

WELL CUTTINGS PROCESSING FORM

SFWMD ID NO.: 111-44 WELL CONST. PERMIT NO.: \_\_\_\_\_

WELL NAME: SLMW 21 GEOPHY. LOG AVAIL.  Yes  No

COUNTY St Lucie SFWMD GEOPHY.# 1110000093

LOCATION: SE 1/4 of SW 1/4 of NE 1/4 of Sec. 5 Twp. 36S Rge. 40E

Latitude 27° 22' 30" Longitude 80° 21' 19"

Planar X 709240 Planar Y 1105984

DRILLER: Hydrowells Inc DATE DRILLED 2/5/90

DEPTH (ft) 140' ELEVATION (NGVD) 14.5'  TOPO  SURVEY

NO. OF SAMPLES \_\_\_\_\_ NO. OF SPLITS 2 DATE SENT \_\_\_\_\_

SENT TO:  BOG  USGS  OTHER \_\_\_\_\_

WATER SAMPLE: CHLORIDES (mg/l) \_\_\_\_\_  
LAB SAMPLE # \_\_\_\_\_

HYDRAULIC DATA AVAILABLE:  
SPECIFIC CAPACITY  Yes  No  
PUMP TEST  Yes  No

COMPLETION INFO:  PLUGGED  TEST  MONITOR  PRODUCTION

DRILLING METHOD:  CABLE TOOL  JET  AUGER  
 ROTARY:  Mud  Air  Reverse  Dual Wall

CASING: TYPE:  PVC  GALV.  STEEL  
DIAMETER: 2" INTERVAL: 0-70' 80'-140'

SCREEN: TYPE:  PVC  GALV.  STEEL  
DIAMETER: 2" INTERVAL: 70'-80'

GEOLOGIST DESCRIPTION:  NO  YES \_\_\_\_\_

COMMENTS: Missing intervals 0-5', 20'-32', 40'-44' 80'-90'  
100-105'

**WELL COMPLETION REPORT**

FORM 0124  
Rev. 4/85

Owner: SFWMD P.O. Box 24680 City: West Palm Beach State: FL Zip: 33416  
 Contractor's Name: HYDROWELL TECH. Completion Date: 2/6/90 City: 0-70'-80'-140' State: FL Zip: 33416  
 Driller's Name: SKIP YOUNG License No.: \_\_\_\_\_ Total Depth: 140' Well #: 5LMW21  
 Registration No.: \_\_\_\_\_

**WELL PERMIT NO.**

TYPE OF WORK: Construct  Repair ( ) Abandon ( )  
 WELL USE: Domestic Well ( ) Public ( ) Monitor  Test ( )  
 Irrigation ( ) Fire Well ( ) Other \_\_\_\_\_  
 METHOD: Rotary with MUD  or Air ( ), Cable Tool ( ), Jet ( )  
 Casing Driven ( ), Other \_\_\_\_\_  
 STATIC WATER LEVEL \_\_\_\_\_ Ft. below top of casing  
 PUMPING WATER LEVEL \_\_\_\_\_ Ft. after \_\_\_\_\_ Hrs. at \_\_\_\_\_ GPM  
 PUMP SIZE \_\_\_\_\_ H.P. CAPACITY \_\_\_\_\_ GPM  
 PUMP TYPE \_\_\_\_\_ INTAKE DEPTH \_\_\_\_\_ From top of ground

LOCATION  
 Located Near Midway Road  
Church of Christ  
 County St Lucie  
 Section 5 Township 36S Range 40E  
 Latitude-Longitude 27° 22' 30" 80° 21' 19"  
 Cuttings sent to District?  Yes ( ) No

**Note: PWS Wells attach a site map if well location is different from site location on permit application.**

Grout Thickness & Depth	Casing & Screen Diameter & Depth	Depth (ft)		DRILL CUTTINGS LOG Examine cuttings every 20 ft. or at formation changes. Give color, grain size, and type of material. Note cavities, depth to producing zones.
		From	To	
0'	0	0	10'	fine sand
What 2" Cement 16'	PVC 70'	10'	20'	sandy clay w/ fine sd
		20'	32'	fine sand
		32'	44'	grey sand. trace of mud
		44'	49'	white shell + sd
		49'	64'	Black shell + sd w/ .020 scs.
		64'	72'	30% clay/mud below 57'
		72'	97'	white limestone + shell sft
		97'	110'	Shell w/ trace of limestone clay and sand
		110'	134'	Shell hash w/ limestone
		134'	140'	Green-grey clayey, muddy sd.
Number of bags				6

Casing: Black Steel ( ) Galv. ( ) PVC  Fiberglass ( )  
 Screen: Type PVC Slot size 0.020  
 Screened from 70' (ft.) to 80' (ft.)  
 Type of grout with % additives Neat  
 Water: Clear ( ) Colored ( ) Sulphur ( ) Salty ( ) Iron ( )  
 Conductivity \_\_\_\_\_ Chlorides \_\_\_\_\_ mg/l

Very LOW  
LOW

SLM W 21

W-Mbd	0-10	sd w/ organics (brown)
✓ LOW	10-15	clayey sd - some conf
LOW	15-20	as above Less clay
LOW	20-32	fine sd
LOW	32-40	muddy brn sd
LOW	40-44	fine sd
L-M	44-49	shell w/ sd (broken vs)
L-M	49-55	black shell w/ sd
LOW	55-64	muddy black shell
L-M	64-75	silty shell + LS (shell is whole + coarse)
M	75-80	shell + LS
	80-90	?
L-M	90-100	whole to broken silty shell w/ tr L.
	100-105	?
L-M	105-110	med broken shell coarser w/ depth
M	110-120	med-coars broken shell tr LS
M	121-125	small whole shell w/ LS
L-M	125-130	as above w/ silt
L-M	130-131	Shell (turritella sp) w/ muddy LS
L	131-135	<del>silty</del> sandy shelly silt
VL	135-140	sandy clayey silt w/ turritella shells

