



PROJECT NUMBER:

338884.FL

BORING NUMBER:

B-24

SHEET 1 OF 8

SOIL BORING LOG

PROJECT : Progress Energy Florida - COLA Investigation, Levy County Site LOCATION : 1723356.3 N, 458351.5 E (NAD83)

ELEVATION : 40.9 ft (NAVD88)

DRILLING CONTRACTOR : Universal Engineering Sciences, Orlando, FL; Driller: T. Williams

DRILLING METHOD AND EQUIPMENT : CME 550X S/N 340253, mud rotary, auto hammer, AWJ rods, 3-7/8" tri-cone bit

ORIENTATION : Vertical

WATER LEVELS : 1.61 ft bgs on 6/14/07

START : 5/15/2007

END : 5/17/2007

LOGGER : R. Gomez

WATER LEVELS : 1.01 ft bgs on 6/14/07		START : 3/17/2007		END : 3/17/2007		LOGGER : R. Gomez	
DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)		STANDARD PENETRATION TEST RESULTS	SOIL DESCRIPTION		SYMBOLIC LOG	COMMENTS
	RECOVERY (ft)	#TYPE		6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY		DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION
40.9	0.0	0.4	SS-1	0-4-4 (8)	Silty Sand With Organics (SM) 0.0-0.4' - grayish brown to dusky brown, (5YR 2/3 to 5Y 2/2), moist to wet, loose, fine sand, 16% fines, 12% organic matter		"Water level is based on Ground Water Monitoring at LNP site (FSAR Table 2.4.12.08)" Begin drilling with 3-7/8" tri-cone bit at 2.0'
	1.5						
5	5.0						
35.9		1.0	SS-2	2-3-4 (7)	Poorly Graded Sand With Silt (SP-SM) 5.0-5.95' - moderate yellowish brown, (10YR 5/4), wet, loose, very fine to fine grained, no HCl reaction, 11% low plasticity fines, trace roots, trace coarse gravel, sand is silica		
	6.5						
10	10.0						
30.9		1.1	SS-3	4-5-10 (15)	Silt (ML) 10.0-11.05' - grayish orange, (10YR 7/4), wet, stiff, nonplastic, rapid dilatancy, moderate HCl reaction, trace fine grained sand, all carbonate derived		Driller's Remark: Surface around borehole sinking slightly
	11.5						
15	15.0						
25.9		0.6	SS-4	47-50/3 (97/9")	Limestone Fragments And Silt (ML) 15.0-15.6' - silt is grayish orange, (10YR 7/4), wet, hard, nonplastic, rapid dilatancy, 60% of sample is limestone, pale yellowish brown, (10YR 6/2), fine grained sand to coarse grained gravel-sized fragments, moderate HCl reaction		
	15.8						
20							



PROJECT NUMBER: 338884.FL	BORING NUMBER: B-24
SHEET 2 OF 8	
SOIL BORING LOG	

PROJECT : Progress Energy Florida - COLA Investigation, Levy County Site LOCATION : 1723356.3 N, 458351.5 E (NAD83)
 ELEVATION : 40.9 ft (NAVD88) DRILLING CONTRACTOR : Universal Engineering Sciences, Orlando, FL; Driller: T. Williams
 DRILLING METHOD AND EQUIPMENT : CME 550X S/N 340253, mud rotary, auto hammer, AWJ rods, 3-7/8" tri-cone bit ORIENTATION : Vertical
 WATER LEVELS : 1.61 ft bgs on 6/14/07 START : 5/15/2007 END : 5/17/2007 LOGGER : R. Gomez

