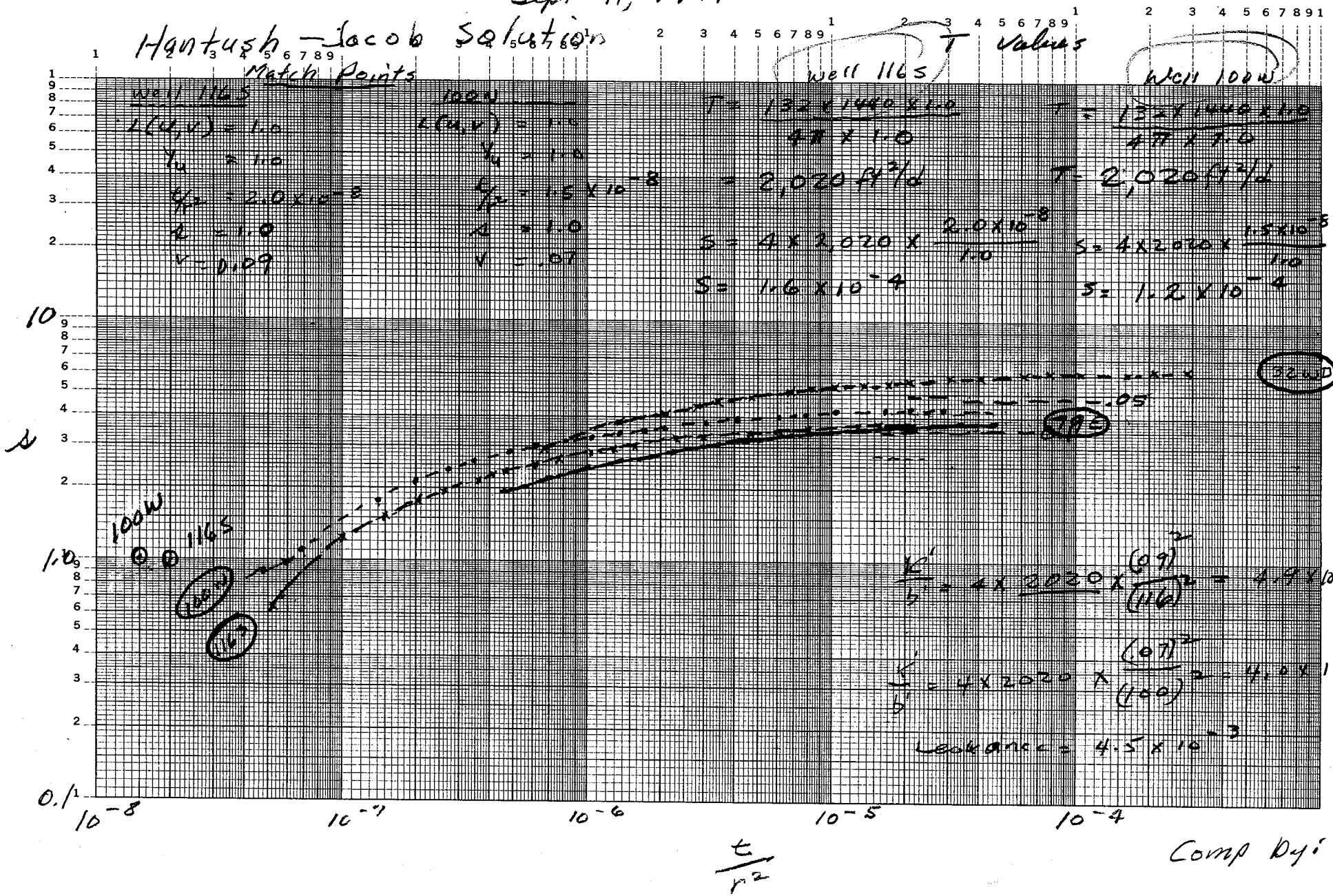
$$\frac{K'}{b'}O_2 = 4(9020)\frac{(0.15)^2}{(100)^2} = 0.08/d$$

George Hill
12/3/79

46 7520

Hobe Sound Test
Sept 11, 1979

Hantush – Jacob Solution



well 116S

$1/u(u,v) = 1.0$

$Y_u = 1.0$

$t/r^2 = 2.0 \times 10^{-8}$

$s = 1.0$

$v = 0.09$

100W

$1/u(u,v) = 1.0$

$Y_u = 1.0$

$t/r^2 = 1.5 \times 10^{-8}$

$s = 1.0$

$v = .07$

$$T = \frac{Q \times W(u,v) \times 1.0}{4\pi \times 1.0}$$

$$= 2{,}020 \text{ ft}^2/\text{d}$$

$$S = 4 \times 2{,}020 \times \frac{2.0 \times 10^{-8}}{1.0}$$

$$S = 1.6 \times 10^{-4}$$

$$T = \frac{132 \times 1.0 \times 1.0}{4\pi \times 1.0}$$

$T = 2{,}020 \text{ ft}^2/\text{d}$

$$S = 4 \times 2020 \times \frac{1.5 \times 10^{-8}}{1.0}$$

$$S = 1.2 \times 10^{-4}$$

$$\frac{k'}{b'} = 4 \times 2020 \times \frac{(.09)^2}{(116)^2} = 4.9 \times 10^{-3}$$

$$\frac{k'}{b'} = 4 \times 2020 \times \frac{(.07)^2}{(100)^2} = 4.0 \times 10^{-3}$$

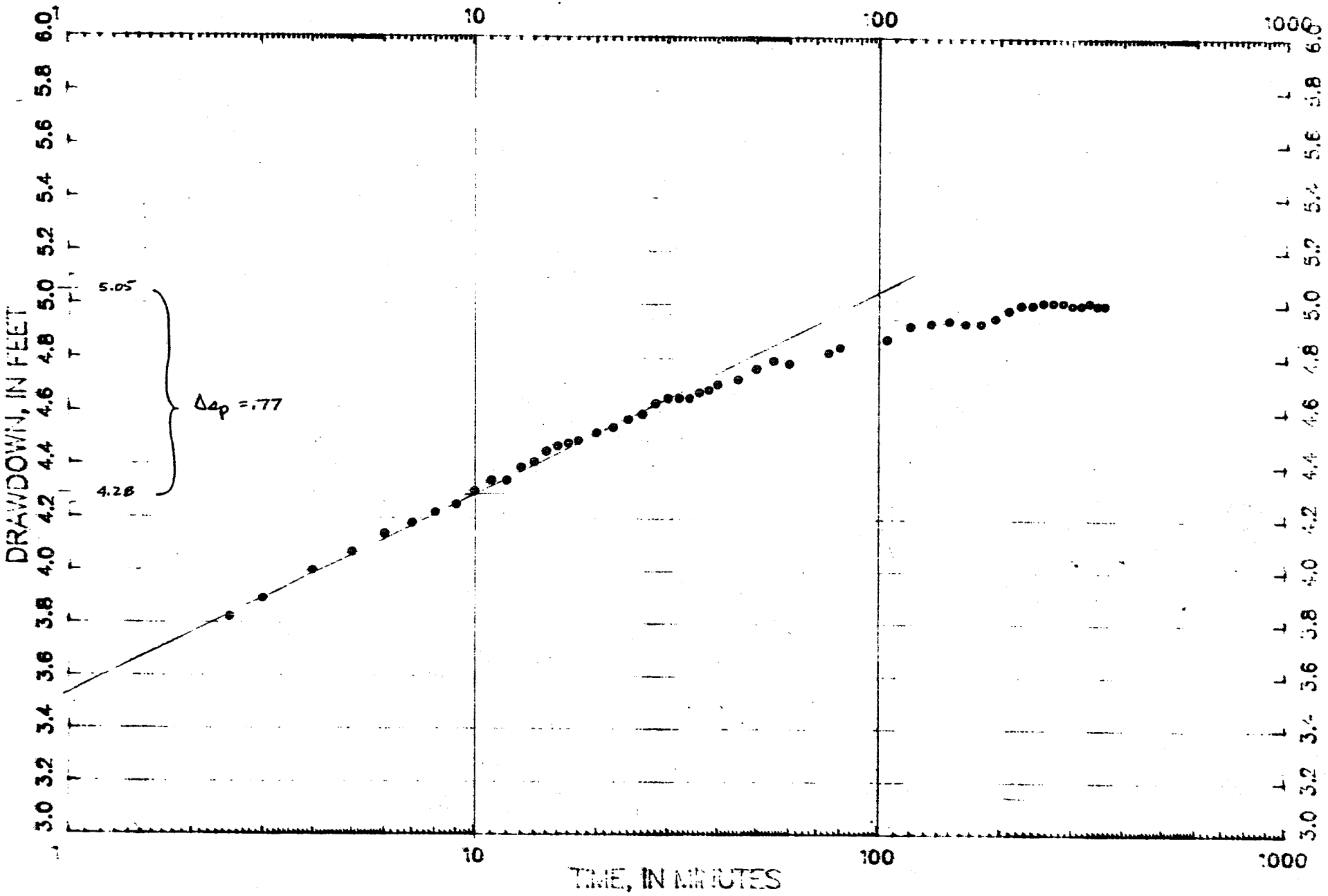
Leakance = 4.5×10^{-3}

v.13

Comp by: GWH

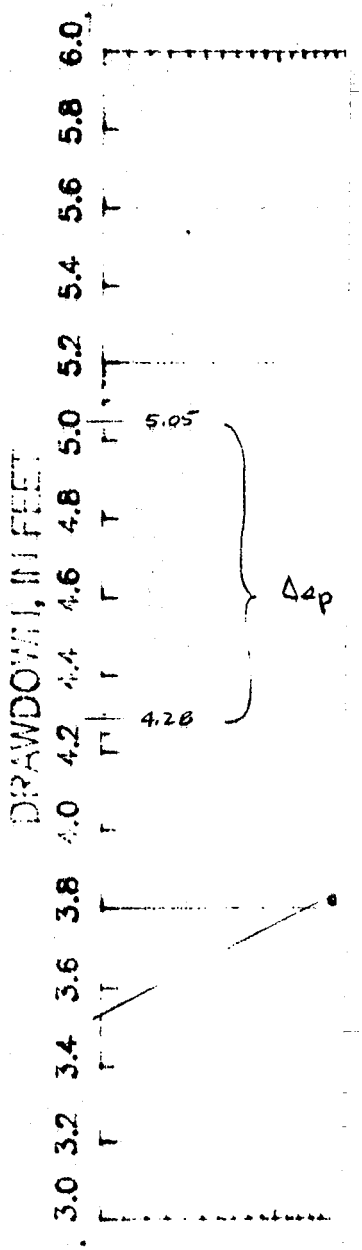
DRAWDOWN VS. TIME

COOPER-JACOB METHOD



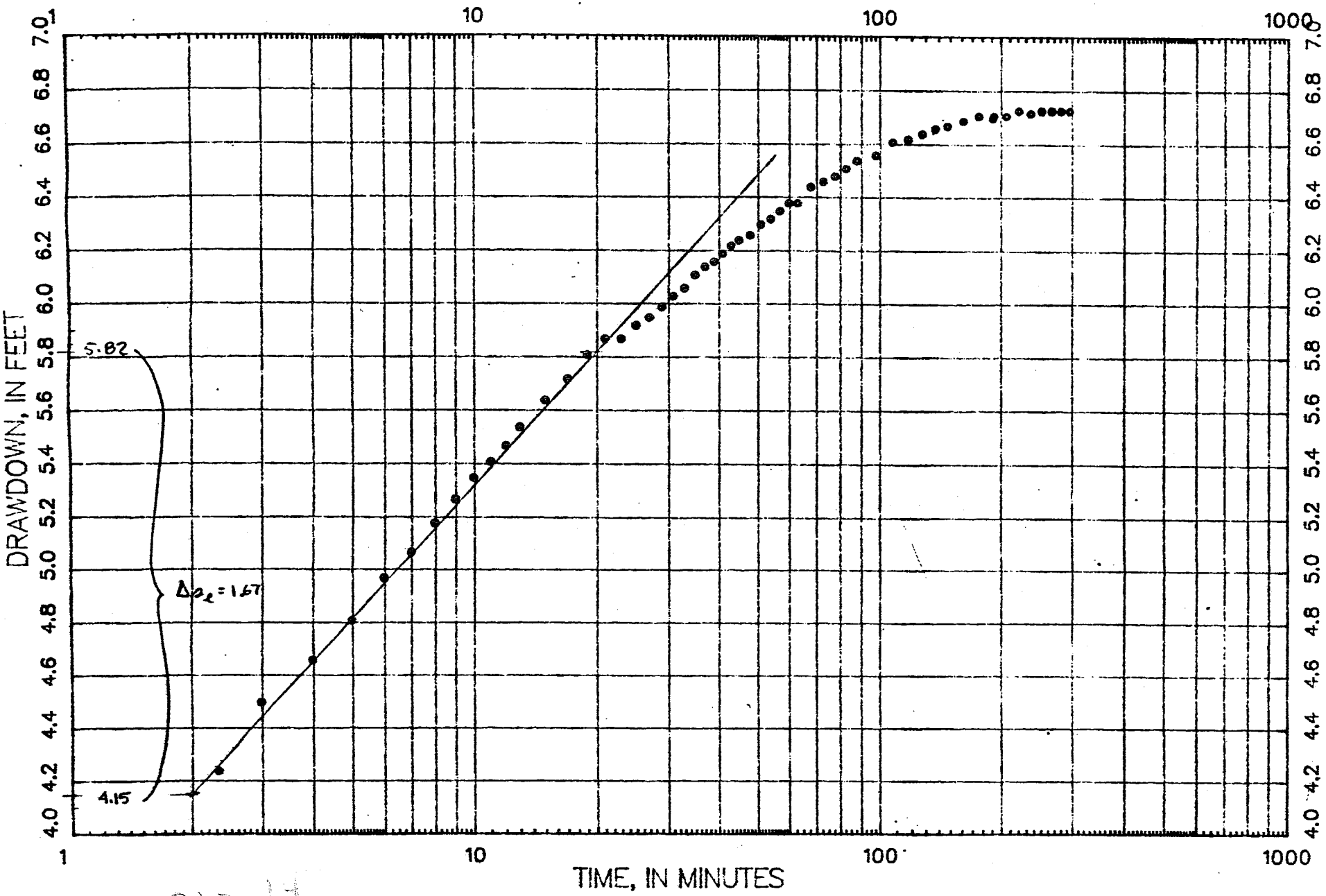
DR. 17.DW PB-1608 OBSERVA

$$kD = (2.3)(Q)/4\pi\Delta s_p$$
$$= (2.3)(63910)/(4)(3.14)(.77)$$
$$= 15,199$$



DRAWDOWN VS. TIME

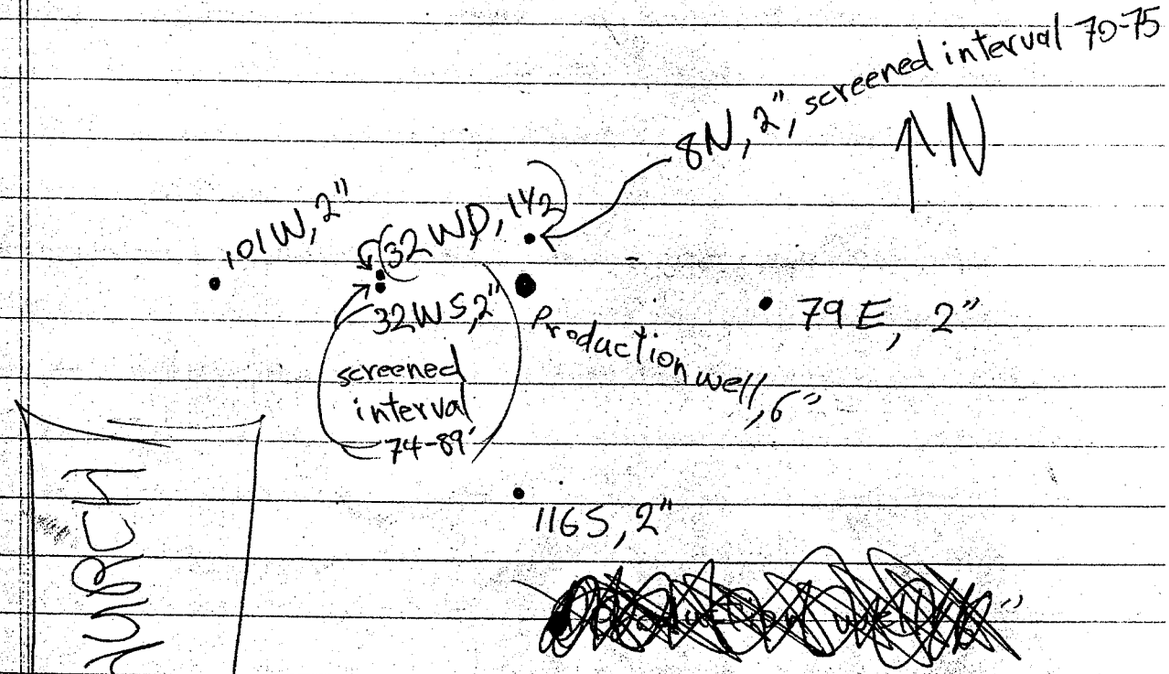
COOPER–JACOB METHOD

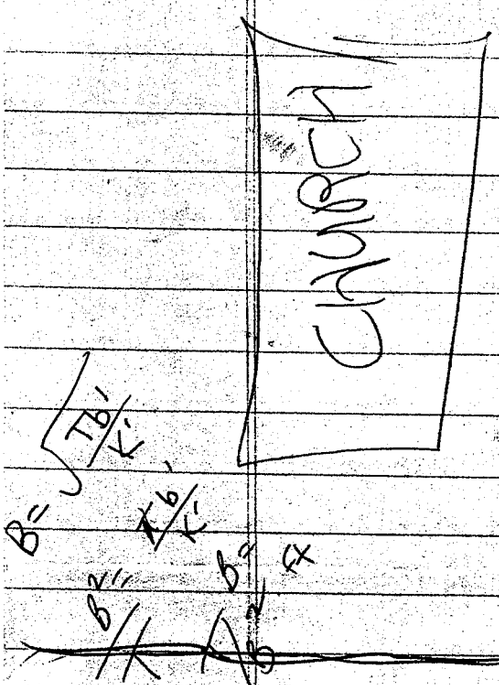


RBC 14

Hobe Sound pumping test

note: 9-10-79 (0840) set out rain gage on site. It has been raining much of the previous night (~1 in). Lost background data when pen was pushed under chart over the weekend.





105-140 screened interval on all other wells

9-10-79 (1630) 1.21" ppt since setting out rain gage

9-11-79 (0940) additional 0.25" ppt as of this watch time

9-11-79 WT – 1355
additional 0.06" ppt before start of test at 1400

9-12-79 WT 0835
additional 0.30" ppt since last reading

Identification No. _____ Other No. HSBC-1

County Martin Lat-Long 270418 0800824.01

Twp Gomez Grant Rg _____ Sec _____ Date 8/31 and 9 - 79

Location Hobe Sound Pump Test on property of 1st Baptist Church

Driller P&W Drilling Owner USGS Log by W.A. Long

Depth	Time	Hardness	Description of Formation
0-6		Soft	Sand, fine, white.
6-23		Soft	Sand, fine to coarse, yellow tan to orange.
23-43		Soft	Sand, fine to coarse, white to yellow tan, hard streak 1/2 ft. thick at 37 ft.
43-48		Med. Soft	As above.
48-55		Med.	Sandstone a little shell - buckshot size large.
55-63		Hard	Sandstone, clear to lt. tan and shell 20% cutting irregular, angular to rounded noduls.
63-83		Hard	Sandstone, clear to light gray, calcite cemented, cuttings stopped, mixed mud.
83-89		Hard	Sandstone, cemented, large buckshot size.
89-93		Soft	Clay, sandy, gray.
93-99		Hard	Limestone, sandy and shells, gray.
99-103		Soft	Clay, sandy, gray, tough.
103-105		Med.	Sand, fine to med. and shell, broken, gray.
105-145		Hard	Shell, broken small and sand, fine cemented light gray a few thin clay streaks last 3 feet; very hard, (sandstone?).
145-147		Med.	Clay and sand, white to light gray. (Marl).

Identification No. _____ Other No. HSBC 116S

County Martin Lat-Long 270418 0800824.04

Twp Gomez Grant Rg _____ Sec _____ Date 8/30/79

Location Hobe Sound Pump test on property of First Baptist Church.

Driller P&W Drilling Owner USGS Log by W.A. Long

Depth	Time	Hardness	Description of Formation
0-6	1015		Sand, fine, white.
6-23	1020	Soft	Sand, fine to coarse, yellow rust.
23-36	1030	Soft	Sand, fien to medium, some coarse yellow.
36-43	1040	Med.	As above.
43-53	1045	Med.	Sandstone, yellow to clear.
53-63	1057	Hard	Sandstone, light tan yellow, 15% cemented shell.
63-83	1100	Hard	Sandstone, light tan, 15% shell. Mixed mud.
	1110		
83-88	1130	Hard	As above.
88-91		Soft	Clay, sandy, gray.
91-95		Soft	Shell, small broken to large, whole.
95-98		Soft	Clay, sandy, light gray with 1' peat layer.
98-103	1137	Med.	Shell, cemented, sandy, gray.
103-118	1145	Med. Hard	Limestone, tan and gray, some sandstone.
118-123	1200	Med. Soft	Sand and shell.
123-135	1203	Soft	Sand, fine and shell small, broken to red whole.
135-143	1215	Hard	Sandstone with little shell, tan, marly streak at 141'.