135-145

1202

LMW 21

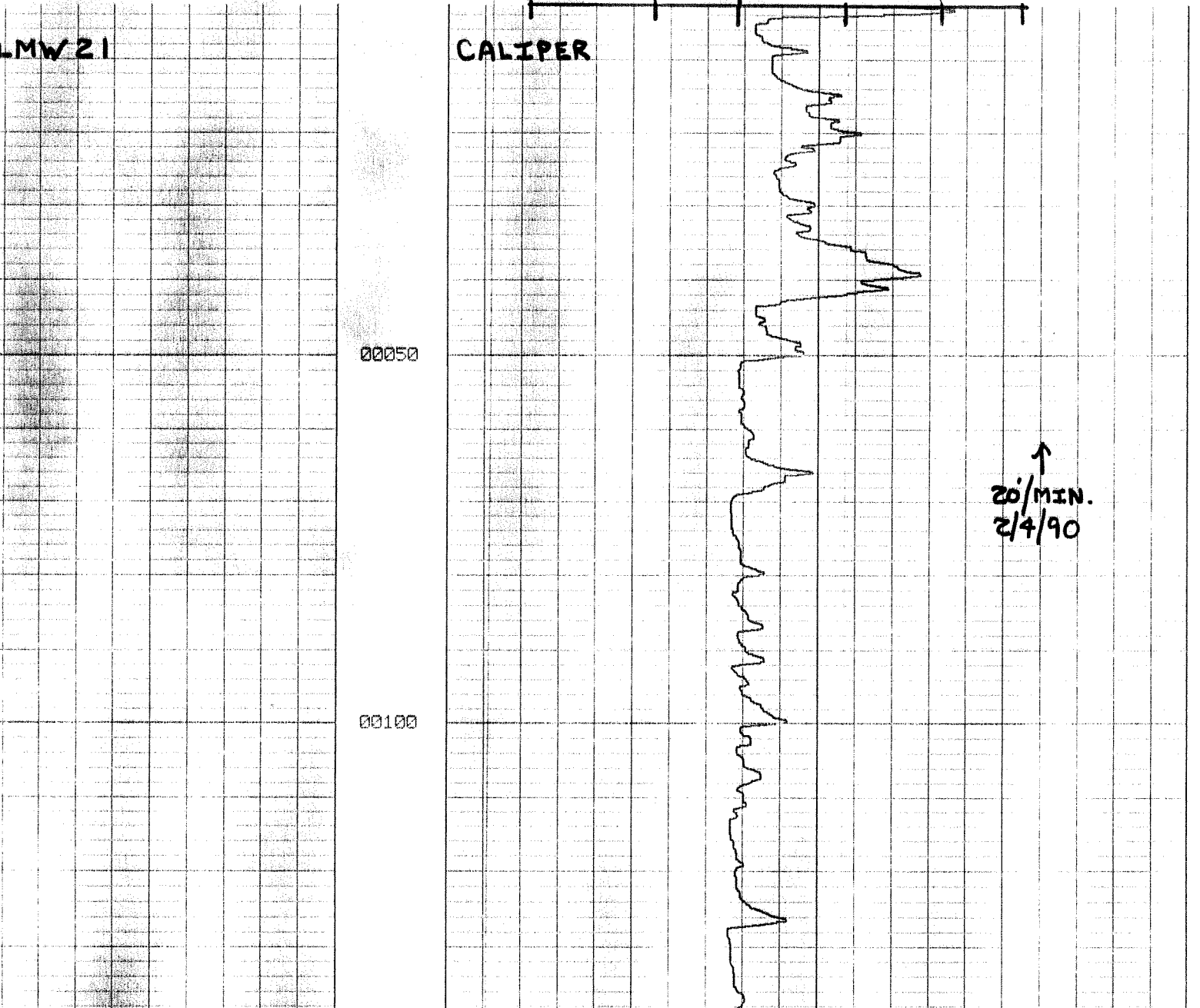
CALIPER

2" 4" 6" 8" 10" 12"

