FORT PIERCE INTERCHANGE AQUIFER TEST REPORT

BY: GEORGE W. HILL

I. Summary

A. Location. -- St. Lucie County, Florida, Township 35 South, Range 39 East, NE¼ Section 26. Jupiter Field Headquarters Office.

B. Dates. -- August 23-25, 1979

C. Length. -- Pumping: 22.7 hours; recovery 18.3 hours.

D. Discharge. -- 163 GPM

E. Hydraulic Coefficients. -- Transmissivity -- 1,600 ft^2/d (rounded)
Storage Coefficient -- See Page 5

F. Analytical Model. -- Hantush-Jacob (Leaky artesian, nonsteady flow)

G. Remarks. -- T values computed from three observation wells were virtually the same and at the same time, in the same range with values computed using Boulton's delayed yield model (1,700 ft^2/d, rounded).

II. Narrative

A. Introduction

1. Test Purpose. -- To determine the transmissivity and if possible, determine the storage coefficient of the best producing zone of the so-called shallow aquifer. This test is part of a reconnaissance study of the aquifer properties as a part of Project FL-268, called The Upper East Coast Planning Area which includes Martin and St. Lucie Counties and the eastern edge of Okeechobee County, Florida.

2. Personnel. -- The test was conducted by Ralph Wilcox, Bill Long, Mike Dooley and Jay Wendorf - all on the Jupiter Field Office staff. Test analysis, computation and report were done by George W. Hill and reviewed by Fred Meyer of the South Florida Subdistrict.

B. Physical Aspects

1. Site Location. -- The test site is in Township 35 South, Range 39 East, in the northeast quarter of Section 26, about five miles southwest of downtown Fort Pierce in southwest corner of the intersection of the Florida Sunshine Parkway and State Road 70 (Exhibit I).

2. Test Drilling and Geophysical Logging. -- Prior to the installation of the well network, a test well was drilled to the base of the shallow aquifer; cuttings were logged and examined. Geophysical logs, including spontaneous potential, resistivity and gamma, were run (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 production well and all observation wells except one were screened in a zone consisting mainly of slightly cemented to cemented sand, shell, and sandstone, with some clay streaks near the top and bottom of the screened zone. The screened zone is overlain with sand and shell mixed with clay lenses (54-67 feet) and is underlain with green, dry clay (Exhibit III). The gamma logs seem to indicate the pumped zone to have much less clay than the beds above and below.

4. Well Descriptions. -- The production well was finished with a 6-inch ID PVC pipe to a depth of 110 feet and screened from 70 to 110 feet with wire wrapped underbar construction PVC screen with 0.030 slots.

Four 2-inch ID PVC wells were installed and used in the test for observation wells. Pertinent well data is shown in the table below.

Well No.	Radius, in Feet	Drilled Depth in Feet	Screened Interval in Feet
60N	60	123	70-110
200W	200	111	70-110
30S	30	123	72-112
100S	100	117	72-112
300S	300	113	72-112
30SH	30	30	Open Hole

See Exhibit II

5. Instrumentation. -- Four Keck/Stevens water-level recorders for recording drawdown data on analog charts. Steel tapes were used for collecting water-level data from other wells. A Weather Measure, Model B201 barograph was used to record barometric pressure during the test.

6. Pump. -- The production well was pumped with a 4-inch centrifugal pump.

7. Measurement of Drawdown. -- Chart records are good with only minor adjustments of pen trace to taped measurements. The recorder on well 60S malfunctioned at the beginning of the test, but was made functional after 40 minutes into the test. The drawdown for the early time was measured with a tape. No adjustments were made to the water-level data for barometric pressure or water-level fluctuations. Please see Exhibit VII.

Shallow well 30SH was jetted in several hours before the beginning of the test by the use of approximately 600 gallons of water to a depth of 30 feet. Water levels taken before, during and after the test show a steady decline. If this decline were the result of pumping, then it should show recovery after the pump stopped. The falling W-L was probably the result of discontinuation of injecting water in the hole construction process. (Exhibit VII, Item 6).

8. Discharge. -- The production well was pumped at approximately 163 GPM. Discharge steadily declined from 194 GPM at the beginning of the test to 157 GPM at the end. The pumping rate was measured with a circular oriface weir (6-9nch pipe, 2-inch orifice) with a piezometer mounted in the side of the weir. Pumping data is shown in Exhibit V.

A 6-inch aluminum pipeline was used to route the pumped water 600 feet south into a ditch draining into Ten Mile Creek below the saltwater barrier in the southeast quarter of Section 26 about 1700 feet from the pumped well.

9. Potential Recharge Boundaries. -- Ten Mile Creek, which is elevated by a control structure (see above), is located within 2000 feet on the west side and 1700 feet on the south side of the production well. A small pond is located about 1000 feet northeast of the production well and another is located about 1200 feet to the west. No staff gages or recording equipment were installed at these sites and no water-level data was recorded.

C. Computations

1. Computations are included in Exhibit VIII. Three solution methods were considered - Hantush-Jacob solution for a leaky confined aquifer with vertical movement; the Boulton solution for delayed yield in an unconfined aquifer with vertical movement and the Bound[illegible] Aquifer Method after Stallman.

2. Type Curve Solutions. -- Transmissivity values computed using all three of the afore mentioned methods are in the same general range. Log-log plots of drawdown versus time (or $\frac{t}{r^2}$ when applicable) can be fitted to each of the three families of type curves reasonably well. The average T value computed for each of the three methods are shown below.

Method	No. of Wells	T Value, ft^2/day
Hantush-Jacob	3	1,630
Delayed Yield	3	1,700
Image Well Theory	4	1,860

The test was too short to verify a delayed yield response.

The following image well computations were done to determine the existance of a recharge boundary from adjacent surface water bodies:

Obs. Well	s-ft.	t_R-min.	t_i-min.	r-ft.	r_i-ft.
100S	2.0	1.1	600	100	2335
200W	2.0	5.6	600	200	1922
300S	1.0	6.5	300	300	2038

These calculations indicate the image well location to be approximately 2000 feet from the pumped well. Therefore the boundary would be estimated at half this distance which does reach the nearest surface water body located about 700 ft. northeast of the pumped well.

Although no water-level data was obtained on the pond to the northeast, it is possible for recharge to affect the test. The type curve fits are good for wells 100S, 200W and 300W.

On the other hand, the lithologic and geophysical logs indicate the presence of, at least a semiconfining bed above the pumped zone. This suggests a leaky artesian situation that seems prevalent in the study area. It is unfortunate that the shallow well (30SH) did not function properly (continued to recede after pump stopped).

3. Transmissivity. -- Use the average of the Hantush-Jacob method which is 1,630 ft^2/day. If the image well theory is correct, than the T value would be 1,860 ft^2/day.

4. Storage Coefficient. -- Storage Coefficient computed on the basis of Hantush-Jacob Method (leaky artesian, nonsteady flow) are as follows:

Well No.	Storage Coefficient
100S	7.1×10^{-5}
200W	1.1×10^{-4}
300S	3.6×10^{-4}

5. Leakance = 6.0×10^{-4}

Identification No. 272427 0802403.02 Other No. FP-1

County St. Lucie Lat-Long 272427 N0802403.02

Twp 35S Rg 39E Sec 26 a ad Date 7/17/79

Location Pumped Well - Turnpike Test Ft. Pierce
LS = 17 ft.

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

Depth	Time	Hardness	Description of Formation
0-2	1050	Soft	Sand, fine, light gray.
2-16		Soft	Sand, fine to medium - tan to brown.
16-19		Soft	Sand, fine to coarse, 20% (silica quartz).
19-22	1107	Soft	Muck, black, fine sandy with coarse quartz 10%.
22-25	1118	Soft	Muck, black, fine to coarse sand, clayey, tough.
25-32		Soft	Shell, broken to small whole, gray black to brown with fine to coarse silica sand.
32-42	1140	Med.	Limestone, with broken shell and sand, loosely cemented.
42-51	1150	Med.	As above.
51-54		Med.	As above with small whole shell and clayey sand.
54-62	1205	Med-Soft	Sand and shell mixed with gray clay streaks (50%) Stopped - mixed mud.
62-67	1330	Soft	As above with very few thin clay streaks.
67-82	1346	Med.	Sand and shell slightly cemented with 30% clay streaks.
82-85	1350	Med.	As above.
85-92		Med with hard streaks	Sand and shell cemented - no clay.
92-102	1418	Med w/hard streaks	Sand and shell cemented - a little clay (gray, sandy).
102-112	1424	Same	Sand, shell and sandstone streaks, gray, sand is very fine to fine, sandstone is same, shell small, broken.
112-115	1434 1438	Same	Clay, sandy, greenish, dry.

Identification No. _____ Other No. FP-60 W

County St. Lucie Lat-Long 272427 0802403.05

Twp 35S Rg 39E Sec 26 aad Date 7/19/79

Location Near SSP interchange in Ft. Pierce

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

Depth	Time	Hardness	Description of Formation
0-3	0835	Soft	Sand, fine to medium, gray white.
3-7		Soft	Sand, fine to medium, orange (yellow rust).
7-20		Soft	Sand, fine to coarse, brown, organic layer at 13 to 14 feet.
20-21	0845	Soft	Clay, black fine sandy 30% (muck).
21-25	0852	Soft	Clay, black, fine to coarse sand.
25-41	0858	Med.	Loose, cemented shell and sand, gray dark.
41-47	0904	Med.	As above - a "dirty looking formation". Formation turned to tan at 39 feet.
47-62	0907	Soft	Sand and shell, small broken shell, fine to med. sand 50% drilled real fast, loose.
62-82	0924	Med. to	Sand and shell as above, slightly cemented from
	0928	Soft	63' to 67' then loose shell small to large broken.
82-89	0932	Soft	As above.
89-91		Hard	Sand and small shell, cemented.
91-102	0940	Med.	Sand and broken shell, slightly cemented drilled nice (good formation).
102-110	0948	Med.	As above, a little marly chay light gray.
110-119	0955	Soft	Clay, sandy, greenish.
119-121		V. Hard	Sandstone, clay, dark green.
121-125	1015	Med.	Sandy clay, green.

Identification No. _____ Other No. FP-100 S

County St. Lucie Lat-Long 272427 0802403.03

Twp 35S Rg 39E Sec 26 aad Date 7/18/79

Location On Gordy Rd. nearest Turnpike Interchange at Ft. Pierce

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

Depth	Time	Hardness	Description of Formation
0-3	1130	Soft	Sand fine, white.
3-8		Soft	Sand, clayey, yellow rust.
8-14		Soft	Sand, fine.
14-15		Soft	Muck layer.
15-19		Soft	Sand, fine to very coarse 20% (clear quartz sand).
19-20	1137	Soft	Muck, black with sand.
20-23	1141	Soft	Mick, black with sand.
23-36		Soft	Shell, broken small (Beach deposits dark to tan).
36-42	1150	Med.	Limestone, sandy tan to gray.
42-53	1208	Med.	Shell, broken to small whole, tan to gray, little fine gray sand.
53-58		Med.	Clay, blue gray light, mushy but smooth.
58-62	1220 1225	Med.	Shell, broken to small whole, cream to light gray, little sand.
62-82	1223	Med	Sand and shell, tan.
82-102	1258 1306	Med.	Shell, fine, broken, with some sand, tan to gray, increasing in cemented nodules dark gray and large broken shell.
102-112	1311	Med.	As above.
112-117	1318	Med.	Silt and sandy clay, light green-gray (dry).

Identification No. _____ Other No. FP-200 W

County St. Lucie Lat-Long 272427 0802403.06

Twp 35S Rg 39E Sec 26aad Date 7/20/79

Location Near SSP Interchange in Ft. Pierce

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

Depth	Time	Hardness	Description of Formation
0-2	0910	Soft	Sand, fine white.
2-6		Soft	Sand, fine to medium, yellow orange.
6-17		Soft	Sand, clayey, light gray to tan.
17-20		Soft	Sand, fine to coarse, brown.
20-21	0915	Soft	Sand, clayey, dark gray to black.
21-26	0921	Soft	Sand, clayey, dark gray to black.
26-31		Med. Hard	Limestone sandy, dark gray to brown.
21-42	0930	Soft to Med.	Sand and shell, loose to slightly cemented with 6" to 1 ft. sandy clay lenses alternating with 2 ft. sand and shell beds.
42-63	0940 0948	Soft	Shell and sand, thin layers of clay, gray.
63-84	1010 1015	Soft	Shell and sand, thin layers of brown to light gray clay.
84-88	1023	Soft	As above.
88-90		V. Hard	Sandstone, real hard, olive color.
90-104	1037	Soft	Shell, broken and sand, fine to med. with small gray nodules (a few).
104-109	1055	Med. Soft	Sandstone, silty, (salt and pepper look).
109-111	1100	Soft	Sand, fine and clay, sandy; light green.

Identification No. _____ Other No. FP-300 S

County St. Lucie Lat-Long 272427 0802493.04

Twp 35S Rg 39E Sec 26 aad Date 7/19/79

Location Near SSP Interchange in Ft. Pierce.

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

Depth	Time	Hardness	Description of Formation
0-12	1435	Soft	Sand, clayey, light gray.
12-13		Med.	Sand, clayey, light gray, black with organic.
13-17		Med.	Sand, clayey, brown.
17-20	1445	V. Soft	Sand, fine to coarse, light gray.
20-22		Soft	Clay, sandy, black, tough.
22-25	1450	Med.	Shell, cemented sandy, gray to tan.
25-37		Med. Hard	Shell, cemented, sandy, brown to tan.
37-42	1500	Med. Soft	Shell and sand, loose.
42-50	1508	Med. Soft	Same as above.
50-56	1513	Soft	Clay, sandy, blue green.
56-62		Med.	Shell 60% and sand, fine to med; shell small to med. whole, tan and gray.
62-74	1516	Med.	Shell and sand with clay layers, shell is broken large to small, whole and broken, sand is fine to medium.
74-79	1523	Soft	Clay, fine sandy.
79-85	1526	Soft	Shell fine broken to small whole loose.
85-87		Soft	Sand and shell slightly cemented but drills.
87-89		Med.	As above cemented very hard streaks 87-88.
89-102	1535	Hard	Loose, with sandstone layers thin and very thin clay, lenses light gray.
102-105	1540		Loose as above, also dark gray.
105-109			Silty sand and loose, murky.
109-113	1545		Clay sandy, green.

Identification No. _____ Other No. FP-30S

County St. Lucie Lat-Long 272427 0802403.01

Twp 35S Rg 39E Sec 26 aad Date 5/22/79

Location Near Ft. Pierce SSP Interchange.

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

Depth	Time	Hardness	Description of Formation
0-2	1556	Soft	Sand, fine, light gray.
2-6		Soft	Sand, clayey, rust colored, fine, little gray mottled.
6-10		Soft	Sand, fine clayey, pink to gray mottled.
10-14		Soft	Sand, fine brown.
14-19	1605	Soft	Sand, fine clayey.
19-27	1608	Soft	Black organic layer, sandy (hard pan).
27-36		Med. to hard streaks	Shell fragments, tan to gray cemented in sandy matrix (quartz sand 20%).
36-40	1614	Med. Soft	Shell 70%, broken with fine sand 30%, brown.
40-44	1616	Med. Soft	Shell, broken with clayey sand (gray) lenses (using a little water).
44-51	1630	Med. Soft	Shell, broken with fine sand, brown to tan.
51-66	1633	Med. Soft	Same as above with clay lenses greenish gray, smooth.
66-71	1638	Med. Soft	Same as above, no clay.
71-81	1642	Med. Soft	Same as above with tan clay, a little very fine sand.
81-85	1652	Med. Soft	Shell, broken with very fine sand, tan with thin
85-88		Med.	cemented streaks.
88-96	1711	Med.	Sand 70%, very fine to medium with broken shell, gray.
96-99	1714	Med.	As above.
99-104	1725	Hard	Sand fine, and shell, broken with a little clay in streaks.
104-110		Hard	Sandstone, fine grained gray (calcite cemented).
110-116		Soft	Sand 70% very fine to medium with fine broken shell.
116-120	1734	Med.	Sandy clay, with broken large shell 10% greenish gray (salt and pepper look) phosphatic (Tamiami).
120-126	1740	Med.	Clay, sandy dark green (balls in sieve).
	1745		

Fort Pierce Interchange

U. S. GEOLOGICAL SURVEY — WELL LOG

WELL NUMBER 27 2427 0802403 DS (latitude-longitude) LOCAL* _____ COUNTY St. Lucie

OWNER OR NAME _____

LOCATION T 35S R 39E SEC 26, SE 1/4 NE 1/4 NE 1/4

WELL DEPTH 125 ft., CASED 122 ft., DIAMETER 2 in.

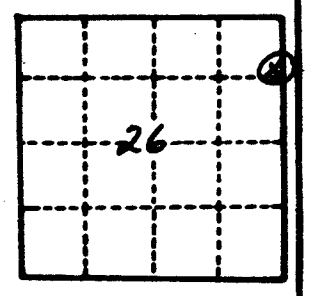
DEPTH LOGGED 120 ft., TOP _____ ft., BOTTOM _____ ft., DATE COMPLETED 7-19-79

FORMATION _____, FORMATION TOP reference to LSD _____ MSL _____

AQUIFER _____, WATER LEVEL reference to LSD _____ MSL _____

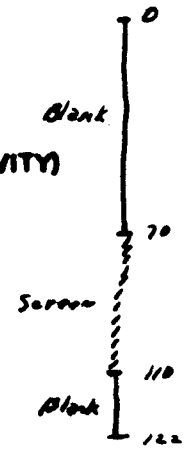
ELEVATION LSD 18 ft. MSL SPEED OF LOGGING 20 ft/min.

TOP OR START OF LOG 4 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

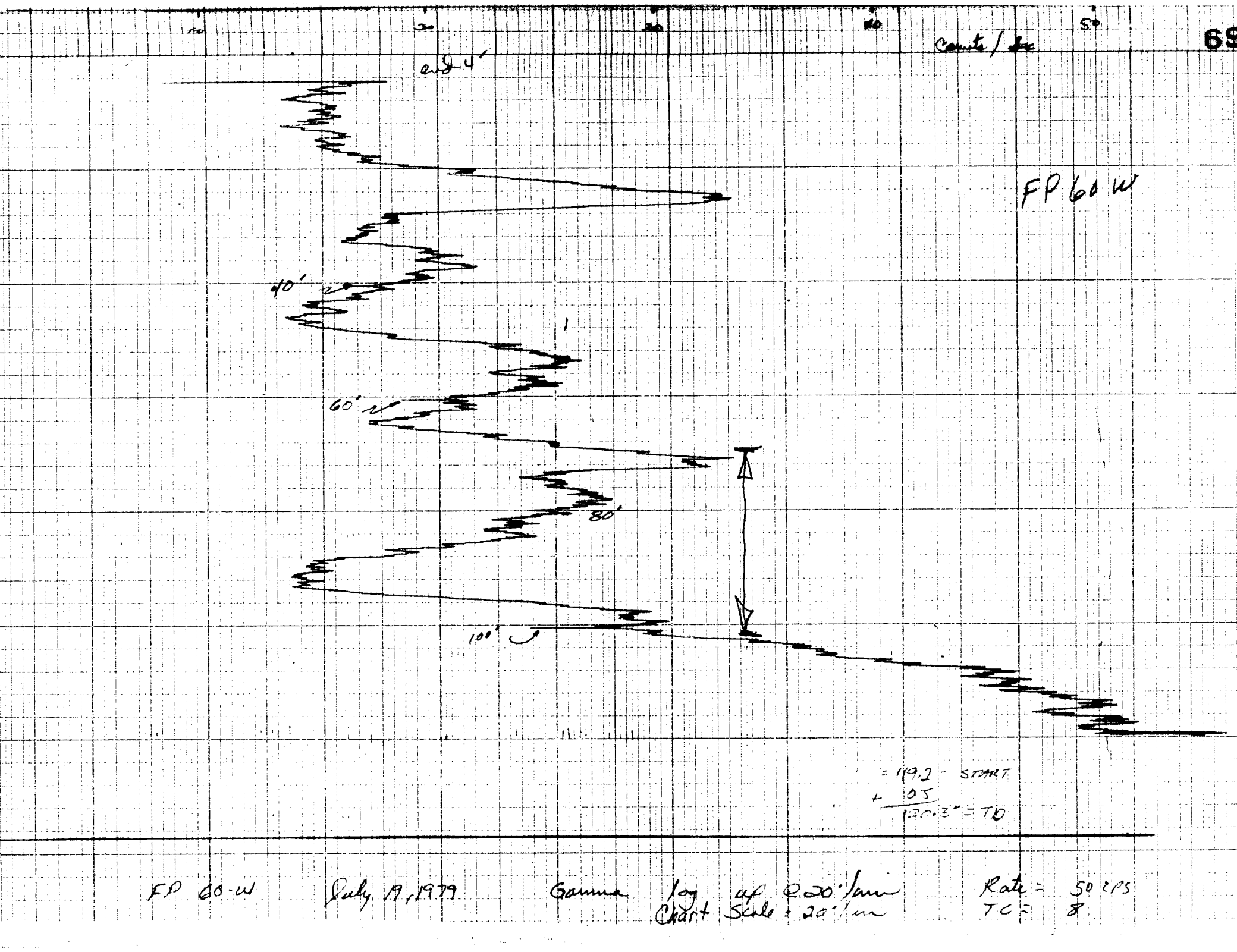
- ☐ ANODE
- ☐ DRAINAGE
- ☐ DESTROYED
- ■ OBSERVATION
- ☐ OIL-GAS
- ☐ RECHARGE
- ■ TEST
- ☐ UNUSED
- ☐ WITHDRAWAL
- ☐ WASTE

QW SAMPLE ☐ NO ☐ YES DATE SAMPLED _____ DEPTH(S) SAMPLED _____

LOG SCALES HORIZ 50 cps = 9.7", VERT 1" = 20' LOGGED ■ UP ☐ DOWN

TC = 8

S. P. _____ DEPTH RESISTIVITY _____



FP 60-W July 19, 1979 Gamma log of 20'/min Rate = 50 cps
Chart Scale = 20'/in TC = 8

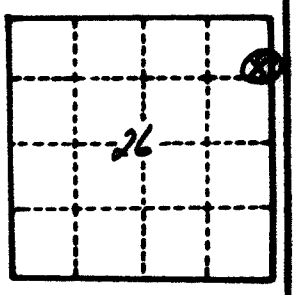
Fort Pierce Interchange

U. S. GEOLOGICAL SURVEY – WELL LOG

WELL NUMBER 272427 0802403.05 (latitude-longitude) LOCAL* _____ COUNTY St. Lucie

OWNER OR NAME USGS

LOCATION T 35S R 39E SEC 26, SE 1/4 NE 1/4 NE 1/4



WELL DEPTH 125' ft., CASED 122 ft., DIAMETER 2 in.

DEPTH LOGGED 125' ft., TOP _____ ft., BOTTOM _____ ft., DATE COMPLETED 7-19-79

FORMATION _____, FORMATION TOP reference to LSD _____ MSL _____

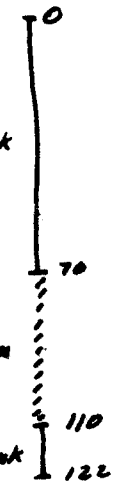
AQUIFER _____, WATER LEVEL reference to LSD _____ MSL _____

ELEVATION LSD 18 ft. MSL SPEED OF LOGGING 30 ft/min.