Identification No. _____ Other No. HSBC-1

County Martin Lat-Long 270418 0800824.01

Twp Gomez Grant Rg _____ Sec _____ Date 8/31 and 9 - 79

Location Hobe Sound Pump Test on property of 1st Baptist Church

Driller P&W Drilling Owner USGS Log by W.A. Long

Depth	Time	Hardness	Description of Formation
0-6		Soft	Sand, fine, white.
6-23		Soft	Sand, fine to coarse, yellow tan to orange.
23-43		Soft	Sand, fine to coarse, white to yellow tan, hard streak 1/2 ft. thick at 37 ft.
43-48		Med. Soft	As above.
48-55		Med.	Sandstone a little shell - buckshot size large.
55-63		Hard	Sandstone, clear to lt. tan and shell 20% cutting irregular, angular to rounded noduls.
63-83		Hard	Sandstone, clear to light gray, calcite cemented, cuttings stopped, mixed mud.
83-89		Hard	Sandstone, cemented, large buckshot size.
89-93		Soft	Clay, sandy, gray.
93-99		Hard	Limestone, sandy and shells, gray.
99-103		Soft	Clay, sandy, gray, tough.
103-105		Med.	Sand, fine to med. and shell, broken, gray.
105-145		Hard	Shell, broken small and sand, fine cemented light gray a few thin clay streaks last 3 feet; very hard, (sandstone?).
145-147		Med.	Clay and sand, white to light gray. (Marl).

Identification No. _____ Other No. HSBC 79E

County Martin Lat-Long 270418 0800824. 05

Twp Gomez Grant Rg _____ Sec _____ Date 8/30/79

Location Hobe Sound Pump Test on Property of First Baptist Church.

Driller P&W Drilling Owner USGS Log by W.A. Long

Depth	Time	Hardness	Description of Formation
0-5	1600	Soft	Sand, fine, white.
5-23	1610	Soft	Sand, fine to coarse, yellow tan.
23-43	1618	Soft	Sand, fine to coarse, yellow tan.
43-54	1622	Hard	Sandstone, yellow tan, comes up 0000 buckshot.
54-58		Hard	Sandstone and shell mixed, cemented, tan to gray.
58-63	1637	Hard	Limestone, tan (type anastasia).
63-77	1642	Hard	As above.
77-83	1648	Med.	Sandstone, tan, comes up buckshot.
83-90	1707		As above.
90-94		Soft	Clay, sandy, gray.
94-95		Soft	Shell, small, broken, loose.
95-103	1714	Hard	Sand and shell, cemented, tan (60% sand).
103-123	1721	Med.	Sand and shell, cemented, tan to gray.
	1729		
123-137	1733	Med.	Limestone and sandstone with loose shell and sand.
137-142	1742	Hard	Limestone, dark gray.

Hoke Pond Test

Jacob steady-state leaky-aquifer method

Plotted and computed by John [illegible] 3/3/80

$$T = \frac{Q}{2\pi a} K_0(x)$$

$$T = \frac{130 \times 1440 \times 1}{2 \times 3.14 \times 1.58 \times 7.48}$$

$T = 2522$ or $2500\ ft^2/d$

$$x = r\sqrt{\frac{K'}{b'T}}$$

$$0.1 = 145\sqrt{\frac{K'}{b'\,2500}}$$

$$0.0007 = \sqrt{\frac{K'}{b'\,2500}}$$

$$0.00000045 = \frac{K'}{b'\,2500}$$

$$\frac{K'}{b'} = 1.25 \times 10^{-3}\ day^{-1}$$

$x = 0.1$ $r = 145\ ft$

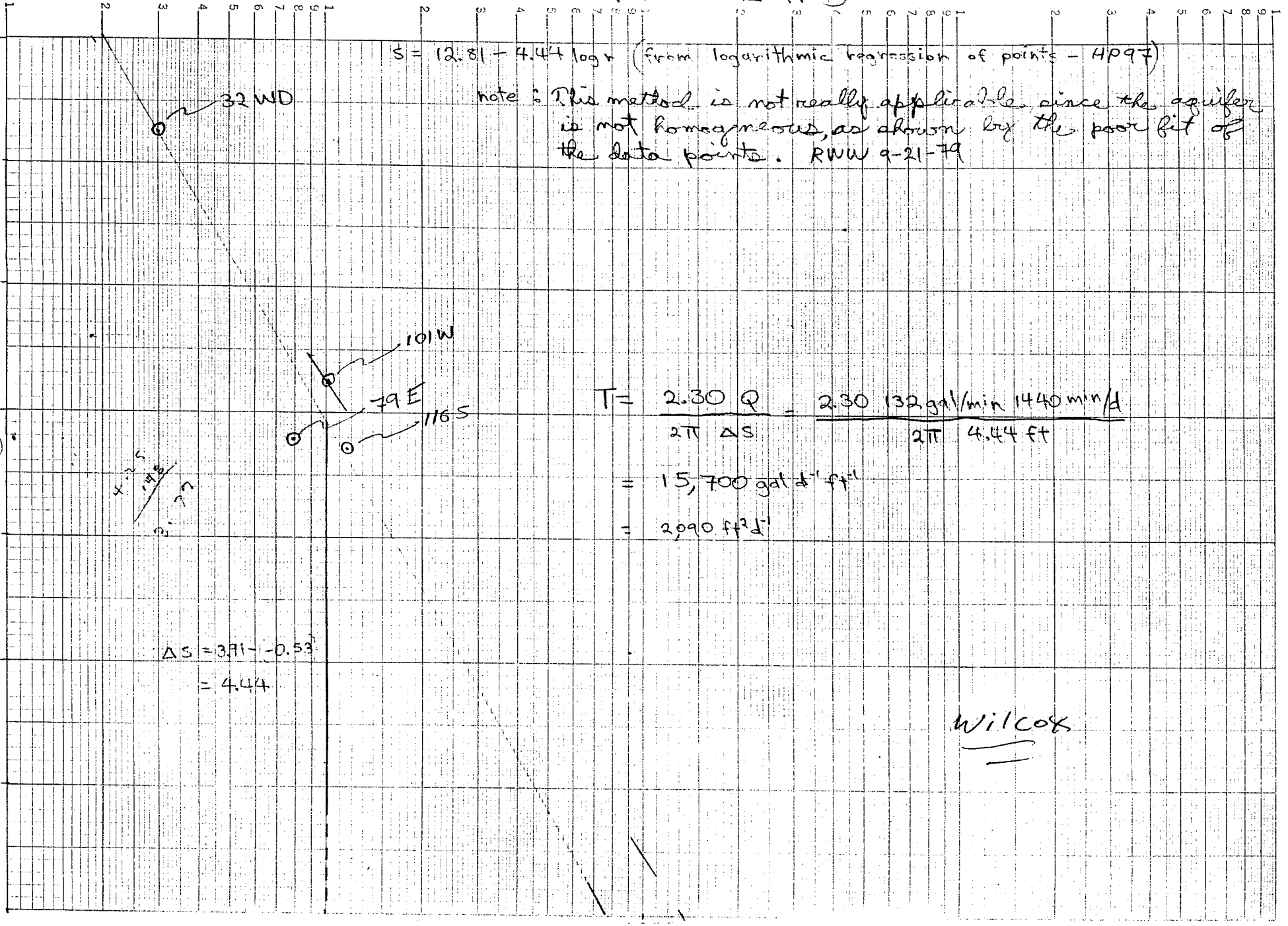
$K_0(x) = 1$ $a = 1.58$

10 100

r, ft.

Hobbs Sand Pumping Test
7-11-79

THEIM METHOD



$s = 12.81 - 4.44 \log r$ (from logarithmic regression of points - HP97)

note: This method is not really applicable since the aquifer is not homogeneous, as shown by the poor fit of the data points. RWW 9-21-79

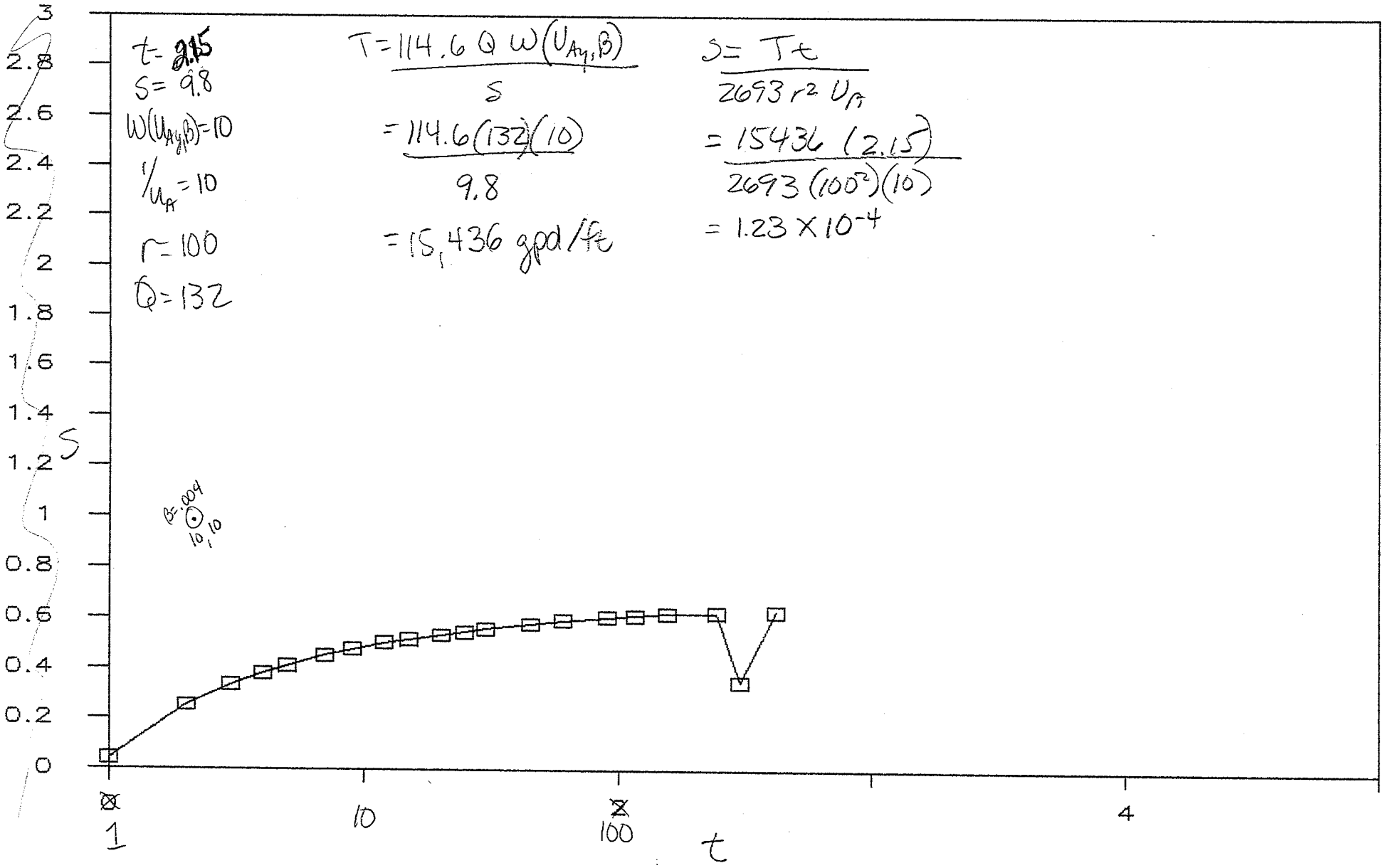
$$T = \frac{2.30\,Q}{2\pi\,\Delta s} = \frac{2.30\ 132\ \text{gal/min}\ 1440\ \text{min/d}}{2\pi\ 4.44\ \text{ft}}$$

$$= 15{,}700\ \text{gal d}^{-1}\text{ft}^{-1}$$

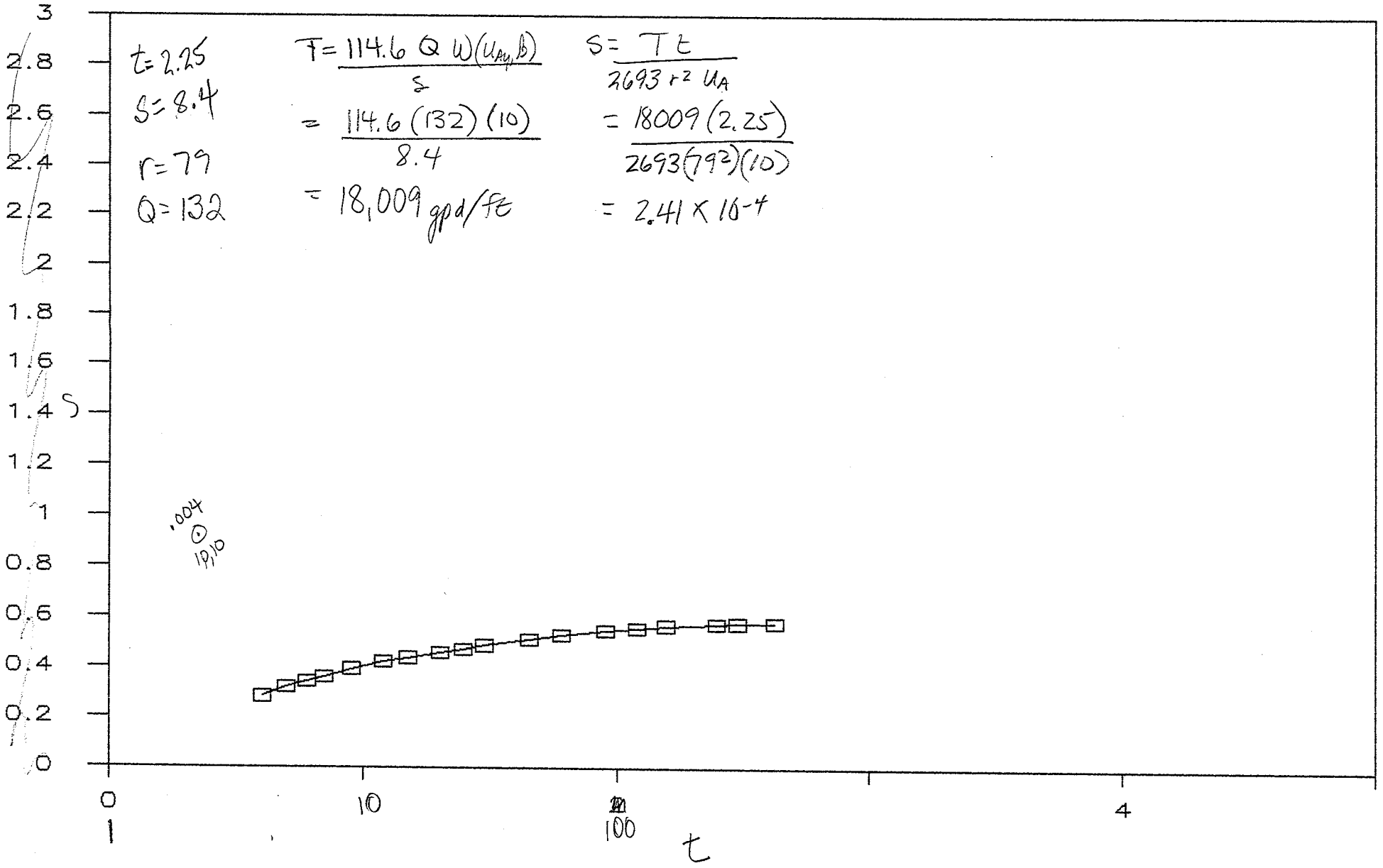
$$= 2{,}090\ \text{ft}^2\text{d}^{-1}$$

Wilcox

HS100W

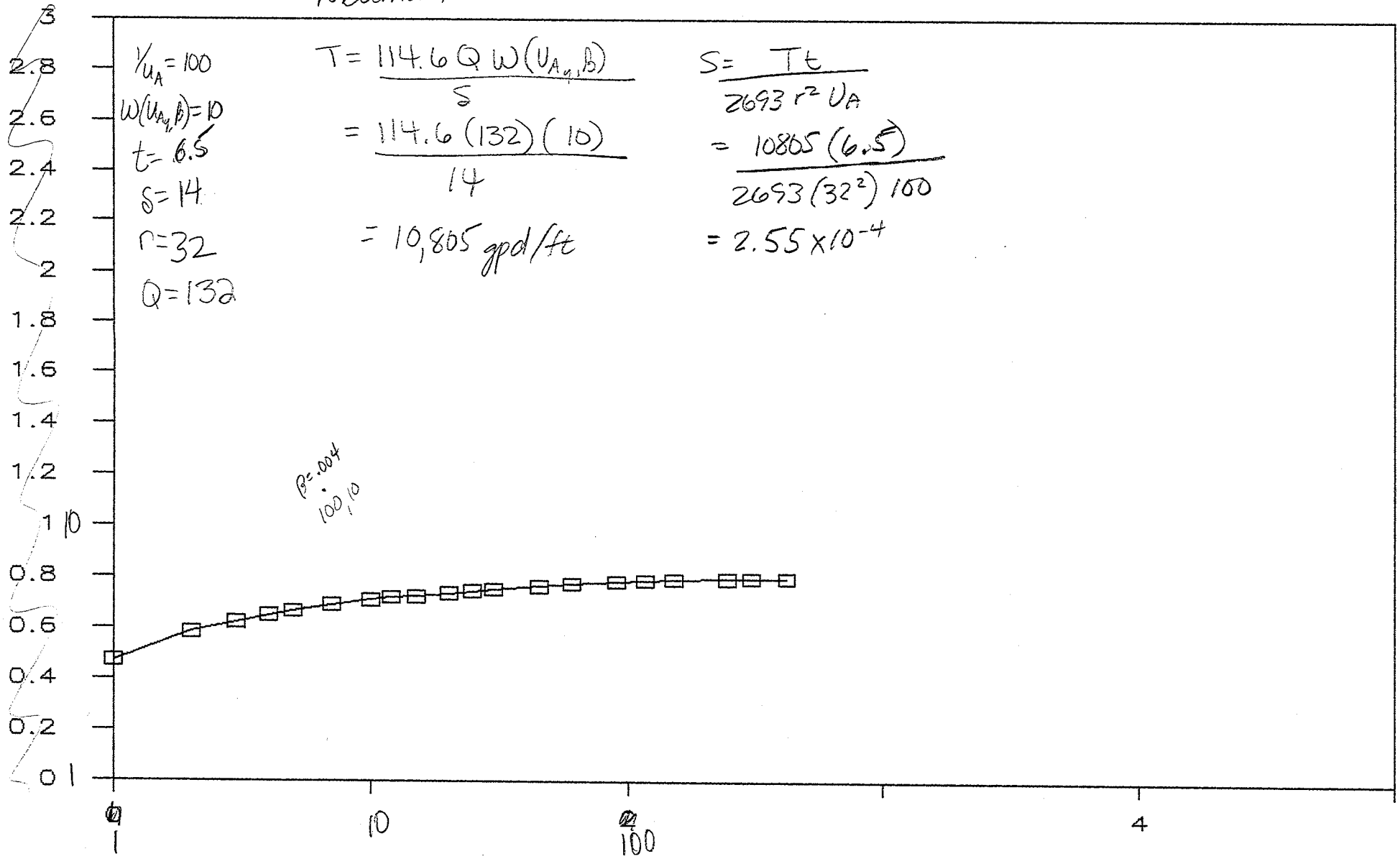

t= 2.15
S= 9.8
W(U_A,B)=10
1/U_A=10
r=100
Q=132
T=114.6 Q W(U_A,B) / S
=114.6(132)(10) / 9.8
=15,436 gpd/ft
S= Tt / 2693 r² U_A
=15436 (2.15) / 2693 (100²)(10)
=1.23 X 10⁻⁴
S
t
B=.004
10, 10
3
2.8
2.6
2.4
2.2
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
1
10
100
4

HS79E


t=2.25
S=8.4
r=79
Q=132
T = 114.6 Q W(u_A, β) / s
= 114.6 (132) (10) / 8.4
= 18,009 gpd/ft
S = T t / 2693 r² u_A
= 18009 (2.25) / 2693 (79²) (10)
= 2.41 × 10⁻⁴
.004
⊙
18,10
S
t
3
2.8
2.6
2.4
2.2
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
0
1
10
100
4

HS32WD

Neuman



$1/u_A = 100$

$W(u_A, \beta) = 10$

$t = 6.5$

$S = 14$

$r = 32$

$Q = 132$

$$T = \frac{114.6\, Q\, W(u_A, \beta)}{S}$$

$$= \frac{114.6\,(132)\,(10)}{14}$$

$$= 10{,}805 \text{ gpd/ft}$$

$$S = \frac{Tt}{2693\, r^2\, u_A}$$

$$= \frac{10805\,(6.5)}{2693\,(32^2)\,100}$$

$$= 2.55 \times 10^{-4}$$

$\beta = .004$

100, 10

Hobe Sound Test
computed by GW Hill

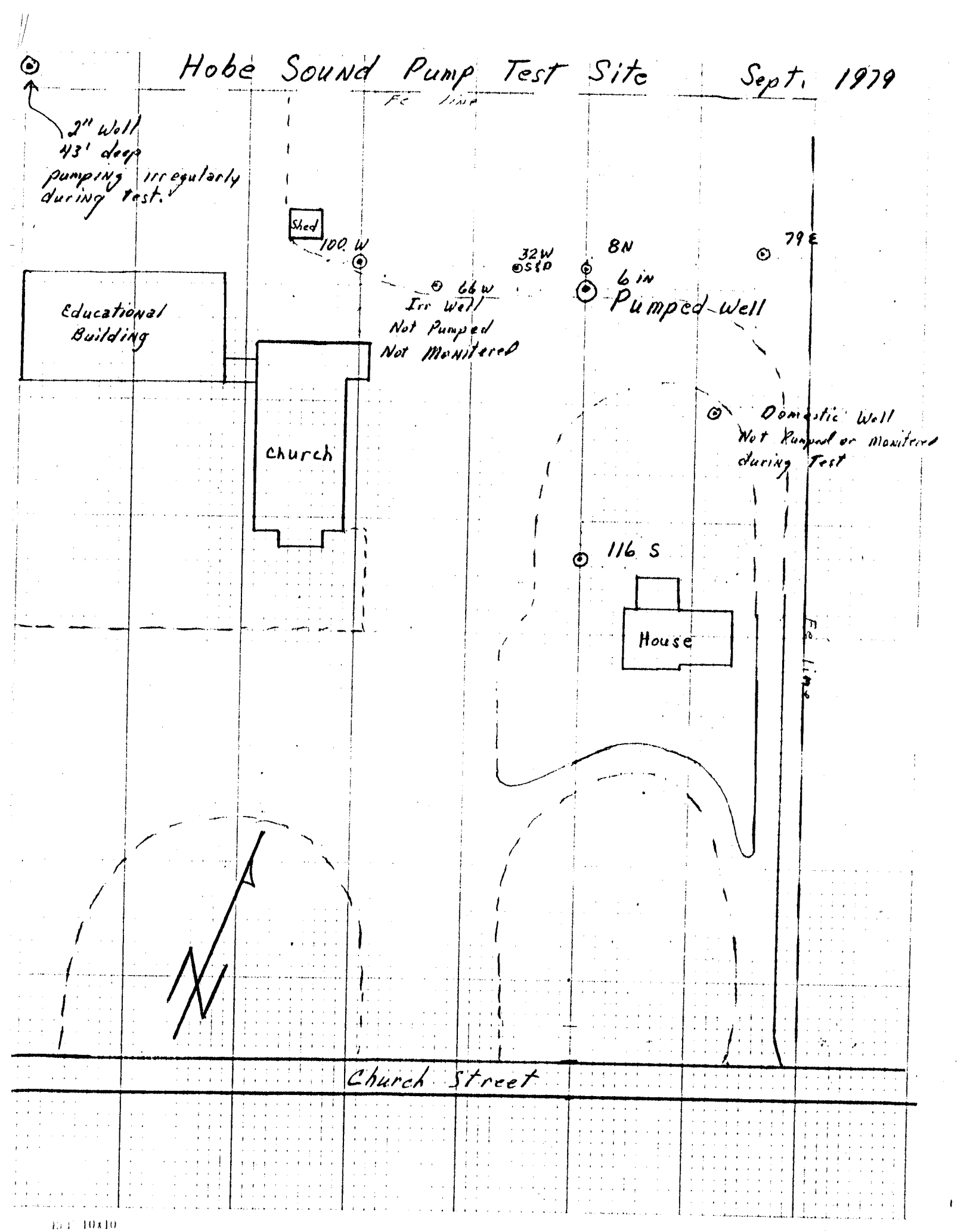
Delayed Yield Solution PL8; P.P. 708

WELL NO	Transmissivity
32 W	1,690 ft²/d
100 W	1,840 ft²/d
79 E	2,020 ft²/d
116 S	2,020 ft²/d