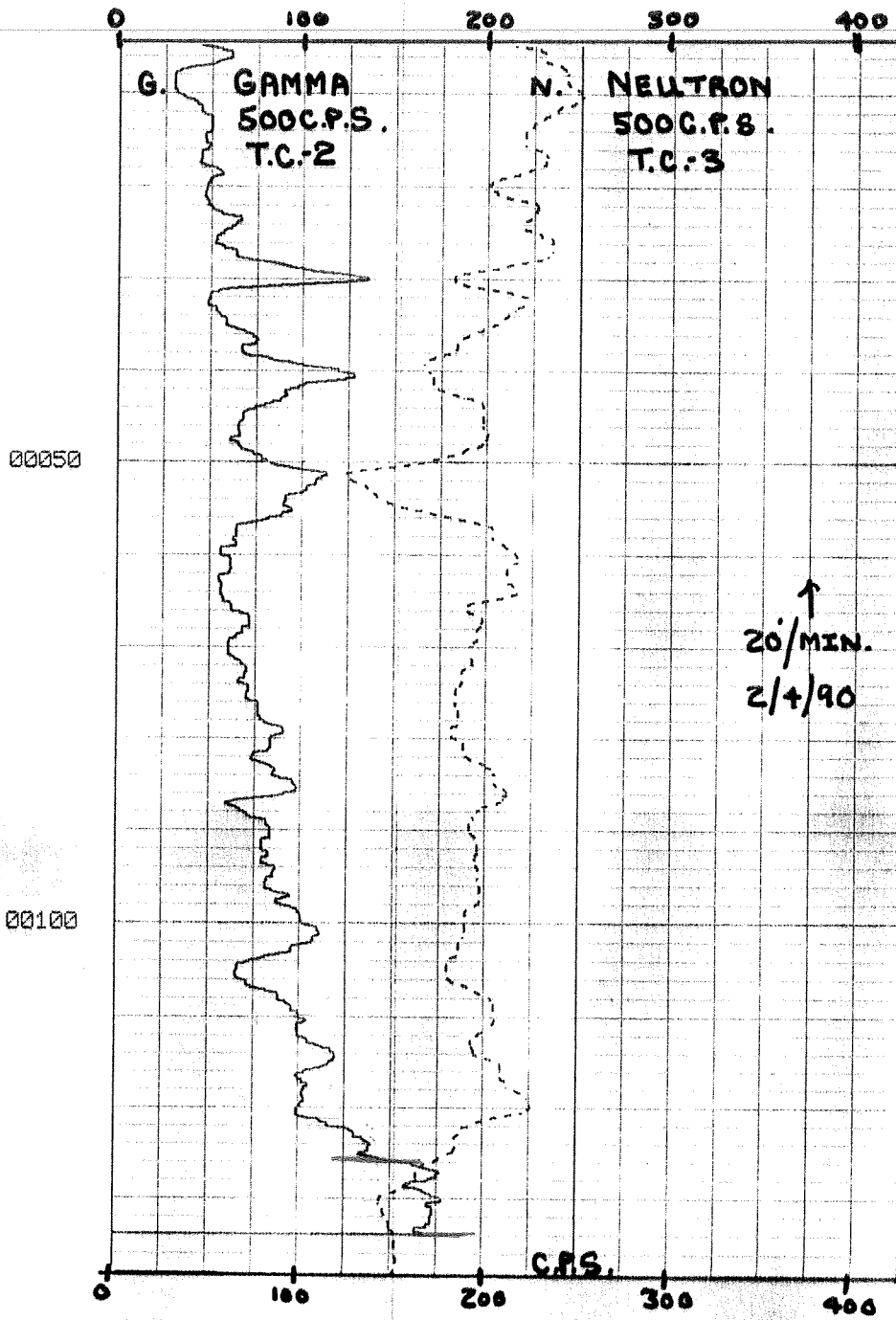
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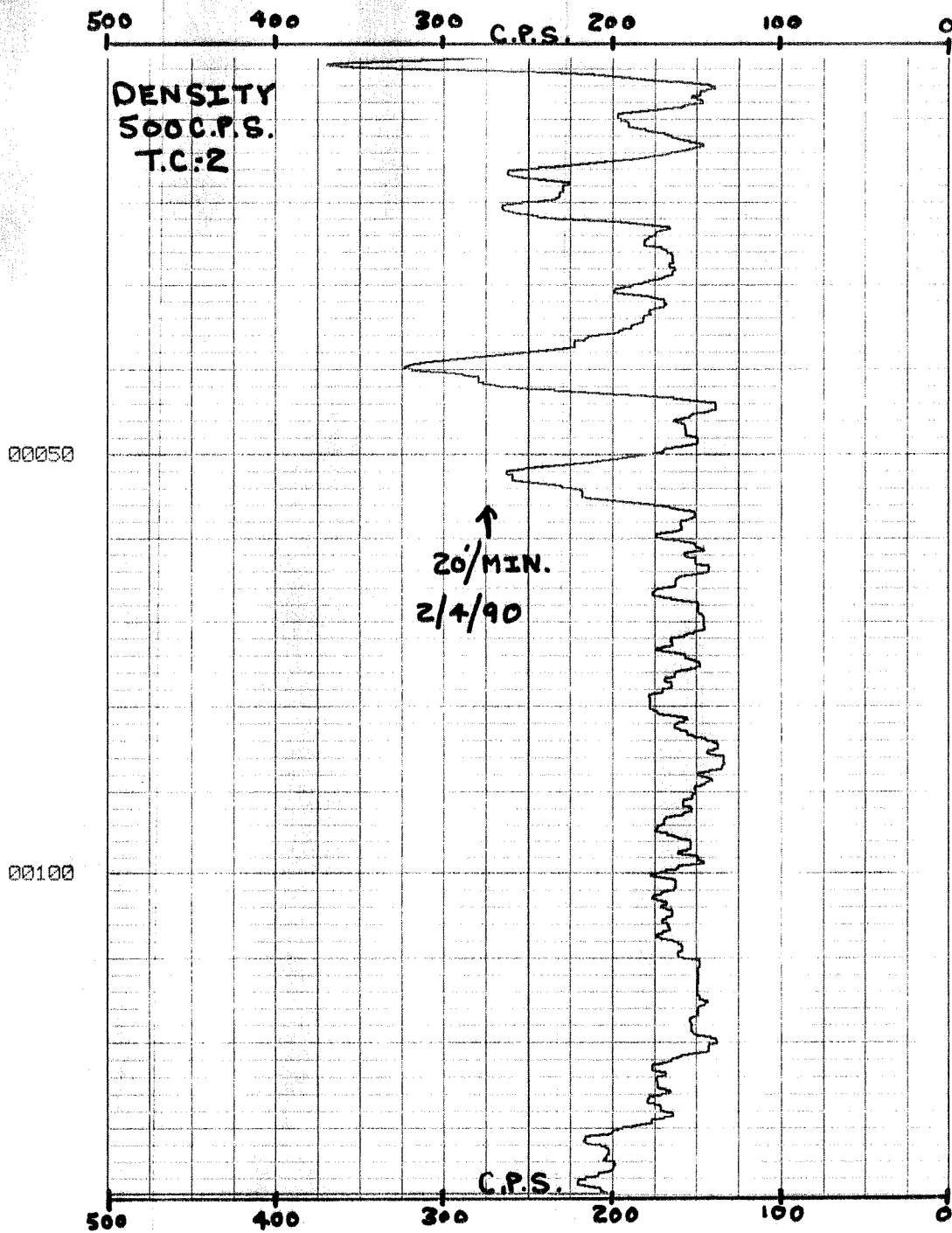
↑  
20'/MIN.  
2/4/90