TOP OR START OF LOG 6.5' 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



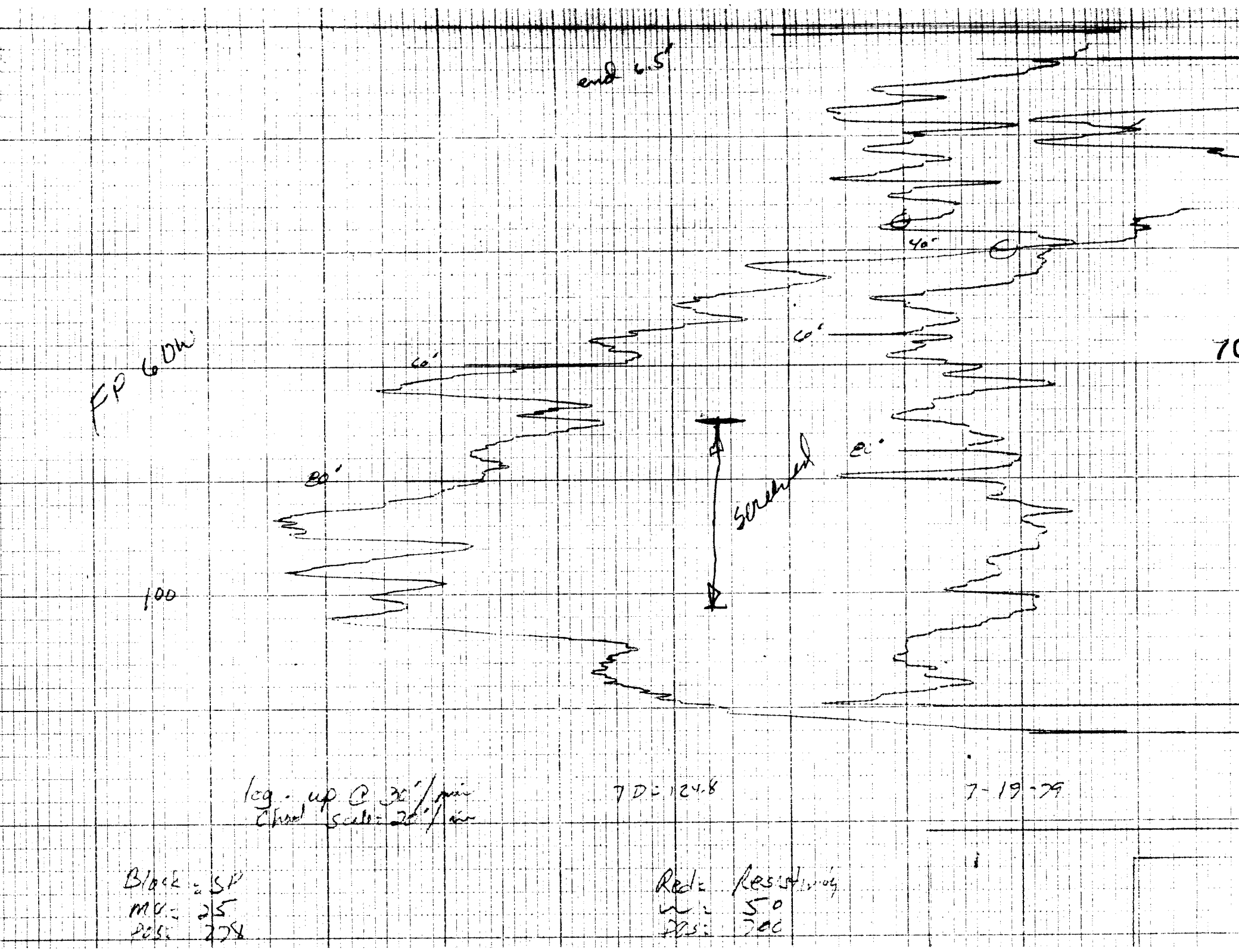
USE OF WELL

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

QW SAMPLE ☐ NO ☐ YES DATE SAMPLED _____ DEPTH(S) SAMPLED _____

LOG SCALES HORIZ _____, VERT 1" = 20' LOGGED ■ UP ☐ DOWN

S.P. MV = 25 | DEPTH | RESISTIVITY Ohms = 50



Site Fort Pierce date of test 8-23&24-79

Well No 300 S actual r 300 m.p. elevation 17.93'
M.P. elev only valid with respect to other wells in suite.

1160 / 3 / 45

Item # 9

time	min since start of test	depth to water (ft)	drawdown (ft)	t/r^2 day/ft^2
8-23-79				
1440	0	7.49	0	
1518	3	7.72	0.23	2.31×10^{-8}
1520	5	8.17	0.68	3.86
1522	7	8.57	1.08	5.40
1525	10	8.98	1.49	7.72×10^{-8}
1535	20	9.71	2.22	1.5×10^{-7}
1545	30	10.11	2.62	2.3
1600	45	10.51	3.02	3.5
1609	54	10.71	3.22	4.2
1636	81	11.09	3.60	6.3
1649	94	11.19	3.70	7.3×10^{-7}
1725	130	11.45	3.96	1.0×10^{-6}
1809	174	11.68	4.19	1.34
1908	234	11.86	4.37	1.81
1943	269	11.94	4.45	2.08
2006	294	11.95	4.46	2.27
2110	356	12.10	4.61	2.75
2212	418	12.16	4.67	3.23
2306	~~486~~ 474	12.22	4.73	3.66
8-24-79 0057	~~555~~ 533	12.27	4.79	4.11
0141	~~649~~ 627 ~~655~~	12.33	4.84	4.84
0309	~~677~~ 713	12.36	4.87	5.05
0507	~~735~~	12.27	4.78	5.50×10^{-6}

Site Ft Pierce date of test _____

Well No 300 S actual r 300 m.p elevation _____

time	min since start of test	depth to water (ft)	drawdown (ft)	T/r² day/ft⁻²
0356	~~778~~ 762	12.39	4.90	5.88×10^{-6}
0520	~~862~~ 846	12.41	4.92	6.53
0608	~~910~~ 894	12.43	4.94	6.90
0711	~~973~~ 957	12.46	4.97	7.38
0810	~~1032~~ 1016	12.49	5.00	7.84
0910	~~1092~~ 1076	12.51	5.02	8.3×10^{-6}
1004	~~1146~~ 1130	12.53	5.04	8.72×10^{-6}
1104	~~1206~~ 1190	12.55	5.06	9.18×10^{-6}
1204	~~1266~~ 1250	12.57	5.08	9.65×10^{-4}
1303	~~1325~~ 1309	12.58	5.09	1.00×10^{-5}
1404	~~1386~~ 1370	12.58	5.09	1.06×10^{-5}
1504	~~1446~~ 1430	12.59	5.10	1.10×10^{-5}
1516	min since shutdown	12.59	5.10	
429	1	12.42	4.93	
	3	11.73	4.24	
	~~5~~	~~11.78~~	~~4.29~~	
	10	11.37	3.88	
	16	10.94	3.45	
	22	10.64	3.15	
	27	10.43	2.94	
	48	9.93	2.44	
	65	9.60	2.11	
-25-79 1047		7.72	0.23	

Site Fort Pierce date of test 8-23&24-79

Well No 100S actual r 99 ft m.p elevation 18.90'

M.P. elev only valid with respect to other wells in suite.

Item # 3

time	min since start of test	depth to water (ft)	drawdown (ft)	T/r² day/ft⁻²
1505	0	8.30	0	
	1	10.27	1.97	6.94×10^{-8}
	2	11.17	2.87	1.4×10^{-7}
	3	11.68	3.38	2.1×10^{-7}
	4	12.02	3.72	2.8
	5	12.27	3.98	3.5
	7	12.71	4.41	4.9
	10	13.15	4.85	6.9
	13	13.45	5.15	9.0×10^{-7}
	15	13.62	5.32	1.04×10^{-6}
	20	13.95	5.65	1.39
	25	14.18	5.88	1.74
	30	14.37	6.07	2.08
	40	14.66	6.36	2.78
	50	14.85	6.55	3.47
	60	15.02	6.72	4.17
	75	15.22	6.92	5.21
	90	15.37	7.07	6.25
	120	15.58	7.28	8.33×10^{-6}
1801	166	15.80	7.50	1.15×10^{-5}
1819	213	15.96	7.66	1.48
2003	286	16.10	7.80	2.0
2103	348	16.19	7.89	2.42

Site Ft Pierce date of test _____

Well No 100N actual r 100 m.p elevation _____

time	min since start of test	depth to water (ft)	drawdown (ft)	T/r^2 day/ft^{-2}
2206	411	16.28	7.98	2.85×10^{-5}
2303 8-24-71	468	16.33	8.03	3.25
0014	529	16.36	8.08	3.67
0129	614	16.42	8.12	4.26
0207	652	16.43	8.13	4.53
0304	709	16.44	8.14	4.92
0358	763	16.45	8.15	5.30
0511	836	16.47	8.17	5.81
0606	891	16.48	8.18	6.19
0709	954	16.50	8.20	6.62
0759	1004	16.52	8.22	6.97
0830	1035	16.55	8.25	7.19
0908	1073	16.57	8.27	7.45
1002	1127	16.58	8.28	7.83
1103	1188	16.60	8.30	8.25
1200	1245	16.61	8.31	8.65
1301	1306	16.62	8.32	9.07
1358	1363	16.62	8.32	9.46×10^{-5}
1500	1425	16.63	8.33	
	1447 (1 min since shutdown)	15.27	6.97	
	1448 (2)	14.59	6.29	
	1449 (3)	14.18	5.88	
	1450 (4)	13.88	5.58	

Site Ft Pierce date of test _____

Well No 1005 actual r 100 m.p elevation _____

time	min since start of test		depth to water (ft)	drawdown (ft)	T/r2 dayft-2
	1451	5	13.64	5.34	
	1453	7	13.25	4.95	
	1455	9	13.25	4.65	
	1458	12	12.60	4.30	
	1461	15	12.30	4.00	
	1466	20	11.97	3.67	
	1472	26	11.64	3.34	
	1476	30	11.46	3.16	
	1506	60	10.68	2.38	
1630	1515	69	10.53	2.23	
1700	1545	99	10.20	1.90	
1800	1605	159	9.72	1.42	
1900	1665	219	9.43	1.13	
2000	1725	279	9.25	0.95	
2100	1785	339	9.12	0.82	
2200	1845	399	9.05	0.75	
2300	1905	459	8.98	0.68	
2400	1965	519	8.92	0.62	
8-25-79 0100	2025	579	8.85	0.55	
0200	2085	639	8.80	0.50	
0400	2205	759	8.72	0.42	
0600	2325	879	8.66	0.36	
000	2565	1119	8.58	0.28	

Site Fort Pierce date of test 8-23&24-79

Well No 200W actual r 200 ft m.p elevation 18.49'

M.P. elev only valid with respect to other wells in suite.

Item # 5

time	min since start of test	depth to water (ft)	drawdown (ft)	T/r² day/ft⁻²
8-23-79 1515	0	7.67	0	
	1	7.98	0.31	1.74×10^{-8}
	2	8.52	0.85	3.5×10^{-8}
	3	8.93	1.26	5.2
	4	9.27	1.60	6.9
	5	9.55	1.88	8.7×10^{-8}
	7	9.98	2.31	1.2×10^{-7}
	10	10.50	2.83	1.7×10^{-7}
	13	10.89	3.22	2.3
	15	11.10	3.43	2.6
	20	11.52	3.85	3.5
	25	11.78	4.11	4.3
	30	12.03	4.36	5.2
	40	12.40	4.73	6.9
	50	12.63	4.96	8.7
	60	12.84	5.17	1.0×10^{-6}
	75	13.07	5.40	1.3
	90	13.25	5.56	1.6
1715	120	13.49	5.82	2.1
1804	169	13.73	6.06	2.9
1900	225	13.92	6.25	3.9
1951	284	14.05	6.38	4.9
2059	344	14.15	6.48	6.0

Site Ft Pierce date of test 8-23, 24-79

Well No 200 W actual r 200 m.p elevation ____

time	min since start of test	depth to water (ft)	drawdown (ft)	r^2/r^2 dwn ft^{-2}
2200	405	14.23	6.56	7.0
2300	465	14.30	6.63	8.1
2400	525	14.35	6.68	9.1
8-24-79 0124	609	14.40	6.73	1.1×10^{-5}
0200	645	14.42	6.75	1.12
0258	703	14.43	6.76	1.22
0402	767	14.45	6.78	1.33
0515	840	14.48	6.81	1.46
0557	882	14.49	6.82	1.53
0702	947	14.50	6.83	1.64
0804	1009	14.52	6.85	1.75
0905	1070	14.54	6.87	1.86
1000	1125	14.56	6.89	1.95
1102	1187	14.57	6.90	2.1
1158	1243	14.60	6.93	2.3
1300	1305	14.61	6.94	2.3
1354	1359	14.62	6.95	2.4
1500	1425	14.64	6.97	

min since shut down			
1446.5	0.5	14.55	6.88
1447	1	14.43	6.76
1448	2	14.03	6.36
1449	3	13.72	6.05
1450	4	13.42	5.75

Site Ft Pierce date of test _____

Well No 200w actual r 200 m.p elevation _____

time	min since start of test		depth to water (ft)	drawdown (ft)	T/r^2 day ft^{-2}
	1451	5	13.25	5.58	
	1453	7	12.88	5.21	
	1455	9	12.57	4.90	
	1458	12	12.20	4.53	
	1461	15	11.90	4.23	
	1466	20	11.53	3.86	
	1472	26	11.18	3.51	
	1476	30	10.99	3.32	
	1491	45	10.47	2.80	
	1506	60	10.10	2.43	
1630	1515	69	9.93	2.26	
1700	1545	99	9.53	1.86	
1700	1605	159	9.09	1.42	
1900	1665	219	8.83	1.16	
2000 3-25-79	1725	279	8.65	0.98	
0930	2535	1089	7.94	0.27	

Site Fort Pierce date of test 8-23&24-79

Well No 60 W actual r 60 ft m.p elevation 18.79'

M.P. elev only valid with respect to other wells in suite

Item # 2

time	min since start of test	depth to water (ft)	drawdown (ft)	T/r^2 day/ft^{-2}
1515	0	8.08	0	
	3	12.40	4.32	5.8×10^{-7}
	4	13.31	5.23	7.7×10^{-7}
	5	13.60	5.52	9.6×10^{-7}
	7	14.05	5.97	1.35×10^{-6}
	10	14.40	6.32	1.93×10^{-6}
	13	14.83	6.75	2.51
	16	15.09	7.01	3.09
	20	15.38	7.30	3.86
	25	15.63	7.55	4.82
	30	15.83	7.75	5.79
	40	16.10	8.02	7.72
	50	16.31	8.23	9.65×10^{-6}
1605	60	16.47	8.39	1.16×10^{-5}
	77	16.67	8.59	1.48
	90	16.80	8.72	1.74
1715	120	16.99	8.91	2.32
1803	168	17.20	9.12	3.24
1901	226	17.36	9.28	4.36
2001	286	17.47	9.39	5.52
2158	403	17.63	9.55	7.77
2259	464	17.68	9.60	8.95×10^{-5}
2359	524	17.73	9.65	1.01×10^{-4}

8.78
6.32
2.46

Site Fort Pierce date of test 8-23,24-79

Well No 60W actual r 60 m.p elevation ____

time	min since start of test	depth to water (ft)	drawdown (ft)	T/r^2 day/ft^{-2}
0125	610	17.77	9.69	$1.18 - 4$
0201	646	17.78	9.70	1.25×10^{-4}
0258	703	17.78	9.70	1.36
0401	766	17.79	9.71	1.47
0514	839	17.81	9.73	1.62
0557	882	17.82	9.74	1.70
0704	949	17.84	9.76	1.83
0802	1007	17.86	9.78	1.94
0904	1069	17.90	9.82	2.06
0959	1124	17.93	9.85	2.17
1101	1186	17.94	9.86	2.25
1157	1242	17.95	9.87	2.40
1258	1303	17.96	9.88	2.51
1358	1363	17.96	9.88	2.63×10^{-4}
1500	1425	17.96	9.88	2.75×10^{-4}

min since shutdown			
	1446.5	16.17	8.09
0.5	1447	15.67	7.59
1	1448	14.90	6.82
2	1449	14.13	6.35
3	1450	14.08	6.00
4	1451	13.81	5.73
5	1453	13.37	5.29
7	1455	13.03	4.95
9			

Site Fort Pierce date of test 8-23,24-79

Well No 60W actual r 60 m.p elevation ____

time	min since start of test		depth to water (ft)	drawdown (ft)	T/r2 day ft^{-2}
	1451	12	12.64	4.56	
	1461	15	12.29	4.21	
	1466	20	11.94	3.86	
	1472	26	11.56	3.50	
	1476	30	11.38	3.30	
	1491	45	10.86	2.78	
	1506	60	10.50	2.42	
1730	1515	69	10.36	2.28	
1700	1545	99	9.96	1.88	
1800	1605	159	9.46	1.40	
1900	1665	219	9.20	1.14	
2000	1725	279	9.03	0.95	
2100	1785	339	8.90	0.82	
2200	1845	399	8.82	0.74	
2300	1905	459	8.74	0.66	
2400	1965	519	8.68	0.60	
0100	2025	579	8.62	0.54	
0200	2085	639	8.57	0.49	
0300	2145	699	8.53	0.45	
0400	2205	759	8.49	0.41	
0600	2325	879	8.43	0.35	
0800	2445	999	8.39	0.31	
1000	2565	1119	8.35	0.27	

Item 6

9-194
November 1949

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

Sh 30

WATER LEVEL MEASUREMENTS (Field) Measured by Wilcox, Long, Wendorf

Location of Project Fort Pierce Pumping test

DATE	HOUR	WELL NO.	TAPE READING AT— Meas. point	TAPE READING AT— Water level	DEPTH TO WATER	REMARKS
8-23-79	1445		8.00	3.69	4.31	
	1507		8.00	3.63	4.37	
	1514		9.00	4.62	4.38	
	1517	2 MIN	8.00	3.61	4.39	
		3 MIN	8.00	3.61	4.39	
		14 MIN	8.00	3.79	4.21	
		30 MIN	6.00	1.56	4.44	
	1554		7.00	2.52	4.48	
	1605		7.00	2.51	4.49	
	1615	60 MIN	6.00	1.49	4.51	
	1630		5.00	.47	4.53	
	1646		5.00	.44	4.56	
	1703		6.00	1.44	4.56	
	1716		5.00	.41	4.59	
	1802		5.00	.34	4.66	
	1859		5.00	.32	4.68	
	2002		5.00	.16	4.84	
	2103		14.00	9.06	9.94	+ 2
	2204		6.00	.97	5.03	
	2305		6.00	0.90	5.10	
8-24-79	0004		6.00	.83	5.17	
	127		6.00	.73	5.27	
	204		6.00	.68	5.32	

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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
8/24/79	0302		6.0	.61	5.39	
	0403		6.00	.58	5.42	
	0510		6.00	.46	5.54	
			6.00	.38	5.62	
	0707		6.00	0.32	5.68	
	0802		6.00	0.26	5.74	
	0906		6.00	0.18	5.82	
	1000		7.00	1.13	5.87	
	1101		7.00	1.08	5.92	
	1159		7.00	1.02	5.98	
	1359		7.00	0.94	6.06	
	1354		7.00	0.91	6.09	
	1500		7.00	0.85	6.15	
	1518		7.00	.84	6.16	
	1 MIN		7.0	.81	6.19	
	7'30"		7.00	.83	6.17	
	9'30"		7.00	.83	6.17	
	11 MIN		7.00	.83	6.17	
	20 MIN		7.00	.81	6.19	
	29 MIN		7.00	.79	6.21	
	45 MIN		9.00	2.79	6.21	
1627	65 MIN		7.00	.77	6.23	

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Site Fort Pierce date of test 8-23&24-79

Well No 305 actual r 30 ft m.p elevation 19.97

M.P. elev only valid with respect to other wells in suite.

Item #4

time	min since start of test	depth to water (ft)	drawdown (ft)	T/r^2 day ft^{-2}
8-24-79				
1515	0	9.29	0	
	1	15.44	6.15	7.7×10^{-7}
	2	16.36	7.07	1.54×10^{-6}
	3	16.85	7.56	2.31×10^{-6}
	4	17.17	7.88	3.09×10^{-6}
	5	17.42	8.13	3.86×10^{-6}
	7	17.79	8.50	5.40×10^{-6}
	10	18.19	8.90	7.72×10^{-6}
	13	18.45	9.16	1.00×10^{-5}
	15	18.60	9.31	1.16×10^{-5}
	20	16.88	9.59	1.54×10^{-5}
	25	17.08	9.79	1.93×10^{-5}
	30	19.24	9.95	2.32×10^{-5}
	40	19.48	10.19	3.09×10^{-5}
	50	19.64	10.35	3.86×10^{-5}
1615	60	19.29	10.00	4.63×10^{-5}
1630	75	19.93	10.64	5.79×10^{-5}
1645	90	20.06	10.77	6.94×10^{-5}
1716	100 121	20.23	10.94	9.34×10^{-5}
1801	166	20.42	11.13	1.28×10^{-4}
1859	224	20.56	11.27	1.73×10^{-4}
2002	287	20.65	11.36	2.21×10^{-4}
2102	347	20.73	11.44	2.68×10^{-4}

Site Fort Pierce date of test 8-23,24-79

Well No 303 actual r 30 m.p elevation ____

time	min since start of test	depth to water (ft)	drawdown (ft)	T/r² day ft⁻²
2202	407	20.80	11.51	3.14 −4
2301 8-21-79	466	20.85	11.56	3.60 −4
0002	527	20.88	11.59	4.07 −4
0126	611	20.90	11.61	4.71 −4
0202	647	20.90	11.61	4.99 −4
0259	704	20.91	11.62	5.43 −4
0358	763	20.92	11.63	5.68
0509	834	20.94	11.65	6.44
0601	886	20.95	11.66	6.84
0705	950	20.96	11.67	7.33
0801	1006	20.98	11.69	7.76
0905	1070	21.02	11.73	8.26
0959	1124	21.04	11.75	8.67
1101	1186	21.05	11.76	9.15
1158	1243	21.06	11.77	9.59
1258	1303	21.06	11.77	1.00×10^{-3}
1356	1361	21.06	11.77	1.05
1457	1422	21.05	11.76	1.11×10^{-3}

min since shutdown			
1	1447	16.80	7.51
2	1448	15.99	6.70
3	1449	15.50	6.21
4	1450	15.15	5.86
5	1451	14.85	5.56

Site Fort Pierce date of test 8-23, 24-79

Well No 305 actual r 30 m.p elevation ——

time	min since start of test		depth to water (ft)	drawdown (ft)	T/r^2 day/ft^{-2}
	1453	7	14.44	5.15	
	1455	9	14.11	4.82	
	1458	12	13.74	4.45	
	1461	15	13.42	4.13	
	1466	20	13.07	3.78	
	1472	26	12.73	3.44	
	1476	30	12.54	3.25	
	1491	45	12.06	2.77	
	1506	60	11.72	2.43	
1630	1515	69	11.54	2.25	
1700	1545	99	11.21	1.92	
1800	1605	159	10.75	1.46	
1900	1665	219	10.47	1.18	
2000	1725	279	10.26	0.97	
2100	1785	339	10.13	0.84	
2200	1845	399	10.04	0.75	
2300	1905	459	9.98	0.69	
2400 8-25-79	1965	519	9.91	0.62	
0100	2025	579	9.85	0.56	
0200	2085	639	9.79	0.50	
0400	2205	759	9.70	0.41	
0600	2325	879	9.65	0.36	
0950	2555	1109	9.58	0.29	

Item 9

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

380 S

Start 1516 *

WATER LEVEL MEASUREMENTS (Field) Measured by

Location of Project Fort Pierce (pumping test)

DATE	HOUR	WELL NO.	TAPE READING AT— Meas. point	TAPE READING AT— Water level	DEPTH TO WATER	REMARKS
8-23-79	1440		9.00	1.51	7.49	
	1518		9.00	1.28	7.72	
	1520		9.00	0.83	8.17	
	1522		12.00	3.43	8.57	
	1525		10.00	1.02	8.98	
	1535		10.00	0.29	9.71	
	1545		11.00	0.89	10.11	
	1600		11.00	0.49	10.51	
	1609		12.00	1.29	10.71	
	1636		12.00	0.91	11.09	
	1649		12.00	0.81	11.19	
	1725		12.00	0.55	11.45	
	1509		14.00	2.32	11.68	
	1908		13.00	1.14	11.86	
	illegible		13.00	1.06	11.94	
	2008		13.00	1.05	11.95	
	2110		13.00	0.90	12.10	
	2212		13.00	0.84	12.16	
	2368		13.00	0.78	12.22	
8/24/79	0007		13.00	0.72	12.28	
	0041		13.00	0.67	12.33	
	0209		13.00	0.64	12.36	
	illegible		13.00	0.63	12.37	