WATER LEVELS : 1.01 ft bgs on 6/14/07			START : 3/13/2007			END : 3/17/2007			LOGGERS : R. Gomez		
DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)		STANDARD PENETRATION TEST RESULTS		SOIL DESCRIPTION		SYMBOLIC LOG	COMMENTS			
	RECOVERY (ft)	#TYPE	6"-6"-6" (N)	SOIL NAME, USCS GROUP SYMBOL, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY	DEPTH OF CASING, DRILLING RATE, DRILLING FLUID LOSS, TESTS, AND INSTRUMENTATION						
20.9	20.0	1.3	SS-5	13-47-18 (65)	Silt With Sand (ML) 21.0-21.25' - grayish orange to moderate yellowish brown, (10YR 7/4 to 10YR 6/2), moist to wet, hard, nonplastic, rapid dilatancy, moderate HCl reaction, 5-10% sand-sized grains, 5-10% medium to coarse grained material		Driller's Remark: Harder drilling at 22.5'				
	21.5										
25	25.0	1.5	SS-6	8-8-6 (14)	Sandy Silt (ML) 25.0-26.5' - Same as 20.0-21.25' except 27% fine grained sand, 13% medium to coarse grained sand		Driller's Remark: Hard drilling at 28', 20% circulation loss				
15.9	26.5										
30	30.0	0.2	SS-7	50/2 (50/2")	Limestone Fragments 30.0-30.15' - light brown, (5YR 5/6), mild to moderate HCl reaction, moderately fossiliferous		4" casing set at 30'				
10.9	30.2										
35	35.0	1.5	SS-8	6-10-19 (29)	Silty Sand (SM) 35.0-36.5' - dark yellowish brown, (10YR 4/2), moist to wet, medium dense, fine to coarse grained, mild HCl reaction, 30% nonplastic fines, all carbonate derived						
5.9	36.5										
40											



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SHEET 3 OF 8	
SOIL BORING LOG	

PROJECT : Progress Energy Florida - COLA Investigation, Levy County Site LOCATION : 1723356.3 N, 458351.5 E (NAD83)
 ELEVATION : 40.9 ft (NAVD88) DRILLING CONTRACTOR : Universal Engineering Sciences, Orlando, FL; Driller: T. Williams
 DRILLING METHOD AND EQUIPMENT : CME 550X S/N 340253, mud rotary, auto hammer, AWJ rods, 3-7/8" tri-cone bit ORIENTATION : Vertical
 WATER LEVELS : 1.61 ft bgs on 6/14/07 START : 5/15/2007 END : 5/17/2007 LOGGER : R. Gomez

WATER LEVELS : 1.01 RGS 01/07/17/07			START : 9/19/2007			END : 9/17/2007			LOGGER : R. Gomez		
DEPTH BELOW SURFACE AND ELEVATION (ft)	SAMPLE INTERVAL (ft)			STANDARD PENETRATION TEST RESULTS	SOIL DESCRIPTION	SYMBOLIC LOG	COMMENTS				
		RECOVERY (ft)									
		#TYPE	6"-6"-6" (N)								
0.9	40.0	0.0	SS-9	50/3 (50/3")	No Recovery 40.0-40.3'						
45	45.0										
-4.1	45.4	0.4	SS-10	50/5 (50/5")	Silty Sand (SM) 45.0-45.4' - moderate yellowish brown, (10YR 5/4), moist, very dense, fine to coarse grained, mild HCl reaction, 25-30% low plasticity fines, 5% fine grained gravel		Driller's Remark: Hard to soft material from 45-50' (heavy to no grinding)				
50	50.0										
-9.1		1.5	SS-11	39-37-50 (87)	Limestone Fragments And Silty Sand (SM) 50.0-51.5' - Same as 45.0-45.6' except dark yellowish brown, (10YR 4/2), 60% limestone fragments, 40% silty sand		Driller's Remark: Medium grinding from 50-55'				
55	54.8										
-14.1		0.0	SS-12	50/1 (50/1")	No Recovery 55.0-55.1' Begin Rock Coring at 55.0 ft bgs See the next sheet for the rock core log		Advanced 4" casing to 55', switch to rock coring, see rock core log				
60											



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SHEET 4 OF 9

ROCK CORE LOG

PROJECT : Progress Energy Florida - COLA Investigation, Levy County Site LOCATION : 1723356.3 N, 458351.5 E (NAD83)

ELEVATION : 40.9 ft (NAVD88)

DRILLING CONTRACTOR : Universal Engineering Sciences, Orlando, FL; Driller: T. Williams

CORING METHOD AND EQUIPMENT : CME 550X S/N 340253, mud rotary, HQ tools, HW casing

