

AVPK-S2 (AVON PARK - SOUTH TWO)

DATES	DESCRIPTION
8-04-93	Drill 6" pilot well to 200 ft
8-04-93	log well
8-05-93	set 12 inch casing to 200 ft, drillers set casing at 120 ft.
8-10-93	Drill to 340 ft
8-12-93	lost circulation at 300 ft log well; problem at 180-190 ft. cleaned well; re-logged; well failed no logs for the interval 200 -340 ft.
8-16 thru 8-20-93	Reamed 6 inch well to 12 inch and set 8 inch casing.
8-23 thru 8-27-93	Rig has a clutch problem, however drillers are expected to re-grout and re-drill to 340 ft. I will travel to the site and collect cuttings and supervise well construction for the rest of the week.
8-25 thru 8-27-93	Started mud drilling at 340 ft and drilled to 860 ft. Drilling speed was fast as we drilled through the Suwannee, Ocala and Avon Park formation. Ocala started around 510 ft. Tony switched to 3 inch rods at 620 ft to accommodate the reverse air line. 300 ft of 3/4 inch PVC was used. A formation change occurred around 760 ft (Avon Park?). Return home on the 27th.
8-31 thru 9-3-93	Continued mud drilling at 860 ft in the lower Ocala/ upper Avon Park formation. The first occurrence of Coskinolina, Spirolina coryensis and associated forams was observed at 920 ft. Lost circulation at 996 ft. After cleaning well for 4 hours, drilling 40 ft, cleaning well and dodging the lighting, we finished for the week for a total depth of 1023 feet. A gasket for the air compressor also failed and required replacing.
9-7 thru 9-10-93	This week was shortened by the Labor day weekend. On Tuesday the 8th, Tony reported drilling 60 ft before rain consumed the rest of day for a total of 1083 ft. Tony also reported going through several layers of dark and cream colored limestone. No dolostone at this current depth. Thursday the 9th another 60 feet was drilled to complete the drilling for the day at 1143 feet. Tony reported drilling through several very hard dark chocolate brown stringers of dolomite, however at this depth a continuous confining zone has not been reached. Instructions were given to continue drilling through the dolomite layer and complete the deep Floridan monitoring well 20 feet in the Lake City Formation.

9-27 thru 10-1 and d Marty informed me "tony HAS SET 12" casing to 80 feet. and drilled 12" hole to 240""

10.4.93 thru 10.8.93

Misty informed me " Tony is at 292' he lost circulation at 278' and 290' in Hard grey Rock.

10.11.93 thru 10.15.93

AVON PARK - SOUTH TWO

DESCRIPTION	DATES
Drill 6" pilot well to 300 ft	8-04-93
log well	8-04-93
set 12 inch casing to 300 ft, diffuser set casing at 130 ft	8-05-93
Drill to 340 ft	8-16-93
lost circulation at 300 ft	8-12-93
log well; problem at 180-190 ft. cleaned well; re-logged; well failed no logs for the interval 300-340 ft.	
reamed 6 inch well to 13 inch and set 8 inch casing	8-16 thru 8-20-93
Rig has a clutch problem, however diffuser are expected to re-grout and re-drill to 340 ft. I will travel to the site and collect cuttings and supervise well construction for the rest of the week.	8-23 thru 8-27-93
Started mud drilling at 340 ft and drilled to 500 ft. Drilling speed was fast as we drilled through the Gault and Avon Park formation. Gault started around 340 ft. Tony switched to 3 inch rods at 500 ft to accommodate the reverse air flow. 340 ft of 3 1/2 inch PVC was used. A formation change occurred around 380 ft (Avon Park). Return pump on the rig.	8-25 thru 8-27-93
Continued mud drilling at 500 ft in the lower Gault upper Avon Park formation. The first occurrence of Colchester, Spindler concretion and associated forams was observed at 520 ft. Lost circulation at 505 ft. After cleaning well for 4 hours, drilling 40 ft, cleaning well and logging the logging, we finished for the week for a total depth of 1023 feet. A problem for the air compressor also failed and required replacing.	8-31 thru 9-3-93
This work was shortened by the Labor day weekend. On Tuesday the 5th, Tony reported drilling 60 ft before rain contained the rest of the day for a total of 1083 ft. Tony also reported going through several layers of dark and cream colored limestone. No dolomite at this current depth. Thursday the 9th another 60 feet was drilled to complete the drilling for the day at 1143 feet. Tony reported drilling through several very hard dark chocolate brown layers of dolomite, however at this depth a continuous concretion zone has not been reached. Instructions were given to continue drilling through the dolomite layer and complete the deep Floridan monitoring well 30 feet in the Lake City formation.	9-7 thru 9-10-93