U. S. GOVERNMENT PRINTING OFFICE 16—51605-2

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November 1949

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

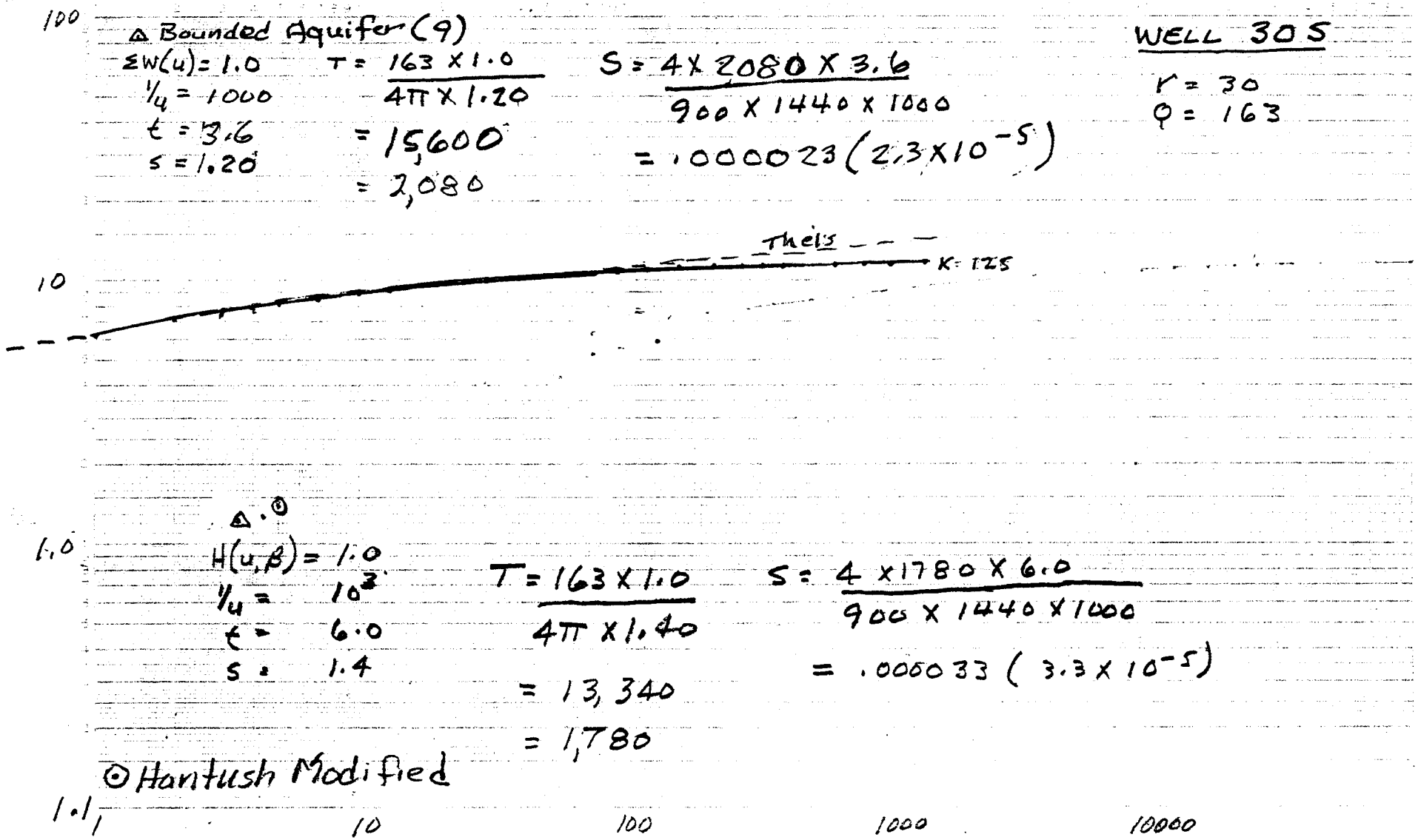
WATER LEVEL MEASUREMENTS (Field) Measured by

Location of Project

DATE	HOUR	WELL NO.	TAPE READING AT— Meas. point	TAPE READING AT— Water level	DEPTH TO WATER	REMARKS
	0950		13.00	.61	12.39	
	1520		13.00	0.59	12.41	
	illegible		13.00	.57	12.43	
	0711		13.00	0.54	12.46	
	illegible		13.00	.52	12.48	
	0910		13.00	0.49	12.51	
	1004		13.00	0.47	12.53	
	1104		13.00	0.45	12.55	
	1204		13.00	0.43	12.57	
	illegible		13.00	0.42	12.58	
	1404		13.00	0.42	12.58	
	1504		13.00	0.41	12.59	
	1516		13.00	0.41	12.59	
	1 min		13.00	.58	12.42	Pump off
	3 min		13.00	1.27	11.73	
	5 min		12.00	0.22	11.78	← ?
	10 min		12.00	0.63	11.37	
	16 min		12.00	1.06	10.94	
	22		12.00	1.36	10.64	
	27		12.00	1.57	10.43	
	48 min		11.00	1.07	9.93	
	65 min		11.00	1.40	9.60	
8-25-79	1047		9.00	1.28	7.72	

Fort Pierce Test
August 23-24, 1979

Obs. Well 30 S



△ Bounded Aquifer (9)

$\Sigma W(u) = 1.0$
$1/u = 1000$
$t = 3.6$
$s = 1.20$

$T = \frac{163 \times 1.0}{4\pi \times 1.20}$
$= 15{,}600$
$= 2{,}080$

$S = \frac{4 \times 2080 \times 3.6}{900 \times 1440 \times 1000}$
$= .000023 \ (2.3 \times 10^{-5})$

WELL 30 S
$r = 30$
$Q = 163$

△ ⊙

$H(u,\beta) = 1.0$
$1/u = 10^3$
$t = 6.0$
$s = 1.4$

$T = \frac{163 \times 1.0}{4\pi \times 1.40}$
$= 13{,}340$
$= 1{,}780$

$S = \frac{4 \times 1780 \times 6.0}{900 \times 1440 \times 1000}$
$= .000033 \ (3.3 \times 10^{-5})$

⊙ Hantush Modified

Fort Pierce Test
August 23-24, 1979
Bounded Aquifer (Plate 9)

Obs. Wells 100s & 200W

Well 100S

$\Sigma W(u) = 1.0$ $T = \frac{163 \times 1.0}{4\pi \times 1.40} = 13,340$

$1/u = 10$

$t = 8.2$

$s = 1.40$

$K = 20$ $= 1,780$

$S = \frac{4 \times 2,153 \times 8.2}{100^2 \times 1440 \times 10}$

$S = .00049 \ (4.9 \times 10^{-4})$

Well 200W

$\Sigma W(u) = 1.0$ $T = \frac{163 \times 1.0}{4\pi \times 1.46} = 12793 = 1710$

$1/u = 10$

$t = 9.0$

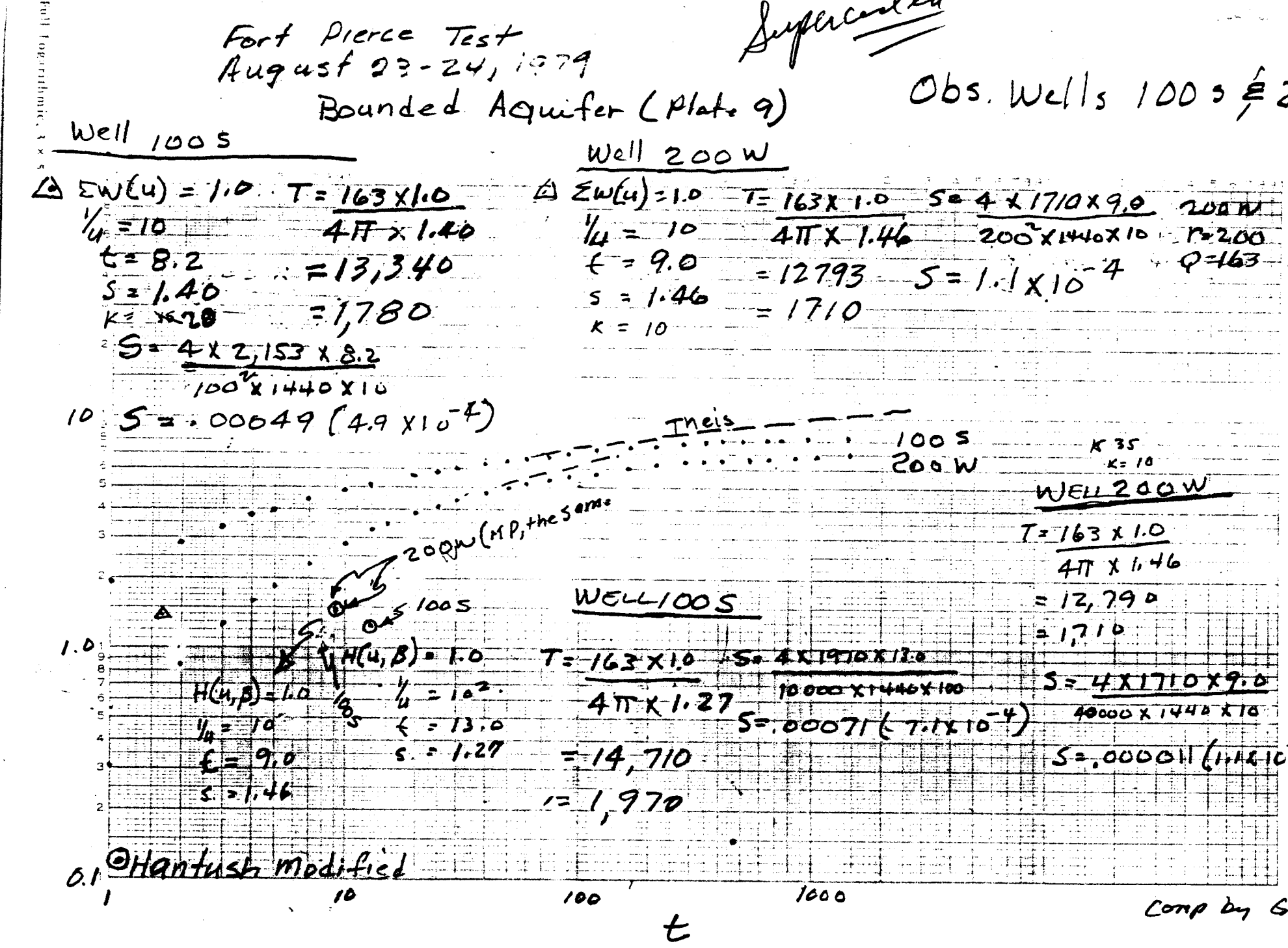
$s = 1.46$

$K = 10$

$S = \frac{4 \times 1710 \times 9.0}{200^2 \times 1440 \times 10} = 1.1 \times 10^{-4}$

200W r=200 Q=163

100S r=100 Q=16.



WELL 200W

$T = \frac{163 \times 1.0}{4\pi \times 1.46} = 12,790 = 1,710$

$S = \frac{4 \times 1710 \times 9.0}{40000 \times 1440 \times 10}$

$S = .000011 \ (1.1 \times 10^{-4})$

WELL 100S

$T = \frac{163 \times 1.0}{4\pi \times 1.27} = 14,710 = 1,970$

$S = \frac{4 \times 1970 \times 13.0}{10000 \times 1440 \times 100}$

$S = .00071 \ (7.1 \times 10^{-4})$

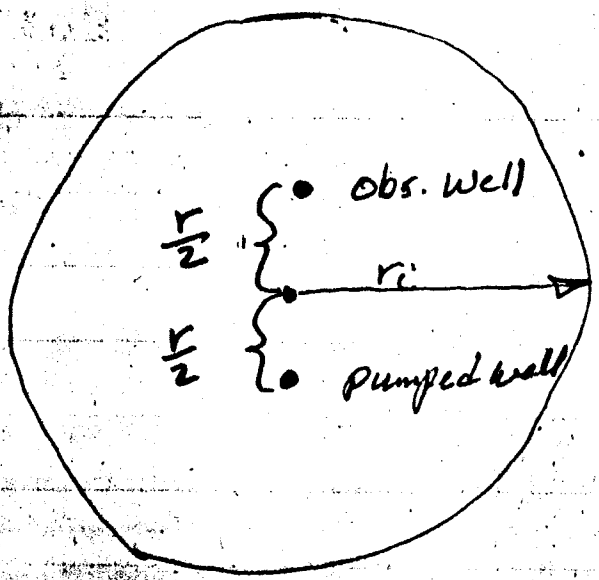
©Hantush Modified

Comp by GWH

Fort Pierce Aquifer Test
August 23-24, 1979
by: GW Hill 1/6/80

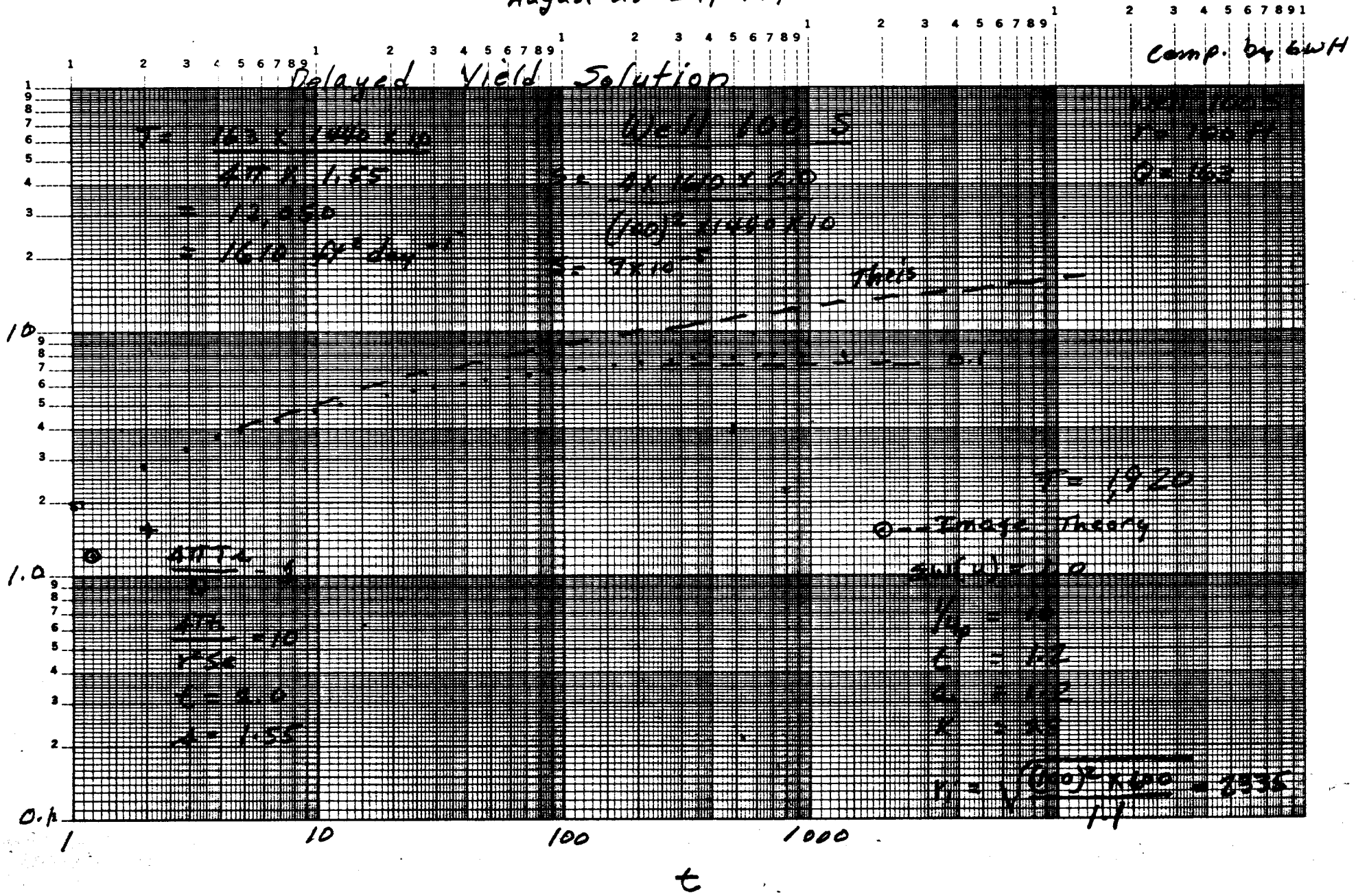
Estimation of Image well radius, PL 9

r = 60	K = 25	r_i = 1500	$r/2$ = 30 $\frac{r_i}{5}$ = 750
r = 100	K = 20	r_i = 2,000	$r/2$ = 50 $\frac{r_i}{5}$ = 1000
r = 200	K = 10	r_i = 2000	$r/2$ = 100 $\frac{r_i}{2}$ = 1000
r = 300	K = 7	r_i = 2100	$r/2$ = 150 r_i = 1,100



This checks results of the Log-log Method shown in the test report on page 4.