Hantush-Jacob

79 E	(same as 100 W)
116 S	2,020 ft²/d
100 W	2,020 ft²/d

Use 2,000 ft²/day for T value


Hobe Sound Pump Test Site
Sept. 1979
2" Well
43' deep
pumping irregularly
during test.
Shed
100 W
32W
S&D
8N
79E
6 in
Pumped Well
66 W
Irr Well
Not Pumped
Not Monitored
Educational
Building
church
Domestic Well
Not Pumped or Monitored
during Test
116 S
House
Church Street

Site Hobe Sound date of test 9-11-79

Well No 100W actual r 100ft m.p. elevation: _____

HS100W

time	min since start of test	depth to water (ft)	drawdown (ft)	t/r^2 day ft^{-2}
1400	0	22.34	0	
	1	23.44	1.10	6.81×10^{-8}
	2	24.13	1.79	1.4×10^{-7}
	3	24.50	2.16	2.0×10^{-7}
	4	24.74	2.40	2.7×10^{-7}
1405	5	24.91	3.57	3.4×10^{-7}
	7	25.16	2.82	4.8×10^{-7}
	9	25.34	3.00	6.1×10^{-7}
	12	25.53	3.19	8.2×10^{-7}
	15	25.62	3.28	1.02×10^{-6}
	20	25.76	3.42	1.36×10^{-6}
	25	25.85	3.51	1.70×10^{-6}
	30	25.96	3.62	2.04×10^{-6}
	45	26.12	3.78	3.06×10^{-6}
1500	60	26.25	3.91	4.08×10^{-6}
1530	90	26.38	4.04	6.13×10^{-6}
1556	116	26.43	4.09	7.90×10^{-6}
1635	155	26.52	4.18	1.06×10^{-5}
1803	243	26.55	4.21	1.65×10^{-5}
1902	302	26.57	4.23	2.06×10^{-5}
2058	418	26.60	4.26	2.85×10^{-5}

Site Hobe Sound date of test 9-11-79

Well No 79E actual r 79 ft m.p. elevation

HS79E

time	min since start of test	depth to water (ft)	drawdown (ft)	t/r^2 day ft^{-2}
1400	0	21.53	0	
	4	23.45	1.92	4.5×10^{-7}
	5	23.62	2.09	5.6×10^{-7}
	6	23.73	2.20	6.7×10^{-7}
	7	23.82	2.29	7.8×10^{-7}
	9	24.00	2.47	1.0×10^{-6}
	12	24.17	2.64	1.34×10^{-6}
	15	24.27	2.74	1.67×10^{-6}
	20	24:40	2.87	2.23×10^{-6}
	25	24.51	2.98	2.78×10^{-6}
	30	24.60	3.07	3.34×10^{-6}
	45	24.78	3.25	5.01×10^{-6}
1500	60	24.91	3.38	6.68×10^{-4}
1530	90	25.05	3.52	1.00×10^{-5}
1600	120	25.13	3.60	1.34×10^{-5}
1637	157	25.20	3.67	1.75×10^{-5}
1808	248	25.27	3.74	2.76×10^{-5}
1900	300	25.30	3.77	3.34×10^{-5}
2101	421	25.32	3.79	4.69×10^{-5}

Site Hobe Sound date of test 9-11-79

Well No. 1165 actual r 116 ft m.p. elevation

HS1165

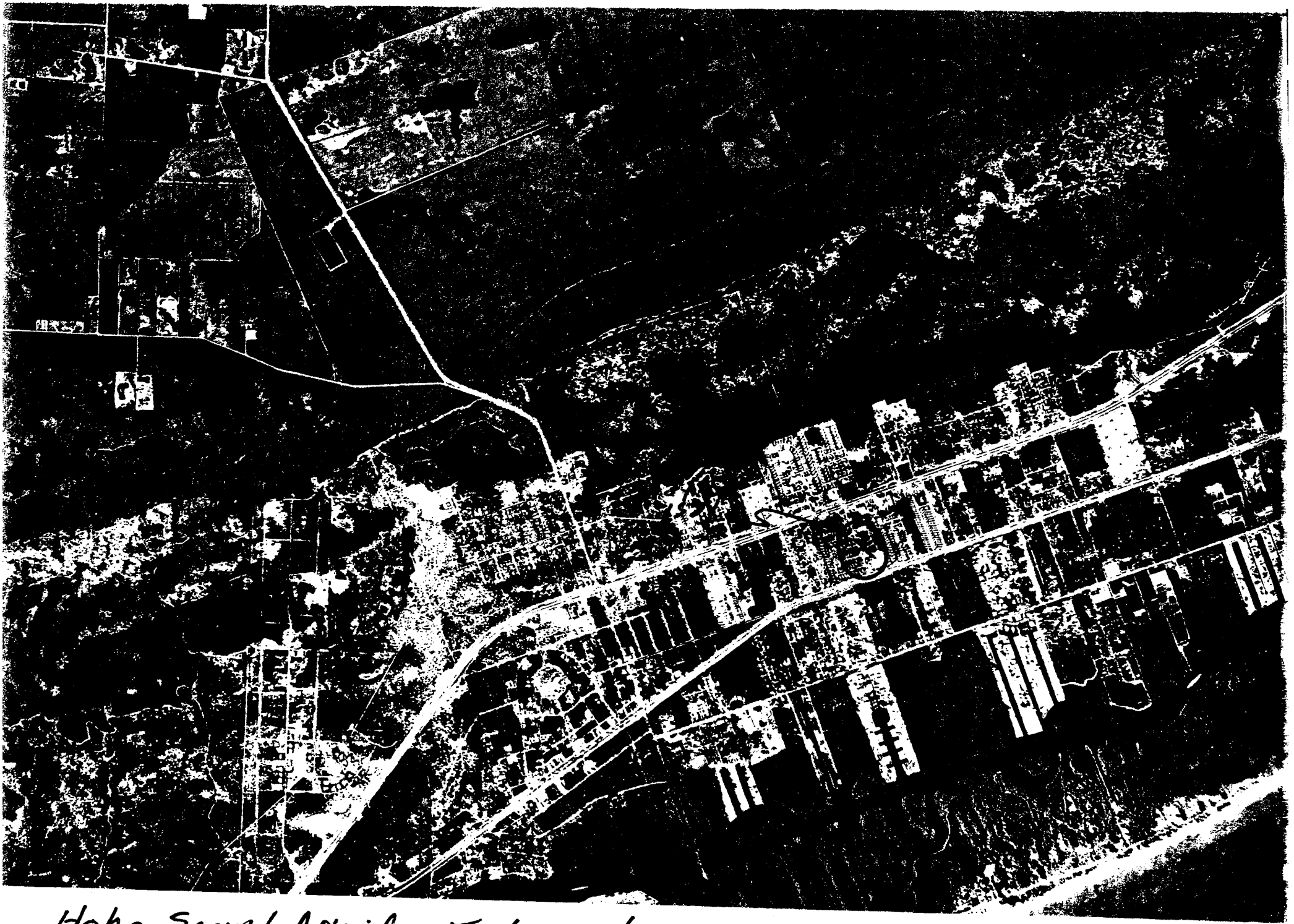
time	min since start of test	depth to water (ft)	drawdown (ft)	t/r^2 day ft^{-2}
1400	0	21.76	0	
	1	22.39	0.63	5.16×10^{-8}
	2	23.01	1.25	1.00×10^{-7}
	3	23.29	1.53	1.5×10^{-7}
	4	23.53	1.77	2.1×10^{-7}
	5	23.70	1.94	2.6×10^{-7}
	7	23.95	2.19	3.6×10^{-7}
	8	24.05	2.29	4.1×10^{-7}
	9	24.11	2.35	4.6×10^{-7}
	12	24.30	2.54	6.2×10^{-7}
	15	24.41	2.65	7.7×10^{-7}
	20	24.56	2.80	1.03×10^{-6}
	25	24.68	2.92	1.29×10^{-6}
	30	24.76	3.00	1.55×10^{-6}
	45	24.96	3.20	2.32×10^{-6}
	60	25.06	3.32	3.0×10^{-6}
1530	90	25.21	3.45	4.64×10^{-6}
1601	121	25.30	3.54	6.24×10^{-6}
1636	156	25.37	3.61	8.05×10^{-6}
1810	250	25.43	3.67	1.29×10^{-5}
1904	304	25.45	3.69	1.57×10^{-5}
2102	422	25.47	3.71	2.18×10^{-5}

Site Hobe Sound date of test 9-11-79

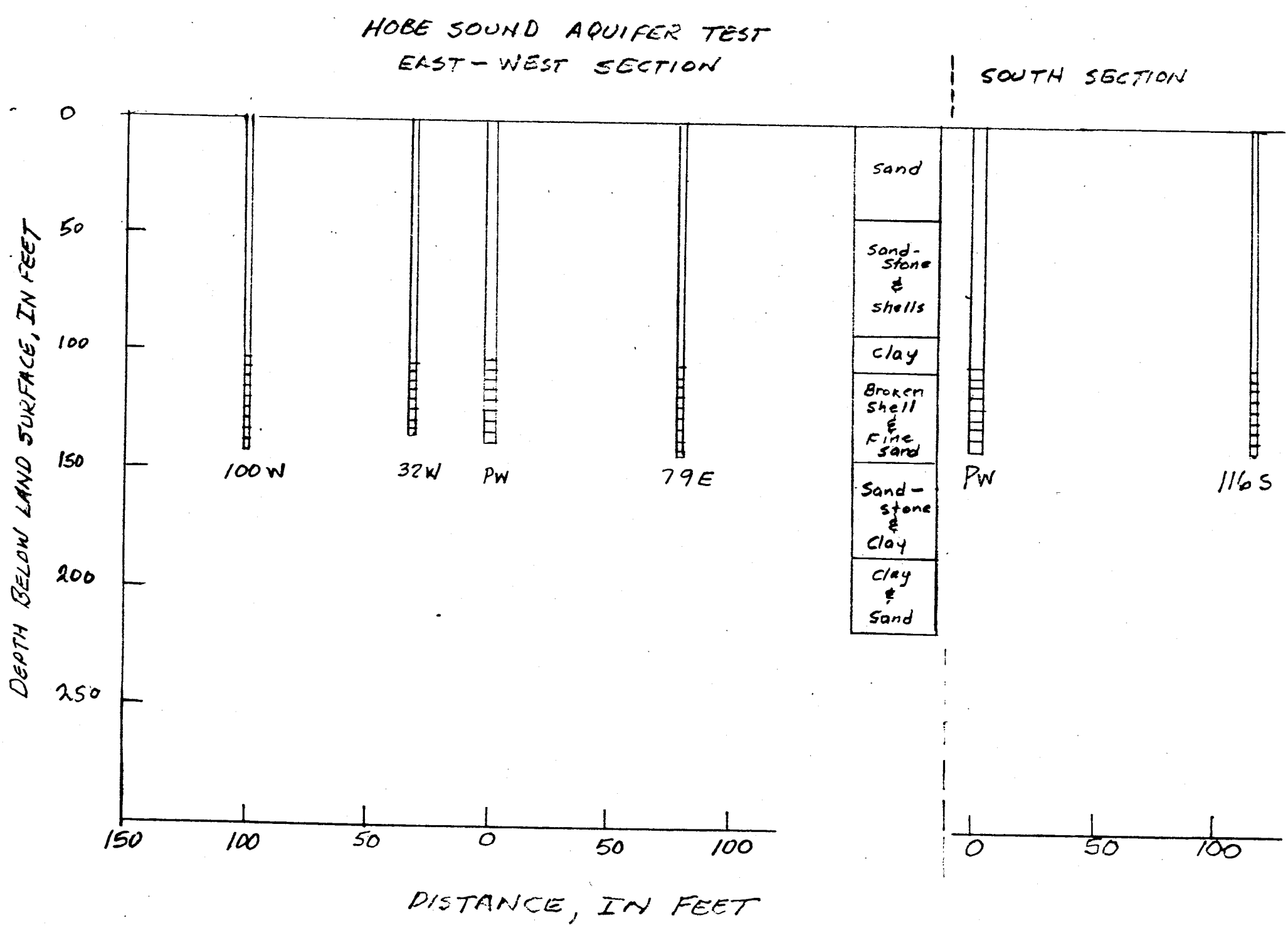
Well No 32WD actual r 32ft m.p. elevation

HS32WD

time	min since start of test	depth to water (ft)	drawdown (ft)	t/r^2 dar ft^{-2}
1400	0	22.95	0	
	1	25.92	2.97	6.8×10^{-7}
	2	26.79	3.84	1.36×10^{-6}
	3	27.15	4.20	2.03×10^{-6}
	4	27.43	4.48	2.71×10^{-6}
	5	27.59	4.64	3.39×10^{-6}
	7	27.84	4.89	4.75×10^{-6}
	10	28.06	5.11	6.78×10^{-6}
	12	28.20	5.25	8.14×10^{-6}
	15	28.24	5.29	1.02×10^{-5}
	20	28.37	5.42	1.36×10^{-5}
	25	28.49	5.54	1.70×10^{-5}
	30	28.57	5.62	2.04×10^{-5}
	45	28.74	5.79	3.05×10^{-5}
	60	28.86	5.93	4.07×10^{-5}
1530	90	28.99	6.04	6.10×10^{-5}
1557	117	29.07	6.12	7.94×10^{-5}
1631	151	29.12	6.17	1.02×10^{-4}
1704	214	29.18	6.23	1.65×10^{-4}
1903	303	29.20	5.25	2.05×10^{-4}
2100	420	29.20	6.25	2.85×10^{-4}



Hobe Sound Aquifer Test, Sept 11, 1979


HOBE SOUND AQUIFER TEST
EAST - WEST SECTION
SOUTH SECTION
DEPTH BELOW LAND SURFACE, IN FEET
0
50
100
150
200
250
100W
32W
PW
79E
PW
116S
Sand
Sand-stone & shells
Clay
Broken Shell & Fine Sand
Sand-stone & Clay
Clay & Sand
150
100
50
0
50
100
0
50
100
DISTANCE, IN FEET

Hobe Sound Test

Litho logic Summary

0-40 Sand, fine to course, soft to Med. Soft
40-89 Sand stone, cemented cuttings, some shells Marl.
89-105 clay, Med. Soft to Hard.
105-143 Shell, broken, small with fine sand cemented
143-183 Shell, sandstone and Marl
183-203 Sandstone and clay
203-215 clay and sand, grey to green

Identification No. _____ Other No. HSBC 79E

County Martin Lat-Long 270418 0800824. 05

Twp Gomez Grant Rg _____ Sec _____ Date 8/30/79

Location Hobe Sound Pump Test on Property of First Baptist Church.

Driller P&W Drilling Owner USGS Log by W.A. Long

Depth	Time	Hardness	Description of Formation
0-5	1600	Soft	Sand, fine, white.
5-23	1610	Soft	Sand, fine to coarse, yellow tan.
23-43	1618	Soft	Sand, fine to coarse, yellow tan.
43-54	1622	Hard	Sandstone, yellow tan, comes up 0000 buckshot.
54-58		Hard	Sandstone and shell mixed, cemented, tan to gray.
58-63	1637	Hard	Limestone, tan (type anastasia).
63-77	1642	Hard	As above.
77-83	1648	Med.	Sandstone, tan, comes up buckshot.
83-90	1707		As above.
90-94		Soft	Clay, sandy, gray.
94-95		Soft	Shell, small, broken, loose.
95-103	1714	Hard	Sand and shell, cemented, tan (60% sand).
103-123	1721	Med.	Sand and shell, cemented, tan to gray.
	1729		
123-137	1733	Med.	Limestone and sandstone with loose shell and sand.
137-142	1742	Hard	Limestone, dark gray.

Identification No. _____ Other No. HSBC 100-W

County Martin Lat-Long 270418 0800824.03

Twp Gomez Grant Rg _____ Sec _____ Date 8/29/79

Location Hobe Sound Test Site on Property of First Baptist Church

Driller P&W Drilling Owner USGS Log by W.A. Long

Depth	Time	Hardness	Description of Formation
0-6	1115	Loose	Sand, fine, white.
6-10		Soft	Sand, fine to coarse, yellow rust.
10-23	1125	Med.	Sand, fine to coarse, yellow rust, slightly cemented.
23-35	1128	Soft	Sand, fine to coarse, yellow rust, slightly cemented.
35-38		Med. Hard	Sand, fine to coarse, yellow rust, cemented.
38-43	1133	Soft	Sand, fine to coarse, yellow orange, 5% black shell.
43-55	1138	Med.	Sandstone, clear to light rust yellow duller, med. cuttings came up 00 buckshot.
55-58		Med.	Sandstone with shells (30%) cemented in cuttings, mostly rounded.
58-63	1153	Hard	Sand and shell cemented (Anastasia type).
63-75	1215		Sandstone with 20% cemented shell (nodules clear to gray).
75-83	1227	Hard	Limestone, sandy, gray with lots of shell, cemented in formation. Large angular cuttings. Mixed mud.
83-88	1313	Hard	As above.
88-92		Soft	Clay, sandy, gray.
92-95		Hard	Sandstone, hard about 6: and shell, broken, loose.
95-99		Soft	Clay, sandy, gray.
99-101		Med. Soft	Shell, broken, loose.
101-103	1323	Med.	Shell and sand, cemented, gray to tan.
103-112	1346	Med. Hard	Shell, broken and sand, packed but not cemented. A little thin (3") marly strek at 108.
112-115		Soft	Clay, sandy, gray.
115-123	1406	Med.	Shell, broken and sand, packed (Not cemented).
123-138	1410	Med.	Shell, broken and sand, fine to medium, gray to tan.
138-141		Med. Hard	Shell, broken and sand, fine to medium, gray.
141-143	1421	Hard	Limestone, sandy gray with tan broken shell, cemented in loosely.
143-145	1425	Hard	Limestone, as above.
145-145.5		Hard	Clay lense, marly.
145.5-148	1430	Hard	Sandstone, brown and gray, fine grained.

Identification No. _____ Other No. HSBC 116S

County Martin Lat-Long 270418 0800824.04

Twp Gomez Grant Rg _____ Sec _____ Date 8/30/79

Location Hobe Sound Pump test on property of First Baptist Church.

Driller P&W Drilling Owner USGS Log by W.A. Long

Depth	Time	Hardness	Description of Formation
0-6	1015		Sand, fine, white.
6-23	1020	Soft	Sand, fine to coarse, yellow rust.
23-36	1030	Soft	Sand, fien to medium, some coarse yellow.
36-43	1040	Med.	As above.
43-53	1045	Med.	Sandstone, yellow to clear.
53-63	1057	Hard	Sandstone, light tan yellow, 15% cemented shell.
63-83	1100	Hard	Sandstone, light tan, 15% shell. Mixed mud.
	1110		
83-88	1130	Hard	As above.
88-91		Soft	Clay, sandy, gray.
91-95		Soft	Shell, small broken to large, whole.
95-98		Soft	Clay, sandy, light gray with 1' peat layer.
98-103	1137	Med.	Shell, cemented, sandy, gray.
103-118	1145	Med. Hard	Limestone, tan and gray, some sandstone.
118-123	1200	Med. Soft	Sand and shell.
123-135	1203	Soft	Sand, fine and shell small, broken to red whole.
135-143	1215	Hard	Sandstone with little shell, tan, marly streak at 141'.

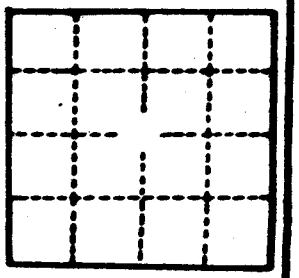
Hobe Sound

U. S. GEOLOGICAL SURVEY — WELL LOG

WELL NUMBER 270418 0800824.02 (latitude-longitude) LOCAL* M 1120 COUNTY Martin

OWNER OR NAME U. S. Geological Survey

LOCATION T Comes Coast R ___ SEC ___, ___ 1/4 ___ 1/4 ___ 1/4



WELL DEPTH 215 ft., CASED 143 ft., DIAMETER 2 in.

DEPTH LOGGED 215 ft., TOP ___ ft., BOTTOM ___ ft., DATE COMPLETED 8-27-79

FORMATION ___, FORMATION TOP reference to LSD ___ MSL ___

AQUIFER ___, WATER LEVEL reference to LSD -21 MSL +9

ELEVATION LSD 30 ft. MSL SPEED OF LOGGING 25 ft/min.