8-27 thru 9-10-93
 10.4.93 thru 10.8.93
 10.11.93 thru 10.15.93

WELL DRILLER'S LOG

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

PROJECT GLADES/Highlands WELL NO. Pilot well DATE Aug 4, 1993
AVPR-52

DEPTH	DESCRIPTION - ROCK TYPE, COLOR, HARDNESS, OTHER
0-10	ORGANIC SAND w/ dk br. hard PAN
10-20	BR. SANDY CLAY, V. FINE SAND
20-30	DK. Chocolate Br. clayey sand and organic matter w/ Lg. Qtz sand
30-40	Dr. Br. fine sandy clay balls w/ lighter gray br. v. fine sandy clay
40-50	SAME AS ABOVE However, transition into sm. Coral and shell frag.
50-60	sm whole clam shell and shell frag w/ blue/gy clay balls.
60-70	ABUNDANT shell frag w/ Lt Blue clay
70-80	SAME AS ABOVE w/ more Lt Blue clay (40%)
80-90	SAME AS ABOVE
90-100	Lg Cone shore shells w/ sm. clam shell and additional amt. of clay present.
100-110	SAME AS ABOVE
110-120	SAME AS ABOVE @ 120' 90% clay
120-130	50% shell frag and 50% Lt. Blue clay
130-140	20% shell frag and 80% v. fine sandy clay w/ v. small phos. grains.
140-150	SAME AS ABOVE
150-160	V. FAST Drilling, Blue/gy well cemented* sandy clay w/ v. fine grain.
160-170	Blue/gy well cemented sandy clay w/ some DK. gray Mollusk shell fragments

WELL DRILLER'S LOG

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

PROJECT Highlands / Glades WELL NO. AVPK-32 DATE 8.10.93
 South 2

DEPTH	DESCRIPTION - ROCK TYPE, COLOR, HARDNESS, OTHER
170-180	DK. gray Mollusks shell frag, pebble ^{to fine} sized Qtz sand, pebble sized phosphate, well cemented fine clay
180-190	DR. gray Mollusks shell frag w/ well cemented fine silt sized sand
190-200	Larger DR. gray Mollusk shell frag w/ well cemented fine silty clay, pebble sized phos. SET SURFACE CASING.
Aug 10, 1993	
205-210	LT. GRAY Mollusk shell w/ clam shell frag. Pebble sized Phos. w/ LT. gray silty ^{consolidated} clay and 10% tan ls. A LOT OF Bit Chatter @ 210-215
210-220	TRANSITION BETW. shell frag. and white silty clay w/ frag of dk. gray ls. w/ Phos. pebble. @ 220' LT. GREEN PLASTIC CLAY w/ ^{TRACES of} white micrite ls.
* 220-230	OLIVE silty v. PLASTIC CLAY w/ pebble size phos. and clam, Mollusks shell frag.
230-235	cream/white ^{CARBONACEOUS} clay ls. w/ phos. grains and pebbles. ALSO cream color Indurated ls.
* 235-240	Creamy Consolidated peppered ls. w/ dk. gray ls. and sand sized Quartz sand
240-250	Cream/white clayey w/ 80% lt gray to dk gray ls and sm. pebble sized phos. granules & ^{Mollusks} shell frag.
250-255	SAME AS Above