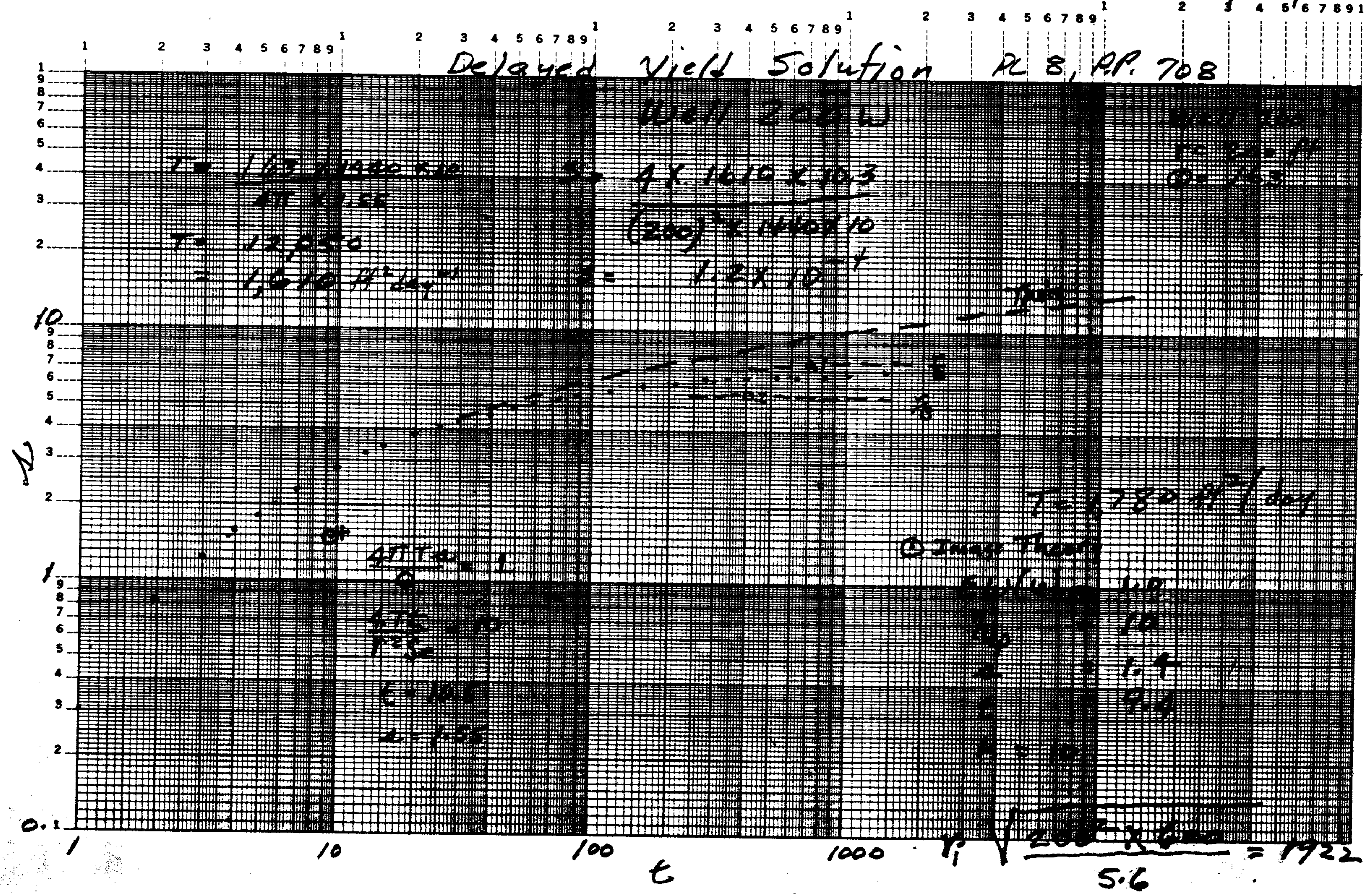
Fort Pierce Test
August 23-24, 1979



K+E LOGARITHMIC 3 x 5 CYCLES
KEUFFEL & ESSER CO. MADE IN U.S.A. 46 7520

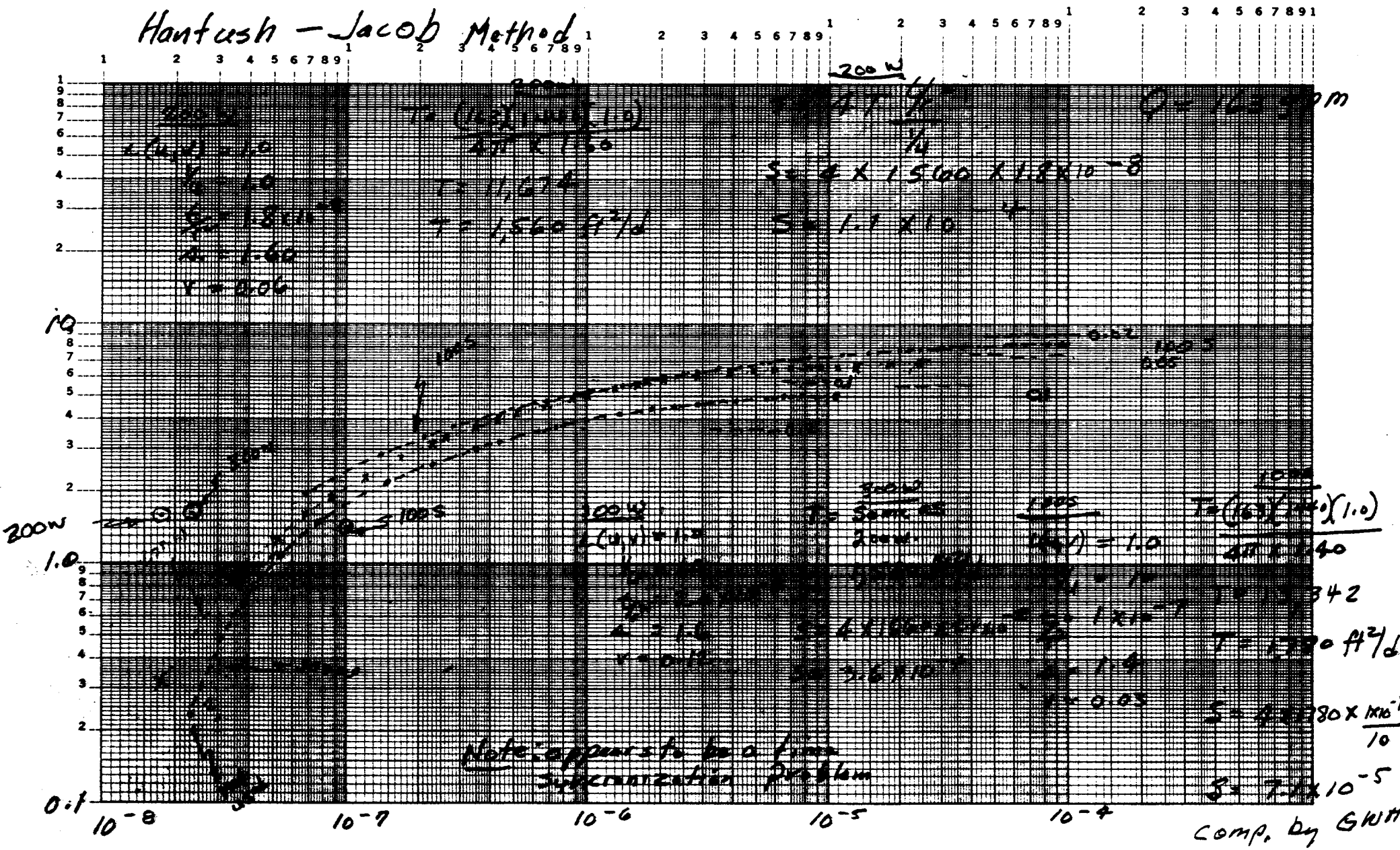
Fort Pierce Test
August 23-24, 1979

Comp. by GWH



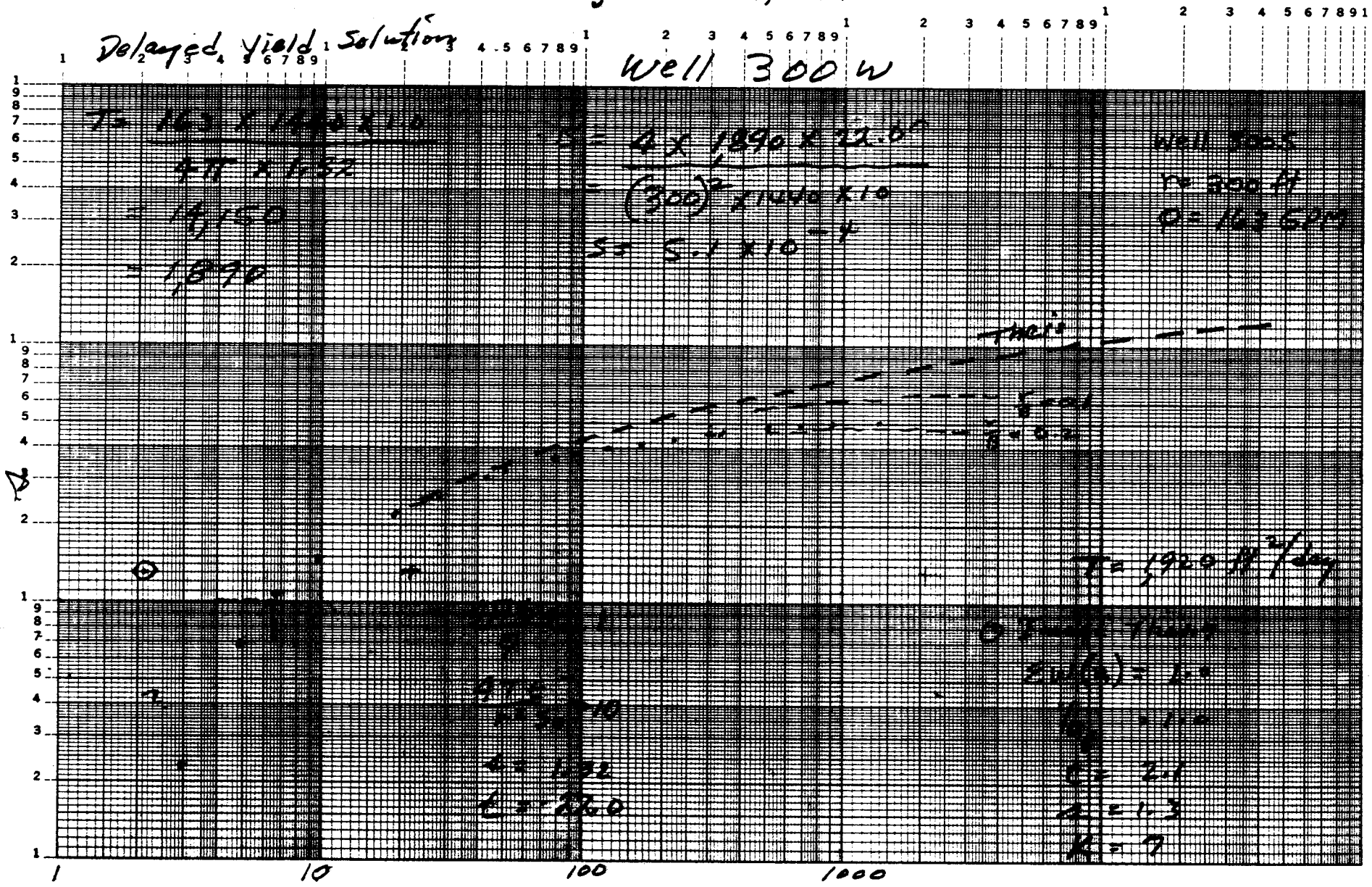
Fort Pierce Test

Hantush – Jacob Method



Fort Pierce Test
August 23-24, 1979

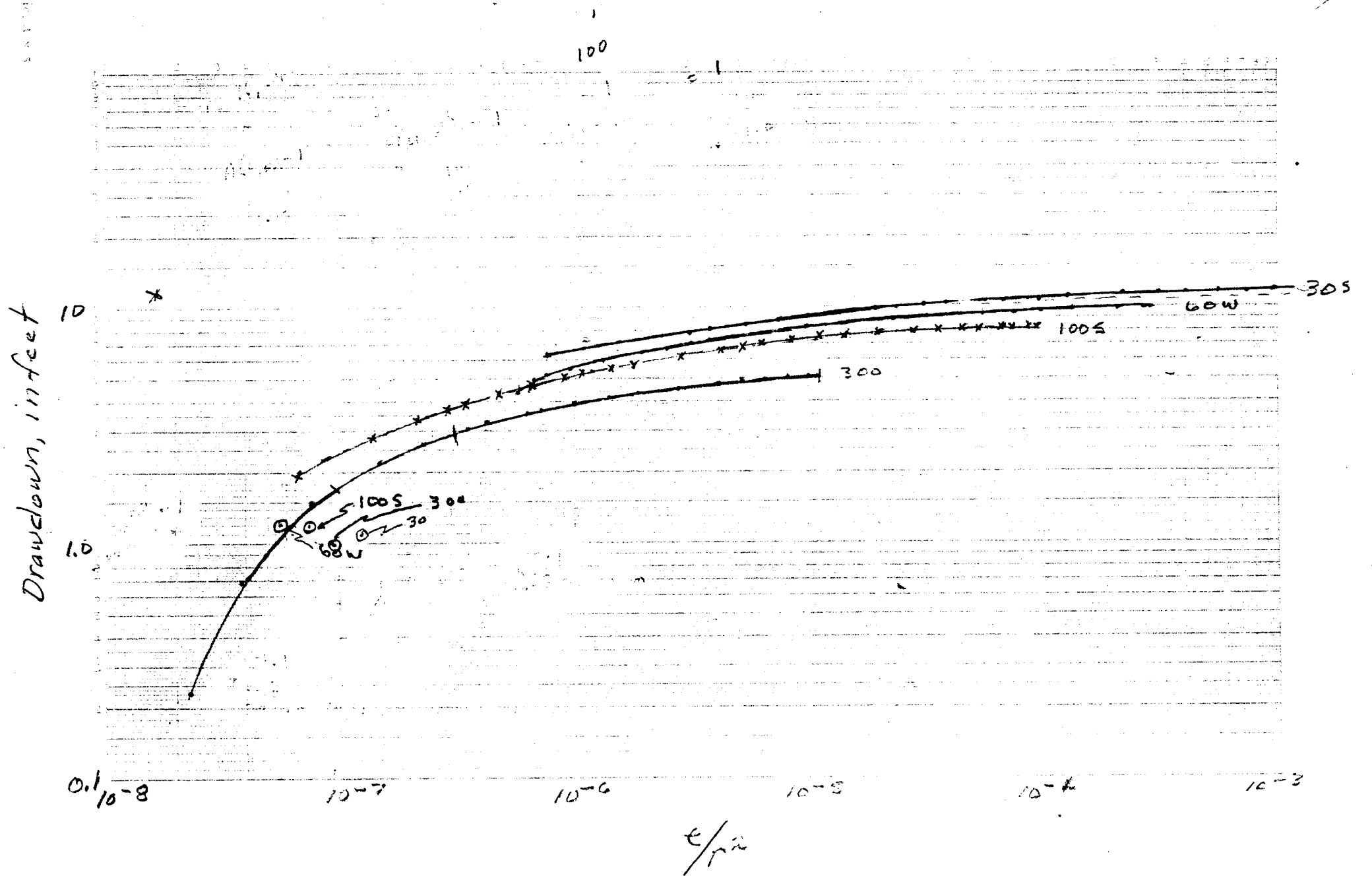
Comp. by GWH



5.6
4.6
1.0

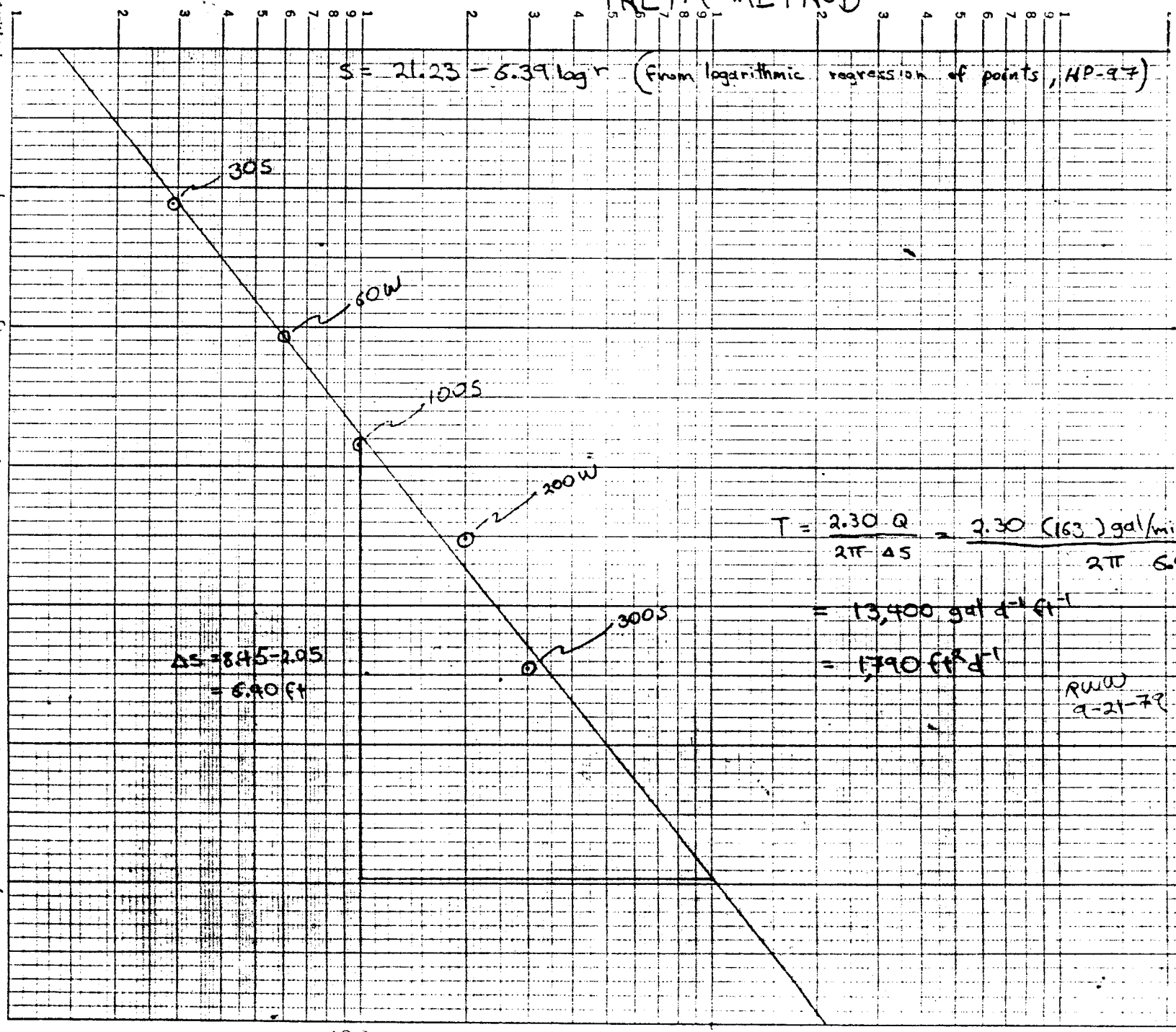
$$t \qquad r_i \sqrt{\frac{(300)^2 \times 300}{6.5}} = 2038$$

Fort Pierce Test
August 23, 24, 1979



8-23 & 24-79

THEIM METHOD



$$T = \frac{2.30\,Q}{2\pi\,\Delta s} = \frac{2.30\,(163)\ \text{gal/min}\,(1440)\ \text{min/d}}{2\pi\ \ 6.40\ \text{ft}}$$

$$= 13{,}400\ \text{gal d}^{-1}\ \text{ft}^{-1}$$

$$= 1790\ \text{ft}^2\,\text{d}^{-1}$$

RWW
9-21-79

coefficients
r^2 =
a =
b =

Fort Pierce Test August 23-24, 1979
Computed by George Hill

Delayed Yield Solution PL 8; PP. 708

well No.	Transmissivity	Sa
100 S	1,610 ft²/d	
200 W	1,610 ft²/d	1.2×10^{-4}
300 S	1,850 ft²/d	5.1×10^{-4}
		9.0×10^{-5}

Hantush – Jacob PL 3; PP. 708

USE

Well No	Transmissivity	S
100 S	1,780 ft²/d	7.1×10^{-5}
200 W	1,560 ft²/d	1.1×10^{-4}
300 S	1,560 ft²/d	3.6×10^{-4}

Theim

T = 1,790 ft²/d

All in same ball park

Image Well Theory

Well No.	Transmissivity	S
60 W	1,650 ft²/d	4.2×10^{-4}
100 S	2,153 ft²/d	4.9×10^{-4}
200 W	1,710 ft²/d	1.1×10^{-4}
300 S	1,920 ft²/d	1.3×10^{-4}

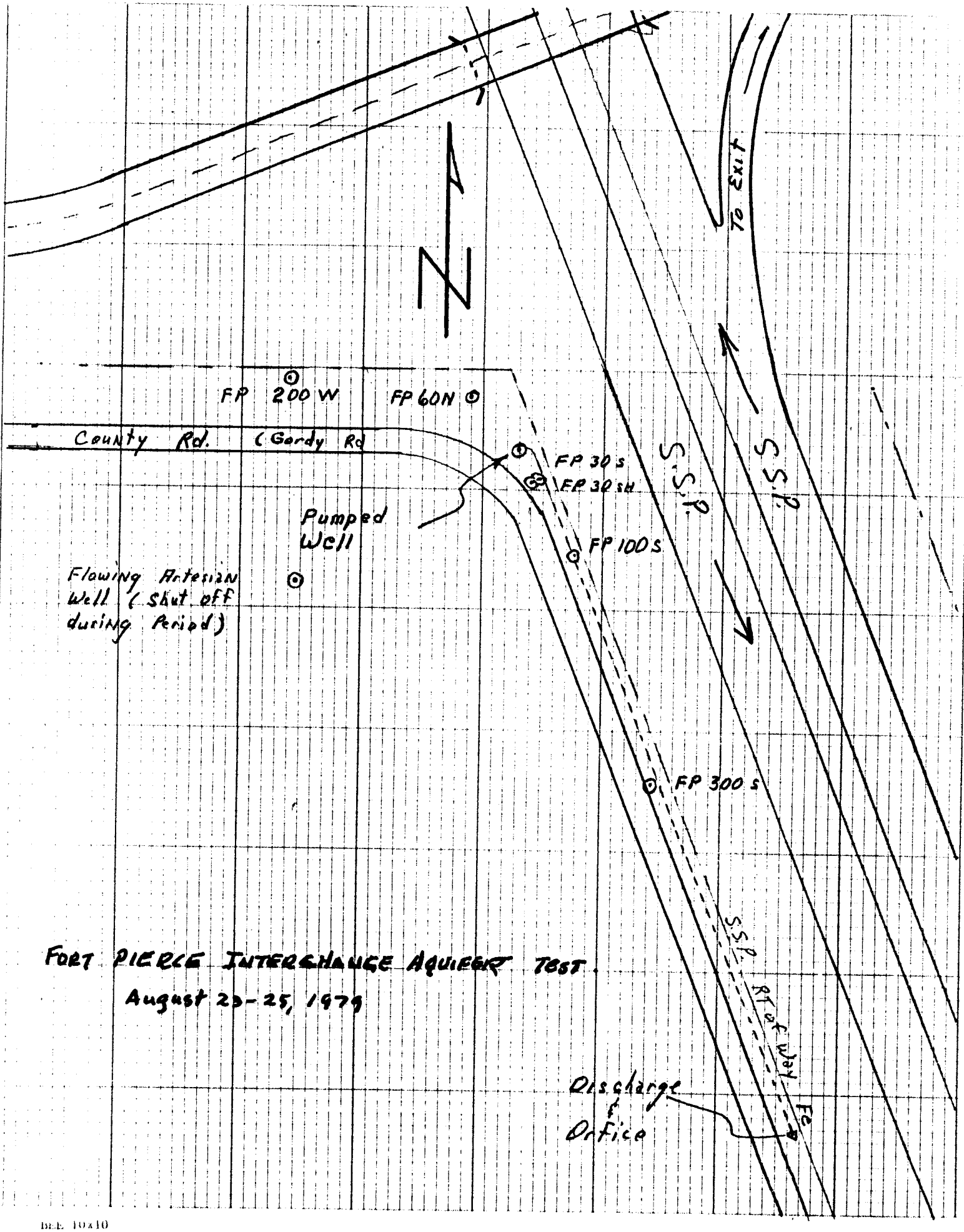
Discharge Measerements — 3" orifice 6" pipe

Location: Fort Pierce pumping test

Party — Wilcox, Long, Wendorf, Cook

Date: 8-23-79 & 8-24-79

LINE	time	head	discharge gpm	time	head	discharge	Rainfall	REMARKS
1							.09	Just prior to test
2	1525	33 1/2	194	8/24/79 1005	22 1/2	158		
3	1531	31 1/2	188	1104	22 3/8	158		
4	1544	30	183	1205	22 3/8	158		
5	1557	28 7/8	180	1304	22 1/4	157		
6	1608	28	177	1405	22 1/4	157		
7	1634	26 1/2	173	1506	22 1/4	157		
8	1650	26	169	1517	22 1/4	157		
9	1724	25 1/8	167					
10	1800	25"	167					
11	1906	24 1/8	167					weighted ave. Q = 163 gpm
12	1942	24	164					
13	2006	23 3/4	163					
14	2108	23 5/8	163					
15	2212	23 1/2	162					
16	2306	23 3/8	160					
17	0008	23 1/8	160					
18	141	22 7/8	160					
19	210	22 7/8	160					
20	308	22 7/8	160					
21	342	22 3/4	159					
22	355	22 3/4	159					
23	523	22 3/8	159					
24	0612	22 5/8	158					
25	0714	22 5/8	158					
	0813	22 1/4	156					

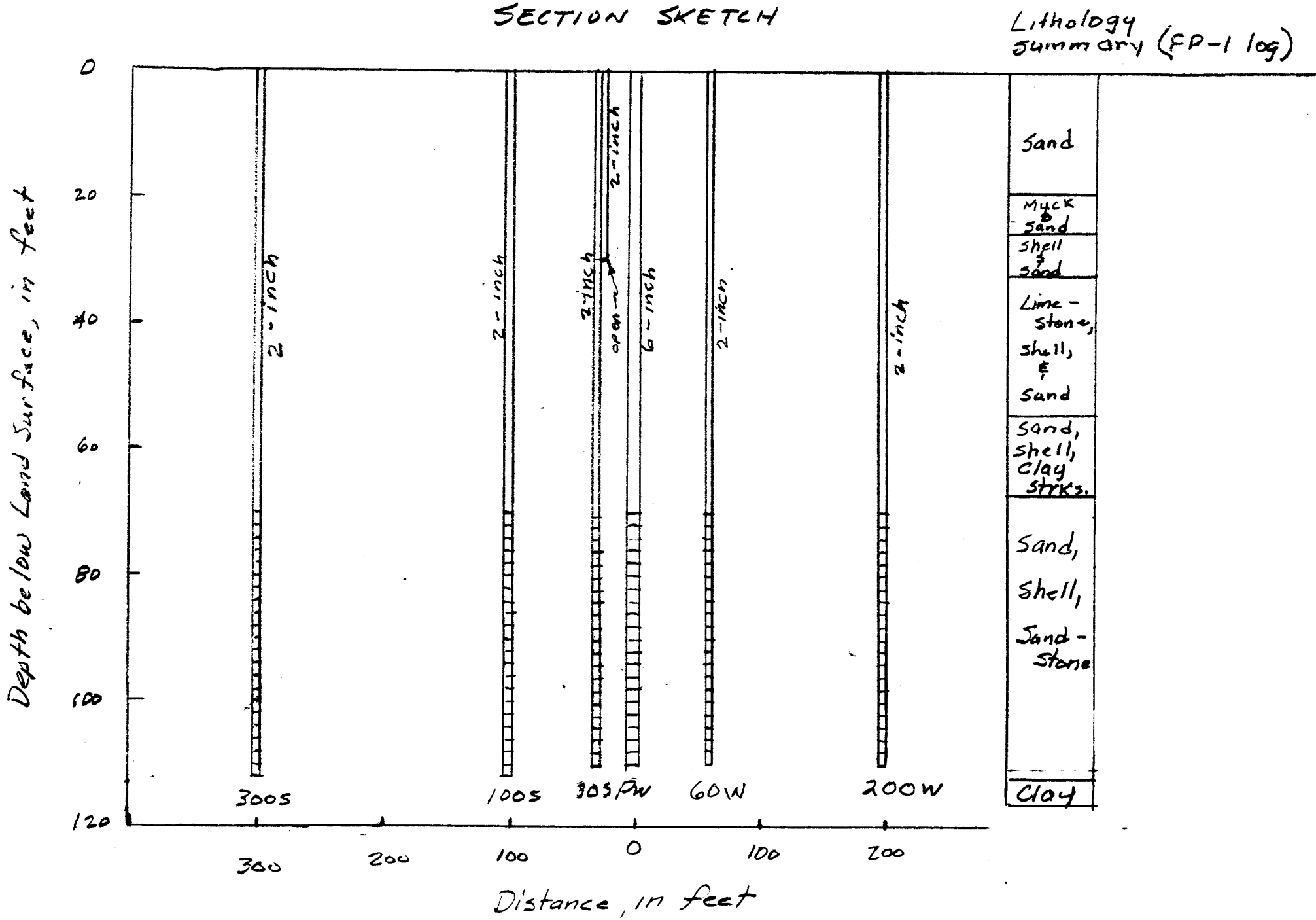


FORT PIERCE INTERCHANGE AQUIFER TEST.