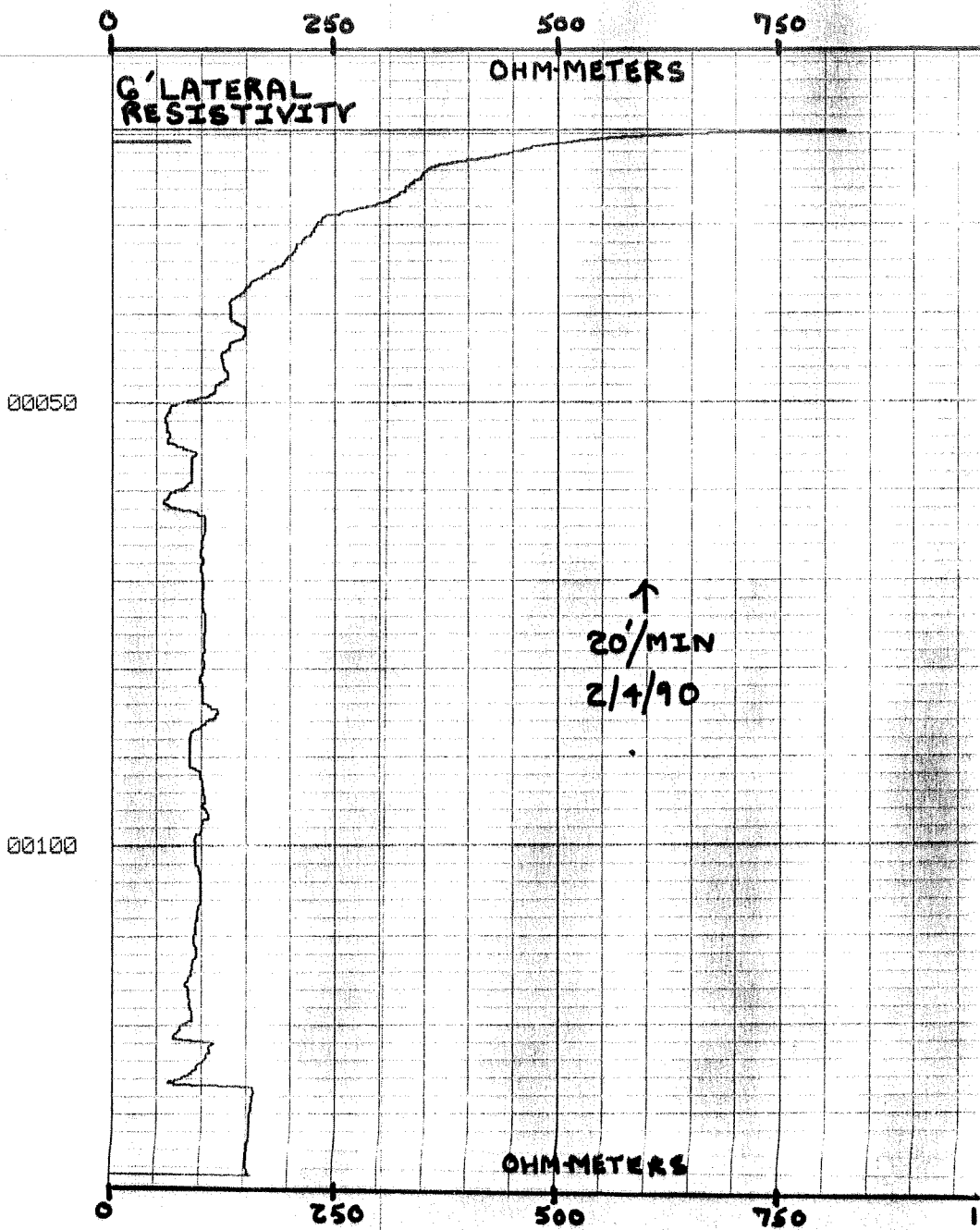
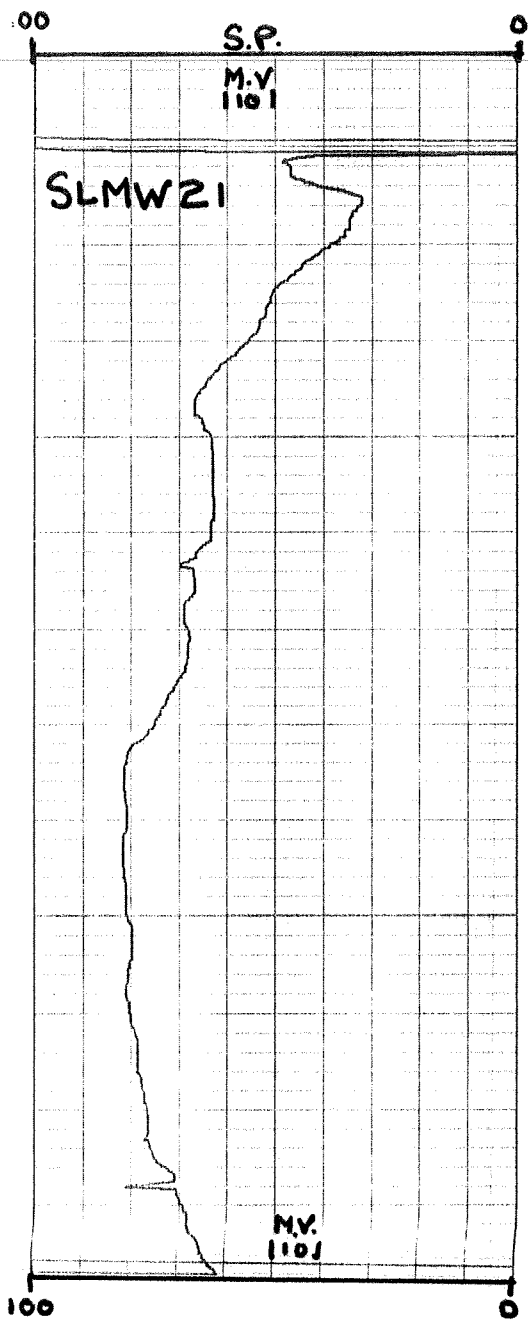