WELL DRILLER'S LOG

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

PROJECT GLADES/Highlands WELL NO. APK-52 DATE 8-10-93

DEPTH	DESCRIPTION - ROCK TYPE, COLOR, HARDNESS, OTHER
255-260	⁹⁰⁹⁰ Peppered cream clay w/ Lt. gray ls and shell frag. ARGILLACEOUS
260-265	SAME AS ABOVE.
265-270	Lt to dk gray ls w/ micritic clay and peppered phos. and trace shell fragments
270-275	SAME AS ABOVE
275-280	@ 270 alot of Chatter limestone, dense, finely Crystalline cream, containing phos. and mollusk shell frag.
280-290	Limestone, dense fine Crystalline, cream containing phosphatic limestone w/ mollusk shell frag.
290-295	Limestone, dense cream to dk. gray/Brown v. hard and phosphatic
295-300	Limestone dk. gray/Brown v. hard and phosphatic
	X Lost Circulation at 303'
300-315	Little Return SAME AS above until 310-315
315-320	Limestone dense Cream
320-340	Limestone granular, Cream, Poursors evidence of Potolia Mexicanas

7.10

Swannee

WELL DRILLER'S LOG

300' AIRLINE
620 switch to
Big Rods

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

PROJECT High/GLADE WELL NO. APK-52 DATE 8.25.93

add 3' to Rod's
LAG Time

Substance LS

5 min

5 min

4:30
3:15
1:70

OCALA

DEPTH	DESCRIPTION - ROCK TYPE, COLOR, HARDNESS, OTHER
340-350 Lag time = 3 min.	GRANULAR, cream, porous, soft Rotilia Mexicana w/ sm. frag. of shell and some sand
350-360	SAME AS Above EASY DRILLING
360-370	SAME AS above w/ more evidence of Rotilia Mex. and shell frag. and sand
370-380	375 some drill chatter. Cutting indicate Lt. gray frag of hard ls. Bottom of hole has alot of Rotilia Mex.
380-390	SAME AS above, w/ some Lt. Blue (phos. Coated Rotilia?)
390-400	Same as above w/ some Lt gray hard flakes of LS.
400-410	FLAKEY, cream, Abundant Rotilia Mex. w/ some porous ^{sandy} ls and shell frag.
410-420	SAME AS Above EASY DRILLING 20' Rod = 2 1/2 min
420-430	" " "
430-440	" " " WELL 408 = 15' THICK NORTH
440-450	" " " 211 = 70' THICK SOUTH
450-460	" " " 305 = 60
460-470	" " "
470-480	" " " THERE ARE FRAG. OF coral and larger Rotilia Mex.
480-490	SAME AS Above V. FAST DRILLING THROUGH FORMATION
490-500	" " "
500-510	3 1/2 min. = 20' FLAKEY granular hard ls w/ Rotilia Mex. and shell frag. SAME AS above ≈ 510 START OF
	OCALA FORMATION
510-520	granular, Porous ls w/ Rotilia Mex. NO lepidocyclina

WELL DRILLER'S LOG

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

PROJECT High/glades WELL NO. FWPK-52 DATE 8.25.93

10' into
 Ocala

Lag
 7 1/2 m"