August 23-25, 1979

Fort Pierce Turnpike Interchange Test

SECTION SKETCH



Location SSP & SR70 on Gordy Rd - Ft Pierce Exchange

Party Long Wilcox

Date 8/25/79

Line	Station	BS	HI Elv. ~~Avg~~	HI	FS	Avg	Elev.	REMARKS
1								Start Calc. Datum 20ft Top of
2		3.77	23.77				20.00	Conc RW MK+ Cvr Fe line Sawcut
3								inside cvr of Inter Change @ FT Pierce
4								
5	200				-5.28	② 5.28	18.49	Well FP 200 W
6						6.28		LS 17.5
7	60				-4.98	② 4.98	18.79	Well FP 60 W
8						6.1		LS 17.7
9	0				-3.68		20.09	Pumped Well FP-1 (NW cvr cap)
10						6.07		LS 17.70
11	28.5				-3.80	② 3.80	19.97	Well FP 30 So ← after running levels, adjusted m.p. by adding (+0.13) a coupling to 30S
12						6.35		LS 17.4
13	28.5				-4.08		19.69	Shallow Well FP 30 So
14						6.0		LS 17.8
15	99.2				-4.87		18.90	Well FP 100S
16						6.44		LS 17.3
17	300				-5.84	② 5.837	17.93	Well FP 300 S
18						5.90		LS = 17.9
19								
20								
21			23.77		-3.77		20.00	Check back to start
22								
23								
24								
25								

Location Ft Pierce Pump Test @ SSP & SR 70

Party [illegible] Date July, 1979

Line	Station	Drill Depth	Csg Avg	Screen HI	Set Screen FS	Develop Avg	Standby Elev.	Remarks
1	Pump Well	115	73	70-110	1 hr	4 hrs		6 in well
2								
3	~~PP~~	1150	438					
4								
5	FP-60W	123	80	70-110	½ hr	2 hrs	1½ hrs	2 in
6								
7	FP 200W	111	70	70-110	½ hr	3 hrs		
8								
9	FP -100S	117	75	72-112	½ hr	3 hrs		
10								
11	FP-300S	113	75	72-112	½	3 hrs		
12								
13								
14								
15								
16								
17								
18		2,320	450		360	120	52.50	
19		1150	438	~~[illegible]~~	75			
20								
21								
22								
23								tot 1 - 93.50
24								
25								

Location Ft Pierce Pump Test

Party Long Wilcox Windolf Cook Date 8-23-79

Date / Station	Clock Time BS	Time Min/Pump Avg	H ~~HI~~	R ~~FS~~	DTW Avg	Elev.	RPM	REMARKS
8-23/79	1510		10.00	.60	9.40			Time RPM
8--	1520		29.00	1.55	28.45		1330	1200 1380
	1525						1340	1360 1390
	1547		28.00	1.56	26.44		1330	1357 1320
	1617						1340	1518 1520
	1631		28.60	.33	28.27		1340	
	1703						1340	
	1717						1340	
	1803						1340	
	1900						1350	
	2003						1370	
	2106						1370	
	2205						1380	
	2302						1400	
8-24-79	0004						1390	
	127						1390	
	205						1390	
	303						1400	
	402						1400	1931S
	0510						1390	
	0606						1400	
	0707						1400	
	0802						1350	
	0907						1400	
	1001						1400	
	1102						1350	

Pumped Well recovery

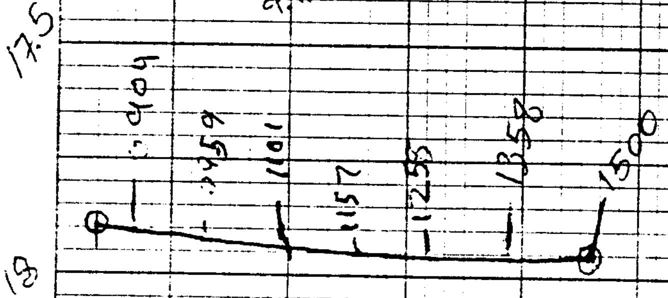
8/24/77

Nam	Time since pump stopped	#	R	DTW
	0' 30sec	19	3.15	15.85
1526	4' 30"	15	.13	14.87
1528	6 min	15	.28	14.72
1530	8 min	15	.64	14.36
1532	10	15	.90	14.1
1537	15 min	14	.48	13.52
1542	21	14	.85	13.15
1553	31 min	14	1.37	12.63
1607	46 min	14	1.80	12.14
1627	66 min	13	1.28	11.72

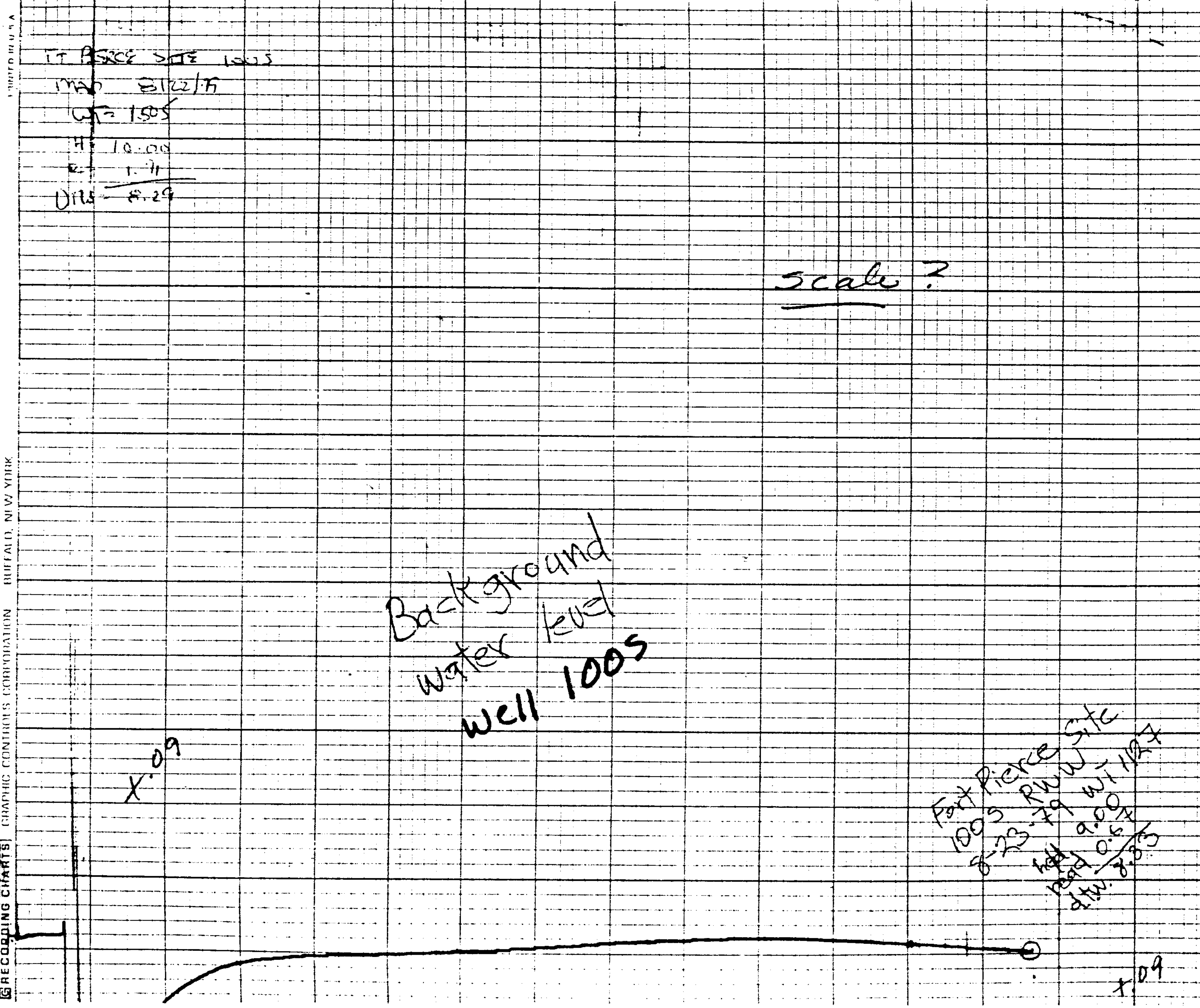
(2)

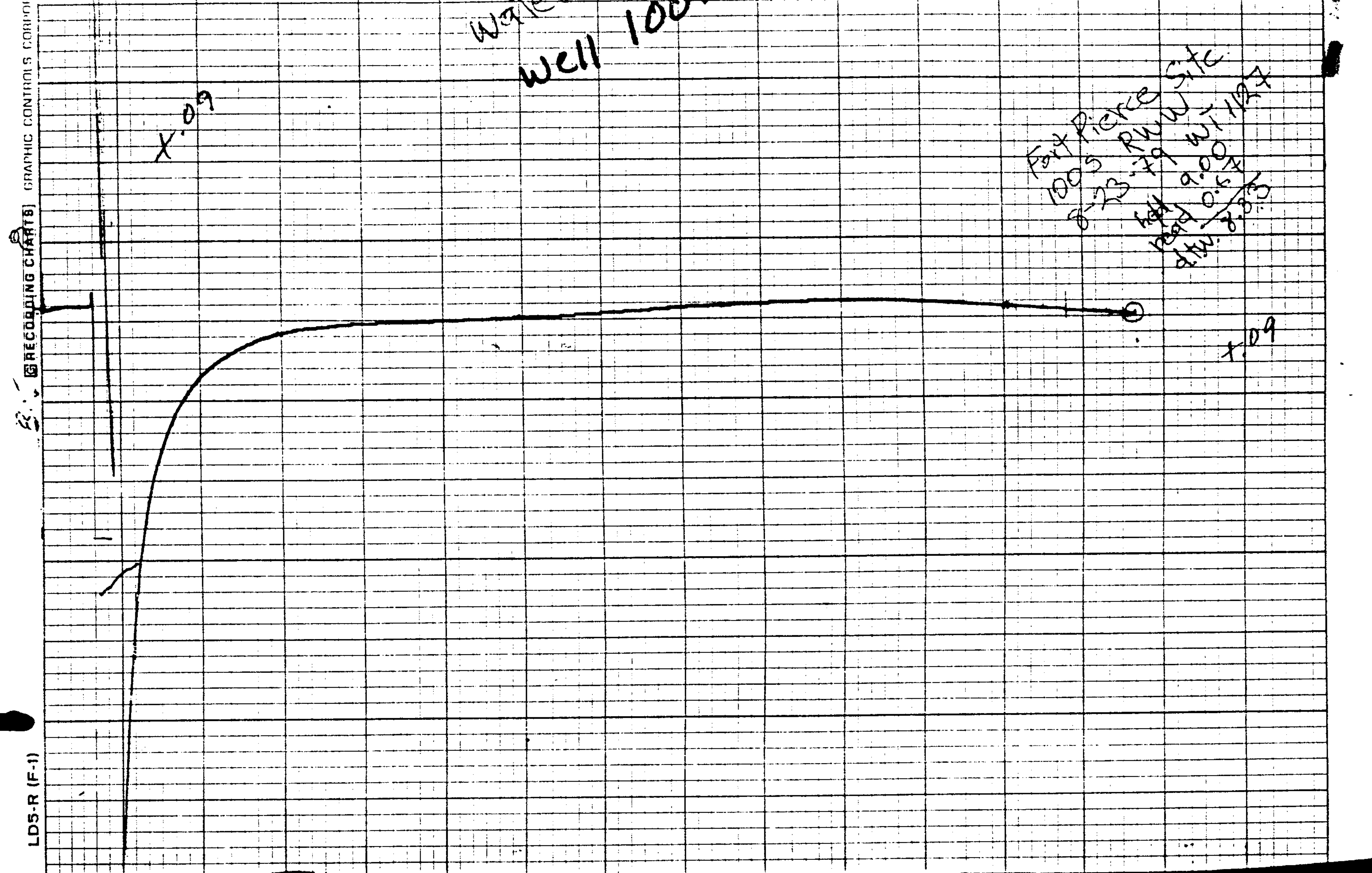
Fort Pierce Site
60W RWW
8-24-79 WT 0830
held 19.00
read 1.11
d.t.w. 17.89

D/O 60W

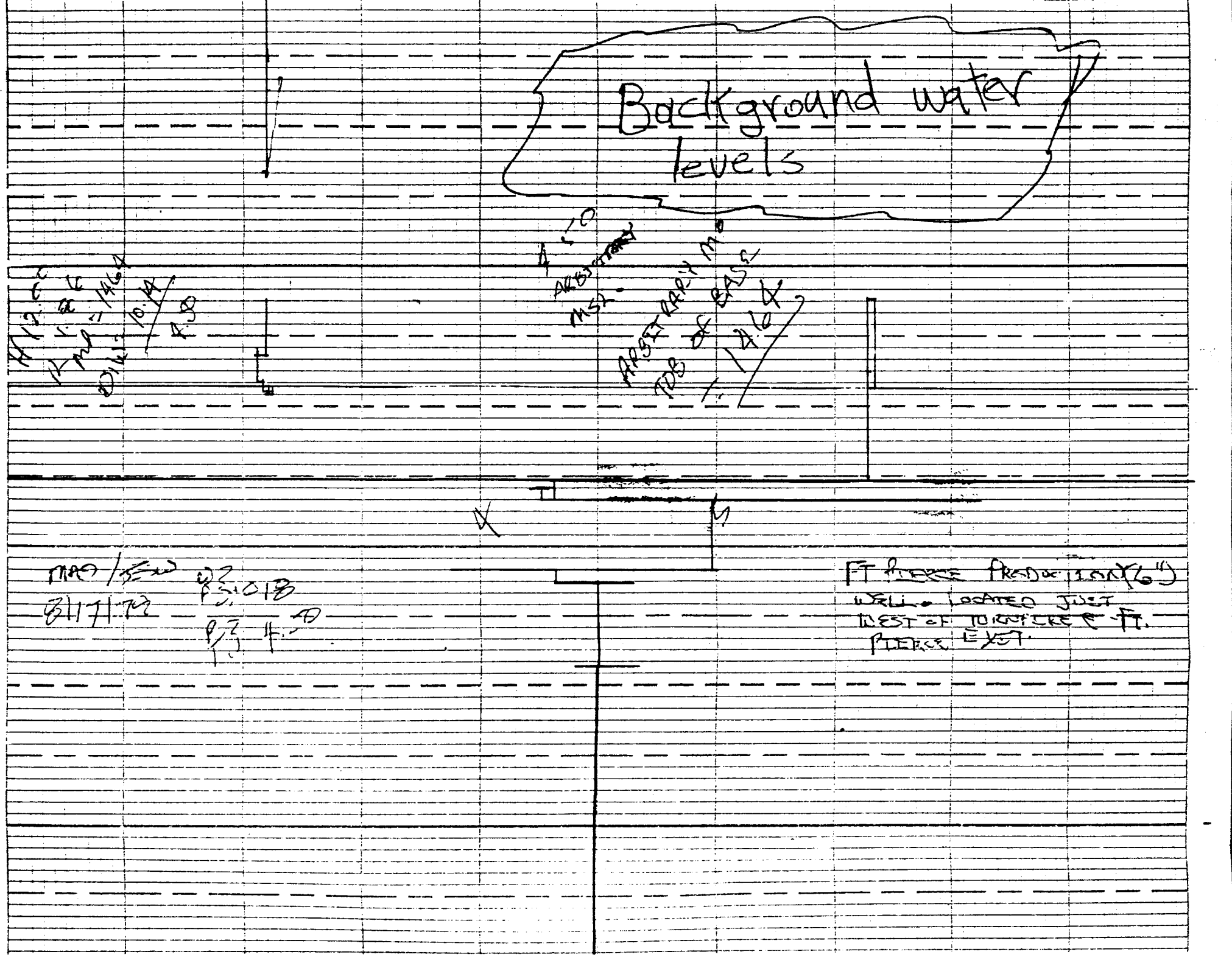


RWW
8-24-79
WT 1505
held 18.50
read 0.54
d.t.w. 17.96


RECORDING CHARTS
GRAPHIC CONTROLS CORPORATION
BUFFALO, NEW YORK
WT= 1505
H 10.00
1.71
8.29
Scale ?
Background
water level
well 1005
X.09
Fort Pierce Site
1005 RWW WT 1/2 ft
8-23-79
9.00 ft
head 0.6 ft
d.t.w. 8.83
x.09

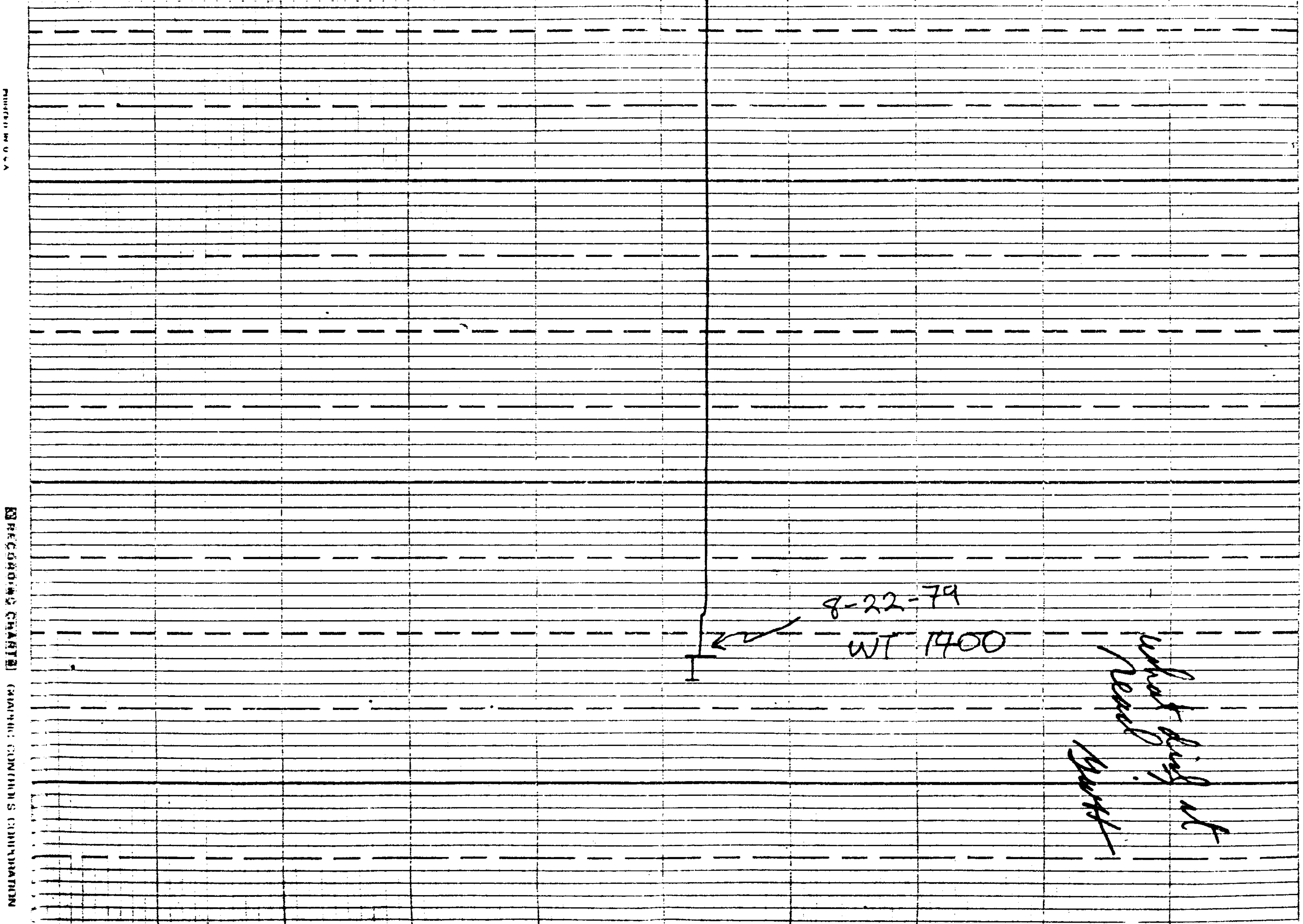


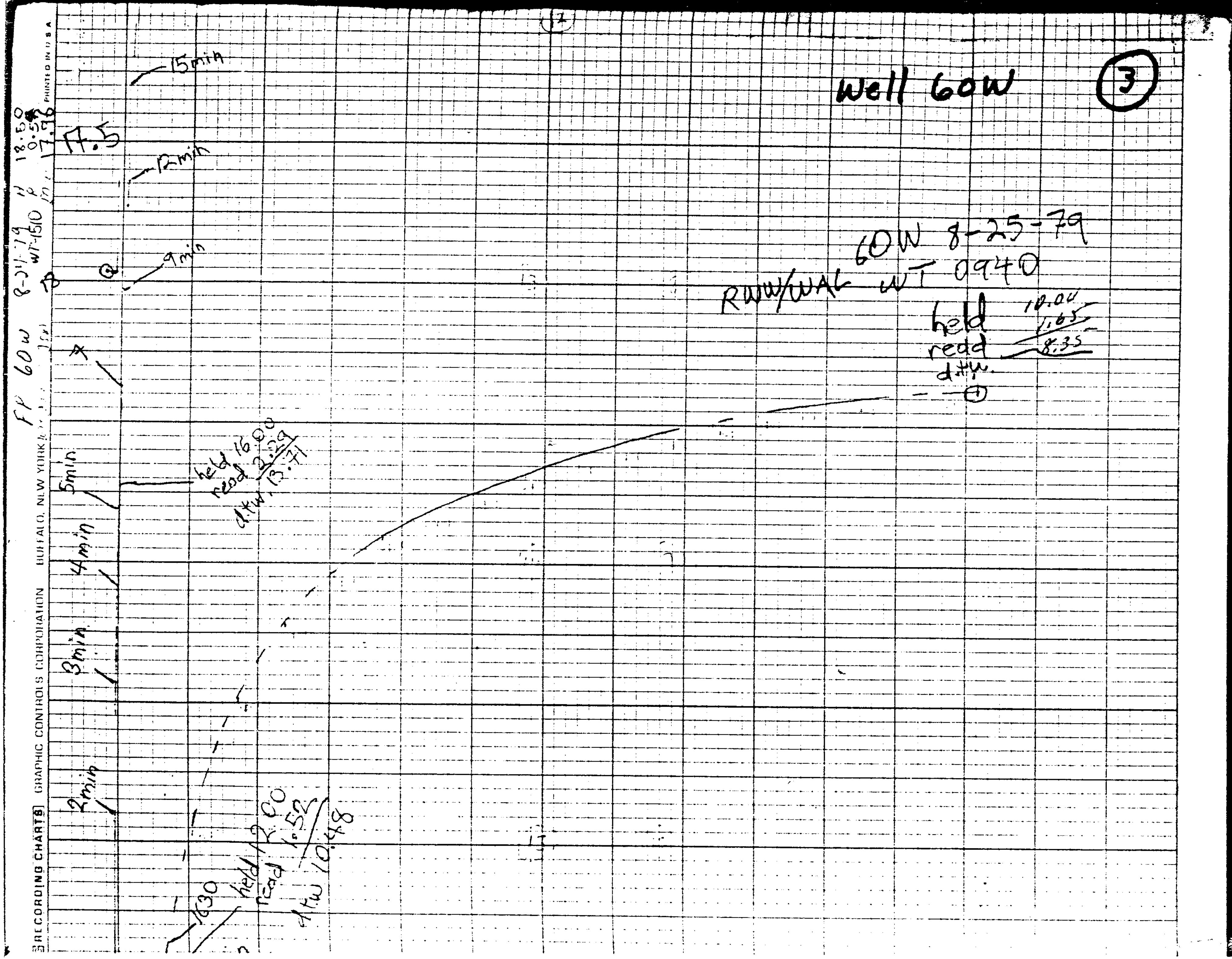
GRAPHIC CONTROLS
RECORDING CHARTS
LD5-R (F-1)
well 100
x.09
Fort Pierce Site
1005 RW
8-23-79
x.09



GRAPHIC CONTROLS CORPORATION BUFFALO, NEW YORK

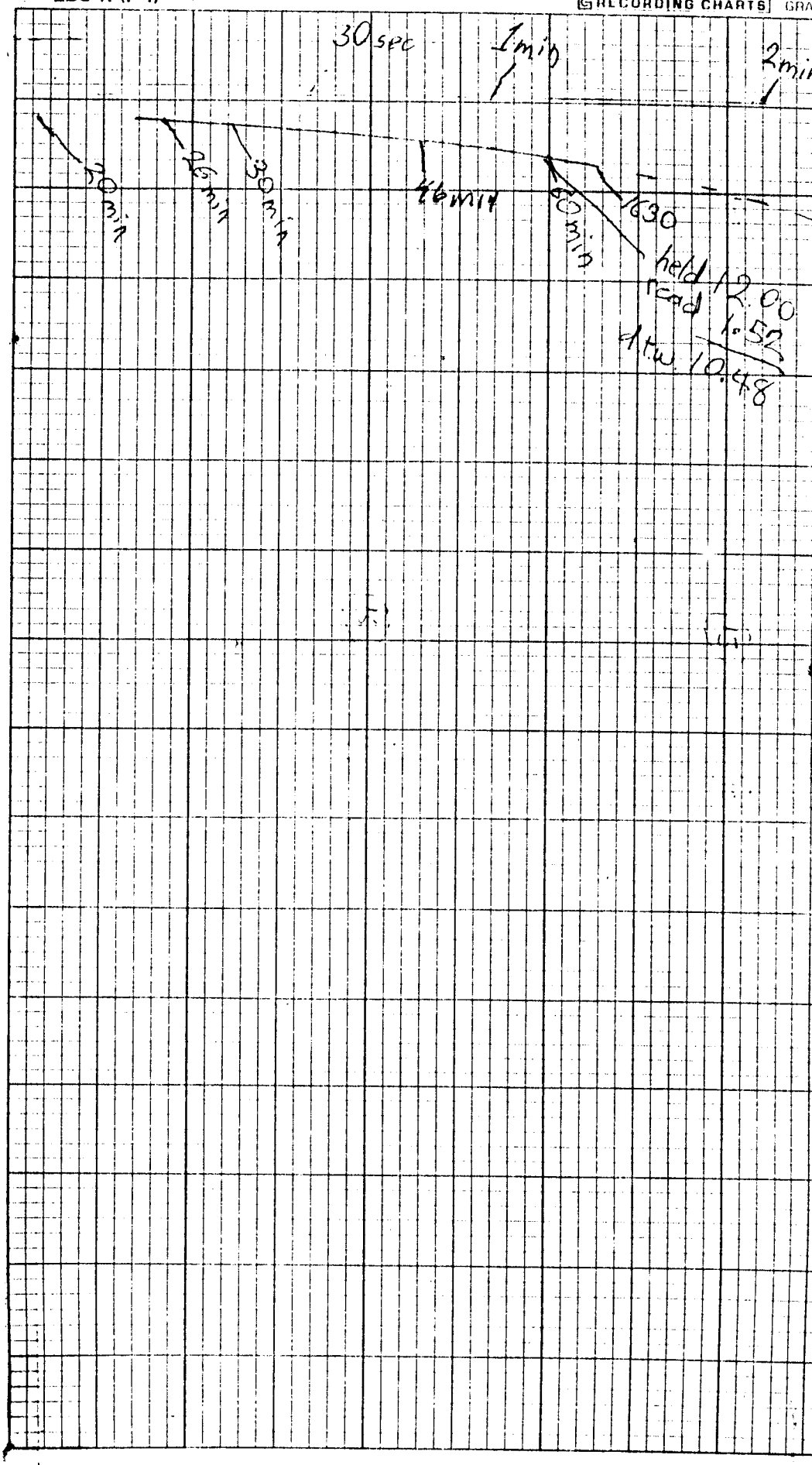
No. A10


8-22-79
WT 1400
RECORDING CHARTS GRAPHIC CONTROLS CORPORATION


Well 60W
3
60W 8-25-79
RWW/WAL WT 0940
held 10.00
redd 1.65
d.t.w. 8.35
FP 60W 8-24-79 WT-1510
h 18.50
R 0.54
17.96
17.5
15min
12min
9min
5min
4min
3min
2min
held 16.00
read 2.29
d.t.w. 13.71
1630
held 12.00
read 1.52
d.t.w 10.48
RECORDING CHARTS GRAPHIC CONTROLS CORPORATION BUFFALO, NEW YORK
PRINTED IN U.S.A.