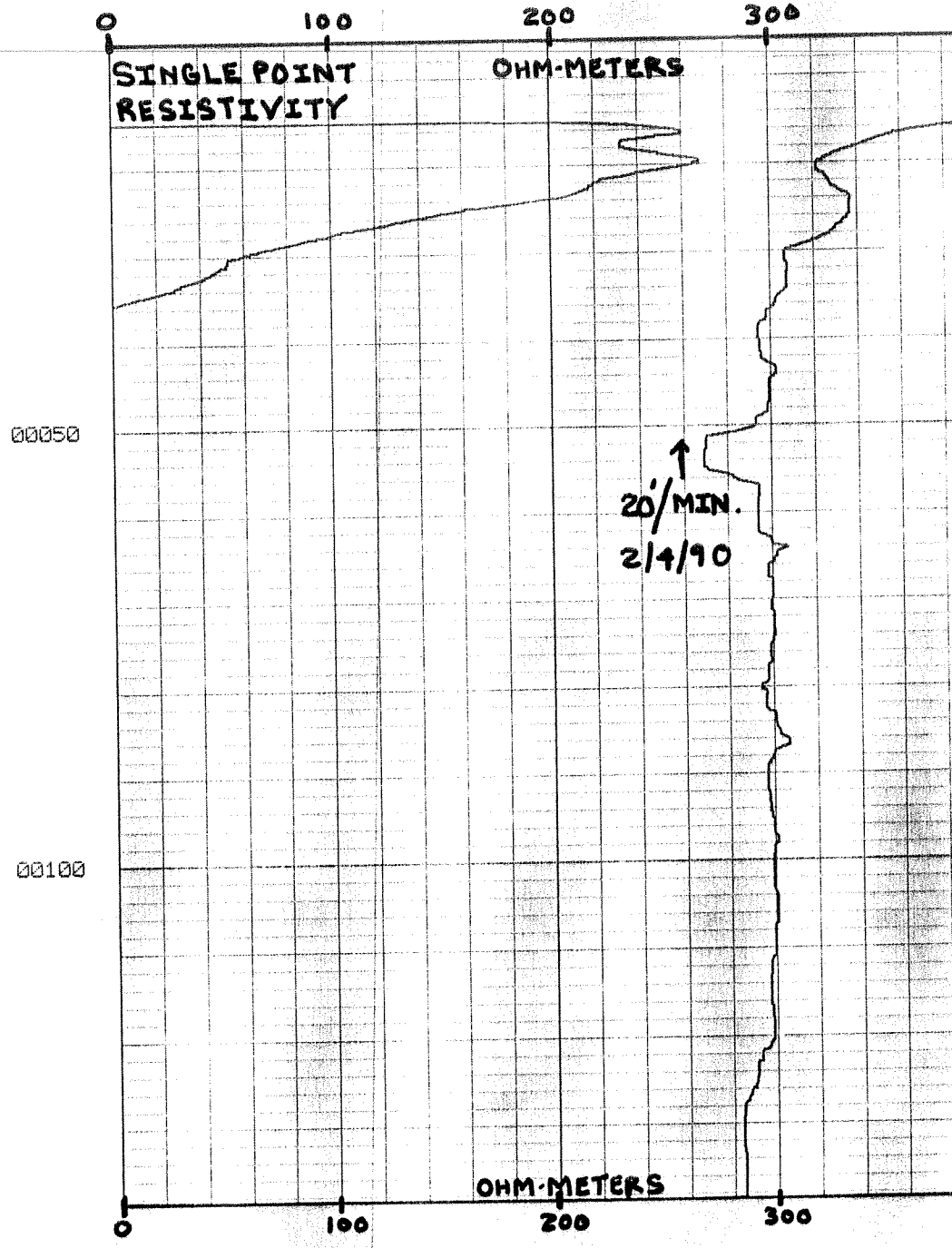
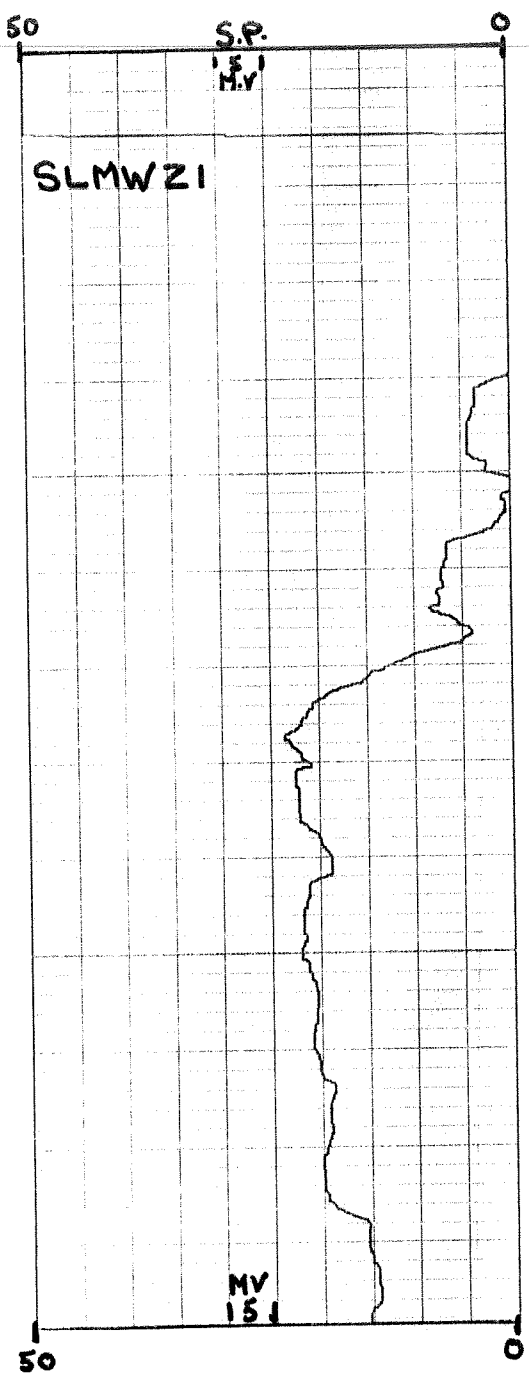
SLMW21