DEPTH	DESCRIPTION - ROCK TYPE, COLOR, HARDNESS, OTHER
520-530	Limestone, cream chalky, soft, w/ FLAXY Rotilia Mex and and some Quartz. Sand
530-540	SAME AS ABOVE w/ traces of Lt. Calcite granular there is evidence of Lg ^{Frag.} FORAMS w/ Calcite inside Formation is harder and more granular. Rocks chattered some @ 535'
540-550	Limestone, granular, cream, chalky, soft to hard w/ traces OF Rotalia Mex and FOAMS, and Ls silty clay. Foram frag. have Lt brown Calcite Drill time 8 min/20'
550-560	SAME AS ABOVE, w/ more silty, clayey Ls.
560-570	SAME AS ABOVE w/ Lg. Camarinidae? and Lg Forams w/ Calcite inside 7 min/20'
570-580	Limestone, granular, soft, porous and Lg. Fossiliferous. v. granular and traces of Calcite, and clayey Ls.
	Well 211 = Ocala s' Moody's Branch = 290
	Well 408 = " " = 225
	358 = " " 300'
580-590	SAME AS ABOVE 7 min/20'
590-600	SAME AS ABOVE 16 min/clean
600-610	Limestone, granular, porous cream w/ white silty Ls. v. Chalky w/ Flat Echinoids and v. soft to hard.
610-620	SAME AS ABOVE changed Rods @ 620" 3"
620-630	SAME AS ABOVE
630-640	SAME AS ABOVE

WELL DRILLER'S LOG

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

PROJECT High/glade WELL NO. AVPK-SZ DATE 8.26.93 ^{THURS}

670
510
160

DEPTH	DESCRIPTION - ROCK TYPE, COLOR, HARDNESS, OTHER
640-650	SAME AS ABOVE
650-660	Formation has slightly harder Ls. Cream to tan Ls.
7 min/20'	soft to hard, (still in OCALA? I have not seen any Forams, This maybe what has been in the past referred to as the Moody Branch
660-670	SAME AS ABOVE w/ the exception there is some Lt. blue/lt. gray clay (from above?) and white to cream to tan granular Ls.
670-680	SAME AS ABOVE
680-690	Ls cream to tan, granular w/ STRINGERS of Ls Mud or clay. hard to very soft. traces of ecomiocl
690-700	As above w/ slightly less Ls CLAY or Mud? around 695 there was drill chatter but quickly stopped. Rate = 6 min / 20' wash time = 23 min
700-720	Limestone, cream to tan and some Lt. gray, soft to hard, granular w/ Layers of Ls clay or Mud? at least one Foram is present. w/ some frag. 6 min / 20' WASH TIME = 25 min
720-730	Limestone granular, white to cream, soft to hard not much Ls clay but there is some.
730-740	As above, even less CLAYey Ls. no Forams
740-750	As above w/ harder tan to cream Ls. and Lt. gray Ls
750-760	Limestone tan to cream to Lt. Brown, ^{Moderately} hard Ls. (AVON PK?) V. Fine Crystalline Lt. Brown/Tan MASSIVE, rather dense set in chunky matrix well 211 seen @ 920 (60' deeper than this) drill rate 12 min / 20'

Foram change

WELL DRILLER'S LOG

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

PROJECT High/Glade WELL NO. AVPK-52 DATE 8.20.93
THURS.

DEPTH	DESCRIPTION - ROCK TYPE, COLOR, HARDNESS, OTHER
760 - 770	Limestone white to tan, granular, soft to mod. hard. Chalky w/ traces of the Lt Brown/Tan Crystalline v. Fine LS.
770 - 780	SAME AS ABOVE w/ less of the Lt Brown crystalline LS.
780 - 790	SAME AS ABOVE w/ Forams present
790 - 800	SAME AS 770'
800 - 810	Limestone granular porous to fine crystalline hard to soft massive and w/ some light gray hard LS.
810 - 820	SAME AS ABOVE w/ LS. mud.
Drill time = 21 min / 20' Rod Log time = 8 min	
820 - 830	Limestone Tan to cream granular slightly chunky slightly calcite and slightly Porous?
830 - 840	SAME AS ABOVE
840 - 850	Limestone TAN to cream granular chunky, soft
850 - 860	SAME AS ABOVE w/ LS mud (micrite) v. soft to hard
*	TUES. 8.31.93
860 - 870	Limestone tan to cream, granular soft to hard. w/ small FLAT Echinoids and chalky LS. Mud, calcite and quartz present, Lt Brown LS also present
870 - 880	SAME AS ABOVE Lag time = 10-11 min Rate = 20 min/20' clean total time 30 min
880 - 890	Limestone Light-cream to tan and gray, granular Moderately hard, rather dense, foraminiferal, in light-gray/white matrix
890 - 900	Same as above w/ more Lt brown, dense and hard LS.