LD5-R (F-1)

GRECORDING CHARTS GRA



WATER LEVEL RECORDER

S. P. S. # 10

Fort Pierce, Fla.

Location Ft Pierce Pump Test @ SSP & SR 70

Party [illegible] Date July, 1979

LINE	Station	Drill Depth	Csg Avg	Screen HI	Set Screen FS	Develop Avg	Standby Elev.	Remarks	REMARKS
1	Pump Well	115	73	70-110	1 hr	4 hrs		6 in well	
2									
3	~~PW~~	1150	438						
4									
5	FP-60W	123	80	70-110	½ hr	2 hrs	1½ hr	2 in	
6									
7	FP 200W	111	70	70-110	½ hr	3 hrs			
8									
9	FP -100S	117	75	72-112	½ hr	3 hrs			
10									
11	FP-300S	113	75	72-112	½	3 hrs			
12									
13									
14									
15									
16									
17									
18		2,320	900 00		300 00	1125 00	82.50		
19		1150 00	438 00	~~75 00~~	75 00				
20									
21									
22									
23								Tot 6,393.50	
24									
25									

Location SSP & SR 20 on Cordy Rd - Ft Pierce Exchange

Party Long Wilcox

Date 8/25/79

LINE	Station	BS	HI Elv. ~~Avg~~	HI	FS	Avg	Elev.	REMARKS
1								Start Arb. Datum 20 ft Top of
2		3.77	23.77				20.00	Conc R-W Mk. Cnr Fe Line Sawcut
3								inside cnr of Inter Change @ FT Pierce
4								
5	200				5.28	② 5.28	18.49	Well FP 200 W
6						6.28		LS 17.5
7	60				4.98	③ 4.98	18.79	Well FP 60 W
8						6.1		LS 17.7
9	0				3.68		20.09	Pumped Well FP-1 (NW cnr cap)
10						6.07		LS 17.70
11	28.5				3.80	② 3.80	19.97	Well FP 30 SO ← after running levels, adjusted m.p. (+0.13) by addin
12						6.35		LS 17.4
13	28.5				4.08		19.69	Shallow Well FP 30 SO a coupling to 305
14						6.0		LS 17.8
15	99.2				4.87		18.90	Well FP 100 S
16						6.44		LS 17.3
17	300				5.84	② 5.837	17.93	Well FP 300 S
18						5.90		LS = 17.9
19								
20								
21			23.77		3.77		20.00	Check back to start
22								
23								
24								
25								

Discharge Measurements — 3" orifice 6" pipe

Location: Fort Pierce pumping test

Party — Wilcox, Long, Wendorf, Cook Date: 8-23-79 & 8-24-79

time	head	discharge gpm	time	head	discharge	Rainfall	REMARKS
						.09	Just prior to test
1525	23½	194	8/24/79 1005	22½	158		
1531	31 ½	188	1104	22 3/8	158		
1544	30	183	1205	22 3/8	158		
1557	28 7/8	180	1304	22¼	157		
1608	28	177	1405	22¼	157		
1634	26 ½	173	1506	22¼	157		
1650	26	171	1517	22¼	157		
1724	25 1/8	168					
1800	25	167					weighted ave. Q = 163 gpm
1906	24 ⅛	164					
1942	24	164					
2006	23 3/4	163					
2108	23 5/8	163					
2212	23 ½	162					
2306	23 3/8	160					
0008	23 ⅛	160					
141	22 7/8	160					
210	22 7/8	160					
308	22 7/8	160					
[illegible]	22 3/4	159					
355	22 ⅝	159					
503	22 ⅝	158					
0612	22 ⅝	158					
0714	22 5/8	158					
		158					
0912	22½	158					

Location Ft Pierce Pump Test

Party Long Wilund Windolf Cook

Date 8-23-79

Date / Station	Clock Time / BS	Time min/pump / Avg	H / ~~HI~~	R / ~~FS~~	DTW / Avg	Elev.	RPM	REMARKS
8-23/79	1510		10.00	.60	9.40			Time RPM
8-	1520		29.00	.55	28.45		1330	1200 1380
	1525						1340	1360 1390
	1547		28.00	1.56	26.44		1330	1357 1320
	1617						1340	1518 1320
	1631		28.60	.33	28.27		1340	
	1703						1340	
	1717						1340	
	1803						1340	
	1900						1350	
	2003						1370	
	2106						1370	
	2205						1380	
	2302						1400	
8-24-79	0004						1390	
	127						1390	
	205						1390	
	303						1400	
	402						1400	193.15
	0510						1390	
	0606						1400	
	0707						1400	
	0802						1350	
	0907						1400	
	1001						1400	
	1102						1350	

Well 60W (3)

60W 8-25-79
RWW/WAL WT 0940
held 10.00
read 1.65
d.t.w. 8.35

15min
12min
9min
17.5
held 16.00
read 2.29
d.t.w. 13.71
5min
4min
3min
2min
held 12.00
read 1.52
d.t.w. 10.48
1630
60 min
1min
46min
30sec
30 min
25 min
20 min

WATER LEVEL RECORDER

GRAPHIC CONTROLS CORPORATION BUFFALO, NEW YORK PRINTED IN U.S.A.
RECORDING CHARTS
LD5-R (F-1)

Fort Pierce

D/D Well 200W

(1)

Fort Pierce Site
200W RWW WT 1110
8-23-79
held 8.00
read 0.32
d.t.w. 7.68

OK

Fort Pierce Site
RWW
200W
8-29-79 WT 0835
held 18.00
read 3.47
d.t.w. 14.53

OK

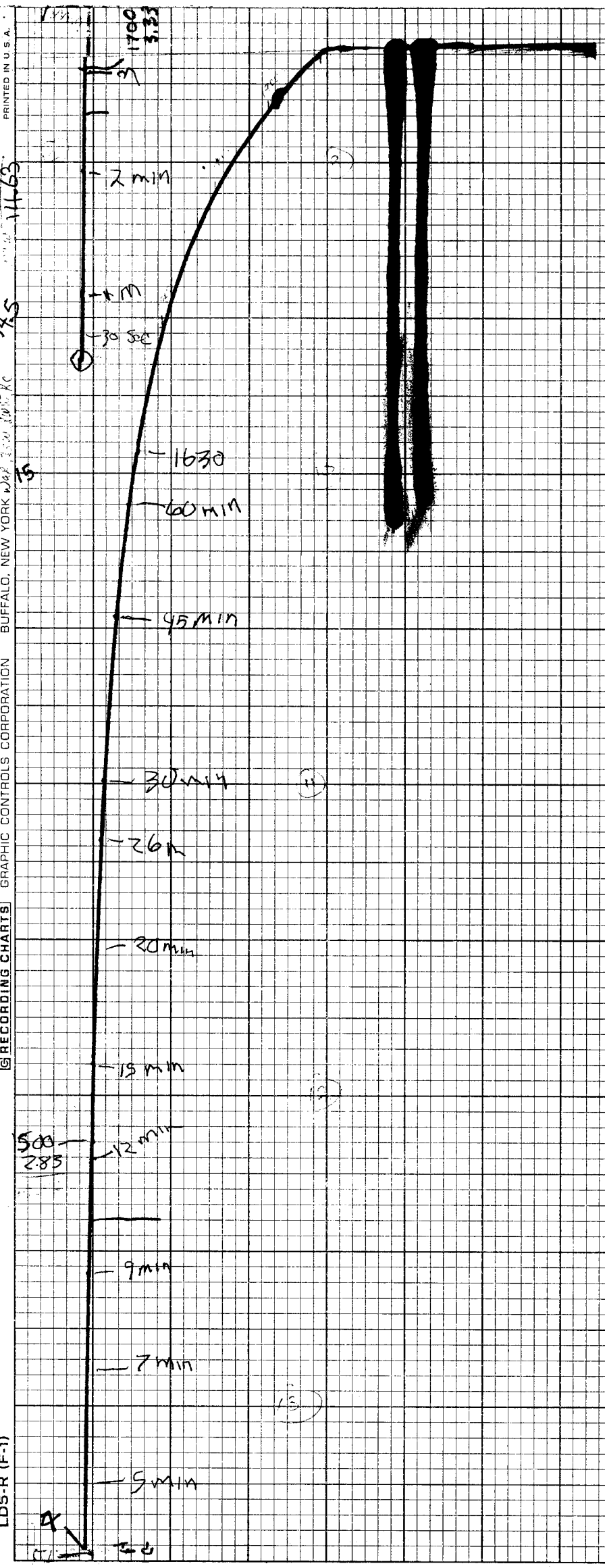
Fort Pierce Site
200W RWW/JSW
8-24-79 WT 0840
held 15.00
read 0.46
d.tw. 14.54

RWW
8-24-79
WT 1512

Fort Pierce Test
D/D 200W

(2)

Just this chart, right?



Fort Pierce

R/D Well 200N

Fort Pierce Site
PWW/WAL
@ 0930
1100
held
read
d.t.w. 11.94
8-25-71

WATER LEVEL RECORDER

GRAPHIC CONTROLS CORPORATION BUFFALO, NEW YORK PRINTED IN U.S.A.

GRECORDING CHARTS

LDS-R (F-1)

Fort Pierce Site
30S RWW
8-23-79 WT 125
held 10:00
read 0.69
d.t.w. 9.31

D/D

Well 30 South

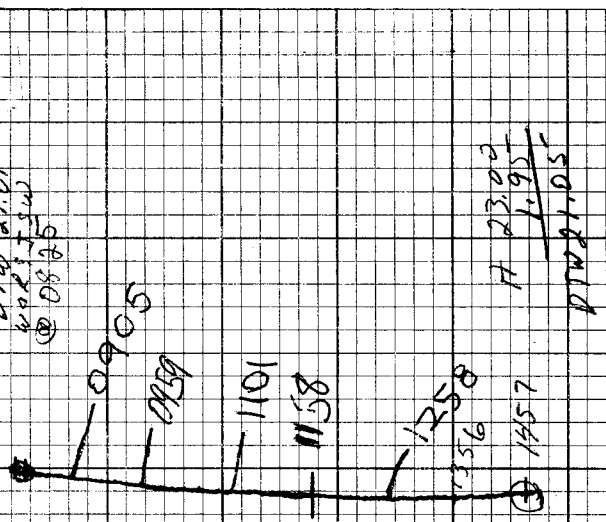
①

+0.04 [illegible]
+0.04 [illegible]
+0.06 [illegible]
RWW

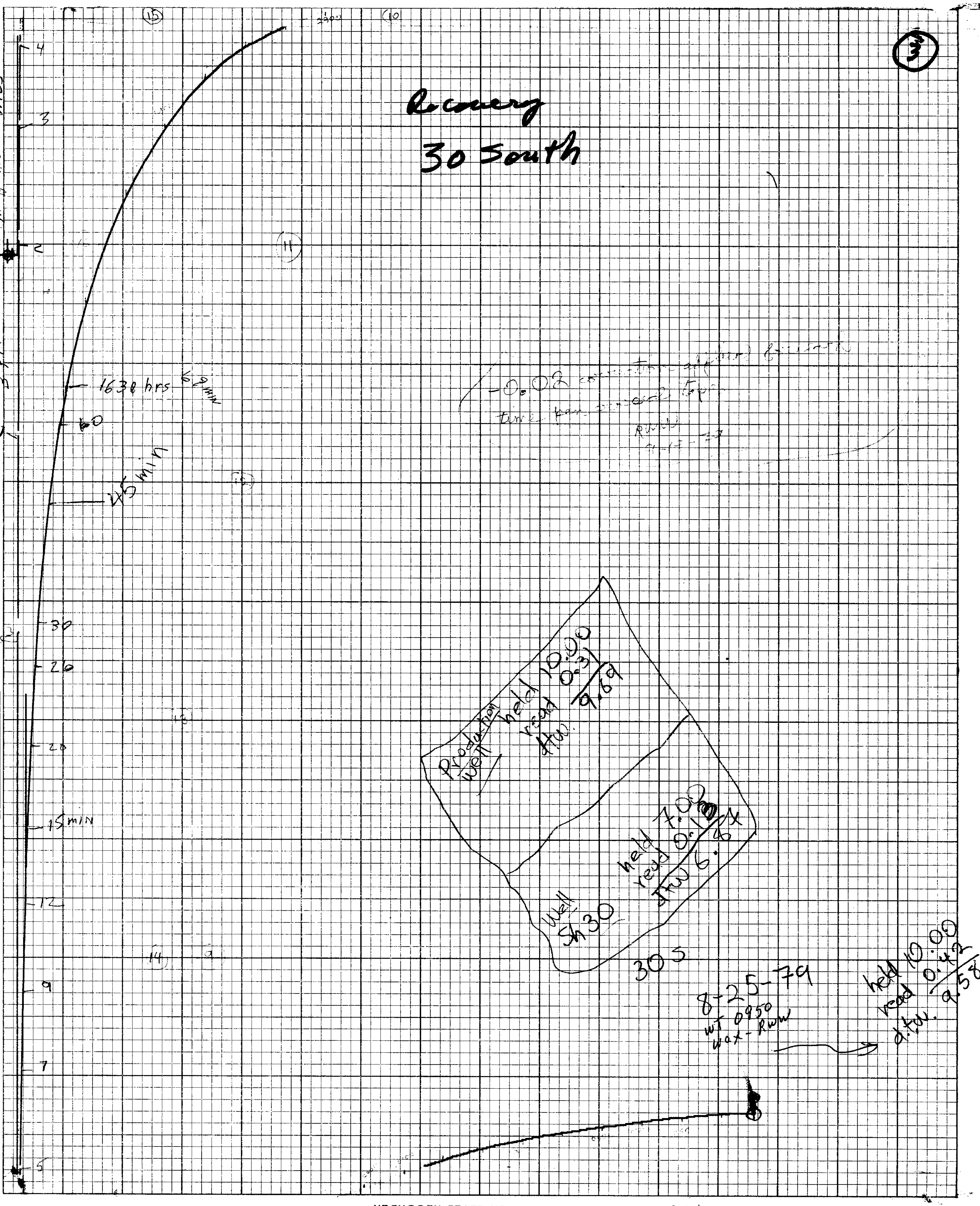
WATER LEVEL RECORDER

EDS-R (F-11) [illegible] RECORDING CHARTS GRAPHIC CONTROLS CORPORATION BUFFALO, NEW YORK PRINTED IN U.S.A.

Fort Pierce Test (2)
Well 30 South



WATER LEVEL RECORDER

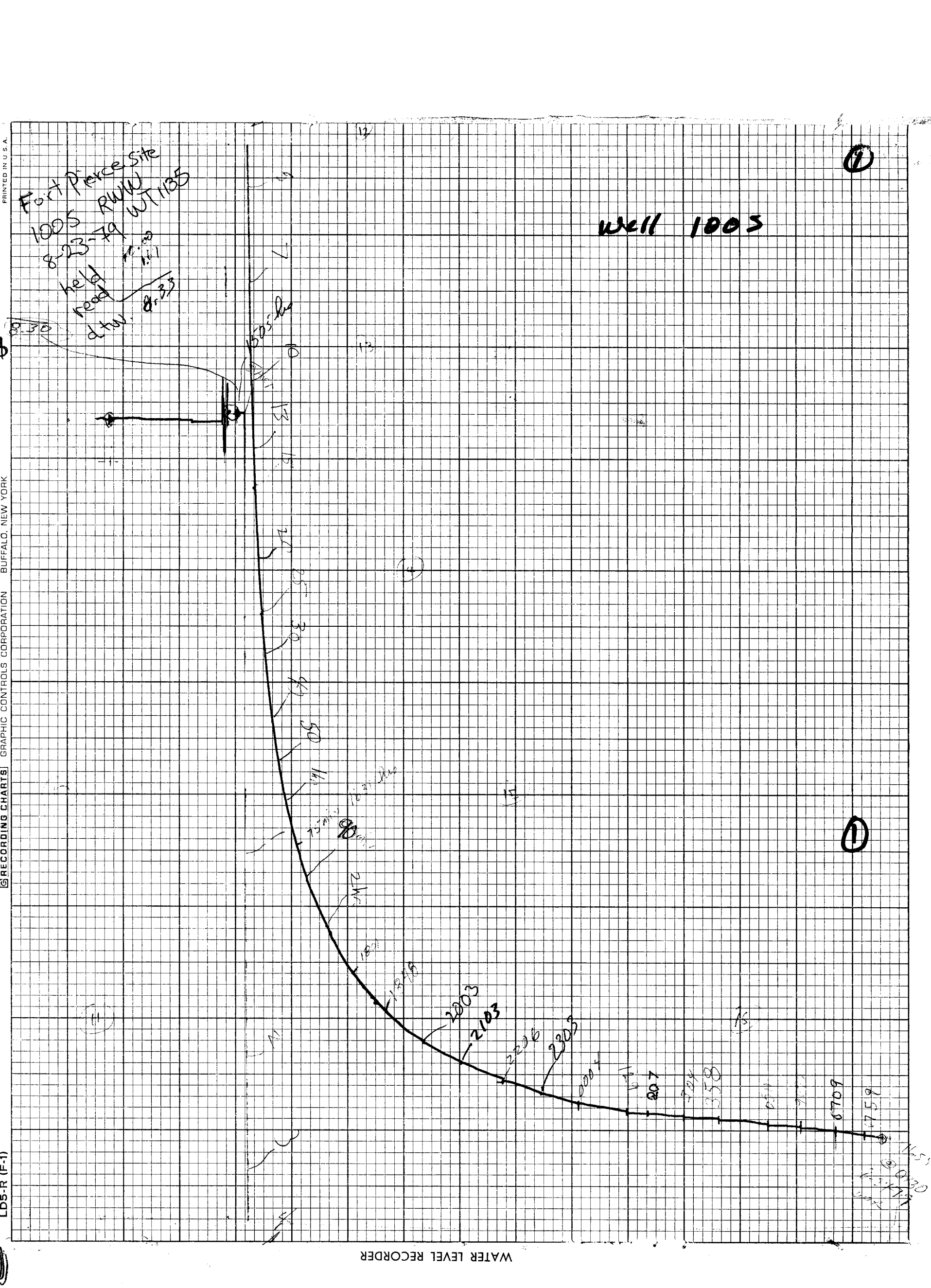


Recovery
30 South
1630 hrs
62 min
60
45 min
30
26
20
15 min
12
9
7
5
Production well
held 10.00
read 0.31
d.t.w. 9.69
Well Sh30
held 7.00
read 0.1?
d.t.w. 6.8?
30 S
8-25-79
wt 0950
wax - RWW
held 10.00
read 0.42
d.t.w. 9.58
WATER LEVEL RECORDER
GRAPHIC CONTROLS CORPORATION BUFFALO, NEW YORK
RECORDING CHARTS
LDS-R (F-1)

Fort Pierce Site
1005 RWW WT1135
8-23-79

held read down

Well 1005

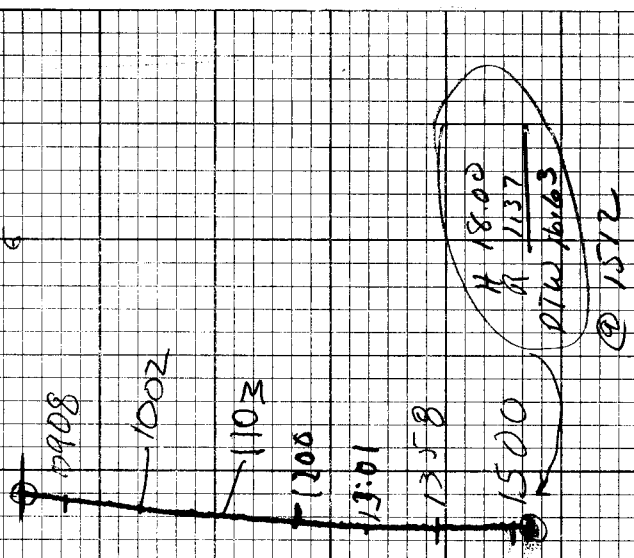


WATER LEVEL RECORDER

D/D

Fort Pierce Test
Well 100 S

(2)



WATER LEVEL RECORDER

LDS-R (F-1)

GRAPHIC CONTROLS CORPORATION BUFFALO, NEW YORK RECORDING CHARTS PRINTED IN U.S.A.

Recovery Data
Well 100S

Fort Pierce Test

(3)

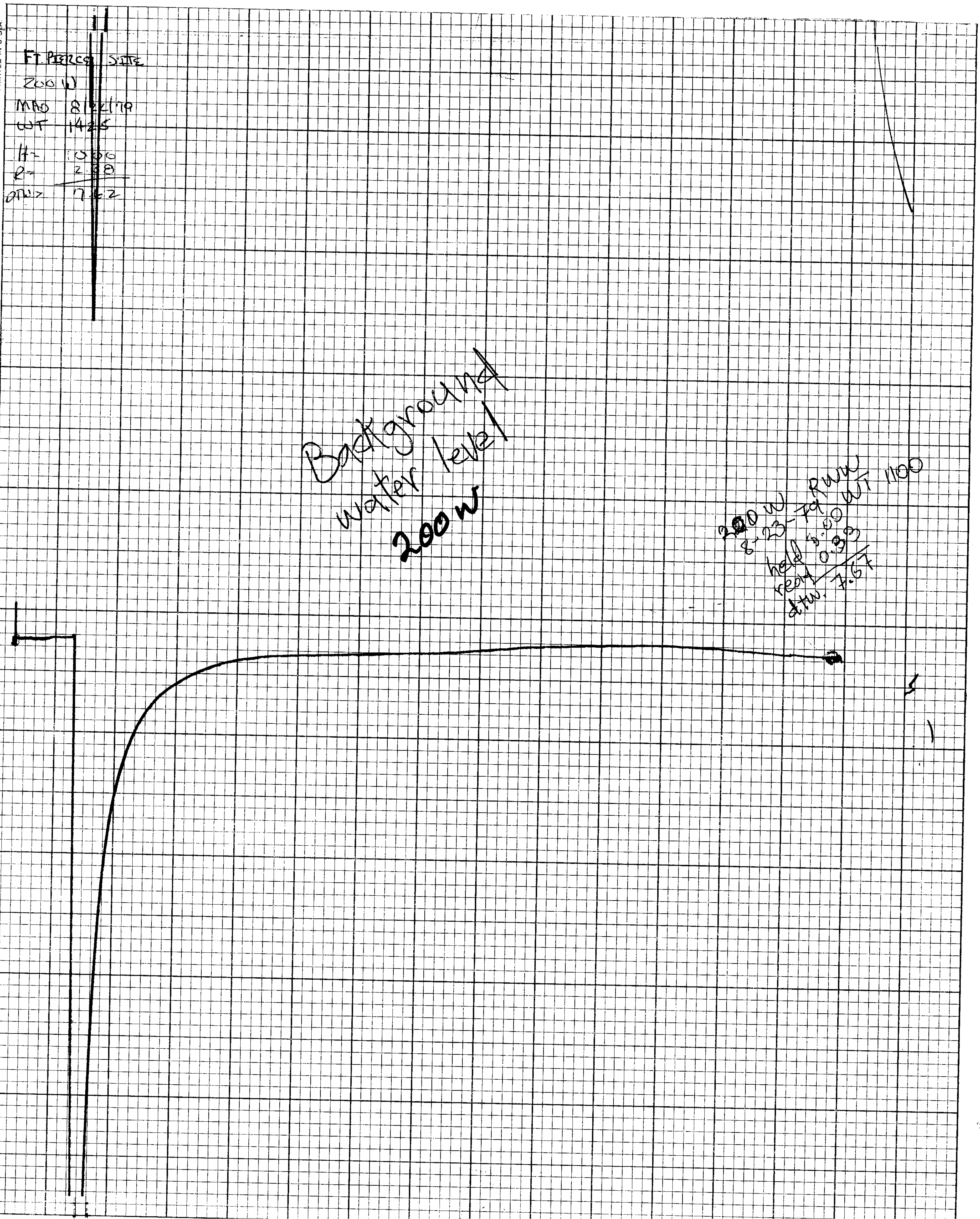
8-25-79
WT 1044
300S
held 9.00
read 1.28
dtw. 7.72