TOP OR START OF LOG 6 ft. above LSD below OPERATOR Wm Hopkins

TYPE LOG

- ☐ DRILLING TIME
- ☐ CASING-COLLAR
- ☐ CALIPER (diameter)
- ☐ DRILLER'S
- ■ ELECTRIC
- ☐ FLUID-CONDUCTIVITY (RESISTIVITY)
- ■ GEOLOGIST OR SAMPLE
- ☐ MAGNETIC
- ☐ INDUCTION
- ■ GAMMA-RAY
- ☐ DIPMETER (inclinometer)
- ☐ LATER
- ☐ MICRO
- ☐ MICROLATER
- ☐ NEUTRON
- ☐ PHOTOGRAPHIC (TV, still, movie)
- ☐ RADIOACTIVE-TRACER
- ☐ RADIATION
- ☐ SONIC
- ☐ TEMPERATURE
- ☐ TEMPERATURE (FLUID-CONDUCTIVITY)
- ☐ FLUID-VELOCITY

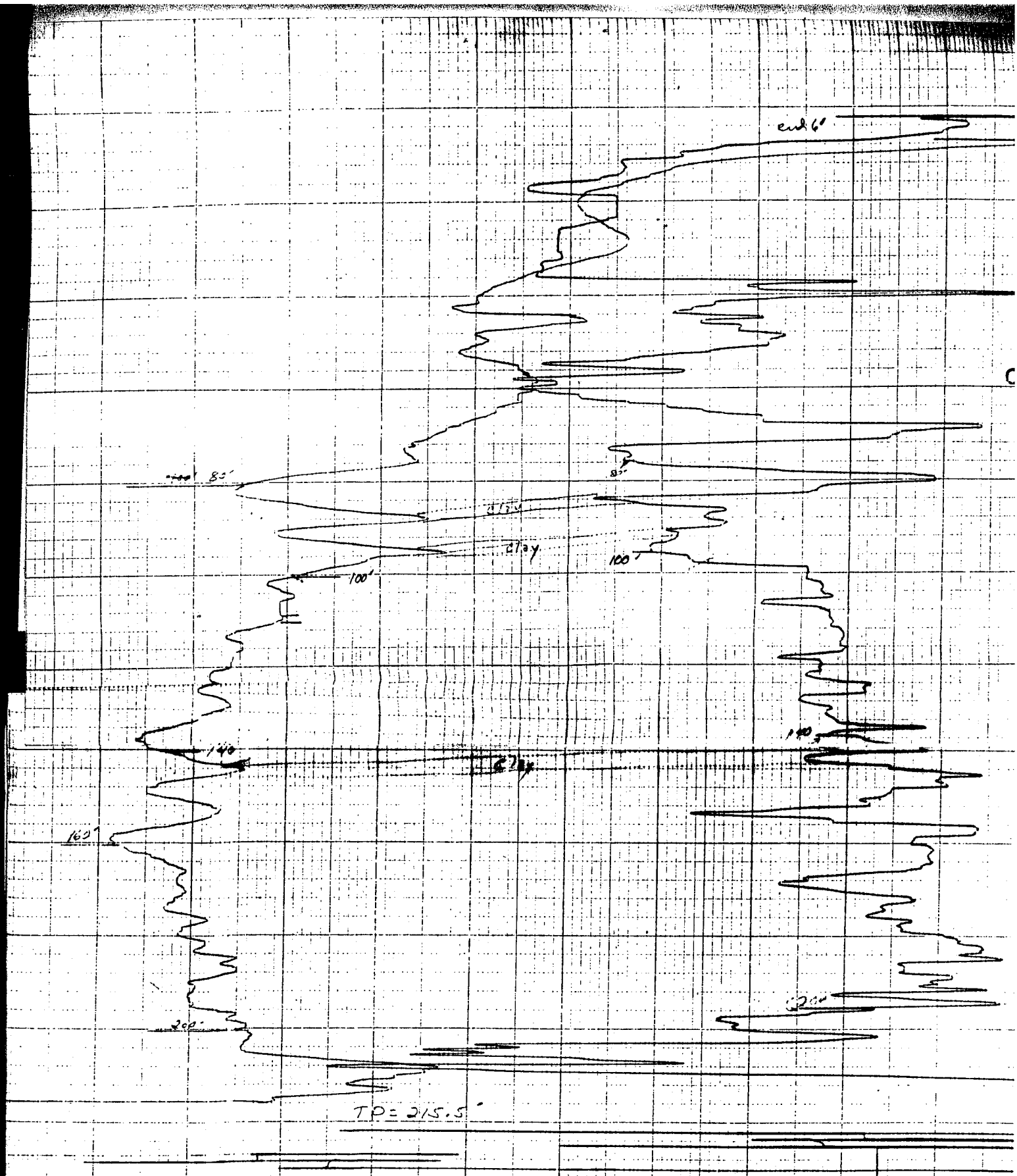
USE OF WELL

- ☐ ANODE
- ☐ DRAINAGE
- ☐ DESTROYED
- ■ OBSERVATION
- ☐ OIL-GAS
- ☐ RECHARGE
- ☐ TEST
- ☐ UNUSED
- ☐ WITHDRAWAL
- ☐ WASTE

QW SAMPLE ☐ NO ☒ YES DATE SAMPLED 8-29-79 Partial DEPTH(S) SAMPLED ___

LOG SCALES HORIZ 1" = 100 ft. 4.70, VERT 1" = 20' LOGGED ■ UP ☐ DOWN

S.P. MV = 100 DEPTH RESISTIVITY Ri = 20 20 ohm = 5.1"



Black: SP
Mx: 100
Res: 470

E-log (Run 2)
Aug 30, 1979
log up 225' /min
Chart Scale: 20'/in

Red: Resistivity
Sr: 20
Res: 510

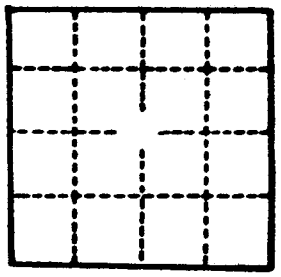
Hobe Sound

U. S. GEOLOGICAL SURVEY – WELL LOG

WELL NUMBER 270418 0800824.02 (latitude-longitude) LOCAL # M 1120 COUNTY Martin

OWNER OR NAME U.S.G.S.

LOCATION T Zone 17 R ____ SEC ____, ____ 1/4 ____ 1/4 ____ 1/4



WELL DEPTH 215' ft., CASED 143 ft., DIAMETER 2 in.

DEPTH LOGGED 215' ft., TOP ____ ft., BOTTOM ____ ft., DATE COMPLETED 8-27-79

FORMATION ____, FORMATION TOP reference to LSD ____ MSL ____

AQUIFER ____, WATER LEVEL reference to LSD -21 MSL +9

ELEVATION LSD 30 ft. MSL SPEED OF LOGGING 20 ft/min.

TOP OR START OF LOG 6 ft. ~~above~~ below LSD OPERATOR Wm Hopkins

TYPE LOG

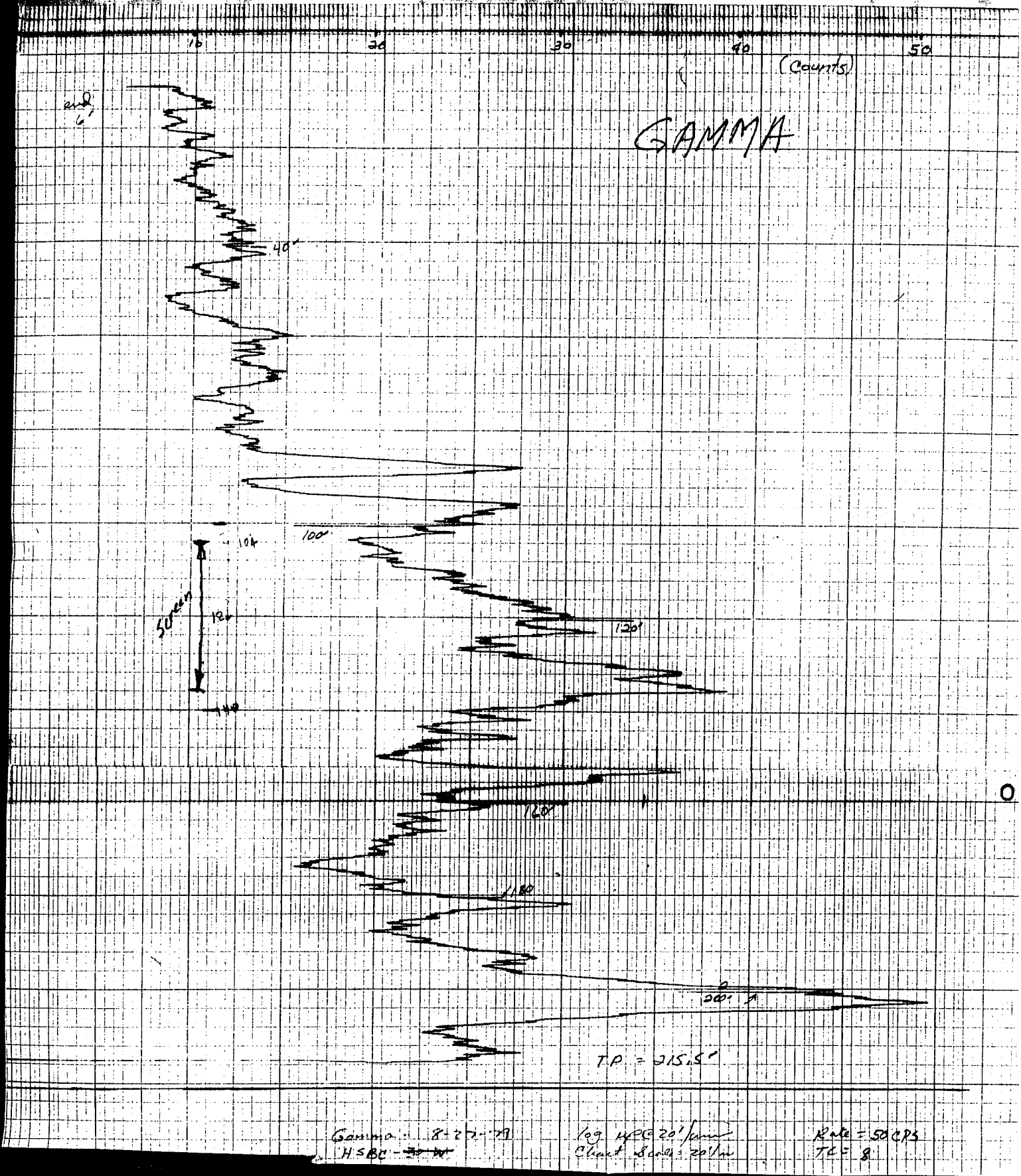
- ☐ DRILLING TIME
- ☐ CASING-COLLAR
- ☐ CALIPER (diameter)
- ☐ DRILLER'S
- ■ ELECTRIC
- ☐ FLUID-CONDUCTIVITY (RESISTIVITY)
- ■ GEOLOGIST OR SAMPLE
- ☐ MAGNETIC
- ☐ INDUCTION
- ■ GAMMA-RAY
- ☐ DIPMETER (inclinometer)
- ☐ LATER
- ☐ MICRO
- ☐ MICROLATER
- ☐ NEUTRON
- ☐ PHOTOGRAPHIC (TV, still, movie)
- ☐ RADIOACTIVE-TRACER
- ☐ RADIATION
- ☐ SONIC
- ☐ TEMPERATURE
- ☐ TEMPERATURE (FLUID-CONDUCTIVITY)
- ☐ FLUID-VELOCITY

USE OF WELL

- ☐ ANODE
- ☐ DRAINAGE
- ☐ DESTROYED
- ■ OBSERVATION
- ☐ OIL-GAS
- ☐ RECHARGE
- ☐ TEST
- ☐ UNUSED
- ☐ WITHDRAWAL
- ☐ WASTE

QW SAMPLE ☐ NO ■ YES DATE SAMPLED 8-29-79 partial DEPTH(S) SAMPLED 75-79 105-145'

LOG SCALES HORIZ 9.1" = 50 cps, VERT 1" = 20' LOGGED ■ UP ☐ DOWN



Gamma · 8-27-79
H SBC ~~30 bbl~~

Log 4PPG 20'/min
Chart Speed: 20'/hr

Rate = 50 CPS
TC = 8

Location Hobe Sound Test @ 1st Bapt. Church property

Party Roy **Date** start 8-28-79

Station	Drill Depth ~~BS~~	Csg Avg	screen HI	setscreen FS	Develop ~~Avg~~	Standby ~~Elev.~~	REMARKS
HSBC-30WS	215	87	74-89	½ hr	3 hrs	[illegible] 1 hr	
HSBC-30W D	—	ours 105	105-135	½ hr.	0	0	32 W
HBC-100W	148	108	103-143	½ hr	~~2~~ hrs 3	0	~~additional hr Develop.~~ 100 W
HSBC-116S	143	103	103-138	½ hr	3 hrs	0	116 S
HSBC-79E	142	107	142	½ hr	2 hrs	0	79E
HSBC-1	143	107	103-138	1 hr	2½ hrs	0	6 in well PW
HSBC-10N	75	70	70-75	—	1½ hrs	0	

9-194
November 1949

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

Discharge
~~WATER LEVEL~~ MEASUREMENTS (Field) Measured by _____

Location of Project Hobe Sound Site (pumping test)

DATE	HOUR	Height in ~~WELL NO.~~ Piezometer	TAPE READING AT— Meas. point	TAPE READING AT— Water level	~~DEPTH TO WATER~~ (Y gpm)	REMARKS
9-11-79	1407	16			132	
	1414	16 ½			134	
1428	1428	16 ½	(Surge)		131	
	1447	16 ½	(surging)		130	(5 gal per min loss in bell joint
	1457	16.5	(surging)		131	
	1537	16.5			132	
	1600	16.25			133	
	1615	16.0			132	
	1707	16.0			132	
	1813	16.0			132	
	1900	16.0			132	
	2106	16.0			132	

Qave = 1329 gpm

9-194
November 1949

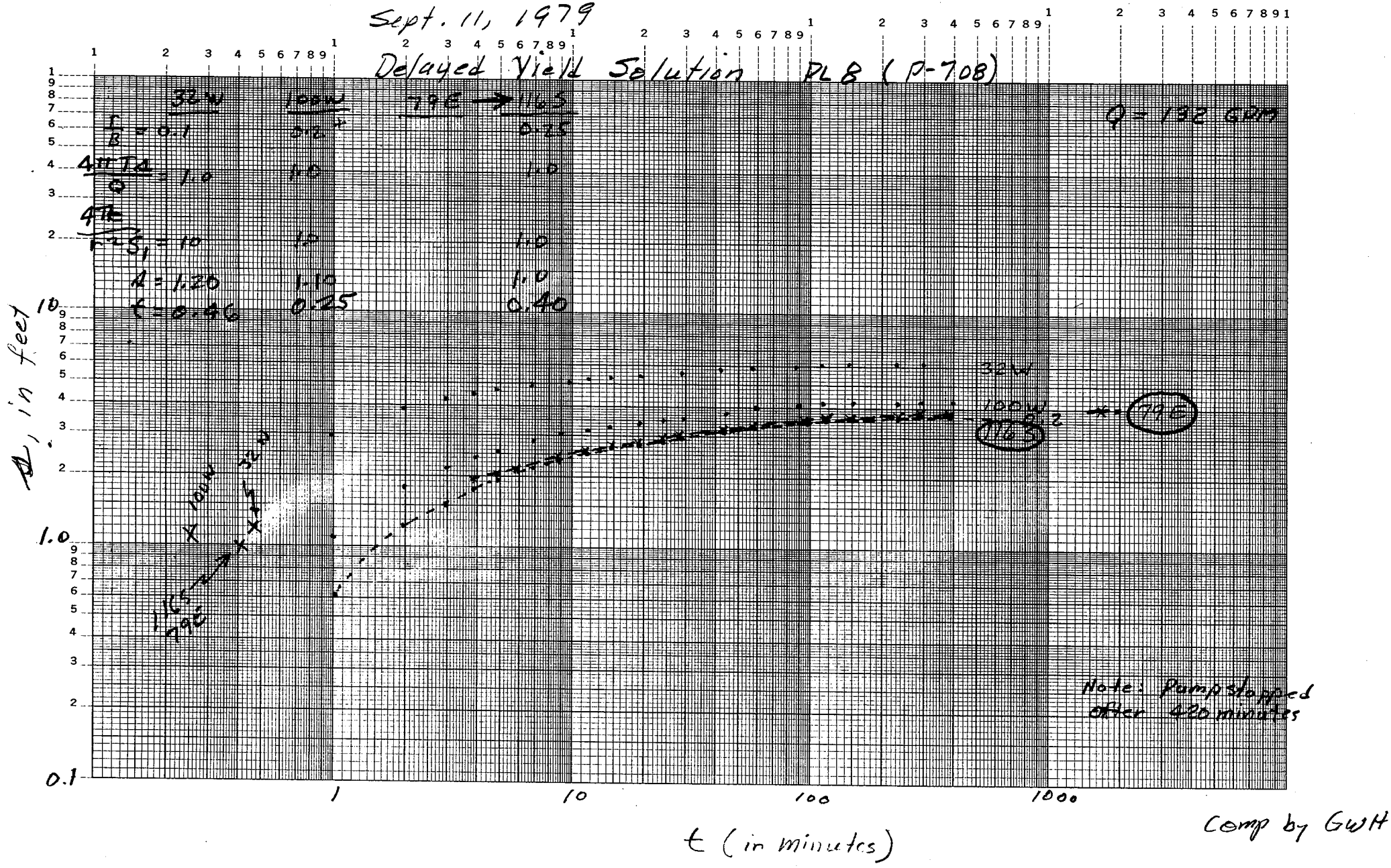
UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

WATER LEVEL MEASUREMENTS (Field) Measured by _____

Location of Project _____

DATE	HOUR	WELL NO.	TAPE READING AT— Meas. point	TAPE READING AT— Water level	DEPTH TO WATER	REMARKS

Hobe Sound Test
Sept. 11, 1979
Delayed Yield Solution PLB (P-708)



Comp by GWH

Hobe Sound Test
Sept 11, 1979

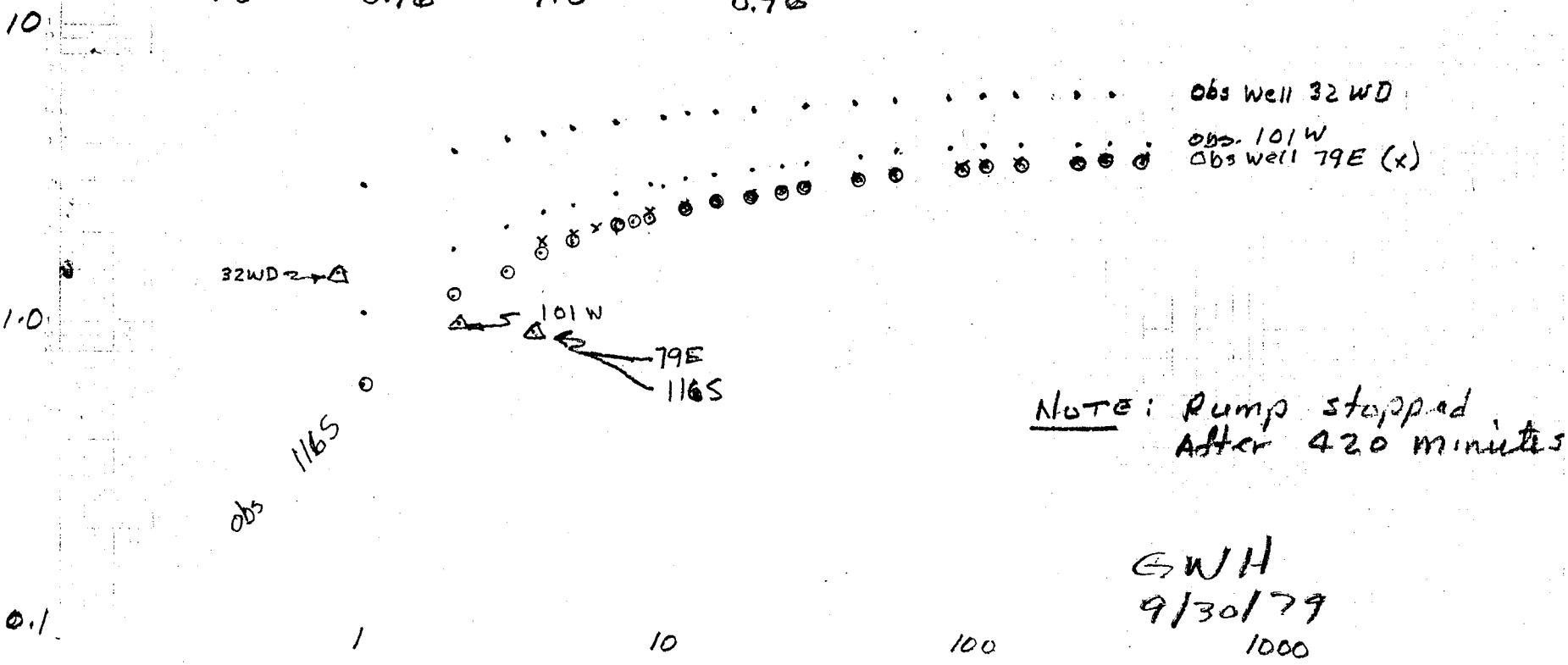
Super coded

Match Points, Plate 9 (Bounded Aquifer) Solution

	Δ 32WD	Δ 79E	Δ 101W	Δ 116S
EW(u) =	1.0	1.0	1.0	1.0
1/u =	10	10	10	10
t =	.93	3.7	2.1	3.7
s =	1.5	0.96	1.0	0.96