ORIENTATION : Vertical

WATER LEVELS : 1.61 ft bgs on 6/14/07

START : 5/15/2007

END : 5/17/2007

LOGGER : R. Gomez

DEPTH BELOW SURFACE AND ELEVATION (ft)	CORE RUN LENGTH AND RECOVERY (%)	DISCONTINUITIES			SYMBOLIC LOG	LITHOLOGY	COMMENTS
		RQD (%)	FRACTURES PER FOOT	DESCRIPTION			
				DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS			
-14.1	55.0		>10	55.1' - Fracture, horizontal, rough, planar, open		Limestone 55.0-57.0' - moderate yellowish brown to dark yellowish brown, (10YR 5/4 to 10YR 4/2), medium grained, mild to moderate HCl reaction, weak (R2), voids (1/16-3/16") over 20-30% of surface, moderately fossiliferous (shell fragments), black organic lenses 3/16-3/8" at 55.6-55.9' and 56.8-57.0' Fat Clay (CH) 57.0-57.2' - moderate brown, (5YR 4/4), high plasticity Limestone 57.2-58.0' - Same as 55.0-57.0' Fat Clay (CH) 58.0-58.4' - grayish brown to dusky yellowish brown, (5YR 3/2 to 10YR 2/2), medium to high plasticity Limestone 58.4-59.1' - Same as 55.0-57.0' except cavities (3/16-9/16") over 40% of surface No Recovery 59.1-60.0' Limestone 60.0-61.2' - Same as 55.0-57.0' except pale yellowish brown, (10YR 6/2), medium to coarse grained 61.2-64.8' - pale yellowish brown to dark yellowish brown, (10YR 6/2 to 10YR 4/2), fine to coarse grained, moderate HCl reaction, very weak (R1), weak rock (R2) at 63.7', 63.8' and 64.0', friable, poorly fossiliferous No Recovery 64.8-65.0' Limestone 65.0-66.2' - Same as 61.2-64.8' except increase in weak rock (R2), rock chips 66.2-69.7' - dark yellowish brown, (10YR 4/2), moderate HCl reaction, very weak to weak (R1 to R2), voids (up to 3/16") over 30% of surface, solution cavities (up to 3/4") over 10% of surface, intervals of fine grained limestone with no voids or solution cavities from 69.0-69.7' No Recovery 69.7-70.0' Limestone 70.0-72.4' - pale yellowish brown, (10YR 6/2), fine grained, moderate HCl reaction, weak to medium strong (R2 to R3), voids (<1/8") over 5-10% of surface, silt-like matrix over 5% of surface, poorly fossiliferous Fat Clay (CH) 72.4-72.6' - light brown, (5YR 5/6), medium to high plasticity, no HCl reaction, with black, friable organics	R1: 11 minutes
			0	55.4-55.6' - Fracture zone, multiple fractures, gravel-sized rock fragments			
			2	55.9' - Fracture or mechanical break, horizontal, rough, planar, tight			
			>10	57.0-57.2' - Clay seam, 0.2' thick			
			0	57.9-58.4' - Fracture zone, multiple fractures			
60	60.0		NR				
-19.1			2	60.3' - Fracture or mechanical break, 60 deg		Limestone 57.0-57.2' - moderate brown, (5YR 4/4), high plasticity Limestone 57.2-58.0' - Same as 55.0-57.0' Fat Clay (CH) 58.0-58.4' - grayish brown to dusky yellowish brown, (5YR 3/2 to 10YR 2/2), medium to high plasticity Limestone 58.4-59.1' - Same as 55.0-57.0' except cavities (3/16-9/16") over 40% of surface No Recovery 59.1-60.0' Limestone 60.0-61.2' - Same as 55.0-57.0' except pale yellowish brown, (10YR 6/2), medium to coarse grained 61.2-64.8' - pale yellowish brown to dark yellowish brown, (10YR 6/2 to 10YR 4/2), fine to coarse grained, moderate HCl reaction, very weak (R1), weak rock (R2) at 63.7', 63.8' and 64.0', friable, poorly fossiliferous No Recovery 64.8-65.0' Limestone 65.0-66.2' - Same as 61.2-64.8' except increase in weak rock (R2), rock chips 66.2-69.7' - dark yellowish brown, (10YR 4/2), moderate HCl reaction, very weak to weak (R1 to R2), voids (up to 3/16") over 30% of surface, solution cavities (up to 3/4") over 10% of surface, intervals of fine grained limestone with no voids or solution cavities from 69.0-69.7' No Recovery 69.7-70.0' Limestone 70.0-72.4' - pale yellowish brown, (10YR 6/2), fine grained, moderate HCl reaction, weak to medium strong (R2 to R3), voids (<1/8") over 5-10% of surface, silt-like matrix over 5% of surface, poorly fossiliferous Fat Clay (CH) 72.4-72.6' - light brown, (5YR 5/6), medium to high plasticity, no HCl reaction, with black, friable organics	R2: 12 minutes