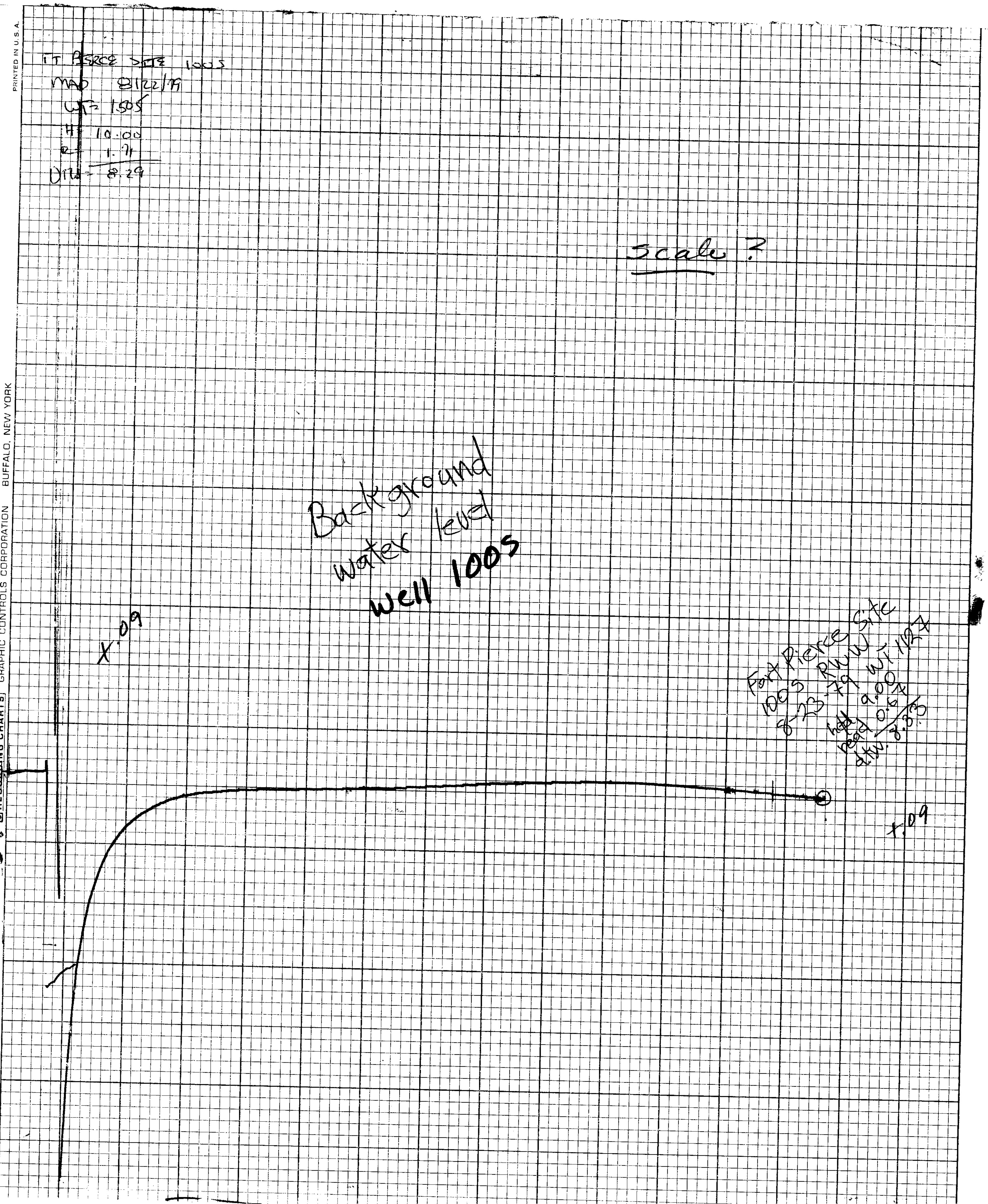
100S
8-25-79 RWL WAR 1000
held 12.20 WT 342
read 3.42
dtw. 8.58

WATER LEVEL RECORDER

SSP & SA70

Fort Pierce - F/S





Item 6

9-194
November 1949

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

Sh 30

WATER LEVEL MEASUREMENTS (Field) Measured by Wilcox, Long, Wendorf

Location of Project Fort Pierce Pumping test

DATE	HOUR	WELL NO.	TAPE READING AT— Meas. point	TAPE READING AT— Water level	DEPTH TO WATER	REMARKS
8-23-79	1445		8.00	3.69	4.31	
	1507		8.00	3.63	4.37	
	1514		9.00	4.62	4.38	
	1517	2 MIN	8.00	3.61	4.39	← Started pump 1515
		3 MIN	8.00	3.61	4.39	
		14 MIN	8.00	3.59	4.41	
		30 MIN	6.00	1.56	4.44	
	[illegible]		7.00	2.52	4.48	
	1608		7.50	3.01	4.49	
	1615	60 MIN	6.00	1.49	4.51	
	1630		5.00	.47	4.53	
	1646		5.00	.44	4.56	
	1703		6.00	1.44	4.56	
	1716		5.00	.41	4.59	
	1802		5.00	.84	4.66	
	1859		5.00	.26	4.74	
	2002		8.0	3.16	4.84	
	2103		14.00	9.06	4.94	+ 2
	2204		6.00	.97	5.03	
	2302		6.00	0.90	5.10	
8-24-79	0004		6.00	.83	5.17	
	127		6.00	.73	5.27	
	204		6.00	.68	5.32	

U. S. GOVERNMENT PRINTING OFFICE 16—51605-2

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
8/24/79	0302		6.0	.61	5.39	
	0400		6.0	.52	5.48	
	0510		6.00	0.46	5.54	
			6.00	.38	5.62	
	0707		6.00	0.32	5.68	
	0802		6.00	0.26	5.74	
	0906		6.00	0.18	5.82	
	1000		7.00	1.13	5.87	
	1101		7.00	1.08	5.92	
	1159		7.00	1.02	5.98	
	1259		7.00	0.97	6.03	
	1354		7.00	0.91	6.09	
	1500		7.00	0.85	6.15	
	1518		7.00	.84	6.16	
	1 MIN		7.0	.81	6.19	
	7'30"		7.00	.83	6.17	
	9'30"		7.00	.83	6.17	
	11 MIN		7.00	.83	6.17	
	20 MIN		7.00	.81	6.19	
	29 MIN		7.00	.79	6.21	
	45 MIN		9.00	2.79	6.21	
1627	65 MIN		7.00	.77	6.23	

8-25-79

U. S. GOVERNMENT PRINTING OFFICE 16—51605-2

Item 9

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

300 S

Start 1516 *1

WATER LEVEL MEASUREMENTS (Field) Measured by _____

Location of Project Fort Pierce (pumping test)

DATE	HOUR	WELL NO.	TAPE READING AT— Meas. point	TAPE READING AT— Water level	DEPTH TO WATER	REMARKS
8-23-79	1440		9.00	1.51	7.49	
	1518		9.06	1.28	7.72	
	1520		9.00	0.83	8.17	
	152[illegible]		12.00	3.43	8.57	
	1525		10.00	1.02	8.98	
	1535		10.00	0.29	9.71	
	1545		11.00	0.89	10.11	
	1600		11.00	0.49	10.51	
	1609		12.00	1.29	10.71	
	1636		12.00	0.91	11.09	
	1649		12.00	0.81	11.19	
	1725		12.00	0.55	11.45	
	1809		14.00	2.32	11.68	
	1908		13.00	1.14	11.86	
	1[illegible]		13.00	1.06	11.94	
	2008		13.00	1.05	11.95	
	2110		13.00	0.90	12.10	
	22[illegible]2		13.00	0.84	12.16	
	2308		13.00	0.78	12.22	
8/24/79	0007		13.00	0.72	12.28	
	0041		13.00	0.67	12.33	
	0209		13.00	0.64	12.36	
	3[illegible]7		13.00	1.63	12.37	

U. S. GOVERNMENT PRINTING OFFICE 16—51605-2

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
8/[illegible]	3[illegible]6		14.00	.61	13.[illegible]	
	0520		15.00	.59	12.41	
	0[illegible]02		13	.[illegible]7	[illegible]	
	0711		13.00	0.54	12.46	
	0[illegible]10		13	.[illegible]	[illegible]	
	0910		13.00	0.49	12.51	
	1004		13.00	0.47	12.53	
	1104		13.00	0.45	12.55	
	1204		13.00	0.43	12.57	
	1303		13.00	0.42	12.58	
	1404		13.00	0.42	12.58	
	1504		13.00	0.41	12.59	
	1516		13.00	0.41	12.59	
	1 min		13.00	.58	1242	Pump off
	3 min		13.00	1.27	11.73	
	5 min		12.00	0.22	11.78	← ?
	10 min		12.00	0.63	11.37	
	16 min		12.00	1.06	10.94	
	22		12.00	1.36	10.64	
	27		12.00	1.57	10.43	
	48 min		11.00	1.07	9.93	
	65 min		11.00	1.40	9.60	
8-25-79	1047		9.00	1.28	7.72	

U. S. GOVERNMENT PRINTING OFFICE 16—51605-2

Background water levels

MAG/EW 8/17/72

FT PIERCE PRODUCTION(6") WELL LOCATED JUST WEST OF TURNPIKE & FT. PIERCE EXIT.

(1)

Ft Pierce 8-23-79

D/D
Well 60W

9-195
(July 1949)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

8-23-79

WATER LEVEL MEASUREMENTS (Office)

Well ~~Owner~~ 60 S — Field No. ______

Office No. ______

Location Fort Pierce pumping test — Project ______

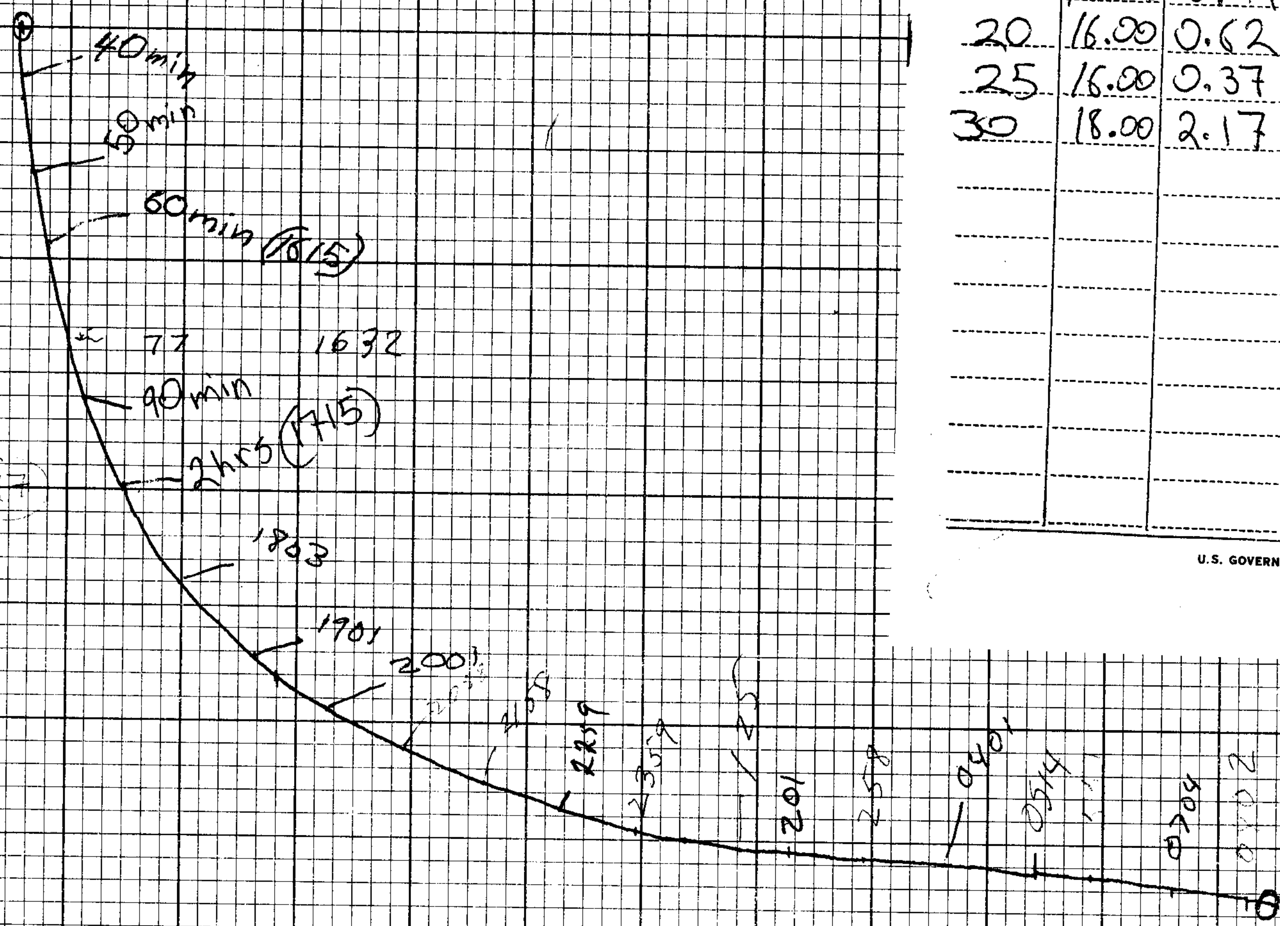
Measuring Point top of 2" coupling

Elevation of Measuring Point ______

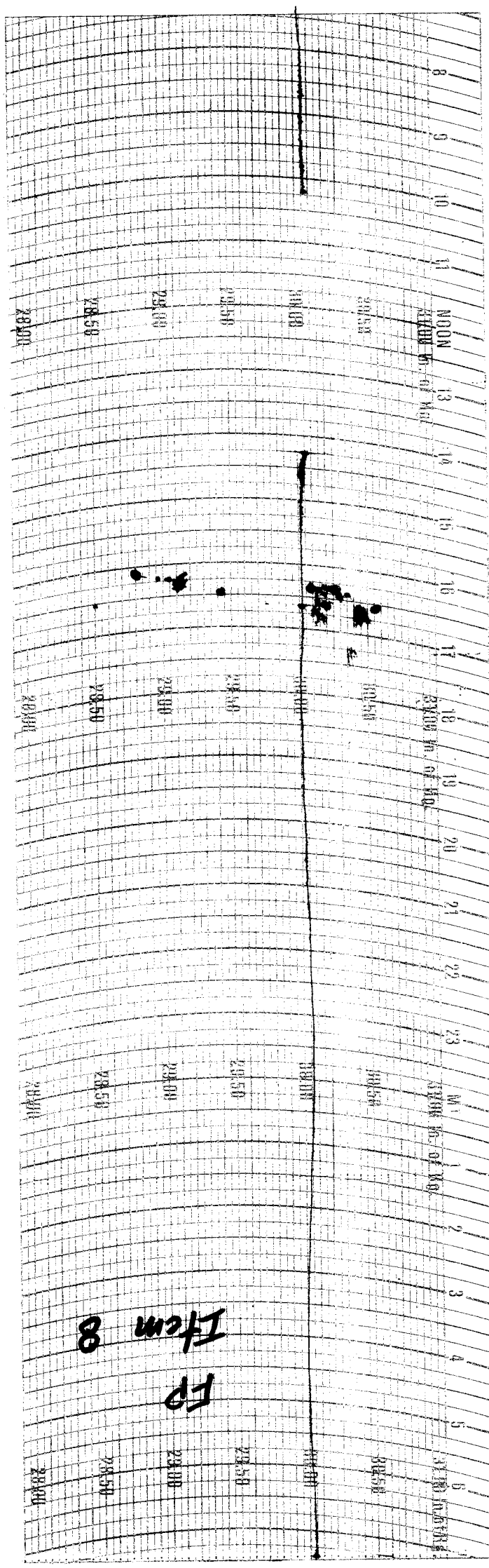
~~Date~~ time	~~Hour~~ held	~~Depth to Water~~ read	~~Elevation Water Surface~~ d. t. w.	Meas. by	Remarks (Nearby wells pumping, etc.)
3 min	18.00	5.60	12.40		malfunctioning
4	15.00	1.69	13.31		Keck at beginni
5	14.00	0.40	13.60		of test, initial
7	15.00	0.95	14.05		d.t.w. prior to
10	15.00	0.60	14.40		start of test
13	16.00	1.17	14.83		8.08'
16	16.00	0.91	15.09		
20	16.00	0.62	15.38		
25	16.00	0.37	15.63		
30	18.00	2.17	15.83		

U.S. GOVERNMENT PRINTING OFFICE : 1963 O—688576

886-688



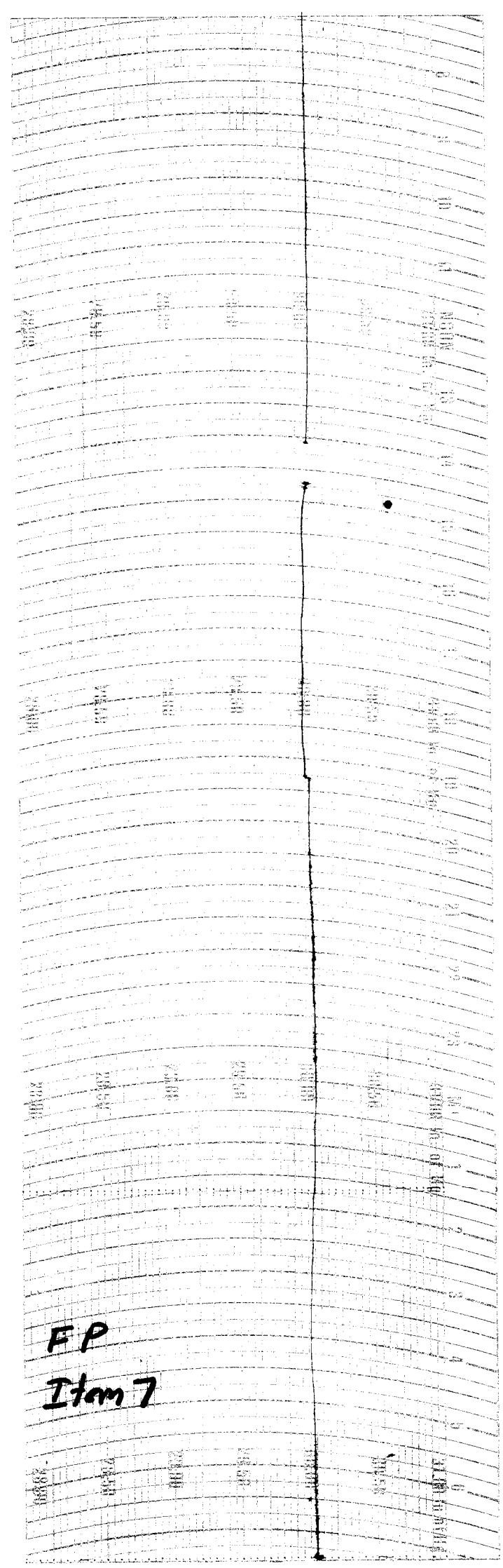
held 19.9
read [illegible]
d.tw. [illegible]09



WEATHER MEASURE CORPORATION
P. O. BOX 41257 · SACRAMENTO, CALIFORNIA 95841
TELEPHONE (916) 481-7585

BAROGRAPH
D201-D-HG

STATION Fort Pierce Pumping Test (4415) DATE ON 8-24-79 DATE OFF 8-25-79 (1640)



WEATHER MEASURE CORPORATION
P. O. BOX 41257 · SACRAMENTO, CALIFORNIA 95841
TELEPHONE (916) 481-7585

BAROGRAPH
D201-D-HG

STATION Fort Pierce Pumping test (4410) DATE ON 8-23-79 DATE OFF 8-24-79 (1429)

46 7520

Fort Pierce Test
August 23-24, 1979

Comp. by GWH

Delayed Yield Solution Pl 8, pp. 708

Well 200 w

$T = \frac{163 \times 1440 \times 10}{4\pi \times 1.55}$

$T = 12,050$

$= 1,610 \text{ ft}^2 \text{day}^{-1}$

$S = \frac{4 \times 16.10 \times 10.3}{(200)^2 \times 1440 \times 10}$

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

Well 200
r = 200 ft
Q = 163

Theis

$T = 1,780 \text{ ft}^2/\text{day}$

$\frac{4\pi T t}{Q} = \frac{1}{\Gamma}$

$\frac{4Tt}{r^2 S_e} = 10$

$t = 10.5 (9.5)_2$

$t = 1.55 (1.50)_x$

① Image Theory

$\Sigma W(u) = 1.0$

$1/u_p = 10$

$u = 1.4$

$t = 9.4$

$K = 10$

$Y_i \sqrt{200^2 \times 600} = 1922$

5.6

1 10 100 1000 t

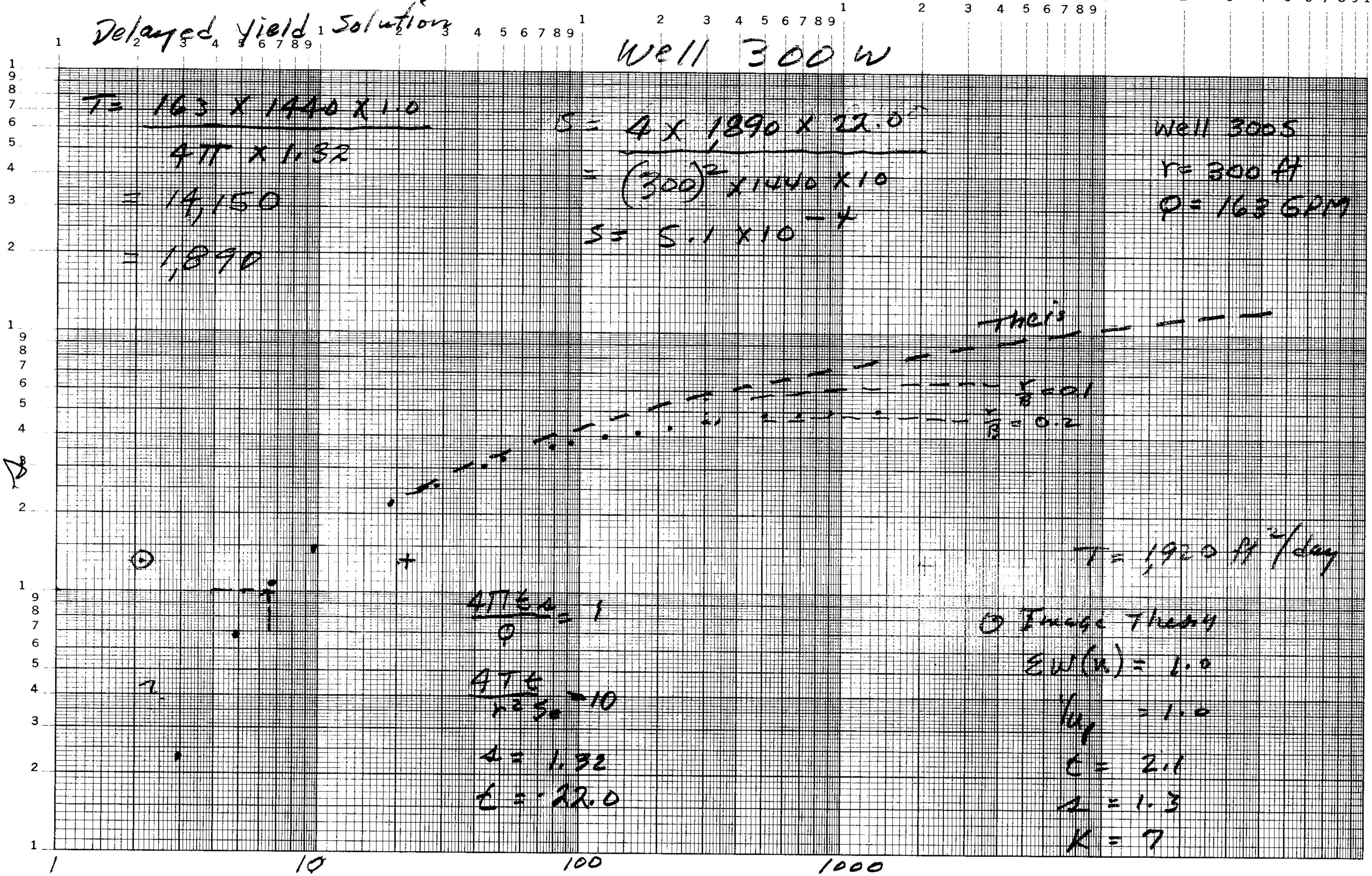
0.1 1 2 3 4 5 6 7 8 9 10 y

K+E LOGARITHMIC 3 x 5 CYCLES
KEUFFEL & ESSER CO. MADE IN U.S.A.