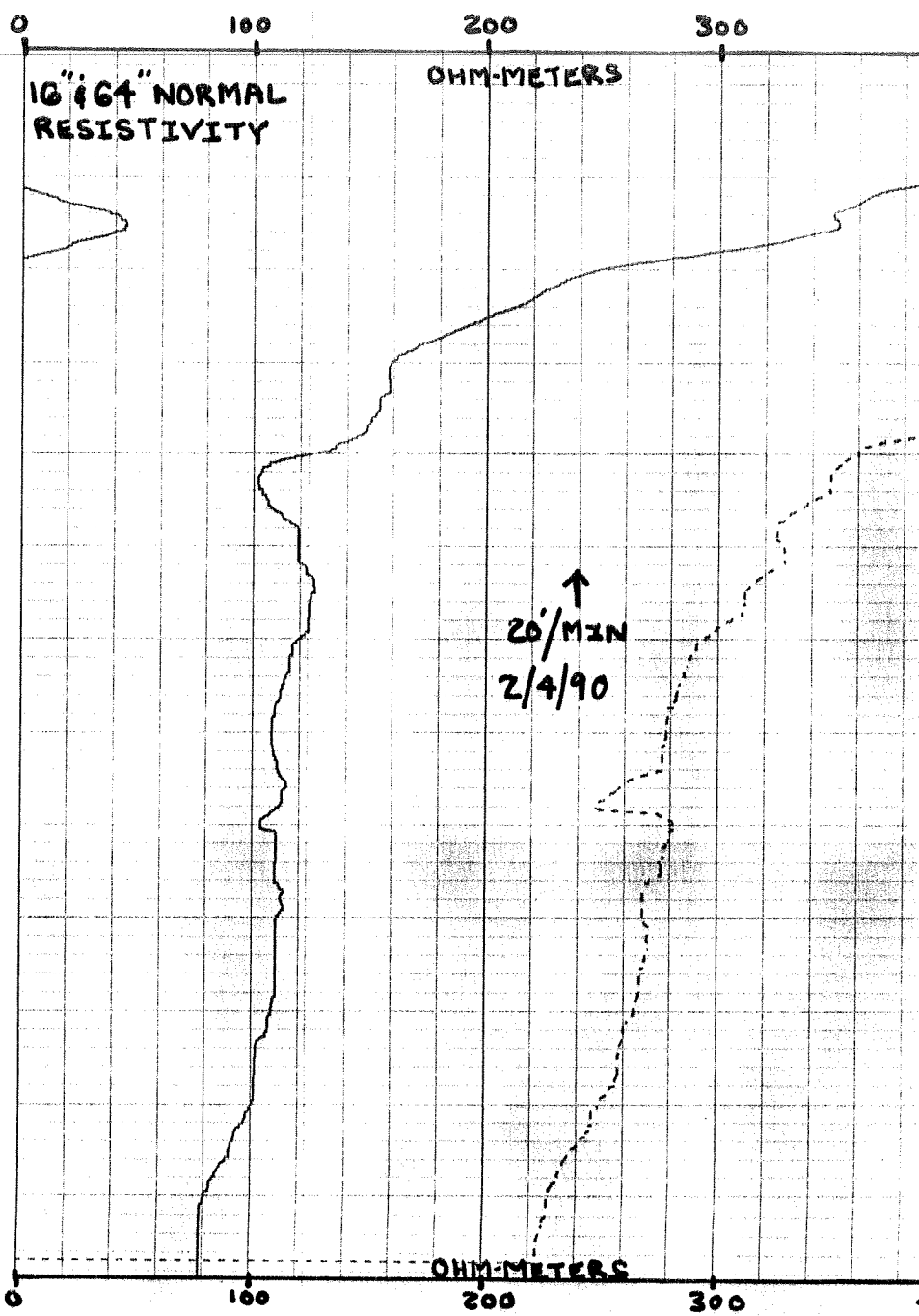
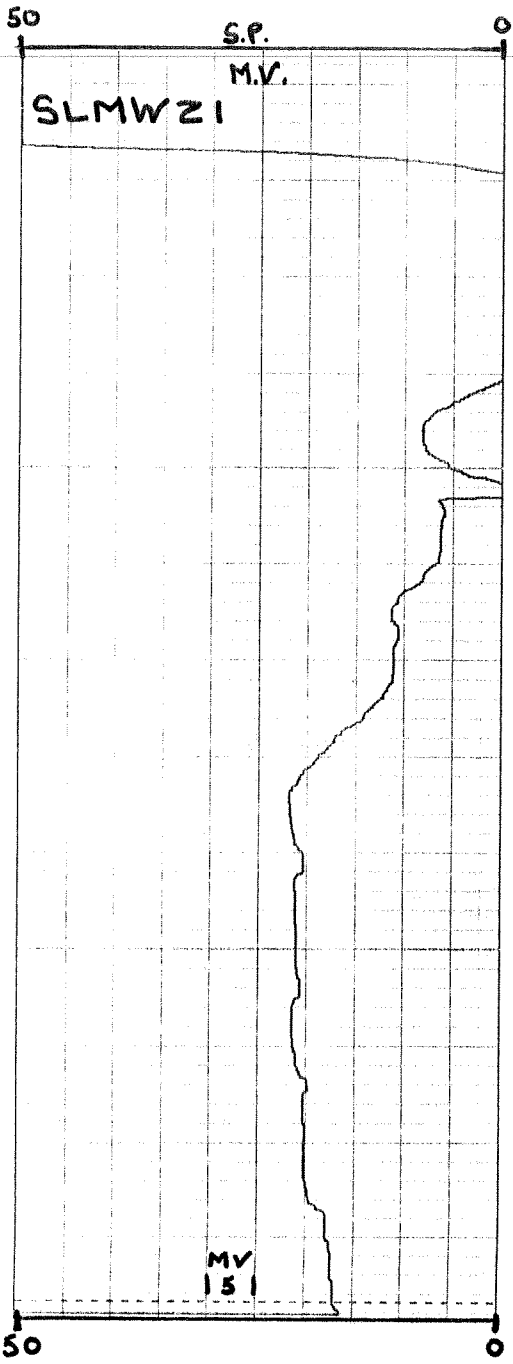
LMW 21











Marty

DATE 2/12/90

1250 ARRIVED AT Holiday Inn NO SIGN OF LYLE OR HIS RED TOYOTA.

1310 "Oh WHERE OH WHERE could Lyle be? "HE'S SUPPOSE TO BE HERE MEETING ME!"

1340 Telling Freddy still sittin.

1410 Let my fingers do the walking, REACH out and touch Don.

1435 Lyle and I ARRIVE AT THE SITE (SLMW20).

1450 Ran 120' 3/4" PVC down hole. Air developed only.

1500 checked water still somewhat cloudy

1525 checked water again improving slowly

1614 collected sample and onward to the next site

1650 arrived at 2nd site (SLMW21)

1700 Ran 120' 3/4" PVC PIPE down hole. Air developed only.

1715 A lot of black dirt down well No water.

1720 put about 10 gal of water down the well. Had no effect

1725 PVC shot out of well & broke off about 10' of pipe (not down hole)

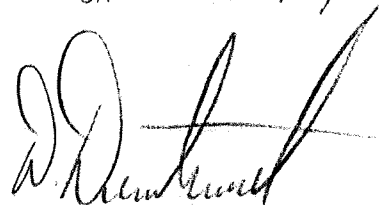
1735 with short bursts of air about 100' down <sup>had</sup> some response but very little.