9:20

WELL DRILLER'S LOG

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

PROJECT GLADES/Hight WELL NO. AVPK-S2 DATE 8.31.93


DEPTH	DESCRIPTION - ROCK TYPE, COLOR, HARDNESS, OTHER
900-910	Limestone, cream, to med. dk. soft chunky to Mod. Hard tan granular Ls. w/ forams present (Lg) well indurated drill time = 23 min Lag 11 min
910-920	as above w/ addition gray hard Ls. and Lt brown well indurated granular Ls. At bottom there appears
UPPER ANON?	Cone shape Dictyocanus, Cookie, or Americanus COSKINOCINA FLORIDANA (?) drill time = 25 min * Clean w/ drilling total 45 min WELLS 408 @ 795 W. of site 211 @ 910 SW of site 358 @ 1068 28msw of site
920-930	SAME AS above small @ Lt gray 3/4 1mm
930-940	Limestone, tan to dk gray granular well indurated the dk. gray is Mod. hard effervesces Coskinocina is present in this sample becoming abundant at the lower depth. total drill and Clean 54 min.
940-950	942-945' Litho is going in-out of Small stringers of hard Ls. Limestone tan to white; tan is a soft Ls silty sand well weathered w/ dk gray hard Ls, tan Ls is well indurated and soft to Mod. hard.
950-960	Samples are indicating a change to softer tan, soft Ls w/ stringers of clay. @ 955-960 samples have Lt tan sandy Ls
	TOTAL DRILLING time 1hr./20'

WELL DRILLER'S LOG

Pyroxene-

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

PROJECT GLADES/Highlands WELL NO. AVPK-52 DATE 8-31-93

DEPTH	DESCRIPTION - ROCK TYPE, COLOR, HARDNESS, OTHER
960-970	Limestone Cream to light gray, granular, dense to porous, streaks of hard layers w/ soft streaks between. the tan dense fine grained to granular, hard
970-980	Same as above evidence of  cones (Textularella? Peronella echinoids? Litvonella, Spirulina) bottom 2' Driller confirms hard drilling w/ evidence of Lt brown recrystallized Ls. Drill time = 63 min.
	WED'S 9-1-93 START 8:45
980-990	SAME AS ABOVE w/ INCREASE of Calcite (re-crystallized Ls) found in the lep's.
996'	Lost Circulation - set up for Reverse-Air @ 9:15 3/4" PVC = 300' HOLE = 3'
sample (996)	THE Brown Crystalline Ls (siderite?) is collected along w/ other cutting believed to be part of the formation that has a 3' void. Cleaning hole = started 11:30/2:30 pm
996-1003	Cutting were collected but not confident they were from referenced depth. THURS - 9-2-93
1000-1010	Limestone Cream to tan, slightly chunky, slightly hard many echinoids (Peronella?) or (Miliolidae?), mollusks shells brns and coral. dk. gray/black.
1010-1020	SAME AS ABOVE @ 1012 a stringer of Lt Brown dolostone (Recrystallized Ls) around 1015-1017? . ALSO some traces of dk.
1018	Chocolate Brown soft Ls, looks like pecc. (RX's w/ acid.)

Predicting Dolostone Layer

well	Depth
w 408	1,020
sw 211	1,145
v. sw 358	1,250
	<u>113</u>
	313915
	<u>16</u>
	25

1150'