			0	60.6' - Fracture, rough, stepped, open 1/8-5/16"			
			5	62.1, 62.5, 62.7, 62.8, 63.0, 63.3, 63.4, 63.7, 64.1, 64.4' - Fractures (10), rough, planar, <1/16" clay infilling			
			3				
			2				
65	65.0		NR				
-24.1			>10	65.0-66.2' - Fracture zone, rough to smooth, planar, <1/16" silt and/or clay sized infilling		Limestone 57.0-57.2' - moderate brown, (5YR 4/4), high plasticity Limestone 57.2-58.0' - Same as 55.0-57.0' Fat Clay (CH) 58.0-58.4' - grayish brown to dusky yellowish brown, (5YR 3/2 to 10YR 2/2), medium to high plasticity Limestone 58.4-59.1' - Same as 55.0-57.0' except cavities (3/16-9/16") over 40% of surface No Recovery 59.1-60.0' Limestone 60.0-61.2' - Same as 55.0-57.0' except pale yellowish brown, (10YR 6/2), medium to coarse grained 61.2-64.8' - pale yellowish brown to dark yellowish brown, (10YR 6/2 to 10YR 4/2), fine to coarse grained, moderate HCl reaction, very weak (R1), weak rock (R2) at 63.7', 63.8' and 64.0', friable, poorly fossiliferous No Recovery 64.8-65.0' Limestone 65.0-66.2' - Same as 61.2-64.8' except increase in weak rock (R2), rock chips 66.2-69.7' - dark yellowish brown, (10YR 4/2), moderate HCl reaction, very weak to weak (R1 to R2), voids (up to 3/16") over 30% of surface, solution cavities (up to 3/4") over 10% of surface, intervals of fine grained limestone with no voids or solution cavities from 69.0-69.7' No Recovery 69.7-70.0' Limestone 70.0-72.4' - pale yellowish brown, (10YR 6/2), fine grained, moderate HCl reaction, weak to medium strong (R2 to R3), voids (<1/8") over 5-10% of surface, silt-like matrix over 5% of surface, poorly fossiliferous Fat Clay (CH) 72.4-72.6' - light brown, (5YR 5/6), medium to high plasticity, no HCl reaction, with black, friable organics	SC-1 collected at 66.5-67.25'
			2	66.35, 66.5' - Fractures (2), rough, stepped, open 1/8"			
			1	67.2' - Fracture, rough, stepped, open 3/16-1/4"			
			2	68.5, 68.7' - Fractures (2), rough, stepped, open 1/16-3/16"			
			<10				
70	70.0		NR				
-29.1			10	70.0-74.0' - Fracture zone, vertical, multiple fractures, mostly vertical along weak joints, slight infilling		Limestone 57.0-57.2' - moderate brown, (5YR 4/4), high plasticity Limestone 57.2-58.0' - Same as 55.0-57.0' Fat Clay (CH) 58.0-58.4' - grayish brown to dusky yellowish brown, (5YR 3/2 to 10YR 2/2), medium to high plasticity Limestone 58.4-59.1' - Same as 55.0-57.0' except cavities (3/16-9/16") over 40% of surface No Recovery 59.1-60.0' Limestone 60.0-61.2' - Same as 55.0-57.0' except pale yellowish brown, (10YR 6/2), medium to coarse grained 61.2-64.8' - pale yellowish brown to dark yellowish brown, (10YR 6/2 to 10YR 4/2), fine to coarse grained, moderate HCl reaction, very weak (R1), weak rock (R2) at 63.7', 63.8' and 64.0', friable, poorly fossiliferous No Recovery 64.8-65.0' Limestone 65.0-66.2' - Same as 61.2-64.8' except increase in weak rock (R2), rock chips 66.2-69.7' - dark yellowish brown, (10YR 4/2), moderate HCl reaction, very weak to weak (R1 to R2), voids (up to 3/16") over 30% of surface, solution cavities (up to 3/4") over 10% of surface, intervals of fine grained limestone with no voids or solution cavities from 69.0-69.7' No Recovery 69.7-70.0' Limestone 70.0-72.4' - pale yellowish brown, (10YR 6/2), fine grained, moderate HCl reaction, weak to medium strong (R2 to R3), voids (<1/8") over 5-10% of surface, silt-like matrix over 5% of surface, poorly fossiliferous Fat Clay (CH) 72.4-72.6' - light brown, (5YR 5/6), medium to high plasticity, no HCl reaction, with black, friable organics	R3: 9 minutes
			10				
			10				
			10				
			10				
75	75.0		NR				