1745 A VERY light mist of water coming out still not much response

1755 sampled water not too cloudy but not enough to sample (no black sand)

1807 could not get a sample not enough water (Sorry Don) water not too cloudy

1830 back at Holiday Inn unloaded equipment said later days to Lyle (cool dude) and heading home.



2 1/4 hrs development time

SLMW21

BID FORM  
 CONTRACT NO. C89-0182-R

If this bid is accepted, the undersigned bidder agrees to complete all work under this contract within 160 calendar days from the date established in the "Notice to Proceed with Contract Work".

	QUANTITY	UNIT PRICE	TOTAL
1. Mob. & Demobilization. St. Lucie County	6 (estimated)	Lump sum \$1800.00	\$1800.00
2. Mob. & Demobilization. Broward County	6 (estimated)	Lump sum	
3. Mob. & Demobilization. Martin County	3 (estimated)	Lump sum	
4. Drill nominal 6" ± Borehole (Per Foot)	3,000'	\$12.75 X 140'	\$1785.00
5. Core 2" Nominal Borehole (Per Foot)	2600'		
6. Splitspoon Sample 2" Nominal Borehole (Per foot)	400'		
7. Furnish/Install Casing, 2" PVC, Schedule 40 (Per Foot)	3,000'	\$1.50 X 130'	\$195.00
8. Furnish/Install 2" PVC, Schedule 40, .020 Slot Screen (Per Foot)	260'	\$3.00 X 10'	\$30.00
9. Furnish/Install Gravel Pack, 8/20 Gr. Silica (50 lb. bg.)	200 bgs.	\$6.00 X 32 (50lb)	\$192.00
10. Furnish/Install Grout Type I Portland (100 lb. bgs.)	600 bgs.	\$8.50 X 6 sacks	\$51.00
11. Standby Time (P/hr.)	50 hrs.	\$65.00 X 3 hours	\$195.00
12. Well Development (P/hr.)	30 hrs.	\$80.00 2 hrs	
13. Other Work (P/hr.)	20 hrs.		
<b>TOTAL</b>			<b>\$4,248.00</b>

Grand Total Price for Contract \$ \_\_\_\_\_

Written Amount \_\_\_\_\_

## SLMW20

- \* Mobilization
  - \* Drill 6" hole to 130'
  - \* Installed 10' 2" PVC screen 50'-60'
  - \* 120' 2" PVC csg
  - \* 14 bags (100lb bags) sand 6/20
  - \* 6 sacks neat cement
  - \* 2 hrs 11 minutes standby time (logging)
  - \* Demobilization
- Well not developed as of 2/2/90

Don Padgett

~~SLMW20~~

→  
D.I

SL


## SLMW21

- \* Mobilization
- \* Drill 6" hole 140'
- \* Install 10' 2" PVC screen 70'-80'
- \* 130' PVC csg.
- \* 16 100lb sacks 6/20 sd.
- \* 6 sacks neat cement
- \* 2 hrs 40 min standby
- \* Demobilization

**ATTACHMENT A**  
**USE OF RADIOACTIVE MATERIALS IN TEST WELL**

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1. Property owner authorizes use of sealed nuclear source for geophysical logging purposes in test well construction.
2. In the event the sealed source is lodged downhole, every effort at recovery of said source will be utilized.
3. If a decision is made to abandon the sealed source downhole, it will be done so in compliance with Florida Administrative Code Section 10D-91.1200, Control of Radiation Hazard Regulations.
4. In the event the said source is lost downhole, South Florida Water Management District will be responsible for the protection from any contamination of the well and surrounding formation water from said source.
5. The Radiation Safety Officer of this agency is responsible for compliance with the above-mentioned Department of Health and Rehabilitative Services regulations.

  
OWNER

9-8-89  
DATE

  
SFWMD RADIATION SAFETY OFFICER

9/11/89  
DATE

RIGHT OF ENTRY AGREEMENT/WELL CONSTRUCTION

The SOUTH FLORIDA WATER MANAGEMENT DISTRICT and/or \_\_\_\_\_  
the U. S. Geological Survey \_\_\_\_\_ and the agents, employees or assigns of each,  
(Permittees) are hereby granted the right to enter upon property owned by \_\_\_\_\_  
Midway Road Church of Christ \_\_\_\_\_ (owner), and described herein, for the following purposes:

1. To construct water well(s) for the purpose of gathering lithologic data.
2. To conduct aquifer performance and step drawdown test(s) to determine water availability.
3. To collect geophysical logs on selected well(s). SEE ATTACHMENT "A"
4. To periodically be allowed access to the well(s) for the purpose of monitoring water levels and/or water quality sampling.

Such equipment as may be needed to accomplish the above purposes may be brought upon, over and across the property, which is described as follows:

SECTION 5  
TOWNSHIP 36S  
RANGE 40E

The permittees, and each of them, warrant to the undersigned that upon completion of the above purposes, the property will be left in, or restored to, the same condition as it was when the permittees or their contractor(s) first entered upon the land to begin their work.

The permittees, and each of them, separately and severally, to the extent permitted by law, shall save and hold harmless the undersigned owner from claims for damages or injury caused by the permittees, their agents, servants, employees, or contractors, during the time this permit for access and use is in effect.


  
OWNER

Date: 9-8-89

Executed by owner in presence of:

  
\_\_\_\_\_

COUNTERSIGNED BY PERMITTEE(S)

  
for SFWMD

Date: 9/11/89

\_\_\_\_\_ for

Date: \_\_\_\_\_



## WELL DRILLER'S LOG

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

PROJECT St Lucie WELL NO. SLMW21 DATE 2/5/90  
2/5/90 3612

DEPTH	DESCRIPTION - ROCK TYPE, COLOR, HARDNESS, OTHER
0750	Don on site. Updating Water Level field book.
0832	Hydrowell Technology Inc. Crew on site. Greasing rig, filling water truck w/ water
0923	Drilling mud rotary w/ 5 7/8" tricone bit; bentonite mud. Grab samples collected with wire basket strainer. Samples rinsed in water before bagging. 0-2' sand, dark brown with lot of roots. @ 3' dark brown organics disseminated through sand. Sand is fine; goes through wire basket.
0928	Stop @ 4' to tighten <del>sw</del> Kelly swivel packing. Mud leaking from swivel onto Driller & Don. @ 5' sandy clay 5'-10' fine sand; no sample, goes through wire basket
	10'-15' sandy clay; grey to light brown
0933	@ 20' as above. Interbedded sand and grey to brown clay. Some sand layers are semi-consolidated.
0936	Kelly stopped @ 20'. Tightening swivel packing. Breaking bit off to add 20' DP #1; DS = 47'
0944	Turning desander on.
0945	@ 24'. 20'-24' fine sand no sample. No returns from annulus. Mud pump not circulating mud. Stop drilling
0950	Fix circulation problem. Piece of hose basket was caught in hose. Mixing more mud. 24'-32' washed down <sup>rapidly</sup> through fine sand. @ 32' sandy, <sup>dark</sup> grey clayey mud, turns drill mud dark grey.
0956	@ 40' as above, lot of sand is going through wire basket. (Desander sample)
0959	Adding 20' DP #2; DS = 67', desander off Formation took ≈ 30 gal fluid from 32' to 40'