46 7520

Fort Pierce Test
August 23-24, 1979

Comp. by GWH



5.6
4.6
1.0

t

$$r_i \sqrt{\frac{(300)^2 \times 300}{6.5}} = 2038$$

46 7520

Fort Pierce Test
August 23-24, 1979

Comp. by GWH

Delayed Yield Solution

Well 100 S
r = 100 ft
Q = 163

$T = \frac{163 \times 1440 \times 10}{4\pi \times 1.55} = 12,850 = 1610\ ft^2 day^{-1}$

Well 100 S

$S = \frac{4 \times 1610 \times 2.0}{(100)^2 \times 1440 \times 10}$

$S = 9 \times 10^{-5}$

Theis

T = 1920

⊙ -- Image Theory

$\Sigma W(u) = 1.0$

$1/u_p = 10$

$C = 1.2$

$a = 1.2$

$K = 25$

$r_i = \sqrt{\frac{(100)^2 \times 600}{1.1}} = 2335$

⊙ $\frac{4\pi T s}{Q} = 1$

$\frac{4Tt}{r^2 Se} = 10$

$t = 2.0$

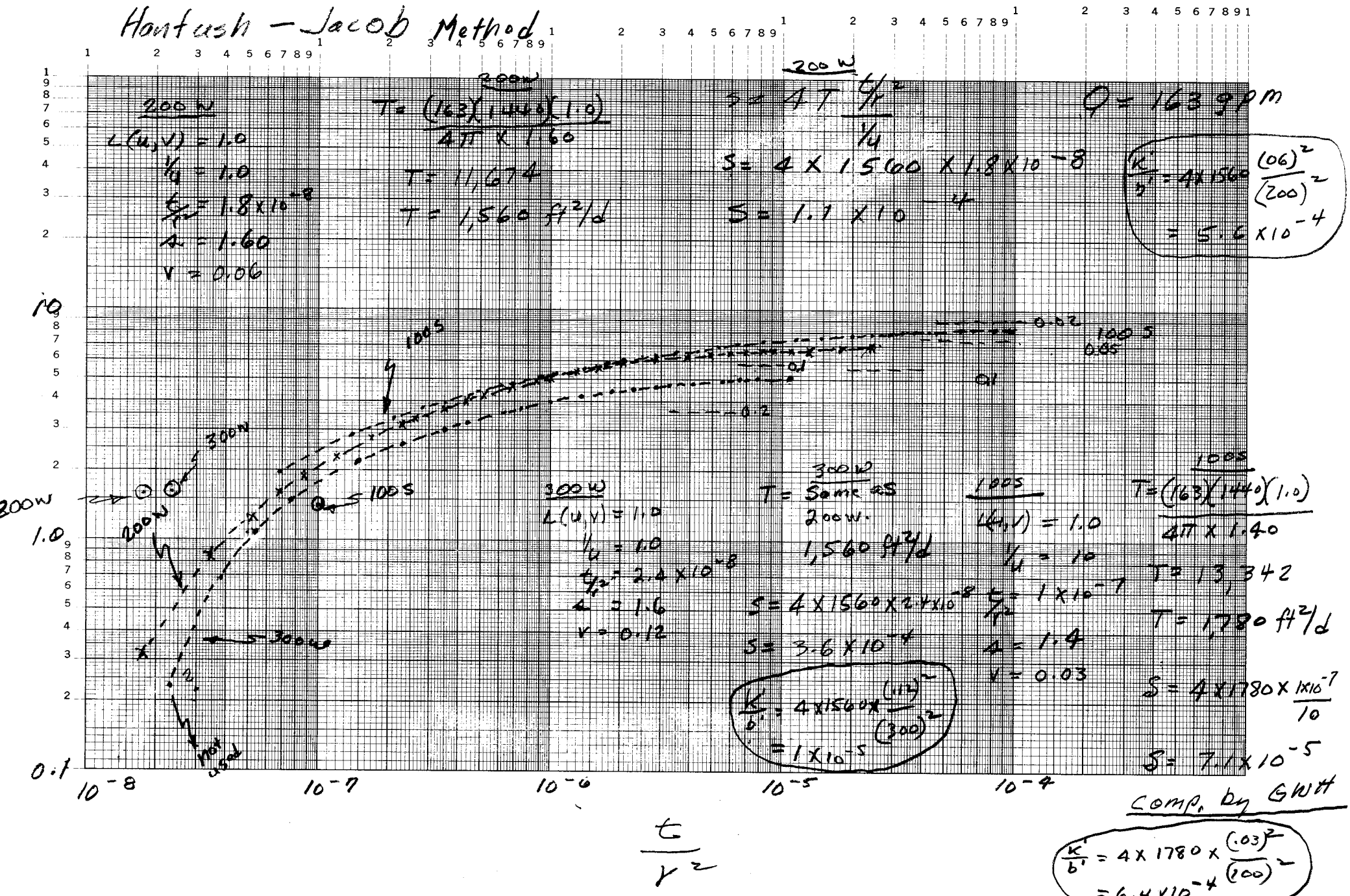
$s = 1.55$

s

t

Fort Pierce Test

Hantush – Jacob Method



Comp. by GWH

$\frac{K'}{b'} = 4 \times 1780 \times \frac{(.03)^2}{(100)^2}$

$= 6.4 \times 10^{-4}$

Fort Pierce Test
August 23-24, 1979

Superseded

Bounded Aquifer (Plat. 9)

Obs. Wells 100S & 200W

Well 100S

△ $\Sigma W(u) = 1.0$
$1/u = 10$
$t = 8.2$
$s = 1.40$
$K = 10$

$T = \frac{163 \times 1.0}{4\pi \times 1.40}$
$= 13,340$
$= 1,780$

$S = \frac{4 \times 2,153 \times 8.2}{100^2 \times 1440 \times 10}$

$S = .00049 \ (4.9 \times 10^{-4})$

Well 200W

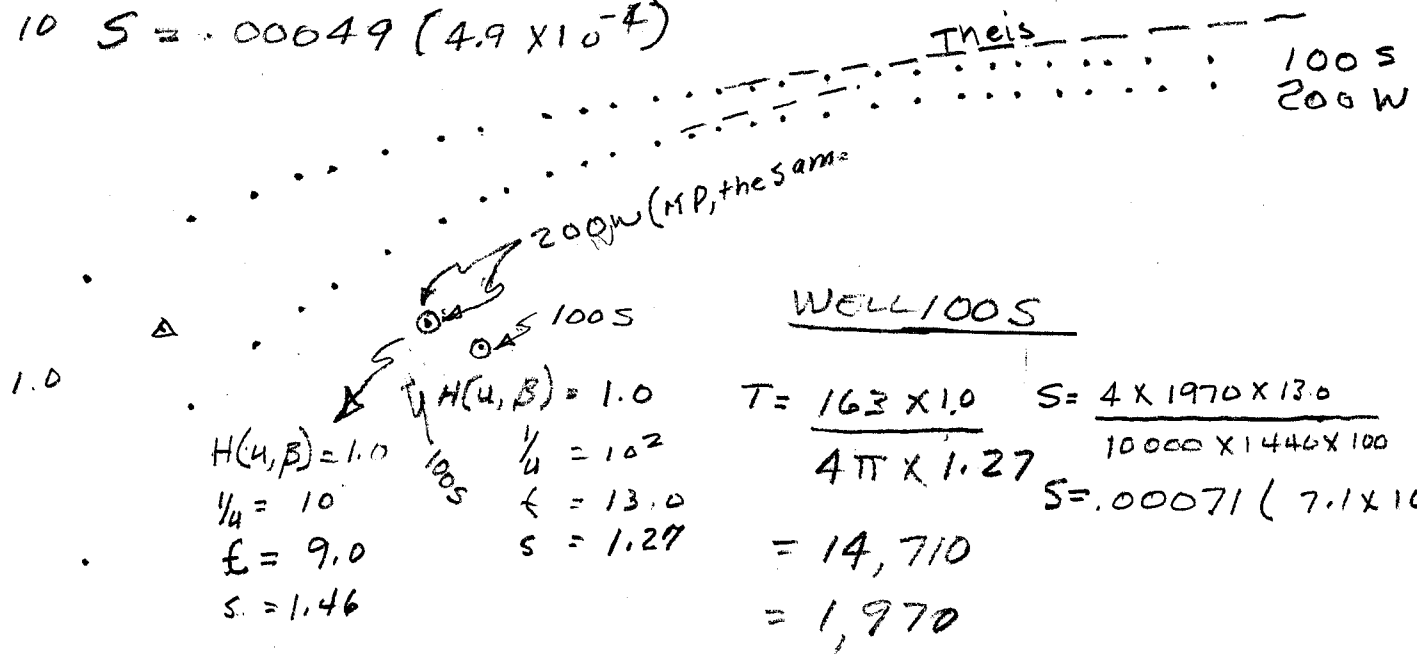
△ $\Sigma W(u) = 1.0$
$1/u = 10$
$t = 9.0$
$s = 1.46$
$K = 10$

$T = \frac{163 \times 1.0}{4\pi \times 1.46}$
$= 12793$
$= 1710$

$S = \frac{4 \times 1710 \times 9.0}{200^2 \times 1440 \times 10}$

$S = 1.1 \times 10^{-4}$

200W: $r = 200$, $Q = 163$
100S: $r = 100$, $Q = 163$



K 35
K = 10

WELL 200W

$T = \frac{163 \times 1.0}{4\pi \times 1.46}$
$= 12,790$
$= 1,710$

$S = \frac{4 \times 1710 \times 9.0}{40000 \times 1440 \times 10}$

$S = .000011 \ (1.1 \times 10^{-4})$

WELL 100S

$T = \frac{163 \times 1.0}{4\pi \times 1.27}$
$= 14,710$
$= 1,970$

$S = \frac{4 \times 1970 \times 13.0}{10000 \times 1440 \times 100}$

$S = .00071 \ (7.1 \times 10^{-4})$

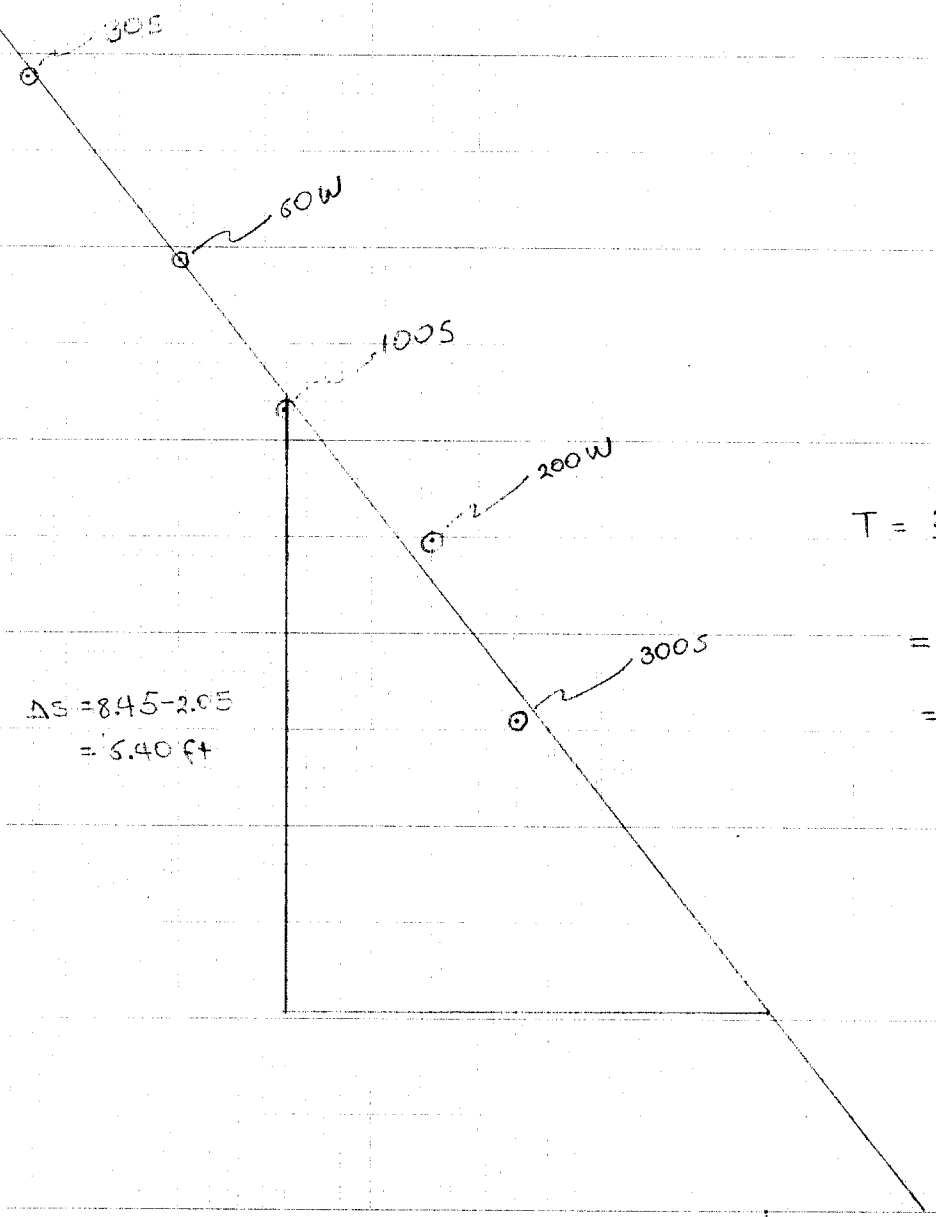
0.1 ⊙ Hantush Modified
1 10 100 1000
t

Comp by GWH

for Pierce Pumping Test
8-23 thru -79

THEIM METHOD

$s = 21.23 - 6.39 \log r$ (from logarithmic regression of points, HP-97)



30.00	***	
11.77	***	
60.00	***	
9.88	***	
99.00	***	
8.32	***	
200.00	***	
6.97	***	
300.00	***	
5.10	***	
coefficients		
r^2 =	0.99	***
a =	21.23	***
b =	-2.78	***

$$T = \frac{2.30\,Q}{2\pi\,\Delta s} = \frac{2.30\,(163)\ \text{gal/min}\,(1440)\ \text{min/d}}{2\pi\ \ 6.40\ \text{ft}}$$

$= 13{,}400\ \text{gal d}^{-1}\text{ft}^{-1}$

$= 1{,}790\ \text{ft}^2\text{d}^{-1}$

RWW
9-24-79

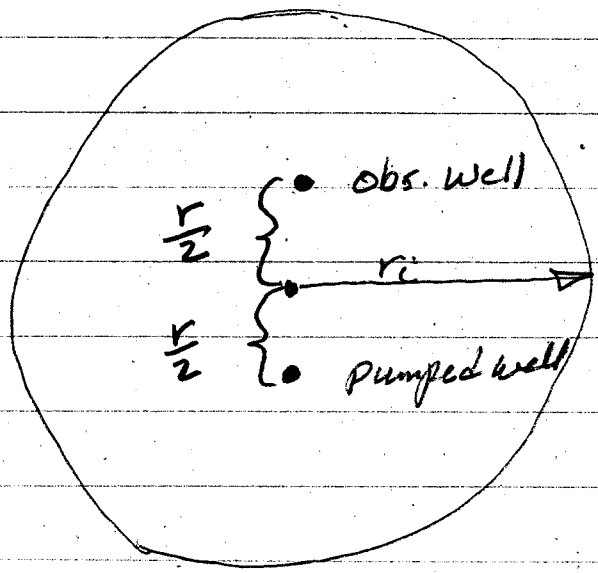
Fort Pierce Aquifer Test

August 23-24, 1979

by: GW Hill 1/6/80

Estimation of Image well radius, PL 9

$r = 60$	$K = 25$	$r_i = 1500$	$r/2 = 30$	$\frac{r_i}{2} = 750$
$r = 100$	$K = 20$	$r_i = 2,000$	$r/2 = 50$	$\frac{r_i}{2} = 1000$
$r = 200$	$K = 10$	$r_i = 2000$	$r/2 = 100$	$\frac{r_i}{2} = 1000$
$r = 300$	$K = 7$	$r_i = 2100$	$r/2 = 150$	$r_i = 1,100$



This checks results of the Log-log Method shown in the test report on page 4.

Fort Pierce Test August 23-24, 1979
Computed by George Hill

Delayed Yield Solution PL 8; PP. 708

Well No.	Transmissivity	Se
100 S	1,610 ft²/d	
200 W	1,610 ft²/d	1.2×10^{-4}
300 S	1,850 ft²/d	5.1×10^{-4}
		9.0×10^{-5}

Hantush – Jacob PL 3; PP. 708

USE

Well No	Transmissivity	S
100 S	1,780 ft²/d	7.1×10^{-5}
200 W	1,560 ft²/d	1.1×10^{-4}
300 S	1,560 ft²/d	3.6×10^{-4}

Thiem

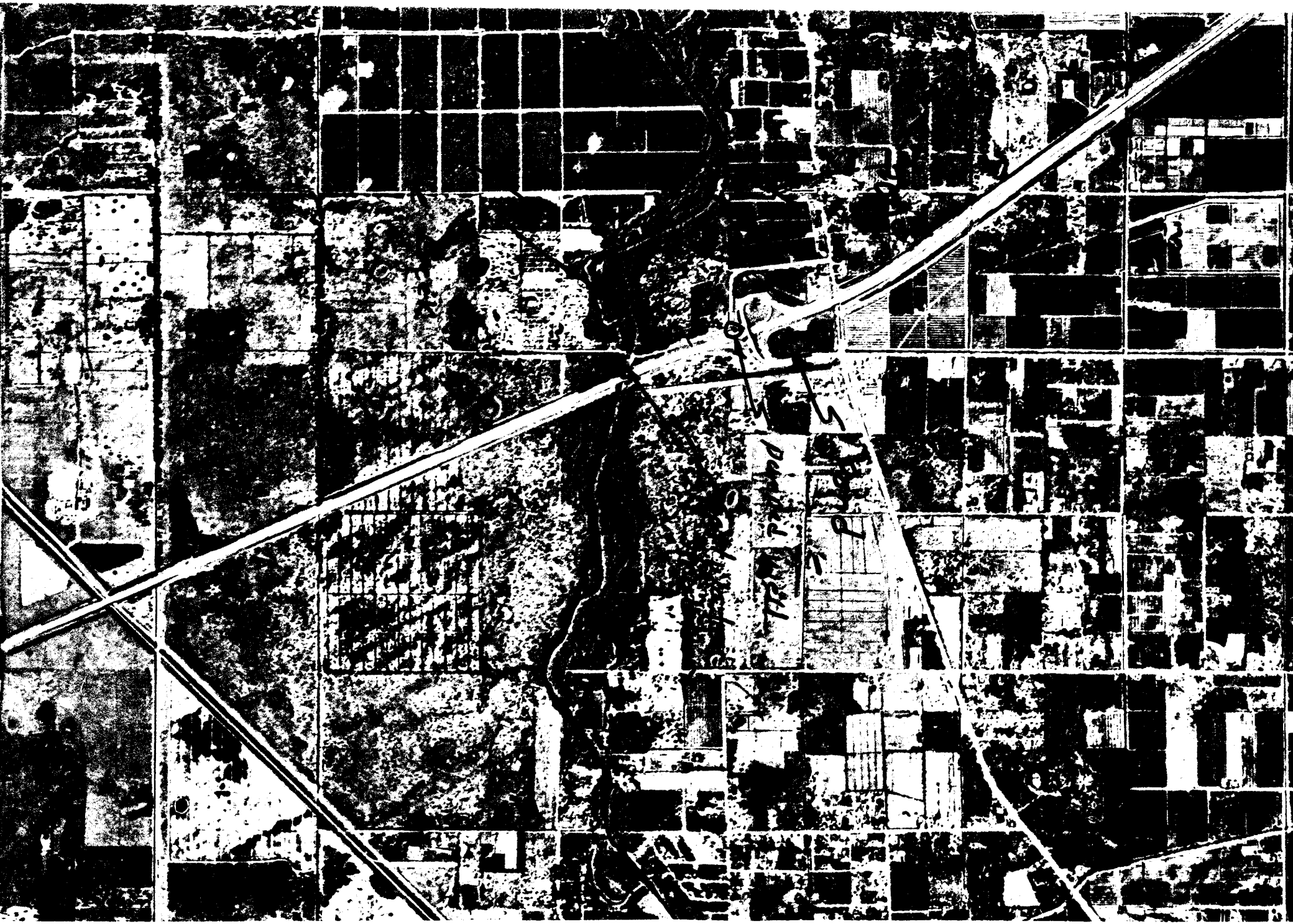
T = 1,790 ft²/d

All in same ball park

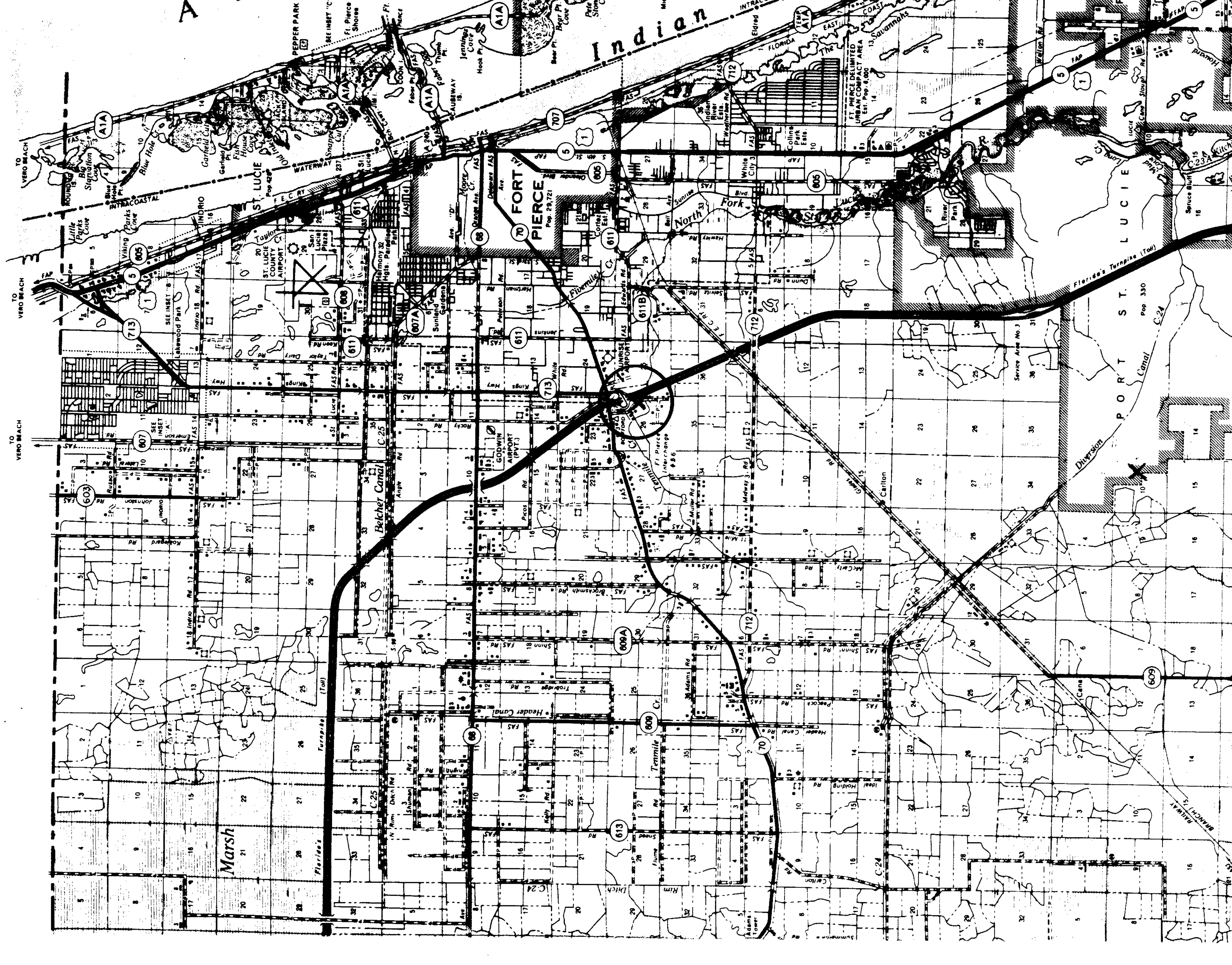
Image Well Theory

Well No.	Transmissivity	S
60 W	1,650 ft²/d	4.2×10^{-4}
100 S	2,153 ft²/d	4.9×10^{-4}
200 W	1,710 ft²/d	1.1×10^{-4}
300 S	1,920 ft²/d	1.3×10^{-4}

☆GPO: 1979—0—641-174



Fort Pierce Interchange Aquifer Test



Indian
FORT PIERCE
Pop. 29,721
ST. LUCIE
INTRACOASTAL WATERWAY
North Fork
PORT ST. LUCIE
Pop. 330
Florida's Turnpike (Toll)
Diversion Canal
Belcher Canal
Header Canal
Tenmile Cr.
Marsh
TO VERO BEACH
FT. PIERCE DELIMITED URBAN COMPACT AREA
ST. LUCIE COUNTY AIRPORT
GODWIN AIRPORT (PVT.)
SUNRISE AIRPORT
Ft. Pierce Interchange
Carlton
Indrio
Lakewood Park
Savannahs
River Park