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SHEET 5 OF 9

ROCK CORE LOG

PROJECT : Progress Energy Florida - COLA Investigation, Levy County Site LOCATION : 1723356.3 N, 458351.5 E (NAD83)

ELEVATION : 40.9 ft (NAVD88)

DRILLING CONTRACTOR : Universal Engineering Sciences, Orlando, FL; Driller: T. Williams

CORING METHOD AND EQUIPMENT : CME 550X S/N 340253, mud rotary, HQ tools, HW casing

ORIENTATION : Vertical

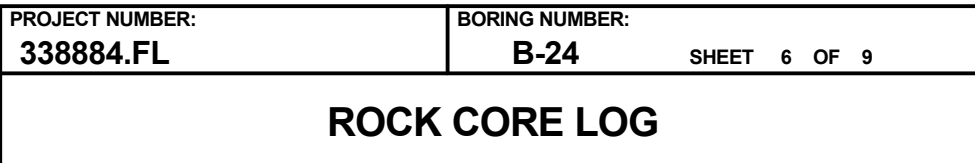
WATER LEVELS : 1.61 ft bgs on 6/14/07

START : 5/15/2007

END : 5/17/2007

LOGGER : R. Gomez

DEPTH BELOW SURFACE AND ELEVATION (ft)	CORE RUN LENGTH AND RECOVERY (%)	DISCONTINUITIES			SYMBOLIC LOG	LITHOLOGY	COMMENTS
		RQD (%)	FRACTURES PER FOOT	DESCRIPTION			
				DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS		ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
-34.1	R5-HQ 5 ft 92%	72	0			Limestone 72.6-73.8' - moderate yellowish brown, (10YR 5/4), very weak (R1), voids (up to 1/16") over 10-20% of surface, moderately fossiliferous No Recovery 73.8-75.0' Limestone 75.0-79.6' - moderate yellowish brown to dark yellowish brown, (10YR 5/4 to 10YR 4/2), moderate HCl reaction, very weak to weak (R1 to R2), voids (up to 1/16") over 30-40% of surface, solution cavities at 76.4-77.3', highly fossiliferous No Recovery 79.6-80.0' Limestone 80.0-83.4' - pale yellowish brown to dark yellowish brown, (10YR 6/2 to 10YR 4/2), weak to medium strong (R2 to R3), voids (1/16") over 20-30% of surface, solutions cavities (<3/4") over 10-15% of surface No Recovery 83.4-85.0' Limestone 85.0-87.3' - very pale orange to grayish orange, (10YR 8/2 to 10YR 7/4), fine grained, strong HCl reaction, weak (R2), trace voids, trace fossils, 20-30% silt sized matrix material 87.3-87.9' - Same as 85.0-87.3' except extremely weak to very weak (R0 to R1), silty matrix increases to 40-50% No Recovery 87.9-90.0' Limestone 90.0-94.3' - grayish orange, (10YR 7/4), medium to coarse grained, moderate HCl reaction, extremely weak to very weak (R0 to R1), voids (up to 1/8") over 20-30% of surface, moderately fossiliferous, silty matrix up to 40-50%	R5: 7 minutes