r = 32
r = 79
r = 116
r = 101

Φ = 132



Note: Pump stopped After 420 minutes

GWH
9/30/79

Hobe Sound Aquifer Test

Delayed yield Solution
by C.W. Hill

32 W

$T = \frac{132 \times 1440 \times 1.0}{4\pi \times 1.2}$

$= 12,600$

$= 1,690 \text{ ft}^2/\text{day}$

$S_e = \frac{4 \times 1,690 \times 0.46}{(32)^2 \times 10 \times 1440}$

$= 2.1 \times 10^{-4}$

100 W

$T = \frac{132 \times 1440 \times 1.0}{4\pi \times 1.1}$

$= 13,750$

$= 1,840 \text{ ft}^2/\text{day}$

$S_e = \frac{4 \times 1,840 \times 0.25}{(100)^2 \times 1.0 \times 1440}$

$= 1.2 \times 10^{-4}$

79 E

$T = \frac{132 \times 1440 \times 1.0}{4\pi \times 1.0}$

$= 15,100$

$= 2,020 \text{ ft}^2/\text{day}$

$S_e = \frac{4 \times 2020 \times .40}{(79)^2 \times 1.0 \times 1440}$

$= 3.6 \times 10^{-4}$

116 S

$T = \frac{132 \times 1440 \times 1.0}{4\pi \times 1.0}$

$= 15,100$

$= 2,020 \text{ ft}^2/\text{day}$

$S_e = \frac{4 \times 2020 \times .40}{(116)^2 \times 1440 \times 1.0}$

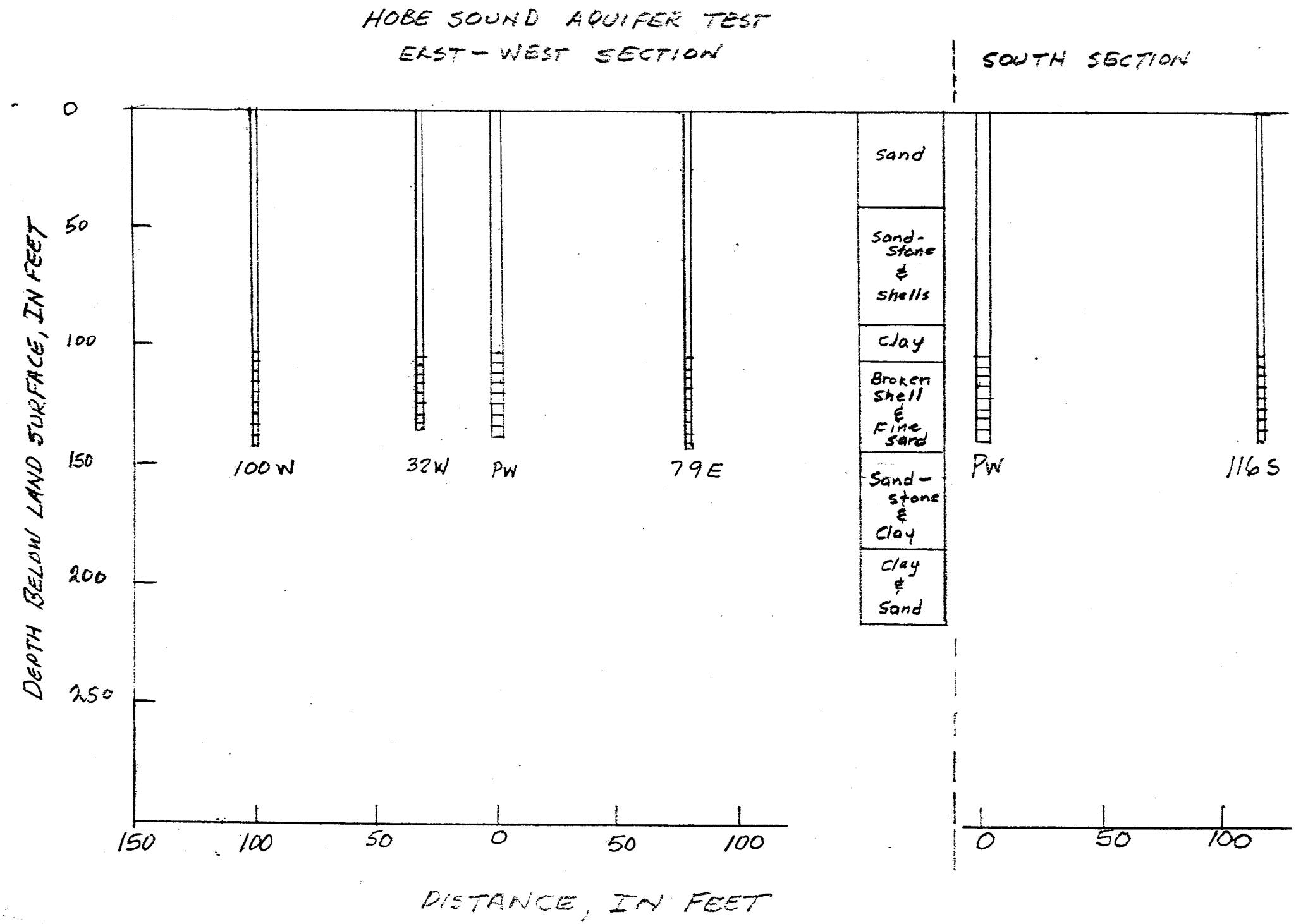
$S_e = 1.7 \times 10^{-4}$

Range =

$S_e = 1.2 \text{ to } 3.6 \times 10^{-4}$

Summary

	T Value	S values
32 W	1,690	2.1×10^{-4}
100 W	1,840	1.2×10^{-4}
79 E	2,020	3.6×10^{-4}
116 S	2,020	1.7×10^{-4}


HOBE SOUND AQUIFER TEST
EAST - WEST SECTION
SOUTH SECTION
DEPTH BELOW LAND SURFACE, IN FEET
0
50
100
150
200
250
100 W
32 W
PW
79 E
Sand
Sand-Stone & Shells
Clay
Broken Shell & Fine Sand
Sand-stone & Clay
Clay & Sand
PW
116 S
150
100
50
0
50
100
0
50
100
DISTANCE, IN FEET

Hobe Sound Aquifer Test

Hantush — Jacob Solution

by G.W. Hill

Computations are on the curve sheet

	Transmissivity	Storage Coefficient
100W	2,020 ft²/d	1.6×10^{-4}
116S	2,020 ft²/d	1.2×10^{-4}

Hobe Sound Test
computed by G.W. Hill

Delayed Yield Solution PL8; P.P. 708

WELL NO	Transmissivity
32 W	1,690 ft²/d
100 W	1,890 ft²/d
79 E	2,020 ft²/d
116 S	2,020 ft²/d

Hantush-Jacob

79 E	(same as 100 W)
116 S	2,020 ft²/d
100 W	2,020 ft²/d

USE 2,000 ft²/day for T Value

Hobe Sound Aquifer Test

Delayed Yield Solution
by C.W. Hill

32 W

$T = \frac{132 \times 1440 \times 1.0}{4\pi \times 1.2}$

$= 12,600$

$= 1,690 \text{ ft}^2/\text{day}$

$Se = \frac{4 \times 1,690 \times 0.46}{(32)^2 \times 10 \times 1440}$

$= 2.1 \times 10^{-4}$

100 W

$T = \frac{132 \times 1440 \times 1.0}{4\pi \times 1.1}$

$= 13,750$

$= 1,840 \text{ ft}^2/\text{day}$

$Se = \frac{4 \times 1,840 \times 0.25}{(100)^2 \times 1.0 \times 1440}$

$= 1.2 \times 10^{-4}$

79 E

$T = \frac{132 \times 1440 \times 1.0}{4\pi \times 1.0}$

$= 15,100$

$= 2,020 \text{ ft}^2/\text{day}$

$Se = \frac{4 \times 2020 \times .40}{(79)^2 \times 1.0 \times 1440}$

$= 3.6 \times 10^{-4}$

116 S

$T = \frac{132 \times 1440 \times 1.0}{4\pi \times 1.0}$

$= 15,100$

$= 2,020 \text{ ft}^2/\text{day}$

$Se = \frac{4 \times 2020 \times .40}{(116)^2 \times 1440 \times 1.0}$

$Se = 1.7 \times 10^{-4}$

Range =

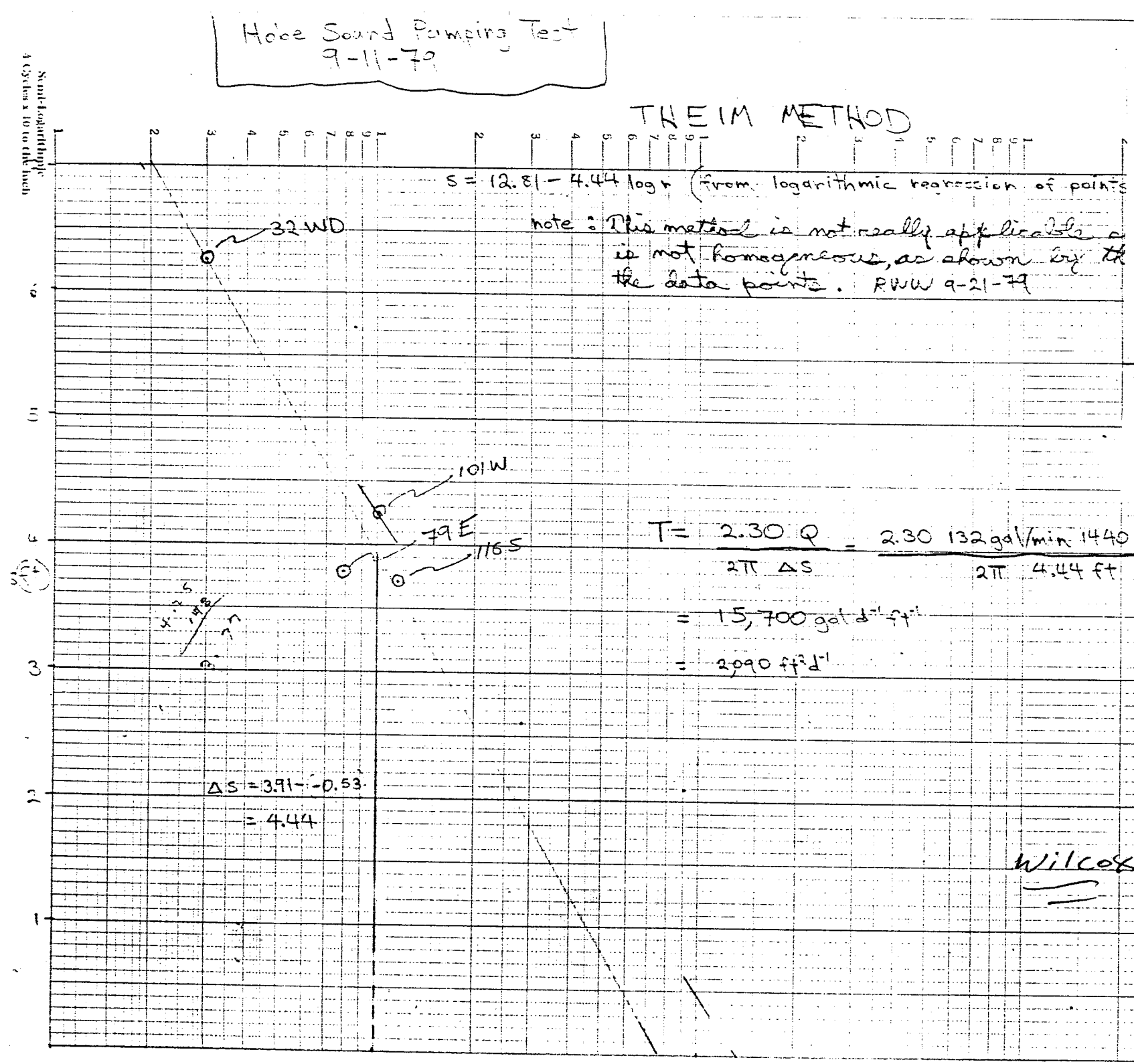
$Se = 1.2 \text{ to } 3.6 \times 10^{-4}$

Summary

	T Value	S value
32W	1,690	2.1×10^{-4}
100W	1,840	1.2×10^{-4}
79E	2,020	3.6×10^{-4}
116S	2,020	1.7×10^{-4}

Hood Sound Pumping Test
9-11-79

THEIM METHOD



r→ 32.00 ***
s→ 6.25 ***

75.00 ***
3.75 ***

101.00 ***
4.26 ***

116.00 ***
3.71 ***

coefficients
r² = 0.99 ***
a = 12.81 ***
b = -4.44 ***

$$T = \frac{2.30\,Q}{2\pi\,\Delta s} = \frac{2.30 \times 132\ \text{gal/min} \times 1440\ \text{min/d}}{2\pi \times 4.44\ \text{ft}}$$

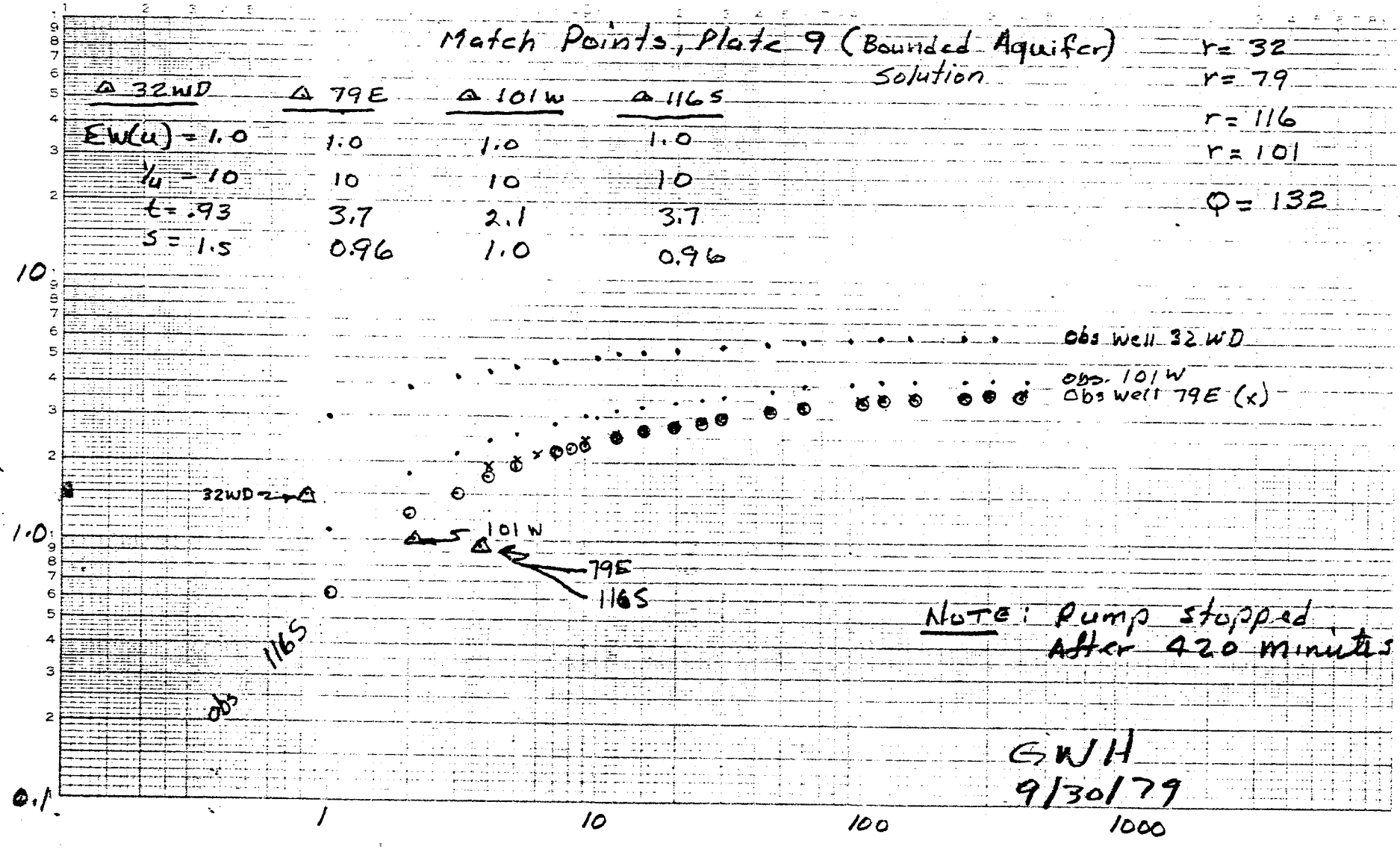
$$= 15{,}700\ \text{gal}\,\text{d}^{-1}\,\text{ft}^{-1}$$

$$= 2090\ \text{ft}^2\,\text{d}^{-1}$$

Wilcox

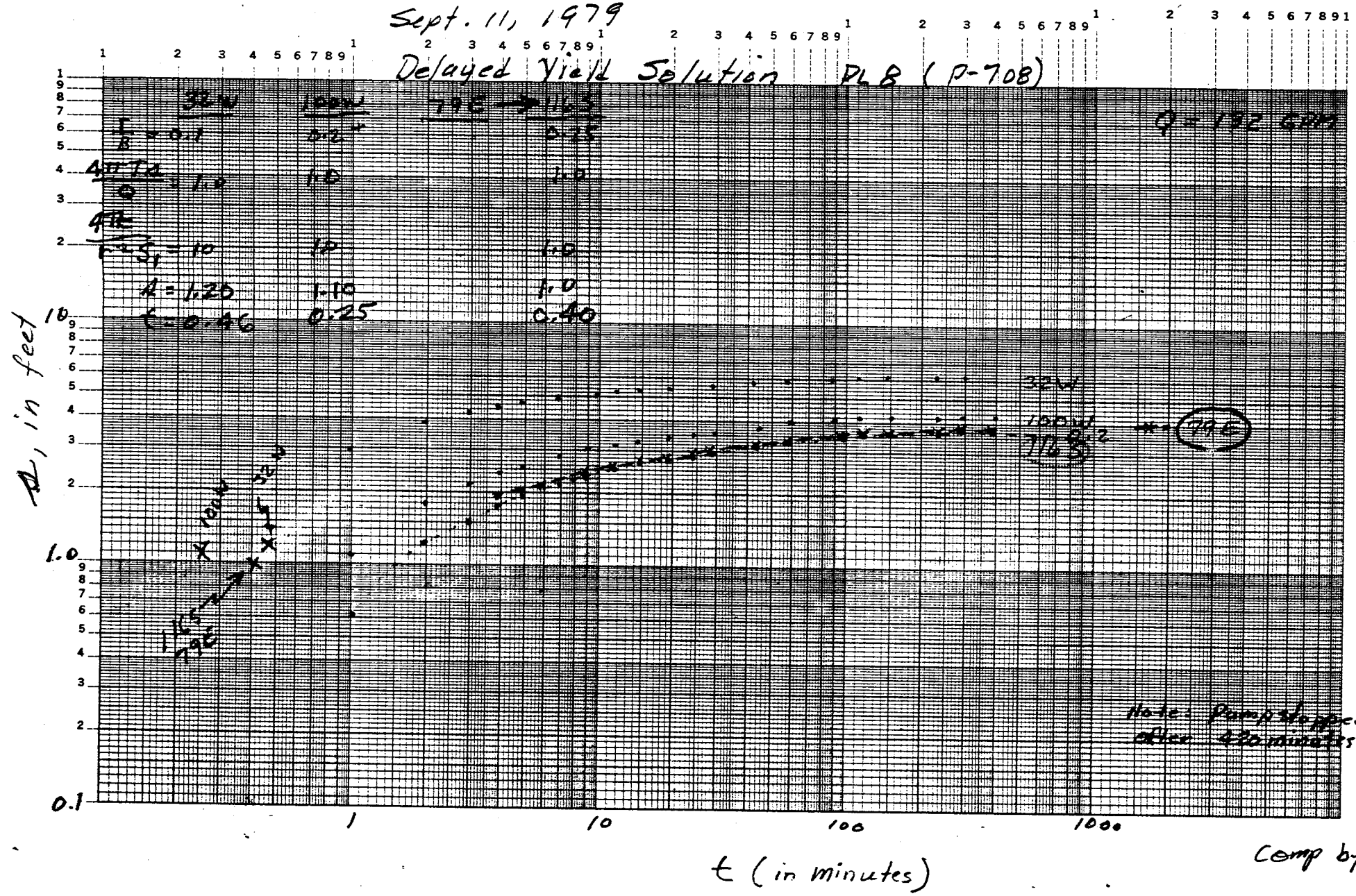
Hobe Sound Test
Sept 11, 1979

Superseded



46 7520

Hobe Sound Test
Sept. 11, 1979
Delayed Yield Solution PLB (P-708)



Well-8N

9-196
November 1969

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

WATER LEVEL MEASUREMENTS (Field) Measured by _____

Location of Project Hoke Sound Site (pumping test)

DATE	HOUR	WELL NO.	TAPE READING AT— Meas. point	TAPE READING AT— Water level	DEPTH TO WATER	Measured by REMARKS
a-11-79	1200	8N	23.50	1.52	21.98	ORWW
			25.00	2.99	22.01	BWAL
	1 min		25.00	2.98	22.02	.04
	3 min		25.00	2.98	22.02	.04
	9 min		25.00	2.98	22.02	.04
	21 min		24.00	1.98	22.02	.04
	27 min		25.00	2.98	22.02	.04
	47 min		24.00	1.98	22.02	.04
	61		24.00	1.98	22.02	.04
	1515 2 min		24.00	2.01	21.99	.01
	1559		24.00	1.99	22.01	.03
	1634		25.00	2.98	22.02	.04
	1806		25.00	2.98	22.02	.04
9-12	0820		25.00	3.02	21.98	per [illegible]

9-196
November 1969

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

WATER LEVEL MEASUREMENTS (Field) Measured by _____

Location of Project _____

DATE	HOUR	WELL NO.	TAPE READING AT— Meas. point	TAPE READING AT— Water level	DEPTH TO WATER	Measured by REMARKS
		8N				

Well # 32WS

9-196
November 1968

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

WATER LEVEL MEASUREMENTS (Field) Measured by _____

Location of Project Hobo Sound Site (pumping test)