WELL DRILLER'S LOG

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

PROJECT GLADES/Highlands WELL NO. AVPK-52 DATE 9.8.93

DESCRIBED 9.15.93

DEPTH	DESCRIPTION - ROCK TYPE, COLOR, HARDNESS, OTHER
	Samples Collected by TASS 9-8-93
1020-1030	Limestone, cream to white, granular, porous, chunky
	many echinoid and shell fragments, Calcite, Brown, hard
	w/ dk. gray ls.
1030-1040	tan to Brown crystalline ls 75% w/ many echinoid
	and shell frag; 40% Brown Crystalline is v. hard w/ cream
	to white soft porous ls.
1040-1050	SAME AS above w/ traces of Blue-gray hard
	frag. of Limestone.
1050-1060	Same as above w/ more Lt. Brown Crystalline ls.
	at this depth Cuttings suggest drilling thru stringers of
	hard, Lt Brown, Crystalline ls.
1060-1070	Limestone tan to white soft, chunky ls w/ many
	echinoids (▽) (—), w/ some light Brown Crystalline ls
	and traces of Lt. Blue v. hard fine grained chert?
1070-1080	SAME AS Above.

WELL DRILLER'S LOG

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

PROJECT GLADES/Highlands WELL NO. AUPK-S2 DATE 9.14.93

Rods

IV

II

DEPTH	DESCRIPTION - ROCK TYPE, COLOR, HARDNESS, OTHER
1143-1145	Cream to Lt. tan Soft to hard Lime stone. Fossils are Present w/ well indurated tan Ls.
1145-1147	Formation Change to Limestone - buff v. hard flakey recrystalline Ls. top of Dolomite? NO!
1147-1150	changed back to 1143'
1150-1160	Formation changed back to 1145-1147 (w/ Crystalline brown dolomite)
1160-1160	Cutting one, Predominantly back to brown - recrystalline Ls w/ tan to cream colored Ls. Fossils are still present. Dolomite in Vugular
drilling time = <u>2 hrs</u>	
1163-1165	Return turned dk brown w/ abundant dolomite
1165-1170	Limestone. Brown ^{95%} Crystalline, Vugular, dense approx. does effervise w/ HCL, 95% residue
1170-1175	50% Brown, Crystalline dense Limestone (dolomite) and 50% abundant Leptodonia Americanus w/ Tan to cream Ls.
1175-1176	SAME AS Above w/ 40% brown Crystalline dense Ls 60% abundant Leptodonia Americanus and tan Ls. Samples of Siderite or v. dk. black crystalline Ls.?
1176-1178	SAME AS Above
1178-1179	18" Void filled w/ dk. Ls sand
1179-1180	due to 6 hrs of cleaning ^{the} Void of weathered sand and Pebble sized Calcite (Siderite?) it was recommended to terminate drilling and log well in fear of getting Rods stuck in hole. Drill stem was plugging from sand.

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

PROJECT GLADES/Highlands WELL NO. AvPK-S1 DATE 5-25-73

INTER. OBSERVATION Pitot well

DEPTH	DESCRIPTION - ROCK TYPE, COLOR, HARDNESS, OTHER
1-10	organic sand, organic's, w/ traces of dk. brown clay
20-20	white sand lens, w/ alternating chocolate brown clayey sand
20-30	DK. Brown clayey hard pan
30-40	SAME AS ABOVE w/ traces of GRAY clay BALLS. TRACES OF SAND ALSO PRESENT
40-48	SAME AS ABOVE SET SCREEN 30-48 AS PER geo Log FR. PETE
48-58	white clam shells Bed, w/ some gray clay
58-60	Blue-green clay w/ frag. of shell (white clam, gastropods)
60-65	60% shell w/ olive-green clay balls
65-70	SAME AS ABOVE
70-75	50% shell and 50% Blue-green clay
75-80	70% clayey and shell hash (CLAMS, OYSTER shell frag.)
85-90	70% shell hash w/ olive green clay.
90-95	50% shell hash w/ olive green sandy clay
95-100	40% shelly, sandy olive green clay <u>NO phosphate</u>
100-105	60% shell hash w/ olive green clay
105-110	50% shell hash w/ olive green clay
110-115	75% olive green Plastic clay w/ 25% shell hash
115-120	SAME AS ABOVE
120-125	Silty olive green clay w/ 20% shell hash
125-130	SAME AS ABOVE w/ 10% shell hash
130-135	SAME AS ABOVE