80			1	76.6' - Fracture, horizontal, rough, stepped, open 3/16-5/16", fracture along cavity			
			3	77.5-77.8' - Fractures, irregular fractures along solution cavities			
			2	78.6' - Fracture, 60 deg, rough, planar			
			1	79.6' - Fracture, horizontal, rough, stepped, open 1/16-1/8"			
-39.1	R6-HQ 5 ft 68%	37	NR				
			2	80.5, 80.8' - Fractures (2), horizontal, rough, planar, some silt and sand infilling			
			>10	81.6, 82.0' - Fracture zone, multiple fractures along solution cavities			
			3	82.2' - Fracture or mechanical break, vertical			
			1	82.4' - Fracture, 3-5 deg, rough, stepped, trace infilling, open 1/8-1/4"			
	R7-HQ 5 ft 58%	35	NR	83.1' - Fracture, 15 deg, rough, planar			R6: 7 minutes
85			4	85.0-85.2' - Fracture zone, irregular fractures along solution cavities			
-44.1			1	85.5' - Fracture, horizontal, smooth, undulating			
			1	86.2' - Fracture, horizontal, smooth, stepped, infilling			
			NR	87.1, 87.4' - Mechanical break (2), horizontal, rough, planar			
	R8-HQ 5 ft 100%	52		87.9' - Fracture, smooth, planar, irregular pieces			Driller's Remark: 90% circulation loss at 88'
90			2	90.6' - Fracture, 7-10 deg, rough, planar			R7: 8 minutes
-49.1			3	90.9' - Fracture, 0-1 deg, rough, planar			
			10	91.7, 91.8, 91.9' - Fractures (3), 2-4 deg, rough, planar			
			1	92.0-92.2' - Fractures or mechanical break, irregular fractures			
	R8-HQ 5 ft 100%	10		92.4' - Fracture, horizontal, rough, planar, trace infilling			
				92.7' - Fracture, 40-50 deg, rough, planar, to undulating			
	R8-HQ 5 ft 100%	10		93.9' - Fracture, 5-10 deg, rough, stepped, <3/16" infilling			R8: 7 minutes
95							





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SHEET 7 OF 9

ROCK CORE LOG

PROJECT : Progress Energy Florida - COLA Investigation, Levy County Site LOCATION : 1723356.3 N, 458351.5 E (NAD83)

ELEVATION : 40.9 ft (NAVD88)

DRILLING CONTRACTOR : Universal Engineering Sciences, Orlando, FL; Driller: T. Williams

CORING METHOD AND EQUIPMENT : CME 550X S/N 340253, mud rotary, HQ tools, HW casing