DATE	HOUR	WELL NO.	TAPE READING AT— Meas. point	TAPE READING AT— Water level	DEPTH TO WATER	REMARKS Measured by Drawdown
9-11-9	1200	32WS	24.00	1.50	22.40	0 PUMP
	1358		25.00	2.50	22.40	0 WAL
	~~1400~~		~~31.00~~	~~5.55~~		
	12		25.00	2.55	22.44	0.04
	21		24.00	1.55	22.45	.05
	26		23.00	0.55	22.41	.04
	45		23.00	0.55	22.45	.05
	1735		23.00	0.55	22.45	.05
	1558		25.00	2.55	22.45	.05
	1631		25.00	2.55	22.45	.05
	1805		25.00	2.56	22.44	.04
9-12	0823		25.00	2.64	22.36	pump malfunction

9-196
November 1968

UNITED STATES
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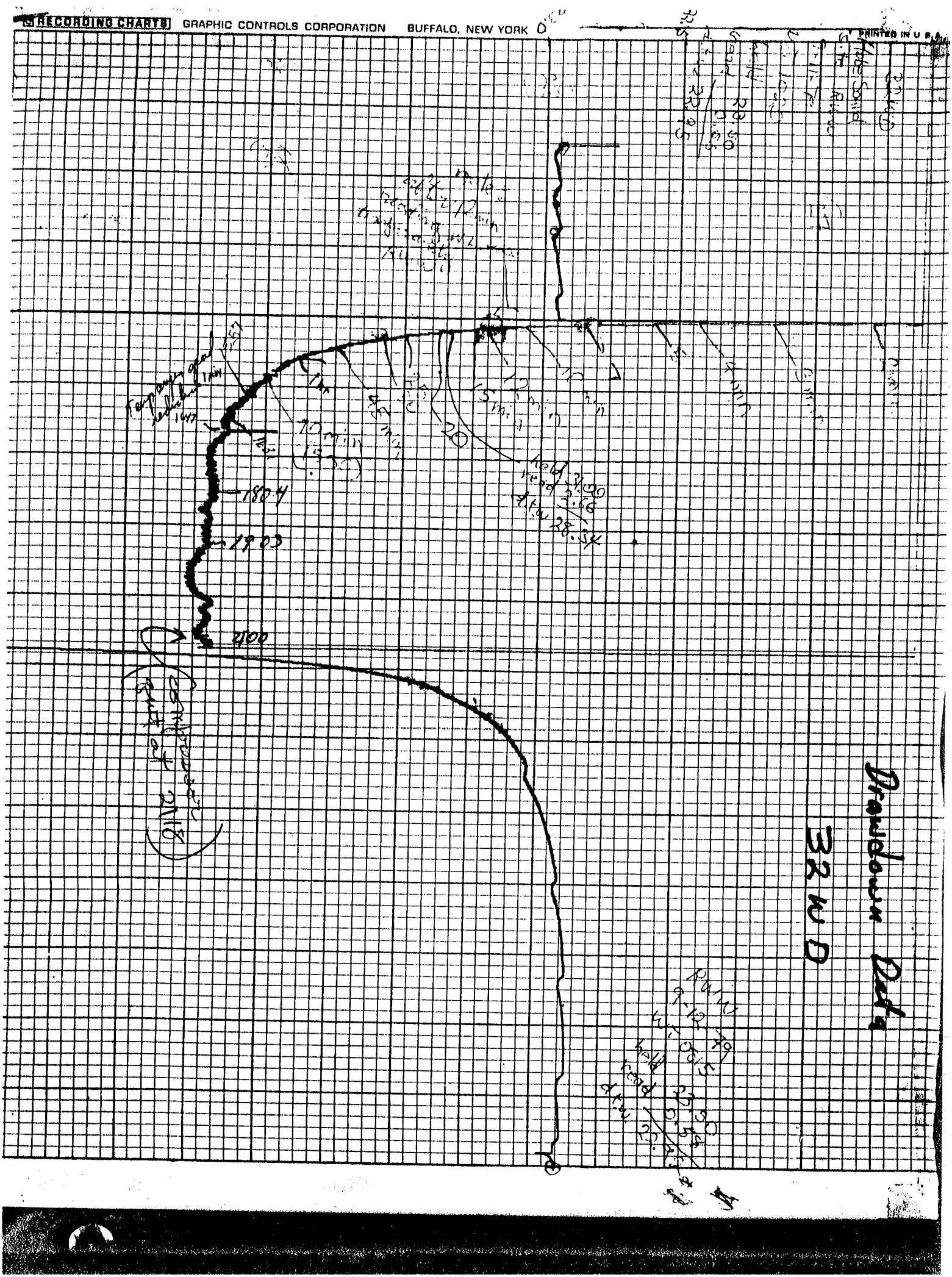
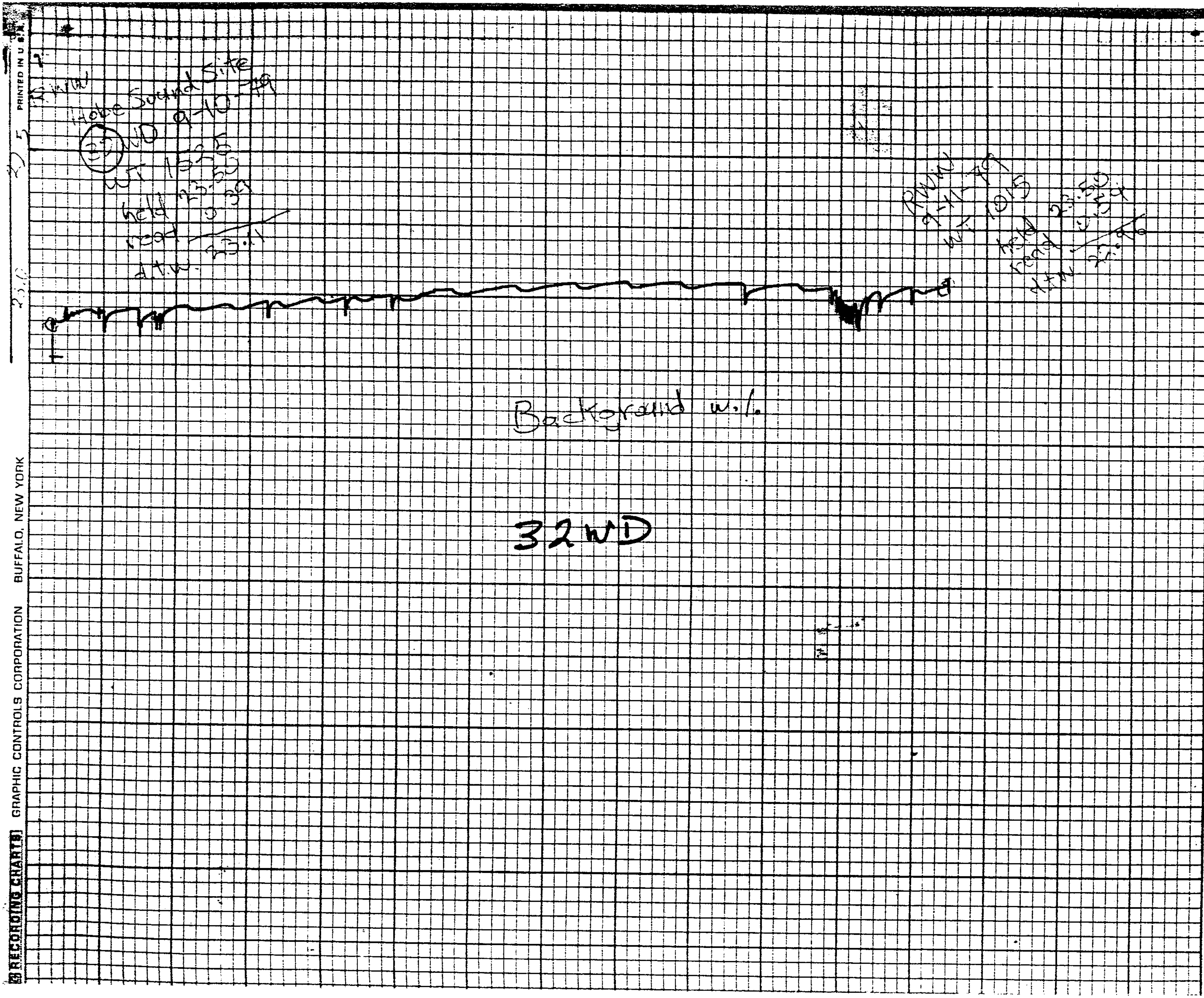
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

WATER LEVEL MEASUREMENTS (Field) Measured by _____

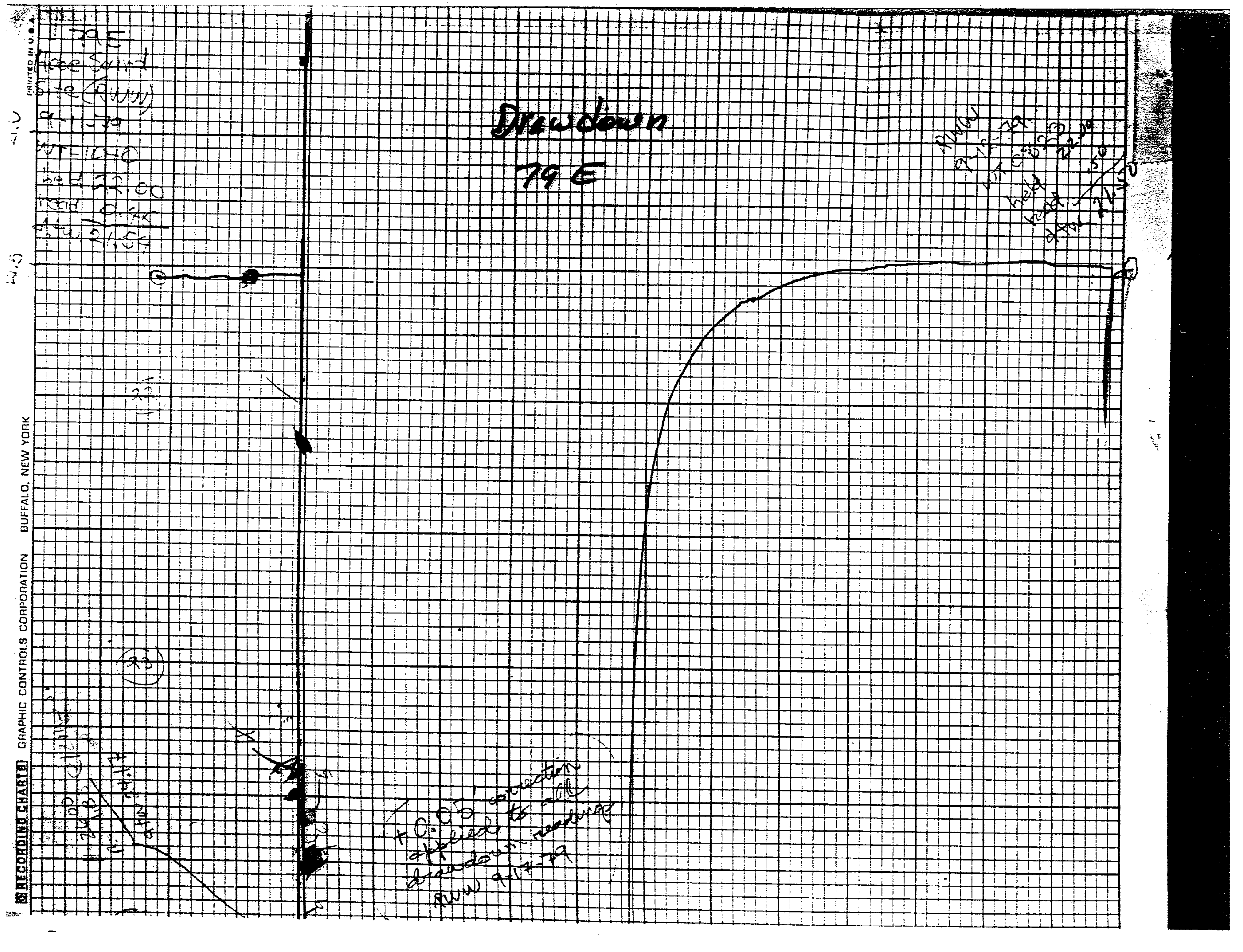
Location of Project _____

DATE	HOUR	WELL NO.	TAPE READING AT— Meas. point	TAPE READING AT— Water level	DEPTH TO WATER	REMARKS Measured by
		32WS				



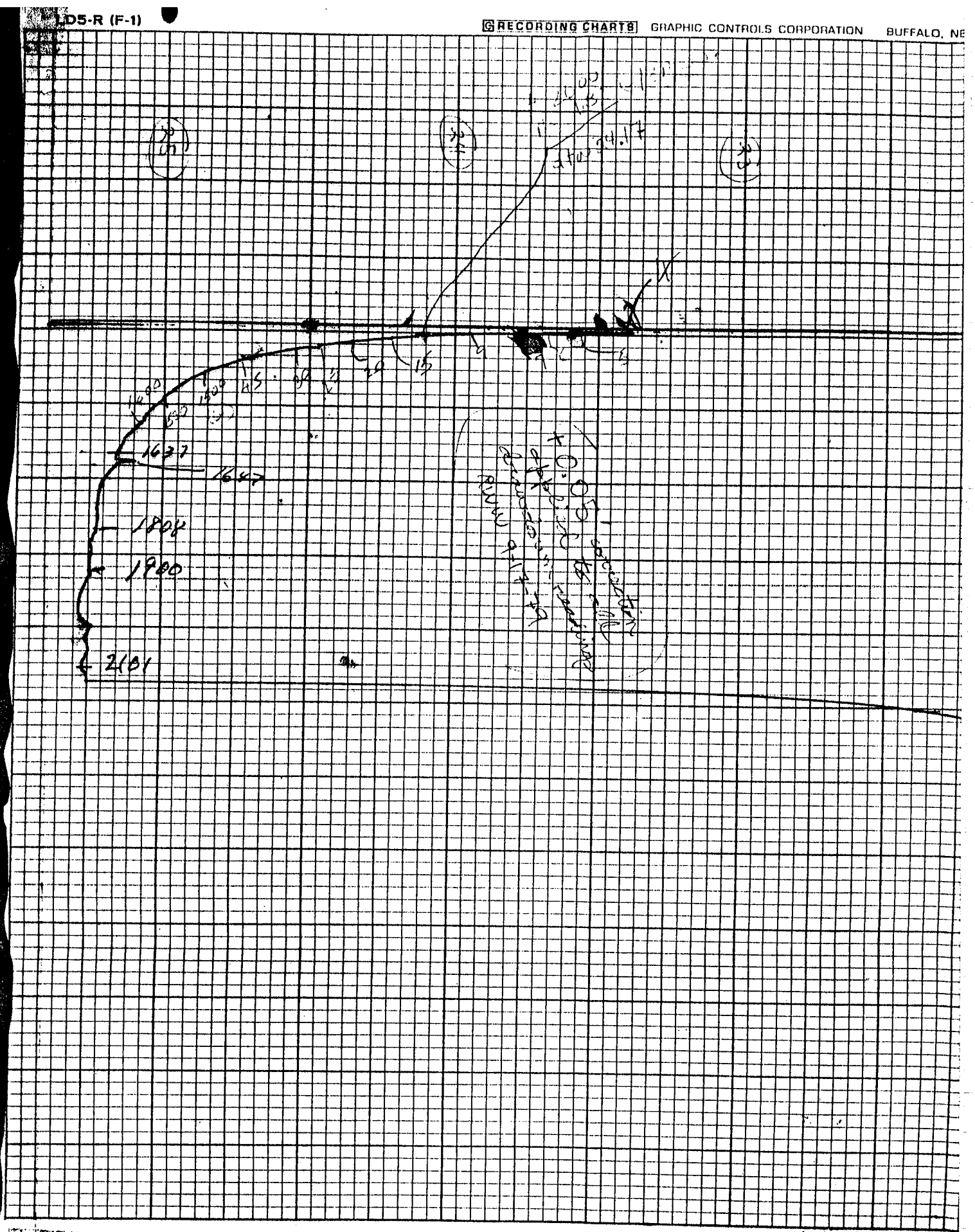


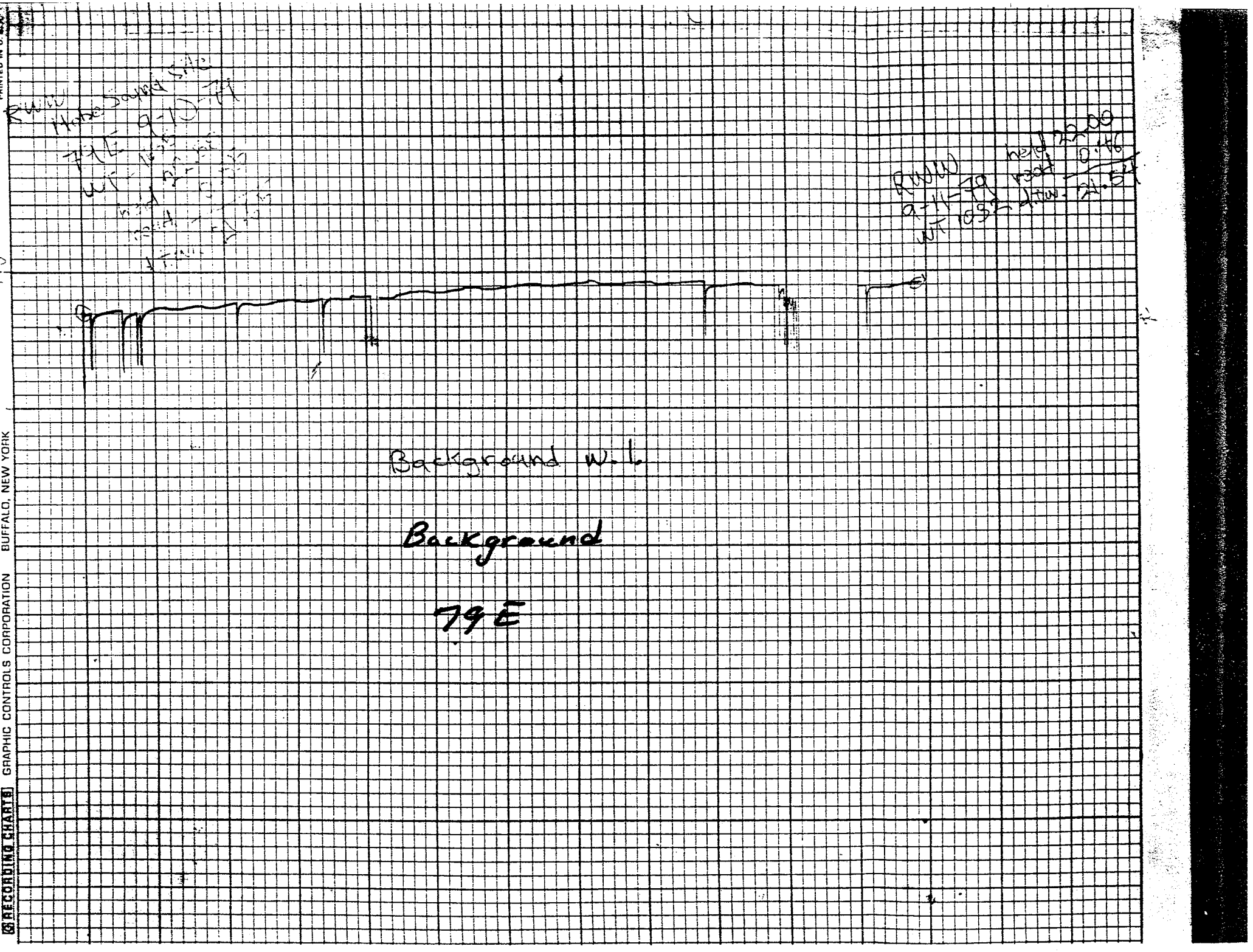
PRINTED IN U.S.A.
Hobe Sound Site
WD 9-10-79
WT 1535
held 23.50
read 0.39
d.t.w. 23.11
RWW
9-11-79
WT 1015
held 23.50
read 0.54
d.t.w. 22.96
Background w.l.
32WD
GRAPHIC CONTROLS CORPORATION BUFFALO, NEW YORK
RECORDING CHARTS