WELL DRILLER'S LOG

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

PROJECT St Lucie WELL NO. SLMW 21 DATE 2/5/90  
3612

Time

DEPTH	DESCRIPTION - ROCK TYPE, COLOR, HARDNESS, OTHER
1004	@44' fine white shell and sand. 40'-44' fine sand, no sample, sand goes through wire basket
1005	@46' alternating beds of fine sand and shell.
	@49' hard layer, black shell and grey sand.
1009	@54' as above
	@55' as above with small amount of dark grey clay
	@57feet black shell and sand with 30% grey clay/mud
1013	@60' as above. From 50'-60' Formation took $\approx$ 50 gal of drilling fluid. Mixing more drilling mud. Don calls Pete Dauenhauer and tells him we will be ready to log by 1200.
1020	Adding 20' DP#3; DS=87'
	60'-64' as above
	@64' limestone (white) and white shell
	@69' as above; Limestone is soft, trace of grey clay. 60'-64' Formation took a small amount of drilling fluid.
1030	@72' Brown shell, grey limestone and few clay beds
	@75' Shell whole, small amount of limestone and clay
1035	@80' as above. Formation did not take much drilling fluid from 70'-80', possibly due to very thick nature of last batch of drilling mud. Add 20' DP#4; DS=107'
1040	@ 85' as above w/ increase in sand.
1046	@ 90' shell hash with trace of sand and clay. Accidentally dumped samples from 80'-90'. No Samples
1049	@95' Shell hash with soft limestone and clay
	@97' Shell hash with hard limestone, bit chatter.
1053	@100' as above. From 90' to 100' formation took $\approx$ 30 gallons of drilling fluid. Add 20' DP#5; DS=127'
1059	@105'. Bit chatter. Shell hash with limestone layers.

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

PROJECT St Lucie WELL NO. SLMW 21 DATE 2/5/90  
3612

Time

DEPTH	DESCRIPTION - ROCK TYPE, COLOR, HARDNESS, OTHER
	@ 106 as above with increasing limestone, limestone is granular.
1102	@ 110' as above, Limestone with shell.
	110' to 115'; Shell hash with trace of limestone.
1106	@ 120' Shell hash with trace of limestone and sand. Add 20' DP# 6 DS=147'. Formation still taking a small amount of mud. Approximately 30gal/rod.
1112	@ 120' still. Bit chatter. Hard layer.
1114	@ 123' granular grey limestone with shell.
1115	@ 125' Bit chatter. Hard granular grey-green limestone.
1119	@ 130' Grey green limestone, shell and trace of <del>green</del> brown clay.
	@ 134' Soft green clayey mud. From 131'-134'.
1124	@ 140' green muddy clay. Total Depth.
1130	Circulating to clean out hole.
1150	Pete Dornenhauer on site with logger. Hydrowell drillers begin tripping out of hole.
1200	Drill pipe out of hole. Set up for logging.
1426	Full suite of logs run. Coming out of hole with final log. Will set screen from 70'-80' Well pretty gague to $\approx 40'$ .
	Borehole vol to top of screen = $\pi \times (.25')^2 \times 70'$ $= 13.74 \text{ ft}^3$
	Pipe vol. to top of screen = $\pi \times (1" \div 12")^2 \times 70'$ $= 1.53 \text{ ft}^3$
	Annular volume to top of screen = $12.21 \text{ ft}^3$
	100 lb bag of sd = $1 \text{ ft}^3$ ; $\therefore \approx 13$ sacks sand to cover top of screen
1440	Logging finished. Hydrowell Drillers begin running casing.
1703	Put $\approx 2 \text{ ft}^3$ cutting into well.
1615	Put 16, 100 lb sacks of 6/20 sand in annulus.



## SOUTH FLORIDA WATER MANAGEMENT DISTRICT

PROJECT St Lucie WELL NO. SLMW21 DATE 2/6/90

Time

3612

DEPTH	DESCRIPTION - ROCK TYPE, COLOR, HARDNESS, OTHER
0800	Don on site. Hydrowell crew picking up cement at RINKER. Don updating water level field notebook.
0910	Hydrowell drillers on site. Tagged gravel pack/cuttings at 16' Below land surface. Will take at least 2 1/2 sacks of neat w/ yield of 1.2 ft <sup>3</sup> /sack.
0915	Formation took all of 2 1/2 sacks of neat with no good returns during pumping. Mixing more cement. 3 sacks. Total = 5 1/2 sacks.
1000	Pumped second cement stage. Good returns in annulus.
1030	Install black cast iron manhole cover supplied by Hydrowell using 1/2 sack of Neat. Total cement used = 6 sacks. Well is 37' N/NW of US65 well.
1047	Hydrowell demobilized. Well has not been developed.
1100	Drillers stop along road siphon diesel into rig.
1124	Rig stopped again. Motor stopped running. Electrical problems.
1146	Rig running again.
1200	Drop rig at Fort Pierce sub-station. Water truck continues on to meet core rig at V-Z ranch and get supplies for next site.
1212	At V-Z ranch site.
1245	Leaving V-Z ranch to pick up rig and mobilize to APT-5 site at Greene property
1407	Lost mud box off truck. Will load it onto rig.
1441	Bolt holding brake for Kelly cable drum brake when mast stood up. Chaining Kelly in place.
1520	Brake bolt <del>map</del> irreparable. Called Marty and informed him we would not be able to complete mobilization to this site since Hydrowell crew