ORIENTATION : Vertical

WATER LEVELS : 1.61 ft bgs on 6/14/07

START : 5/15/2007

END : 5/17/2007

LOGGER : R. Gomez

DEPTH BELOW SURFACE AND ELEVATION (ft)	CORE RUN LENGTH AND RECOVERY (%)	DISCONTINUITIES			SYMBOLIC LOG	LITHOLOGY	COMMENTS
		RQD (%)	FRACTURES PER FOOT	DESCRIPTION			
				DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS		ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
-74.1	R13-HQ 5 ft 100%	62	1	115.3' - Fracture, horizontal, rough, planar		Limestone 115.0-120.0' - grayish orange to pale yellowish brown, (10YR 7/4 to 10YR 6/2), strong HCl reaction, very weak (R1), voids over 20-30% of surface, solution cavities (9/16") over 15-20% of surface from 116.5-118.0', silty laminations (pale yellowish brown) with no voids/cavities at 118.7' and 118.9'	SC-3 collected at 115.3-116.15'
			2	116.25' - Fracture, rough, stepped, open 1/16-1/8"			
			1	116.45' - Fracture, rough, planar			
			6	117.7' - Fracture, smooth, undulating			
			2	118.1' - Fracture, horizontal, smooth, planar, open 1/16"			
			2	118.6' - Fracture, 60 deg, rough, undulating			
120	R14-HQ 5 ft 86%	58	4	118.7-118.9' - Fracture zone, regular breaks along weak fractures		120.0-124.3' - grayish orange to pale yellowish brown, (10YR 7/4 to 10YR 6/2), strong HCl reaction, very weak to weak (R1 to R2), voids (up to 1/16") over 20-25% of surface, 10-15% silty matrix, silty laminations at 123.5-123.6', fine grained carbonate laminations (very pale orange [10YR 8/2], weak to medium strong [R2 to R3]) at 123.8' and 123.9'	R13: 7 minutes
-79.1			0	119.2, 119.4' - Fractures (2), irregular breaks			
			4	120.2, 120.3, 120.5, 120.8' - Fractures, smooth, stepped, open 1/8-3/16"			
			4	122.1, 122.2, 122.6, 122.95' - Fractures (4), horizontal, rough, stepped			
			0	123.1, 128.2, 123.35, 123.5' - Fractures (4), 0-1 deg, smooth, planar			
			NR				
125	R15-HQ 5 ft 100%	70	2	125.1' - Fracture, rough, undulating		Limestone 125.0-130.0' - pale yellowish brown, (10YR 6/2), moderate to strong HCl reaction, very weak to weak (R1 to R2), voids (up to 1/16") over 15-20% of surface, solution cavities (up to 3/4") over 20-30% of surface at 125.0-126.7', moderately fossiliferous, fine grained at 128.8-129.5', 15-20% silty matrix	R14: 6 minutes
-84.1			0	125.5' - Fracture, 2 deg, rough, planar			
			0	126.6, 127.7' - Mechanical break (2)			
			5	128.2, 128.3, 128.4, 128.6, 128.8, 129.0' - Fractures (6), smooth, planar, breaks along weak fractures			
			2	129.1, 129.3' - Fractures (2), 0-2 deg, rough, planar			
			NR				
130	R16-HQ 5 ft 92%	70	4	130.0-132.5' - moderate yellowish brown, (10YR 5/4), mild to moderate HCl reaction, very weak (R1), solution cavities (up to 9/16") over 5-10% of surface, moderately fossiliferous		130.0-132.5' - moderate yellowish brown, (10YR 5/4), mild to moderate HCl reaction, very weak (R1), solution cavities (up to 9/16") over 5-10% of surface, moderately fossiliferous	R15: 6 minutes
-89.1			1	130.7, 130.8, 130.9, 130.95' - Fractures (4), smooth, planar, breaks along weak fractures			
			0	131.3' - Fracture, rough, stepped, open 1/8-3/16"			
			0	132.2, 132.4, 132.5, 134.6' - Mechanical break (4), irregular breaks			
			0				
			NR				
135	135.0					132.5-134.6' - very pale orange to pale yellowish brown, (10YR 8/2 to 10YR 6/2), fine grained, strong to moderate HCl reaction, medium strong to strong (R3 to R4), solution cavities (up to 3/4") over 5% of surface, moderately fossiliferous	R16: 7 minutes



PROJECT NUMBER:

338884.FL

BORING NUMBER:

B-24

SHEET 8 OF 9

ROCK CORE LOG

PROJECT : Progress Energy Florida - COLA Investigation, Levy County Site LOCATION : 1723356.3 N, 458351.5 E (NAD83)

ELEVATION : 40.9 ft (NAVD88)

DRILLING CONTRACTOR : Universal Engineering Sciences, Orlando, FL; Driller: T. Williams

CORING METHOD AND EQUIPMENT : CME 550X S/N 340253, mud rotary, HQ tools, HW casing