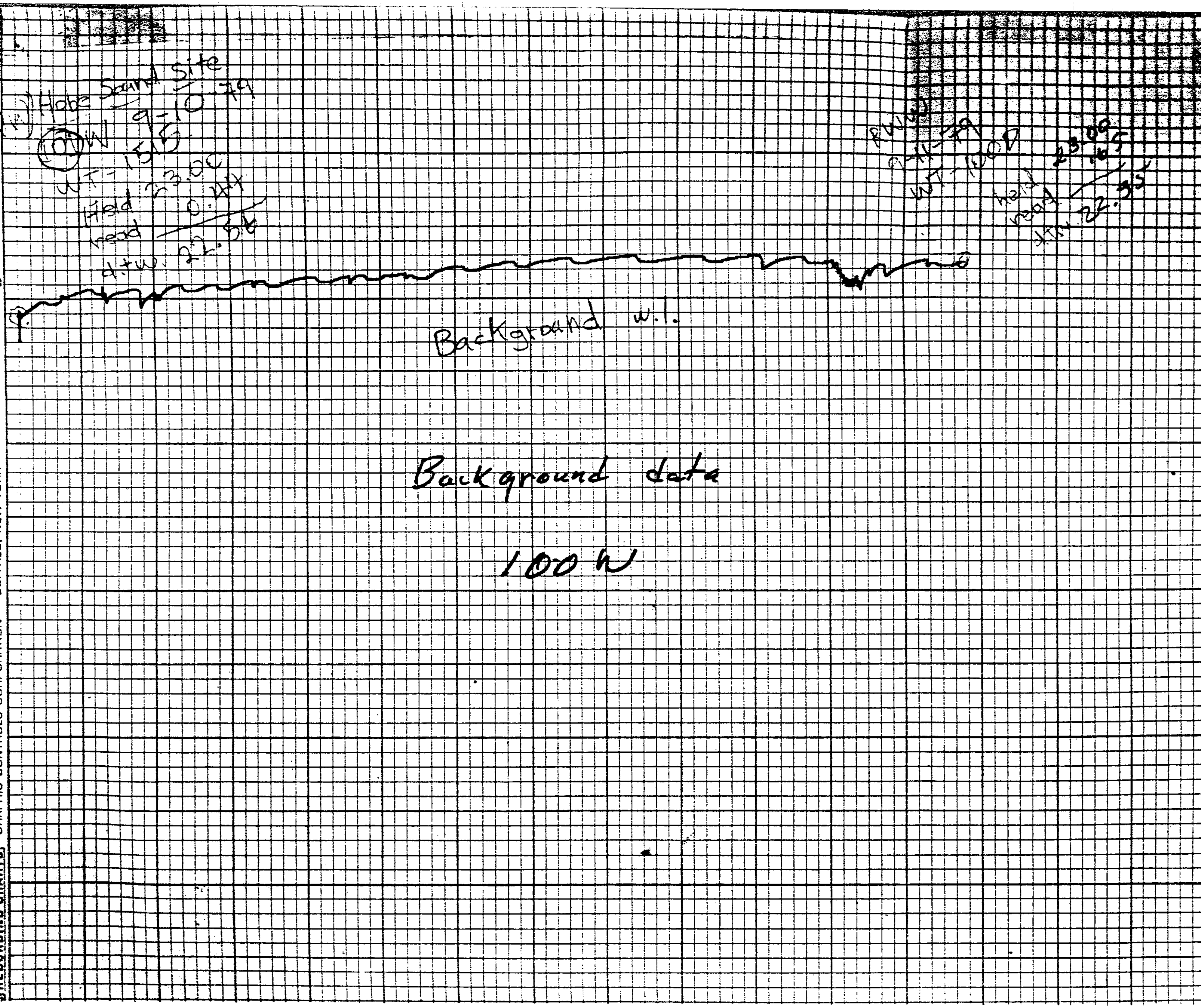


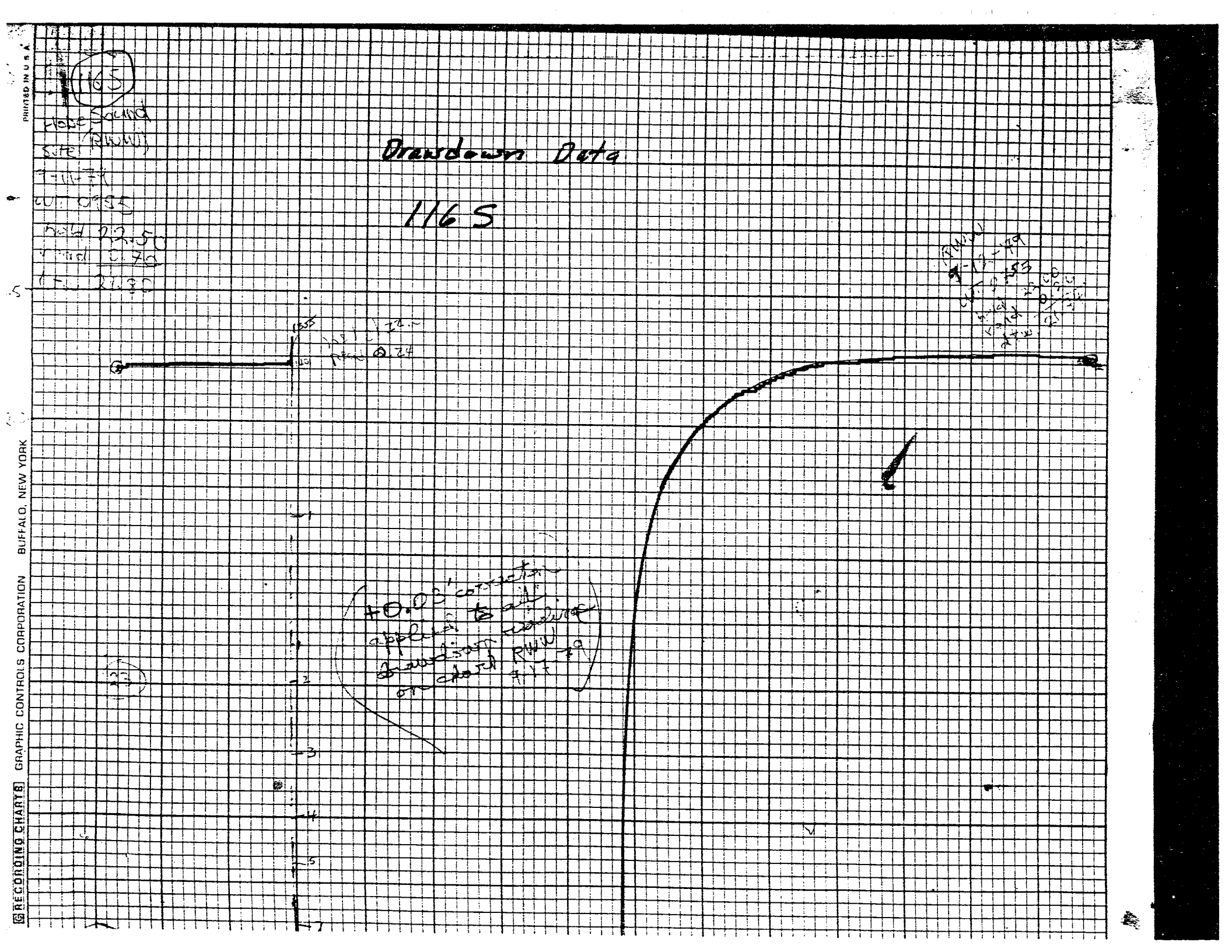
Drawdown
79 E
+0.05' correction applied to all drawdown readings
RWW 9-17-79
RECORDING CHARTS
GRAPHIC CONTROLS CORPORATION
BUFFALO, NEW YORK
PRINTED IN U.S.A.

RECORDING CHARTS GRAPHIC CONTROLS CORPORATION BUFFALO, NE



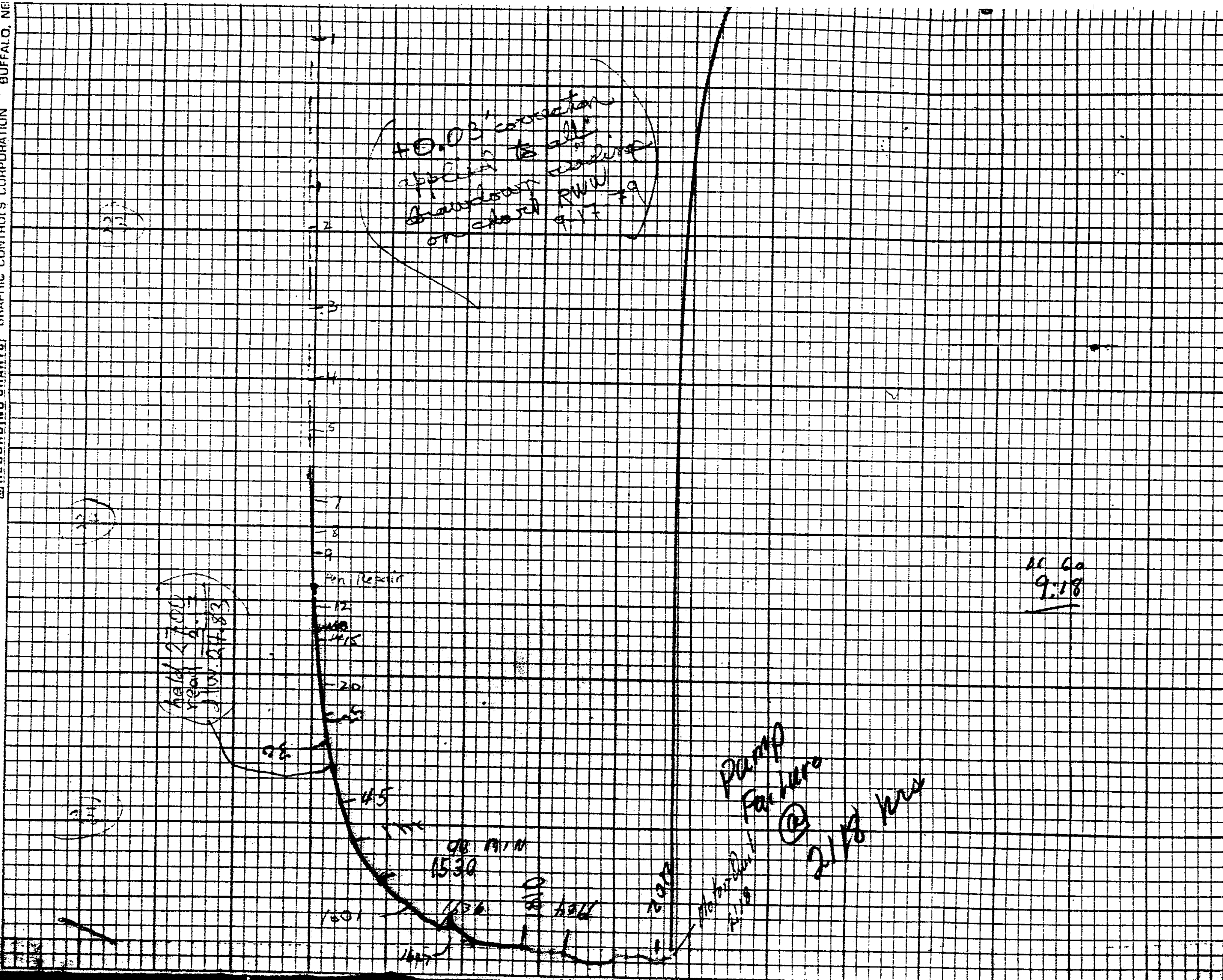

RWW
9-11-79
WT 1897
Background W.L.
Background
79 E



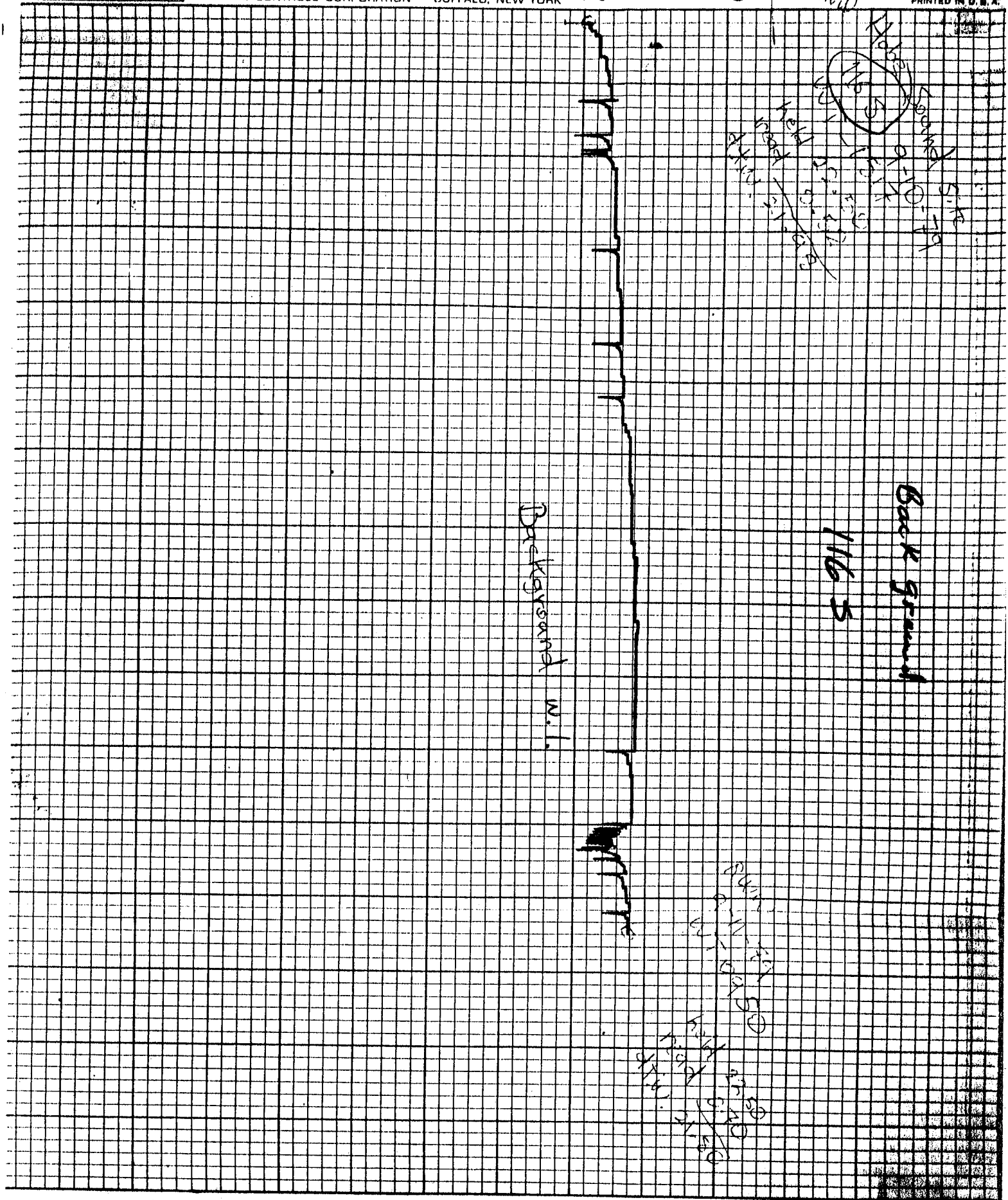

1165
Drawdown Data
1165
+0.01' correction applied to all drawdown data on chart RWW-9

GRAPHIC CONTROLS CORPORATION BUFFALO, NY

RECORDING CHARTS



LD5-R (F-1)



circular orifice
weir 6" pipe, 3" orifice

9-194
November 1969

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

Discharge ~~WATER LEVEL~~ MEASUREMENTS (Field) Measured by

Location of Project Hobe Sound Site (pumping test)

DATE	HOUR	Height in ~~WELL NO.~~ Piezometer	TAPE READING AT— Meas. point	TAPE READING AT— Water level	~~DEPTH TO WATER~~ Q gpm	REMARKS
9-11-79	1407	16			132	
	1414	16½			134	
1428	142[illegible]	16½	(Surge)		134	
	1447	16½	(Surging)		134	(5 gal per min loss in bell joint)
	1457	16.5	surging		134	
	[illegible]	16.5			134	
	1600	16.25			133	
	[illegible]	16.0			13[illegible]	
	1707	16.0			13[illegible]	
	1813	16.0			132	
	1900	16.0			132	
	2106	16.0			132	

Qave = 132 gpm

9-194
November 1969

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

WATER LEVEL MEASUREMENTS (Field) Measured by

Location of Project

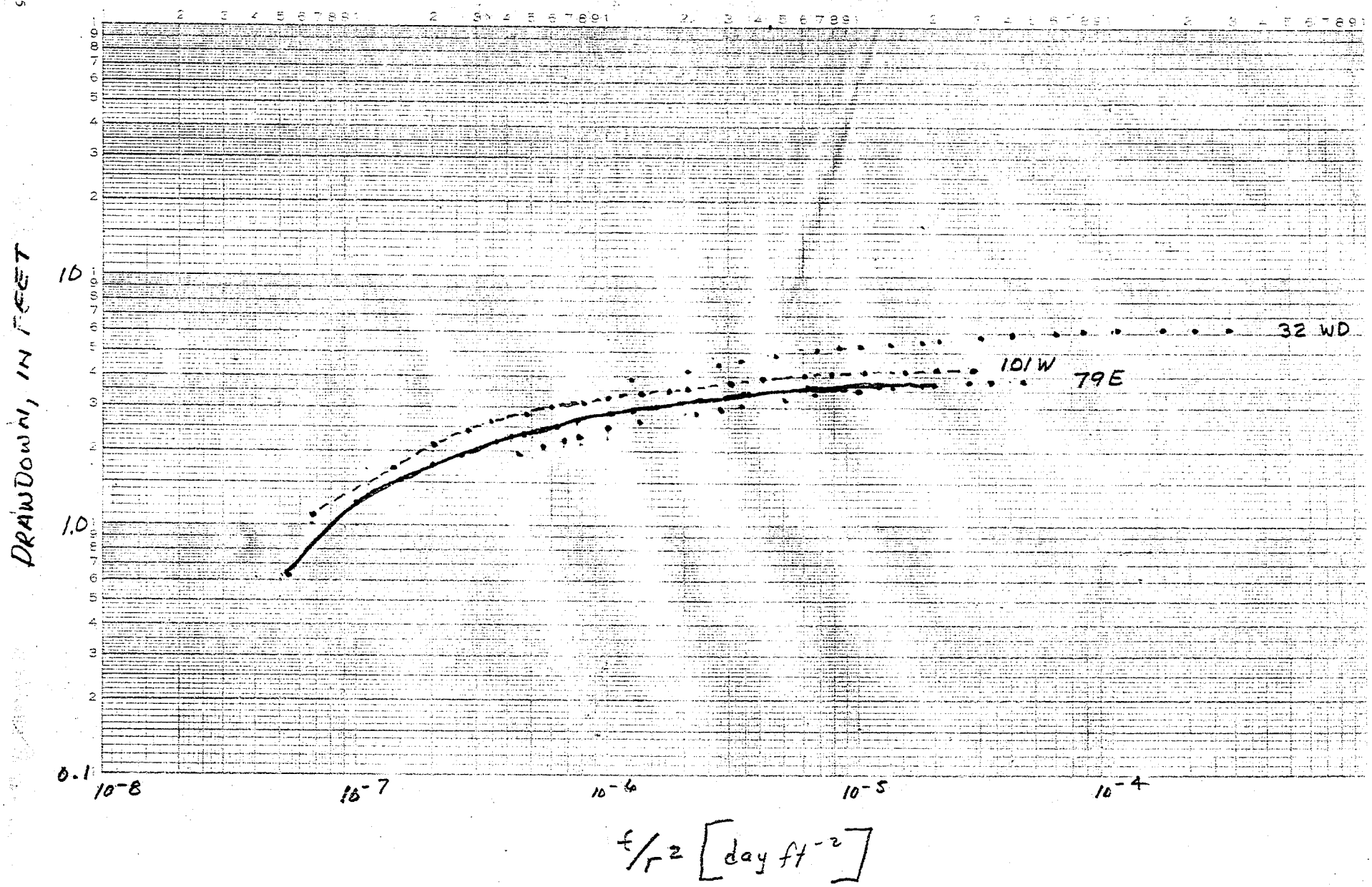
DATE	HOUR	WELL NO.	TAPE READING AT— Meas. point	TAPE READING AT— Water level	DEPTH TO WATER	REMARKS

Location Hobe Sound Test @ 1st Bapt. Church property

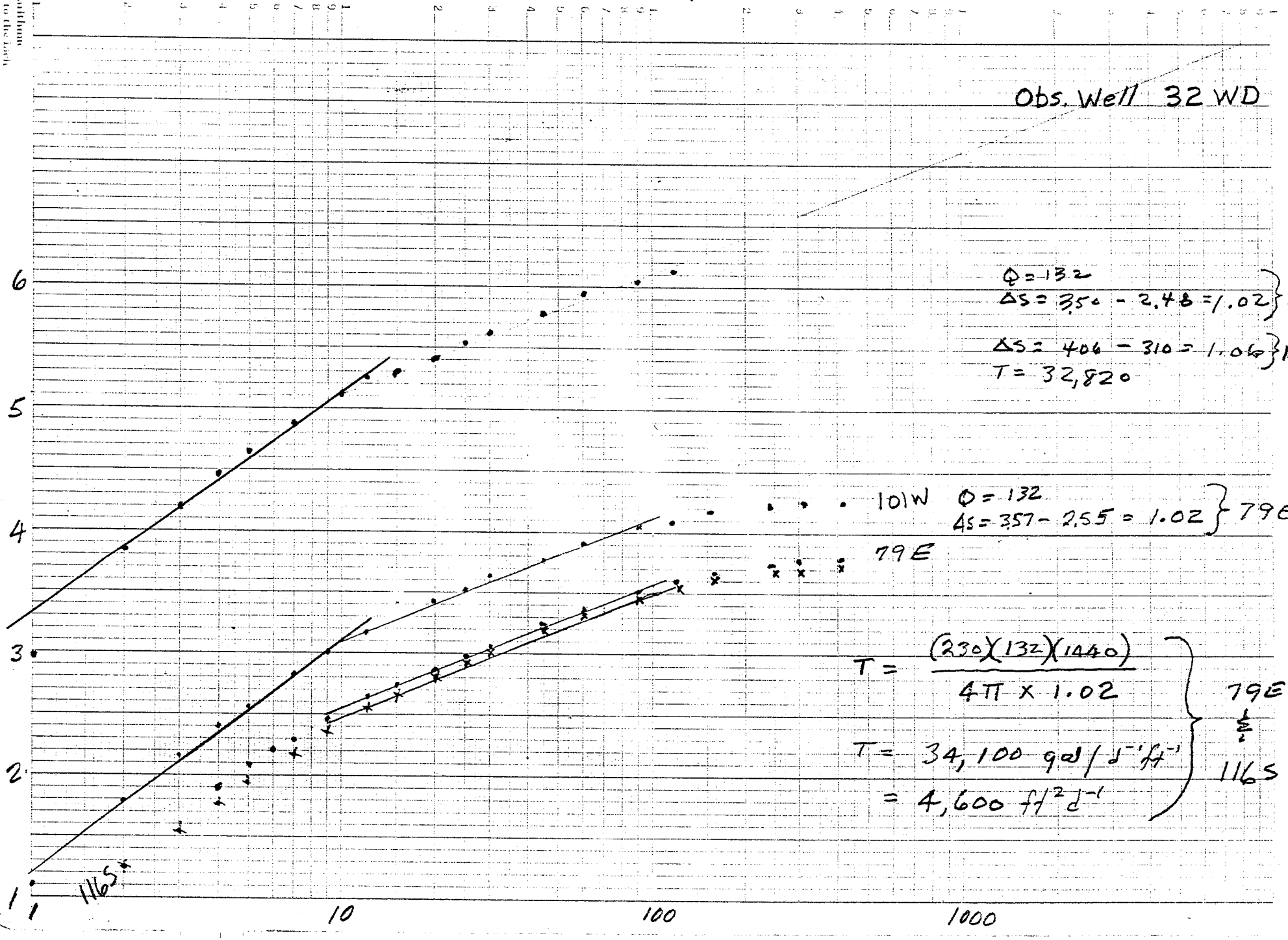
Party Ray Date start 8-28-79

Station	Drilled Depth BS	Cag Avg	screen HI	aquifer FS	Develop Avg	Standby Flow	REMARKS
HSBC-30WS	215'	87	74-89	1/2 hr	3 hrs	1 hr	
HSBC-30W D	—	~~ours~~ 105'	105-135'	1/2 hr	0	0	32 W
~~HSBC-100W~~ HSBC-116W	148	108	103-143	1/2 hr	~~2 hr~~ 3	0	~~Pulled out to Develop~~ 100 W
~~HSBC-105S~~ HSBC-116S	143	103	103-138	1/2 hr	3 hrs	0	116 S
~~HSBC-79E~~ HSBC-79E	142	107	142	1/2 hr	2 hrs	0	79 E
HSBC-1	143	107	103-138	1 hr	2 1/2 hrs	0	6 in Well PW1
HSBC-10N	75	70	70-75'	—	1 1/2 hr	0	

HOBE SOUND AQUIFER TEST, MARTIN CO, FL. SEPT 11, 1979



HOBE SOUND AQUIFER TEST, MARTIN CO., SEPT. 11, 1979



Hobe Sound Aquifer Test
Sept. 11, 1979

Jacob Method I

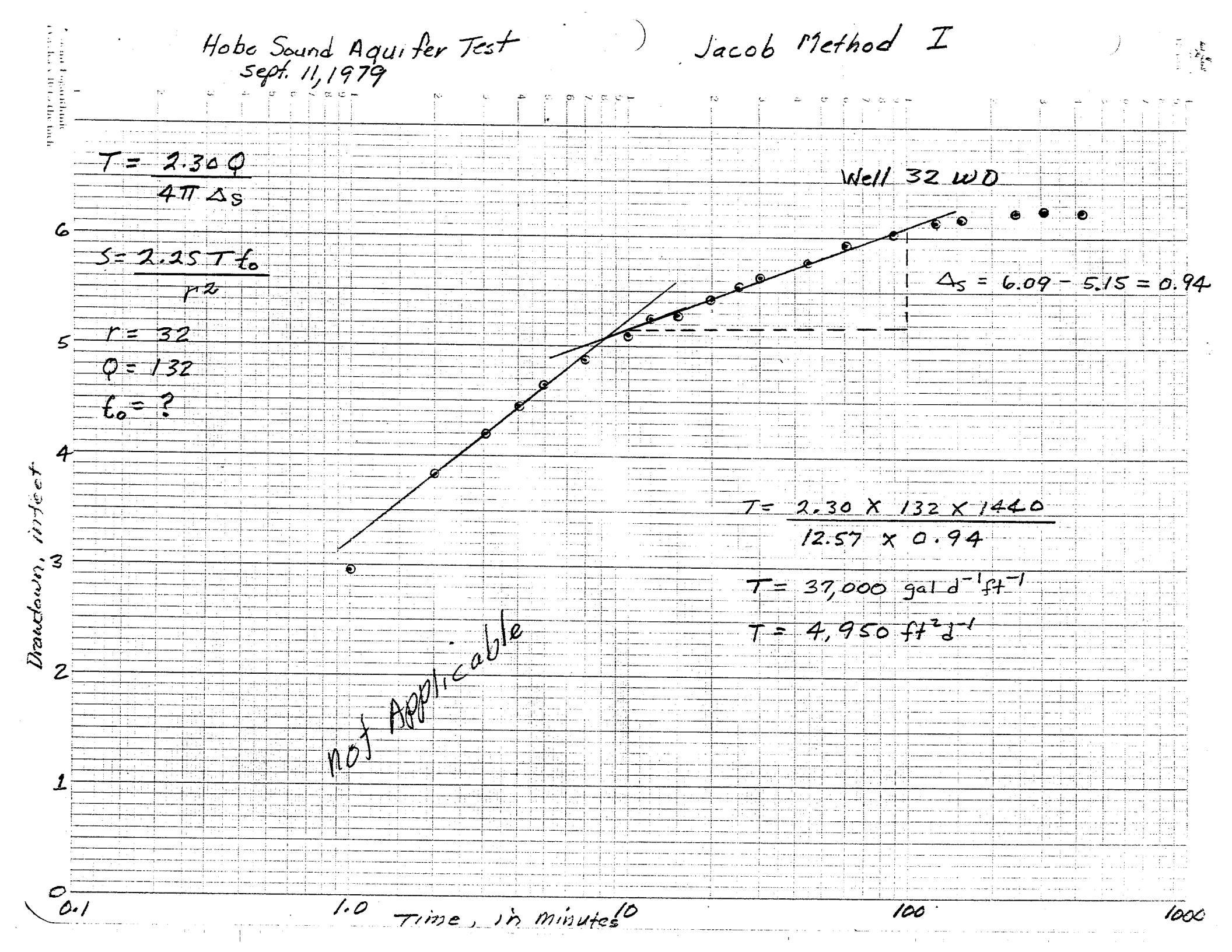
$T = \frac{2.30\,Q}{4\pi\,\Delta s}$

$S = \frac{2.25\,T\,t_o}{r^2}$

$r = 32$

$Q = 132$

$t_o = ?$



not Applicable

$T = \frac{2.30 \times 132 \times 1440}{12.57 \times 0.94}$

$T = 37{,}000\ \text{gal}\,d^{-1}ft^{-1}$

$T = 4{,}950\ ft^2 d^{-1}$

Hobe Sound Aquifer Test
Sept 11, 1979

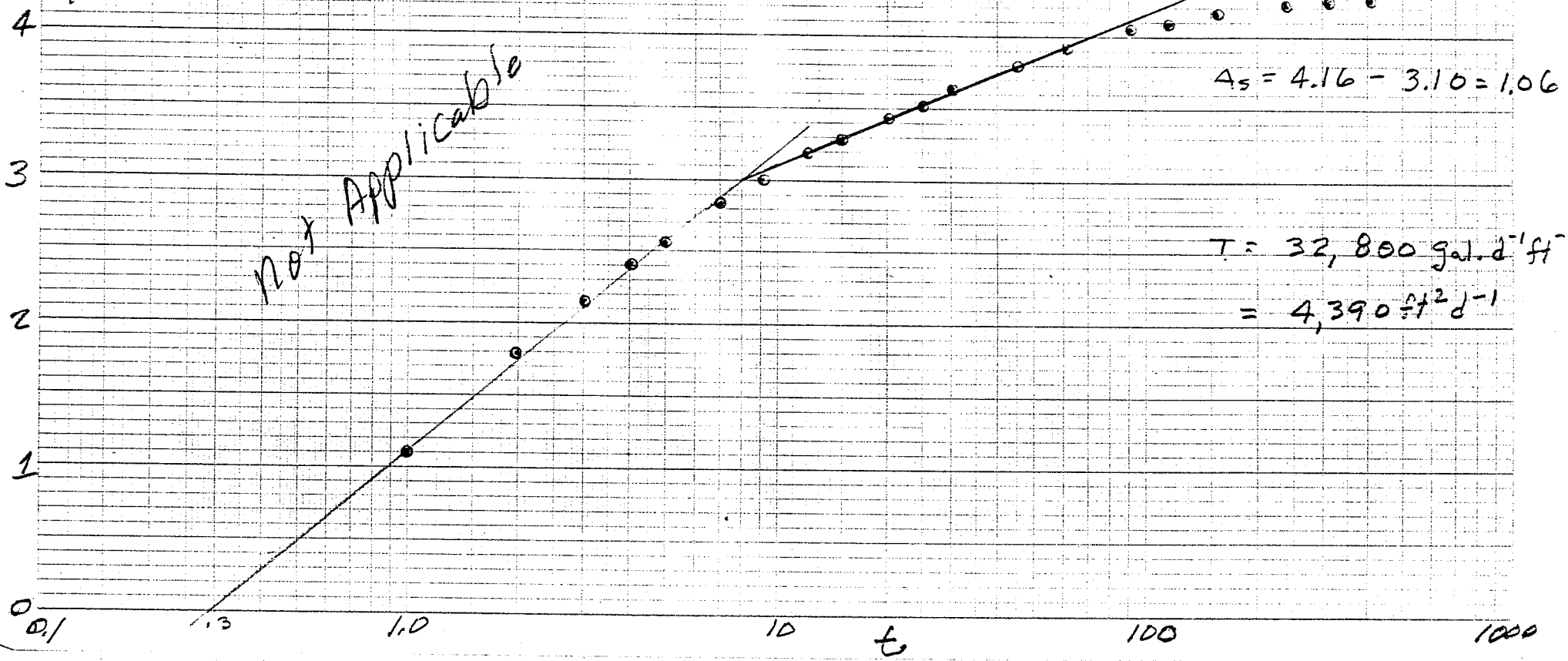
Jacob Method I

Well 101W

$T = \frac{2.30\,Q}{4\pi\,\Delta_s}$

r = 101

Q = 132



$\Delta_s = 4.16 - 3.10 = 1.06$

$T = 32,800\ \text{gal.d}^{-1}\text{ft}^{-}$

$= 4,390\ \text{ft}^2\text{d}^{-1}$

Hobe Sound Aquifer Test
Sept. 11, 1979

Jacob Method I

$T = \frac{2.30\,Q}{4\pi\,\Delta s}$

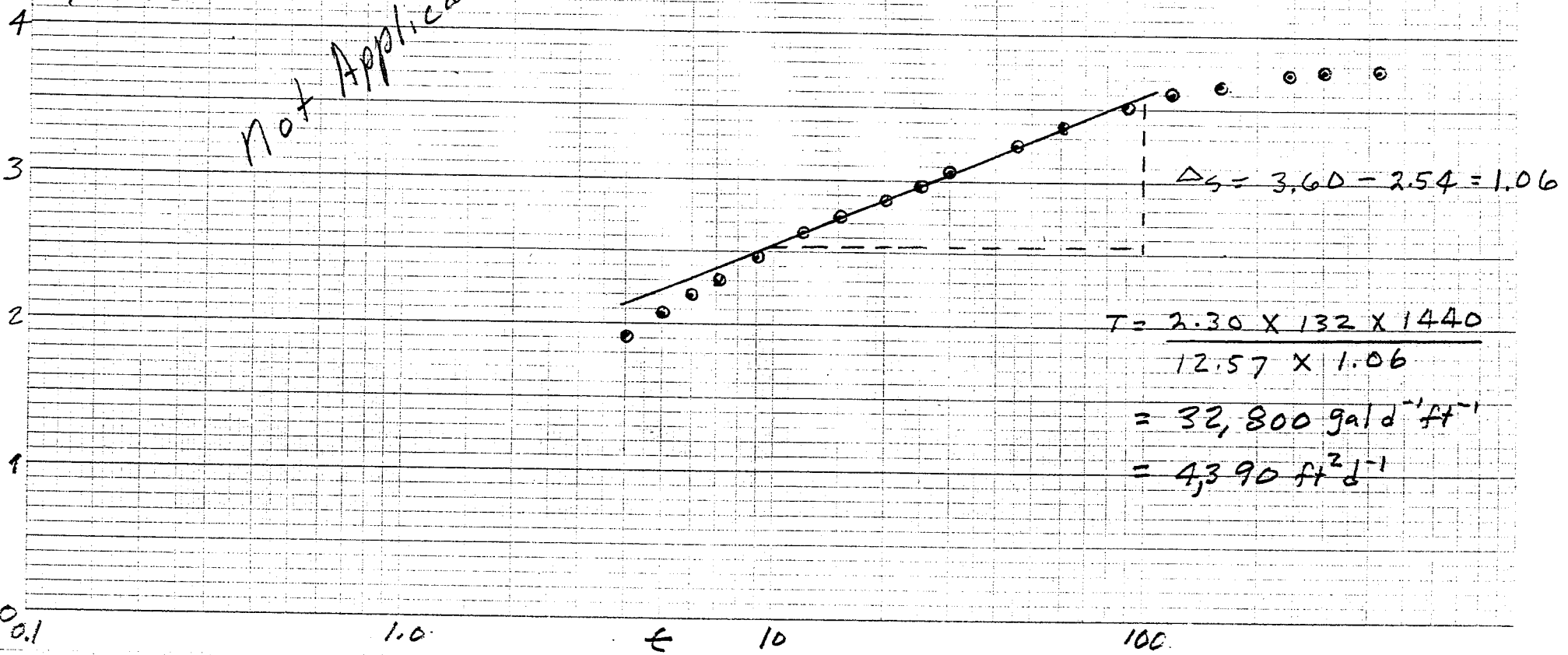
$S = \frac{2.25\,T\,t_0}{r^2}$

Well 79E

$r = 79$

$Q = 132$

not Applicable



$\Delta s = 3.60 - 2.54 = 1.06$

$T = \frac{2.30 \times 132 \times 1440}{12.57 \times 1.06}$

$= 32,800\ gal\,d^{-1}ft^{-1}$

$= 4,390\ ft^2 d^{-1}$

Hobe Sound Aquifer Test
Sept. 11, 1979

Jacob Method I

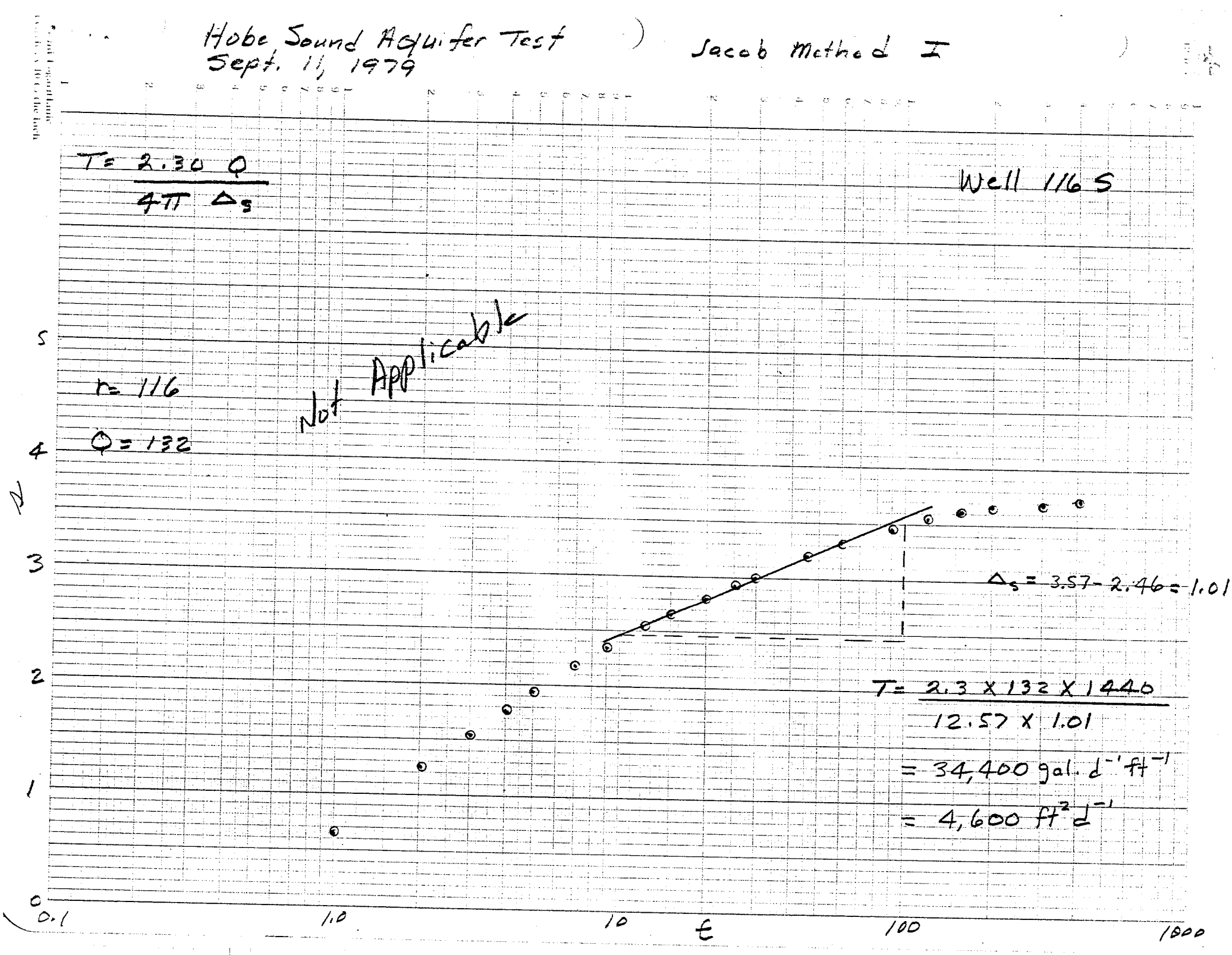
$$T = \frac{2.30\,Q}{4\pi\,\Delta_s}$$

Well 116 S

Not Applicable

r = 116

Q = 132

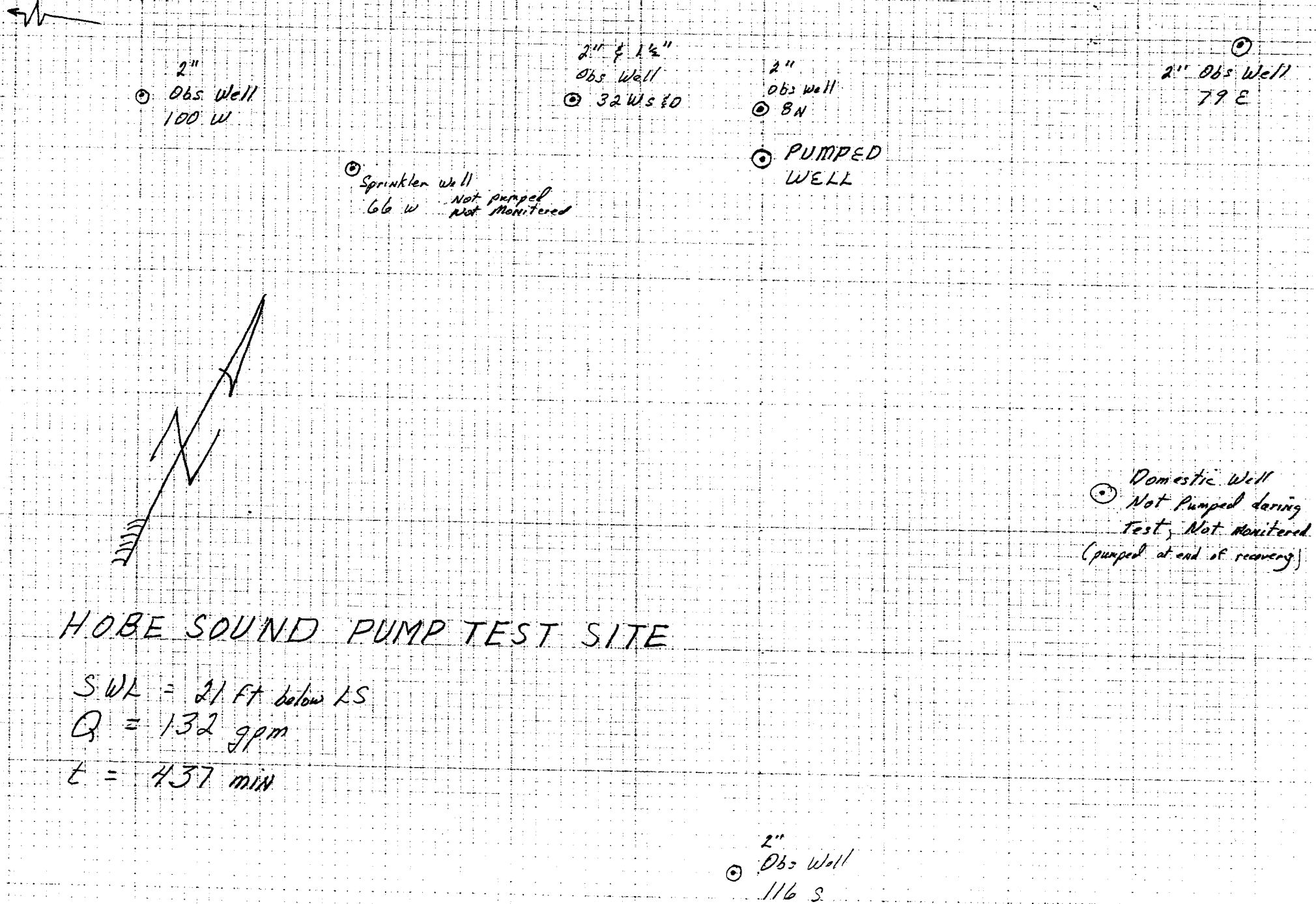


$\Delta_s = 3.57 - 2.46 = 1.01$

$$T = \frac{2.3 \times 132 \times 1440}{12.57 \times 1.01}$$

$= 34{,}400$ gal. $d^{-1} ft^{-1}$

$= 4{,}600$ ft^2 d^{-1}



HOBE SOUND PUMP TEST SITE

SWL = 21 ft below LS

Q = 132 gpm

t = 437 min

⊙ 170'±

Domestic Well
open end @ 63ft
Pumped during test

2"
Obs Well
100 W

2" ± 1½"
Obs Well
⊙ 32 W S 40

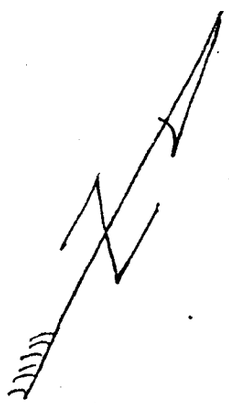
2"
Obs Well
⊙ BN

⊙ PUMPED
WELL

⊙ Sprinkler well
66 W Not pumped
Not monitored

Domestic well
Not Pumped

2" Obs Well
79 E



⊙ Domestic Well
Not Pumped dur.
Test; Not monito

HOBE SOUND PUMP TEST SITE

SWL = 21 ft below LS
Q = 132 gpm
t = 437 min

⊙ 2"
Obs Well
116 S

Hobe Sound Aquifer Test

Hantush — Jacob Solution

by G.W. Hill

Computations are on the curve sheet

	Transmissivity	Storage Coefficient
100W	2,020 ft²/d	1.6×10^{-4}
116S	2,020 ft²/d	1.2×10^{-4}