ORIENTATION : Vertical

WATER LEVELS : 1.61 ft bgs on 6/14/07

START : 5/15/2007

END : 5/17/2007

LOGGER : R. Gomez

WATER LEVELS : 1.01 ft bgs on 6/14/07		START : 3/13/2007		END : 3/17/2007		LOGGER : R. Gomez	
DEPTH BELOW SURFACE AND ELEVATION (ft)	CORE RUN, LENGTH, AND RECOVERY (%)	DISCONTINUITIES			SYMBOLIC LOG	LITHOLOGY	COMMENTS
		R Q D (%)	FRACTURES PER FOOT	DESCRIPTION		ROCK TYPE, COLOR, MINERALOGY, TEXTURE, WEATHERING, HARDNESS, AND ROCK MASS CHARACTERISTICS	SIZE AND DEPTH OF CASING, FLUID LOSS, CORING RATE AND SMOOTHNESS, CAVING ROD DROPS, TEST RESULTS, ETC.
				DEPTH, TYPE, ORIENTATION, ROUGHNESS, PLANARITY, INFILLING MATERIAL AND THICKNESS, SURFACE STAINING, AND TIGHTNESS			
-94.1	R17-HQ 5 ft 88%	47	4	135.1, 135.4, 135.7, 135.9' - Fractures (4), horizontal, rough, undulating, open, dark yellowish brown staining 136.0-136.5' - Fracture zone, some gravel sized rock fragments 136.6' - Fracture zone or mechanical break, 60 deg, tight 137.2' - Fracture or mechanical break, 40 deg, smooth, planar, tight 137.6' - Fracture or mechanical break, rough, planar, tight 138.6, 138.9' - Mechanical break (2), rough, stepped, open 3/16-5/16" 139.3, 139.8' - Mechanical break (2), rough, planar		No Recovery 134.5-135.0' Limestone 135.0-136.0' - pale yellowish brown to grayish orange, (10YR 6/2 to 10YR 7/4), fine grained, moderate HCl reaction, weak (R2), voids (up to 3/16") over 10-20% of surface, cavities (up to 1-3/16"x3/8") over 15-25% of surface, some fossil casts/molds 136.0-136.4' - moderate yellowish brown, (10YR 5/4), fine grained, moderate HCl reaction, very weak (R1), voids (up to 3/16") over 30-40% of surface, trace cavities (3/8"x3/16"), moderately fossiliferous 136.4-138.6' - pale yellowish brown interlaminated with moderate yellowish brown, (10YR 6/2 with 10YR 5/4), fine to medium grained, moderate HCl reaction, weak (R2), trace voids (up to 1/16"), trace fossils (casts/molds), laminated 138.6-139.4' - pale yellowish brown, (10YR 6/2), fine to medium grained, strong HCl reaction, very weak to weak (R1 to R2), trace voids (up to 1/16"), some fossils No Recovery 139.4-140' Limestone 140.0-142.5' - pale yellowish brown to moderate yellowish brown, (10YR 6/2 to 10YR 5/4), fine to medium grained, strong HCl reaction, very weak to weak (R1 to R2), voids (up to 1/16") over 5-10% of surface, trace fossils 142.5-142.8' - moderate yellowish brown, (10YR 5/4), fine to medium grained, mild HCl reaction, very weak to weak (R1 to R2), voids (up to 1/16") over 10-20% of surface, trace fossils 142.8-145.0' - pale yellowish brown, (10YR 6/2), fine grained, mild to moderate HCl reaction, very weak to weak (R1 to R2), voids (up to 1/8") over 10% of surface, fossils (molds/casts) over 10% of surface 145.0-146.0' - moderate yellowish brown, (10YR 5/4), mild HCl reaction, very weak (R1), voids (up to 1/8") over 30-35% of surface, laminated, 20% silty matrix, friable 146.0-149.4' - moderate yellowish brown to pale yellowish brown, (10YR 5/4 to 10YR 6/2), fine to medium grained, moderate HCl reaction, very weak to weak (R1 to R2), solution cavities (up to 3/4") at 147.8-148.2', laminated	SC-4 collected at 137.75-138.6'
			10				
			0				
			0				
			0				
			NR				
140	R18-HQ 5 ft 100%	93	0	142.3, 142.35, 142.4, 142.5' - Fractures (4), horizontal, smooth, planar, breaks along weak fractures			R17: 9 minutes
-99.1			0				
			0				
			4				
			0				
			0				
145	R19-HQ 5 ft 88%	67	5	145.1, 145.3, 145.4, 145.5, 145.8' - Fractures (5), horizontal, rough, planar, open 3/16"			R18: 5 minutes
-104.1			0				
			0				
			0				
			0				
			NR				
150							R19: 5 minutes
-109.1							
							Total depth 150.0'

